

## 2017 Goal Implementation Team Proposals for Funding

# Review of Priority Funding Ideas

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### Overview

The Environmental Protection Agency Chesapeake Bay Program Office (CBPO) has made funding available for key projects intended to accelerate accomplishment of the Management Strategies developed under the 2014 Chesapeake Watershed Agreement. Chesapeake Bay Program Goal Implementation Teams (GITs) and Workgroups are eligible to participate. The goal of these funds is to identify and remove key barriers that are hindering accomplishment of management strategies and work plans.

### Review Process

The GITs and GIT workgroups developed priority project ideas by using the criteria outlined in the Request for Ideas document and a total of 24 proposals were submitted to the Chesapeake Bay Trust for an external review. The purpose of the review was to help select the top proposals and refine the final deliverables of the projects. The reviews were conducted by experts in the topic area outside the Bay community as well as individuals not involved with the project development.

Each proposal was sent to at least six reviewers and the Trust requested scores and written comments for each proposal. The review criteria were developed to support the CBPO internal review process.

Review Criteria	Score (1-10) with 10 being the highest
<i>Removes Barriers</i> – Will this project remove an impediment to the advancement of the science or issues affecting management of the specific natural resource in question?	
<i>Serves as a Catalyst</i> – Will this project’s deliverable accelerate future work in the field?	
<i>Incorporates Adaptive Management</i> – Has this project been designed to enable growth and learning, and might it provide information to improve management decisions of the natural resource in question in the future?	
<i>Novelty</i> – Is there any unintended duplication of effort? Would this investment be a wise and novel use of limited funds? Are there other similar ongoing or completed projects that should have been considered or incorporated, allowing this work to build on previous efforts?	
<i>General comments and/or suggestions for the work:</i> Please feel free to suggest any publications, products, or tools that may help improve the project	

### Scores/Comments

Each proposal received at least three reviews. Reviewers were asked not to review certain proposals if they felt they had a conflict of interest.

#### Proposal 1. Development of a Long-Term Oyster Monitoring Plan

Reviewer	Score	Comments
#1	9	<p>Removes Barriers - The only barrier it removes is the responsibility of those required to do the monitoring to pay for the monitoring.</p> <p>Incorporates Adaptive Management - Assessing the feasibility of different methods may provide information to others wishing to monitor oysters</p> <p>Novelty - How is this different than existing monitoring of the restorations reefs? Why is the existing program not mentioned?</p> <p>General Comments - A comprehensive program to quantify oysters in the Bay is a much-needed program. A monitoring program that includes a wider group of stakeholders in developing the metrics would be a novel program that has the potential to remove barriers, provide a catalyst for future work and increase inclusion in the restoration efforts.</p> <p>This project does none of these.</p> <p>Fish habitat utilization? Are others things to be measured besides oysters?</p>
#2	32	N/A
#3	11	<p>It seems like the proposal is not for the monitoring itself, but to develop a monitoring plan. (Though the language is unclear (the first half of the “methodology” section isn’t about methodology itself for the \$60K to be spent – it’s big picture justification)). There are two problems with what is proposed 1) I have a hard time believing a monitoring plan doesn’t already exist, or one from elsewhere can’t easily be adapted (oyster reef restoration is not a new tactic, and researchers have been measuring oyster restoration success for a long time. The authors should have explained why those studies did not use a monitoring plan that could easily be adapted – see Coen and Luckenbach 2000 (Developing success criteria and goals for evaluating oyster reef restoration: ecological function or resource exploitation? In Ecological Engineering), Peterson et al., 2003 MEPS; Geraldi et al 2009 MEPS; La Peyre et al 2014; Luckenbach et al 2005 JCR), and 2) Let’s just say that for some reason the methodologies of all of those papers are not appropriate, \$60K seems very excessive to develop a monitoring plan.</p>

#4	33	This project fills the need to collect long-term monitoring data on oyster reefs restored across 10 Chesapeake Bay tributaries. Using a common approach to monitor development of these reefs will provide useful data that can be used to inform management decisions. I would like to see more information on the metrics that will be monitored at each reef. Are they oyster specific? Are associated fauna monitored? What about water quality changes? Also, I would encourage a monitoring time point that is sooner than 3 years, (e.g. <1 year post-construction) so that early development processes can be observed. There is a large base of knowledge that exists in the literature that should be used to guide these methods.
Average: 21.25		

**Proposal 2. Synthesis of Shoreline Condition Impacts on Forage and Blue Crab**

Reviewer	Score	Comments
#1	36	I think it's a fine idea, and recommend it move forward.
#2	22	This is an interesting project, and addresses an important management area. I don't see how it will serve as a catalyst for future work—it appears to answer a question, but not to pose additional questions. It does not seem well suited to adaptive management, as written, however the results could certainly inform adaptive management of both fisheries and shorelines. This is not novel, there have been many similar projects in the Bay, but this could be designed to complement, rather than duplicate them.
#3	15	This project has the potential to put information in a context that fisheries managers might be able to use, but do we really expect from this work alone that shoreline management decisions by, say, MDE or VMRC, are really going to change? Or will we just know more about the changes? Therefore, I gave this proposal a low score for the “catalyst” and “barriers” criteria. I also think the authors may not be aware of several recent reviews of this topic that, while national in scope, have a heavy emphasis on impacts of armor locally. An example: Living Shorelines: the science and management of nature-based coastal protection, CRC Press, 2017 Authors should also see Bilkovic's 2008 article “Effects of coastal development on nearshore estuarine nekton communities” in MEPS among others. I'm just not sure another synthesis of this information is needed. We already know that shoreline armor has negative effects on fish and crabs, and that if we wanted to remove those negative effects, management decisions would have to change. While this could be a neat literature review, it would be a good project for a master's student, not really the best use of this GIT \$ which really should be focused on catalyst activities/tools/gaps in knowledge.
Average: 24.33		

**Proposal 3. Development and Construction of Artificial Fish Spawning/Nursery Habitat and Oyster Reef Habitat for Diadromous Fish**

