WELCOME TO THOSE OF YOU JOINING US VIA GLOBAL MEET. PLEASE BE SURE TO UNMUTE YOUR COMPUTER AND THAT YOUR HEADPHONES OR SPEAKERS ARE PROPERLY CONNECTED. **PLEASE NOTE WE WILL HAVE THE MEETING ROOM MUTED UNTIL WE ARE READY TO BEGIN, SO YOU MAY NOT HEAR ANY SOUND UNTIL 9:30 AM.**

Open Session: Oyster BMP Expert Panel

Public Stakeholder Forum
Monday, November 2, 2015
Annapolis, MD

Jeff Cornwell, University of Maryland Center for Environmental Science, Panel Chair
Julie Reichert, Oyster Recovery Partnership, Panel Coordinator

Chesapeake Bay Program
Science. Restoration. Partnership.

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SOUND CHECK for Webinar Participants

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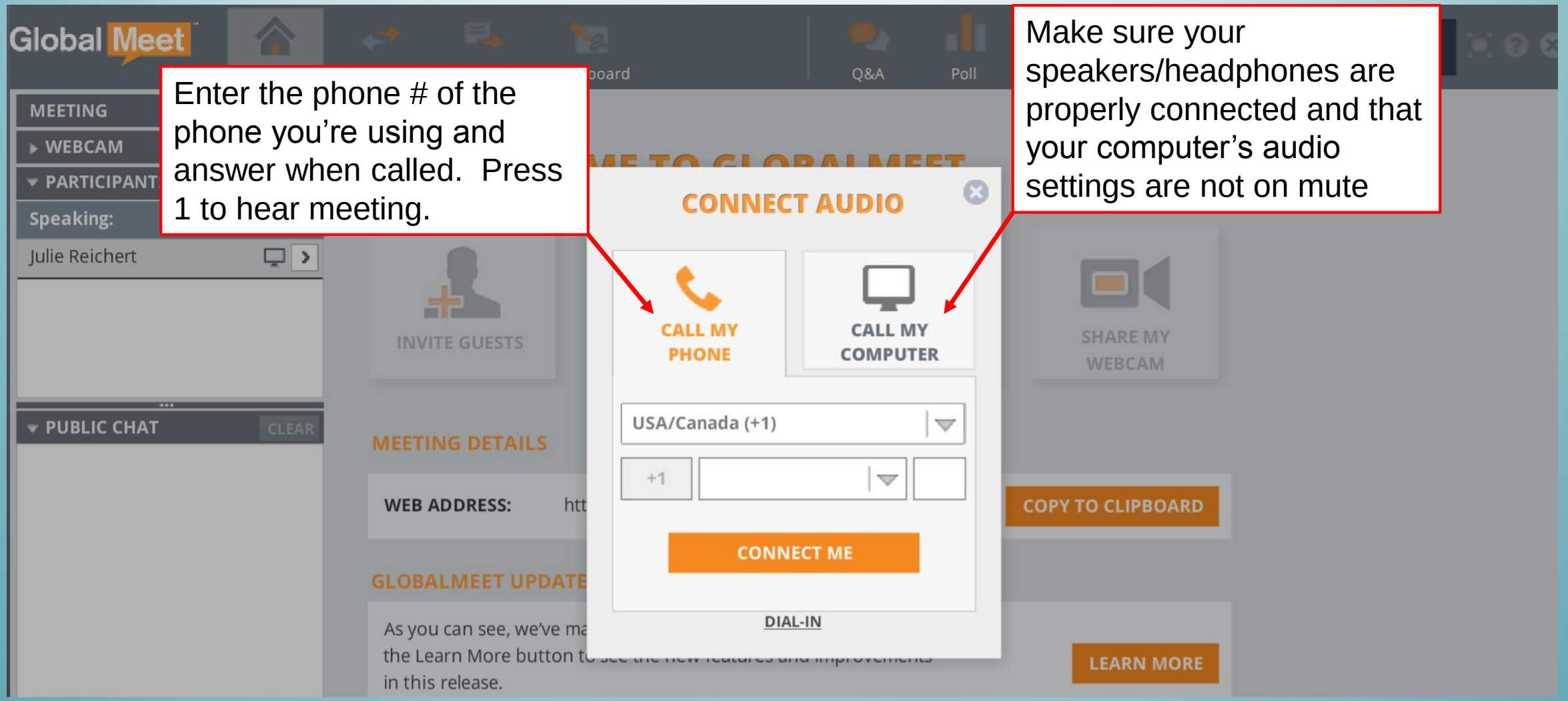
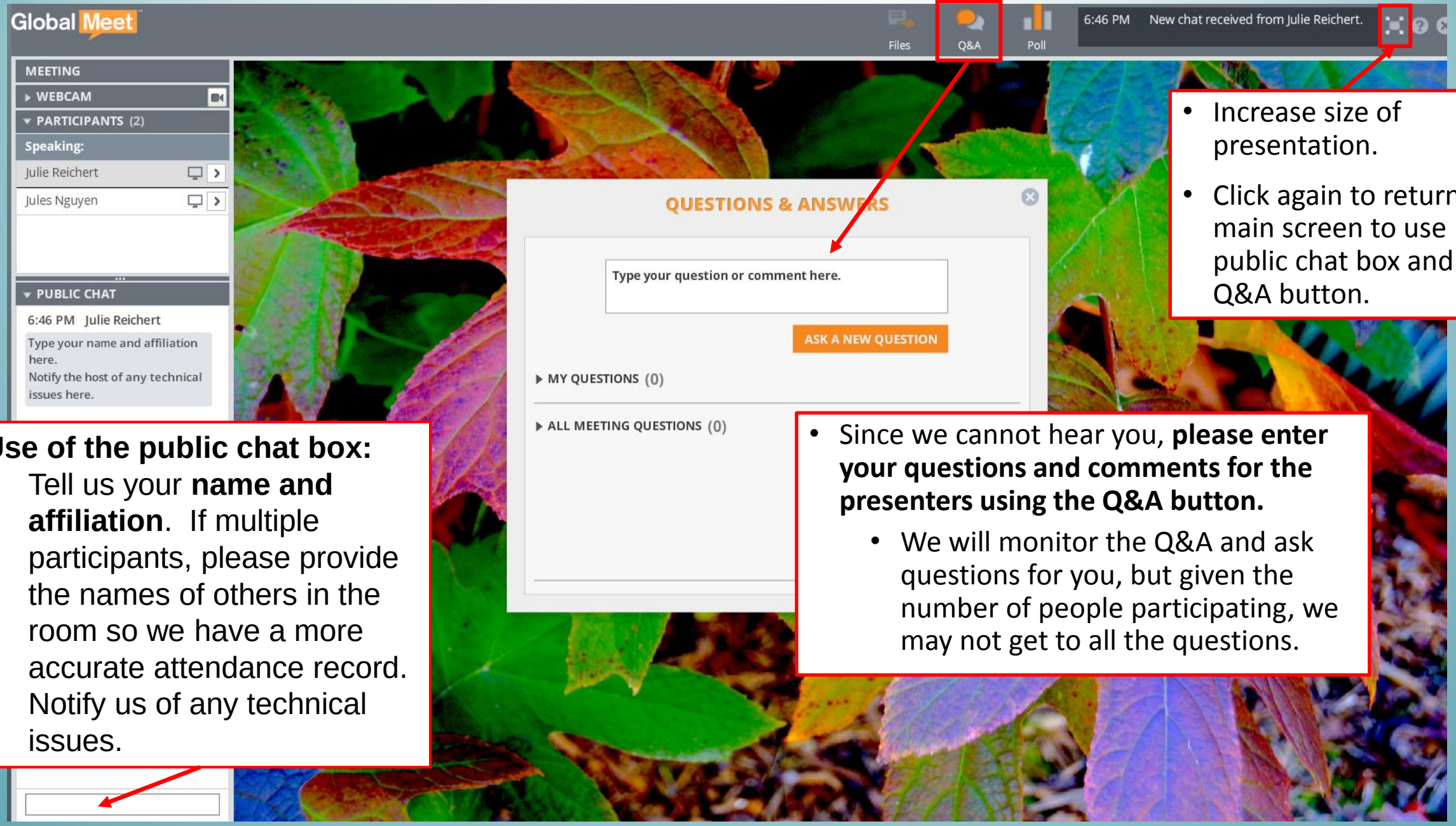


