



Science and Technical Advisory Committee
Partnership for the Delaware Estuary:
A National Estuary Program
www.DelawareEstuary.org

13th Meeting of the *Science and Technical Advisory Committee*

Wednesday, August 12th, 2009; 9:30 A.M. to 2:30 P.M.
Partnership for the Delaware Estuary - Wilmington, DE

Notes: *acronym definitions are provided at the end of these minutes*
main actions and action items are shown in bold font

Participants:

Jen Adkins – PDE	Sue Kilham – Drexel University (STAC)
Thomas Belton – NJDEP (STAC)	John Kraueter – Rutgers University (STAC)
Lance H. Butler – PWD (STAC)	Danielle Kreeger – PDE (STAC)
David Burke/Alan Everett – PADEP (STAC)	Doug Miller - Univ of Delaware (STAC)
Priscilla Cole – PDE	Irene Purdy – US EPA Region 2
Tom Fikslin – DRBC (STAC)	Dave Russell – EPA Region 3 (STAC)
Jeff Gebert – ACOE (STAC)	Jonathan Sharp – Univ of Delaware (STAC)
Bob Hoke – DuPont (STAC)	David Velinsky – Academy Nat. Sci. (STAC)
Amie Howell – US EPA Region 3	Eric Vowinkel – USGS (STAC)
Jerry Kauffman – University of Delaware	Laura Whalen – PDE

1) Call to Order & Introductions

- Next STAC/MAC meeting coming up in only 6 weeks, to be annual joint meeting with the EIC
- First Steering Committee meeting since 2005, coming up October 8th
- Regular STAC meeting agendas will begin to allow for regular work group updates, starting with this meeting
- Addition to the agenda – Jerry Kauffman
- New members:
 - Eric Vowinkel (USGS) – National Monitoring Network for the Delaware Basin, adjunct professor at Rutgers; interest in nutrients and water quality
 - Ken Strait – (PSE&G) – could not attend due to a conflict; interest is in wetlands and restoration

2) STAC Chair Election & Creation of Vice Chair Position

- Dan Soeder is no longer chair of the STAC, so elections to be held later in the meeting

- Sue Kilham and Lance Butler – candidates for Chair
- Creation of new Vice Chair – discussion item; would require a change of the STAC Charter. Vice-Chair would be elected annually at the same time as Chair elections. The Vice Chair would be for a one year term and expected to be a lead candidate for Chair the following year. Vice Chair responsibilities are to serve as an alternate and assistant to the Chair and provide a third public voice authorized to speak on behalf of the STAC (e.g., at meetings, to the press.)
- Election for STAC Vice Chair to occur via email as a follow-up to this meeting
- Candidates for this new Vice Chair position?
 - Tom will consider running for Vice Chair
 - Potential downside might be the heavy turnover – should this be a 2 year position?
 - elections every year would be essentially for Vice Chair if the Vice Chair would automatically become Chair in the next year
 - Lance stated that he could learn a lot as Vice Chair now by serving under Sue as a potential new Chair
 - Concern also about keeping consistency in the Chair position for the Science Conference, which operates on a 2-year cycle
 - Comment that the Chair is more like a figure head during the science conference and that PDE Staff really run the event
- Decision made to maintain the Chair position as one year term, as per the STAC Charter, and later make decision to create a Vice Chair position
 - Move by Danielle
 - Creation would require a change in the STAC charter
 - Move seconded by John Kraeuter
 - STAC voted to retain Chair as a 1 year position**
- STAC Chair voting ballet results
 - Sue Kilham was elected the new STAC Chair**
 - Danielle will update membership list and charter to reflect new Chair appointment**

Announcement:

- Amie Howell – is leaving for a 6 month detail to become the VA State Congressional Liaison
- Amie won't be working on the DE Estuary Program during that period, but expects to return to her regular position after this detail

3) State of the Estuary Report

- Danielle provided an overview of the expected process for the next report and summarized outcomes from the two joint STAC/MAC workshops on “next generation” indicators and monitoring needs. The general approach had been approved by EIC and will be further taken up in the EIC/STAC fall meeting.

