Science and Technical Advisory Committee

Partnership for the Delaware Estuary:
A National Estuary Program
www.DelawareEstuary.org

Meeting minutes of the STAC & MAC
April 2, 2009
John Heinz National Wildlife Refuge at Tinicum, Philadelphia PA

Note: acronym definitions are provided at the end of these minutes

Participants:

Allison Allen – NOAA (STAC)
Greg Breese - USFWS (EIC & STAC)
Lance Butler – Phila. Water Dept. (STAC)
Priscilla Cole - PDE
Barbara Conlin- ACOE
Jim Eisenhardt - Duffield Ass. (Facilitator)
Tom Fikslin – DRBC (STAC, MAC)
Jack Gallagher UD CMES (STAC)
Jeff Gebert – US ACE (STAC)
Simeon Hahn - NOAA
Amie Howell - EPA R3
Gerry Kauffman - UDEL
Sue Kilham – Drexel University (STAC)
Danielle Kreeger – PDE (STAC, MAC)
John Kraeuter – Rutgers Haskins Lab (STAC)
Tom Milton
Jerre Mohler – USFWS (STAC)
Angela Padeletti - PDE
Irene Purdy – EPA Region 2 (EIC)
Jonathan Sharp – UD CMES (STAC, MAC)
Dan Soeder – USGS (STAC & EIC)
Eric Vowinkel – NJ USGS & National Council
Laura Whalen - PDE

I. Call to Order & Introductions (Dan Soeder and Jim Eisenhardt)

1. Welcome and introductions and overview of day

II. Review of Goals (Danielle Kreeger, PDE)

1. At the February meeting of the EIC, redundancy was discussed between the SOE and SOB. It was suggested that the next SOE report consist of a technical version (2011-2012) followed by a public version in 2012. The technical version could also serve the purpose of the monitoring report. To prepare the technical report, the STAC would work with the MAC and possibly other groups, where various groups and individuals would be tasked with specific sections or indicators.
2. The STAC and MAC would draft an outline that indicates what indicators will be included and who would be responsible for those. Then, the EIC and PDE would review the outline, consider how to cover costs, and work with partners to draft a MOA for undertaking the project.

3. As examples: PDE and the STAC might focus on estuary-centric indicators, especially living resources and habitats. DRBC and the MAC might focus on upper basin indicators, especially water resources and land use.
4. The technical report would not be constrained in length and would be published electronically, whereas the PDE public piece (i.e. the State of the Estuary Report) would follow a similar succinct format as in 2008. An aggressive timeline would be set, using the best available data available.
5. Discussion:
    i. Might it be better to prepare two technical reports - one for whole estuary, other for NEP study area – and then just one public report? This would give the public a comprehensive holistic picture. What about the ocean? Are there any links to IOOS or MACORA?
    ii. Whatever indicators we choose need to take into account management goals, even if monitoring is not currently being done. What new monitoring needs are there, and what existing needs should be sustained?
    iii. Most of this is a management problem, there is no direction for the program, how do we manage the estuary, there is no diagram on how to manage the estuary, and that is the critical question that we don't know who the managers are and what they want, and then we could make a management report
    iv. Would DRBC agree to follow the CCMP? Yes, that has been what they have been following, keeping the elements of the CCMP in the monitoring report. At some point there needs to be a summary on what the CCMP has requested and what it still needs.
    v. As long as PDE stays within the CCMP there are no rigid constraints.

III. Indicators

1. At the PDE Science Conference a panel was formed to talk about indicators but the late evening timing (after live polling) weakened participation and this session was not very successful.
2. In our December STAC-MAC meeting, we attempted to determine what new monitoring is needed to support an improved suite of indicators (next generation)?
3. A gap analysis was completed in Excel format, which also contrasted indicators and metrics used in the 2008 SOE and SOB reports. How does this gap analysis match up with management goals?
4. A critical component that was not covered in December are the resource agencies, and the fact that there still exists a need to better engage people in some sectors, such as the F&W Co-op.
5. Attendees broke out into 4 groups (the same as in December): water quality, water quantity, living resources, habitat and land use. The purpose was to review the next generation indicators "wish list" from December and begin to list monitoring needs to support the desired indicators. In addition, the breakout groups were tasked with summarizing existing monitoring across the basin, and new monitoring that would be needed to fully assess all the indicators.
    a. Each group completed charts with the following data:
        - indicator/ wish list monitoring needs (e.g., metrics and time/space scales,)
        - list of current programs and data,
        - notes on lead entities (who?)
        - gaps in monitoring,
        - costs and feasibility of filling monitoring gaps (is it feasible, valuable?)

