Scientific, Technical Assessment and Reporting (STAR) Meeting
Theme: Targeting Tools for Benefits to People
&
Strategic Science and Research Framework – Stewardship Cohort Science Needs

Thursday, March 24, 2022
9:30 AM – 12:00 PM

Meeting Materials: Link
This meeting was recorded for internal use to assure the accuracy of meeting notes.

ACTIONS

- ✓ STAR leadership will have (separate) follow-up meetings with Olivia Wisner and Briana Yancy to discuss feedback on the Strategic Science and Research Framework (SSRF), the Science Needs database, the STAR Science Needs Presentation template, and incorporating Diversity, Equity, Inclusion and Justice (DEIJ) into the SSRF.
- ✓ If members and interested parties would like to feature something in a future STAR newsletter, please reach out to Amy Goldfischer (CRC) at agoldfischer@chesapeakebay.net.
- ✓ STAR leadership meet with Olivia Wisner (CRC) once the report on barriers and opportunities for utilization of public access sites is completed to see if there are science needs coming out of that.
- ✓ Renee Thompson (USGS) and Olivia Wisner (CRC) and their workgroups will work together in the future to integrate the needs of Public Site Access and Protected Lands outcomes, especially in relation to the effects of climate change.
- ✓ Once the recommendations on integrating social science into the Chesapeake Bay Program are available, STAR leadership will plan a discussion on how to improve social science through the SSRF.
- ✓ The Stewardship cohort will add to their list of science needs going into the database "researching possibilities on offering stormwater credit for behavior change", and STAR will look into STAC institutions that could assist with this research.
- ✓ The PSC Monitoring Enhancement Review team will add the need for deeper specific datasets from jurisdictions or organizations within the stewardship data collection effort into the PSC monitoring report.

AGENDA

9:30 AM **Welcome, Introductions & Announcements – Bill Dennison** (UMCES) and **Scott Phillips** (USGS)-STAR co-chairs, **Peter Tango** (USGS) CBP Monitoring Coordinator, **Breck Sullivan** (USGS) STAR Coordinator

Announcements

Communications update - Rachel Felver (Alliance for the Chesapeake Bay)
Rachel Felver shared that they are getting ready to announce the release of the 1-meter, high resolution Land Use Land Cover and Change (LULC) dataset. This will be released in a couple of weeks. They are also working to reframe the Communications Workgroup. They'll go over those edits on April 6th at a Communications Workgroup meeting; Rachel presented it to the Management Board last month. They're looking to see how to better align the communications work with the Strategy Review System (SRS) process. They'd like to focus more on strategic engagement needs. They're hoping to have quarterly meetings each year after the Quarterly Progress Meeting as a follow up action. They'll capture communications, engagement, and maybe even behavior change needs coming out of that.

Scott asked if there's anything people want to bring to Rachel's attention that are science based. Breck Sullivan said the Rappahannock Tributary summary will be done around mid-April so they'll reach out to Rachel then to review it. Scott said that they're about to post two things on the USGS website. One is results from a 20-year study on how a watershed responds to different types of stormwater practices. The study looks not just at water quality response but also stream response and condition. It will be a science summary they post. The other project is they finished phase 1 of a fish habitat assessment on the nontidal portion of the watershed. This is a joint project with NOAA; they're doing the estuary, and USGS is doing the watershed. This will be maps of where there's good to poor watershed condition for freshwater fisheries. Rachel said to let them know when these studies are posted, and they'll highlight these. Scott said they're trying to get them up today or next week.

Bruce Vogt (NOAA) said NOAA Chesapeake Bay Office (NCBO) put out their Winter Seasonal Summaries – they started putting out seasonal summaries about a year ago. These summaries describe weather, temperature, salinity conditions, and how flow and precipitation affected conditions and linking those to living resources (blue crab, striped bass, oysters, etc). They included forage as a living resource in this last one. They'll continue to put those out each season and roll them up annually into the Mid-Atlantic Northeast Fisheries Science Center State of the Ecosystem report, which is a synthesis of many different pieces of information, including USGS data. Bruce also commented that the winter dredge survey for blue crabs usually wraps up in March. There is usually a press release that comes out in late April or early May, followed by a Bay program announcement in June or July. The jurisdictions usually put something out based on initial results, and the Bay program puts something out after working with CBSAC. They're talking with CBSAC later this week to discuss the timeline.

Bruce commented in the chat that the winter summary headlines were: 1) The midseason transition from above-average water temperatures to average and below-average suggest that striped bass recruitment will more likely be driven by spring water temperatures and flow regimes in 2022, 2) Below-average water temperatures in late winter may increase blue crab

overwintering mortality in the lower Bay and 3) Above-average lower Bay salinities in mid-late winter may indicate more suitable habitat available for bay anchovy.

Greg Allen (US EPA) said that Rachel and her team have been helping get the word out about good results from GIT funding projects. They're hoping to have a series of these articles. The next one is the Polychlorinated Biphenyls (PCB) voluntary project that helped show where the PCBs are that are still in service. This can be a good venue for highlighting good science projects in the future. Greg thanked Rachel for this venue. Rachel shared some articles highlighting GIT-funding projects in the chat: Emergency funding allows environmental education to continue outside and online and Removing fish blockages goes hand-in-hand with sediment reduction.

