Survey Questions (Draft)

Goals of the Customer Expectations Discussion:

- To gain feedback on the usefulness of the products derived from the CBP Monitoring Networks.
- Gain a better understanding of the Goal Team decision making process in order to better tailor our monitoring products to fit their needs.
- To ascertain what the perceptions of the broader CBP community have regarding the utility of monitoring data in guiding the restoration efforts of Chesapeake Bay.

Audience:

Tier 1 – Key Audience

- WQ Goal Team – state and federal water-quality managers responsible for improving quality of Bay and Watershed Waters
- GIT Chairs
- State Agency Resource Managers (contact one or two representatives from each organization MDE, MDNR, PA DEP, VADCNR, etc.)

Tier 2 – Secondary Audience

- STAR (including WGs), CBP Communication Team
- STAC, LGAC, and CAC
- Academic Partners
- Watershed groups (CBF, Riverkeepers Network, Blue Water Baltimore, Alliance for the Chesapeake Bay)

Background Materials: 3-5 minute video to introduce the customer expectation survey and current products of the monitoring networks.

Identifying Questions

1. Name (text)
2. Position (text)
3. Affiliation (text or check option with other)
4. Involvement in the Chesapeake Bay Program (Drop down: list of GITs, STAR, STAC, LGAC, CAC, CBP Communications Team, Chesapeake Stat, Interested Party, None)

Indicators

Chesapeake Bay Program Indicator Framework

The indicator framework employs a matrix approach that groups the indicators by functional role and then places each indicator into a hierarchy of detail within that functional role. The functional role groupings separate indicators into the primary use, whether the indicator is used to communicate the state of the Bay, the state of its watershed, the state of Bay restoration, or the influence of a stressor on the Bay's health. Within each of the four functional groupings, the indicators are ordered into a hierarchy based on the degree of synthesis and detail required.

Indicator functional groupings

All indicators are divided into one of four groups based on their function within an adaptive management framework:

- **Factors Impacting Chesapeake Bay and Watershed Health:** All indicators used to measure stressors and other factors that are affecting the health of the Bay and watershed.
- **Chesapeake Bay Health:** All indicators used to assess the ecosystem health of Chesapeake Bay and its tidal tributaries.
- **Chesapeake Bay Watershed Health:** Indicators used to assess the ecosystem health of the Bay watershed's non-tidal rivers, stream corridors and surrounding watersheds.
- **Restoration and Protection Efforts:** All indicators used to measure and communicate specific actions being undertaken to improve the health of Chesapeake Bay and its watershed.

Indicator hierarchy

Within each functional group, individual indicators are categorized into ***reporting*** or ***related*** (or component) indicators.
Reporting indicators are a small number of indicators, which effectively communicate the key messages of the functional group. All reporting indicators are further divided into sub-categories in recognition of the diversity within each functional group.

Related (or component) indicators are indicators that either facilitate the interpretation of the reporting indicators or provide greater level of detail related to the reporting level indicators.

5. Which of the following Chesapeake Bay Program bay and watershed health indicators do you **use**: (check all that apply)
    - Nitrogen Loads and River Flow To the Chesapeake Bay
    - Phosphorus Loads and River Flow To the Chesapeake Bay
    - Sediment Loads and River Flow To the Chesapeake Bay
    - River Flow
    - Bay Grass Abundance – Baywide
    - Bay Grass Abundance by Zone
    - Bay Grass Density
    - Bottom Habitat (Benthic Index of Biotic Integrity)
    - Tidal Wetlands Abundance
    - Achievement of Bay Water Quality Standards (new indicator)
    - Dissolved Oxygen Standards Attainment (Surface Area Assessment)
    - Dissolved Oxygen Standards Attainment (Volume Assessment)
    - Water Clarity
    - Chlorophyll a
    - Chemical Contaminants
    - Health of Freshwater Streams in Watershed
    - Nitrogen in Rivers Entering the Bay: Long-Term Flow Adjusted Concentration Trends
    - Nitrogen Short-Term Flow Adjusted Concentration Trends in Watershed Streams/Rivers
    - Nitrogen Yields in Watershed Streams/Rivers
    - Phosphorus in Rivers Entering the Bay: Long-Term Flow Adjusted Concentration Trends
    - Phosphorus Short-Term Flow Adjusted Concentration Trends in Watershed Streams/Rivers

- Phosphorus Yields in Watershed Streams/Rivers
- Sediment in Rivers Entering the Bay: Long-Term Flow Adjusted Concentration Trends
- Sediment Short-Term Flow Adjusted Concentration Trends in Watershed Streams/Rivers
- Sediment Yields in Watershed Streams/Rivers
- None