Ground Rules and Logistics—Webinar



- Increase size of presentation.
- Click again to return to main screen to use public chat box and Q&A button.

Use of the public chat box:

- Tell us your **name and affiliation**. If multiple participants, please provide the names of others in the room so we have a more accurate attendance record.
- Notify us of any technical issues.

- Since we cannot hear you, **please enter your questions and comments for the presenters using the Q&A button.**
  - We will monitor the Q&A and ask questions for you, but given the number of people participating, we may not get to all the questions.

Ground Rules and Logistics—In Room

- Is your cell phone on silent?
- During the presentations, please save your questions until the speaker has finished.
- At all times please raise your hand and wait for Jeff to acknowledge you before speaking.
- Please **speak loudly and clearly**, *especially* if you are seated around the edge of the room. Our friends on the webinar want to hear you too!
- The polycom can pick up side conversations around the table, so please step into the lobby (and close the door) to have any side conversations.
- Please sign-in if you did not do so already (sign-in sheet in the lobby)
- **…Is your cell phone on silent???**

Agenda at a Glance

- Welcome and Introductions
  - Ground rules and logistics
  - Overview of the BMP review and expert panel process
  - Overview of panel charge and timeline
- Panelist Introductions
- Stakeholder Presentations and Discussion
- Closing Remarks
- Adjourn

Purpose of this Meeting

- Provide context on the goals of the Oyster BMP Expert Panel.

