

Healthy Watersheds Logic Table and Work Plan

Factor	Current Efforts	Gap	Actions (critical in bold)	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 achieve our outcome?</i>	<i>Optional: Do we have a measure of progress?</i>	<i>Optional: What effects do we expect to see as a result of this action and what is the anticipated application of these changes?</i>	<i>Optional: What did we learn from taking this action? How will this lesson impact our work?</i>
Public and Landowner Engagement	Both outreach and education aimed at key stakeholders related to the resources and tools available. Outreach efforts focused on 1) the importance and value of local waters, and 2) the tools that are available to protect local waters Developing WIP III informational resources	The values associated with maintaining healthy watersheds have too often not been adequately or consistently conveyed to local communities Communication and outreach with landowners to ensure they are participating in practices that maintain and protect high quality waters on or adjacent to their property	2.1 (4, 5, 7, 10, 11) 2.2 (5) 3.2 (7, 8, 9, 11, 15) 4.1 (2) 4.2 (3, 4) 4.3 (2, 3)			
Legislative Engagement	GIT funding project 2018 Developing WIP III informational resources	Enhancements are needed for scientific, technical, and policy tools, and for approaches to engage and involve local jurisdictions in protection efforts Inclusion of healthy watersheds in Phase III WIPs	2.1 (3, 9)			
Federal Government Agency Engagement	Continued communication with NOAA, USFS, NPS, USFWS and others	Need engagement from federal agencies other than EPA in order to fully protect healthy watersheds	3.2 (1, 4, 5, 6, 12) 4.2 (5)			

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State Government Agency Engagement	State leadership on federal regulatory programs, primarily the Clean Water Act (CWA) Section 303, antidegradation, and CWA Section 319 program funds are closely tied to Healthy Watersheds	States have taken different approaches to define and identify healthy watersheds, and likewise have different plans to improve their assessment and monitoring over time Need active participation from all states/jurisdictions in the MHWGIT	3.2 (13, 14) 4.1 (3, 4)			
Local Government Agency Engagement	Work related to quantifying and reducing the rate of conversion of natural lands to development Direct coordination with local stakeholders to get relevant data, information and tools into the hands of managers on the ground	Need to understand how to package materials in effective manner and how to get those materials to the correct audience/ outreach and communication with local decision makers	2.1 (1, 2, 3, 4, 5, 6, 9, 10, 11, 12) 2.2 (1, 2, 3, 4, 5) 3.2 (2, 11)			
Partner Coordination	Cross-management strategy coordination, alignment for multiple benefits, analysis and data products at a Bay-	The usage of existing tools is not universal, even within states. Furthermore, some tools are underdeveloped, poorly supported, and unsuited for	1.2 (1) 2.1 (1, 8, 12) 3.1 (2) 3.2 (10, 12) 4.1 (1)			

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	wide scale, and access to/connection to federal agencies	widespread sharing and/or integration.	4.2 (1, 2, 5) 4.3 (1)			
Use Conflict	Efforts to integrate living resources priorities with TMDL implementation efforts	Competing resources going to other environmental management and assessments such as the TMDL	2.1 (2, 10)			
Population Growth	Phase 6 Land Change model outputs related to conversion of natural lands to development	Understand how conversion of natural lands to development puts pressure on healthy watersheds	1.2 (3, 8)			
Scientific and Technical Understanding: locating healthy waters and watersheds	Individual jurisdictional efforts to monitor, assess, and determine watershed health	Need continued assessments to determine if state-identified healthy waters and watersheds are still healthy and if additional waters and watersheds have become healthy Lack of funding for increased monitoring for unassessed waters	1.1			
Scientific and Technical Understanding: determining healthy watershed vulnerabilities	Develop and apply tools or methods that integrate various inputs to characterize watershed vulnerability to future high-level risks	Need more information on watershed condition, urban growth proximity/pressure, energy development trends, water demand forecasts, invasive species threats, upstream	1.2			

