

# BIENNIAL STRATEGY REVIEW SYSTEM

## Chesapeake Bay Program



### Logic and Action Plan: Post - Quarterly Progress Meeting

**Stream Health– 2020-2021** [NOTE: make sure to edit **pre-** or **post-** in the text above, to tell the reader whether this logic and action plan is in preparation for your quarterly progress meeting or has been updated based on discussion at the quarterly progress meeting.]

**Long-term Target:** Continually improve stream health and function throughout the watershed. Improve health and function of 10 percent of stream miles above the 2008 baseline for the Chesapeake Bay watershed.

**Two-year Target:** Continually improve stream health and function throughout the watershed.

<b>Instructions:</b> Before your quarterly progress meeting, provide the status of individual actions in the table below using this color key.
Action has been completed or is moving forward as planned.
Action has encountered minor obstacles.
Action has not been taken or has encountered a serious barrier.

Additional instructions for completing or updating your logic and action plan can be found on [ChesapeakeDecisions](#).

Factor	Current Efforts	Gap	Actions	Metrics	Expected Response and Application	Learn/Adapt
<i>What is impacting our ability to achieve our outcome?</i>	<i>What current efforts are addressing this factor?</i>	<i>What further efforts or information are needed to fully address this factor?</i>	<i>What actions are essential (to help fill this gap) to achieve our outcome?</i>	<i>What will we measure or observe to determine progress in filling identified gap?</i>	<i>How and when do we expect these actions to address the identified gap? How might that affect our work going forward?</i>	<i>What did we learn from taking this action? How will this lesson impact our work?</i>
<b>Lack of knowledge regarding ecological stressors and factors affecting stream health</b>	Joint meeting Urban Stormwater Workgroup (USWG) and Stream Health Workgroup	<i>Non-biological factors are not considered for measures of stream health. We need more information on</i>	<b>1.3</b> - Identify practicable metrics which are consistent with both BMP verification guidance to credit projects for N, P, and sediment load	Creation of one or non-biological metric for assessing stream health will indicate progress in closing this gap.	The creation of a metric will likely be a long-term project, spanning several logic and action plans. When we are able to	

	(SHWG) held June 4, 2018.	<i>how they can be utilized and addressed.</i>	reductions as well as stream functional improvements to use in assessing overall improvement in stream health. Incorporate these recommendations into BMP Verification Plans.		create that metric and use it to assess stream health, it will allow us to assess a stream's condition more holistically.
	Maryland Water Monitoring Council 25 <sup>th</sup> Annual Conference: Science, Where We've Been, Where We're Going. Session on stream restoration monitoring. December 6, 2019.		<a href="#">4.1.3</a> - Following the implementation of management efforts, identify how stream health is changing and how it can be better characterized through both biological and non-biological metrics		
		<i>There is a lack of understanding regarding how a management practices will affect the stressors identified by the Maryland Biological Stressor Identification Index.</i>	<a href="#">4.1.1</a> - Stream Health Workgroup will collaborate with USGS to conduct a literature review and survey of Bay jurisdictions to determine what stressors and drivers are most affecting stream health and responsible for causing impairment of streams consistent with state-defined 303(d) listings. <a href="#">4.1.2</a> - Determine which stressors, as identified by work with United States Geological Survey (USGS), can be changed through management activities, especially those management activities that align with practices	Stream Health Work Group will collaborate with USGS to conduct a literature review and survey of Bay jurisdictions to determine what stressors and drivers are most affecting stream health and responsible for causing impairment of streams consistent with state-defined 303(d) listings.	The work on summarizing the factors affecting stream health allow for a better understanding of how to effectively manage a stream. Activities to assess stream's response to management actions will be ongoing as more actions are explored.