- Provide the opportunity for stakeholder input to the panel in the form of presentations or discussion that will help inform their evaluation of water quality benefits – specifically nitrogen, phosphorus, and sediment reductions – associated with oyster practices in the Chesapeake Bay and its tributaries.

What is a “BMP”?

- Best Management Practices (BMPs) are practices or technologies that reduce pollution when implemented or installed.
  - Structural, non-structural, programmatic

How are BMPs used in the Chesapeake Bay Program Partnership?

- BMPs are tracked, verified, and reported by the jurisdictions for credit towards their watershed implementation plan (WIP) commitments and two-year milestones under the Chesapeake Bay TMDL.
- WIPs are the roadmaps for how jurisdictions will achieve the pollutant reductions required by the Chesapeake Bay TMDL (more on this soon).

What is a "TMDL"?

- TMDL or Total Maximum Daily Load is the amount of pollutants a waterbody can assimilate and still meet water quality standards
- The development of a TMDL is required through the Clean Water Act if a waterbody is not meeting its water quality standards (WQS).

Why Nitrogen, Phosphorus, and Sediment?

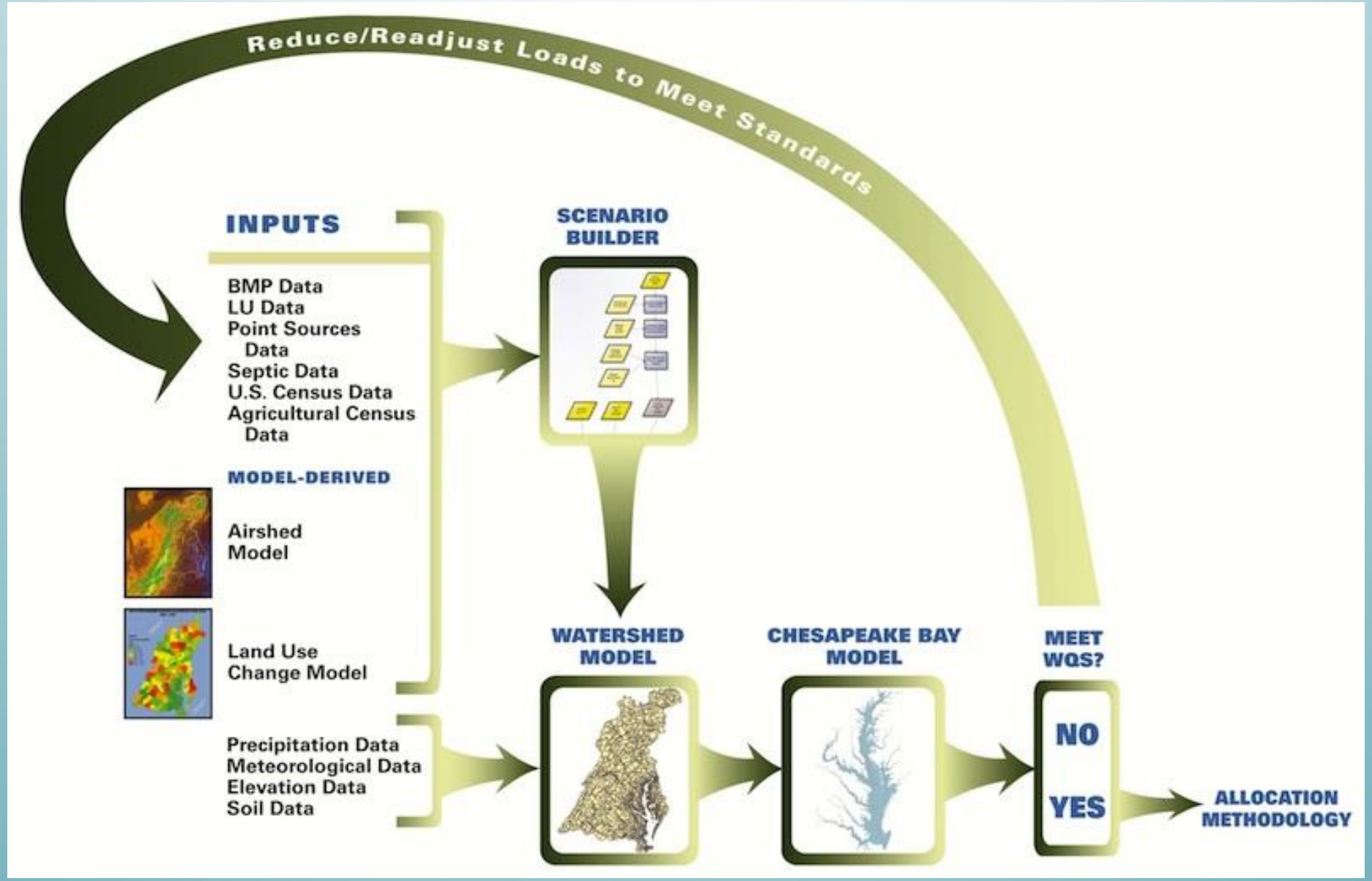
- The Chesapeake Bay TMDL was established in 2010 to reduce nutrients (nitrogen and phosphorus) and sediment because the Bay and tidal segments were not meeting various WQS that are influenced by these pollutants (i.e., dissolved oxygen, water clarity, underwater Bay grasses, and chlorophyll-a—indicator of algae levels).
- More info: http://www.epa.gov/chesapeakebaytmdl/

