



## Science and Technical Advisory Committee

Partnership for the Delaware Estuary:  
A National Estuary Program

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### 34<sup>th</sup> STAC Meeting Minutes

Thursday, December 11<sup>th</sup>, 2014

10:00-2:30 pm

Partnership for the Delaware Estuary- Wilmington, DE

#### STAC Attendees

Lance Butler\*, PWD  
William Eldridge, Stroud  
Heather Jensen, ACOE  
Desmond Kahn, DNREC  
Moses Katkowski, TNC  
Gerald Kauffman, UDel  
Danielle Kreeger, PDE  
Sue Kilham, Drexel  
Renee Searfoss, EPA R3  
Kenneth A. Strait, PSEG

#### Non-STAC Attendees

Irene Purdy\*, EPA R2  
Kelly Somers, EPA R3  
Megan Mackey, EPA R3  
Jennifer Adkins PDE  
Kurt Cheng PDE  
Priscilla Cole PDE

\* denotes call-in

#### I. **Call to Order & Introductions**

- Sue Kilham called meeting to order at 10:00am and shared a newspaper article, “Develop Plan for River Basin” which was in the Philadelphia Inquirer and written by Colin O’Mara.
- She noted that the light attendance was due to conflicting meetings, including a shellfish restoration meeting, Barnegat Bay Science meeting, and a fish and wildlife training.

#### II. **STAC Updates**

- Danielle Kreeger summarized outcomes from the PDE dinner and the joint STAC/EIC meeting.
- STAC minutes from the joint STAC/EIC meeting on September 11<sup>th</sup> 2014 were circulated, which contained emailed edits contributed earlier by Irene Purdy and Megan Mackey. These were passed around for additional review.
- Des Kahn voiced approval of the more detailed minutes and the acronym list, which he had requested in past meetings.

#### III. **NEP/EIC Updates**

- Jen Adkins discussed the recent PDE Board/EIC meeting. That meeting focused on developing a process of updating CCMP, a topic also on this meeting’s agenda.
- The hope is to tie CCMP updates with the new measureable goals. The original action plan and CCMP date back to 1996.
- Jen talked about the importance of the pending re-authorization of the National Estuary Program. The program has been out of authorization for a few years, which leaves PDE and the

other NEPs vulnerable to losing funding. Senator LoBiondo has been a positive force for reauthorization. Authorization is usually needed before appropriation of money. PDE has been receiving funding from Congress despite lacking authorization, unknown why it is allowed. PDE is simply vulnerable without authorization. A vote on reauthorization is expected this week, and if the Senate doesn't act it will simply continue to go unauthorized.

- Jen also reported that the MOU for operation of the Delaware Estuary Program by PDE was just signed. The MOU is now called an agreement and it involves the same parties. The old MOU expired on December 7<sup>th</sup> 2014. PDE had a ceremony and press coverage here in the EDIS building.

#### **IV. CCMP Revision Process**

- Priscilla Cole reviewed the plan for developing a process to revise CCMP. PDE needs to have a plan to update the CCMP, with the plan due by the end of September. The EIC is expected to participate and STAC members are encouraged to assist.
  - Danielle reminded all that the next (2017) State of the Estuary Report will also need to be happening alongside this CCMP updating process. STAC members will be asked to take active roles in the technical version, as in 2010-2012. We'll need to increasingly budget time for these efforts.
  - Jen told the STAC that there will be many opportunities to participate in CCMP updates even if members do not volunteer today. Also, there are many linkages between the CCMP and State of Estuary Report.
  - Danielle noted that the CCMP and State of Estuary Report are different, but there is an opportunity now to better link them, and also with the goals. Sue noted that we might want to think about some aligned schedules for renewing these major DELEP products, such as CCMP on a 10 year cycle and State of Estuary on a 5 year cycle.
  - Priscilla discussed CCMP updates and lessons learned from other NEPs that redid their plans recently. Some NEPs updated within staff, others used a 3<sup>rd</sup> party. All took substantial resources and staff time. PDE is looking at all options/prices. Process of updating will commence after September, 2015. Between now and then, we need help just formulating the plan, and STAC members will be asked today if anyone can volunteer.
    - A discussion followed with regards to the difficulty of reaching agreement, and the need to not underestimate the amount of time and leadership that will be needed. Just the final CCMP approval process along could take 1-2 years. The lack of any new resources was discussed as a severe constraint. The schedule will be driven by deadlines with completion needed in 2018. Therefore, the schedule must be frontloaded
    - This is an opportunity to rethink structure of CCMP and how it serves PDE. Good opportunity for STAC (Danielle)
    - I want to volunteer (Sue)
  - Between the EIC and STAC, we have a good starting point for covering the diversity of expertise that will be needed. The EIC represents many regulatory bodies. STAC brings in TNC, William Penn, Stroud etc. (Danielle)
  - Concerns were raised regarding how to engage the public/private interests. Private organizations have their own agenda. (Desmond)
  - CCMP had a broad input in initial development (Danielle)

