

## **Scientific, Technical Assessment, and Report (STAR) team**

### **Revising Science Support Activities for the Chesapeake Bay Program Partnership**

(draft March 11<sup>th</sup>, 2014)

**Need:** The new Chesapeake Bay Agreement will require additional monitoring, modeling, and analysis to help decision makers effectively achieve goals and associated outcomes. CBP science activities are coordinated through the **Scientific, Technical Assessment, and Report (STAR) team**. Over the past several years, STAR had a heavy emphasis on water-quality activities as the partners implemented the Bay TMDL. STAR was not able to fully carry out its revised purpose (prepared in 2011 and approved by Management Board) to “*facilitate with science partners to have increased capacity to serve the priority science needs of the GITs, using an adaptive-management framework, and summarize key information for the CBP partners. STAR will help coordinate the modeling, monitoring, indicator, and information management activities needed by the GITs and work with CBP science partners to synthesize information for cross-cutting CBP products (such as the Bay Barometer)*” To address the needs of the new Bay Agreement, STAR is evolving to have more of an ecosystem-based science mission.

### **Proposed Revision of Purpose and Functions for STAR**

Purpose: *Coordinate monitoring, modeling, and analysis needed to update, explain, and communicate ecosystem condition and change to support decision making to achieve CBP goals and outcomes.* The major functions would include:

- Manage CBP monitoring networks and coordinate with additional networks to address the new Chesapeake Watershed Agreement.
- Ensure information quality, management, and delivery.
- Update status and trends (indicators) of ecosystem conditions.
- Explain ecosystem condition and change.
- Expand modeling to better understand and predict ecosystem response.
- Synthesize and communicate results to improve decision making

### **Description of Functions and Potential Staffing**

- Manage CBP monitoring networks and coordinate with additional networks to address the new Chesapeake Watershed Agreement. The CBP currently manages several water-quality monitoring networks including a watershed network and several estuary networks (water quality and SAV). The networks are complex with multiple partners collecting data. There are additional monitoring networks to address aspects of CBP Goal Teams for fisheries, habitat, and healthy watersheds. The new Chesapeake Bay Agreement will require monitoring for all the outcomes to ensure progress toward commitments. Finally, the use of Citizen monitoring needs to be examined and applied as appropriate. STAR has begun the process to assess monitoring designs and coordination through the **Building And Sustaining Integrated Networks (BASIN)** process. Part 1 is to evaluate the water quality networks, followed by assessing options to address monitoring needed for outcomes in the new Bay Agreement (part 2).

- Anticipated Support Needed: (1) Monitoring design and analyses needs for “part 1” of BASIN (water-quality networks). Coordinate with multiple Goal Teams and Agencies/partners to address monitoring needs for new Agreement (Part 2 of BASIN). (2) Evaluate and coordinate use of citizen science to as part of BASIN process.
- Proposed Workgroup: Integrated Monitoring Networks WG
- Ensure Information quality, management, and delivery. The STAR will lead coordination of CBP partners to ensure the quality of information and improve management, access, sharing of data. The WG will focus on data from monitoring networks to update CBP indicators and to explain ecosystem status and change. This WG would address field methods, laboratory analysis, data management, use of citizen science, and integrated information delivery.
  - Anticipated Support Needed: Extra help with data management needed for expanding monitoring networks and data to produce CBP indicators.
  - Proposed WG: Methods, quality, and information delivery WG
- Update status and trends (indicators) of ecosystem conditions. Results are reported on the CBP WWW site, in ChesapeakeStat, and the annual Bay Barometer. Some of the status and trend updates are the responsibility of different Goal Teams, while others are the responsibility of the CBP Monitoring Team and associated partners.
  - Anticipated Support Needed: (1) analysis of water-quality data to update progress toward meeting WQ standards attainment (L. Hernandez replacement), (2) develop and maintain new indicators needed for the outcomes in the Chesapeake Bay agreement. Will require analysis and “coordination” skills to interact with GITs and data providers.
  - Proposed WG: Indicators WG but there is an opportunity to integrate efforts with revisions of ChesapeakeStat
- Explain ecosystem condition and change. Explaining ecosystem condition and change is needed for specific goals (fisheries, habitat, water quality, healthy watersheds, and land conservation) and key ecosystem linkages between goals. To explain ecosystem condition and change, several activities needed to be coordinated including modeling, monitoring, and analysis. Given the large scope of the effort, teams will be set up to address priority topics, which include:
  - Estuary fisheries (shellfish and finfish) changes in response to land change and management policies
  - Enhancement and restoration of wetlands to support black ducks, waterfowl, and water quality.
  - Ecosystem (WQ standards) response to management practices to reduce nutrients and sediment
  - Stream conditions and other factors affecting the recovery and protection of brook trout populations and freshwater fisheries.
  - Effects of toxic contaminants on fisheries and wildlife
  - Conserving lands and healthy watershed in the face of a growing population
  - All of the above should include potential effects of climate change and population growth.
    - Anticipated Support Needed: coordinate efforts to address climate effects on all of above.