			identified in the new jurisdiction Watershed Implementation Plans (WIPs) to reduce nutrient and sediment delivery to the Bay			
<b>Lack of holistic consideration of stream health when considering best management practice (BMP) crediting</b>	Joint meeting Urban Stormwater Workgroup (USWG) and SHWG held June 4, 2018.	<i>There are no BMP crediting efforts for functional improvements in stream health. Currently the only BMP credits available are for sediment and nutrient load reduction.</i>	<b>1.3</b> -Identify practicable metrics which are consistent with both BMP verification guidance to credit projects for N, P, and sediment load reductions as well as stream functional improvements to use in assessing overall improvement in stream health. Incorporate these recommendations into BMP Verification Plans.	The Stream Health Workgroup will collaborate with USGS and other partners to compile information on a stream’s response to management actions and use it to create a product document summarizing findings.	The work in this area will be an ongoing effort and will continue as proposals are funded. Going forward, this may allow for new kinds of BMP credited stream restoration that were previously overlooked because they did not offer significant nutrient and sediment load reductions.	
	Ongoing research supported through the Chesapeake Bay Trust Restoration Research Grant Program (aka pooled monitoring approach)  “Recommended Methods to Verify Stream Restoration Practices Built for Pollutant Crediting in the Chesapeake Bay Watershed” – Approved June 18, 2019	<i>Few resources offer a holistic view of stream restoration and BMP guidance. They have an emphasis on sediment and nutrient reductions without consideration co-benefits</i>	<b>4.1.1</b> - Stream Health Workgroup will collaborate with USGS to conduct a literature review and survey of Bay jurisdictions to determine what stressors and drivers are most affecting stream health and responsible for causing impairment of streams consistent with state-defined 303(d) listings.	Results of pooled monitoring research		
<b>Heavy administrative</b>	The Stream Restoration Permit	<i>Cumbersome and lengthy stream</i>	<b>3.1</b> - Develop a “Stream Restoration Permit	The Stream Restoration Permit	The workgroup will use the results	

<p><b>burden for stream restoration projects</b></p>	<p>Committee was formed and is preparing a survey to assess progress and need to improve permit process and project outcomes related to functional lift.</p>	<p><i>restoration project permit review processes across watershed increases time to completion and decreases the number of projects that are able to succeed</i></p>	<p>Committee” of the Stream Health Workgroup that brings practitioners, regulators and the regulated community together to resolve issues and find common ground to identify actions to streamline the stream restoration project permit review process</p>	<p>Committee will send out the stream permit survey at regular intervals and the responses will be tracked anonymously. Survey results indicating actions reducing legal, technical, and administrative conflicts and resolution of identified issues will be considered progress to address this gap.</p>	<p>of this permit survey as an opportunity to reassess the needs of the group. The survey will be completed by January 2020.</p>	
<p><b>Need for a greater body of scientific research on stream restoration and applied stream health</b></p>	<p>Interstate Commission on the Potomac River Basin (ICPRB) hosted workshop on April 5-6, 2018. ICPRB is developing a 2008 Baseline for the CBP Stream Health Indicator.</p> <p>Development of baseline for indicator via ICPRB baseline indicator workshop</p>	<p><i>Due to the nature of states protocols in collecting biological data for the Chesapeake basin-wide indicator of Biotic integrity (Chessie BIBI), the frequency of data calls are insufficient for yearly reporting change in stream health.</i></p>	<p><b>1.2</b> - Determine and Report Progress</p> <p><b>2.1.2</b> - Working with the existing pooled monitoring effort, provide input on short- and long-term funding plan. Where appropriate as determined by the existing Pooled Monitoring Initiative and the Stream Health Workgroup, participate in key expansion/development efforts (e.g., proposed effort to support the MD MS4 permit monitoring requirements through</p>	<p>Creation of one or non-biological metric that can be used to supplement the data for Chessie BIBI for assessing stream health will indicate progress in closing this gap.</p> <p>Results of pooled monitoring research</p>	<p>The creation of a metric will likely be a long-term project, spanning several Logic and Action Plans. When an additional metric(s) is created, it will allow us to have an annual view of how stream health is changing which will be useful in monitoring response to management actions and other local and watershed wide changes.</p>	