- what are the top priorities? (#1-4)

b. Each group worked 1 hour (until 12:15 pm)
c. Ecosystem function indicators (new) were not considered directly in this exercise since they often cross-cut the different categories, and will be discussed together because they are involve multiple groups. Same for climate change indicators.

Lunch

[During lunch, the STAC met separately to conduct the following committee business]

STAC-I. Call to Order *(Danielle Kreeger/Dan Soeder)*

There are just a few housekeeping matters to go over and then we just need to approve notes from the December meeting.

STAC-II. Elections *(Danielle Kreeger)*

1. There are a total of 21 members of the STAC; 10 are appointed and 11 are elected to 2-year terms. Half of elected members come up for re-election each year. There are NO term limits but members must be re-elected by their peers to continue serving after 2 years.
2. Amy Jacobs was replaced by Dave Wolanski.
6. Jerre Mohler has replaced Larry Miller (USFWS), this is Jerre's first meeting, welcome!
7. Elections:
    i. Bob Chant from Rutgers was elected a year ago but has not come to any meetings so he will get replaced in the spring election,
    ii. There is one open seat currently and there are 2 candidates; From industry Ken Straight (PSEG) and Steve Brown (Roman Haas/Dow)
    iii. **A email will go out in 2 weeks to vote**; please look at expertise balance when thinking about who to vote for and what the needs of the STAC are
8. At the next meeting a new chair will need to be found, so please think about who is willing to do this.

STAC-III. Approval of Minutes

6. NOAA was spelled wrong on attending list and will be corrected
7. In favor- 12, NO's-0, Abstain-1

STAC-IV. Next meeting

1. Next meeting will be summer 2009
    a) Next meeting is STAC only; fall meeting will be joint with the EIC
    b) Tentative location: back to the Wilmington offices of PDE
    c) At that meeting we'll discuss next steps for the SOE report
    d) We'll also discuss whether to provide the EIC with a specific project list
        i. Danielle will press for more STAC money in next NEP budget,
        ii. Amy H.: June 1st is when budget is due for NEP,
        iii. May 7th is next EIC meeting,

iv. Would be nice to decide today on what "project" we want to elevate
v. Amy: it could be somewhat vague; e.g., if it's going to be a monitoring project or address data gaps, etc.
vi. Tom F: Channel deepening is an issue, new info, not clear on STAC's role with this, and thinks STAC could identify some scientific issues, then work with ACOE
vii. EIC has asked for project ideas and could frame some of these ideas as projects
viii. This conversation needs to be continued at end of meeting or through email

STAC-V. Conclusion *(Dan Soeder)*

1. Thank you everyone

[Resumed STAC-MAC Joint Meeting at 1:15]

IV. Overview of Groups:–Eisenhardt

2. **Water Quantity Indicators**- Dan Soeder Group
   e) A lot of important indicators are already being done, but lots of options exist to strengthen or expand existing programs.
   f) Population: Census, USGS, and cities take data. There are gaps in the frequency of data, and no reference to climate change. Need a model for water use and wastewater disposal.
   g) Land Use: % coverage and trends are what we need; USGS and NOAA and the states are doing some monitoring, but resolution and frequency is variable and interpretive. Also no climate change references
   h) Source water: need precipitation data, out of basin transfer of water, among other things. There is flow monitoring and snow pack data. DRBC participates in the ecological flows subcommittee. The DEWOOS concept and associated NWQMN report identified many gaps. This is a high priority.
      i. PDE has had limited success in getting involved in discussions with the ecological flows subcommittee
      ii. Source water for the estuary- is there info or not? What is the impact on fish? Consumptive use?
      iii. Clearly there is a linkage to living resources
   i) Surface water flow- USGS PORTS program covers a lot, but needs someone to tie together. The biggest monitoring gap is that important gages could be lost.
   j) Sediment- turbidity and sediment budget; dredge sediment is likely important to the overall estuary sediment budget, and there is a need to linktogether for whole estuary.
   k) Groundwater- a lot of water that flows into the estuary is ground water seepage, but there isn't much info on it.
   l) Climate Change: temperature, salinity, sea level change, are examples. NOAA is doing some work on this.
   m) Dams- low priority.

