Scientific, Technical Assessment and Reporting (STAR) Meeting
Theme: PSC Monitoring Report – Successes in Monitoring

Thursday, September 28, 2023
10:00 AM – 12:00 PM
Meeting Materials: Link
This meeting was recorded for internal use only to assure the accuracy of meeting notes.

ACTIONS

- ✓ STAR, workgroups and GITs should think about priority topics and develop a one paragraph summary of their priority need for the 2024 GIT funding cycle.
- ✓ Marisa Baldine (CRC) will talk to Rachel Felver and Jake Solyst (Alliance for the Chesapeake Bay) about getting a press release and/or a blog out for the 2022 tidal trends results.
- ✓ STAR will reach out to Taryn Sudol at Maryland Sea Grant to discuss shared opportunities for long term marsh monitoring.
- ✓ Representatives from CRWG, STAR, forage, and fish habitat groups will start meeting to plan how to bring back zooplankton monitoring.
    - Additionally, STAR and the Fisheries GIT will consider a cross STAR and GIT proposal for GIT funding to fill some of the science needs around zooplankton monitoring and related questions.

MINUTES

10:00 AM **Welcome, Introductions & Announcements – *Bill Dennison*** *(UMCES),* ***Ken Hyer*** *(USGS) and* ***Kimberly Van Meter*** *(Penn State) - STAR co-chairs and vice chair,* ***Breck Sullivan*** *(USGS) STAR Coordinator,* ***Peter Tango*** *(USGS) CBP Monitoring Coordinator*

Announcements

GIT Funding Update and STAR's Role –

Goal Implementation Team (GIT) Funding is on pause. CPB leadership is reassessing and streamlining the process to make it the most impactful. GIT funding will still be going forward for 2024. At this time, workgroups and GITs should think about priority topics and develop a one paragraph summary of their priority need. They should also consider cross-goal projects. The funding size will still be $70-100k per year. GIT funding might be able to support multi-year efforts. Additional consideration will be made to align projects with needs from reaching 2025. Funding commitments will be made once a 2024 budget is finalized. Groups can however start brainstorming now and management will be meeting with GITs chairs soon. STAR leadership should consider what STAR's priority items would be for GIT funding and get input from the STAR membership.

Multiple meeting participants stated that the communication from management around the process updates to the GIT funding process was not adequately communicated to everyone who needed this information for their planning.

Chat comments:

- Bruce Vogt (NOAA): I really encourage coordinators and staffers to talk with your chairs about the changes and request for ideas. Dave, Jeff and Martha have mentioned a few times that they are having meetings with chairs to better understand each GIT and ask what their priorities are. You should make sure to be aware of when these conversations are occurring and support your chairs as needed.
- Peter Tango (USGS): @Bruce - not sure I have seen a schedule of such GIT chair, staffer Q&A or status update. Updates in some venue would be helpful, knowing who is still needed for meetings helpful too.
- Bruce Vogt: @ Peter I am not aware of a schedule. I think they are reaching out individually. Kevin and I met with them a few weeks ago re NOAA and Fish GIT.
- Breck Sullivan (USGS): As we have mentioned, our science needs express priorities for the CBP that need support. You can filter for BMP needs and see some questions that could help with your 2024 proposal like "improved understanding of bmp effectiveness for removal of PCBs".

Strategic Engagement Team Update – *Marisa Baldine (CRC)*

The Strategic Engagement Team (SET) just had their first year wrap up. They met with groups to see how they've been doing, and they will be making changes based on that feedback. They'll also meet with coordinators, staffers and the management board. SET will produce a one-page document about their work and a menu of actions so that everyone meeting with SET can see what they've done and what they can offer. This will be available this fall. SET won't be meeting with anyone again until January 2024 due to the new SRS schedule.

The Executive Council (EC) meeting is October 19th at the National Arboretum in Washington, DC. DC's work on the Anacostia will be highlighted, and EC members will take a tour of local green infrastructure sites.

Other Updates – *Breck Sullivan (USGS), Alexander Gunnerson (CRC)*

2022 tidal trend results are ready, including Anacostia tidal trend results for the second year in a row. The communications team will consider a press release and/or blog post to publicize the release of the tidal trends. The ITAT team has been working to put together materials to showcase the tidal trends.

Beyond 2025 Steering Committee Update – *Ken Hyer (USGS) and Peter Tango (USGS)*

Ken reminded the goal of the group is figure out where we are now, where do we want to be, what work we do and how we work. Those last two pieces are what the consultant ERG is going to do. They will be reaching out to Goal Teams and workgroups to get feedback. I think STAR

can have a role to look at cross Outcome issues such as climate. STAR can bring high profile topics forward.

