Biennial Strategy Review System: Logic Table and Work Plan

Instructions: The following Logic Table should be used to articulate, document, and examine the reasoning behind your work toward an Outcome. Your reasoning—or logic—should be based on the Partnership's adaptive management decision framework. This table allows you to indicate the status of your management actions and denote which actions have or will play the biggest role in making progress.

Some Management Strategies and Work Plans will not immediately or easily fit into this analytical format. However, **all GITs should complete columns one through four** to bring consistency to and heighten the utility of these guiding documents. The remaining columns are recommended for those who are able to complete them. If you have any questions as you are completing this table, please contact SRS Team Coordinator Laura Free (free.laura@epa.gov).

The instructions below should be used to complete the table. An example table is available on the GIT 6 webpage under "Projects and Resources".

1. For the first round of strategic review (2017-2018): Use your existing Work Plan actions to complete the **Work Plan Actions** section first. Make sure to number each of the actions under a high-level Management Approach, as these numbers will provide a link between the work plan and the logic table above it. Use color to indicate the status of your actions: a green row indicates an action has been completed or is moving forward as planned; a yellow row indicates an action has encountered minor obstacles; and a red row indicates an action has not been taken or has encountered a serious barrier.
2. **Required:** In the column labeled **Factor**, list the significant factors (both positive and negative) that will or could affect your progress toward an Outcome. The most effective method to ensure logic flow is to list all your factors and then complete each row for each factor. Consult our Guide to Influencing Factors (Appendix B of the Quarterly Progress Meeting Guide on the GIT 6 webpage under "Projects and Resources") to ensure your list is reasonably comprehensive and has considered human and natural systems. Include any factors that were not mentioned in your original Management Strategy or Work Plan but should be addressed in any revised course of action. If an unmanageable factor significantly impacts your outcome (e.g., climate change), you might choose to list it here and describe how you are tracking (but not managing) that factor.
3. **Required:** In the column labeled **Current Efforts**, use keywords to describe existing programs or current efforts that other organizations are taking that happen to support your work to manage an influencing factor but would take place even without the influence or coordination of the Chesapeake Bay Program. You may also include current efforts by the Chesapeake Bay Program. Many of these current efforts may already be identified in your Management Strategy; you may choose to link the keywords used in this table to your Management Strategy document for additional context. You may also choose to include some of these efforts as actions in your work plan; if you do, please include the action's number and hyperlink.
4. **Required:** In the column labeled **Gap**, list any existing gap(s) left by those programs that may already be in place to address an influencing factor. These gaps should help determine the actions that should be taken by the Chesapeake Bay Program through the collective efforts of Goal Implementation Teams, Workgroups, and internal support teams like STAR, or the actions that should be taken by individual partners to support our collective work (e.g., a presentation of scientific findings by a federal agency to a Chesapeake Bay Program workgroup). These gaps may already be listed in your Management Strategy.
5. **Required:** In the column labeled **Actions**, list the number that corresponds to the action(s) you are taking to fill identified gaps in managing influencing factors. Include on a separate line those approaches and/or actions that may not be linked to an influencing factor. To help identify the action number, you may also include a few key words. Emphasize critical actions in **bold**.
6. **Optional:** In the column labeled **Metric**, describe any metric(s) or observation(s) that will be used to determine whether your management actions have achieved the intended result.
7. **Optional:** In the column labeled **Expected Response and Application**, briefly describe the expected effects and future application of your management actions. Include the timing and magnitude of any expected changes, whether these changes have occurred, and how these changes will influence your next steps
8. **Optional:** In the column labeled **Learn/Adapt**, describe what you learned from taking an action and how this lesson will impact your work plan or Management Strategy going forward.

Toxics Policy and Prevention Logic Table and Work Plan

Primary Users: Goal Implementation Teams, Workgroups, and Management Board | Secondary Audience: Interested Internal or External Parties
Primary Purpose: To assist partners in thinking through the relationships between their actions and specific factors, existing programs and gaps (either new or identified in their Management Strategies) and to help workgroups and Goal Implementation Teams prepare to present significant findings related to these actions and/or factors, existing programs and gaps to the Management Board. | Secondary Purpose: To enable those who are not familiar with a workgroup to understand and trace the logic driving its actions.
Reminder: As you complete the table below, keep in mind that removing actions, adapting actions, or adding new actions may require you to adjust the high-level Management Approaches outlined in your Management Strategy (to ensure these approaches continue to represent the collection of actions below them).
Long-term Target: Continually improve practices and controls that reduce and prevent the effects of toxic contaminants below levels that harm aquatic systems and humans. Build on existing programs to reduce the amount and effects of PCBs in the Bay and watershed. Use research findings to evaluate the implementation of additional policies, programs and practices for other contaminants that need to be further reduced or eliminated.
Two-year Target: Completion of performance targets related to key actions