## V. 2015 Science & Environmental Summit

- Priscilla provided updates on the Summit, and referred everyone to the website for further updates. A detailed schedule and info about the third track is now described.
- Frequency of summit was discussed. Approximately 126 abstracts have been received outside of panels/invited speakers. Danielle wishes for 100% STAC attendance. Thanks go out to funders, Priscilla and STAC for reviewing abstracts, moderator teams. We did well to keep the schedule loose. (Danielle)
- Moderator slots are covered. We have 30-40 student presentations. Can always use more student judges. (Priscilla)
- Sue asked if we have enough donors to cover expenses? Jen: I hear budgets are good.
- Also, we cannot get comps for STAC, speakers, travel agencies (Danielle). Summit once had substantial private sponsorship, but no more. We also used to put 25K NEP funding towards summit, now only 5k. Next summit will be challenging (Jennifer)
- If we bend over backwards for anyone, it will be for students (Danielle)
- Does sponsorship need to be in the fiscal year of the conference? (Moses). Anytime is fine (Jennifer)
- Thanks to Lance and PWD for sponsorship (Jennifer)
- Thanks to PSEG (Danielle)

## VI. Implementation of Measureable Goals

- Danielle reviewed the process and outcomes for how the STAC worked with the EIC to set measureable goals for healthy waters, habitats, communities. There are short term goals and long term goals for each category. These were approved by steering committee. Whenever you get specific numbers, there are difficulties, but these were determined via consensus. These are our first ever discrete goals. As we think about CCMP updates, these goals should be somehow synced to CCMP. Actions of CCMP should be structured to accomplish goals.
- This year, we want to start developing action plans for achieving goals, focusing on the short term goals. We assume that the long term goals will also be on track if we're successful in achieving the short term goals.
- There are 26 short term goals; 10 "healthy water" goals, 5 "healthy communities" goals, 11 healthy habitat goals. As a first step, we're soliciting volunteers from the EIC and the STAC to serve as "point persons" for specific goals, responsible for at least helping to track progress and for giving an annual report out at the STAC-EIC annual meeting. The EIC has already looked at the goals and many folks have been identified as "goal reps". Many goals are in the regulatory or policy arena, and the EIC folks are best suited to be reps for those. But other goals are more technical and STAC members (or affiliate workgroups) may be better reps for those. Generally, each goal is being assigned to either the EIC or STAC, with a few being outsourced.
- In some cases, a goal might be in the realm of the rep's entity. As an example, if DRBC has a goal in 2018, someone like Tom Fikslin would naturally be the point person for this goal. At this time, we're looking to identify these point people per goal. (Danielle)
  - Important to point out though there are 26 goals, some are followed by others. They wouldn't be concurrent. Almost all of the water quality ones follow DRBC. (Jen)