Reviewer	Score	Comments
#1	30.5	This project overall sounds like a good idea: the aim is to restore or replicate essential fish habitats (targeting an imperiled species), which will also benefit water quality because habitat materials include oyster reefs. The major question with this type of study is whether the investigators will be able to tell if the habitats are benefiting fish or simply aggregating them. Given the short format of this proposal, I can't tell if the potential PIs plan to evaluate habitat quality using metrics that transcend the presence of fish. If the goal is to create nursery and spawning habitat for fish, how do the PIs plan to quantify whether the habitats have improved the ability of fish to develop from juveniles to adults or to spawn? One other concept to consider is whether the oyster reefs or artificial nursery habitats mitigate erosion, as at least oyster reefs are a possibly ecologically preferable alternative to conventional shoreline infrastructure. There have been a few studies that examine whether we can restore functions of degraded shallow nursery habitats, and they are quite valuable to managers. I'm not aware of any studies that show empirically that we can restore degraded spawning habitats in estuaries/brackish waters, so this would certainly address a meaningful knowledge gap.
#2	11	The case isn't made that habitat is the limiting factor for the species in question. The concern is that producing artificial hard habitats won't actually have the desired impact (increased populations of sturgeon), and there is no evaluation plan proposed. Obviously, evaluation of whether the reef balls are "working" (increasing sturgeon populations) would cost more than \$75K, but this work should be linked to a research study. Otherwise, it's literally just throwing reef balls in the water. There are likely more important barriers to knock down in the grand scheme of watershed restoration.
#3	34	Further advancement is possible when you can look at two keystone species together and holistically develop management protocols as well as habitat establishment guidelines. I don't know of any other work being done on both sturgeon and oyster reefs together. South River Federation is doing research specifically on artificial reef balls that may help inform this work.
Average: 25.17		

**Proposal 4. Investigation of Water Quality Challenges Limiting Oyster Hatchery Production in the Chesapeake Bay**

Reviewer	Score	Comments
#1	35	The proposed project addresses a critical knowledge gap for the hatchery-based sector of the shellfish aquaculture industry. Recently, shellfish aquaculture (for both commercial and restoration

		<p>endpoints) has begun to fill the void created by wild populations in decline. As the shellfish aquaculture industry continues to grow at a record pace, the demand for hatchery produced seed outpaces supply despite an increase in the number of hatcheries. Hatchery production is highly dependent on ambient water sources and is often negatively affected by unknown and unpredictable changes in water quality within and across spawning seasons, thus limiting the number of seed available for both commercial enterprises and restoration efforts. This proposal aims to organize a workshop consisting of water quality experts, molluscan biologists, and industry representatives in order to develop an action plan to investigate the relationships between specific water quality parameters and volume/survival of hatchery-reared larvae. A standardized, comprehensive, monitoring protocol that can be supported by individual hatchery operators as well as a staff dedicated to analyzing the data would greatly advance our understanding of the factors reducing hatchery-based shellfish production and lead to solutions that will benefit both commercial and restorative aquaculture ventures.</p>
#2	14	<p>The proposal mentions partnering with industry hatcheries. This partnership is critical and needs to be considered carefully - how to partner without overwhelming or distracting the production facilities from their mission.</p> <p>This work has been ongoing in Virginia for several years now. VIMS and Virginia Tech researchers are already partnered with private Virginia hatcheries on water quality monitoring along with various sampling programs to determine what is hampering consistent production. They have a team with expertise in pathology, HABS and HAB toxins, carbonate chemistry, physiology, shellfish genetics, etc that are working together to address the problems. VIMS was recently awarded two grants which will expand research into hatchery production issues. It is certainly an important body of work, but I'm not sure to what extent the proposed activity is different than what is already happening.</p>
#3	13	<p><u>Removes Barriers</u> – barriers to hatchery production for both restoration (mostly MD) and aquaculture (VA &amp; MD) are over stated</p> <p><u>Serves as a Catalyst</u> - unlikely participation among hatcheries unless there is much advance work accomplished</p> <p><u>Incorporates Adaptive Management</u> - if such a workshop were accomplished, it would be useful, but outlets for this information exchange exist already</p> <p><u>Novelty</u> - there is much activity in this area currently and there seems little prognosis for advancing this issue toward a solution for this proposed work</p>

		<p><u>General Comments</u> - the expected outcome -- plan and potential experimental approach (by the hatcheries) -- does not seem very concrete. "[B]egin identifying and potentially controlling water quality factors" is a bit indefinite for an outcome</p>
#4	37	<p>Proposal certainly fit with several goals of 2014 CBWA. It is not clear if the \$70K is principally for a workshop or the workshop and some additional work. The budget seems excessive if it is just for a workshop; hence, I only gave it a 8 for 'novelty'.</p>
#5	40	N/A
#6	10	<p><u>Removes Barriers</u> – Doubtful. There are no current impediments to seeking causes to sporadic problems in hatchery production in the Chesapeake Bay.</p> <p><u>Serves as a Catalyst</u> - Hatchery operators have adopted some procedures for dealing with periodic production downturns. This would not seem, as currently, proposed, to accelerate that work.</p> <p><u>Incorporates Adaptive Management</u> - There could be some information resulting to improve understanding of aspects of hatchery difficulties but there would need to be more focus on the possible areas of concern.</p> <p><u>Novelty</u> - There are already scientists who have been engaged to look at periodic hatchery production problems.</p> <p><u>General Comments</u> - The first two sentences in the Justification are false. The first - "Hatchery production by all hatcheries in the Bay have struggled to meet the needs of both restoration and the commercial industry" is incorrect. Abundant larvae have been available, especially in MD, to cover all the restoration contracts in recent years. This has been around 500 million seed for the federal sanctuaries, as well as providing larvae to a variety of setting operations and commercial growers. Total production from the Horn Point facility in 2016 was, I believe, slightly less than 2 billion seed. The second sentence reads, "Continued low and inconsistent hatchery production will result in lack of success of restoration projects and a <b>quick and irreparable decline in oyster culture industry</b> (emphasis added)" is certainly incorrect. Industry growth has been strong and consistent and will continue. Transient and sporadic problems have occurred in hatchery production over the years. In instances, these have occurred periodically and affected certain hatcheries at different times while a few years ago, there was a period where all area hatcheries were affected at the same time. It would be beneficial to know what caused, or is causing, these to occur. Scientists at several area institutions were brought in to study</p>

		<p>and samples were taken during the occurrences, with archive samples still in storage. Is there enough of an ongoing problem to build a funded program on? Perhaps, but there needs to be more of a potential direction for it than currently seems to exist.</p> <p>From the \$70k that is estimated, there was no allocation to the proposed initial workshop. Obviously, it would not all be spent on that meeting. What other expenses would the funds be used for? What disciplines would be best to focus on? How will the results of investigations be judged? There seem to be ties already between regional hatcheries and scientists to discuss the problems that are periodically seen in production. It is doubtful that this proposal will accomplish much that is not already being investigated or that the funds would be better used elsewhere.</p>
#7	32	<p>I suggest looking at available information on larval survival with respect to the salinity and temperature, perhaps supplementing what is available from Chesapeake Bay with work from DE Bay, Long Island, the Gulf of Mexico, Oregon and Washington State. Co-locating continuous monitoring water quality devices with hatcheries, would be optimal. Leveraging citizen monitoring programs/ data would facilitate this work as well.</p>
Average: 25.86		