3. **Water Quality Indicators** – Priscilla Cole Group
   a. 13 indicators

b. TSS should be a indicator.
c. Emergent contaminants- we still don't know too much about the watershed importance, so maybe not include as a specific group next time?
d. Macroinvertebrates should be a WQ indicator.
e. Chl a, nutrients and primary production = algae with these as a subgroup.
f. Contaminants, could be an overarching category- organics, bacteria, emerging contaminants, toxins. Need to get reports to summarize data.
g. Chl a needs to be continuously monitored but is currently not
h. Could use eutrophication as an overall indicator to integrate various related metrics.
i. Large gap in data on algal species - we might be able to use HPLC as a cheaper way to determine algae species.
j. DRBC is looking at biological criteria, and typically uses state standards.
k. NCA did toxicity tests, acute testing, not excessive levels in Delaware Estuary
l. Shellfish sanitation people collect info including bacterial info that could be useful

4. **Living Resources**- Angela Padeletti Group
   a. Oysters - ranked high, not much data on DE side, concern about continuous funding.
   b. Blue crabs -need population surveys for whole bay, possibly talk to Chesapeake Bay and states to do better monitoring, ranked 1 as high.
   c. Freshwater mussels- ranked 2-3, need more baseline info about ranges and species.
   d. Shad - ranked 1 -2 depending on monitoring feasibility; F&W Co-op has data and Exelon data (?) Need better acoustic data.
   e. Trout - should be indicator.
   f. Bass - have some monitoring data, need to talk to states, look into food relationships.
   g. Weakfish - get info from power companies.
   h. Flounder - some data out there.
   i. Eels - not estuary specific, and need comprehensive data from states, so ranked 2-3.
   j. Sturgeon- need comprehensive survey, Seaboard Institute might help? Good indicator or not, unclear?
   k. Shore birds- lots of data, though there was a discussion of whether they actually make a good indicator or not since they are migratory and may not reflect DE Estuary.
   l. Osprey -ranked 1.
   m. Eagles - ranked 2-3, states have data.
   n. Amphibians - is this a good indicator? Could fit better with aquatic habitat, no idea of what data is out there
   o. In summary, there is a mixed bag of what kind of data you have throughout the living resources list. Some are good indicators but there are too few data (mussels), and some that resonate with people (eagles, shore birds, weakfish) are not great estuary-specific indicators.
   p. Concern over juvenile surveys being dropped at state level was expressed.

5. **Land Use** - Laura Whalen Group
   a. Tidal wetlands and tidal buffers- data needed include location, area and quality. Also need % open space, % impervious cover in buffers.
   b. Wetland Workgroup, American Littoral Society, and ACOE might have data.
   c. Need to hire a full time person to coordinate state, federal and county agencies to put in GIS layer so could standardize reporting, and look at whole estuary.

d. Need to add tidal tributaries as an indicator (?). Use watershed action plans or county level.
e. Use of an aerial approach often yields best census data; but states are using different scales and temporal scales.
f. Delaware Valley Regional Planning Commission should be sought to get input, to get a normalized large picture
g. Land use – best to go basin-wide