Update on Monitoring Review - Peter Tango and **Breck Sullivan**

Breck Sullivan gave an update on the Monitoring Review. The monitoring review team went to the March 2nd meeting of the Principal Staff committee and presented key findings and a summary of the report along with recommendations to improve the core CBP monitoring networks along with the monitoring needs the GITs outlined. Overall, there was support and interest in improving the monitoring networks and the review team is hoping for and anticipating more tangible commitments after they review the final report, which they are hoping to have the report available for all by mid-April (it's currently in the review process). They'll continue to drive things forward through cementing partnerships and finding resources to support these networks. The presentation to the PSC was just the beginning of trying to find support for this effort. They'll continue going to different monitoring representatives to see how to improve not just the CBP core networks but also those of the GITs. Scott Phillips emphasized that the report is a springboard for future efforts, and they'll be working with leaders and funders to make some efforts.

STAR Newsletter - Amy Goldfischer (CRC)

Sign up for the newsletter here, at the bottom of the scope and purpose section.

Amy Goldfischer gave a brief overview of the purpose of the STAR newsletter and how to sign up for it. STAR puts out a quarterly newsletter. It is a gathering of all the highlights of what's been happening in the STAR workgroups in the past few months, any announcements, special features, publications put out by or relevant to STAR members, and workshops coming up. If you'd like to feature something in a future STAR newsletter, please reach out to Amy at agoldfischer@chesapeakebay.net.

Input on future LiDAR collections in Chesapeake Bay Watershed – Peter Claggett (USGS) and **Roger Barlow (USGS)**

Every year requests go in for where to highlight Light Detection and Ranging (LiDAR) and the annual request is up now. Peter Claggett and Roger Barlow take the Chesapeake requests in the larger national effort. Scott asked them to let people know when they need the information. Roger said he's in the National Geospatial Program and has been supporting the Bay program since the 1990s. Currently he's representing the 3D Elevation Program or 3DEP. They have requirements of collection each time this year for the next leaf off acquisition season which typically starts for the Bay watershed on December 1st. Their major criteria is age unless there is

a real emergency for hazards or some spill. They're looking at 8 years and older. If you look at the LiDAR map, you'll see that 2014 is the year they want to aim at thinking about replacing data. There are 3 areas they can consider being the most eligible: Mid-Eastern Shore, Talbot, Caroline and Dorchester County, central VA, City of Baltimore, Baltimore County and Carroll County. For those areas, Roger is in discussion with the state of MD; they are considering putting in a state request for LiDAR acquisition for their use case which is building out lines and building heights for E911 applications. They're interested in quality level one data. Typically, the core science systems level allocates about half a million dollars, usually about 4 counties of data worth. Roger is also in discussion with state of DE on re-acquisition there, which is a 2014 superstorm Sandy acquisition. He said he is interested to hear areas of interest for updated elevation.

Scott thanked Roger and said he'd single-handedly got a lot of their LiDAR updated and said it's been really useful for digital elevation models (DEMs). At a workshop Scott was at, people really wanted to use DEMs for local decision making. Peter Claggett said he wants to get information back by end of day tomorrow. The date is one of the most important things because they want current representation of the landscape. Quality level is also important. They're pretty much at quality level 2 now. Quality level 1 creates a 1 m DEM. What Peter passed around was a map that Roger created that is color corded by county and quality level and date. Someone pointed out that Sullivan County in PA still has a 2008 date but that's probably a typo. If people look at that map and they can see their area of interest, they can identify the age and quality of the LiDAR. They want to know science and other needs people have and prioritize collections that meet the broadest interest of the Chesapeake Bay community. We want to see what's of most interest to the Bay community. Roger said they can change the deadline to March 31st.

Upcoming Conferences, Meetings, Workshops and Webinars

- Committee on Earth Observation Satellites Coastal Observations Applications Services and Tools (CEOS COAST) Workshop - April 29 from 1-4pm, Virtual. Sign up here.
- Joint Aquatic Sciences Meeting - May 14-22, 2022, Grand Rapids, MI.
- Chesapeake Community Research Symposium - June 6-8, 2022, Annapolis, MD. (Hybrid: virtual and in-person.) Abstract submissions due March 30, 2022.
- World Seagrass Conference and International Seagrass Biology Workshop - August 7-12, 2022, Annapolis, MD. **Abstract submissions due February 15th, 2022**
- Global HAB symposium on automated in situ observations of plankton - August 22-26, 2022. Kristineberg, Sweden. Deadline for registration March 15, 2022.

- A Community on Ecosystem Services - December 12-15, 2022. Washington, D.C. Metropolitan Area. Deadline for session proposals is April 15, 2022.

Scott went over the upcoming conferences and highlighted the Chesapeake Community Research Symposium. It happens every two years and this year it will be hybrid.

9:50 AM **Lightning Talks on Targeting Tools with Co-Benefits to People – Multiple Speakers**

At the February STAR meeting, several inter-related topics were introduced around the topic of tools and approaches to target resources for achieving multiple CBP outcomes. STAR provided feedback on which items they wanted to hear more about at future meetings. One of the top categories was benefits to people and will be highlighted in the following lightning talks.

Scott reminded people of how at the last STAR meeting John Wolf showed a hub that brought all these tools together in one spot. STAR would like to get information on what else everyone would like to see, focusing on watershed wide tools.

Meg McNeilly (UMCES) and Steve Raabe (OpinionWorks) presented on the Chesapeake Behavior Change Website. Here are their presentation slides.