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		activities, land ownership type, future transportation infrastructure plans, climate change, sea level rise, and other factors				
Scientific and Technical Understanding: information to prioritize healthy watershed protection	Collaborate with other goal teams to compile information on state and federal land protection priorities and determine overlap with high-risk healthy watersheds for additional protective measures when appropriate	Need to understand which healthy watersheds are vulnerable and why. Be able to communicate those vulnerabilities to stakeholders to help prioritize protection.	1.3			
Scientific and Technical Understanding: further technical assessment activities	Efforts to utilize assessment information and incorporate newly available information	Need to complete vulnerability assessment and framework to determine additional needs Need additional state capacity	1.4			
Funding and Finances	Efforts to create incentives for land conservation in State-identified HW.	Need more financial resources so that states and local governments can monitor and manage healthy watersheds; need a way to incentivize and credit conservation	2.3 3.1 3.2 (3)			

WORK PLAN ACTIONS

Action #	Description	Performance Target(s)	Responsible Party (or Parties)	Geographic Location	Expected Timeline
Management Approach 1: Tracking Healthy Waters and Watersheds					
1.1	Continue gathering inventory of healthy watersheds	Tetra Tech, MHWGIT State Data Leads, and MHWGIT and CBPO GIS Staff will continue to compile data on State-identified Healthy Waters and Watersheds and update the master list and map of State-identified Healthy Waters and Watersheds	MHWGIT State Leads, CBPO GIS Team, Tetra Tech	Bay-wide	Ongoing
1.2	Develop vulnerability information	<ol style="list-style-type: none"> 1. Tetra Tech will work with jurisdictions to identify management needs in tracking the vulnerability of healthy watersheds, so that information will be useful to target state management efforts in healthy watersheds 2. Develop and implement a methodology to establish climate related goals and baselines for individual Chesapeake Bay Agreement Management Strategies such as the Healthy Watersheds Management Strategy 3. Forecast land development scenarios 4. Utilize sea level rise/storm surge assessments 5. Incorporate Energy Development Trends research into vulnerability assessment 6. Incorporate resiliency study 7. Incorporate Resource Conservation Opportunity Areas 8. Quantify impact of land conversion on healthy watersheds and habitats 9. Maryland will further develop and apply tools and methods to characterize 	<ol style="list-style-type: none"> 1. MHWGIT, CBPO GIS Team, Tetra Tech 2. STAR, Climate Resiliency WG 3. CBPO USGS 4. USACOE 5. TNC, MHWGIT, CBPO GIS Team 6. TNC, MHWGIT, CBPO GIS Team 7. USFWS, MHWGIT, CBPO GIS Team 	<ol style="list-style-type: none"> 1. Bay-wide 2. Bay-wide 3. Bay-wide 4. Bay-wide 5. PA and NY 6. Bay-wide 7. Bay-wide 8. State Identified Healthy Watersheds 9. MD 	<ol style="list-style-type: none"> 1. July 2018 2. September 2018 3. December 2018 4. May 2019 5. May 2019 6. 2018-2019 7. 2018-2019 8. May 2018 9. December 2018

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		vulnerability of healthy watersheds to specific, future high-level risks	8. CBPO USGS, Land Use WG 9. MDE, MD DNR		
1.3	Prioritize protection	<ol style="list-style-type: none"> 1. Assess protected status of healthy watersheds 2. Compile and publish bi-annual Chesapeake Bay Protected Lands Dataset 3. MD will collaborate with other goal teams to compile information on State and Federal land protection priorities and determine overlap with high-risk healthy watersheds for additional protective measures when appropriate (e.g., for use in WIP Conservation Plus Scenarios) 4. MD DNR Conservation Tool 5. RFA to protect Riparian Buffers through land acquisition 	<ol style="list-style-type: none"> 1. MHWGIT 2. CBPO GIS Team, NPS 3. MDP, MDE, MD DNR, VHGIT 4. MD DNR 5. NYSDEC 	<ol style="list-style-type: none"> 1. Bay-wide 2. Bay-wide 3. MD 4. MD 5. NY 	<ol style="list-style-type: none"> 1. Ongoing 2. Ongoing 3. May 2018 4. 2018-2019 5. Ongoing
1.4	Maintain and expand assessment activities and information	<ol style="list-style-type: none"> 1. Work with STAR to determine current and future monitoring needs and outline gaps 2. Continue to work on: healthy watershed metrics, analyses of protocol for determining status of each watershed, assessments of watershed protection priority, and exploring a method to track marginally healthy watersheds 3. Monitor high resolution imagery processing and work with LUWG to determine how data can be incorporated into a healthy watershed tracking framework 	<ol style="list-style-type: none"> 1. MHWGIT, STAR 2. MHWGIT 3. CBPO GIS Team, Land Use WG 4. USFS 5. CBP GIS Team, VHGIT, TU 6. USACE, NFWF 	<ol style="list-style-type: none"> 1. Bay-wide 2. NA 3. Bay-wide 4. Bay-wide 5. Bay-wide 6. Bay-wide 7. Bay-wide 8. Fort Dupont 9. MD 10. MD 	<ol style="list-style-type: none"> 1. June 2018 2. Ongoing 3. 2018-2019 4. 2018-2019 5. 2018-2019 6. May 2018 7. May 2019 8. 5 years 9. Ongoing 10. Ongoing