- Many of these goals were developed in the STAC, and so we should be able to track progress for those (Danielle)
- Each “STAC Goal” was subsequently discussed one at a time. Goals to be tracked by the EIC or others were not discussed.
- Goal 1 Discussion. Biological endpoints.
  - Biological endpoints are the fates and effects of toxins. DRBC already has a plan for aquatic life and human health endpoints and we should defer to DRBC for goal progress updates (Danielle)
  - And If anyone is doing similar work on this goal, it would be good to collaborate with DRBC (Jennifer)
  - DNREC also did work with PCBs (Desmond)
  - We want to talk to Tom Fikslin about whether and how this goal is being met by current and future DRBC work (Danielle)
  - If the short term goal is to assess the need, and the long term is to develop TMDL, we will want to keep our sights on the long term goal too. Every short/long term goal pairing is unique (Danielle).
  - A discussion ensued regarding the nature of different approaches for gauging aquatic health impacts from toxics. Our objective today is just to find point people for the goals, not to scrutinize goals or actions needed to reach them (Danielle).
- Goal 4 Discussion. Assess nutrient impacts on estuarine resources.
  - The nutrient goals were mainly structured to sync with DRBCs process (Jen)
  - We should remember that these 26 goals are not drivers to achieve all needed protection and restoration. There might be additional nutrient impacts that are not addressed by the goal. For example, the impact of nutrients on marshes and their ability to keep pace with SLR. We can hopefully address these broader needs with long term goals (Danielle).
  - Is a white paper or a brief appropriate, for these other types of nutrient impacts? (Sue)
  - Perhaps we could eventually look at several nutrient-related briefs; e.g., PDE lead one for wetlands, Dave bushek for oysters, DRBC for riverine nutrients. We hear that our briefs are very helpful and we might look at this as time permits. (Danielle)
  - I can help with wetlands. (Kenneth)
  - Also, we don’t want to assume that Tom Fikslin is able to serve as nutrient goal point person. This one might best be a STAC-wide effort. (Danielle)
  - (comment) We have high nutrient loads in the estuary/river but as per Jon Sharp, we don’t see negative changes down in the estuary.
    - That’s though to be because of turbidity and light shading. We’re viewed through the same eutrophication lens as other estuaries, but just because we don’t have fish kills and algal blooms doesn’t mean we have no nutrient issues. Extremely high ammonia, crazy N:P ratios, etc., might affect the ecology in many ways that we’re currently not tracking (Danielle)
  - We have new water quality data for over 200 samples but the dataset won’t be ready until next year. We did particulate and dissolved. I’m nervous about 2015 endpoint for this goal. (Renee)

- The goal might be interpreted as helping to strengthen the nutrient model. I think STAC can provide additional information to DRBC. If we put down what we know and what we want to know, we can report to steering committee what we did and what we want to have done. (Jen)
- Just to clarify, are we supposed to assess the needs for achieving the goals, or are we supposed to track what is being done for the goal and gauge the impacts? (William)
  - I think it is information gathering on the impacts. Not a synthesis on all work but just what are the effects of nutrients. (Danielle)
- Remember, the CCMP revisions would address the actions needed towards these goals. (Jen)
- Impacts of nutrients could be a white paper itself.
- Action Item: Ask Tom Fikslin if he can serve as lead contact for this goal. Secondly, ask Tom about whether a nutrients brief would be helpful and if so who should lead it (Danielle)
- STAC helpers so far:
  - Ken Strait – wetlands
  - Willy Eldridge – freshwater mussels
  - David Bushek – shellfish

#### **STAC Business**

- Sue Kilham asked if there were any additional edits to September meeting minutes; none were received
- Danielle Kreeger moved to accept the minutes, with changes from edits received to date
- Ken Strait seconded the motion to accept; Motion carried.

#### **Lunch Break**

#### **VII. Implementation of Measureable Goals (continued)**

- Goal 5 Discussion. Ammonia criteria.
  - Regarding the short-term goal of establishing ammonia criteria, this is already being implemented by DRBC. Perhaps a STAC brief would be helpful, but next steps depend on a conversation with Tom Fikslin, as per action item for nutrients (see above).
  - Action item: Talk to Tom about Goal 5 (Danielle)
- EIC and DRBC are working on Goals 6 and 7 relating to DO. Goal 8, Healthy water flow – DRBC and EIC working on them. Tom Fikslin and Ken Najjar are leads. (Danielle)
- Goal 9 Discussion. Establish flow benchmarks.
  - This is one of the goals that will likely need both STAC and EIC leadership. For example, the STAC can help to establish what the benchmarks should be as per science, but EIC would need to be responsible for “incorporating” the benchmarks. DRBC and Tom Fikslin will likely need to be the conduit for this goal (similar to water quality goals), and DRBC/Tom would then ask if they want STAC support (e.g. a Brief).
  - At DRBC, there has been an initiative regarding ecological flow “targets”. It is something they are working on again, but not sure about target date of 2017. There have been discussions

based on the flows report led by TNC. I would be happy to participate in any way. (Heather Jensen)