			the Pooled Monitoring Program).			
			<b>3.1</b> - Develop a “Stream Restoration Permit Committee” of the Stream Health Workgroup that brings practitioners, regulators and the regulated community together to resolve issues and find common ground to identify actions to streamline the stream restoration project permit review process			
	Joint meeting Urban Stormwater Workgroup (USWG) and SHWG held June 4, 2018.	<i>No BMP crediting efforts for functional improvements</i>	<b>1.2</b> - Determine and Report Progress <b>1.3</b> - Identify practicable metrics which are consistent with both BMP verification guidance to credit projects for N, P, and sediment load reductions as well as stream functional improvements to use in assessing overall improvement in stream health. Incorporate these recommendations into BMP Verification Plans. <b>4.1.2</b> - Determine which stressors, as identified by work with USGS, can be changed through	The Stream Health Workgroup will collaborate with USGS to compile research on a stream’s response to management actions and use it to create a product document summarizing findings.	In the long term, the Stream Health Workgroup would hope to see new BMP crediting efforts for functional improvements	

			management activities, especially those management activities that align with practices identified in the new jurisdiction Watershed Implementation Plans (WIPs) to reduce nutrient and sediment delivery to the Bay			
<b>Greater coordination between partners</b>	<p>Chesapeake Bay Trust: Restoration Research Grant Program.</p> <p>Pooled Monitoring Restoration Award Program, Administered by the Chesapeake Bay Trust (CBT)</p> <p>Presenting about the Pooled Monitoring Initiative at conferences and to key groups to reach both a federal and state jurisdictional audience</p> <p>Addition of “Pooled Monitoring” option in the draft MD MS4 permit</p>	<i>Increased awareness of and involvement in projects from states on pooled monitoring opportunities</i>	<p><b>2.1.1</b> - SHWG provide input to existing pooled monitoring research program, including topics for research and dissemination support of the effort/results</p> <p><b>2.1.3</b> - Disseminate results, including but not limited to an annual forum to share ongoing research results and receive feedback for that research with the audience focus of the regulatory agencies. At this annual forum, regulatory staff and practitioners will have an opportunity to ask new questions, clarify the current state of scientific knowledge, and refine the top key restoration questions in the community for future study.</p>	In order to quantify progress towards addressing this gap, we will look at the number of partners in the pooled monitoring effort overtime. An increase in the number of partners and the overall amount of funding will be regarded as progress towards achieving this outcome. An increase in Restoration Research applications to CBT from organizations outside of MD will also indicate progress.	Long term, increased, involvement of Chesapeake Bay states engaged in the Pooled Monitoring Initiative will allow for greater awareness of projects/results, help refine key restoration questions, offer up potential restoration sites for research, apply to or spread the word about the Restoration Research request for proposals (RFP), and/or join the Pooled Monitoring Initiative as a funding partner to increase our power and support more key research efforts together.	

<p>The Stream Health Workgroup has developed the Stream Restoration Permit Committee and is preparing a survey to assess progress and need to improve permit process and project outcomes related to functional lift.</p> <p>Center for Watershed Protection (CWP) and Ecosystem Planning &amp; Restoration Training: Assessing and Restoring Stream Functions, December 11, 2017</p>	<p><i>Inconsistencies between jurisdictions in stream restoration project permit review process</i></p>	<p><b>3.1</b> - Develop a “Stream Restoration Permit Committee” of the Stream Health Workgroup that brings practitioners, regulators and the regulated community together to resolve issues and find common ground to identify actions to streamline the stream restoration project permit review process</p>	<p>The Stream Restoration Permit Committee will send out the stream permit survey at regular intervals and the responses will be tracked anonymously. An increase in positive answers will be considered progress to address this gap.</p>	<p>The workgroup will use the results of this permit survey as an opportunity to reassess the needs of the group. The survey will be completed by January 2020.</p>	
<p>Joint meeting Urban Stormwater Workgroup (USWG) and SHWG held June 4, 2018.</p>	<p><i>Stakeholders lack training and awareness of current restoration techniques and stream health</i></p>	<p><b>5.1</b> - Provide training and education to diversity of stakeholders on stream restoration and stream health.</p>	<p>Progress on this outcome will be measured by documented updates to stream restoration design manuals and standard operating practice. There will be an emphasis on communication between jurisdictions in order to update these manuals and ensure best practices across state lines.</p>	<p>Updating restoration design manuals and encouraging collaboration between groups will be an ongoing project spanning several workplans. The science of restoration is always progressing and ensuring that stakeholders and practitioners are up to date will be an ongoing effort.</p>	