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		<ol style="list-style-type: none"> 4. Track forest cover and provide regular updates on forest gain/loss 5. Conduct GIS assessments to identify key high value brook trout habitat to conserve and those areas that are considered marginal and in need of restoration 6. USACE, NFWF, and state partners will conduct the Chesapeake Bay Comprehensive Water Resources and Restoration Plan to identify project opportunities for ecosystem restoration and other USACE mission areas utilizing healthy watershed inventories, land cover datasets, and other data 7. Expand assessment activities and information for forests and forest conservation 8. Fort Dupont Watershed Restoration NFWF Grant Project 9. Continue to focus on trend analysis for existing Tier II streams 10. Continue to monitor MDSS sites 11. Water quality monitoring in the Susquehanna will be updated between 2018-2020 and monitoring in the Chemung Basin will be updated 2022-2024 	<ol style="list-style-type: none"> 7. FWG 8. DC DOEE 9. MDE, MD DNR 10. MD DNR 11. NYSDEC 	11. NY	11.2018-2024
Management Approach 2: Local Leadership – strengthen local commitment and capacity to protect their healthy watersheds					
2.1	Outreach, including: effectively conveying information on the status of healthy watersheds to local stakeholders	<ol style="list-style-type: none"> 1. Work collectively to improve outreach strategies, and better "get the word out" across multiple Management Strategies to determine the best approaches and methods for reaching key stakeholders 	<ol style="list-style-type: none"> 1. MHWGIT, LGAC 2. MHWGIT 	<ol style="list-style-type: none"> 1. Bay-wide 2. NA 3. VA 4. DC 	<ol style="list-style-type: none"> 1. Ongoing 2. March 2018 3. December 2019

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		2. Healthy Watershed Fact sheet templates for WIP developers and implementers	3. MHWGIT, VADOF	5. DC 6. DC	4. 2018-2019 5. 2018-2019
		3. Healthy Watersheds TMDL Forest Study Phase 3: VA staff will work with a pilot locality to review and revise Comprehensive Plans and ordinances to establish policies, incentives, and standards that promote and facilitate conservation of high conservation value forests that will result in TMDL progress	4. DC DOEE 5. DC DOEE 6. DC DOEE 7. DC DOEE 8. MDE, MD DNR 9. MDE, MD DNR	7. DC 8. MD 9. MD 10. MD 11. MD 12. NY	6. 2018-2019 7. 2018 8. 2018-2019 9. May 2018 10. 2022 11. 2018-2019
		4. DOEE present about watershed protection at community events & meetings	10. MDE 11. MDE 12. NYSDEC		12. Ongoing
		5. Work with DC schools on watershed restoration education & implementation projects			
		6. Creation of a comprehensive outreach strategy for the DC DOEE restoration branch and provide a method and baseline training from which all staff can use to communicate with partners			
		7. Start a job training program (River corps) in DC that provides training on how to control invasive species, LID maintenance, inspections, photo monitoring for stream restoration projects in addition to general experience to be stewards for the environment			
		8. MD will partner with NGOs to coordinate protection and communication efforts			
		9. Develop and implement communications to local communities in MD to support			