**Proposal 5. Targeted Outreach for Wetland Protection and Restoration**

Reviewer	Score	Comments
#1	31	<p>This looks to be valuable outreach program to increase enrollment in wetland conservation programs. I'd be interested in learning more about the previously identified barriers and the proposed strategies to overcome those barriers. If the barriers are not necessarily wetland-specific, it's possible that the lessons learned on effective outreach strategies could be used for other programs as well, like forest conservation.</p>
#2	32	<p>The idea of working to increase potential landowner interest in wetland restoration/preservation is a very important one. That is the main issue when trying to find sites for wetlands - landowner interest. This lack of landowner interest/knowledge leads to less acreage of wetland restoration/preservation, more costly projects, and lower quality projects. However, while they do mention that they will help to show landowners other programs, this should definitely be part of their plan. There are a lot of other groups interested in targeting landowners in certain areas (Lower Shore Land Trust and other land conservation groups, DNR, MDE, watershed groups, counties, etc.) and many different sources of restoration/preservation funding available. They should discuss the other available funding sources with landowners. After all, the overall goal should be restoring/protecting more area within the Bay, and working together to get that done.</p>

#3	30	This proposal clearly articulates a barrier (landowner willingness), identifies previous work on which to build, and provides a clear path to enable changes to existing programs that would make them work better (adaptive management). The one element that could improve the project would be to more fully flesh out how what is learned through this project could change how wetlands programs are run in the future. There is a lot of talk about how certain program criteria are preventing implementation (e.g., requirement of stringent easements that may not be on the “right” side of the risk/reward ratio); perhaps this project might actually be the catalyst to change some of those criteria.
	Average: 31	

**Proposal 6. Monitor and Protect Chesapeake Bay SAV**

Reviewer	Score	Comments
#1	24.5	<p>It is not clear how component one is a novel extension of current work already conducted by the Virginia Institute of Marine Science: e.g., <a href="http://web.vims.edu/bio/sav/GroundSurveyTable.htm">http://web.vims.edu/bio/sav/GroundSurveyTable.htm</a>. Is the novel aspect the creation of the certification program? If so, that was not clear. The project team should acknowledge that VIMS has an extensive monitoring program, and how this would supplement and enhance that. There is already extensive SAV monitoring and field observation data for the entire tidal region of the Chesapeake and coastal bays region.</p> <p>Furthermore, the 2017 growing season is nearly over. The proposed work to ‘collect SAV data in 2017’ is, at this point, likely impossible. By mid to late August, SAV communities begin to change and senescence. By October, water temps drop, SAV communities begin overwintering. It will be difficult to train individuals to ID SAV, and actually conduct an appropriate survey of SAV communities in the Bay at this point in the year.</p> <p>I do agree that getting more groups involved in the monitoring effort in a consistent way would be useful, but I need to see how this is different than current efforts in the Bay.</p> <p>Component two is the most useful aspect proposed. Reviewing statutes in six states and the federal government is a potentially massive undertaking, but I do question the budget for this. Without a budget justification, I can’t comment on how much of the \$50,000 is used here.</p> <p>I think framing this review of statutes in the context of best available science is the way to go. Much work has been done on SAV ecology, restoration, distribution, etc. such that the impact of statutes on SAV communities could be assessed. For example, work has been done to</p>



		examine the impacts of fragmentation and loss of SAV patches in the Bay. Removal of a 60' by 15' section of SAV may have limited impact if this is embedded in a 500ha bed.
#2	33	<p><u>Removes Barriers</u> – Yes, for component 1 (score 10/10). Real-time, on-the-ground SAV monitoring is lacking, likely because of expense and effort needed. This proposal seems like a great way of making progress on this front. For component 2, I don't know enough about current regulations or possible unintended consequences thereof to evaluate (score 5/10). So, my score is an averaged score of 7.5/10 for this category.</p> <p><u>Serves as a Catalyst</u> - For Component 1, I think there is a huge potential for improved understanding of patterns of SAV abundances over space and time scales that are difficult to capture without investing huge amounts of effort in field work. Average score = 7.5/10.</p> <p><u>Incorporates Adaptive Management</u> - I feel that both components have clear connections to management decisions, so my score is 10/10.</p> <p><u>Novelty</u> - I think the Chesapeake Bay Trust is one of few funders that would be able/willing to fund something like Component 1, probably also Component 2. There are probably small, distributed citizen science efforts focused on SAV already, but bringing them together in a coordinated program would greatly increase their benefit. Again, I am not sure about Component 2, but it seems novel. Overall score 8/10.</p>
#3	17	Pros of this proposal: Using other groups to contribute standardized data for SAV monitoring. Many use SAV % cover as a good metric for how the Bay is doing. However, funds to do the SAV survey are always a barrier. This proposal suggests a creative way to get around that funding barrier. I am less convinced by the component to examine regulatory programs to protect SAV, mainly because focusing on one component tends to not provide a big picture view – ecosystem based management now has us attempting to consider multiple resources impacted by a particular set of regulations. This component should be expanded to consider not just SAV, but all resources within the purview of the regulatory vehicles in question (emergent wetland, unvegetated bottom that may be important to some species, riparian, etc.)
#4	31	N/A
	Average: 26.38	

**Proposal 7. Improving River Herring Access to Spawning Habitats Through Prioritization and eDNA Analysis of Culvert Retrofit Projects**

Reviewer	Score	Comments
#1	36	eDNA could be a cost-effective strategy to assess a large number of crossings in the Chesapeake Bay region in a short period of time. Coupling that information with other methods of determining passage could speed up management decision to remove or mitigate passage barriers. I would encourage the team to also think about habitat quality upstream of the barriers when prioritizing barrier removals.
#2	33	<ol style="list-style-type: none"> <li>1. It would help reviewers to see an articulation of a hypothesis.</li> <li>2. Presumably River Herring access to spawning grounds has been adversely affected by culverts (references?) and the question is whether or not culvert retrofits ameliorate the problem. It may be obvious, but what kinds of retrofits are being considered? Are there multiple parameters involved (flow rate, depth, substrate)? How would the eDNA analysis (presumably testing presence/absence above/below culvert) identify which of the multiple parameters in a culvert retrofit are significant?</li> <li>3. What is the basis for prioritization of culverts to be upgraded, keeping in mind that the status of each sequential upstream culvert depends on the status of all downstream culverts?</li> <li>4. The Objectives lack coherence: if the researchers have picked six NAACC-assessed road-stream crossings to evaluate and prioritize (Objective 3), that implies Objective 1 is already complete (conducting NAACC-assessments to determine if the road-stream crossings are fish barriers). I don't see the relevance of "Modelling (how? HEC-RAS?) the potential for flooding" on any of this (Objective 1). If the goal is Objective 2 (developing an eDNA model for Hickory Shad) then that is an independent project because the culvert sites might not be the best places to develop such a model (partial or episodic upstream-downstream connectivity, why not do this part of the project on a river system with a complete barrier such as a dam?)</li> </ol>
#3	33	To me, this proposal, unlike some of the others I read, gets at the heart of what I understand this opportunity to support: identification of a barrier that, if removed, would allow faster accomplishment of a particular goal, in this case, fish passage. The barrier is, no pun intended, lack of prioritization of barriers to fish movement, and this

		work will result in a prioritization that will allow future resources to be best spent for actual action: removing/improving those barriers. The only negative: proposal references a previous assessment and starts out with the word “additional,” which implies some work has already been done. I would have liked a sentence or two more on what those previous assessments were so that we could know exactly how this proposed work builds on them. I would also have liked to know more about the eDNA analysis, and whether that method has been used before and how it is actually cost-effective. It sounds expensive.
	Average: 34	