Pollutant reduction from a BMP may be credited under the Chesapeake Bay TMDL as:

1. A change in the land use (e.g. trees instead of turf grass)
2. An adjustment based on an estimate of effectiveness of a BMP (i.e. an "efficiency")
3. A measured reduction in direct load to the land use (e.g. less fertilizer)
4. A measured reduction from a treatment process (e.g. a wastewater treatment plant)

In the case of the Bay TMDL, "credited" refers to the model estimated amount of nutrient and sediment load reduction achieved by implementation of a specific BMP that a jurisdiction can account for towards to meeting their Bay TMDL pollutant reduction obligations—it is **not** associated with monetary compensation (e.g., nutrient trading credits).

CBP Model Framework for the Chesapeake Bay TMDL



http://www.chesapeakebay.net/groups/group/modeling_team

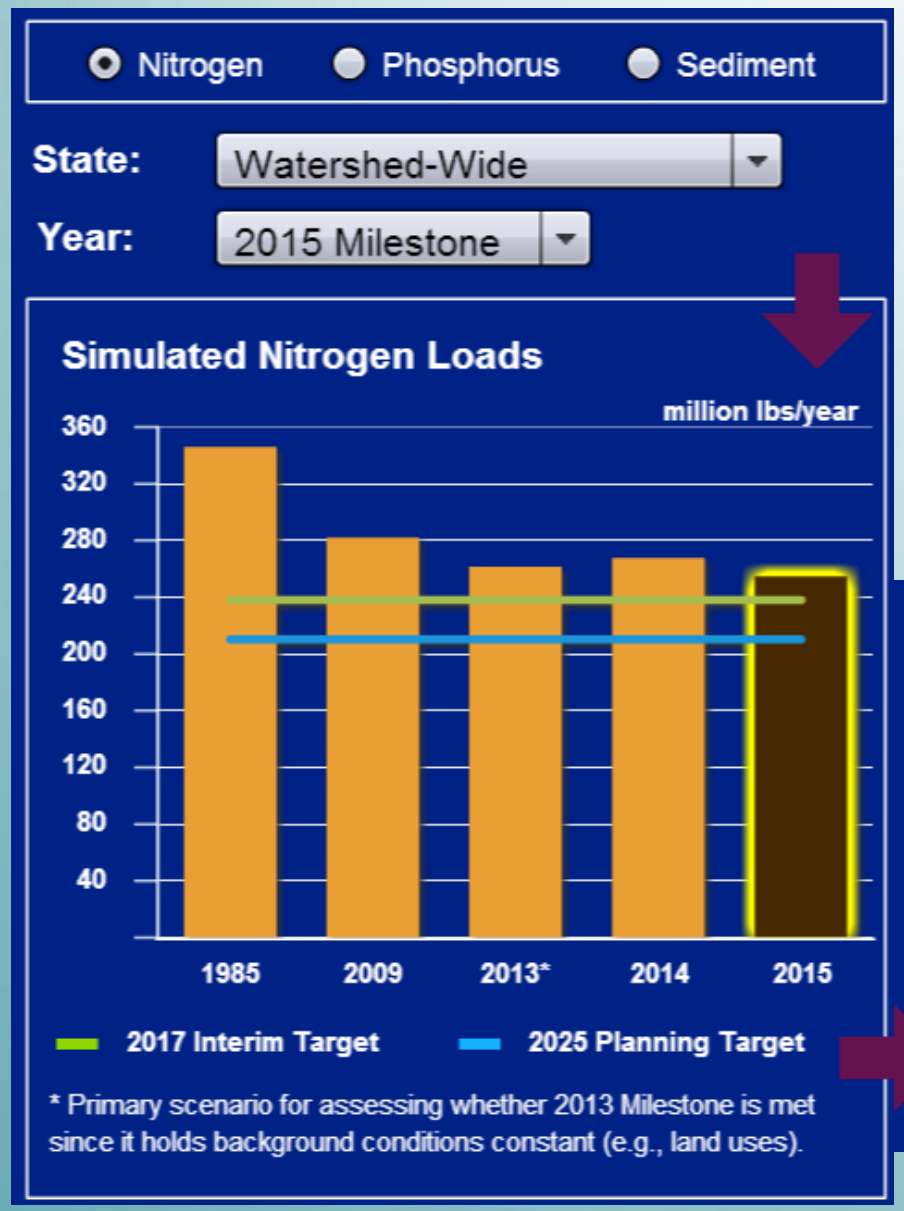
How is the pollutant reduction of BMPs accounted for in the Chesapeake Bay TMDL?