<b>Limited funds</b>	Chesapeake Bay Trust: Restoration Research Grant Program.	<i>Limited number of partners on pooled monitoring effort</i>	<b>2.1.2</b> - Working with the existing pooled monitoring effort, provide input on short- and long-term funding plan. Where appropriate as determined by the existing Pooled Monitoring Initiative and the Stream Health Workgroup, participate in key expansion/development efforts (e.g., proposed effort to support the MD MS4 permit monitoring requirements through the Pooled Monitoring Program).	In order to quantify progress towards addressing this gap, we will look at the number of partners in the pooled monitoring effort overtime. An increase in the number of partners and the overall amount of funding will be regarded as progress towards achieving this outcome.	The pooled monitoring effort is an ongoing effort and at this time, recruitment to join will also be ongoing. There is currently no limit set on the number of partners for this effort. As more participants join the effort, there will be a greater wealth of data and funds for use by the group which will allow for more work to be done.
	Pooled Monitoring Initiative has goals of expansion  ICPRB and Habitat Goal Implementation Team FY2018 proposal <i>Funding through USGS, and the Bay Program</i>	<i>Limited grant funding for Chessie BIBI does not cover any unexpected barriers and expenses</i>	<b>1.1</b> - Provide recommendations on reporting the Chessie BIBI metric to document improvement in stream health consistent with the Agreement Outcome	NA – It is difficult to measure progress towards anticipating problems because these problems may arise at irregular intervals.	The Stream Health Workgroup will work with ICPRB to anticipate challenges associated with the Chessie BIBI and seek additional funding as necessary. This is an ongoing effort that the workgroup will work to support.

### ACTIONS – 2020-2021

Action #	Description	Performance Target (s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline
<b>Management Approach 1: Identify an appropriate suite of metrics to measure the multiple facets of stream health to complement the baywide Chessie BIBI</b>					



## ACTIONS – 2020-2021

Action #	Description	Performance Target (s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline
1.1	Provide recommendations on reporting the Chessie BIBI metric to document improvement in stream health consistent with the Agreement Outcome	ICPRB with input from the SHWG will evaluate options to report the Chessie BIBI to demonstrate changes in stream health consistent with the Agreement Outcome.	ICPRB, USGS, Technical Advisory Group for Chessie BIBI update	Chesapeake Bay watershed	<ul style="list-style-type: none"> <li>December 2021</li> </ul>
1.2	Determine and report progress	1. Periodically acquire and process available stream data from Bay states and District of Columbia	Bay states and DC provide data; ICRPB work with monitoring staff and CBP for quality assurance process; CBP report and track	Chesapeake Bay watershed	1. December 2019/January 2020
		2. CBP calculate and report % change in Chessie BIBI index			2. Starting January 2020, ICRPB will complete this update and report on progress
1.3	Identify practicable metrics which are consistent with both BMP verification guidance to credit projects for	1. SHWG participate in USWG efforts to review and provide input on recommendations to verify stream restoration projects according to the adopted CBP protocols.	Suggested BMP verification committee, Habitat GIT, SHWG, state agencies (MD DNR monitoring and non-tidal assessment)	Chesapeake Bay watershed	December 2019 - Expected approval of revised stream restoration BMP protocols by the workgroup. The protocols will then move to the Water Quality Goal Team for larger approval.