- As I understand them, the current flow plans don't require assessment and proactive protection for estuarine resources such as oysters and freshwater mussels, whereas plans explicitly state protection is the goal for upper basin riverine resources. Can we interpret this goal as also helping to protect estuarine resources similar to upper basin resources? (Danielle)
- What about salinity? (Danielle)
- We are looking at salinity as a next step. There are discussions about salinity and other ecological flow parameters in the future. (Heather)
- Heather agreed to serve as the lead person for Goal 9, and will work with Tom/DRBC.
- Are you on the ecological flow committee? (Kenneth)
- I don't think it has met in a while but I am listed as a point of contact. (Heather)
- Angela Padeletti is also involved as PDE rep, and I was on the Subcommittee for Ecological Flows before Angela. (Danielle)
- Flow will change in the river with climate change. (Kenneth)
- Dale Haidvogel (Rutgers) and his post-doc looked at sea level rise and volume (see Summit 2013 presentation by Joe). Their results suggested that any added precipitation/runoff won't make a difference in comparison to the added volume from SLR. The volume change in the estuary will be main driver of salinity, especially when shoreline change is factored into the volume change – that most likely to be main driver for salinity. There have been discussions about adding reservoir capacity to maintain the salt line. (Danielle)
- Agreed - DRBC has already put in a proposal and are thinking of how to move forward with reservoirs to deal with salt line movement. (Heather)

Action item: For Goal 9, ask Heather Jensen will work with DRBC/Tom to track progress for this goal and ask STAC for assistance if needed.

- Goal 11 Discussion. Inventory urban brownfields and public access.
  - This goal is not difficult conceptually, but could be hampered by the difficulty of gaining access to brownfield information. The STAC won't be the lead on this, and PDE will be reaching out to the Urban Waters Partnership and people like Simeon Hahn to see if they can work on this goal, since they may have more expertise.
  - As for public access, Megan Mackey volunteered to assist, working with Jen Adkins at PDE. Possible sources of help/info might be South Jersey Bayshore Coalition, PA Environmental Council, Delaware Bayshore Initiative.
  - Discussion about different nature of access points along estuary gradient. Urban access should be increased, whereas Bayshore access should be sustained since we may be losing access due to buy-outs, etc. (Desmond, Danielle).
  - In urban areas, there may be opportunities to link brownfield reclamation to new access. STAC may be asked to play a supportive role for this goal effort. (Danielle)
- Goal 12 Discussion. Prioritize and increase brownfield projects.
  - STAC can provide support. Regional Restoration workgroup can be tapped to help prioritize sites for restoration, once inventory goal (11) is completed (Danielle)

- Goal 16 – Tidal wetland monitoring program development
  - This goal is being attended to by PDE and partners and is on track, and I will serve as point person for STAC reporting. (Danielle)
- Goal 17 Discussion. Tidal wetland health.
  - PDE and partners have completed health assessments for about 33% of our watershed, but we need additional funding to complete the 66%. Therefore this is on track and PDE/DK will continue to lead for this goal. STAC can provide peer review for the wetland work group, later, if needed. (Danielle)
- Goal 18 Discussion. Identify and implement tactics to maintain tidal wetlands
  - This goal is interpreted as having several pieces: tactics inventorying, tactics implementation, and then long-term linked goal is to stem wetland loss (requiring acreage tracking and implementation funding). Therefore, different leads may be needed for different pieces. (Danielle)
  - How can we track progress / acreage / enhancement / of wetland projects like PDE's and TNC's projects. STAC can help track acreage changes as per State of Estuary approach, and PDE can report out on progress. (Danielle)
  - Do we envision STAC as providing recommendations or actually helping somehow with implementation? (Moses)
  - Affiliated technical workgroups such as DE and NJ living shoreline committees should help with implementation. The STAC might be helpful to provide peer review for tactics or acreage targeting/opportunities. (Danielle)
  - Moses volunteered to serve as the lead for tidal wetland tactics implementation. (Moses)
  - Use of remote sensing data might be difficult. (Ken)
  - We have seen this difficulty in State of Estuary tracking, mainly because of old data for tidal fresh areas, and because difficult to discern freshwater non-tidal from tidal in NOAA data. Most recent data in 2012 SOE was for 2009 (Danielle). 2013 maps are now available (Moses).
  - Action items for Goal 18:
    - PDE can identify tactics; Moses/TNC will report on implementation progress; and STAC via State of the Estuary will track acreage changes/outcomes (Danielle). So Danielle and Moses will tag team as point people for this goal.
- Goals 19 and 20 Discussion. Tracking, monitoring and stemming forest loss.
  - Megan Mackey agreed to take the lead through the Urban Federal Waters Partnership. Michael Leff, Greg Breese and Heather Jensen will assist Megan. The federal partnership and states will ping their forest contacts. (Danielle)
  - Looking at outreach with forest service. If there is a need, we will reach out. We need to better define this goal. (Megan)
  - Delaware has no action plan for stemming loss of forest. I think PDE can raise the issue, since this is not an issue people talk about. (Desmond)
  - Part of the goal is to build a partnership/network of partners. (Megan)

