Appendix M. Response to Public and Stakeholder Comments

The Oyster BMP Expert Panel Second Report was available for public and stakeholder review from January 30 to March 10, 2023. A total of 14 responses were received. Overall, there was general agreement with the Panel's recommendations and support for the Panel's endorsement to credit oyster restoration and harvest. Many commenters were satisfied that sufficient science was used to generate the reduction estimates and recommendations.

The Panel carefully considered all comments and suggestions that were submitted. Many of the comments were outside the Panel charge or were requests to expand Panel recommendations for topics where data is currently lacking. Therefore, very few minor changes were made to the report and the Panel's recommendations remained unchanged.

Several commenters questioned why the Panel did not provide a default enhanced denitrification estimate for large substrates. These individuals were concerned that the lack of default estimates would restrict the ability to credit restoration programs utilizing these materials. The Panel provided guidance for how implementers can develop site-specific estimates for oysters growing on these substrates throughout the report. Additional rationale and limitations are outlined in a new Appendix L, which was developed in response to these concerns and questions.

The remaining feedback generally addressed concerns or questions in the following categories:

Feedback Category	**Panel Actions**
Eligible Practices	The Panel discussed suggestions and decided no changes were appropriate to the practices currently described in the report.
Definitions	Minor adjustments were made (described in the tables below).
Clarification & Grammar	Minor adjustments were made to improve clarity (not described in detail here).
Approach & Data	No major changes were made to the report. The Panel has provided additional justification in a new Appendix L and has provided more detailed responses to specific comments in the tables below.
Biomass Assessment & Verification	No changes were made. The Panel has provided responses to specific comments in the tables below.
Future Research	Some future research needs were added to the report.
Implementation, Credit Timeframe, Regulations	Not addressed. These were outside the Panel's charge.

Responses to specific comments are outlined in the tables that follow.

Table M-1. Summary of comments and the Panel's responses that are directly related to the Panel's recommendations in this report.

BMP	Topic	Comment Summary	Panel Response	Revision Made to Report?
Restoration	Eligible Practices	Should consider whether other biomass enhancement activities, including in situ setting of hatchery-produced oyster larvae, qualify as eligible oyster enhancement activities.	Adding the in situ setting of oyster larvae as an eligible BMP practice is not appropriate at this time. There is a lack of data on the efficacy of direct setting as an enhancement activity, as well as a lack of data on the growth and survival of oysters introduced using this method. More research is needed before this could be considered.	No
Restoration	Eligible Practices	Do the results transfer to freshwater or mixed water systems?	This is a tidal BMP only.	No
All	Definitions	BMP site: Specify that the site only includes the footprint of enhancement.	This was intended and is captured in the definition of "BMP site area".	No
Restoration	Definitions	Large substrate: The definition is not relevant to our region. The division between "large" and "small" substrate is unnecessary. The Panel should only list the types and sizes of substrates with sufficient data which are included in the regression data.	The Panel deems data availability for large substrates to be deficient for generating a default denitrification rate and using the default regressions. The Panel concluded it was necessary to distinguish between substrate categories to provide clarity on what was eligible and not eligible to receive credit using default rates and regressions.	No
Restoration	Definitions	No-harvest areas: Does the definition pertain to areas closed due to water quality concerns like sanitary sewer discharges? Definition should clarify the timeline required to be considered a no-harvest area. Should distinguish if closed permanently or closed periodically.	The Panel is implying that an area must be permanently closed to harvest. Ultimately this is up to the States. The Panel added a qualifier to the definition.	Yes
Restoration	Definitions	Oyster reef restoration: Need to add that areas could be closed to harvest due to water quality concerns.	This will be addressed by updating the definition for "no-harvest areas".	Yes
Restoration	Definitions	Suitable substrate: Add examples	The Panel hesitates to over-define this term due to the ongoing development of new substrate types. The Panel added the text "can include but are not limited to…" with examples.	Yes
All	Approach & Data	The geographic scope for developing the regression equations is limited. If approved, the Panel should use additional data that is more spatially diverse to update the BMP reduction estimates.	Figures E-1, E-6, and 8.2 display the spatial scale of data used to generate the Restoration BMPs. The information used to generate the regression equations for the Harvest BMP is in the Panel's first report. Collecting more measurements and refining	No