**Proposal 8. Quantifying Wintering Mid-Atlantic Black Duck Occupancy Dynamics as a Function of Landscape Composition**

Reviewer	Score	Comments
#1	27	<p>I think there is some merit as to what the authors aim to do. I would add that there are more current models that may be better than the simple occupancy models the authors propose. While occupancy modeling will begin to answer the question of habitat use, I am not sure that carrying capacity can be estimated using an approach similar to the one the authors describe. They would need to count the number of black ducks at a site rather than simply noting their presence or absence. As they will be in the field noting presence and absence, why not count the black ducks that are there?</p> <p>The authors mentioned incorporating eBird data into their analyses, and this would be wise. As the authors will have 120 surveys over the course of two years, supplementing with eBird will add thousands of surveys at no cost. A project similar to the proposed project (not the same species or location) was conducted for wintering waterfowl (pintails) using eBird data entirely. The paper (Johnston et. al 2015, full reference below) also shows how abundance models improve the prioritization of locations for management over presence/absence models such as the authors propose to use. Again, I would, recommend the authors include counts of birds over simple presence/absence data. If the authors still want to use only presence/absence data and incorporate eBird, I would recommend an approach similar to Pacifici et al. (2017), who showed that the accuracy of models improved when integrating structured (BBS) and less structured (eBird) survey information. The paper is written for species distribution models, but these are simple presence/absence models and the incorporation of eBird data to structured count data (i.e. the authors’ field counts) would be very straightforward.</p> <p>I think there is a good opportunity to apply some of the more recent, and novel, modeling approaches to this study. This study could</p>

		<p>provide a great opportunity to apply some new theoretical methods to the issue of black duck habitat use and conservation.</p> <p>I am not aware of any other occupancy modeling efforts for black ducks; however I do know of two groups working on life cycle models for black ducks. There may be some synergy among these three projects, but I do not see any overlap or competition among them.</p> <p>Overall, with a few tweaks, I think this is a very worthwhile project and will add a great deal to our knowledge of overwinter habitat use of black ducks. I also think that it can provide avenues for future work in this area.</p> <p>Johnston et al. 2015. Abundance models improve spatial and temporal prioritization of conservation resources. <i>Ecological Applications</i>. 25: 1749-1756.</p> <p>Lobo, J.M., Jiménez-Valverde, A. &amp; Real, R. 2008. AUC: a misleading measure of the performance of predictive distribution models. <i>Global Ecology and Biogeography</i>. 17, 145-151.</p> <p>Pacifici et al. 2017. Integrating multiple data sources in species distribution modeling: a framework for data fusion. <i>Ecology</i>. 98: 840-850.</p>
#2	38	<p>Removes Barriers – Yes, this project will fill a critical knowledge gap by leveraging field techniques and statistics that are cost-efficient and effective.</p> <p>Serves as a Catalyst – Yes, I can think of multiple follow-up projects that would stem from the results of this study.</p> <p>Incorporates Adaptive Management – Absolutely, the results from this study have *immediate* utility in refining strategic habitat conservation plans for this species.</p> <p>Novelty – I am well-versed in this area, and this project builds directly from previous research, which is appropriately cited. I am aware of no other prior or ongoing studies that would address these same questions.</p> <p>General Comments - It's unclear whether eBird would provide the spatial resolution necessary for this project, and am not sure what the authors intend to do with the behavioral sampling, but I assume these issues would be addressed in a full proposal. Quickly surveying a larger number of wetlands of varying types and distances from the coast may be a more valuable use of resources. Drones (DJI Phantom or similar) may be able to provide rapid occupancy</p>

		assessment over a larger area, but permitting and licensing on the east coast could be more hassle than it is worth.
#3	38	N/A
	Average: 34.33	

**Proposal 9. Integrating Monitoring, Modeling and Trends Analyses to Inform Management Decisions**

Reviewer	Score	Comments
#1	20	<p>Removes Barriers – No. It seems the goal is to compile existing monitoring and modeling works that may not be aligned in space or time.</p> <p>Serves as a Catalyst – May be, but based on the information provided, it is hard to judge. In general, it is very difficult to make sense of scattered information in order to make water resources decisions. This study proposed to use existing data. What is an alternative approach if the existing data are not good enough both in spatial and temporal terms.</p> <p>Novelty – This is not a novel approach but necessary as the first step to understand the existing works and avoid duplication.</p>
#2	26	<p>1) yes, the idea of providing an integrated accessibility to the diverse types and sources of data is certainly deserving of further attention, and 2) for my money \$75K is the amount I would set aside for developing and documenting a detailed design of the open access data system to facilitate such data integration and analyses. I have seen many such systems and nearly all of them are designed for the narrow purpose of a single objective that motivated them. In the long run this type of design precludes the type of efficient access and processing of the data by the wider community of stakeholders for whom it would be of value (e.g., independent researchers, the public, etc.). There is no way to tell at this point which direction this proposal would take so my opinion would be to allow the next level of proposal, at that point there will be an indication as to whether there is sufficient consideration to the IT issues (e.g., open/web service based access, database standards, APIs, etc.) to maximize the value of these data to not only the CB community but to independent researchers and the public (and therefore back to the CB community indirectly).</p> <p>Finally, I would say this project could have been avoided all together had consideration been given to an integration strategy before any sampling or data collection was initiated.</p> <p>The scores I provide below reflect my opinion as to the merits of the general idea being proposed, i.e., to provide an integration of numerous sources, types, and formats of the data.</p>

#3	25	Hard to tell whether how much “new” data there that is not already being incorporated into the CB watershed modeling efforts – identifying specific data types and sources would be helpful. Also not clear how the story maps will help local governments make decisions that relate to their CB TMDL goals.
#4	30	Not sure if this work has been done, but since the WQ GIT is requesting it, seems that it is new and will support their goals  I like that the modeling work aims to produce a user-friendly tool, but not sure that the \$75K is enough to do the analysis and develop a user-friendly tool  Not sure if there are duplicative efforts ongoing, so scored this a 5
	Average: 25.25	