- A good first step would be to complete a GIS overview of where forest changes are happening, to identify areas to target. (Kenneth)
- Other possible sources of info/help might be the U.S. Forest Service, USFWS-North Atlantic LCC, USGS.
- Goals 22-25 Discussion. Critical mussel, vegetated nursery, horseshoe crab and sturgeon habitat.
  - The STAC will serve as the lead for these habitat goals. For each habitat identified, there are three pieces to the short-term goals: define the habitat, map the range, and then identify the critical habitat (most important places). Long-term goals will then be to protect and restore the critical habitats. Today, we need point people for the short-term goals, at least one per taxa. (Danielle)
  - Greg Breese agreed to be the point person for horseshoe crab habitat (Goal 24) and sturgeon habitat (Goal 25). (Danielle)
  - For freshwater mussels (Goal 22), Danielle and Lance Butler offered to tackle tidal areas. William Eldridge agreed to help with mussels in non-tidal streams.
  - Much of this inventorying depends on funding to do field mapping, such as multispectral acoustic surveys. Our current mussel survey methods are good for verification and for quantitative data, but they cannot cover the large areas like acoustic tows. (Danielle)
  - Applications for RARE funding for 2017 are due Feb 2015. University of Delaware may be able to assist. (Renee)
  - We (Phila Water Dept) also have acoustic equipment for use in the mapping (Lance).
  - As for SAV inventorying, we plan to have posters at the Summit to have local scientists pinpoint any SAV beds they know of to aim our ground-truthing (Renee).
  - Ultimately you want mapping of SAV at intervals. People in NJ were trying to map SAV on NJ side. Bob Connell is also a good source of information (Ken).
  - Renee agreed to serve as the lead for SAV, with help from Lance.
  - For sturgeon, this is important because of the DO issues as we reported in our STAC Brief. Unless DO is increased, sturgeon populations won't be healthy. If we increase DO, then we should improve healthy habitat for sturgeon in the Delaware River. In this case, it might not be mapping that is needed, but simply increasing DO. (Desmond)
  - The goals are set, and isn't there a difference between 'critical habitat' and healthy habitat. As I recall, the STAC chose the wording for this goal because of not knowing where the sturgeon spawn (Danielle). Correct, currently we don't actually know where they spawn. We just have ideas (Desmond).
  - Heather, are there data for critical spawning habitat for sturgeon? (Danielle). I suspect we do have info on that, and I'll look into it (Heather).
- Goal 26 Discussion. Fish passage projects.
  - Gerald Kaufmann finished the 2014 fish passage project on the lower White Clay. We should ask Jerry if he can be the lead, and also maybe new STAC member Laura Craig? (Danielle)
  - We (ACOE) plan our dam removal projects at least 2 years in advance. Better to be sooner rather than later. (Heather)
  - Have you worked with Laura or Jerry? (Danielle)