KEY: Use the following colors to indicate whether a Metric and Expected Response have been identified.	
Metric	Specific metrics have not been identified
	Metrics have been identified
Expected Response	No timeline for progress for this action has been specified
	Timeline has been specified

Factor	Current Efforts	Gap	Actions **(critical in bold)**	Metrics	Expected Response and Application	Learn/Adapt
What is impacting our ability to achieve our outcome?	*What current efforts are addressing this factor?*	*What further efforts or information are needed to fully address this factor?*	*What actions are essential to achieve our outcome?*	*Optional: Do we have a measure of progress? How do we know if we have achieved the intended result?*	*Optional: What effects do we expect to see as a result of this action, when, and what is the anticipated application of these changes?*	*Optional: What did we learn from taking this action? How will this lesson impact our work?*
Broad geographic extent and distribution of PCBs	PCB Story Map and tidal impairments indicator map to communicate extent of PCB impairments.	Continued jurisdictional monitoring programs for PCBs, including fish tissue sampling.	Build on jurisdictional monitoring programs to coordinate watershed-wide monitoring and tracking of PCB impairments.			
Political will to modify regulatory programs and/or create voluntary programs	Progress in implementation of local TMDLs, some progress on multi-state TMDL development	Ongoing GIT funded project to study feasibility of voluntary PCB removal program(s)	PCB Consortium to support progress on regulatory and voluntary programs in multiple jurisdictions			
High cost of remedies: in-stream sediment remediation; waste water PCB source trackdown studies; electrical equipment replacements; stormwater controls; contaminated site remediation	Ongoing academic studies; WWTP PCB removal GIT funded study	Complete and release PCB trackdown study and PMP guide.	PCB Consortium to share information in order to reduce high cost of management approaches, and consider more approaches to prevent release of PCBs			
Variety of sources and pathways for PCBs entering the environment that necessitate a wide-range of very different management responses (e.g., primary	Reports from CSN to better understand variety of sources and pathways for toxic contaminants, including PCBs; Development of fact	Further information needed on extent of atmospheric deposition of PCBs in the Bay Watershed; better understand PCB	PCB consortium to share lessons learned on management approaches and best practices to			

Factor	Current Efforts	Gap	Actions **(critical in bold)**	Metrics	Expected Response and Application	Learn/Adapt
What is impacting our ability to achieve our outcome?	*What current efforts are addressing this factor?*	*What further efforts or information are needed to fully address this factor?*	*What actions are essential to achieve our outcome?*	*Optional: Do we have a measure of progress? How do we know if we have achieved the intended result?*	*Optional: What effects do we expect to see as a result of this action, when, and what is the anticipated application of these changes?*	*Optional: What did we learn from taking this action? How will this lesson impact our work?*
sources such as electrical equipment, secondary sources such as wastewater treatment by-products, and pathways such as stormwater runoff contaminated by air deposition or contaminated sites)	sheet to communicate multiple benefits of nutrient and sediment management practices for toxic contaminants	removal rates and efficiencies through nonpoint source management practices for nutrient and sediment reduction.	implement PCB reductions through TMDLs, MS4 permits, and NPDES permits.			
Need to shift paradigm to acknowledge that there are ongoing sources of PCBs (i.e., PCBs are not static "legacy" contaminants)	No current efforts	Track potential new sources of PCB production, for example ink and dye manufacturing industries.	Develop approaches for understanding all sources of PCBs in the watershed.			
Knowledge gaps on relative sizes of PCB sources	No current efforts	Large scale synthesis and mass balance analysis of PCB sources in the watershed	PCB consortium could address this knowledge gap (with resources, e.g GIT funding)			

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Action #	**Description**	**Performance Target(s)**	**Responsible Party (or Parties)**	**Geographic Location**	**Expected Timeline**
Management Approach 1: Regulatory Approaches					
1.1	Continue jurisdictional monitoring programs for PCB occurrence to assess need for new local TMDLs and progress related to reducing PCB loads.	1.1.1 Continue statewide fish tissue sampling for PCBs at 125 sites. Not all are in the Susquehanna Drainage. These are rotated to new locations every year.	PA DEP		
		1.1.2 Estuarine probabilistic monitoring which includes a list of PCB congeners in sediment	VA DEQ		42 sites were sampled within minor tidal tributaries and embayments of the CB Watershed, 35 of which were probabalistic and 7 of which were targeted, comprising a special study within the Potomac River embayments. 3 of the targeted sites were within MD's Potomac River waters, off the mouth of VA embayments. An additional 11 probabalistic sites occurred in coastal Delmarva waters, and 4 in the Back Bay and North Landing River waters of the Albemarle Sound drainage. Sediment chemistry, sediment toxicity, and benthic community samples were collected at all 57 sites. Weight of evidence measurements for aquatic life use will be conducted for all sites, based on the sediment quality triad.
		1.1.3 Monitor all main stem tributaries to Bay listed as impaired. Fish PCB monitoring used on an as needed basis to monitor status;			Sampling design plan under development. Some stations will be placed in the non-tidal portion of the James River.
		1.1.4 TMDL source investigation studies included where PCB			A study plan is currently under development for the non-tidal, middle and upper James River segments.