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		<p>integration of healthy watershed protection into local comprehensive plans</p> <p>10. Develop and implement outreach to communities in MD to support directing some pollution reduction/mitigation activities planned for large-scale TMDL development watersheds that contain healthy (sub)watersheds</p> <p>11. MD Tier II Story Map to communicate how and why MD protects Tier II streams on a watershed scale, to better ensure that downstream high quality waters are maintained</p> <p>12. Local government outreach, working with regional planning boards, Soil and Water Conservation Districts (SWCD), Water Quality Coordinating Committees (WQCC) on WIP III awareness with focus on local water quality. Create awareness of where local healthy watersheds are located, benefits of protection and resources/grants available for protection</p>			
2.2	Identify the various tools that may be used, primarily by local governments, to protect healthy watersheds	<p>1. Gather, summarize and place on the Chesapeake Bay Program website or other locations as determined in the Local Leadership Management Strategy approach for improving transfer of knowledge to locals, existing studies and reports on the costs, benefits and effectiveness of both local and state level land use policy options, incentives and planning tools</p>	<p>1. MHWGIT</p> <p>2. MHWGIT, VA DOF</p> <p>3. MDE</p> <p>4. MDE, MD DNR</p> <p>5. NYSDEC</p>	<p>1. Bay-wide</p> <p>2. VA</p> <p>3. MD</p> <p>4. MD</p> <p>5. NY</p>	<p>1. December 2019</p> <p>2. 2019</p> <p>3. December 2018</p> <p>4. Ongoing</p> <p>5. Ongoing</p>

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		<ol style="list-style-type: none"> 2. Healthy Watersheds TMDL Forest Study Phase 3: A VA pilot locality will implement various planning tools for incentivizing forestland retention 3. Finalize and implement guidance to protect healthy watersheds in MD 4. MD working with counties on a county by county basis to help identify areas for protection vs. growth 5. WQCCs, WIP III development, land acquisition program and buffer program, distributing resources provided by MHWGIT (planning tools, template for WIP development) in person and on DEC website for stakeholders 			
2.3	Leverage Funding	<ol style="list-style-type: none"> 1. Incorporate healthy watershed protection into the RFPs and scoring tools used to award federal and state water quality grants 2. Healthy Watersheds TMDL Forest Study Phase 3: incentivize private capital markets to invest in conservation and the offset future growth and development 	<ol style="list-style-type: none"> 1. MDE, DNR 2. MHWGIT, VA DOF 	<ol style="list-style-type: none"> 1. MD 2. NA 	<ol style="list-style-type: none"> 1. Ongoing 2. 2019
Management Approach 3: Federal and State Leadership					
3.1	Leverage Funding	<ol style="list-style-type: none"> 1. Secure Watershed Protection Grants 2. Federal partnerships with FHWA and NPS, NFWF, Local partnerships with DC Water 	<ol style="list-style-type: none"> 1. DC DOEE 2. DC DOEE 	<ol style="list-style-type: none"> 1. DC 2. DC 	<ol style="list-style-type: none"> 1. 2018-2019 2. 2018-2019
3.2	Implement new or improve existing policy/programs/research	<ol style="list-style-type: none"> 1. Engage with federal agencies other than EPA (such as FERC and DOT) to leverage opportunities within those agencies so that 	<ol style="list-style-type: none"> 1. MHWGIT 	<ol style="list-style-type: none"> 1. Bay-wide 2. Bay-wide 	<ol style="list-style-type: none"> 1. January 2019

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		they can set the stage for state and local governments to further healthy watershed protection	2. MHGIT, VA DOF	3. Bay-wide 4. NA	2. 2019 3. 2019
		2. Healthy Watersheds TMDL Forest Study Phase 3: Creation of a training program and guidebook that leads communities through the process of revising and establishing policies, incentives, and standards that promote and facilitate conservation of high conservation value forests	3. MWHGIT, VA DOF 4. EPA 5. EPA 6. USACE 7. DC DOEE 8. DC DOEE	5. NA 6. Bay-wide 7. DC 8. DC 9. DC 10. DC 11. MD	4. 2018-2019 5. 2018-2019 6. Ongoing 7. Ongoing 8. Ongoing 9. Ongoing 10. April 2018
		3. Healthy Watersheds TMDL Forest Study Phase 3: develop a model to monetize forestland retention and other conserved land values in the TMDL 6.0 model	9. DC DOEE 10. DC DOEE 11. MDP 12. MDE	12. MD 13. NY 14. NY 15. NY	11. December 2018 12. December 2018
		4. Continue integrating healthy watershed protection into EPA water programs. Thus far EPA has made progress on integrating protection in the 319 program, 303(d) program and into source water protection	13. NYSDEC, NYS OPRHP, NYS DAM, NYS DOT, EFC		13. Ongoing 14. Ongoing 15. September 2018
		5. Share information on newly launched Healthy Watersheds Consortium Grant and annual opportunities for states and others to submit proposals for sub-grants	14. NYSDEC 15. NYSDEC		
		6. Continue to manage USACE reservoirs and recreational facilities to protect, preserve, and restore significant ecological resources by managing natural resources in a healthy and sustainable condition, fostering healthy lands and waters by balancing public uses and needs, and providing public outdoor recreational opportunities			