6. **How do you use** the Chesapeake Bay Program bay and watershed health indicators? (check all that apply)
    - Creating educational products
    - Communicating to constituents
    - Measuring river/bay health
    - Preparing presentations for resource managers
    - Preparing presentations for the public
    - Communicating to constituents
    - Planning and targeting resource management plans and restoration efforts
    - Preparing web content and social media
    - Water quality standards attainment
    - Research application
    - Leveraging resources for funding proposals
    - Explaining events and trends in the Bay (i.e. fish kills, hypoxia, bay grasses)
    - Modeling input, calibration, or verification
    - Recreational purposes
    - Personal curiosity
    - Other
    - None

<u>Synthesis Products</u>

7. Rank the following sources of Chesapeake Bay and Watershed Health information from MOST to LEAST **useful**: (rank the usefulness of each (1-5 and n/a))
    - UMCES-IAN New Insights Report
    - Chesapeake Bay Program (CBP) Bay Barometer
    - Bay Journal Articles
    - Chesapeake Bay Foundation Report Card
    - Annual University of Maryland Center for Environmental Science Report Cards
    - CBP bay and watershed health indicators
    - CBP blog posts
    - CBP Scientific Technical Advisory Committee (STAC) Reports
    - CBP technical and summary reports
    - CBP model output (i.e. Phase 5.3.2 Watershed Model, Water Quality Sediment Transport Model)
    - CBP PowerPoint presentations
    - Local watershed report cards
    - Chesapeake Bay Program website
    - The Bay Journal website
    - UMCES-IAN website

- Eyes on the Bay website (MD-DNR)
- Chesapeake Bay Foundation website
- Chesapeake Stat website (CBP)
- BayStat website (Maryland.gov)
- VECOS website

8. **How have you used** the above summary reports and synthesis products in your work? (check all that apply)
    - Creating educational products
    - Communicating to constituents
    - Measuring river/bay health
    - Preparing presentations for resource managers
    - Preparing presentations for the public
    - Communicating to constituents
    - Planning and targeting resource management plans and restoration efforts
    - Preparing web content and social media
    - Water quality standards attainment
    - Research application
    - Leveraging resources for funding proposals
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    - Modeling input, calibration, or verification
    - Recreational purposes
    - Personal curiosity
    - Other
    - None

9. What types of products would you like to see more of? (Check all that apply) (want to make sure that we make it clear that the products we produce now will still be there, but want to know what products people would like more of)
    - Blogs
    - Social media posts (i.e. facebook, instagram, flickr, twitter)
    - Fact sheets
    - Frequency asked questions (FAQs)
    - Peer reviewed journal articles
    - Management recommendations
    - Technical reports
    - Bay and watershed health report cards
    - Can we think of others??????
    - Other

10. Please use the space below to recommend specific improvements to any or all of the summary and synthesis products. (comment box)

Chesapeake Bay Program Monitoring Network

Background materials: 8.5x11 one-page poster on the CBPO WQ Monitoring Networks

11. How have you benefited from the Chesapeake Bay Program long-term water quality monitoring network data (**nutrients, water temperature, dissolved oxygen, etc.**) (check all that apply):
    - Education
    - Targeting restoration efforts and resources
    - Water quality standards attainment
    - Research
    - Leveraging resources for funding proposals
    - Explaining events and trends in the Bay (i.e. fish kills, hypoxia, bay grasses)
    - Modeling calibration and verification
    - Communication
    - Personal curiosity
    - Other
    - None

12. How would you like to use the Chesapeake Bay Program long-term water quality monitoring network data (**nutrients, water temperature, dissolved oxygen, etc.**) in the future (check all that apply): (come back to this question – may change the question to ask about new ways they would like to use the data that people are not currently using it for)
    - Creating educational products
    - Communicating to constituents
    - Measuring river/bay health
    - Preparing presentations for resource managers
    - Preparing presentations for the public
    - Communicating to constituents
    - Planning and targeting resource management plans and restoration efforts
    - Preparing web content and social media
    - Water quality standards attainment
    - Research application
    - Leveraging resources for funding proposals
    - Explaining events and trends in the Bay (i.e. fish kills, hypoxia, bay grasses)
    - Modeling input, calibration, or verification
    - Recreational purposes
    - Personal curiosity
    - Other
    - None

<u>Funding of the Networks</u>

13. Rank where you would direct new funds obtained by the Chesapeake Bay Program monitoring network:
    - Water quality sampling
    - Living resource sampling
    - Physical habitat sampling
    - Ground water sampling
    - Best management practice tracking

- Monitoring explanatory variables (trying to get at trends work with these two, but need to come back to it)
- Data management
- Data analysis
- Result interpretation and synthesis
- Developing communications products
- Other

