

Oyster BMP Expert Panel Update—February 1, 2018

Updated Panel schedule in terms of release of the draft and then final 2nd Panel report

The Panel is now planning to release a draft of the second report by the April/May 2018 timeframe. As a result of the EPA opinion that sequestered nitrogen and phosphorus is legal for in-water best management practices (BMPs) (Appendix A), we are including additional oyster practice-reduction effectiveness crediting protocol combinations (hereafter, “practice-protocol combination”) on the reduction effectiveness associated with nitrogen and phosphorus assimilated (sequestered) in tissue and shell from oyster reef restoration practices. Table 1 summarizes the Panel’s progress and planned report schedule.

Short outline of what the panel plans to cover in the 2nd panel report

The Panel’s draft decisions for the practice-protocol combinations planned for inclusion in the second report are summarized in Table 1 (see combinations highlighted in medium gray and labeled, “2nd”).

The second report will include complete recommendations for BMP approval where available science supported either default estimates and/or methodologies for site-specific estimates. The Panel is also planning to include a framework only recommendation for BMP approval that could be used to determine the reduction effectiveness of nitrogen and phosphorus assimilated in shell of harvested oysters once research gaps are addressed. The remaining recommendations are informational and identify either research gaps or policy issues for consideration to support future evaluations.

The recommendations planned for the second report include:

Complete recommendations for BMP approval decision:

- Application of the approved default nitrogen and phosphorus tissue estimates from the first report for the endorsed oyster practice category, “on-bottom public fishery oyster production using hatchery-produced oysters.”
- Default estimates for the amount of nitrogen and phosphorus assimilated (sequestered) in live oysters (tissue and shell) for the endorsed oyster reef restoration practices.
- A methodology to determine site-specific estimates for the “enhanced denitrification associated with oysters” protocol to apply toward the endorsed oyster reef restoration practices.

Framework only recommendation for BMP approval decision when missing information becomes available:

- Framework to determine the reduction effectiveness estimates for the amount of nitrogen and phosphorus assimilated in oyster shell of harvested oysters (applies to endorsed private oyster aquaculture and public fishery practices that involve an enhancement activity).

Informational recommendations to help support future evaluations:

- Data availability and research gaps associated with evaluating a methodology to determine site-specific estimates of enhanced denitrification for practices where oysters are harvested (i.e., endorsed private oyster aquaculture and public fishery practices that involve an enhancement activity).
- Data availability and research gaps associated with using the proposed framework to determine the reduction effectiveness of nitrogen and phosphorus assimilated in shell of harvested oysters for endorsed private oyster aquaculture and public fishery practices that involve an enhancement activity.
- Approach to potentially update the nitrogen and phosphorus assimilated in tissue estimates for harvested diploid oysters based on new data that became available after December 2016 that includes diploids grown in gear.

Clarification Item:

- Application of approved tissue estimates for the endorsed private oyster aquaculture practices— Panel’s assumption is that the presence of oysters before practice implementation is near zero based on leasing regulations.

Regarding oyster practices under the public fishery category, the Panel feels that the practice must involve an enhancement activity (e.g., planting hatchery-produced spat-on shell) that could result in new oyster production on the public grounds for the Panel to endorse the practice for BMP consideration. The Panel is in agreement that wild harvest in areas where no enhancement activity occurs should not undergo BMP consideration (this is reflected in Table 1 under the “public fishery with no activity” category).

Is the Panel still envisioning drafting a 3rd panel report and, if so, what would be included in this panel report?

Yes. This report would cover the remaining practice-protocol combinations not found in the first and second reports (see Table 1). These combinations have limited information available at this time; therefore, the Panel will reconvene when more science becomes available that would allow for a more thorough evaluation.

Anything else you think would be helpful to communicate?

The Panel has identified an additional policy issue that they would like the Chesapeake Bay Program Management Board to review concerning the oyster reef restoration practice category, “Designated oyster reef no harvest area.”

The majority of the Panel were in agreement to endorse this practice for BMP consideration. One panelist was not in support of endorsing this practice due to it being outside the norm of traditional land-based BMPs since no physical activity is occurring. This practice designates an area where oysters are not allowed to be harvested; no oyster plantings or substrate addition occurs (by human activity). Since the rationale for not endorsing this practice was based on a policy issue, the Panel recommends that the CBP Partnership Management Board review the issue and decide on whether this practice can be applied as a BMP. From a

scientific perspective, the activity of removing harvest pressure on a natural oyster reef by designating it as a no harvest area could result in increased oyster biomass and consequently increased nitrogen removal from enhanced denitrification and nitrogen and phosphorus sequestration from live oysters assimilating the nitrogen and phosphorus in their tissue and shell. The Panel agreed that their recommended method to determine site-specific estimates for enhanced denitrification and the default estimates for nitrogen and phosphorus assimilated in live oysters could be applied to this practice if approved for BMP use.

Questions? Please feel free to contact:

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Table 1. Summary of the Oyster BMP Expert Panel’s progress and planned recommendations for the 96 practice-protocol combinations. Combinations labeled, “1st,” were covered in the approved first report (dark gray), “2nd,” are planned for the second report (medium gray), and “3rd,” are to be covered in a third report (light gray). “Estimate” identifies combinations where there is sufficient science to recommend default estimates, “D,” a methodology to determine site-specific estimates, “S,” or both, “D/S” (bolded text). “Framework/Research Gap” indicates where the Panel is recommending a framework to determine the reduction effectiveness, but research gaps exist at this time to complete the BMP review process. “Research Gap” and “Policy Issue” indicates combinations where the Panel will be providing information to assist with future evaluations and “X” are combinations not endorsed by the Panel for BMP consideration. The Panel’s recommendation on whether an oyster practice category should undergo BMP consideration was based on whether the practice enhances the production of new oysters.

