

*Responses have been pasted verbatim. The responses have been mixed around so that individuals' responses are not in the same order for every question. All questions were optional.*

## **WIP Outcome**

### **What do you see as added value for the WIP outcome as currently written?**

Coordination between partners

It provided an explicit accountability statement

I believe focusing on the practices and controls and installation is achievable and measurable.

### **What advice do you have for the Management Board on how to consolidate, reduce, update, remove or replace the WIP Outcome?**

Resources are needed from jurisdictions to implement what the governors committed to in 2014

I believe the date needs to be updated since we will not have all practices and controls install to achieve water quality standards by 2025. Additionally, as things continue to change, I believe that achieving STANDARDS will become more and more difficult. It's one thing to have practices implemented that will meet the goals of the reductions given in the Bay TMDL, but whether or not those actually achieve standards, is a different story and is dependent on many factors that are out of everyone's control. Also, what about the maintenance of those practices and controls?

First - they are outdated now so the need to be updated as activities. Second, because plans and planning are outputs and are activities, they are not ecosystem outcomes. WIP development and accounting really belong in Logic and Action Planning documents. Implementation belongs in Management Strategies. Measured changes in sources and loadings is the ecosystem outcome that should be stated in an updated/revised/replaced outcome.

### **Do you have thoughts on the timescale for achieving the outcome? Should the outcome be incremental?**

Incremental 10 year goals

Do you mean can we check the box on whether or not management activities were done? That is something for annual work plans and accountability. If you are looking for ecosystem response to management actions, and if you want to "accelerate recovery", then we should look at the pace of trends in load reductions, trends in bay response, and the present trajectories would be for "full recovery" in over 100 years. Breaking that down, yes, you could say we need a statistically significant different in trend magnitude above the present rate of load reduction from the watershed or hypoxia reduction in the bay and/or rate of SAV recovery in cover/water clarity improvement, or reduction in CHLA from historical levels, all that if at least one revised outcome is TMDL-centric.

Yes, since we are in 2025 already, I believe the year needs to be changed to 2030, and I think the outcome should be incremental. Maybe start with trying to get all practices and controls install to achieve Bay TMDL reductions by 2030. Then any additional practices and controls necessary to further reduce loads to meet WQ standards as information from the Water Quality Standards Attainment and Monitoring Outcome supplies information towards meeting the WQS. We know

that it might take more than what is allocated in the TMDL to actually achieve standards. Or there might be a time lag in the DO, SAV, and chl-a actually recovering to achieving WQS.

## **WQSAM**

### **What do you see as added value for the WQSAM outcome as currently written?**

Helps the WIP outcome

The Bay's dissolved oxygen, water clarity, and chl-a criteria were established because they respond in known ways to the nutrient and sediment pollutant loadings being addressed by the Bay TMDL (according to models, at least). More importantly, the three WQ criteria address different features of the tidal ecosystem and begin to quantify what "clean water" is in a holistic way. The direct connection established between pollutants, Bay WQ, and the desired living resources responses makes the WQ Goal an ecosystem-based goal; the attainment standards embody a quantitative "vision" of what WQ rehabilitation (outcome) should look like. This kind of goal is something the other GITs haven't developed yet, even the Healthy Watersheds GIT (which hasn't told us how many healthy watersheds we need to support/maintain clean water in the Bay). This aspect of the WQGIT should be better highlighted. Achieving the Bay WQ standards is the "bottom-up" rehabilitation approach. Alone it will not rehabilitate the Bay ecosystem. Sustainable fisheries management ("top-down") and oyster reef/shoreline restoration ("sideways") approaches are also required. Perhaps caveating language should be included in a management strategy saying as much.

That is is focused on improving capacity to monitoring and assess.

Accountability. the need to revisit the outcome and have conversations about monitoring capacity and analysis to generate outputs useful to informing management was clear because there was a monitoring and assessment specific outcome

### **What advice do you have for the Management Board on how to consolidate, reduce, update, remove or replace the WQSAM Outcome?**

In reading this again, and right next to the WIP. We may want to switch the language from the WIP with the WQS. Maybe the WIP one should say something like By 2030, have practices and controls installed to meet the Chesapeake Bay TMDL Reductions. By 2035, have any additional practices and controls installed to enhance the effects of implementing the bay TMDL to improve water quality and eventually meeting water quality standards. Then the WQSAM outcome would specify the Standards and how to monitor them, such as "Continually improve the capacity to monitor the Bay's dissolved oxygen, water clarity/submerged aquatic vegetation, and chlorophyll a standards to show how management actions are improving water quality. Use the monitoring results to inform the WIP outcome and any additional practices or controls that are necessary to achieve WQS. Use the monitoring results to report annually to the public..." But we also need to make it much more specific and should separate each standard and how we plan to monitor and assess it. For example, for Dissolved Oxygen, the outcome and goal should be to assess all criteria for all designated uses in each segment. For water clarity/SAV, it should be to continue to monitor SAV and provide water clarity information for any segment that isn't meeting the SAV restoration goal, etc.