Steve Raabe presented on the Chesapeake Behavior Change Website. He said that this tool will be presented in more detail in an April 12th webinar that Rachel Felver is doing, and the registration for this webinar is linked here. Now this site is functional, and there will be a formal launch in a few weeks. This new tool is meant for behavior change practitioners. This online tool does 3 things: it shares resources and best practices, it offers a planning template so people out there trying to put together good social science based campaigns to reach the public and do it in a way that's keeping with best social science practices, and it has a case study database which is something that they have migrated in from another platform and that's going to grow as we share best practices. Steve thanked the people who steered this effort, especially Amy Handen, the social science coordinator at the Bay Program, Kacey Wetzel at the Chesapeake Bay Trust (CBT), and Suzanne Etgen (Anne Arundel County Watershed Stewards Academy). Kacey and Suzanne recently co-chaired the Stewardship workgroup. He also recognized the Bay program's web team who took a complicated concept and made it beautiful and accessible.

Steve went over the social science underpinnings for this work. There are 18 million individual decision makers around the watershed, and they have a big impact on the health of the water. It's all driven by perceptions, good intentions, people have biases, etc. The job of this sort of a

tool is to help everyone navigate that to equip, motivate, and get everyone across the watershed on board. This work is driven by the Watershed Agreement, Stewardship goal and outcome which is trying to increase the number of people that are active, the diversity of people active, the knowledge level, building skills and habituating good behavior so there are new norms in terms of how people relate to the Bay, its tributaries, and the land.

Steve showed the diffusion approaches model which was developed by Everett Rogers. This model applies to many things from technology to stewardship behavior. The response to this curve traditionally has been lots of information. Typically people invest a lot of energy into compulsory things to get the resistant folks but it leaves out all the folks in the middle. The basic social science principle is that the well-intentioned people in the middle who are not doing the things we hope they would do need a little nudge. This is known as behavioral economics or the nudge theory. Steve showed the Stewardship indicator survey showing how 71% of people agreed that they wanted to do more to help make local creeks, lakes and rivers healthier. Of course, 71% are not stewards, so the goal is to move from good intentions to actions. The Stewardship indicator was developed by the workgroup and put out in 2017 in Spanish and English with statistically significant sample sizes in each of the watershed jurisdictions. It's about to be re-done in 2022. It's measuring behavior and likelihood measure around a suite of behaviors, key attitudes that drive stewardship behavior, and the new model in 2022 will include the opportunity for deep local sampling. In 2017, they measured 19 behaviors, and they may update these for 2017. The criteria for including a behavior were behaviors that are individual, repetitive, can be broadly adopted, and have some impact or engagement value. How the indicator works is they measure the level of adoption of a behavior (i.e. picking up your dog's waste). The group seldom or not performing the behavior is called the opportunity group. They take that opportunity group and ask them a likelihood question to see who is most poised to take action. Then they can give that information to practitioners: what segments within the public might be most poised to take action.

Steve gave a demonstration of the website. The dataset he described is available there to navigate, download, and run queries. There is also a primer on influencing behavior change. This is in keeping with the community based social marketing model but it's compatible with other social science models. A team has adapted these models into a simple 6 step process in a way that's easy for social science lay people to implement. The website also has a place to share your behavior change campaign, your tools, research and lessons learned with other practitioners, and look to see how others have done it. There are resources linked as well as the step-by-step guide. They're trying to instill the principle of how and why people choose a good behavior through identifying a priority audience, baselining the audience behavior, and identifying what's in the way of people performing the behavior. The guide will help people remove those barriers, and help with developing, implementing and evaluating the campaign. Good evaluation can be skipped in social science but it's highly important to figure out if there was impact, and re-tooling for the next time. Steve showed an example of some of the data

that's on the website. They have 5,200 cases across the watershed. The 19 behaviors are outlined and scored. You can click on each behavior and look at the opportunity group and their likelihood of adoption and segment by different indicators. It also helps the user understand if the dataset is large enough to be reliable.

Breck asked if the data illustrated on the website is collected via the survey that just got approval or is there other means needed to get this data? Steve responded that they have approval for the survey for 2022 and are planning to move forward. They will be in a planning phase from now until summer, reaching out to various stakeholders to reconsider the behavioral suite they're testing and some of the attitudinal questions along with making sure they have things tuned up the right way for new phase. They'll update the methodology and not just survey by phone, blending in some mail and online surveying. There is also that opportunity for local jurisdictions or local watershed groups to amplify their datasets. Even a fairly good size county like Lancaster County is only going to have 80-100 interviews in a Bay-wide dataset. It would be helpful to them to have a deeper dataset. They're working on the mechanics of how they can make that possible and where the funding will come from to help those that are interested to elevate and amplify their data. They'll be reaching out about that. Breck said if there's any way STAR can support to get more interaction and reach out to jurisdictions let STAR know since the data is important.

Scott said there is a big push in working with farmers and rural communities on restoration practices and water quality. He asked if the dataset would help people see which farmers are more willing than others to put in practices. Steve said this has been a primarily residential tool, though there may be some farmers in the dataset, and they do ask about agricultural connections in the classification section of the tool. These are open questions though and they're thinking about the interest in agriculture. They do want to make sure that's being measured but don't want to replicate what others are doing so they have to figure out where they fit with all that. Scott suggested reaching out to Leon Tillman of NRCS.

> John Wolf will provide an overview of the Chesapeake Bay Environmental Justice and Equity Dashboard, including how to access the tool and example Cross-Outcome use cases.

