



## Scientific, Technical Assessment and Reporting (STAR) Meeting Theme: Living Resources

Thursday, March 23, 2022  
10:00 AM – 12:00 PM

Meeting Materials: [Link](#)

*This meeting was recorded for internal use to assure the accuracy of meeting notes.*

### ACTIONS:

- ✓ STAR attendees can share additional concerns or comments regarding STAR core membership and interested party definitions and responsibilities over email to Breck Sullivan at [bsullivan@chesapeakebay.net](mailto:bsullivan@chesapeakebay.net).
- ✓ STAR will pursue relationships with academic institutions through the [Cooperative Ecosystem Studies Units National Network](#) (CESU).
- ✓ STAR will communicate how each agenda theme aligns with STAR's long-term planning, annual and multi-annual goals.
- ✓ Bruce Vogt (NOAA) will connect with Kenny Rose (UMCES) and Mark Monaco (NOAA) for feedback on NCBO's seasonal summaries.

### MINUTES:

**10:00 AM**      **Welcome, Introductions & Announcements – Bill Dennison (UMCES) and Scott Phillips (USGS)-STAR co-chairs, Breck Sullivan (USGS) STAR Coordinator, Peter Tango (USGS) CBP Monitoring Coordinator**

#### Announcements

Strategic Engagement Team (SET) Update - Marisa Baldine (CRC)

Marisa highlighted the last webinar, [Increasing Access to Green Space Where It's Needed the Most](#), and announced the next webinar on April 26<sup>th</sup> which will be about creating safer spaces for women in recreation and connecting them to opportunities in conservation. The next SET meeting is Tuesday, and they'll be meeting with the local action cohort.

Breck announced the Biennial SRS meeting which will be May 11<sup>th</sup>-12<sup>th</sup> in Charlottesville, VA.

Recognizing Scott Phillips' last meeting as STAR Co-Chair

STAR started as a modeling and monitoring subcommittee and evolved from a water quality focus to supporting all goal teams. Bruce Vogt (NOAA) thanked Scott for his contributions to living resources over the years. Bill recognized Scott's contribution to Toxic Contaminants work.

Update on Nominations for STAR Co-Chair

There are 3 nominations for co-chair. STAR is currently solidifying its membership constituency before bringing the co-chair decision to STAR to vote on. STAR is considering having a vice chair

in addition to 2 co-chairs and would like to maintain representation from both the academic and federal agency worlds in STAR leadership.

#### Other Announcements:

Bruce announced that NOAA is considering abstracts for the National Conference on Ecosystem Restoration (NCER) and American Fisheries Society (AFS) Conference as well as CERF. AFS abstracts are due April 14th. Proposals are due for [NOAA Chesapeake Bay Office's funding opportunity](#) by April 17th.

Scott said the STAC PFAS workshop report was released today. The [report](#) can be found on the STAC website.

#### [STAR Accessibility Survey](#)

#### **Upcoming Conferences, Meetings, Workshops and Webinars**

- [Environment Virginia Symposium](#) – March 28-30, 2023, Lexington, VA.
- National Water Quality Monitoring Council's 13<sup>th</sup> [National Monitoring Conference](#) - April 24-28, 2023, Virginia Beach, VA.
- [Species on the Move](#) – May 15-19, 2023, Everglades National Park, FL.
- [Interagency Conference on Research in the Watersheds \(ICRW8\)](#) – June 5-8, 2023, Corvallis, Oregon.
- [Citizen Science Association conference, C\\*Sci 2023](#) - May 22-26, 2023, Arizona State University campus in Tempe/Phoenix, Arizona.
- [CERF 2023 Conference: Resilience & Recovery](#) – November 12-16, 2023, Portland, Oregon. [Abstracts](#) due May 10, 2023.

#### **10:15 AM**     [STAR Scope and Purpose Document Review](#) – Breck Sullivan (USGS)

Breck will present the updated STAR Scope and Purpose document that reflects feedback from STAR members. New sections and important components like STAR membership will be discussed. Attendees will be asked to use mentimeter to indicate if they have reservations about moving forward with this new STAR Scope and Purpose Document.

#### Discussion:

Bill Dennison (UMCES) said STAR decided to have frequent shorter meetings instead of infrequent longer meetings in order to address science needs on a shorter turnaround.

Kristin Saunders (UMCES) said she would like to see the at-large STAR membership positions focus on recruiting from Historically Black Colleges and Universities (HBCUs). The Fisheries Goal Implementation Team (GIT) meeting was at University of Maryland Eastern Shore (UMES), an HBCU. Some of the STAR at-large positions might specify and recruit from HBCU institutions.