			the estimates provided in this report will require significantly more time and resources. It is up to the CBP and States if they want more data before reviewing or approving these BMPs.	
Harvest	Approach & Data	Why were observed mortality rates from the Maryland DNR fall survey and other existing databases not used, and why were sentinel monitoring sites in Harris Creek not used to evaluate spat mortality for generating a default spat survival rate? It does not seem that existing oyster density and recruitment were fully considered in this assessment. Suggests an additional assessment should be done on the substrate and seed restoration sites in Harris Creek.	The Panel specifically calculated how many oysters survived from planting (year 0) to year 3 for reefs restored using spat on shell only. These reefs were most similar to harvested reefs (see Appendix D and Ch 6 for details). Data from these two periods already integrate recruitment, survival, etc. rates and processes. The Panel did not need to quantify survival between individual years so did not think this additional data is most appropriate for their needs. The Panel welcomes DNR to use other survival rates based on data they collect to inform MDE BMP criteria.	No
Harvest	Approach & Data	Concerned about extrapolating survival data from planting to harvest from a large-scale restoration area (Harris Creek) to harvest areas due to differences between restoration and harvest areas. Without data from open-harvest areas, approval of this BMP should be postponed. The Panel should include additional recommendations on timelines and protocols for sampling to avoid overestimating spat survival OR should only allow use of the default 3% harvest allowance.	The Panel considered all of these details when developing the 3% default spat survival rate and harvest allowance. They concluded it was appropriate.	No
Restoration	Approach & Data	The stipulations of the timelines associated with the two separate baseline oyster biomass approaches (pre-restoration vs. representative site) are overly strict and could unintentionally limit the use of this BMP. These recommendations should be more flexible and allow the non-restored representative site approach to be used in more situations.	The Panel provided two baseline approaches to cover both scenarios of restoration (that were initiated either before or after the approval of the BMP). The Panel deliberated on the conditions specific to each baseline approach. The pre-restoration conditions were developed to minimize crediting increases in biomass at the restoration site simply by closing an area to harvest before enhancement activities take place (Practice L – not endorsed). The representative site conditions were developed to minimize the risk of the site not being representative of the restoration site due to the patchiness of oysters, differences in environmental	No

			conditions, natural changes over time, etc. The Panel agrees these conditions are scientifically valid and does not recommend changing them.	
Restoration	Approach & Data	Some ideas/concerns about the statistical model (50th quantile) used to generate the default oyster shell height to biomass regressions: • Could address location effect with a dummy variable and test for a location by shell length effect. Or subset the data to see which locations differ from the original model • Is the design used a nested design? If analyzed independently, could be improperly minimizing variance estimates	The Panel chose the 50th quantile regression for its simplicity and the approach to test effect of location and habitat type was meant to be simple. The Panel recognizes that there is uncertainty in their estimates and that there are limitations to their approach. Data can be made available once the BMP is approved. Others are welcome to improve the Panel's default estimates which can be incorporated into the watershed model and nutrient management framework.	No
Restoration	Approach & Data	The Panel's approach to generating reduction estimates is more descriptive than predictive. A quantity of interest to management is the total amount of N and P removed and uncertainty in that amount. This would require an estimate of the number of oysters as well as the average size and the rate of N/P removal. These quantities all have uncertainty associated with them so there should be uncertainty reported with the total N and P removed.	The Panel assumes that there is uncertainty in all their reduction estimates, but did not quantify it. The Watershed Technical Workgroup has confirmed that uncertainty is not currently reported for any other BMPs in the BMP reporting framework.	No
Restoration	Approach & Data	Does the amount of nitrogen removed depend on other factors that might be included in a more general model (turbidity, temperature, salinity)?	Yes. The Panel tried to incorporate this by using oyster measurements taken at different times of year and from different locations across the Chesapeake Bay. The Panel used data that already existed to generate their estimates. These data were not collected with the specific intention to be used for developing a BMP.	No
Restoration	Approach & Data	The differentiation between substrates based on size seems arbitrary. Relying on the size of the substrate to distinguish between creditable and non-creditable projects complicates the process.	Improved datasets on a range of substrates would be helpful, but were not available to the Panel. The Panel used size to assign whether substrates were creditable using default estimates or site-specific estimates. This distinction has more to do with how an implementer would sample substrate rather than size. The Panel decided that size was the best way to describe or summarize this distinction.	No