## ACTIONS – 2020-2021

Action #	Description	Performance Target (s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline
	nitrogen, phosphorous, and sediment load reductions as well as stream functional improvements to use in assessing overall improvement in stream health. Incorporate these recommendations into BMP verification plans.	2. Document how performance monitoring assessment parameters will evaluate stream health to demonstrate a trajectory of expected improvements in stream functions and processes.	Habitat GIT, Stream Health Workgroup, work in conjunction with USGS		Expected Products by USGS regarding performance monitoring (1.3.2) expected by December 2021.
		3. Provide recommendations to the Habitat GIT to incorporate into BMP verification plans.	Stream Health Workgroup		
<b>Management Approach 2:</b> Provision of adequate funding and technical resources to support functional life in stream restoration projects, in addition to nutrient and sediment reductions.					
2.1	Implement pooled monitoring approach throughout Chesapeake Bay watershed	1. SHWG provide input to existing pooled monitoring research program, including topics for research and dissemination support of the effort/results	1. CBT lead on Pooled Monitoring Initiative (members include Maryland Department of Energy, US Army Corps of Engineers, US Fish and Wildlife Service, MD Department of Natural Resources, MD State Highway Administration). SHWG lead(s)	Maryland (current effort)  District of Columbia, Virginia, and other interested jurisdictions (future, expanded effort)  Potential other Chesapeake Bay watershed funding partners/collabora	Ongoing, as needed, yearly updates at the yearly forum.  See the CBT website for updates throughout the year at <a href="https://cbtrust.org/restoration-research/">https://cbtrust.org/restoration-research/</a>

**ACTIONS – 2020-2021**

<b>Action #</b>	<b>Description</b>	<b>Performance Target (s)</b>	<b>Responsible Party (or Parties)</b>	<b>Geographic Location</b>	<b>Expected Timeline</b>
			meet with CBT two times per year.	tors (future, expanded effort)	
		2. Working with the existing pooled monitoring effort, provide input on short- and long-term funding plan. Where appropriate as determined by the existing Pooled Monitoring Initiative and the Stream Health Workgroup, participate in key expansion/development efforts (e.g., proposed effort to support the MD MS4 permit monitoring requirements through the Pooled Monitoring Program).	3. Interested parties contact CBT to join pooled monitoring program. Ongoing  Build on existing programs like Maryland Stream Restoration Association/ Maryland Water Monitoring Council representative		

## ACTIONS – 2020-2021

Action #	Description	Performance Target (s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline
		3. Disseminate results, including but not limited to an annual forum to share ongoing research results and receive feedback for that research with the audience focus of the regulatory agencies. At this annual forum, regulatory staff and practitioners will have an opportunity to ask new questions, clarify the current state of scientific knowledge, and refine the top key restoration questions in the community for future study.	3. The Chesapeake Bay Trust’s Pooled Monitoring Initiative (with help from Maryland Water Monitoring Council Stream Restoration Monitoring Sub-Committee and Maryland Stream Restoration Association)	Majority of work will take place in Maryland, but the group hopes to expand to the larger watershed.	Ongoing as monitoring projects are funded. Up to date information can be found at: <a href="https://cbtrust.org/grants/restoration-research/">https://cbtrust.org/grants/restoration-research/</a> .”
<b>Management Approach 3:</b> Active and engaged participation by local communities with federal and state partners is central to Bay restoration (See Management Strategy for full approach).					
<b>3.1</b>	Develop a stream restoration permit Committee of the Stream Health Workgroup that brings practitioners, regulators and the regulated	<ol style="list-style-type: none"> <li>1. Identify members of the Stream Health Workgroup to form the committee</li> <li>2. Develop meeting schedule</li> <li>3. Review latest synopsis of permit issues, recommendations and actions</li> </ol>	Permitting Committee: USACE (North Atlantic Division, Baltimore, Norfolk), Environmental Protection Agency (EPA), MDE, VA Department of Environmental Quality, Virginia Marine Resources Commission, Anne Arundel County, Fairfax County, PA Department of	Chesapeake Bay watershed	<p>January 2016 – Ongoing</p> <p>Recommendations on 1-4 expected December 2021</p> <p>Implement survey by end of 2019</p> <p>Provide summary of survey results in April 2020</p>