STAR Accessibility Survey

Upcoming Conferences, Meetings, Workshops and Webinars

- Chesapeake Watershed Forum – November 3-5, 2023, Shepherdstown, VA.
- CERF 2023 Conference: Resilience & Recovery – November 12-16, 2023, Portland, Oregon.
- National Conference on Ecosystem Restoration – April 14-19, 2024, Albuquerque, New Mexico. Abstracts are due September 1, 2023.
- Chesapeake Community Research Symposium – June 10-12, 2024, Annapolis, Maryland. Session proposals are due October 2, 2023.

10:20 AM **Accomplishments of the PSC Monitoring Report –** *Breck Sullivan (USGS) and Peter Tango (USGS)*

Discussion:

Julie Reichert-Nguyen (NOAA) said that there's other monitoring happening with land change such as the sentinel site marsh program with Maryland Sea Grant. Has there been consideration of monitoring marsh migration happening with sea level rise? The Climate Resiliency Workgroup (CRWG) has been focusing on how to set up marsh migration for success, instead of preservation. Maybe CRWG and STAR can coordinate with some of these groups with long term monitoring programs. Peter Tango (USGS) responded that he agreed, and that it is less challenging to adopt something that's already in place rather than creating new things.

Julie said that Taryn Sudol is the coordinator of the sentinel site program with MD Sea Grant. They've been looking for opportunities to advance their program with some of these issues. Ken Hyer (USGS) said that USGS has a lot of monitoring and interpretive science, and Joel Carr from USGS is already collaborating with Taryn.

Bruce Vogt (NOAA) commented that there may be an opportunity to bring several NOAA offices together to support what sort of monitoring they're doing. Bruce is on the NOAA North Atlantic Regional Team, and he convinced them to provide funding to hold a workshop bringing together all Chesapeake Bay NOAA offices to talk about 2025. There's other work outside of the NCBO that is relevant to the Chesapeake Bay Program. Bruce said he will be involved in planning that workshop and he'll discuss monitoring with that group.

Ken commented that it helps to have a structured plan and firm numbers so that when opportunities come up, things can come together quickly. As part of the Strategy Review System (SRS) and science needs that come up, it might be helpful to think about given limited

resources, what would be the top monitoring priorities? Ken brought up the possibility to formalize that specific question that as part of the SRS and science needs discussions or find another way of capturing that information through the process.

Chat comments:

- Kaylyn Gootman: @Ken: like that responsive approach to grant management. Really allows for adjustments to the science questions as new information comes in.

10:50 AM Enhanced Monitoring Technologies – *Peter Tango (USGS) and Bruce Vogt (NOAA)*

Discussion:

Breck Sullivan (USGS) said that with the expansion of this network it will be necessary to bring someone on board to operationalize and decide where our next sites should be. Breck asked if this should be proposed as a GIT funded project for 2024, or if the question can be sufficiently answered through the hypoxia collaborative in the time they have available?

Peter Tango (USGS) said that there are some academic papers out on optimizing designs for hypoxia monitoring. There are also practical/logistical constraints on where to place monitoring instruments that are part of the considerations. Another factor is to tie in near shore and offshore shallow water connections. Peter said that a GIT funded project to consider sampling design would be needed.

Bruce Vogt (NOAA) agreed. The Fisheries GIT wants to see this data because of hotspots for living resources. NCBO is building out the hypoxia monitoring network, but a more robust sampling design would be good. Bruce pointed out that just because a station location is chosen now doesn't mean a buoy will stay there forever. They can be moved; some of them might stay there long term, and some may be moved to different locations.

Ken Hyer (USGS) said that satellite-based monitoring and remote sensing will continue to increase in use with many benefits that come from it. He asked if CBP is near the point of bringing multiple groups together to talk about how they can use the same satellite data for multiple applications?

Peter responded that like with land use/land change data, satellite-based data connects to many goals and there have already been ongoing discussions in that vein. One of the newer additions to the discussion is that in the past, summer SAV data has relied on a single point in time, but now there is more cross seasonal information. This data of across-season change will lead to additional insights, which will open up new discussions on how to use the data. Peter said that CBP is right on the cusp of having the protocol and assessment; while it is not yet ready for application, the method is under development.

Kim Van Meter (Penn State) responded to Ken's question, saying that's an insightful question. Kim uses remote sensing data. She said that people who work with this data use all the same kinds of data sets, but there's a huge amount of work that goes into curating those datasets and that takes up a lot of time. If there was some kind of centralized space where those curated images were available for use, it would help the community working with this data a lot.