- Each year the jurisdictions submit their BMP implementation data to the Chesapeake Bay Program Office
  - You can view and download the latest data here: http://stat.chesapeakebay.net/?q=node/130&quicktabs_10=3

- Those reported BMPs are then run through the Partnership's suite of models and pollutant load reductions delivered to the Bay's tidal waters are then estimated

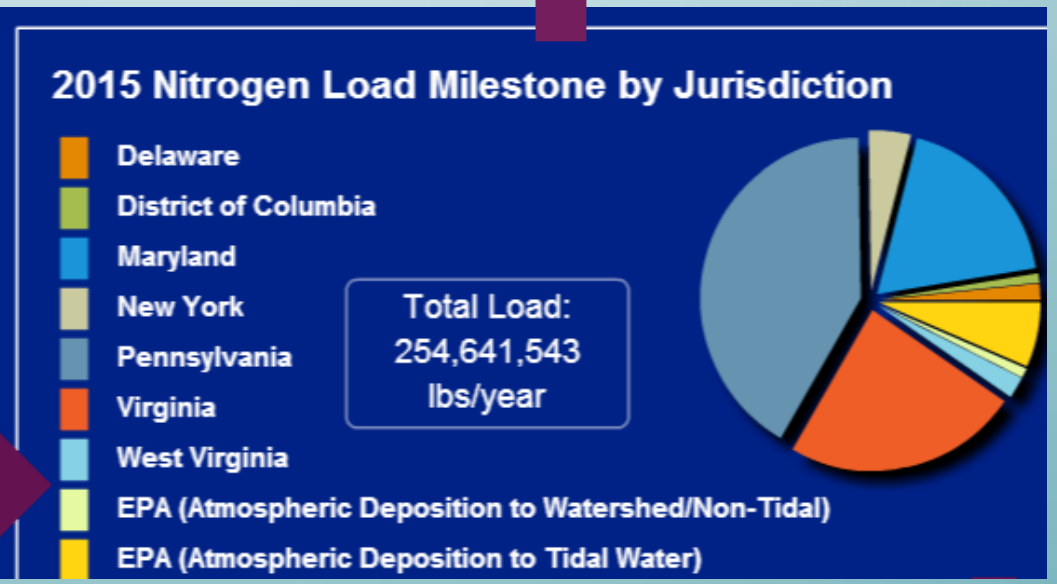
  - New and improved information about progress for BMP implementation and other efforts will soon be available at: http://www.chesapeakestat.com/chesapeakeprogress

Example—Nitrogen Reduction:



Best Management Practice Implementation

- Jurisdictions must achieve the pollutant load reductions as Milestone Commitments.
- Jurisdictions identify practices in their WIPs that they forecast will achieve the load reductions