John Wolf (USGS) said the Environmental Justice and Equity Dashboard has its origins in the Environmental Justice (EJ) screen, a national tool developed by the EPA over a decade ago. In 2016, the Diversity Workgroup pursued goal team funding to develop a prototype for a Chesapeake specific version of the EJ screen and that evolved into this tool. The EJ screen combines environmental data with demographic data from the US census. The pieces that the Diversity Workgroup were interested in dealt with a few specific demographic metrics. When talking about GIS and human populations, it's generally data that derives from US census. This is different from a lot of people at the Bay program deal with when looking at watersheds or land and river segments. A lot of it is organized at the census block group level. John showed an

example of it. These areas vary in size considerably representing groups of similar population, so in urban areas they're smaller and in rural areas they're bigger.

For the Chesapeake specific version of the EJ screen, instead of looking at standard EPA public health type of metrics like lead paint, they were interested in looking at environmental data relevant to the Chesapeake Bay Watershed Agreement. The pilot looked at three outcomes in addition to diversity: toxic contaminants, public access and climate resiliency. That product was developed and had some limited use for a few years. There has been increased interest in EJ over the last few years. John evolved the tool to use a different software approach and expanded it to be relevant to other outcomes in the agreement. Here is the storymap. The tool was intended to be relevant to the goal teams and workgroups particularly if there was a need to identify opportunities and priorities in the context of the SRS process and how diversity may be incorporated with the other workgroups and outcomes. Another audience is the funding programs, and this is starting to pick up in the realm of geographic targeting. One example that EPA focused on in this last year is how to make funds available for implementation that not only have benefits in terms of nutrient reduction to the Bay but also to local under-represented populations. There is more interest in some geographic targeting either associated with the Infrastructure Law, Justice 40, or other new federal programs. Project collaborators is another audience. They've had local organizations interested in this tool too. The Diversity Workgroup and action team is also a core audience.

John described the organization of the tool. There are 4 main components: demographic data, socioeconomic data, environmental data (which is where the outcomes of the Watershed Agreement fall in terms of combining GIS data that's relevant to any number of outcomes alongside the demographic data of EJ screen), and programmatic content with the initiatives of the Diversity Workgroup, strategies, and actions. They will be adding some tutorial videos in the future. John went through the Application Gallery tab. The information is aggregated to county scale. In the environmental application tab, there is a separate mapping application for each of the outcomes for which there was geographic and demographic information. John showed how to zero in on environmental justice issues, for example by looking at linguistic isolation and public access sites to find places where there may be a need for signage with non-English languages, particularly when informing around issues of toxic contaminants in public fishing. John also showed an example that shows where the Chesapeake Bay stewardship current and historic implementation projects are located in relation to the people of color population percentile data.

John showed another application that's not yet part of the dashboard. It's a filter application that enables an interactive ability for a user to define their own thresholds or criteria. John asked if this would be valuable. It looks at another targeting tool dealing with priority agricultural watersheds and loads of nitrogen and phosphorous to the Bay. John showed how to filter the top 50 percentile ranking watersheds with the largest yields of nitrogen to the Bay,

and how to show which contain local water quality impairments so that the user might get both a local and Bay benefit from implementation. Then the user can look within those which contain an EJ community, which is defined by high population of people of color and low income to get a more specific area. This is an example of an interactive tool to find where to implement things for multiple benefits.

Scott asked how would the general public fit into the audiences listed for the DEIJ dashboard? John said community groups with local projects could see how they could qualify for grant funding and how their project aligns with various environmental outcomes or outcomes of the Watershed Agreement.

Renee Thompson commented that she's seen the filtering and they've played with some versions for the Healthy Watersheds Assessment. She thinks early versions of filtering she's seen should have some presets in it because sometimes depending on your audience the filtering can get overwhelming. Building in scientific thresholds across the outcomes would be helpful. For example, is it 2% impervious for brook trout, or what is the number for riparian forest needed to sustain brook trout? That would be an interesting added functionality because it gives more meaning to the filtering. Filtering the geographic layers to represent important environmental thresholds for different interests would be a great next step.

John agreed and said it's very appropriate for STAR. When they did the cross-GIT mapping, they identified what datasets make sense and what thresholds make sense. They can set up the thresholds to have a default value based on goal team input, and then one could change those. He thought it was a great idea for thresholds that are scientifically defensible or represent policy thresholds.

Breck asked who is the contact for adding datasets to the dashboard? John said to work with Briana and John and a new contract employee Bailey Bosley who will handle a lot of the mapping components. Breck noted that she saw there was a C-StREAM participation layer and had an idea that it would be good to identify Historically Black Colleges and Universities (HBCUs). John clarified those are already in there under the programmatic tab.

Briana Yancy presented on how the Targeting Outreach for Green Infrastructure (TOGI) project utilized targeting tools to pick their locations. Briana will share the lessons learned on communicating the benefits of the green infrastructure to local communities. Briana Yancy introduced herself as the Diversity Workgroup staffer, and Chris Guy as the project lead for TOGI. The goal of the project was to host listening sessions and green infrastructure workshops that would ultimately design projects that benefited communities that are vulnerable to climate change, but also provide a benefit for vulnerable habitat. They worked with their contractor, SKEO Solutions, to host the listening sessions and green infrastructure workshops. Green infrastructure has a lot of benefits for the community. It can provide beautification which

brings value to areas, it can provide jobs for people, and increase recreation which improves human health. It also provides environmental benefits to habitat and water quality. It was important for this project to think about the intersection of these things. Briana shared a quote about green infrastructure's performance increasing over time, the opposite of standard infrastructure which has a decreasing performance over time. When working with communities, people may not always understand the benefit of green infrastructure in their lives and worry about cost and maintenance, so they emphasize the increasing value attribute.