Restoration	Approach & Data	For denitrification crediting, suggest the Panel allow large reef substrates to be credited the same as small substrate rates for a default rate. The Panel has emphasized that nutrient removal efficiencies are conservative and therefore there is no ecological danger in building in the recommendations for default large reef substrate credits. The report fails to acknowledge that a baseline denitrification value can and should be applied to larger reef structures and should revise the report to include them. The Panel should recognize that quality work does exist regarding large structures. One shortfall of the Panel's effort relates to decisions about crediting denitrification for large structures. Suggest (at a minimum) using site-specific data being collected for N and P crediting (with respect to oyster tissue and shell biomass) as a placeholder for baseline denitrification credit for large structures. It would be detrimental to wait years until all the appropriate data are collected for large structures to mimic the level of information we have for smaller ones. One commenter offered both published and unpublished datasets from their assessments of oyster reef restoration projects within Chesapeake Bay. None include in situ denitrification measurements, but they do indicate that large 3D reef structures exhibited production equal to or greater than 2D shell reefs. Recommend that the Panel include interim baseline denitrification values for large structures that are at a minimum on par with those recommended for small structures.	The Panel is not discouraging implementers from seeking credit for enhanced denitrification on reefs restored with large substrates, but does not feel that there is sufficient science to generate a default rate for these restoration projects at this time. The scientific community has an incomplete understanding of biogeochemical processes on large substrates – there is an overall lack of data on this subject, or existing data is insufficient to generate a Bay-wide default rate (more details in Appendix L). The Panel is also concerned about not being able to identify negative consequences associated with crediting denitrification on large substrates if using default rates developed for reefs restored with small substrates. For now, the Panel has provided guidance on how implementers can generate site-specific estimates by measuring denitrification and oyster tissue biomass on large substrates directly. The site-specific estimates cannot be applied Bay-wide.	No

Restoration	Approach & Data	Request to include information on how mixed substrate BMP areas (e.g., on bottom SOS and Reef Balls) should be addressed through the suggested protocols. Need to expand protocols for sites that have mixed substrate sizes.	The Panel has added text to Subchapter 7.2.4 to explain how to credit restoration projects using mixed approaches. In short, the implementer would treat the substrates separately.	Yes
Restoration	Verification	Suggests indicating which of the restoration-assimilation examples would best reflect large limestone, granite, or other non-calcium stone as these are mentioned in Section 7.2.3 as examples of large substrates.	The Panel has added text in Subchapter 7.6.2 that describes considerations for sampling oyster biomass on these substrates.	Yes
Restoration	Verification	Recommends a biomass monitoring end date of 6 years to enable efforts to move on to restoration in other locations.	It's up to the implementer to decide how long they want to monitor reefs to receive restoration credits. The Panel is recommending that implementers continue to monitor biomass because we don't know the long-term biomass trends on restored reefs (e.g., > 10 years). Restoration at this scale is still relatively new.	No
Harvest	Future Research	Prior to approving a BMP for licensed oyster harvest, recommends that data on at least 5 years of oyster survival in harvest areas is collected.	This is already included in the Panel's research recommendations for this BMP. It is up to the CBP to decide if not having this data should delay approval of this BMP.	No
Harvest	Future Research	Need to also include discussion of potential negative consequences of increased biodeposition and phosphorus dynamics in the licensed oyster harvest discussion in Section 6.7.	The Panel agrees that this could be an unintended consequence. However, additional research is required to determine whether it is or is not a negative consequence on harvested reefs. The Panel has included this in Appendix I for harvest and on-bottom aquaculture.	Yes
Restoration	Future Research	The Panel needs to prioritize measurements within the 78-267 g DW m^{-2} oyster biomass range in the denitrification regression. An inflection point in the regression plot is likely and should be identified.	The Panel agrees that this would be helpful and has added this comment as a future research need in Subchapter 8.9.	Yes
All	Future Research	Anticipates that future research to address the advantages/disadvantages of using alternate substrate for restoration, and improve the spat survivorship estimates on harvested reefs will be useful. These should be prioritized.	The Panel agrees that these are two of the most relevant needs for additional research. Understanding these processes will help refine the estimates and recommendations the Panel has outlined in this report. We have checked to make sure that these future research needs are included throughout the report.	Yes

Table M-2. Summary of comments and concerns raised by the public and stakeholders that are outside the Panel charge, require additional consideration by the CBP Management Board, or are not relevant to the recommendations in this report.