- Last SOE Report was started without the STAC involved until the end (STAC didn't exist)
- Money was allocated to the 4 land grant colleges to do much of the indicators work and analysis
- New plan is for the STAC to lead on preparing a technical report in 2011-2012, and PDE will translate as a public SOE Report in 2012.
 - The tech report should serve multiple purposes, also covering monitoring report needs normally done by DRBC
 - PDE and STAC to focus on estuary-centric indicators (Tier 1), some members may assist partners to work on watershed indicators within the NEP study area (Tier 2) or above Trenton (Tier 3), but main STAC and PDE focus and investment will be on estuary ecosystem per se.
 - PDE may work with partners to establish MOU with outline and arrangement of who does what work
- Create Three-Tier Indicator Strategy to Guide Effort Investment
 - 1st are no-brainers (e.g., oysters, horseshoe crabs, salinity)
 - 2nd Tier indicators might include watershed indicators that have an indirect bearing on estuary health (e.g. stormwater, freshwater mussels) or are good estuary indicators that we have insufficient monitoring data for (to be further developed as future indicators)
 - 3rd Tier indicators mainly comprise upper watershed metrics that still reflect estuary watershed health and for which there are already easily borrowed data analyses, or for which there are other groups willing and able to perform the analysis; i.e. the STAC would not invest time and resources in analyzing these but could still decide to report them.
- Next DRBC State of Basin Report is due 2013
 - Probably not partnering with universities again
- Some disagreement about what should be covered by both or either reports
 - STAC consensus was that PDE and the STAC should lead the tech report and make decisions on time and resource investment following the 3-tier approach; leading to a well-rounded State of the Estuary report
 - Expansion of the technical report to meet the needs of both the SOE and Basin reports will depend on the level of investment and interest by partners such as DRBC; table that decision and defer to the EIC, with the idea that that decision would not really affect the STAC which will proceed with the estuary-centric focus either way
 - The STAC did feel that leadership of the tech report should not be divided, however; PDE and the STAC should lead, and PDE would mediate any non-STAC contributions to the tech report.
 - The STAC also agreed to provide peer review for the Basin report, or upper watershed elements of the tech report, if requested
- Discussion: would the EIC reconsider the study area?
 - NEP study area was a political decision

- In ideal world the Estuary study area would include the entire watershed including the Schuylkill and Delaware River Basins
- Given current NEP CCMP responsibilities, the STAC and PDE should retain an estuary focus for the SOE report per se, even if other PDE activities are broader or narrower
- Some things are both estuary and watershed indicators like shad, which don't stop at the head of tide at Trenton
- STAC's job is to get indicators down to a reasonable list
- (Repeat) Technical Report could be for both the estuary and whole basin
 - But Estuary report and Basin report would then pull out and stand as separate pieces from the technical piece
 - Tech report combines with Monitoring report
 - Monitoring report was always estuary-centric, so including that does not necessarily broaden the tech report.
- Goal in this meeting is to begin the STAC discussion and provide comments on the draft conceptual framework for the technical report assembled by Danielle.
 - This is a draft table of contents for a prospective technical report that could serve multiple needs, including the 2011-12 State of the Estuary report, 2012 monitoring report, and set the stage for the 2013 Basin Report.
 - With comments from today, PDE will revise the conceptual framework for discussion at the fall joint EIC/STAC meeting.
 - In addition to listing indicator sections, this table also shows examples of where the STAC would focus, and where partner groups and entities could play supporting roles
 - Goal today is not to pick specific indicators or overly discuss details – those efforts will come later in sub-groups delegated to specific partners or STAC members
 - The STAC-MAC next gen indicators list will also need to be further refined, adding in for example monitoring infrastructure needs and further feasibility analysis for developing indicators of function
 - Tech report will be low cost production, online, not printed
- Discussion of draft table of contents and conceptual framework for technical report, for PDE revision and EIC review in late September
 - STAC and potential partner roles (DRBC, MAC, other?), potential costs, and timing
 - Should changes be made to the current list of example Indicators?
 - Does sediment belong in current category?
 - Are the categories organized well?
 - Climate change transcends other categories, **ask Ray Najjar to take lead on climate indicators?**
 - **Create water and sediment transport category**