- Yes, worked with Laura at removing a dam at Darby Creek. American Rivers did the removal on their own. We have programs available. (Heather)
- Laura, Jerry and Heather will coordinate to support the EIC on Goal 26.
- General Goals Discussion
  - A general discussion followed about the nature of the goals and why some fish species were chosen and not others. Danielle explained that the species were selected because they are representative and can help drive habitat restoration/protection for all species.
  - Selections were discussed for 2 years, weighing lots of factors, and there was consensus desire to not have too many goals. The goals are set and approved by the Steering Committee. Goals will likely be revisited and updated at some point in the future. (Danielle)
  - What is the intention of the organism habitat goal? Are we supposed to assess where they currently are, and estimate where they could be without impediments? (Willy)
  - Yes, generally, that is the idea. For example, we have a good idea of current oyster population coverage and health, and we have assessed where they could be if shellpanting were to occur, and also where they will likely be most productive in the future with climate change. Long term goal is to restore/uplift carrying capacity by either improving conditions over critical habitat (e.g. DO) or increasing habitat extent. But to set these long-term targets, we first need to know the baseline conditions. Since we have those for oysters, the short-term goal is to move as swiftly as possible to planting shell, and other measures. But for freshwater mussels, we don't have the baseline data to guide those types of decisions, so the short-term goal is to assess baselines.
  - Once we identify baseline conditions through surveys and population health assessments, we may then decide to identify "sanctuaries" or special protection areas, plus strategic restorations. Where should we deploy the booms during oil spills? This differs between the organisms. (Danielle)
  - STAC exists largely to provide peer review for the EIC. Goals progress will be shared during the annual STAC/EIC meeting where the STAC will report out on STAC-tracked goals, and vice versa for EIC. (Danielle)
- Summary. A table is inserted below to summarize current plan for measureable goals implementation tracking, collecting notes from the recent EIC meeting and this STAC Meeting.