BMP	Topic	Comment Summary	Panel Response	Revision Made to Report?
All	Review Period	Suggests an additional comment period before review by CBP Management Board.	A 40-day review period was recommended by CBP advisors. There were several opportunities for individuals or organizations needing extra time to conduct their reviews to contact the Panel Coordinator. It is up to the CBP to decide if an additional review period is required.	NA
Harvest	Eligible Practices	Agree that Practice F is similar to previously approved practices, but think verification and accounting associated with this practice is difficult. Does not believe that this BMP should move forward for approval unless alterations to the public fishery are made.	Outside Panel charge.	No
Restoration	Credit Timeframe	The proposed approach for reduction crediting for oyster reef restoration is at odds with other ways the CBP addresses new information and incorporates it into the Bay watershed model and state- or basin-specific allocations. New information should be used to help set the baseline, not credit historical work done. Pre-restoration data dating back to before an oyster restoration BMP is approved should not be permitted. Commenter only supports denitrification credits for projects moving forward from the date the BMP is approved.	The EPA will ultimately decide how oysters are added to the TMDL model. The Panel is providing recommendations on when reefs become eligible for credit based on their knowledge of how oyster restoration activities are tracked. An implementer can track past restoration activities and many of the existing restoration programs in the Chesapeake Bay conducted thorough pre-restoration habitat surveys.	No
Harvest	Implementation/ Regulation	There should be explicit restrictions on harvesting at a BMP site prior to the start of crediting to allow for adequate survival and growth of planted oysters prior to removal by harvest.	This is already partially accounted for in the Panel's qualifying conditions for this BMP. This is also a State management decision and the Panel cannot enforce any regulatory decisions.	No
Harvest	Implementation/ Regulation	To account for undersized oysters included in harvest, 5% of the estimated assimilated nitrogen	This is inherently included in the qualifying conditions for this BMP that minimize over crediting of oysters	No

		and phosphorus should be removed at the time of crediting so as not to perpetuate incentives to harvest undersized oysters.	that should not be harvested. This is also a State management decision and the Panel cannot enforce any regulatory decisions.	
Harvest	Implementation/ Verification	Recommends additional requirements be added to steps in reporting process: Step 1: BMP site area be clearly marked and closed to harvest until the default or site-specific time lag has passed Step 2: Add a requirement to document the source of hatchery-produced larvae and/or spat on shell Step 5: Add a requirement to identify who is allowed to harvest from the BMP site prior to beginning harvest after the two-year lag has lapsed.	These additional verification steps and harvest restrictions will be up to the States. Step 1 – outside Panel charge; Step 2 – from nutrient reduction perspective, source of hatchery-produced oysters is not necessary to track; Step 5 – outside Panel charge.	No
All	Implementation	Suggest adding detail to help distinguish BMP site from adjacent harvest and/or no-harvest areas: • 150 ft (or larger) buffer • BMP areas should not cross management boundaries • BMP site should encompass the entirety of a bar or easily distinguishable management unit to facilitate enforcement and verification	It will be up to the implementer/ States to decide how restoration or harvest areas are delineated, and how BMP sites are selected within/among those.	No
Harvest	Verification	Observers or vessel monitoring systems should be required to verify that oysters originated from the BMP site.	Outside Panel charge. It will be up to the implementer/States to decide how harvest is tracked for BMP credit. Many of these systems are already in place in certain areas of the Chesapeake Bay.	No
Aquaculture	Verification	Suggests that including documentation to verify the source of hatchery-produced oysters or to verify substrate additions on aquaculture leases should be mandatory, not optional.	This BMP is already approved. This is also outside the Panel's current charge, but can be considered by the CBP Management Board.	NA
All	Regulations	Approval seems premature given the pending CBP policy decisions and lack of guidance for Oyster BMPs in Phase 6 Watershed Model	No action needed by Panel. This is a decision for the CBP Management Board.	NA
All	Regulations	Need to include rationale in the report why other fisheries should not be credited for nutrient removal.	Outside Panel charge.	NA
Harvest	Regulations	Executing a framework for crediting licensed oyster harvest activities would require structural, regulatory, and statutory changes to implement the BMP protocols.	Outside Panel charge.	NA

Aquaculture	Approach	The recommendation that wild hatchery-produced oysters planted on-bottom with no cages be eligible for credit defeats the model of using triploid oysters only. Was this overlooked as an unintended consequence?	Not relevant – this comment applies to the Aquaculture BMP which is already approved. The Harvest BMP recommendations that the Panel outlines in this report do not allow the use of triploid oysters on harvest areas.	NA
Restoration	Data/ Future Research	Can the compiled data be stored somewhere or shared?	The Panel is willing to share data used to generate their estimates. Others are welcome to refine these estimates and the Panel's approach. Most of the data accessed in this report has been published through the scientific peer-review process and/or in technical reports. The Panel will contact data sources to receive permission to share unpublished data. The Panel will have to confer with CBP to decide where and how data can be hosted online for public access.	NA
Restoration	Future Research	If agencies are spending a certain amount of money on restoration, how should it be applied? For example, ideal number of oysters, design of reef, etc.	The Panel agrees that this information would be useful for designing oyster restoration projects and could provide additional recommendations. However, they agreed that this was beyond their current scope and charge. Individuals seeking recommendations for oyster restoration design should contact State agencies and scientific experts currently leading oyster restoration programs in the Chesapeake Bay.	NA