- **Move climate change to the bottom – since covers overall picture**
- Consider separating watershed regions into tidal and non-tidal
 - Consider if STAC might be responsible for tidal portions and DRBC and others take care of the rest
 - **Clarify who is going to do the work e.g. PDE staff or DRBC staff or STAC subs**
 - **Indicate who is reviewing particular sections in the end**
- Percent connected impervious cover is really a wish list indicator for the future
- **Stormwater management – move to hydrology**
- **Aquatic Habitats – add total area underwater to capture everything**
- **Create indicators that better reflect subtidal attributes** and shoreline structure – e.g., flats, DEBI info, shoreline structure, erosion rates, retreat rates, sandy beaches
- Fish passage/dam removals – how many dams have been breached or fish ladders added since 2008?
 - Fish passage is a hot topic and restoration priority, so it should be used as a metric – **PWD should be lead for head of tide dams**
 - Monitor at intakes – lots of new monitoring data Lambertville, Schuylkill, Christina
 - **Move fish passage to be a Tier 1 indicator**
- Check if breached tidal dams and impoundments might serve as another climate change indicator (SLR)
- **PDE staff to take lead on tidal wetland elements**
- Non-tidal indicators – find leads at PWD, SAN, Christina Task force, etc.
- Macroinvertebrates:
 - Macroinvertebrates in tidal areas might be a new area with DEBI data
 - Non-tidal macroinverts might be led by DRBC (with states, fisheries co-op)
 - Delaware developed a lot of macroinvert data since 2008 in tidal indicators

- Submerged vegetation – mostly non-tidal; Invasives –moving into these areas, check for latest info
- **A Priority list of indicators should be created since STAC has to pick and choose**
- **Salinity – should it be under water quality/quantity and moved to 1st tier?**
- **pH – becoming big indicator – move to 1st tier**
- Ray Najjar – consider giving some money to support his grad student; he is chair of Climate workgroup
- Functional indicators – service, buffering & resilience; ideas included:
 - Energy input and biological response
 - Fisheries
 - **Primary production measures over time – Jon Sharp can provide**
 - Shell budgets
 - Biomass for Macro-inverts
 - **Sub-group to include volunteers: Doug Miller, John Sharp, John Kraeuter, Danielle Kreeger, Priscilla Cole**
 - P/B ratios
 - Chlorophyll v. Production
 - Stable Isotope ratios and food web structure – candidate for the future
 - **Bacteria – 2nd tier under water quality**
- **Put together a budget for the efforts**
 - Some might not need funds, simply redirect partner work
 - NEP funds should support time for leads and student support, etc.
 - **Projects with price tags should be taken to the EIC for funding**
 - Engage University of PA Studio group on climate?
- Further indicator Comments – Sediment Loading, budget & quality
 - Subgroup should obtain and review maintenance dredging stats
 - Recent evidence suggests that there has been a diminishing need for maintenance dredging; could less need for dredging indicate that sediment coming downstream is diminishing?
 - If so, what are the implications for tidal wetland sediment subsidies? Implications for climate change?
 - USGS TSS stats might be able to help clarify trends