Kristin emphasized the importance of diversity in team membership. Breck said they just confirmed a Memorandum of Understanding (MOU) with University of Maryland, Baltimore County (UMBC), EPA and USGS. Perhaps within the action plan associated with that MOU, STAR can see if there's a graduate student or faculty interested in being an at-large member.

Bruce agreed and said Hampton University attended the Fisheries GIT meeting. He said they have a relationship with Pearl at Morgan State, and perhaps there's a connection with the iCARE program at UMBC as well. He also wondered if there's a more specific role for CRC members to be more participatory in STAR to have more scientists on the ground as members. The Fisheries GIT works with CRC researchers on topics like forest and fish habitat.

Britt Slattery (NPS) said that Kristin's comment was a good idea and suggested tapping into the [Cooperative Ecosystem Studies Units National Network](#) (CESU). Most of the HBCUs and Minority Serving Institutions (MSIs) are part of it. Breck thanked Britt and said CESU is also a great network for expanding the science capacity. Scott said one of STAR's long-term goals is to increase interaction with academia. Bill said CRC and CESU make sense to work with for that goal.

Britt said all the federal agencies except EPA are part of the CESU network. Through CESU, federal agencies are more directly able to engage in agreements with universities for science, education, and research. Bill said there are 32 CESUs around the country but the Chesapeake one is unique because it's just focused on the watershed. It includes bioscience and social science research. Bruce said NOAA has used CESU as a funding mechanism for some cooperative agreements.

Jeremy Hanson (CRC) commented in the chat that for at-large members, especially from smaller NGOs or institutions, it would help to write flexibility into the expectations of those spots. He provided example language: "It is recognized that at-large members sometimes have a harder time consolidating their normal work responsibilities with group activities than some partners or signatories. STAR leadership is flexible to accommodate the perspectives and participation of all members." Bill agreed. Breck said STAR will have flexibility for all members. A representative other than coordinator/chair can attend, for instance.

Ken Hyer (USGS) said the diversity of efforts included in STAR's scope and purpose is broad and lays out a multi-year strategy, and asked if there is an annual breakdown of what will be emphasized each year into achievable goals. Bill said internally, yes, though STAR may not communicate that widely. Making that more public makes sense, however. Monthly agendas could state how the agenda lines up with STAR's overall annual and multi-annual goals.

Scott said that EPA science leadership, either Lee or Kaylyn, plans to become more involved with STAR.

Britt Slattery (NPS) commented in the chat concerns about time commitments. She said that most coordinators/staffers pay attention to what's on the agenda for meetings and try to attend when the subject matter is relevant. They can do this without committing to being

officially "on" the team. Even sporadic attendance adds a domino effect of additional requests for time, bandwidth, and responses.

Scott said STAR can be flexible. Breck said that contributions as a member isn't just about attendance; for example, providing contacts or providing comments on specific, relevant topics is a core contribution as well. Bill said it is for things like candidates for co-chair STAR that needs an official membership list to vote on candidates. Additionally, in the past STAR has gotten requests for a list of core members/interested parties from management. However, overall official membership lists aren't needed that often for STAR.

**10:40 AM**     [Living Resource Components of the CESR Report](#) – *Kenny Rose (UMCES)*

Kenny Rose will present the living resources section of the Comprehensive Evaluation of System Response (CESR) Report. A discussion will follow the presentation.

Discussion questions to consider include:

- What are the different strategies for assessing LR responses to changes in water quality? The CBP decided on a lab/habitat (bottom-up) approach. How would the alternative described in the report, which is a top-down approach, complement the bottom-up approach to LR responses? Is it needed? Advantages and disadvantages of both approaches?
- The present assessment relies extensively on annual trends in abundance and similar indices. This is a nice simple method but with low power and offers little explanatory information. Likely there is little reason to give CBP credit or blame as these indices vary (seagrass is the one exception). What can be done with the existing data and models to provide information on responses attributable to CBP actions?
- Should more be done to elevate the assessment of LR responses and if so, what?

Discussion:

Bruce Vogt (NOAA) commented in the chat that the NCBO current science plan and funding opportunity align directly with 4 (Existing Links Between Water Quality/Habitat & Living Resources) and 5 (Living Resources and Other Large-scale Restoration Efforts) on [slide 6 of the presentation](#), but with a focus on tidal habitats, changing water column conditions, fish, and shellfish. They are focused on striped bass, federally managed species such as summer flounder/black sea bass, blue crabs, oysters, and a few specific forage species (such as bay anchovy and spot). He also added that the idea behind [NOAA's seasonal summaries](#) is to link environment and habitat conditions with living resource response. They can be improved with new research, but they are a starting point. He said that he should connect with Kenny and

Mark Monaco (NOAA) to talk about this in more detail, and that it would be good for NCBO to get their feedback. Bruce said he was working with some folks in NOAA Fisheries to hold a workshop that brings all their regions together to share and discuss approaches to evaluating habitat restoration and fish outcomes. Bruce also shared the [Summer Flounder Conceptual Models and Submodels](#) in the chat.