Goal No.	Activity	Group	Lead*	People
	<b>Healthy Waters - Toxics</b>		DRBC	DRBC is lead (Ken Najjar, Tom Fikslin), working with STAC members with expertise needed for specific resources
1	Assess the need for biological end-points for contaminants of concern by 2020	STAC	DRBC, TAC?	Fikslin
2	Continue support for monitoring; achieve expansion with biological endpoints by 2025	EIC	DRBC	Najjar, Fikslin
3	Achieve total load reduction by 25% by 2025	EIC	DRBC	Najjar
	<b>Healthy Waters - Nutrients</b>			DRBC is lead (Ken Najjar, Tom Fikslin), working with STAC members with expertise on specific resources (including PDE for wetlands; Rutgers for oysters)
4	Assess nutrient impacts on estuarine resources (wetlands, shellfish) by 2015	STAC	DRBC	Najjar, Fikslin (maybe a STAC Brief?)
5	Establish ammonia criteria by 2018	STAC	DRBC	Fikslin
6	Implement appropriate <u>interim</u> DO standards for zones 2-6 for fish and other aquatic species	EIC	DRBC	Najjar, Fikslin
7	Implement appropriate DO standards for highest attainable use by 2020	EIC	DRBC	Najjar, Fikslin
	<b>Healthy Waters - Flow</b>			
8	Utilize model-derived benchmarks for flow as they become available	EIC	DRBC	Najjar, Fikslin
9	Establish and incorporate flow benchmarks for natural balance by 2017	STAC/EIC	DRBC, ACOE	Jensen, Fikslin
10	Achieve and maintain flow at benchmarks by 2025	EIC	DRBC, ACOE	Najjar, Jensen, Fikslin
	<b>Healthy Communities - Growth</b>			EPA (Megan Mackey; Irene Purdy) will lead pulling together existing information/data, working with the states, NOAA; form of inventory will depend (at least initially) on the format of data available
11	Assess and inventory Urban Waterfront Brownfields and public access opportunities by 2015	STAC/EIC	States, EPA	Mackey, help from Adkins (access); help from UFWP (brownfields)
12	Prioritize and increase Urban Waterfront Brownfield projects by 2017	STAC/EIC	States, EPA	Mackey, help from STAC/RRWG, Hahn
	<b>Healthy Communities - Restoration/Protection</b>			EPA (Megan Mackey) will work with PDE (Jen Adkins); cultivate Urban Waters Federal Partnership to take the lead on this
13	Establish goals and measures for reconnecting the public to natural resources by 2015	EIC	?	Mackey, Adkins, UFWP
	<b>Healthy Communities - Public Understanding &amp; Participation</b>			PDE is lead (Jen Adkins, Lisa Wool) and is on track to complete its communications/marketing plan by 2015
14	Complete PDE marketing/communications plan by 2015	EIC	PDE	Adkins, Wool
15	Begin implementing marketing/branding campaign by 2018 with means to measure results	EIC	PDE	Adkins, Wool
	<b>Healthy Habitats - Wetlands</b>			
16	Get a robust tidal wetland monitoring program/body in place by 2020	EIC	States, PDE	Kreeger (w/ MACWA workgroup)
17	Develop Estuary-wide baseline for tidal wetland healthy by 2020	STAC	PDE, States	Kreeger (w/ Strait, MACWA workgroup)
18	Identify and implement tactics to maintain high value tidal wetlands and limit acreage loss to 5% of 2006 acreage by 2025	STAC/EIC	PDE, States	Katkowski (w/ help from Kreeger, LS committees)
	<b>Healthy Habitats - Forest</b>			EPA (Megan Mackey) will lead initially, with PDE (Jen Adkins); see if Urban Waters Federal Partnership might take the lead (or at least see what data/goals they have); States (Sarah Cooksey / John Kennel; Lori Mohr / Leslie Sarvis; Jay Springer) will check with their Forestry Depts to see what data and goals they have
19	Develop metrics and tracking system for loss of buffers, forests, connectedness by 2015	STAC	States, USFS?	Mackey (w/Breese, Jensen, Leff?)
20	Stem forest loss to less than 1% per year by 2025	EIC	States, USFS?	Mackey (w/Breese, Jensen, Leff?)
	<b>Healthy Habitats - Fish and Shellfish</b>			
21	Secure \$1m or more per year funding for oyster restoration by 2015	EIC	DBORTF	Bushek. Will engage Delaware Bay Oyster Restoration Task Force; efforts to secure funding with ACE underway but may not reach goal in 2015
22	By 2017, define, map, and inventory critical... mussel habitat	STAC	PDE, States?	Kreeger, Butler (tidal), Eldridge (non-tidal)
23	...vegetated nursery habitat	STAC	USFWS?	Searfoss
24	...beach habitat for horseshoe crabs	STAC	States? USFWS?	Breese. USFWS will report on what's already happening on this so we can discuss whether or not this provides what's needed
25	...bottom habitat for sturgeon	STAC	USFWS	Breese, Jensen? USFWS will find out what's being done for the ESA listing so we can discuss whether or not this will provide what's needed; <del>Jensen to check on ACOE data</del>
26	Facilitate 1-2 fish passage projects per year	EIC	States, ACOE?	Kauffman, Craig?

### **VIII. Workgroup Updates**

- Chair Kilham asked for brief workgroup report-outs. A lot of the workgroup leads are absent.
  - Regional Sediment Workgroup (Renee Searfoss). We had a meeting on November 18, 2014. 10-12 projects are expected this year that will use sediment in a beneficial manner. Sediment quality guidelines are being written up in the form of a technical memo to be sent to the states. These guidelines will serve as an information source regarding decisions on sediment standards to help decide what types of sediment can be used where and for what purpose, e.g. living shorelines.
- Delaware Living Shoreline Committee (Danielle Kreeger). Bart Wilson left the Center for the Inland Bays. Alison Rogerson is the new co-chair. We're currently identifying new subcommittee chairs. A committee meeting was held on January 16, 2014 in Dover. Good progress is being made in developing a monitoring framework for tracking project outcomes.
- Wetland workgroup (Danielle). Several workgroup members recently met with NJDEP about progress in monitoring coastal wetlands and lessons being learned for managers. The full workgroup will meet in February, and that annual meeting is now drawing folks from MD, VA, and NY too.