**ACTIONS – 2020-2021**

<b>Action #</b>	<b>Description</b>	<b>Performance Target (s)</b>	<b>Responsible Party (or Parties)</b>	<b>Geographic Location</b>	<b>Expected Timeline</b>
	community together to resolve issues and find common ground to identify actions to streamline the stream restoration project permit review process	<p>4. Provide recommendations to Stream Health Workgroup (and Bay Program partnership) on priority actions identified from the survey</p> <p>5. Determine need work with federal, state regulatory agencies and local governments to develop streamlined process to evaluate watershed implementation plans, MS4 restoration plans or other relevant site analyses as sufficient documentation for alternative site analysis in support of stream restoration permits</p>	Environmental Protection, DC Department of Energy and the Environment, Trout Unlimited, Other jurisdictional representatives (DE, WV, NY)		

**Management Approach 4:** Develop and promote holistic stream restoration design guidelines that identify the level of degradation and improvement of stream functions and key stressors/factors limiting potential uplift.

## ACTIONS – 2020-2021

Action #	Description	Performance Target (s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline
4.1	Collaborate with USGS as a part of their new Science Plan to investigate and define stream stressors and their management to improve stream health. This collaboration will be in order to better understand what factors lead to functional uplift and which may lead to degradation.	1. Stream Health Workgroup will collaborate with USGS to conduct a literature review and survey of Bay jurisdictions to determine what stressors and drivers are most affecting stream health and responsible for causing impairment of streams consistent with state-defined 303(d) listings.	USGS will be responsible for conducting the initial review of literature on stream health stressors and will report out to the Stream Health Workgroup. The SHWG membership/state representatives or referred colleague will facilitate implementation of the survey.	Chesapeake Bay watershed	June 2021 (18 months from Jan 2020)
		2. Determine which stressors, as identified by work with USGS, can be changed through management activities, especially those management activities that align with practices identified in the new jurisdiction Watershed Implementation Plans (WIPs) to reduce nutrient and sediment delivery to the Bay	Responsible parties for phases 2 and 3 will be determined upon completion of phase 1.		Dependent on findings from approach 4.1, will begin before December 2021
		3. Following the implementation of management efforts, identify how stream health is changing and			

**ACTIONS – 2020-2021**

Action #	Description	Performance Target (s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline
		how it can be better characterized through both biological and non-biological metrics			
<b>Management Approach 5:</b> Work with CBP partners to include the Enhancing Partnering, Leadership and Management GIT to enhance the capacity of local governments, organizations and landowners of beneficial stream restoration and maintenance practices.					
5.1	Provide training and education to diversity of stakeholders on stream restoration and stream health.	<ol style="list-style-type: none"> <li>1. SHWG membership provide updates at meetings with upcoming training</li> <li>2. SHWG share recent research findings at meetings</li> <li>3. SHWG Chair(s) attend Local Government Advisory Committee meeting at minimum one time per year to discuss stream health and restoration. Coordinate with LGAC liaison. (e.g., Phase III WIP Fact Sheets) Offer and conduct additional training upon request.</li> <li>4. Add training schedule to SHWG calendar or meeting minutes.</li> </ol>	SHWG membership	TBD based on training needs identified	Ongoing

**ACTIONS – 2020-2021**

<b>Action #</b>	<b>Description</b>	<b>Performance Target (s)</b>	<b>Responsible Party (or Parties)</b>	<b>Geographic Location</b>	<b>Expected Timeline</b>
5.2	Committed cooperation and coordination with other groups within the Chesapeake Bay Program to assure shared resources and information and further the goals of the <i>Chesapeake Bay Watershed Agreement</i>	<p>1. Have one member of the Stream Health Workgroup other than the staffer, attend in person or listen in on the workgroup meetings of other relevant workgroups and goal teams</p> <p>2. Investigate potential of the Healthy Watershed Assessment in measuring progress towards the targets of the Stream Health workgroup</p> <p>3. Explore metrics of other relevant workgroups to examine the relevance to stream health</p> <p>4. Identification and attempted resolution of potential conflicts between actions and recommendations of other groups within the Bay Program</p> <p>5. Collaborate with the Chesapeake Bay Program Communications workgroup on the development of outreach materials and to ensure consistent messaging.</p>	Stream Health Workgroup membership	Chesapeake Bay watershed	Ongoing