Bruce said that NCBO has some habitat suitability models linked with Bay anchovy and juvenile spot abundance data. For at least those two species, better habitat suitability equals better abundance. He said he's all for continuing to do the science and there is a Notice of Funding Opportunity out now asking for similar things and tying it into fisheries surveys data. Now they can get to the point of linking habitat to things like changes in abundance and distribution of fish. They hope through this solicitation to get proposals looking at growth and vital rates. Bruce said he still is not sure the management is set up to take this information in and apply it, though. They may be more prepared to apply it on the water quality end. For example, if some of the water quality and fishery interactions can be identified, they can better target where restoration and BMP work could happen to get a better outcome. At the fishery management level, it isn't quite there yet. The Mid-Atlantic Council is trying to better incorporate habitat, climate change and other parameters into their fisheries management process. However, the currency continues to be stock assessments. That's true in the Bay with the resident species blue crabs. NOAA has been working with managers over the past couple months to develop a set of terms and references for blue crab stock assessment. They discussed whether to include ecosystem drivers. However, they ended up focusing on developing an improved stock assessment model, not on how ecosystem drivers affect the population because in the end managers wanted points they can use, and those reference points are associated with exploitation rates and abundance measures.

Chris Guy (USFWS) commented in the chat that Strategic Habitat Conservation is the paradigm that has been used for the last decade, and it is largely the paradigm that he sees being proposed here. It is an iterative model that ties response of sentinel species to habitat changes.

Kenny responded to Bruce that this is from the perspective of their restoration activities. He said he agrees about the stock assessment. When it comes down to it, it will be natural mortality, recruitment, growth, and exploitation rates. However, stakeholders have an expectation the Bay will get better because of the Bay program. The 2025 assessment will show the goals have not been met. This is more targeted towards that than towards fisheries management.

Chris said they've been doing this for years, from a fish and wildlife perspective. Back into the 1980s, the paradigm for streams they used to describe progression of restoration was the Indices of Biological Integrity (IBI) for invertebrates and fish, the water and sediment Quality Assurance Project Plans (QAPPs) and physical descriptions. Somewhere in the last 40 years they lost that and separated the components out, making them their own end points. USFWS is trying to use key species now, or species that are commercially, environmentally and/or socially

important. For example, they're trying to tie tidal wetland to the high marsh and salt marsh sparrow. Where they're failing is tying it to the species like it's an endangered species rather than to the whole ecosystem functions. The whole ecosystems of low marsh, of the oyster beds that are off the wetland, and of the SAV beds that help to provide energy breaks for the low marsh that helps protect the high marsh all function as one unit. The marsh provides water quality benefits by having a healthy peat layer, healthy SAV and oyster beds sequestering carbon, nutrients, sediments, and it even affects temperatures. Chris said CBP should talk about reconnecting everything that's been disconnected over the past 30-40 years.

Kenny said he agrees. The CESR team focused on optimizing responses to restoration. The old Habitat Suitability Index (HSI) based models are around, and have been reformulated to species distribution or bioclimate modeling. It's the same concept that should be integrated within the ecology and the system. Kenny used to work on Instream Flow Incremental Method (IFIM) with hydropower.

Bruce asked in the chat, what is the right scale to measure restoration effects to really understand the linkages? Seems like addressing the Total Maximum Daily Load (TMDL) effects versus an oyster or wetland restoration are very different.

Peter Tango (USGS) said this is a timely discussion with the upcoming Biennial meeting.

Jay Lazar (NOAA) said in the chat, is it fair to suggest a disconnect between where fisheries data is collected and where restoration efforts have been focused, and expectations of what one will say about the other? So which restoration effort? The water quality is Bay wide, but if habitat is truly a key limiting factor to living resource responses and CBP's most significant restoration efforts are in the shallow water and focused on oysters, CBP is missing a regular fisheries monitoring program in these areas.