Chat comments:

- Katie Brownson (USFS): Will/could water temperature get included in that small agricultural watershed monitoring?
- Ken Hyer (USGS): Yes, water temp would be part of the monitoring package.
- Katie Brownson: Fabulous. The rising water temps report found significant uncertainty about the impacts of ag BMPs on water temp. (Jeremy Hanson agreed in the chat.)
- Bruce Vogt (NOAA): Do you see any opportunity to develop some sort of [zoo]plankton monitoring? It continues to come up at Fish GIT as a significant gap. I do not see funding available to bring back the previous monitoring effort, but I wonder if there is something at a smaller scale and price tag we could do.
- Jamileh Soueidan (CRC): Plankton monitoring was also called out in the STAC Rising Water Temperature Workshop recommendations.
- Peter Tango (USGS): @Bruce - my lake ecology days suggest simpler program designs are tenable. I think we could consider fewer sites and more limited scope personally. Proposals asking for revisions seemed to land on larger yet efforts. Let's have a discussion on editing down and see if that makes a reasonable and valuable indicator level of support on zooplankton. With zooplankton, given the data at the end of the program (late 90's, early 2000's) showed declining zooplankton populations, having something to relate back to those years should be hugely informative versus flying blind. Our nutrient limitation RFA is a model of how we are doing some follow-up to foundation work with limited but informative efforts.
- Julie Reichert-Nguyen (NOAA): Here is information on the Chesapeake Bay Sentinel Site Cooperative that MD Sea Grant coordinates related to marsh monitoring and research: https://www.mdsg.umd.edu/topics/climate-change-coastal-flooding-sea-level-rise/chesapeake-bay-sentinel-site-cooperative
- Bruce Vogt: Thanks Peter. My thinking is in line with yours. We have some more limited monitoring options generated by our forage and fish habitat teams. We'd at least like to take a snapshot in key fish spawning areas to understand if there has been a species shift.
- Julie Reichert-Nguyen: There is interest in how we can use this monitoring or expand on it that will allow us to better understand strategies to build resilience for marsh habitat under changing climate conditions.

- Breck Sullivan: Would a small scale project for zooplankton monitoring be a good GIT Funding project like how the hypoxia profiler started as a GIT Funding project to see if it worked and was economically suitable?
- Jamileh Soueidan to everyone: “Evaluate need for zooplankton monitoring at spawning and nursery areas. The Chesapeake Bay is changing. While it is expected that improvements in habitat due to nutrient reductions and reduced fishing mortality rates will drive improvement in the Bay’s living resources and fisheries, past monitoring (1984- 2002 and 2011) indicated major negative shifts in phytoplankton, zooplankton, fish, and shellfish inconsistent with expectations from the Bay cleanup. Zooplankton are an important link in the food chain that transform nutrients to fish production by feeding fish larvae of many species and providing forage for forage fish. Zooplankton monitoring can be useful for understanding ecosystem changes associated with large-scale efforts to improve water quality in Chesapeake Bay and is currently a missing building block of the framework for ecosystem-based fisheries management in the Bay."
- Peter Tango: SAV satellite-based monitoring - advances in monitoring championed by EPA (Megan Coffer et al, 2023, J of Env Mgt) Providing a framework for seagrass mapping in United States coastal ecosystems using high spatial resolution satellite imagery.
- Breck Sullivan: Our updates for the 4D interpolator at this moment is mainly that we are still testing things out, but we are making good movement. For more details, I would recommend following the Bay Oxygen Research Group (BORG). We have only had internal meetings in 2023 but the link will show future public meetings once they are decided: https://www.chesapeakebay.net/who/group/bay-oxygen-research-group
- Peter Tango: On Zooplankton - GIT funding traditionally has not directly supported a straight up monitoring request. However, evaluating the economics of a revised plan to address one or more management questions through a workshop - that could have some traction. The goal can be that we must downsize existing proposals of zooplankton monitoring needed to align with a lesser resource availability - GO!

11:10 AM **Pooled Monitoring Initiative’s Restoration Research Program – Where are we now and where are we going?** – *Sadie Drescher (Chesapeake Bay Trust)*

Discussion:

Breck Sullivan (USGS) highlighted the Science Needs Database as a place to go for proposal ideas. She explained that you can filter for things like BMP needs and see some questions that could help with the 2024 proposal; for example, "improved understanding of bmp effectiveness for removal of PCBs”. Sadie said she’ll let prospective applicants know about the database and it could shape research questions. This year staff was involved in the STAC workshop around stream restoration and directly used findings from that to shape their research questions. Study sites and data sets are sometimes needed as well.

Ken said that STAR previously met with academics about the science needs, and the academics said connecting the database with funding sources would help. This initiative would help with that.

Katie Brownson (USFS) commented that it is a great program, and she appreciated the effort put into communicating science findings to local decision makers. Katie highlighted some themes that came out of the STAC Rising Water Temperatures Workshop. One was a better understanding of the temperature impacts of stream restoration projects, and the landscape factors and restoration design factors that can influence the temperature impacts of these practices. This is a gap that's important to better understand what impacts siting projects in different locations will have. Thermal refugia was also a topic, especially looking at if a practice may be sited in a way to improve thermal refugia.