**Proposal 10. Crafting Guidance for Enhanced Treatment by Roadside Ditch Management Practices**

Reviewer	Score	Comments
#1	32	Roadside ditch management practices are a useful tool for localities to have in their toolbox to help meet their Bay TMDL requirements. Given that this is a new type of practice, having design guidelines and examples will help to speed up adoption of the practice.
#2	30	Overall I am very supportive of this project and I think the idea of managing roadside ditches is novel and potentially very effective. There needs to be a monitoring/assessment component to facilitate the “adaptive management” criteria. If this project truly results in implementing novel ditch management practices it could serve as a catalyst for future work but it is not clear that developing guidelines and meeting with stakeholders alone will do this; perhaps some stakeholder commitment up-front would be useful in this regard. It sounds like the guidelines are wanted by managers, so I think the project will help remove implementation barriers but I am not convinced that a lack of clear guidelines is the totality of implementation barriers. It is possible that this project is integrated into other CBW activities that make my concerns moot, but I could not see this in the 2-page proposal.
#3	38	Removes Barriers – Reports and research identify ditches as a source and pathway for nutrients and sediment reaching the Bay. Ditch retrofits are currently underway in a few locations but have extensive potential across all Bay states. Guidance would remove technical barriers to the design, construction and maintenance of this practice.  Serves as a Catalyst – Widespread acceptance and implementation of this practice would heavily rely upon standardization of the

		<p>practice. Assume this guidance would be applicable to both the urban and agricultural sectors. If NOT, then ranking adjusted to 6.</p> <p>Incorporates Adaptive Management – The guidance would need to incorporate and survey lessons learned from practitioners/local governments using this approach. The 3-phase process would facilitate this approach by engaging the Bay stormwater community in development of this guidance. Adaptations of design approaches may be needed to address site specific needs based on limited, but best available research.</p> <p>Novelty - There is research, reports and projects implemented but there is a lack of comprehensive guidance that serves the Bay community on using the practice of ditch retrofits to broad-scale implementation and credit towards the TMDL.</p>
#4	33	<p>Removes Barriers – yes, if the concerns of state and local highway management agencies are incorporated. Roadside ditches are meant to convey water away from roads for public safety reasons. Infiltration will help water quality but public safety should not be compromised.</p> <p>Incorporates Adaptive Management – yes, if the RDM are put on a schedule for review and update, similar to other expert panels.</p> <p>Novelty - local efforts (Talbot County, MD) exist but nothing Bay-wide</p> <p>General Comments - Good project idea, and needed throughout the watershed. I suggest regional in-person trainings, in addition to the online efforts, for the full roll-out of RDM materials. It will be helpful for design, installation, and maintenance professionals to see these techniques implemented in person.</p> <p>Would also like to know more about the value of infiltration with respect to the toxic materials mentioned (i.e. PAHs, hydrocarbons, trace metals). Are we simply moving the problem into groundwater by infiltrating runoff that contains those materials, or are they sufficiently neutralized through the soil such that they do not pose a groundwater contamination problem?</p>
	Average: 33.25	

**Proposal 11. Feasibility Study for Voluntary Phase-Out of PCBs in Current Use**

Reviewer	Score	Comments
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#1	40	I have given the project a 10 for novelty, but it is possible that it does duplicate other work being done in the CB area of which I am not aware. The project already proposes to study the approach used in other watersheds, so in that sense it is building on, not duplicating, previous efforts. The project does not mention, but should consider non-Aroclor sources of PCBs. In the Delaware River, PCB 209 from the manufacture of titanium tetrachloride is responsible for about half of the PCBs in the sediment, so non-Aroclor sources can be important and should not be ignored.
#2	34	This is a good step for removing existing PCBs before they are released into the environment. This hasn't been done on a large scale in the US and this work can serve as a model for other states or watersheds. Electrical equipment is a good place to start, since the focus was originally on electrical equipment. Many owners know the status and are already voluntarily removing equipment with PCBs above 1 ppb. The EPA database on PCB containing electrical equipment is not up to date, so owners will have to be contacted for the current status of the equipment. Caulk has risen in importance and other countries (including Germany, Sweden, and Denmark) have successful voluntary removal programs.
#3	33	I like that the first step is a lit review (has this been done before- definitely don't want to pay a subcontractor to do something that has been done). I like that the methods include talking with other geographic task forces and experts to see what they have done (knowledge sharing and growing).
Average: 35.67		

**Proposal 12. Quantifying Atmospheric Polychlorinated Biphenyls (PCBs) Deposition in the Chesapeake Bay Watershed**

Reviewer	Score	Comments
#1	39	I have given the project a 9 for novelty, but only because there is some limited data available on atmospheric deposition to the Chesapeake, but it is old. Also the Delaware River people had an atmospheric deposition monitoring station at Lum's Pond, which is technically within the Chesapeake watershed and could be used as the 'rural' location.
#2	12	This is not new or transformative. Other atmospheric studies have been done and this will not be anything novel, although it will give us more information about this watershed. There is no mention of adaptive management and I wonder what would happen if all four land use areas cannot be included.
#3	29	I like that they provided citations for some of their statements as this shows they have thought through previous work and what still needs to be done. It seems that the output could identify obstacles to removing toxics and meet the goal of this work group.



		PAHs are likely not able to be modeled with this study, so need to be clear about that in future scope of work, should this move forward to that stage.
	Average: 26.67	

**Proposal 13. Healthy Watersheds Forestry TMDL Forest Retention Study: Phase 3**

Reviewer	Score	Comments
#1	28	<p>As an outside reviewer with limited knowledge of the local conditions, this seems like a good application of a tried and tested market based policy. However, without specifics I cannot give full support for this proposal. Even if this policy is successfully implemented it could fail to reach certain conservation goals (which a risk in market-based policies).</p> <p>Positives: Successful implementation of this program should leave everyone happy. State budgets should remain the same, local landowners should be happy, and new jobs will be created to enforce agreements (checking local conditions, etc.). Science and management opportunities should increase due to the agreements made with local landowners.</p> <p>Considerations: Will \$50,000 truly cover all expenses and what will the \$50,000 pay for? Are there going to be other ways to raise funds over time? The project could fold very easily if the policy does not raise the required funds from the state and commercial carbon programs.</p> <p>Concerns: Have studies been performed on the “willingness to accept” of local land owners? Has modelling been done to estimate the “supply” of conserved land vs the “demand” for carbon credits? More information on expected savings for local budgets and how they could be earmarked for transfer to land owners is necessary. Generally it can be difficult to convince agencies to “re-direct” budget savings to other sources.</p> <p>Recommendations: Include some figures showing interest on the part of land owners with estimates of their financial needs for conservation. Then compare that with feasible government expenditures estimates. If the figures are in the same ball park then it would make sense to detail an environmental quality goal with enforcement ideas (and the related expenses). Finally, include examples of successful case studies from around the US. A free to access article titled “Managing natural wealth: research and implementation of ecosystem services in the United States and Canada” by Jennifer L. Molnar and Ida Kubiszewski details several successful examples of programs similar to this proposal.</p>
#2	24	<p>This project has some overlap with Proposal #18 in that it explores one potential method to incentivize land conservation. Could there be potential to combine the two, or to complete Project 18 first to determine if the approach suggested in this proposal is viable/there is enough demand for it?</p>