The project was targeted to focus on underserved communities who have been excluded from environmental benefits. Briana discussed the issue when an area is beautified it causes the property values to go up, which displaces residents. They wanted to be very meaningful and intentional to avoid this and incorporate the communities needs and concerns, and make sure the communities get the benefits. The communities were selected by the steering committee, and they used layers in the Environmental Justice dashboard, looking at sea level rise, income, and minority populations. Once they had 3 communities in each of the 3 states, MD, VA and PA, the steering committee figured out which one community to hone in one based on existing connections. The first area was Cambridge, MD. This community is a focus area for Bay program partners, and a Chesapeake Gateways focus area. When they hosted the listening session in Cambridge, some of the community priorities were having a community garden for food growing, community safety especially around pedestrian walkways and lighting, a place to mourn loved ones, and recreation. Briana showed the concept design.

The next community was Williamsport, PA. The community priorities were similar to Cambridge's priorities. They also wanted stormwater improvements and increased street trees. For the Middle Peninsula, VA, they haven't hosted the workshop yet, but they're working with the tribes in the area. They wanted more support for livelihood, community housing, increased recreation and farming, stream restoration, and increased living shorelines. The project was very complicated. With Cambridge, they hosted the listening session, and it was not as expected, almost a disaster. A week before the listening session they realized there were no community partners coming to it. All the attendees were typical partners of the Bay program, and no community members. That was a huge red flag and stopping point, and they needed to revisit this and slow down to see why they're not reaching the target audience. The lesson was to involve community partners early and often. They hosted another listening session with community lessons and the workshop. There was a disconnect between the community needs and green infrastructure because some of the things, like a basketball court and bike skills area, are not normally green infrastructure and would increase impermeable areas. They had to think outside the box to see how they can give the community what they want and make it green. The contractor is looking into how to make a basketball court green by adding planters and permeable pavers.

For Williamsport, it started as the smallest steering committee and grew. People had so much love for their community. They learned that community champions are key. The project here is moving faster because they have community members on the ground spending time even outside the time they spend with TOGI to get things done. It takes consistent and direct outreach. For Williamsport, community members knocked on doors and made phone calls to get the right people there. They also learned the city is an important stakeholder. Having the city there to push permits and apply for grants is key to making a project successful because community members may not have the expertise or resources to apply for the grants needed or permits to get these projects actually on the ground.

For the Middle Peninsula, they originally went for West Point, VA but they weren't interested because TOGI has no funding for implementation. They were hesitant to partner to just get designs and not actually get something on the ground. It took a lot of building trust, giving presentations to different organizations to get people interested, and it led to connecting with the tribes. They connected with the Pamunkey, the Mattaponi and Upper Mattaponi, and the Upper Mattaponi and Mattaponi had the most interest. The listening session with them is finished and they're doing the green infrastructure workshop next week with the Upper Mattaponi. For the Mattaponi, they have a site visit and listening session scheduled and a workshop should come soon. They learned about the importance of building trust, and the importance of ground truthing. The aerial view doesn't give it justice. For the Upper Mattaponi, the aerial view didn't capture the amount of habitat degradation from the land they acquired and wanted to build the project on. It was great to go to the communities and learn from them. They learned that they need to treat communities as individuals. Originally, they only had funding to do one community and were going to try to combine the Mattaponi, but they have separate priorities. Also,the land is too far apart, so it was important to treat them as separate communities.

TOGI's goal was to expand environmental justice, doing outreach to communities who don't usually get offered opportunities and projects like this one. The original scope of the project treated all 3 communities as equal: they all got a listening session, workshop and steering committee. However, they realized they needed equity, not equality, so they invested different resources and time based off the communities' needs and how people in the community were involved in the steering committee. Equity requires different resources. They also learned that people may not seem like they're interested but it's because of capacity and time. If you put in extra effort and work to show the level of commitment for them, it can result in great partners and projects.

TOGI ended up with 4 steering committees. Originally, it started with 1 steering committee with 15 people from all 3 towns, but it ended up with 4 steering committees, and about 50 people including people from the Bay program, nonprofits and community members. They had to ask for an additional $20,000 to get this project done because they split up Mattaponi and upper

Mattaponi. It took the CBP partner commitment above and beyond what was originally anticipated. Nobody who was on the original steering committee imagined they would be having 4 meetings for TOGI a week, additional listening sessions, etc. That's what it took to make it a great project for the community.

The key takeaways were that it takes more time, resources, and technical assistance to make meaningful relationships and impactful projects. The original vision for the project was a little too short sighted. It would have been more effective with money to support grant writing and implementation, and maybe stipends for community participation. Another key takeaway was that it's not a box to be checked – each community is different. Another key takeaway is that intent doesn't matter as much as impact – a lot of projects have great intentions and people want to make a difference, but if projects cannot be put on the ground to change people's lives, it will fall short.