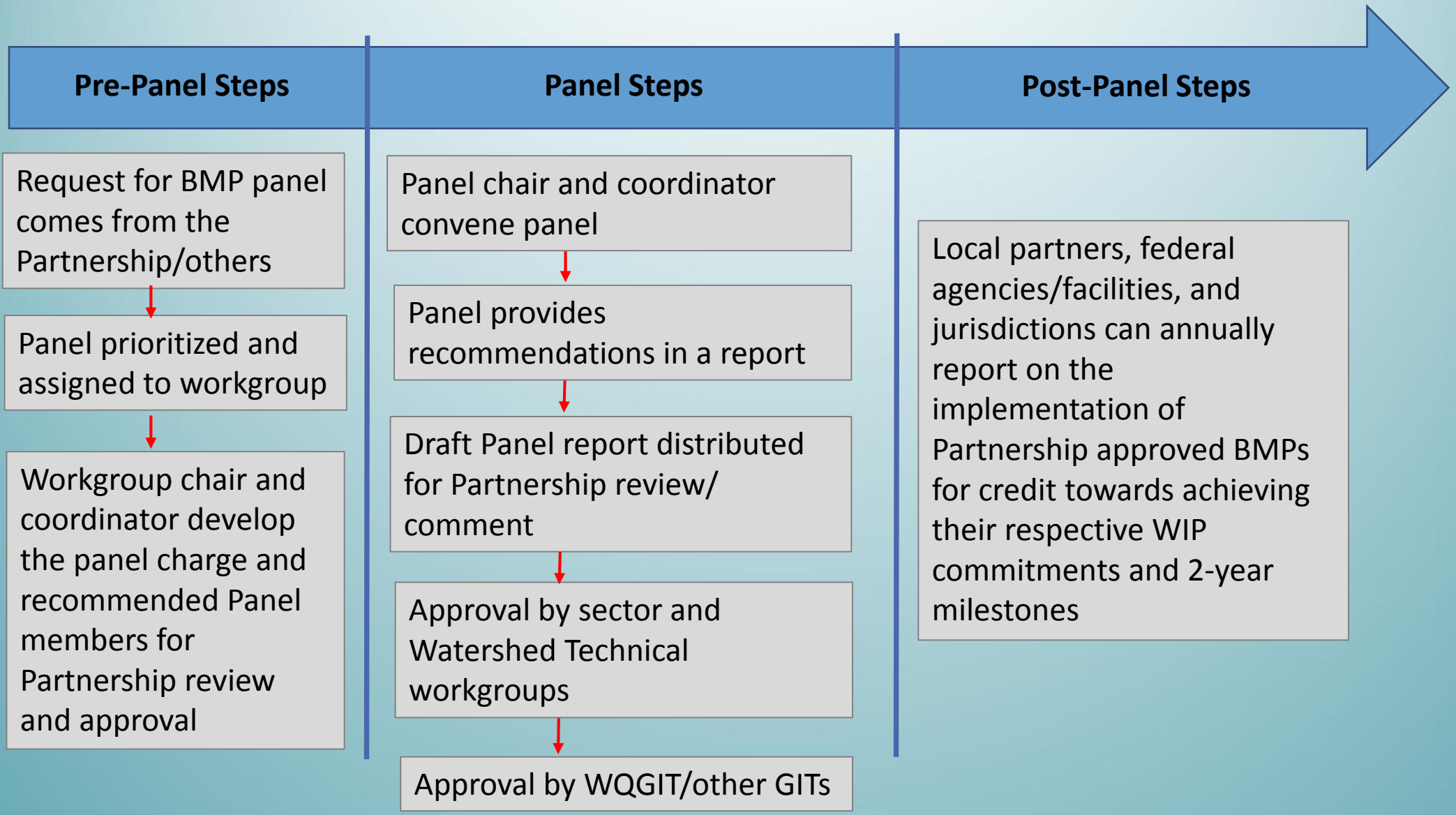
How does a practice become a BMP for implementation in the Chesapeake Bay TMDL?

- Practices must be evaluated by a BMP Expert Panel following the Chesapeake Bay Program Partnership's BMP Review Protocol to determine the nutrient and sediment loading reduction effectiveness values.
  - http://www.chesapeakebay.net/publications/title/bmp_review_protocol
- Each BMP expert panel's recommendations then go through a Partnership review and approval process as described in the BMP protocol.

Why do we need BMP Expert Panels?

- Expert panels use the best available science and best professional judgment to determine the appropriate nutrient and sediment reduction of practices.
  - They develop a report that includes recommendations for definitions, loading/effectiveness estimates, and verification for the practices.
  - They also identify ancillary benefits or unintended consequences of the practices.

The BMP Review Process, "Simply" Put



Why Convene an Oyster BMP Expert Panel?

Reason	Details
Unresolved questions support the need for an oyster BMP expert panel	• There is a need for experts to resolve outstanding questions concerning the use of oyster practices as BMPs to support water quality goals in the TMDL. • New research is available to evaluate pollutant reduction estimates.
Interest in oyster practices use as BMPs is high	• Public stakeholder presentations at this meeting will demonstrate this.
An oyster BMP expert panel would be timely	• Will help inform the Chesapeake Bay TMDL 2017 midpoint assessment.

Oyster BMP Expert Panel Overall Goals

1. Reach a consensus on acceptable pollutant reduction effectiveness estimates for oyster practices in Chesapeake Bay based on existing science.
2. Determine a methodology to update these estimates when new science becomes available.
3. Establish pollutant removal crediting and verification guidelines as it relates to their application in the Chesapeake Bay Program (CBP) partnership's model used to inform the Chesapeake Bay TMDL.

Oyster BMP Expert Panel Charge Items

1. Identify and define oyster practices, including aquaculture operations and restoration activities, for nutrient (nitrogen and phosphorus) removal BMP consideration. Evaluate whether existing science supports the evaluation of sediment reduction effectiveness.

2. Develop a pollutant removal crediting decision framework that will allow the incremental approval of pollutant reduction effectiveness estimates for individual oyster practices and associated pollutant removal/nutrient cycling processes (e.g., N and P bioassimilation in tissue and shell, N removal via denitrification).

3. Using the established framework from charge item 2, propose pollutant removal effectiveness estimates that are determined to have sufficient science for one or more applicable pollutant removal/nutrient cycling processes to help inform the Chesapeake Bay TMDL 2017 Midpoint Assessment.