The WQSAM outcome is qualitative, complex, and a poor representation of what the WQ Goal statement says is our goal. The goal statement is more generic ("reduce pollutants"). Advice is to 1) replace the existing language with at least 2 outcomes - a TMDL specific outcome in meeting specific WQ Stds, and at least one other outcome that reflects more completely the diversity of measures we use to track status and change in waterways - e.g., salt in freshwater, toxics, emerging contaminants like plastics for which the CBP has invested years in workshops, reports and guidance on monitoring but there is no explicit mention in the present agreement, bacteria because our goal is explicit mentioning protecting human health but nothing in the existing outcome speaks to human health and wellbeing protections.

**Do you have thoughts on the timescale for achieving the outcome? Should the outcome be incremental?**

For a WQ Stds outcome - this should be incremental. However, right now, acknowledge that we have an unattainable outcome expectation of meeting WQ Stds because we have never yet had a full accounting of water quality standards as it relates to TMDL implementation expectations. That is a disconnect. We either need to retool the outcome language to reflect our use of proxies (e.g., the estimators like the WQ Stds Multimetric indicator) or we need language that integrates what we actually measure and can report on to effectively inform status and progress on more diverse measures than WQ Stds. We have so many measures of WQ, yet we hang our hats on assessing measures we have never been able to monitor and report on with WQ Stds. At this point in time, that is a recipe for failure. SMART outcomes ask for specific and measurable elements, let's reflect upon the science, reflect upon what is measurable, trends in what is measurable, and create reasonable expectation about recovery rates of those things we actually measure and report on. Right now our outcome is about capacity building and reporting. We basically have achieved a viable capacity. Another reason for making one or more outcomes about ecosystem measures not activity and output measures. If you want to think of timescales for achieving outcomes - it is centuries to never at the moment (2 papers out of VIMS suggest 1) we will not meet DO standards and 2) we cannot meet SAV/clarity expectations. Therefore, until we have a revised outcome or outcomes, I cannot speak further to achieving it.

Should mirror the updated WIP outcome, but also be SMART

Yes, this clearly isn't happening by 2025 so we need to make the goals 2030, 2035 and so on. We definitely should also make them incremental. Starting with Using the monitoring results to show trends in reducing nutrients and sediments, since that is something we can already do. But then work on assessing all applicable DO criteria for each DU for dissolved oxygen, then water clarity/SAV, then chlorophyll a. Then be reporting on the progress in attaining WQS. I think separating the trends in nutrients from WQS is important since as I mentioned above, achieving WQS might take more than the TMDL reductions and some of it, is out of our hands, even when we meet the TMDL. But documenting progress in portions meeting and not meeting standards is really important, and we can't do that right now since we can't assess all DO criteria.

**General questions**

**What do you see as added value in a revised outcome(s)?**

Better alignment with the goal statement. Better ability to communicate status and change to managers, policy-makers and the general public. Better reflection of broader environmental conditions and responses to management actions that makes more robust use of diverse data sets and is less focused on a binary achieved/not achieved unmeasurable standards at this time.

I think making incremental steps, and being specific with what is achievable, measurable, and documenting what is within our control vs. not in our control will make it easier to measure progress towards meeting TMDL load reductions, or assessing all DO criteria, or showing progress in percent of segments meeting WQS instead of lumping them all together as "implementing the Bay TMDL and meeting WQS"

**Are there any new [water quality related] outcomes that you recommend the MB consider?**

Yes, assessing all DO criteria for each designated use, and being able to report progress in meeting WQS in each segment is an important step/measurement and goal that we are missing. I think it is part of the WQSAM outcome but is not explicit.

Climate change should be a consideration, all jurisdictions signed onto the EC climate directive, therefore all jurisdictions should have climate built into their pollution diets. This is not currently happening

Yes! Keep one outcome focused on improving the pace of recovery for measurable standards. Create another outcome that speaks more completely to "reducing pollutants" that has multiple indicators for a scorecard - e.g., salt management of freshwater ecosystems, beach closures and bacteria management, toxics in fish/fish consumption in watershed and bay environments for a subset of key food species not all commercially but culturally relevant as well, plastic/microplastics as an emerging contaminant of ecosystem harm.

**Do you have any other thoughts or comments for STAR or WQGIT leadership?**

We need to create at least 2 new outcomes. The introductory paragraph to the Water Quality Goal needs to be revised. The goal statement could stay the same if the scope of WQ is broadened, or, we go down another path - keep the introductory paragraph that is very TMDL centric, rewrite the goal to be TMDL-centric, and then have an outcome aligned with the intro material and goal that is TMDL centric. We need better knitting of the logic and text flow within this Intro-goal-outcome material, and that is true of the whole of the Agreement - there needs to be some honest editing that shows consistency and continuity across levels and is not a collection of pretty words that then takes 10 years and countless meeting of many minds to dissect and be able to effectively act upon for the good of the restoration effort.

Right now, I feel like these outcomes are vague and difficult to understand and measure. As much as I want to consolidate things, i think in this instance, it makes sense to update them and add to them with more specifics and give extra thought and attention to the differences between the TMDL, Water Quality Standards, and Criteria.