Oyster Practice Category x Crediting Protocol	Private Oyster Aquaculture					Public Fishery				Oyster Reef Restoration		
	A. Off-bottom private oyster aquaculture using hatchery-produced oysters	B. On-bottom private oyster aquaculture using hatchery-produced oysters	C. On-bottom private oyster aquaculture using transplanted wild oysters	D. On-bottom private oyster aquaculture using substrate addition	E. Private oyster aquaculture with no activity	F. On-bottom public fishery oyster production using hatchery-produced oysters	G. On-bottom public fishery oyster production using transplanted wild oysters	H. On-bottom public fishery oyster production using substrate addition	I. Public fishery with no activity	J. Oyster reef restoration using hatchery-produced oysters	K. Oyster reef restoration using substrate addition	L. Designated oyster reef no harvest area
1. Nitrogen Assimilation in Oyster Tissue	D/S Estimate (1st)	D/S Estimate (1st)	X (1st)	D/S Estimate (1st)	X (1st)	D/S Estimate (2nd)	X (2nd)	(3rd)	X (2nd)	D/S Estimate (2nd)	D/S Estimate (2nd)	Policy Issue (2nd)
2. Nitrogen Assimilation in Oyster Shell	Framework/Research Gap (2nd)	Framework/Research Gap (2nd)	X (2nd)	Framework/Research Gap (2nd)	X (2nd)	Framework/Research Gap (2nd)	X (2nd)	(3rd)	X (2nd)	D/S Estimate (2nd)	D/S Estimate (2nd)	Policy Issue (2nd)
3. Enhanced Denitrification Associated with Oysters	Research Gap (2nd)	Research Gap (2nd)	X (2nd)	Research Gap (2nd)	X (2nd)	Research Gap (2nd)	X (2nd)	(3rd)	X (2nd)	S Estimate (2nd)	S Estimate (2nd)	Policy Issue (2nd)
4. Phosphorus Assimilation in Oyster Tissue	D/S Estimate (1st)	D/S Estimate (1st)	X (1st)	D/S Estimate (1st)	X (1st)	D/S Estimate (2nd)	X (2nd)	(3rd)	X (2nd)	D/S Estimate (2nd)	D/S Estimate (2nd)	Policy Issue (2nd)
5. Phosphorus Assimilation in Oyster Shell	Framework/Research Gap (2nd)	Framework/Research Gap (2nd)	X (2nd)	Framework/Research Gap (2nd)	X (2nd)	Framework/Research Gap (2nd)	X (2nd)	(3rd)	X (2nd)	D/S Estimate (2nd)	D/S Estimate (2nd)	Policy Issue (2nd)
6. Suspended Sediment Reduction Associated with Oysters	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)
7. Enhanced Nitrogen Burial Associated with Oysters	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)
8. Enhanced Phosphorus Burial Associated with Oysters	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)	(3rd)

Appendix A

Recognizing Pollutant Reductions Via In-situ Oyster Filtration Under the Clean Water Act

The Chesapeake Bay Program Partnership's (Partnership) Oyster BMP Expert Panel posed the question "Can in-situ, permanent removal of sediment, nitrogen, and phosphorus pollutants from the estuarine water column via oyster filtration be recognized and credited as pollutant removal under the Clean Water Act?". The U.S. Environmental Protection Agency¹ (EPA) prepared the following response to this specific question.

The use of term "credited" in this context is assumed by EPA to mean the acceptance of a certain best management practice (BMP), treatment or technology to count toward achievement of a Chesapeake Bay watershed jurisdiction's pollutant reduction goals based on application through the Chesapeake Bay Program Partnership's suite of modeling tools. The use of term "credited" was not assumed by EPA to refer to water quality offsets or trading.

EPA recognizes that the Oyster BMP Expert Panel has concluded in its first report, approved by the Partnership in December 2016, and will possibly further conclude in forthcoming panel reports, that there is scientific and technical support for in-situ oyster filtration, in the form of aquaculture or oyster reef restoration, as a Partnership-approved BMP that results in the permanent removal of pollutants—nitrogen, phosphorus, and sediment—from the water column. EPA further assumed that this involves native oyster species only and does not contemplate introduction of non-native oyster species.

Having established those assumptions, EPA sees nothing in the Clean Water Act or its implementing regulations that would prevent a Partnership-approved BMP from qualifying for nitrogen, phosphorus or sediment pollutant reductions simply because it is physically located within the water column instead of outside the water column. EPA notes that there are at least a few existing examples of in-situ BMPs that have been documented as achieving water quality improvements through pollutant reductions and are recognized as accepted BMPs. These BMPs include the floating wetland BMP already approved by the Partnership², as well as the Anacostia River Trash Trap Program and Baltimore Water Wheel Trash Interceptor, both of which are described in EPA's December 2016 Aquatic Trash Prevention National Great Practices Compendium³. All of these BMPs are physically located within the water body and are recognized as achieving pollutant reductions.

¹ Prepared by the U.S. Environmental Protection Agency Region 3's Office of Regional Counsel and Chesapeake Bay Program Office, in consultation with the Agency's Office of General Counsel, and provided to the Chesapeake Bay Program Partnership's Oyster BMP Expert Panel on January 4, 2018.

² https://www.chesapeakebay.net/who/group/bmp_expert_panels

³ https://www.epa.gov/sites/production/files/2017-02/documents/aquatic_trash_prevention_national_great_practices_compendium_december_2016.pdf