6. **Discussion**:
   a. Estuary vs. Basin? Some felt that the technical report should be kept as estuary-centric (e.g. for NEP SOE report), whereas, others felt that it should serve many purposes and be basin-wide (but with a bias toward aquatic systems and less terrestrial).
   b. Tidal vs. Non-tidal? Similarly, opinions differed. However, the group was reminded that the CCMP covers headwaters to ocean. So while we may allow for some bias towards tidal areas, we need to cover all areas of the NEP study area.
   c. If the focus is the tidal Delaware Estuary, then we should eliminate some of these potential indicators (e.g., brook trout). But if the technical report is basin-wide in scope, then include an estuary-centric chapter or section. Or, keep using sections for different indicator classes, but then discuss the relative importance of each indicator for different geographical parts of the basin. Either way, PDE can later pull out the relevant bits to prepare an estuary-centric public version, and other groups like DRBC can extract parts that they find most useful.
   d. *The majority felt that the technical report must be broad enough geographically to be relevant for DRBC, PDE and the states. So while it might be biased toward aquatic resources over terrestrial (since PDE and DRBC are water-focused entities,) it should be basin wide and extend to NY.*
   e. This does not mean that PDE and the STAC need to look upstream in their work on the report. It just means that we will need to find partners to address indicators that are outside our focus area.
   f. The indicators and monitoring table should be expanded and columns added for estuary or bay or river, relative cost, etc. People could fill in better on their own, email around

V. Ecosystem Model – Dan Soeder

1. The next generation indicators should not be seen as boxes but rather as systems.
2. We need to still develop an Ecosystem Management Model, Food web dynamics model, and a better understanding of ecological flows. These were discussed in December and are examples of projects that the STAC and MAC should pursue if funding can be identified.
3. Should the group try and use this approach as a case study within the FY10 NEP budget, instead of using the STAC allocation for small project funding? Yes, or at least the STAC agreed to consider applying any NEP funds to the next SOE report in some way, perhaps in support of ecosystem model development, or perhaps to more directly support specific indicator and monitoring development.
4. NOAA fisheries says look at things down steam and take into effect ecological flows.
5. Could use a wire or "spider" model to weave biological, chemical and physical factors together, then build in quantitative rigor (as arrow thicknesses), for example.
6. Ask Puget Sound what they have used.

7. This type of model could get complicated very quickly, look for models that are already done and build upon them
8. Possibly start with a narrow question and build spider model around that. For example: Is the sediment budget in the estuary today suitable for sustaining tidal marshes? Ecological flows?
9. So, next step: ask PDE and EIC for $ for the STAC to pursue developing a project that answers a question like that above (eco model); OR ask for $ towards filling in data gaps, OR ask for BOTH
10. **A one paragraph summary of the following NEP project ideas will be completed so that various options can be compared at the next STAC meeting.**
    i. **Ecosystem model strategy development: Tom Fikslin**
    ii. **SOE development: Greg Breese**
    iii. **Sediment Budget: Danielle Kreeger**
    iv. **Food Web: Susan Kilham**
    v. **Ecological flows: Danielle Kreeger**
    vi. **Technical Report development: Danielle Kreeger**
11. MACCORA, DEWOOS, NOAA PORTS, etc eventually could interweave data. With IOOS if prioritize monitoring needs USGS and DEWOOS would try and fund if $ became available.

VI. Report Options – Kreeger

1. As noted briefly in the am, some suggested report options include:
    a) EIC suggestion- merge monitoring with technical estuary report (break down into teams as per expertise/interest, non-tidal and tidal)
    b) Keep monitoring report and SOE separate
    c) Combined –tidal focused, stop at head of tide
    d) ?
2. See Section IV.5.d above for best consensus. Discuss options further at next STAC meeting and then present options at the fall EIC-STAC meeting, and then follow their wishes afterward.
3. Danielle K. will prepare a straw version table of contents for a potential basin-wide technical report for discussion at the next meeting; Dan S will present options at next EIC meeting.

VI. Was STAC/MAC meeting useful?

1. It depends on the question at hand
2. But yes, most felt that this can be very useful, especially when a topic comes up that both groups are interested in.
3. There are some of the same people on both groups to help with overlap, and saving them from multiple meetings when the groups meet together.
4. Consider having an annual joint STAC-MAC meeting, or ad hoc as needs arise. To be considered further later.

VII. Meeting Adjourned

Acronym List and Definitions
ACES: Alliance for Comprehensive Ecosystem Solutions
CCMP: Comprehensive Conservation Management Plan

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