Sadie Drescher said that Claire Welty is doing research at UMBC to analyze impacts in the dead run and how to ameliorate it. Katie responded she would keep an eye out for Claire Welty's research.

Kaylyn Gootman (EPA) said that she attended the pooled monitoring forum in June and learned a lot. She said she hopes to bring more Bay program folks to the one next year, and appreciated how that meeting was approached. The researcher that had been funded presented along with someone in a resource management role that was using that information. Kaylyn said that the way the program connected research and boots on the ground is key to success of that program and programs in general. Sadie responded that she'd like to have people at the Bay Program as reviewers.

Ken commented that academics have a major role in this, and asked who is eligible to put a team together? Sadie answered that anyone is – this resource is for any organization from for profit, federal organizations, non-profits, and universities. They are also plugged into the Stream Health Workgroup at the Bay Program.

11:40 AM Discussion on Outcome Monitoring Needs – *All*

Peter Tango (USGS) commented that the need for zooplankton monitoring has not gone away. There have been revisions of the program and it's not where it needs to be. This seems like a priority discussion. Costs and expectations went up. Sean Corson (NOAA) put together the last real summary effort on that. *Action* Start planning how to bring back zooplankton monitoring. Include CRWG representatives (Julie/Jamileh), and representatives from forage, fish habitat and STAR.

Bruce Vogt (NOAA) said he would be happy to bring in forage and fish habitat representatives. He commented that there are other smaller things to work on in addition to setting up a new zooplankton network. He said a big question now is around striped bass and whether they have the food they need to survive and recruit to the population. And the timing of when the fish need the bloom and when the bloom happens is being affected by climate change. Bruce

suggested coming up with a specific proposal. They've tried in the past and it hasn't won GIT funding, but maybe it can be a cross-STAR and Fisheries GIT funding proposal. *Action*

Peter Tango mentioned that Versar put together a zooplankton Index of Biological Integrity.

Breck announced that CBP will be gaining a living resources data manager. Nobody has been chosen yet, but funding is in the works to hire one.

Kim Van Meter (Penn State) asked Peter if there have been discussions of having more high frequency monitoring of phosphorus among efforts to increase continuous monitoring? Peter responded that sediment phosphorous models via surrogate models been the most productive and so it's in there via surrogate model approach rather than in monitoring.

Ken said that speaking to freshwater systems using surrogates to estimate phosphorous, several folks have tried to run the wet chemistry but hasn't had much success. He doesn't know anyone who's taken it to the operational phase, and there's also the whole waste issue. Kim responded that she has been involved with a Canadian team using those sensors and they've had some success downstream of a reservoir. Kim agreed that fouling and other issues are tricky.

Chat comments:

- Chris Guy (USFWS): Habitat GIT workgroups will be giving a good hard look at this as we prepare for SRS in December.
- Julie Reichert-Nguyen (NOAA): Pertaining to GIT funding Q/A - Ken and Breck, can you loop in the Climate Resiliency Workgroup? The current structure of GIT-funding has had challenges to do climate change assessment and adaptation work. These were highlighted in the Reaching 2025 report, and I believe the Biennial SRS report.
- Ken Hyer (USGS): @Julie - absolutely want to loop in CRWG as we hear more and receive guidance. Might even want to set up a discussion to begin to assemble priority thoughts.
- Peter Tango (USGS): @Chris - pending some of the eDNA work for Brook trout, and considering Hudy et al's 2008 proposal for indicator support, the team might be poised to consider costing out a sampling design that combines eDNA with electrofishing subset for validation.

12:00 PM Adjourn

Next Meeting: Thursday, October 26th, 2023. ***New time just for October 26th: 9AM-11AM.***

Participants

Alexander Gunnerson (CRC), Ashley Hullinger (PA DEP), August Goldfischer (CRC), Bailey Robertory (CRC), Breck Sullivan (USGS), Britt Slattery (NPS), Bruce Vogt (NOAA), Carl Friedrichs (VIMS), Chris Guy (USFWS), Greg Allen (EPA), Greg Barranco (EPA), Jamileh Soueidan (CRC), Jeff Lerner (EPA), Jeremy Hanson (CRC), Katie Brownson (USFS), Kaylyn Gootman (EPA), Ken Hyer

(USGS), Kim Van Meter (Penn State), Kristen Wolf (PA DEP), Lew Linker (EPA), Lorenzo Cinalli (USFS), Mandy Bromilow (NOAA), Marisa Baldine (CRC), Matthew Kierce (IWLA), Meg Cole (CRC), Peter Tango (USGS), Rebecca Murphy (UMCES), Sadie Drescher (Chesapeake Bay Trust), Scott Heidel (PA DEP), Carol Cain (MD DNR), Doug Austin (EPA), Julie Reichert-Nguyen (NOAA)