		How would this approach relate to (or not) the CBP's expert panels for developing crediting protocols?
#3	33	N/A
	Average: 28.33	

**Proposal 14. Implementation Support for (DEI) Training and Tools Development**

Reviewer	Score	Comments
#1	38	<p>Removes Barriers - The project has the potential to remove a major barrier.</p> <p>Serves as a Catalyst - The assessment will provide a basis for other research and projects.</p> <p>Incorporates Adaptive Management - The project begins with an assessment. Based on that assessment further objects will be define and plans developed for their implementation.</p> <p>Novelty - Projects for increasing diversity are not new. This project provides an adaptive component that adaptive implementation. This builds on recent work in this area.</p> <p>General Comments - Many organizations have engaged in activities. It is encouraging to see an organization take on a leadership role in a regional effort.</p> <p>While there is often an assumption that environmental organizations want to do something about diversity. By testing and quantifying those assumptions allows pathways to success not available to other inclusion efforts.</p> <p>The authors need to provide an assessment plan. And refrain from such statements as "...will help develop a culture..." and "...will increase the level of cultural competency and understanding..." unless they are substantiated and are associated with an assessment.</p>
#2	40	Chesapeake Bay Program is a leader in the environmental sector, and will help lead other organization and partners to follow the guidance of the model that is developed through this scope of work.
#3	30	<p>Diversity in this proposal seems to fall back on racial/ethnic definitions. Be sure to include a broader scope (i.e. include gender identity and expression, sex, faith and religious practices, ability, socioeconomic status, age) when creating and implementing the training.</p> <p>The goal of this proposal is relevant and appropriate (cultural competency assessment and training for CBP staff) but it is not clear that the assessment and training will directly lead to an increase in</p>

		<p>diversity within the program or the Watershed Agreement outcomes. Will this training be ongoing? Will trainees have support to continue DEI work within their individual units? How will current cultural norms within the organizations be shifted to better embrace DEI principles? What is the long term plan to sustain a diverse, equitable, and inclusive workplace and watershed? Besides quantifying racial/ethnic diversity, how will DEI efforts be measured? Is there a plan to develop different trainings for each partner/agency, depending on the needs identified in the baseline assessment?</p> <p>Shifting cultural norms is an on-going process. It's not clear from this proposal that the agencies and organizations involved have committed to implementing this process over the long term. Cultural competency needs to come from the top and be spread throughout the organization as a norm. This proposal might develop tools to assist with that; however, it appears that partners may "choose to develop" individualized programs but are not obligated to do so. The Outcome states that the assessment and training will be available to all levels of employees within the CBP partners, but item #2 under Methodology does not list all levels for the assessment. It is important that all perspectives within the Program are assessed. Measuring progress should not be something that requires additional resources. It should be built into the modules and tools so that units and organizations can be evaluating themselves as they develop.</p>
	Average: 36	

**Proposal 15. Interactive Tool for Citizen Stewardship Data Use and Analysis**

Reviewer	Score	Comments
#1	35	This is a great idea for a more applied way to use an already developed tool, and make its data more useful to others.
#2	4	<p>Incorporates Adaptive Management - The data served up in the application may adapt communication strategies but there's no sign of single or double loop learning to inform mgmt decisions.</p> <p>Novelty - The sorting and data management features described may just as easily be found in an open/free spreadsheet application</p> <p>General Comments - The analytic products described in the justification are vague. The methodology proposes researching "anticipated users and uses of the tool," which suggests that this proposal is a solution in search of a problem, rather than an innovation derived from a grounded and honest understanding of current needs and challenges. I would be wary of funding an initiative with so imprecise a set of objectives. The cell beneath the methodology response (is this still methodology?) describes an</p>

		<p>“open source interactive system” for sorting and manipulating data. Is this qualitative or quantitative data—or both? In either case, no such technology should attempt to take methodological decisions out of the hands of the user. Put simply, the user needs to know what kind of analysis they need and how to execute that analysis using such a tool.</p>
#3	35	<p>This a concept many state, federal and nonprofit organizations are exploring. Guided information and tools to increase stewardship behavior will allow for growth within the Chesapeake Bay watershed. It is suggested to include perspectives from all sectors of the environmental field to allow for complete transparency and reach and inclusive audience.</p>
#4	37	<p>This project is a strong candidate for funding as it provides data and tools that address a need to advance stewardship efforts in the Bay watershed.</p> <p>Removes Barriers – Science identifies the problems and finds solutions but we need people to implement behaviors that will help to clean up the Bay. This proposal and work gets at the core of providing and delivering programs targeting key behaviors (or barriers of adoption)</p> <p>Catalyst – I would give 10 but I think there will be some training needed for users of this scalable tool to understand how to use the information and develop programs as a result.</p> <p>Adaptive Management – The data in the survey and resultant tool as described would allow the CB community to learn about behaviors, possibly even repeat the baseline survey in future years, pending future funding.</p> <p>Novelty – I tried to find the survey referenced in the project description but could only find and was aware for the Citizen Stewardship indicator work; which is similar but only has a sample size of 2,000 vs 6,000. My review is based on the assumption that the proposed work will build in the citizen stewardship indicator. If this is NOT the case, then my response to Novelty would change from a 9 to a 1.</p>
#5	34	<p>There is a need for this tool across the watershed.</p> <p>How is “local” defined for the scalability of the data?</p> <p>How will the results of this project be made available, in useable form, to the groups and agencies that need it?</p> <p>The methodology says the contractor will identify the users of the tool, but in the justification those users have already been identified as NGOs and local/state agencies. It might be a better use of the contractor’s time to choose a representative sample of each and do interviews to learn exactly how those different sectors would prefer to use the data made available in the tool to achieve their goals.</p>