Scott tied the 3 presentations together and said it's a tough road but it's person by person and community by community to make these efforts happen. Chris Guy agreed. He said when they went to Cambridge, they went in there treating it like any Bay program partnership. The key takeaway was that was not the appropriate way to do that. The work it took to build the steering committees from scratch, knocking on doors and getting commitments, is not trivial, and for each community they met for a minimum at least 1 hour a week for 9 months to get a listening session and a workshop. Chris had envisioned working with church leaders and community organizers, but that's not who showed up at the steering committee. They did not have the bandwidth to meet for one hour a week. For the future, it's necessary to have stipends for people to be able to commit to the projects. They have a lot to offer, and they should be there, but just can't do it. They estimated that the right cost for this project would be $200-250,000 per community (not $20,000), including stipends.

Breck asked was there any expertise that was helpful they received from outside the CBP, whether from the contractor,steering committee members, or community member? Was there anything that would be helpful for future projects? Briana said if they were to do this again, they should work with one community and put all that effort and investment into one community. They should d make sure community members are on the steering committee from the very beginning and not invite them only to the listening session and workshop. Even beyond the people you can get on the steering committee, they heard in Williamsport and Cambridge that people wanted to know when they could share the designs and get feedback from other community members. Factoring in some kind of community event or showing to the greater community is important too. Julie Reichert-Nguyen commented in the chat that grant timelines should be reassessed to support community-level work. It takes time to build trust and engage with the community (9-12 months) and then the workshops can be completed.

11:05-12:00 Strategic Science and Research Framework – Stewardship Cohort Science (3 Outcomes)

Materials: Public Access Site Development Outcome, Stewardship Outcome, and Diversity Outcome science needs.

In follow-up to the Management Board (MB) review, each of the leads for the Stewardship Outcomes will discuss their updated science needs. STAR will provide input on potential opportunities to address science needs.

Breck reminded everyone that the CBP developed the SSRF to consistently identify and track both the short and long term science needs of the goals within the CBP. They are tracked through a publicly available database and this meeting is used as a touchpoint to understand how we can update the science needs and what are new and emerging ones to help progress the outcomes. This is done now because they've already gone to the MB to present on challenges, successes, lessons learned and plans for next 2 years. Now is the time to know what are some science efforts the partnership can support with when planning for the next 2 years. Breck noted that this was the first use of the Science Needs presentation template which was developed to help guide the discussion today, organize the science needs, assess resources available, and save people time. The science needs don't need to finalized at this meeting. Prior to their STAC presentation the SSRF team will reach out to outcome leads to update the database. Since all the information is in the template, they'll just have to say if anything has changed since the STAR presentation.

11:05-11:10 **Public Access Site Development** – Olivia Wisner, CRC (Staffer)

Olivia Wisner, the staffer for the Fostering Stewardship GIT, presented on the Public Access Site Development science needs. The Public Access outcome aims to add 300 new public access sites with strong emphasis on providing opportunities for boating, fishing, and swimming for 2025. This outcome has no new science needs. However, there are some science needs that can be removed from the database. The need to evaluate the accessibility of public access sites to underserved communities was contracted to Steve Raabe from OpinionWorks on a GIT funded project in 2020. He conducted some research to understand the benefits and barriers keeping people from public site access. This need has full resources engaged and includes a demographic analysis of the watershed, a Bay wide survey, and a qualitative focus group based on the quantitative data. This will be compiled into a report with recommendations on how to overcome the barriers. One of the questions is the relationship between utilizing public access sites and engaging in more positive stewardship behaviors. They make an assumption that people are there to enjoy the resource and leave wanting to take better care of it. The final report and data can be expected in late summer or early fall 2022.

An unaddressed science need is the need to identify the effects of climate change on public access sites. The workgroup has a strong understanding of this but a formal analysis would be interesting to see how existing sites will be influenced. Breck asked if there is a GIS layer that identifies public access sites in the watershed. Olivia clarified there is one, but they are looking for a map of what will happen to the sites (which will be under water, etc). This might include a report on estimates of the increased cost of maintaining existing public access sites with more extreme weather. Julie commented that they could overlay where the public access sites are

with sea level rise (SLR) scenarios. Breck added there could be other efforts to understand other effects of climate change. John Wolf volunteered to help with overlaying the public access sites with the SLR scenarios. Scott Phillips commented that he was in agreement with Julie, and they should be able to at least consider SLR. Other inland places would be more difficult. Julie added in the chat that they can pull data from the NOAA Sea Level Rise viewer, and there may be useful data layers from the Mid-Atlantic RISA for inland areas/storm events. She added there are probably also flooding data from FEMA, and also shared MARISA Changes in Extreme Precipitation from 1976 to present. MARISA is a NOAA-funded program so Julie can connect folks with them if interested in understanding how their data can inform public access sites.

Breck commented that the GIT funding projects are a great way to help support science needs that need resources, and the next round is coming up. The science needs database is a great place to look for ideas. Breck hopes to meet with Olivia when the report for the first science need is done to see if there are any science needs that come out of the barriers.

Renee Thompson commented about the opportunity to better integrat protected lands and public access especially when looking at climate risk and resiliency. Protected lands folks are interested in opportunities for restoration and improving public access on protected lands. Renee wondered how to weave this into the science needs or if it's already there. Britt Slattery commented that might be something to encourage at the jurisdiction level. Olivia responded that's a great suggestion and there is a link between protected lands and public access but maybe the groups don't connect as much as they should. Renee said maybe it's a general opportunity area. Olivia said as more science needs come up in for the Protected Lands outcome Olivia could cheerlead for integrating public access questions. Breck said maybe it's not a science need, but it could be in the Logic and Action Plan for making that connection.