- *Modeling to better understand and predict ecosystem response.* Modeling to understand the impacts of a changing ecosystem, such as the infilling our major reservoirs and the impacts of climate change on ecosystem response. In addition modeling needs to support the evaluation of management decisions to achieve outcomes in the new Bay Agreement. Modeling is an integrating tool and the concept of multiple models will be used to create a collaborative environment for integrating disparate scientific studies. The modeling would need to expand out from water quality and address/coordinate with ecosystem modeling efforts supporting other goal and outcomes.
  - WG: Modeling workgroup
- *Synthesize and communicate results to improve decision making:* Take technical results of above efforts and communication findings and management implications to a wider range of audiences. Prepare communication products that are tailored to specific audiences and ensure the science is correctly portrayed.
  - Anticipated staffing support: Help communicate results of STAR efforts to a wider range of audiences
  - WG: May not be a WG but a joint effort with Communications Office, WWW team, and ChesapeakeStat that would focus on specific products and topics.
- Staffing needs for STAR: in addition to above function there is also a need to staff STAR so it can run more effectively to serve the CBP partnership.

#### **Short-term actions**

1. The CRC Staff will be a liaison between STAR and each GIT. The CRC staff for each GIT will be a liaison to STAR and communicate the current science information that is available to meet their science needs and help prioritize unmet GIT science needs. CRC GIT-STAR liaisons are essential to facilitating this interaction and tracking activities in this regard.
2. Revise STAR WGs to carry out new functions.
3. Increase interaction with STAC and propose workshop topics. The STAR work with GITs to propose topics for STAC workshops and work with STAC to identify science providers to address GIT topics.
4. Enhance science coordination. Based on the recommendations of STAC workshops, STAR will help to facilitate gathering the science providers and GIT WGs needed to address and implement STAC recommendations.
5. STAR will convene business meetings. STAR will refine its monthly meetings to review progress of providing the science requested by the GITs. The monthly meetings will also have key presentations of findings that should be of interest to multiple GITs.

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Current STAR WGs						
Indicators WG	Modeling WG	Tidal Mon WG	Nontidal WG	Criteria Assessment Protocols WG	Analytical Methods QA WG	Data Center/GIS WG
<b>Proposed STAR WGs – Summary slide.</b> <b>Note: Criteria Assessment Protocols WG becomes an issue specific Action Team as needed after 2014.</b>						
Status and Trends WG	Modeling WG		Explain Ecosystem Condition and Change Workgroup	Integrated Monitoring Networks Workgroup	Methods, Quality, and Delivery Workgroup	
Proposed Functions/Teams of WGs						
•Indicators outputs organized and published •Update Status and trends	• Bay studies support (e.g. Conowingo Dam mgt decisions) • Mid-point assessment support. • Modeling to better understand and predict ecosystem response		Teams: WQ response to mgt practices  Fisheries response  Wetlands change  Others; Stream health, toxics, criteria	•Manage water quality networks  • Coordinate monitoring to support new Bay Agreement  •Citizen science integration into networks	•Field methods • Laboratory analyzes • Citizen science field, lab methods & data management • Integrated data delivery •ChesapeakeSTAT •Center for Collaborative computing • Data enterprise point source data base •Upgrades on Scenario builder	