- Carbon studies – DOC; Inorganic
- PWD can get a DOC sensor in the Sc. River

Lunch Break

5) FY10 NEP STAC Funding – Chair

- discuss best use of funds earmarked to support next SOE report development
- \$20,000 – designated for the STAC for indicators in 2010
 - Somewhat flexible
 - Support science and management needs in general
 - Could follow the past workgroup model, whereby a few thousand dollars could be allocated for sub-group leads to cover time or non-labor costs, student support, etc. Examples:
 - Could support an intern for Eric at USGS – sediment flows work
 - Could help support Jon Sharp’s student
 - If divided evenly among report sections, and if a sub-group formed per section, then NEP support would cover about \$4K per group. Would this “greasing wheels” model be the best use of the limited resources?
 - PDE will inquire at the EIC meeting whether other funds might be available to augment the NEP dollars.
 - **STAC members were invited to submit a paragraph proposal for portions of these funds if they have specific ideas or are willing to lead a sub-group.**
 - **Reminder to check with Ray Najjar about his interest in the climate indicator group, and possibly provide funding to Sue or Ray (e.g. \$4-5K) to develop these indicators.**
- Additional thoughts and comments
 - Lots of different groups are collecting info on fish – e.g., Des Kahn
 - **Check with PSE&G and Ken Strait – fish and blue crab info available (for power plant)**
 - GIS Mapping – will need to identify who can assist, PDE staff?
 - DEWOOS – still hoping to eventually get this off the ground with some extra funds in combo with other groups
 - Current focus is just to maintaining monitoring infrastructure - focusing on sensors and gaging stations
 - Should have a DEWOOS meeting and elevate to MACOORA our system’s needs since the DE watershed is being left behind
 - National Water Quality Monitoring Network DE Pilot Study
 - Currently, linking EPA Storet with USGS NWOS
 - Some additional monitoring and sensors include:
 - Christina, Brandywine, Reedy Island

- Four stations north of Trenton, which have been cut off from funding; some in Delaware on the Christina
 - DE may have found additional money
- DRBC is requiring projects to put up funds for monitoring gages
- Delaware Emergency Management – funding potential
- Future meeting – call to action on monitoring stations
- Consider forming a DEWOOS workgroup of the STAC?

6) Alliance for Comprehensive Ecosystem Solutions (ACES)

- STAC received an update on ACES and was asked to provide input on the proposed STAC and Regional Restoration Work Group roles
- ACES Committee Members: Board, EIC, Corporate, Agency, etc.
- Focus on priority projects – to promote most important projects
- High level group using all the mechanisms at their disposal to find funding mechanisms (see slides)
- In first year will start out with just a few projects, 2-5
- STAC will furnish summary peer review, based on more detailed reviews already performed by the Regional Restoration Work Group of the STAC
- **STAC suggested that the project selection criteria should require monitoring components to track project success**
- Project gap analysis will also be an outcome from RRWG analyses
- Different tiers of projects to be selected, 1st and 2nd
- **STAC suggested maybe creating a 3rd tier – smaller projects without larger impact but good in cumulative effects?**
 - Purpose is to pick out bigger projects to promote
 - ACES is not final stop of projects in the Project Registry – other projects will continue to be considered through PDE and other traditional means
- Criteria to be developed to judge projects
- Solicit projects through the new Project Registry – may put out a call in the first year
 - Will consider other group's project registries
 - Mainly unfunded projects
- Does monitoring criteria put projects at a competitive disadvantage?
- The STAC sought clarification of the STAC's role
 - Need to decide if the process laid out in Jen's presentation is a suitable STAC role; the STAC should not be asked to review all projects for instance
 - **Need to pick number of these project summaries which are doable**
 - Would have to have a discussion with the RRWG

- Consider asking the STAC to just peer review the tools of the RRWG, and then review the final project funding recommendations of the RRWG, rather than full review of projects in addition to RRWG review of projects
- How ready is the ACES process to be implemented?
 - Need a common metric to judge implementability
 - Can this fit within some regional management plan?
 - Since 20% of mitigation costs are typically invested in consultants to find projects, the Registry should save \$
- STAC voted to support ACES and the process identified today.