11:10-11:35 **Stewardship** – Olivia Wisner, CRC (Staffer)

Olivia also presented on the Stewardship science needs. The outcome is to increase the number and diversity of trained and mobilized citizen volunteers with the knowledge and skills needed to enhance the health of their local watershed. Olivia noted the group is moving away from using the word "citizen" to use "resident" to be more representative of the folks who live, work and play in the watershed. The first science need is the stewardship data collection which is done every 3-5 years (Steve Raabe talked about this survey). They have the funds necessary to do the 2022 collection. Local datasets are important; there is the option for local jurisdictions or nonprofits to go deeper with their data collection, so that is a need. Another need is to identify methods for advancing and incorporating social science into Bay program work and decisions. There was a 2020 GIT funded project which is being led by Amy Handen and Kacey Wetzel, and recommendations from that report will be available this summer. This report will talk about which outcomes in the Bay program are most ripe for social science integration and what the best way to incorporate it. Another science need, which is a new one and high priority, is related to the collection of the 2022 Stewardship data. The Chesapeake Behavior Change site will launch in a couple months. They'll need more capability on the site to compare sets of data, which will require analysis of that data and coding to get it properly displayed on the site. OpinionWorks will be collecting the data and the Bay program web team was previously

involved in developing the first iteration of the website. More resources are needed, though.

Breck said once those recommendations for social science come out, she'd like to have a conversation about not only are there social science needs to keep track of, but how to better incorporate social science into SSRF. Breck asked about something they showed in their presentation to MB. The outcome said they wanted to explore possibilities on offering stormwater credit for behavior change. Is this something they need new knowledge to move forward with that, or have people already addressed it, and they need it synthesized? Amy Handen responded that this topic was raised at the forum the Bay Trust held a couple months ago and it needs more research and study. It's not anytime in the near future but it's something that group is considering and looking for ways to learn more and focus additional research to consider the possibility of crediting behavior change campaigns. Breck said that would be a great addition to the list of science needs. STAR could go to STAC's research institutions and see if they could drive their research direction on this topic. Breck also noted that they included the need for Stewardship data in their PSC monitoring report. They can include information on the direct call for jurisdictions in the report.

11:35-12:00 **Diversity** – Briana Yancy, CRC (Staffer)

Briana Yancy presented on the Diversity Outcome. A completed science need is incorporation of tracking and targeting component with DEIJ lens to goals and outcomes. This was adequately addressed through the SRS question and can be archived. Another completed one is the diversity indicator target/goal for 2025 which Alexander Gunnerson (CRC) and Briana completed. Briana said this could be archived but recommended this be updated every 5 years. An ongoing science need is to identify measures of success toward outcome in addition to the diversity indicator. They would like this to be removed from the science needs database. It hasn't been addressed, but they do have new and emerging needs that can improve upon what's been addressed.

Briana asked for a conversation around the need "integrate diversity, equity, inclusion and justice (DEIJ) considerations across all science-based decisions in the CBP". Can this be put in another location or change the wording to make it more of a science need? Right now, while itis something the partnership needs to work towards, it's an on-going effort. Olivia's roadmap that she was talking about might be a way to alter this need. Breck commented this is the kind of thing that the STAR science needs meeting can support. Breck brought up supplying the DEIJ dashboard to specific targeting projects and including more data layers in the dashboard. Briana said this need ties into the first need that was addressed about tracking, but it also relates to helping science branches incorporate DEIJ. It relates to not only how can STAR and STAC help the Diversity Workgroup but how can the Diversity Workgroup help them as well.

Breck brought up the spreadsheet where outcomes commented on their DEIJ efforts. Briana said they still have it but haven't updated it recently because of the addition of the SRS question, but it would be efficient to use that document. Scott asked if maybe a new category of science need was needed such as "science to implement". The science needs are to say what

to do, where to do it and how to monitor it. Taking it from what you could do to putting it on the ground is a space that's not articulated right now.

Kristin Saunders (UMCES) asked Breck, is there a way to build DEIJ considerations or questions in the template folks are using to submit their science needs? Julie asked is there a way to tag if there is a DEIJ component in a science need from another group in the science needs database? That could be a way to see which needs have built in a DEIJ consideration. Breck said currently you can filter the need based on key words. There might be many different key words to search for so it might be good to hone in on flagging them.

Allison Ng (US EPA) commented to say that the need says across ALL science-based decisions, not some, so it can't be under the Diversity Workgroup alone. That word is important – every decision made needs to take into consideration DEIJ and there is a need to consider how it's part of the process. Where in the process does this happen? Scott replied that six or seven years ago everything had to take into consideration local governments, then climate change, and now DEIJ (all good things). Every two years when people update their workplans and strategies, there should be a section of how they're addressing DEIJ and that's one place. The need says all, but the group might want to focus on the top opportunities. Some will have more internal investment than others.

Breck said another way to build this in with STAR is within their themed meetings, instead of having one DEIJ themed meeting, maybe within each themed meeting have one presentation that connects to DEIJ.