Kenny responded that the monitoring for fisheries management is to develop indices for stock assessment and sometimes in other systems it's used for allocation. He thinks that there's enough overlap, if not geographically than in functional habitat space, to make that connection. However, changing the monitoring can be an issue with fisheries management because it's then subject to population status indices changing due to measuring in different places. There is enough information to at least try at making connections between shallow water habitat, what life stages use it, what are they using in shallow water (higher productivity, avoiding predators, better substrate, light level, etc.). How quantitative those connections will be, and how much confidence they will have, however, is not certain. Three supporting documents inform the CESR report but they're all science based, not policy recommendations. The CESR report takes that plus other information and does an examination of programmatic strategies. The authors wanted to separate the science part from the part that informs management directly.

Bruce commented in the chat that Kenny is correct for some species, but some do have gaps in shallow water monitoring that limit the ability to answer questions Kenny laid out.

Kenny said absolutely. They did a calculation in Louisiana, and they found shrimp at ten times the density in certain habitats. The assumption was they weren't in open water. At a tenth of the density there's so much open water, there's a lot of shrimp in open water. Kenny said he thinks it's the reverse here, since there are not a lot of fish living in the deep trench, so it's important to look to the shallow water to try to make those connections. The shift from water quality monitoring to see responses of oxygen and nutrients is different than assessing living resources responses but all of them could be leveraged strategically.

Bruce asked Kenny what his thoughts are on the utility of developing ecosystem models. He also said Kenny's example of smelt on west coast is a good example of setting goals based on the living resources. CBP tends to set goals based on how much habitat they want or how much nutrients/sediment/pollutants they want reduced, not how much fish they want.

The three foundational science reports accompanying the CESR report will be released before the SRS Biennial Meeting in May, and the CESR report will hopefully be released by then as well.

**11:40 AM**     [Hypoxia Vertical Profilers](#) – Bruce Vogt (NOAA), Jay Lazar (NOAA), Peter Tango (USGS)

Bruce, Jay and Peter will present on the vertical profilers NOAA and EPA are working on deploying to assist with fish habitat and water quality criteria assessments.

Discussion:

Bruce said one of the criteria they considered was the priority tributaries selected under the Multiple Tributary Models (MTMs) higher resolution modeling in Phase 7.

Peter commented that this program was a roll out of what was envisioned in 2003 when the criteria were developed and will contribute to bring the CBP monitoring program past marginal status closer to originally recommended monitoring level. The hypoxia monitoring together with the 4-Dimensional Interpolator will greatly improve temporal resolution for criteria assessment and certainty of understanding. It is anticipated that some arrays will be moved over time strategically.

Bill asked when the turnaround of the data would be and what the lag from collecting data to seeing results would be. Jay said they are working with Axiom Data Science to provide real time visualizations of this data. Those sites will be available and downloadable at any point in time. Once up, the data will have manual flags and automated tests (with selected thresholds applied) already having taken place. The goal is to have it read into the 4-D Interpolator or any other models as it's made available. There may be a lag sometimes on the database side, but the NOAA team will track any lags. Sometimes they may need to restart a server and there will be a lag from that, but generally the data will be available within 10 minutes of being collected.

Bill said he was at Old Dominion University (ODU), and they were showing him satellite SAV daily data from PlanetScope. He said it might be interesting to connect the satellite data and real time monitoring, and that it was fascinating to see how variable the hypoxia data was.

Bruce said he was curious about ideas people had on how this kind of monitoring could benefit other outcomes as well. STAR will bring this questions back up to discuss at a future meeting.

**12:00 PM      Adjourn**

**Participants:**

Alexander Gunnerson (CRC), Alexandra Fries (UMCES), Andrew Keppel (MD DNR), Ann Foo (UMCES), August Goldfischer (CRC), Bill Dennison (UMCES), Breck Sullivan (USGS), Britt Slattery (NPS), Bruce Vogt (NOAA), Carol Cain (MD DNR), Chris Guy (USFWS), Cindy Johnson (VA DEQ), Doug Bell (EPA), Durga Ghosh (USGS), Gary Shenk (USGS), Jamileh Soueidan (CRC), Jay Lazar (NOAA), Jeremy Cox (Bay Journal), Jeremy Hanson (CRC), John Wolf (USGS), Karl Blankenship (Bay Journal), Katheryn Barnhart (EPA), Kaylyn Gootman (EPA), Ken Hyer (USGS), Kenny Rose (UMCES), Kristin Saunders (UMCES), Liz Chudoba (Alliance for the Chesapeake Bay), Mandy Bromilow (NOAA), Marisa Baldine (CRC), Matthew Kierce (IWLA), Michael Weyand (City of Gaithersburg), Peter Tango (USGS), Qian Zhang (UMCES), Rebecca Murphy (UMCES), Renee Karrh (MD DNR), Scott Heidel (PA DEP), Scott Phillips (USGS), Sophie Waterman (CRC)