		Not sure if this incorporates adaptive management – if this is a static online tool then it needs to be clear who will maintain and upgrade it.
#6	36	<p>Removes Barriers – Doesn't necessarily advance science, but makes use of existing data to address a crucial dynamic in natural resource management - human and community systems.</p> <p>Catalyst – Methodology is very thin; some more detailed observations about prospects would have made this more compelling.</p> <p>Adaptive Management – This is a rare effort to take on human behavior change that is evidence based. A full cycle of adaptive management would include a later repeat of the survey to determine the effectiveness of behavior programs and outreach.</p> <p>Novelty – I don't see any duplication, and this makes use of existing data, thus incorporating completed projects. Question about the project: Does the sampling of the survey enable community level analysis and conclusions, as sometimes state level data collection has an internal structure (stratification, geographics) that doesn't support finer grain analysis. This is a common situation in public health data.</p> <p>General Comments - Puget Sound Partnership has done a behavior survey, I believe; would be valuable to check on that project and PSP or local community use of the results. Also, King County (metro Seattle) does a sustainability behavior survey; how has that local government summarized survey results, and used analysis for behavior change programs?</p>
	Average: 30.17	

**Proposal 16. MWEE 2.0 Online Guide**

Reviewer	Score	Comments
#1	28	I believe this will be a useful project, but the product will only be as valuable as the dissemination plan. In order for school districts to utilize this document/resource there will need to be ample communication with not only the school district (central office) staff but also with principals, teachers, and informal education providers. Sometimes documents/resources like the proposed project do not trickle down to the intended audience. Webinars and other ways to disseminate the information will be necessary to ensure the resource is utilized. I would say one other drawback/potential drawback of the proposed project is that it might lack local specificity. A school district in rural Pennsylvania might face different issues than an urban school district. The creators should therefore

		be sure to include a variety of examples (videos, locally relevant content).
#2	36	These are great resources to have to develop a more comprehensive plan for teacher resources to follow. The scope of work should also include NGSS standards in all resources.
#3	32	The Educator’s Guide for MWEEs is a new document that will be extremely helpful for teachers and other educators, redesigning Bay Backpack to be more in-line with MWEEs will provide teachers and educators with more resources to successfully carry out projects. This would be a good use of funds.
	Average: 32	

**Proposal 17. Social Marketing Campaign to Influence Behaviors Associated with Stewardship Index**

Reviewer	Score	Comments
#1	23	Not enough detail to determine what will be done.
#2	19	If applicants are awarded funds, they should seek to avoid duplicating social marketing best practice research by contracting with a knowledgeable firm such as Spitfire Strategies or Big Duck, both of which have extensive experience and do not need to start from scratch.
#3	36	This work somewhat overlaps with the interactive tool for Citizen Stewardship; to work with the workgroup to identify and increase stewardship and action in the Bay watershed.  I do understand this is a possible next step to take the research gained from the interactive data and apply it to social marketing, but I would suggest showing the proposed tools that will be used to increase those efforts.
#4	31	Kacey Wetzel (CBT) and watershed specialists from UMD Sea Grant Extension have developed an “audit tool” for individual organizations to use when reviewing their existing outreach campaigns for the potential to become social marketing campaigns. Contact Kacey to learn more about this tool; it’s possible that some of the groundwork has already been done such that the second step in the Methodology section could be assisted by this pre-existing tool.  Kacey has also worked with another CBT staffer to create a database of social marketing campaigns. This database may also help with expediting the first 2 steps listed in the Methodology section. Several technical service providers received specific Social Marketing training from Nancy Lee in 2013 and 2014. This training included learning about best practices for social marketing campaigns. The third item listed in Methodology appears somewhat duplicative - social marketing best practices are already well known – unless the contractor intends to specifically identify “lessons learned” from

		<p>campaigns related to the Stewardship Index behaviors and target audiences within the Bay watershed.</p> <p>The proposal states that the contractor will also develop a social marketing campaign based on one of the Stewardship Index behaviors. While this could be useful, the contractor should be aware that audience segmentation will need to go further than just identification of “local governments” as the target audience. It is likely that one social marketing campaign will not suffice across the watershed even for the same behavior.</p>
#5	35	<p>Removes Barriers – Social marketing (SM) is used to address behavior change in many fields, from public health to sustainability. The Stewardship Index may be a good starting position.</p> <p>Catalyst – The methods did not address a key component of SM, a benefits and barriers analysis. There is no dearth of possible marketing; comms and programs that address behavior constraints are essential.</p> <p>Adaptive Management – A key part of SM is effectiveness assessment, even on a pilot scale. I don't see that addressed in this proposal. What info is needed for adaptive revision of campaigns?</p> <p>Novelty – SM is a necessary strategy in estuary/bay recovery, but is only recently being deployed. The proposed review of best and prior SM practices removes the possibility of duplicated effort, and introduces efficiencies to the development of public campaigns. For foundational work, take a look at Community Based Social Marketing.</p> <p>General Comments - Suggest that key staff and work groups participate in a sustainability social marketing workshop (i.e. Doug McKenzie Mohr) so they are informed participants/authors in this program, rather than turning this over to a consultant. The work group participants should be integral to developing and implementing campaigns.</p>
	Average: 28.8	

**Proposal 18. Policy Options to Incent Permanent Land Protection with Appropriate Water Quality BMPs**

Reviewer	Score	Comments
#1	27	Interesting idea. If this is the direction that policy-makers are moving into, it is worth investigating.
#2	29	N/A
#3	27	N/A
	Average: 26.67	

**Proposal 19. SRS Financing Strategy/System Forum**

Reviewer	Score	Comments
#1	35	<p>Coordinate and align the implementation of the project with the findings / recommendations of the Chesapeake Bay Programs' Environmental Finance Symposium Report Action Team report. The Path Forward, CB Environmental Finance Symposium Recommendations and Final Report, April 2017.</p> <p>Leverage publications available on financing strategies for many of the outcomes available from the Environmental Finance Centers and the Water Environment Federation (e.g., Financing Strategies chapter of WEF's publication on Green Infrastructure Implementation). Presentations on the strategies are available and I will be glad to make them available, if interested.</p> <p>It would be good to add a little more detail on what is envisioned as the Financing or Financial System mentioned in the application.</p>
#2	32	<p>This project idea has a lot of potential. We need more discussion and innovations around financing Bay clean up. A few comments:</p> <ul style="list-style-type: none"> <li>• It's unclear who the intended audience is for the financing strategies. Would these be managed by the Bay Program and trickle down through the GITs and workgroups to the states and localities? Who will implement/oversee the systems/strategies? I don't know if the workshop would share strategies simply to provide information for anyone to go out and voluntarily adopt, or if this will become a more formal shared Bay Program financing strategy with buy in and commitment from the whole partnership? I'd like to see this project idea go one step further to commit to defining the audience and how the uptake will work.</li> <li>• Methods are a bit unclear. Proposal mentions that the GITs and workgroups will develop initial financing strategies. Is this before the forum? Would strongly recommend that experts like UMD Environmental Finance Center (Dan Nees), UMCES (Lisa Wainger), Ecosystem Marketplace, etc. are involved.</li> <li>• Regarding novelty, there was a Chesapeake Bay Environmental Financing Symposium in April 2016 focused on some of these issues which ultimately provided a report to the Executive Council. I'm not sure if/how this forum would relate to that effort, so mentioning that as a risk of duplication. Hopefully this could build off that effort or complement it in some way.</li> </ul>
#3	29	<p>Removes Barriers – I do think this is an important first step to removing the fiscal barrier of implementation and progress to meeting Bay Agreement goals. I give a 7 because some of this work has already occurred and they do not specifically mention doing a</p>