14. Rank where you would direct new funds obtained by the Chesapeake Bay Program?
    - Monitoring, tracking, and reporting progress
    - Modeling efforts
    - Implementation of best management practices

15. For the challenges facing watershed restoration, what are the top three priorities for investment in new scientific understanding to support decision making and adaptive management? (drop down with 1,2,3)
    - Fisheries
    - Long term trends
    - Nutrient inputs to the Bay
    - Hypoxia (a) events
    - Wetland remediation
    - Storm Impacts
    - Climate change effects and resiliency
    - Conowingo dam
    - Sea level rise
    - Ocean acidification
    - Toxic contaminants
    - Contaminants of emerging concern
    - Include Bay Agreement Goals
    - Other (3)

Non-traditional Partners

Background Materials: Assessing the Needs of Volunteer Water Monitoring Programs Report

16. The Chesapeake Bay Program should incorporate data collected by non-traditional partners (**citizen science, industry, municipal authorities, etc.**) into the partnership shared decision making.
    - Strongly Disagree, Disagree, Neither Disagree nor Agree, Agree, Strongly Agree

17. Where do you see data collected by non-traditional partners (**citizen science, industry, municipal authorities, etc.**) playing a role in the Chesapeake Bay Program monitoring efforts: (check all that apply)
    - Water sample collection
    - Data analysis
    - To verify and validate current monitoring network data
    - Others

18. Which issues are you concerned about when incorporating data collected by non-traditional partners (**citizen science, industry, municipal authorities, etc.**) (very concerned, not concerned, 1-5 and n/a)
    - Coordination time needed
    - Trainings/Personnel turnover
    - Data quality issues (QA/QC)
    - Continuity of Monitoring Sites
    - Overextending limited monitoring resources
    - Difficult and dangerous locations causing hazards for volunteers
    - Other

Chesapeake Bay Watershed Agreement

Background Materials: Chesapeake Watershed Agreement

List of Goals from the New Watershed Agreement and Lower Susquehanna River Watershed Assessment

Sustainable Fisheries: Protect, restore and enhance finfish, shellfish and other living resources, their habitats and ecological relationships to sustain all fisheries and provide for a balanced ecosystem in the watershed and Bay.

Vital Habitats: Restore, enhance and protect a network of land and water habitats to support fish and wildlife, and to afford other public benefits, including water quality, recreational uses and scenic value across the watershed.

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Water Quality: Reduce pollutants to achieve the water quality necessary to support the aquatic living resources of the Bay and its tributaries and protect human health.

Toxic Contaminants: Ensure that the Bay and its rivers are free of effects of toxic contaminants on living resources and human health.

Healthy Watersheds: Sustain state-identified healthy waters and watersheds recognized for their high quality and/or high ecological value.

Stewardship: Increase the number and the diversity of local citizen stewards and local governments that actively support and carry out the conservation and restoration activities that achieve healthy local streams, rivers and a vibrant Chesapeake Bay.

Land Conservation: Conserve landscapes treasured by citizens in order to maintain water quality and habitat; sustain working forests, farms and maritime communities; and conserve lands of cultural, indigenous and community value.

Public Access: Expand public access to the Bay and its tributaries through existing and new local, state and federal parks, refuges, reserves, trails and partner sites.

Environmental Literacy: Enable every student in the region to graduate with the knowledge and skills to act responsibly to protect and restore their local watershed.

Climate Resiliency: Increase the resiliency of the Chesapeake Bay watershed, including its living resources, habitats, public infrastructure and communities, to withstand adverse impacts from changing environmental and climate conditions.

Conowingo Dam: Evaluate strategies to manage sediment and associated nutrient delivery to the Chesapeake Bay. Evaluate strategies to manage sediment and associated nutrients available for transport during high flow storm events; to reduce impacts to the Chesapeake Bay. Determine the effects to the Chesapeake Bay from the loss of sediment and nutrient storage from behind the hydroelectric dams on the Lower Susquehanna River.
(http://mddnr.chesapeakebay.net/LSRWA/docs.cfm)

19. For each of the new Bay Agreement goals how can the Chesapeake Bay Program monitoring network and synthesis products be improved to help draft the management strategies, track the progress, and meet the goal(s?)? (please be issue specific – want them to give specific examples about the goals and not sure if we should have one questions per goal or make that really clear in the question)

    - This might be an open ended text answer???

Other

Background Materials: BASIN webinar from IAN seminar series

20. Did you attend any of the BASIN seminars?
    - Yes
    - No

21. I found the BASIN Seminars to be useful.
    - Strongly Agree
    - Agree
    - Neutral
    - Disagree
    - Strongly Disagree