Charge Item 1—Identify and define oyster practices for BMP consideration

Oyster Aquaculture

Oyster Reef Restoration

Potential Oyster Practices for BMP Consideration
Intensive Water Column Aquaculture
Intensive Spat-on-Shell Bottom Aquaculture
Intensive Spat-on-Shell Bottom Public Fishery
Intensive/Extensive Bottom Restoration
Extensive Shell Planting Aquaculture
Extensive Shell Planting Public Fishery

Panelist Tasks:

- Provide recommendations on which oyster practices should be considered as BMPs.
- Determine whether they should be given their own BMP classification (e.g., bioextraction BMP, *in situ* BMP).
- Define their use in the CBP model framework given that nutrients are removed after entering the water and likely differ in their permanent nutrient removal.

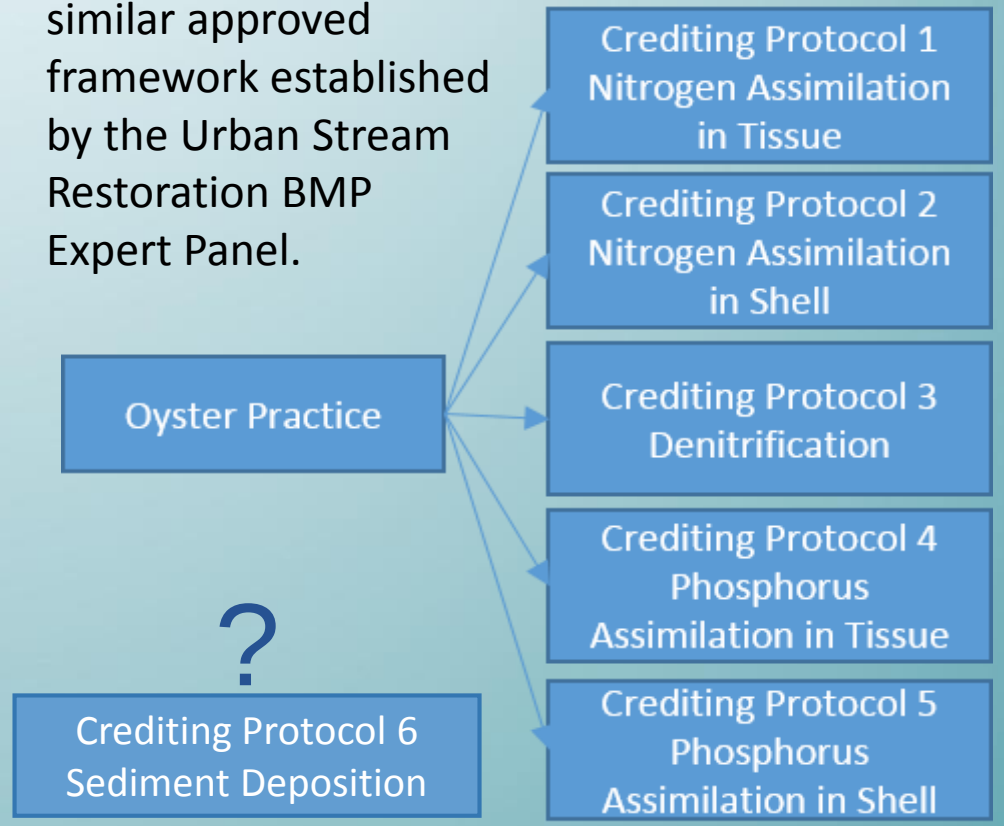
Charge Item 2—Develop a pollutant removal crediting decision framework for oyster BMPs

Panelist Tasks:

- Develop crediting framework for individual practices and processes that includes:
  - Pollutant/nutrient removal crediting and verification guidelines
  - Method for updating estimates when new science becomes available.
  - Guidelines for addressing uncertainty and variability in nutrient removal effectiveness.
- Consider recommendations from other oyster panel efforts (e.g., 2013 STAC Review and NOAA-sponsored oyster/nitrogen reduction workshop).
- Provide recommendations on how crediting and verification could be tested.

Framework Example:

*Concept derived from similar approved framework established by the Urban Stream Restoration BMP Expert Panel.

