May 22, 2017 Open Meeting: Summary of Feedback on Relevant Practices/Protocols sent to the Oyster BMP Expert Panel from February 2016 to May 2017

Comments sent to the Oyster BMP Expert Panel related to the nitrogen and phosphorus shell assimilation protocols			
Comment Focus	**Comment Summarized**	**Commenter**	**Letter Date**
Benefit	Do not let an argument over the long-term fate of nutrients locked in shells impact the short-term gains that habitat restoration goals may see through expanded municipal oyster restoration programs. Oyster-associated processes (assimilation and burial) helped store nutrients and total suspended sediment (TSS) in the past and will do so again if enough restoration is undertaken and succeeds (allows system to be more resilient to these pollutants). The efforts of the Bay TMDL are largely short- to mid-term and the sequestering of pollutants should be looked at from that perspective. While there certainly needs to be continued retrofit of uplands to reduce runoff, practices to meet that goal are often far more expensive than restoration. Municipalities are desperately trying to find options they can afford to meet Bay TMDL requirements. Their residents often prefer options that improve aesthetics, recreation, economics, coastal resiliency, etc. Practices such as oyster restoration benefit check many of these boxes, so are quite desirable. Regulations managing redevelopment will continue to work on runoff, but for many localities the overall Bay TMDL requirement seems hopeless without further options.	Norfolk Public Works	5/13/16
	The assumption of time degradation of returned oyster shell as the overriding factor for rerelease of n/p if returned to the water as a concern for giving n/p credit is substantially overridden by the multiple n/p values of assimilation by new oysters that attach to said shell whether through aquaculture spat on shell strike or natural strike “In Situ”, where these oysters are not receiving any nutrient credits for their function. However, the unintended Positive Consequence is acceleration of oysters and oyster shells for both restoration and balanced sustainable commercial use.	OCVA	8/15/16
Crediting Protocols	Once sequestration and other values are modeled and “reefs” can be shown to have a mean quantitative value that can be monitored, then they can receive a credit value, without having to harvest. There is a difference in annual and perpetual credits that needs to be considered when developing these models.	OCVA	10/21/16
	When shell N & P assimilation is addressed, please consider that the shells of cage-grown triploid oysters (not tumbled) tend to be thinner. This may be due to less stress and quicker growth. Growing and handling practices greatly influence shell thickness and should be taken into account.	SELC et al.	10/21/16
	Protocols need to take into account other variables; most studies were conducted in warm months; therefore Panel should consider if there are differences in other months concerning growth.	SELC et al.	2/15/16
	Except on a very small scale, restoration is impossible (see Bay Journal Forum 07/14 and 11/14). If the goal is to reduce nitrogen pollution, then can only be accomplished by reducing the pollution source (largely inefficient agricultural crop fertilization).	NAPS	5/10/17
Unintended Consequences	Concerned with unintended consequences of using shellfish as in-water BMP: shell not being returned to the Bay exacerbating shell shortage; basing water quality on organisms that could die; omit oyster shell crediting because of unintended consequence of reducing critically needed sources of oyster shell; crediting should be developed in such a way that does not provide disincentives for shell recycling programs.	CAC, CBC, CBF, SELC et al.	2/15/16
	Denitrification requires dissolved nitrate and an anoxic setting (anoxia is avoided in growing oysters commercially, where sites with good circulation are always favored); additionally pseudofeces can build up under floats causing the water to become shallower.	NAPS	5/10/17
Data Concerns	No denitrification documented above background values in aquaculture settings; one study suggests anomalously high values associated with oyster reefs; concept is very premature given available data.	NAPS	5/10/17

Acronyms

CAC - Citizen Advisory Committee; CBC - Chesapeake Bay Commission; CBF - Chesapeake Bay Foundation; NAPS - Northumberland Association for Progressive Stewardship; OCVA - Oyster Company of Virginia; SELC et al. - Southern Environmental Law Center and others

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Baseline	The Panel should consider burial and denitrification that would occur in the absence of oysters.	SELC et al.	2/15/16
Crediting Protocols	Important to LRNow that the panel continue to consider and determine crediting protocols regarding sanctuary oyster reef nutrient and sediment removal.	Lynnhaven River Now	2/15/16
Data Concerns	STAC identified spatial and temporal limitations of the data; 2013 STAC Report couldn't address all 12 questions raised by CBP, DiPasquale; therefore, if data doesn't exist 3 years later to answer questions then the Panel shouldn't derive estimates until adequate data becomes available; there wasn't many studies for STAC to review (N assimilation-5 studies; denitirification-2 studies; burial-no published rates).	CAC and SELC et al.	2/15/16
Unintended Consequences	How is the Panel addressing accumulation of nutrient heavy biodeposits in systems with heavy aquaculture operations?	SELC et al.	2/15/16
Verification	Any denitrification crediting should be accompanied with verification guidelines given that much variability exists among sites.	CBF	2/15/16
General	Oyster shell is the best substrate for oyster strike and clean shell must be returned to the water at an appropriate time and place to encourage the growth of more fertile oysters. Read: Aquatic Geochemistry, 2014, 20:291–323. doi:10.1007/s10498-014-9226-y. The amount of nitrogen and phosphorus removed by harvesting oyster tissue and/or shell is trivial. If the goal is to reduce nitrogen and phosphorus pollution, then the only way to do that is by more efficient crop fertilization. The disposal of poultry litter, manure and sewage sludge by land application causes about one quarter of Chesapeake Bay nutrient pollution. Given that sewage sludge causes about 400 pounds of nitrogen pollution per acre (Marine Pollution Bulletin, 2012, http://dx.doi.org/10.1016.j.marpolbul.2012.07.003) and that one million oysters contain about 330 pounds of nitrogen, each acre of sludge disposal would need to be offset by harvesting 1.2 million oysters (about 4,000 bushels). About 50,000 acres of cropland receive sewage sludge and about twice as much poultry litter is disposed by land application in Virginia (70% of applied chemical nitrogen is removed with the harvest, from about 3 million acres of chemically fertilized fields in Virginia, and the rest is pollution). Given the magnitude of the nitrogen pollution of Chesapeake Bay, mostly by agricultural practices, oysters cannot impact the pollution in any meaningful way. Attempts to magnify the role of oysters in removing nutrients only impedes efforts to address the real problem, nutrient pollution by agricultural practices.	NAPS	5/10/17

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