### **IX. STAC Member Updates**

- Chair Kilham asked attendees if there is any other new research news to share and discuss?
- Discussion on Kurt Cheng's M.S. thesis research on *Corbicula fluminea*.
- Discussion on novel ideas for FMRP outside of hatchery. Possible use of an oyster dredge to salvage mussels in harm's way for use in restoration projects (Danielle). Lance, Danielle, and Renee discussed boat availability. EPA and USACOE boats likely unavailable this year due to heavy schedules.)

### **X. Adjourn**

- The next likely STAC meeting will be the new joint annual meeting with the Monitoring Advisory and Coordination Committee. Danielle will talk with MACC folks and see when. Sue suggested February 24<sup>th</sup>. Danielle will work to set the next meeting up.
- The annual STAC/EIC meeting will probably occur during August, 2015. We can discuss that, and timing of a late spring STAC meeting, when we next meet.
- Sue asked for a motion to adjourn. Ken Strait motioned, Danielle Kreeger seconded.
- Meeting was adjourned at 1:50 p.m.

**List of Acronyms:**

ACES	Alliance for Comprehensive Ecosystem Solutions
ACOE RSM	Army Corp of Engineers Regional Sediment Management
AERS	Atlantic Estuarine Research Society
ANEP	Association of National Estuary Programs
ANJEC	Association of New Jersey Environmental Commissions
ANS/ANSP	Academy of Natural Sciences
AWRA	American Water Resource Association
BMP	Best Management Practices
CBCWP	Christina Basin Clean Water Partnership
CBTF	Christina Basin Task Force
CCMP	Comprehensive Conservation and Management Plan
CDRW	Coalition for the Delaware River Watershed
CERF	Coastal and Estuarine Research Foundation
CESP	Corporate and Community Environmental Stewardship Program
CIB	Center for the Inland Bays
CWA	Clean Water Act
CWAC	Clean Water Advisory Council
DAEE	Delaware Association for Environmental Education
DeIDOT	Delaware Department of Transportation
DELEP	Delaware Estuary Program
DELSI	Delaware Estuary Living Shoreline Initiative
DNREC	Delaware Department of Natural Resources
DPA	Delaware Press Association
DRBC	Delaware River and Basin Commission
DRPA	Delaware River Port Authority
DVRPC	Delaware Valley Regional Planning Commission
EIC	Estuary Implementation Committee
ELS	Environmental Laboratory Section
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FMCS	Freshwater Mollusk Conservation Society
FMRP	Freshwater Mussel Recovery Program
FT	Full-time
FWWIC	Fairmount Water Works Interpretive Center
IT	Information Technology
JCNERR	Jacques Cousteau National Estuarine Research Reserve
MAC	Monitoring Advisory Committee
MACWA	Mid-Atlantic Coastal Wetlands Assessment
MARACOOS	Mid-Atlantic Regional Association Coastal Ocean Observing System
MOU	Memorandum of Understanding
NEP	National Estuary Program
NEPORT	National Estuary Program On-Line Reporting Tool
NFWF	National Fish and Wildlife Foundation
NGO	Non-government organization

NJDEP	New Jersey Department of Environmental Protection
NOAA	National Oceanic & Atmospheric Administration
NSA	National Shellfisheries Association
NVSC	National Vegetation Classification System
PACZM	Pennsylvania Coastal Zone Management Program
PADEP	Pennsylvania Department of Environmental Protection
PADEP DWSRF	PADEP Drinking Water State Revolving Fund
PDE	Partnership for the Delaware Estuary
PEC	Pennsylvania Environmental Council
PT	Part-time
PWD	Philadelphia Water Department
RAE	Restore Americas Estuaries
SAN	Schuylkill Action Network
SAN ESC	Schuylkill Action Network Executive Steering Committee
SAV	Submerged Aquatic Vegetation
SJBC	South Jersey Bayshore Coalition
SP	Strategic Plan
SRRF	Schuylkill River Restoration Fund
SSIM	Site Specific Intensive Monitoring
STAC	Science Technical Advisory Committee
SWS	Society of Wetland Scientists
TAC	Technical Advisory Committee
TMDL	Total Maximum Daily Load
TNC	The Nature Conservancy
TREB	Technical Report for the Estuary and Basin
USACE	U. S. Army Corps of Engineers
USFS	U. S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WAS	World Aquaculture Society
WQAC	Water Quality Advisory Committee
WREN	Water Resource Education Network