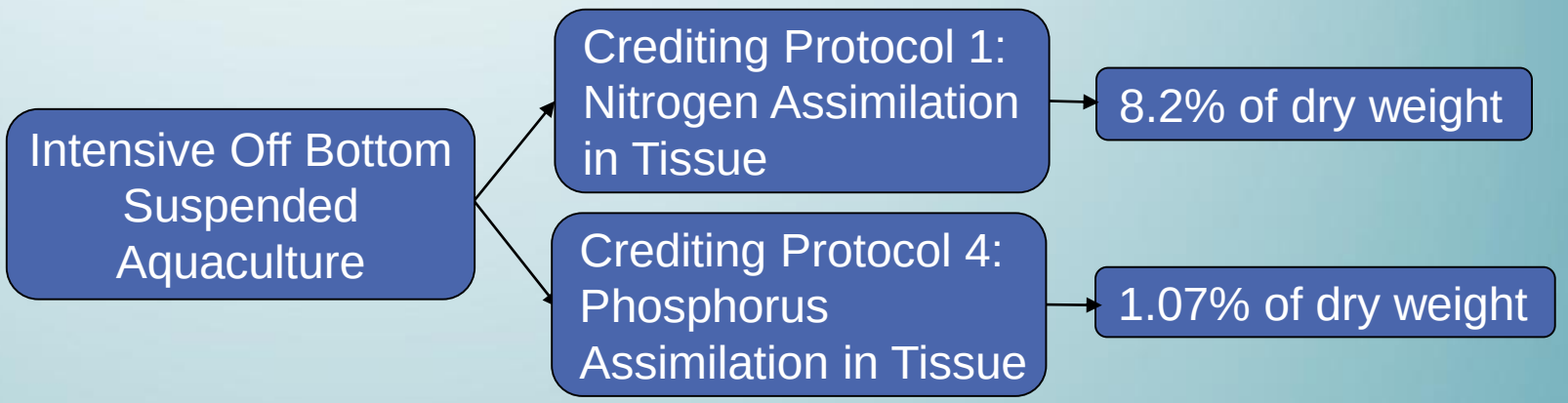


Charge Item 3—Propose nitrogen and phosphorus removal effectiveness estimates for oyster practices determined to have sufficient science

Panelist Tasks:

- Apply crediting framework from charge item 2 to determine nitrogen and phosphorus removal effectiveness estimates to help inform the Chesapeake Bay TMDL midpoint assessment.
- Consider evaluations from past efforts (2013 STAC review and NOAA oyster/nitrogen reduction workshop).
- Evaluate new literature.
- Review modeling approaches to determine if they would be acceptable to fill in any knowledge gaps concerning nutrient removal effectiveness.

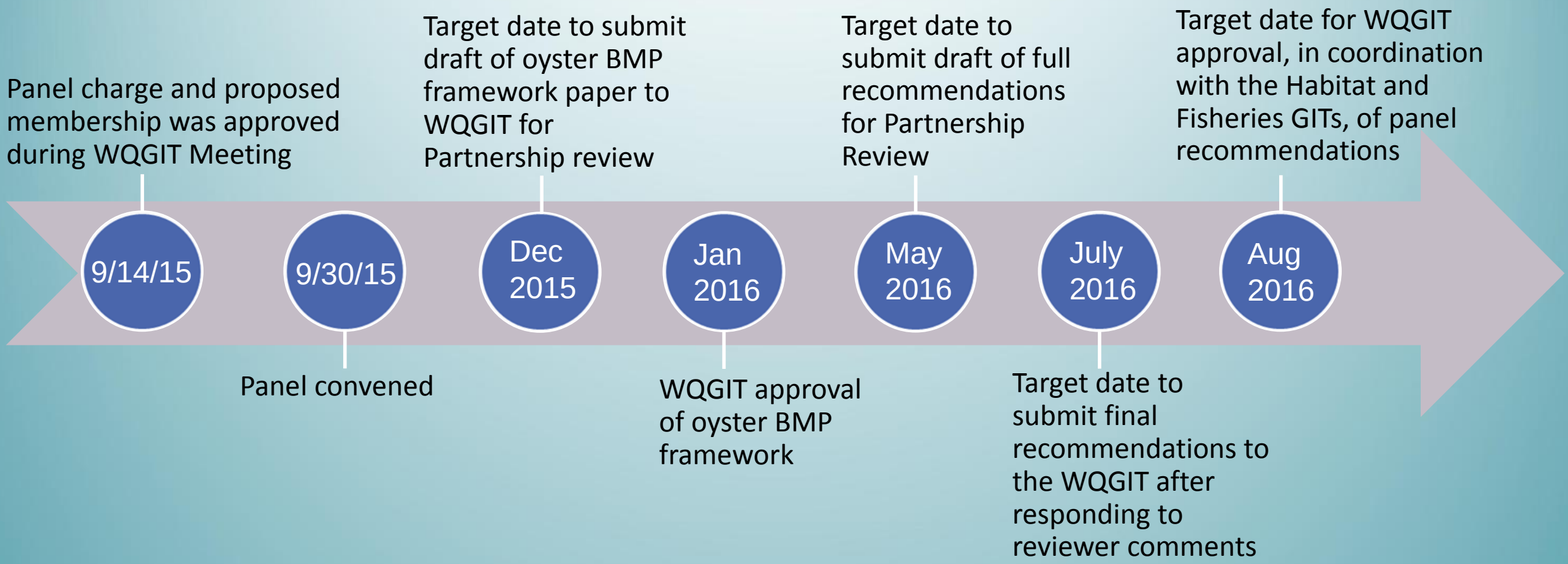
Hypothetical Example:



Example Guidelines:

- Credit only applies for harvested oysters.
- Denitrification credit not supported at this time.
- Assimilation in shell not credited because shell is returned to Bay.

Oyster BMP Expert Panel Timeline



QUESTIONS?