7) Work Group Updates

- Regional Restoration Work Group – L. Whalen
 - Next meeting – September 14th
 - Paul Racette from PEC – is working on the first matrices
 - Dave Velinsky – assessing vulnerabilities to wetlands and adaptation options
 - Members of the subgroups can all be viewed online
- Delaware Estuary Benthic Inventory Work Group – D. Russell, D. Miller
 - Data analysis ongoing from 2008 sampling effort
 - Some new collections occurring this summer as well, focusing on hard-bottoms
 - Up to 50 station collection sites are planned for 2009
 - Year 1 – soft bottom habitat focus.
 - Photo interpretation of the bottom video – just got funding \$8K
 - Data discrimination issues – non released without the QC done
- Climate Adaptation Work Group – P. Cole
 - Dale hooked up with folks in Cape May NJ to analyze LIDAR data
 - Will help with the bivalve shellfish group work
 - Reproducing the drought of 1965 in models to get at salinity issues for drinking water
- Delaware Estuary Wetland Work Group – D. Kreeger
 - DEWMAP getting off the ground – funding from EPA as of July 1
 - Almost ready to submit a QAPP for DEWMAP, which is being looked at as a potential model for coastal wetland monitoring nationwide.
 - DEWMAP follows the EPA 3-tier approach – probably about 1/12 funded
 - Our new grant will enable us to establish 4 fixed monitoring stations – 2 in Delaware, 1 PA, 1 NJ; we plan to put in SET tables next year
 - Hoping to expand by adding new stations to establish a climate change monitoring network for tidal wetlands, proposals are being written or are pending (e.g., with Barnegat Bay NEP)
 - Also, currently developing a Rapid Assessment Method
 - Mike Kearney’s Satellite imagery – study results now being examined, showing declining trends in marsh extent and health, but high interannual variability.

8) Jerry Kauffman Presentation

- Water Quality Trends Powerpoint
- Results to be published in AWRA Journal – DE River Trend analysis
- 4:1 Water Quality Improving to Degrading
- Rolling medians used
- **STAC can use this kind of information to decide on indicators for the SOE**

9) Upcoming Events – Chair, J. Adkins

- Fall EIC/STAC meeting - September 30
- Steering Committee meeting and PDE Annual Dinner – October 8

10) Next meeting

- Possibly early January in order to review outputs by the RRWG
- Meeting Minutes Approved

Adjourn 3:00

List of Acronyms

ACES: Alliance for Comprehensive Ecosystem Solutions

CCMP: Comprehensive Conservation Management Plan

STAC – *MAC Meeting Minutes – 4/2/09 8*

CMES: College of Marine and Earth Sciences (University of Delaware)

DEBI: Delaware Estuary Benthic Inventory

DEWOOS: Delaware Estuary Watershed to Ocean Observing System

DEWWG: Delaware Estuary Wetland Work Group

DNREC: Department of Natural Resources and Environmental Control (Delaware)

DRBC: Delaware River Basin Commission

EPA: Environmental Protection Agency (US)

EIC: Estuary Implementation Committee

NEP: National Estuary Program

NJDEP: New Jersey Department of the Environment

NOAA: National Oceanic and Atmospheric Administration

NPS: National Park Service

NVCS: Natural Vegetation Classification System

NWQMN: National Water Quality Monitoring Network

PADEP: Pennsylvania Department of the Environment
PA CZM: Pennsylvania Coastal Zone Management program
PDE: Partnership for the Delaware Estuary
PSEG: Public Service Electric & Gas (New Jersey)
PWD: Philadelphia Water Department
RARE: Regional Applied Research Effort
RRI: Regional Restoration Initiative
RRWG: Regional Restoration Work Group
SOE: State of the Estuary
STAC: Scientific and Technical Advisory Committee
USFWS: U.S. Fish and Wildlife Service
USGS: U.S. Geological Survey