		<p>review of current findings/finance strategies. Namely, I would suggest reviewing and incorporating the Bay Financing Report from August 2016 that followed the Symposium.</p> <p>Catalyst – I believe it has the potential. Funding can mobilize implementation.</p> <p>Adaptive Management – that appears to be the intent, but not explicitly spelled out. The session(s) should produce growth and learning/new discoveries and strategies to accelerate progress.</p> <p>Novelty - I think there are similar conversations and progress occurring in the watershed that could inform the discussion. This does not mean that it is not worth having, and appears to be more directly focused on management strategies, so this type of myopic fiscal focus is necessary for progress.</p> <p>General Comments - Again, I think that the Finance Symposium report from August 2016 would be a good resource. I think that this is important discussion, especially if they take a true "finance" approach, looking at long-term sustainable sources of funds, rather than a reliance on subsidies, etc. This seems to be the true barrier and crutch of achievement of shared environmental goals.</p>
	Average: 32	

**Proposal 20. Effectively Engaging Private Landowners**

Reviewer	Score	Comments
#1	23	Concern that this effort will result in a document that sits on a shelf. What is the next step - e.g., what funding sources are available for producing the actual outreach materials? What other surveys have already been done on landowner perspectives?
#2	27	Suggest that materials be geared towards the folks who need to do outreach to gain landowner support for restoration (as opposed to Goal Teams and Workgroups). Could also benefit from some research on the process and best practices for securing landowner participation – rather than just focusing on the hard copy materials/message. Interviews with folks from NRCS and others who engage landowners on a daily basis may be valuable to learn more about this (e.g., relationship building, in addition to using the best fact sheets)
#3	19	N/A
	Average: 23	

**Proposal 21. Cross Outcome Curriculum Development**

Reviewer	Score	Comments
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#1	24	N/A
#2	30	<p>I like that this effort builds on previous GIT/CBP funded efforts.</p> <p>Would want to know that the intended audience (elected officials) want this information and would use it (what did the previously funded work find about this).</p> <p>If the previous work has been successful and there is a need for outreach, this seems like a great effort to support to translate complex ideas/issues for very busy goal teams to useable information bites that elected officials and the general public can digest.</p> <p>This project is similar to the project titled "Pollution Success Stories" so would recommend to only move one of the two projects forward for this year's program.</p>
#3	18	N/A
	Average: 24	

**Proposal 22. Pollution Solutions: Success Stories**

Reviewer	Score	Comments
#1	26	The Chesapeake Bay Foundation has initiated an ongoing program throughout the entire Eastern Shore jurisdictions- Healthy Clean Waters Roundtable. Contact Allen Girard CBF
#2	13	<p>Do not think that one –paggers about stormwater utility fees (or stormwater/GI) will change behavior (as stated in methodology).</p> <p>Who are the ambassadors? Seems that it will likely be the same people that already are knowledgeable and adopting these practices/ideas. Would want to see more justification about this work as impactful and that it is likely to be successful prior to moving forward.</p> <p>Do the localities (e.g., MS4 communities) want this product? Do they think it will be useful for their messaging? Seems that this product could back fire (if the message is not right for the area or from an "outsider").</p> <p>Where would the elected officials meeting occur? Would need to couple with meeting at elected already intent to visit or else they will be unlikely to show up without extensive work (level of effort/\$) by the subcontractor.</p> <p>Who will maintain the online interface? Maintenance takes \$ and is often not done, so hesitate to create any tool without this worked out beforehand.</p>

		<p>The goals seem way too far away from what would actually be attained with a \$50,000 project.</p> <p>Not enough funds to accomplish this project's stated objectives and goals.</p> <p>This project is similar to the project titled "Cross Outcome Curriculum Development" so would only move one project forward for this year's program.</p>
#3	35	N/A
	Average: 24.67	

**Proposal 23. Chesapeake Bay Watershed Climate Data and Mapping Repository**

Reviewer	Score	Comments
#1	30	<p>I believe that this project would be beneficial to other researchers, and I know that it would be helpful to my own work. I do have some concerns about the project, like the need to frequently update the inventory and any additional data produced, but I support the general idea of the project.</p> <p>I am not aware of any projects that this effort would be duplicating. The defunct Chesapeake Bay Environmental Observatory site might work as a model for the project to follow. The Integrated Ocean Observing System (IOOS) site also offers a large catalog of oceanographic data which could serve as a model for the project if there are a large number of climate data sets added to the inventory (but I find the search and filtering capabilities of the IOOS site inadequate for the amount of data available). The re3data.org database of data repositories may also be a useful model.</p>
#2	26	N/A
#3	11	<p>It will need to be very clear in exactly what is needed in order for the output/tool produced to be useful for any duration of time.</p> <p>It will need longer term maintenance mechanism to keep this information updated.</p> <p>This may exist already and would check with organization such as NOAA, MD DNR, etc. to make sure this is not duplicating other efforts or has been found to be an obsolete idea.</p> <p>\$30,000 doesn't seem in line with the level of effort needed to do this work, if it has not already been done.</p>

		What would be needed from a subcontractor to ensure that the online data/geodatabase or other data could be used/maintained at CBP (as requested in the methodology)?
	Average: 22.33	

**Proposal 24. Measuring Spatial Extent of Hypoxia**

Reviewer	Score	Comments
#1	25	An increase of measurements of bottom DO is important for an accurate estimate of the hypoxia or anoxia volume. The importance of lateral variation of DO has been recognized, but there are not sufficient data to accurately compute the volume of low DO. From the research perspective, the data will provide better information for understanding the correlation between bottom DO and meteorological and dynamic variations. From a management perspective, how many stations are needed and how to maintain continue measurements still need to be carefully considered on a Bay- wide scale.
#2	25	How big of an area is needed for success? Bottom monitoring in the nearshore waters can be very expensive and perhaps out of the scope of this award ceiling of \$70,000. However, the STAR work group has likely vetted this with their staff and if other reviewers have no objections than the scope is feasible.  Bottom information was identified as a need from several workshops with experts in attendance and that means there is a need for this data across the board.  How would the data be delivered? For example, would the results be compiled and modeled or just compiled and presented to CBP?
#3	26	N/A
	Average: 25.33	