Briana asked if a lot of the science-based projects and decisions include things like risk assessment and analysis, especially when it comes to implementation. Scott said on a broad perspective, there's science on what's the risk of climate change to wetlands and forest buffers, but getting down to a specific place and project, it's not included in those project assessments very well. Chris Guy added that it's integral. The intent is that it's always conscious and when people do anything they have consideration of these issues, even right from the start of getting a meeting agenda together. That's the goal here. The parallel is the need for the National Environmental Policy Act (NEPA) process itself, which has the requirement build in all that up front, even if the particular issue isn't the priority for the project, it's required to consider it. Chris said that as a NEPA practitioner, people talk about the climate section when building a warehouse and wonder why is it in there, but they have to think about it for everything. It becomes boilerplate language, recycled and reused and there is a danger of that happening with DEIJ - but that's not all bad, as long as it's thought about and people can explain why what they did with the lens of DEIJ. It's counterproductive to just make it a checkbox – it doesn't have one specific place but needs to be infused throughout.

Kristin Saunders said that they used very specific questions in the narrative analysis to make sure it is infused in the adaptive management process, and it helped consistently bring attention to that topic. It forces people to focus on diversity in the recommendations they're making. If it can be infused that way, when people are submitting their science needs, for example through the template, maybe there are some key questions or considerations that can be put there as well. Diversity considerations can appear in site or community selection, they can appear in who provides the science or research, and in many other ways - maybe the best tactic is to keep the diversity questions and considerations front and center in multiple touch points in the process. Diversity can be handled different ways in the science arena. There are some strategic ways to have people think about it as they're putting their needs forward, and not add a burdensome thing but weave it into the work everyone is doing.

Briana commented that at the end of the day DEIJ has a lot of different components. It's not just about race. Briana encouraged people making these science-based decisions to think about the land they're working on and the people they're engaging with. When it comes to risk like with NEPA, she doesn't think the risk to communities is considered as a first priority, and that's what she wants people to think about - who what people are they affecting?

Julie said they're doing interviews with interns for the NOAA internship position and one of the interns was looking at how green infrastructure can displace communities. She thought it was interesting and needed more research on how not to displace communities when building green infrastructure and how it's affecting people when the Bay program is accomplishing what we're trying to with the science needs. Breck said that she and Briana will meet to go over the suggestions. Maybe this isn't necessarily a need in the database but after taking that out, figuring out how to incorporate it throughout the process more.

Briana went over new and emerging science needs. A medium priority need is identifying measures of success beyond the internal diversity indicatory. They want to find ways to track DEIJ in addition to diversity. Right now the diversity indicator tracks how many people of color and other kinds of diversity are in the CBP. They want to incorporate the equity, inclusion, and justice parts of DEIJ which are harder to track. They also want to assess the broader participation of underrepresented groups in Chesapeake Bay restoration at large. They've been talking to Peter Tango about how to assess the results of the survey that's going out and find proxies for inclusion, equity and more.

The next need is about the diversity indicator target. Alex and Briana completed the original science need using the American Community survey data, but some things have come up and they want to make sure they're using the most accurate dataset to assess diversity on the watershed. Should they use normal census data, department of education data or any other data? They want to make sure the American Community survey is the most accurate and

correct one to use when trying to think about if the diversity in the Bay program is reflecting the watershed.

The next need is to develop a better understanding of external factors like climate change, public health, and economic inequality on diversity. This could be a synthesis or literature review. They want to understand these to help incorporate into the work plan or other Bay program efforts. A recommendation is for consulting public health groups and climate resiliency groups who are not necessarily involved in science right now but understanding their contributions are important. When thinking about not displacing people with green infrastructure and environmental improvements, it will help to incorporate public health and housing organizations.

Another science need is the CBP diversity survey analysis – they need a better way to analyze it. They do have something in the works but want to put it up on the database, and if anyone has any ideas or contributions to cross analyze things from the survey, that's helpful too.

Breck said for the synthesis need, an understanding of factors like climate change and public health would be a good one for academic institutions.

12:00 PM Adjourn

Next meeting date: Thursday, April 28th from 9:30AM-12:30PM

Participants: Alexander Gunnerson (CRC), Breck Sullivan (USGS), Amy Goldfischer (CRC), Peter Tango (USGS), Renee Thompson (USGS), Tom Parham (MD DNR), Amy Handen (US EPA), Meg Cole (CRC), Rachel Felver (Alliance for the Chesapeake Bay), Scott Phillips (USGS), Britt Slattery (NPS), Caroline Johnson (CRC), Gary Shenk (USGS), Bailey Bosley (USGS), Jess Blackburn (Alliance for the Chesapeake Bay), Ken Hyer (USGS), Kristin Saunders (UMCES), Julie Reichert-Nguyen (NOAA), Mark Nardi (USGS), Briana Yancy (CRC), Olivia Wisner (CRC), John Wolf (USGS), Doug Austin (CBP), Garrett Stewart (CRC), Greg Barranco (US EPA), Chris Guy (USFWS), Jeremy Hanson (CRC), Jamileh Soueidan (NOAA), Bruce Vogt (NOAA), Megan Ossmann (CRC), Melissa Fagan (CRC), Angie Wei (UMCES), Greg Allen (EPA), rbarlow, Liz Chudoba (CMC), Steve Raabe (OpinionWorks), Carl Friedrichs (VIMS), Matt Robinson (DC DOEE), Allison Ng (US EPA), Justin Shapiro (CRC), Carin Bisland (US EPA), Labeeb Ahmed (USGS), Peter Claggett (USGS), Bo Williams (US EPA)