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		<ul style="list-style-type: none"> 7. DC River Smart Homes and Schools Programs 8. DC Tree Plantings 9. DC Public Space LID 10. DC partnering with the NPS, to repave the roadways that cross through Fort Dupont Park 11. MDP community outreach for A Better Maryland, which is an initiative to listen to local needs 12. MDE regularly meeting with DOD and other federal agencies to update regulations 13. NY Open Space Conservation Plan continuing easement acquisitions 14. Land acquisition through Water Quality Implementation Project Program, a competitive grant program that distributes New York State Environmental Protection Fund (EPF) money for projects that reduce polluted runoff, improve water quality, and restore habitat in New York's waterbodies. Riparian buffers and Land Acquisition on non-agricultural land are a priority practice through this program 15. Assessment and Maintenance of Riparian Forest Buffers in the Chesapeake Bay Watershed: Perform riparian forest buffer site assessments, facilitate maintenance projects and provide outreach relating to riparian forest buffer management 			

Management Approach 4: Support State-based Efforts

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4.1	Provide a valued forum for mutual learning and exploration	<ol style="list-style-type: none"> 1. Continue meeting 2-4 times a year and at meetings continue hosting Case Study presentations related to healthy watershed protection/tracking 2. Host Youth Fair for Environmental Education 3. MDE is developing best practices outreach materials for Tier II waters. It is a straightforward check list with recommended BMPs depending on the activities 4. MD is developing a permitting applicant portal to integrate wetlands and waterways program. Which allows users to type in a location and permit number and see what types of information is available. Fee exempt government entities will access the portal and get information they need. Tier II (HW) check list will be integrated. This initiative is called "ecollaboration" 	<ol style="list-style-type: none"> 1. MHWGIT 2. DC DOEE 3. MDE 4. MDE 	<ol style="list-style-type: none"> 1. NA 2. MD 3. MD 4. DC 	<ol style="list-style-type: none"> 1. Ongoing 2. 2018-2019 3. 2018-2019 4. 2018-2019
4.2	Develop information resources and support communications	<ol style="list-style-type: none"> 1. Provide messages and resources to CBP Communications staff 2. Share presentations, slides, pictures, graphics, to help partner agency staff prepare presentations, reports, etc. with effective healthy watersheds messages 3. River Smart Homes Flyer Distribution 4. Update and distribute Riparian Buffer Funding Brochure and make resources provided by MHWGIT available on website for stakeholders 	<ol style="list-style-type: none"> 1. MHWGIT 2. MHWGIT 3. DC DOEE 4. NYSDEC 5. MDE, MD DNR 	<ol style="list-style-type: none"> 1. NA 2. NA 3. DC 4. NY 5. MD 	<ol style="list-style-type: none"> 1. Ongoing 2. Ongoing 3. 2018-2019 4. Ongoing 5. Ongoing

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		5. Increase communication so that federal programs and agencies are more protective of state-identified healthy watersheds			
4.3	Promote the science	<ol style="list-style-type: none"> 1. Continue to work with the Chesapeake Bay Program and partners to quantify and incorporate conservation practices into the Chesapeake watershed modeling efforts and to explore how land use protections might be used to quantify future pollutant load reduction incentives for land conservation 2. Citizens Statewide Lakes Assessment Program collects lake data including water quality samples, lake perception, harmful algal blooms, and invasive species distribution. Data for Rotating Intensive Basins Studies monitoring, impaired waterbodies 303(d) list, Priority Waterbody List and other programs 3. Water Assessments by Volunteer Evaluators is citizen-based water quality assessment that enables citizen scientists to collect biological data for assessment of water quality on wad able streams. Participants submit sampling locations for review and attend an eight-hour training session on collection methods. Data is used for monitoring reports, state and federal reporting, and Rotating Intensive Basins Studies program 	<ol style="list-style-type: none"> 1. MHWGIT 2. NYSDEC 3. NYSDEC 	<ol style="list-style-type: none"> 1. Bay-wide 2. NY 3. NY 	<ol style="list-style-type: none"> 1. Ongoing 2. Ongoing 3. Ongoing