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		TMDL being developed. Includes sediment monitoring and low-level water column samples.			
		1.1.5 Conduct a PCB monitoring survey on pre and post-ENR WWTPs in Maryland to determine if there is an increase in removal efficiency from the ENR treatment technology. Conduct a second round of sampling on the two plants that are pre-ENR once the upgrade goes online.	MDE		The final round of sampling remains on hold as the Back River and Cox Creek WWTPs ENR treatment processes have not been completed. The contract has been extended through December 2018.
		1.1.6 Continue annual PCB monitoring in support of PCB TMDL development. Monitoring includes collection of water column (non-tidal/tidal), sediment and fish tissue samples for PCB analysis to support the development of water quality models in establishing PCB TMDLs.			Attempts to collaborate with other jurisdictions unsuccessful. The lower Sus River TMDL will depend on what happens with the Conowingo Dam. (Lower Sus includes all waters below the Conowingo Dam). 2019-- TMDL will be in place for PCBs for both lower Sus and Conowingo pool. Datasets that trigger changes in listings will be shared with the TCW. Have not seen a declining trend in Hg in young of the year but trends in Hg appear to be declining in Potomac main stem in older fish.
		1.1.7 Conduct toxic contaminant monitoring for the tidal waters of			

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		Aberdeen Proving Grounds (APG).			
		1.1.8 Conduct an analysis of Bay-wide PCB concentration data to improve our understanding of PCB dynamics through-out the Bay mainstem and the influence of loadings from the Susquehanna River and C&D Canal. The project will also focus on approaches for developing a PCB TMDL to address the main stem segment listing in MD's portion of the Bay.	MDE & VIMS		The study has been completed and a draft is currently undergoing review. It is anticipated that the report will be available in March 2019
		1.1.9 Continue annual PCB fish tissue monitoring for MDE's Fish Consumption Advisory Program to assign state-wide fish consumption advisories. The program also provides fish tissue data for MDE's Environmental Assessments and Standards (EASP) and TMDL Programs to support Integrated	MDE		Toxics data for fish tissue collected on 2016 is available for early 2018. fish tissue sampling was conducted in 2017 at 25 stations (56 composites) to support the consumption advisory program, IR assessment, and TMDL development needs. Fish composite samples are being analyzed by UMBC and UMCES for PCBs, Hg, and chlordane. It is anticipated that the data results will be available in winter 2018.

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		Report listing assessment and TMDL development.			
		1.1.10 Conduct fish tissue study.	DOEE (WQD-ESA)		Fish tissue study was initiated July 2017. Expected completion in July 2018.
		1.1.11 Complete toxics monitoring on sediments in the Anacostia.			
		1.1.12 Approximately every five years, West Virginia performs a statewide fish tissue assessment to inform both fish consumption advisory and 303(d) listing processes. Mercury and PCBs will be analyzed.	WV		
		1.1.13 Develop a QAPP to describe objectives, monitoring procedures and laboratory methods to be used to characterize toxics in the Delaware portion of the Chesapeake Bay drainage.	DE DNREC		
		1.1.14 Compile existing toxics data within the Delaware portion of the Chesapeake Bay drainage.			

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		1.1.15 Collect up-to-date toxics data on surface water, surface sediment and biota within the Delaware portion of the Chesapeake Bay drainage.			
		1.1.16 Collect deep sediment cores from a depositional area in the tidal Nanticoke River. Radio-date and analyze for contaminants to provide pollution history. 1.1.17 Create priority list for sources in need of clean-up and restoration.			
1.2	Continue local TMDL implementation utilizing to the extent possible the outputs of this strategy including data compilations, results of enhanced monitoring, guidance documents and local-level input	1.2.1 Potomac River PCB implementation includes point sources and MS4s. Point sources that exceed WLAs will submit PMPs.	VA DEQ		PCB samples have been collected and analyzed from point sources that have been assigned WLA's in the Potomac PCB TMDL. A determination for the need for Pollutant Minimization Plans (PMPs) is forthcoming. Several MS4s are in the process of or have submitted PCB TMDL action plans which are under review within DEQ.
		1.2.2 Tidal James/Elizabeth Rivers – point sources that have not screened effluents using the low-level method will be required to do so. Facilities that			For the tidal James/Elizabeth River TMDL, a list of point sources has been developed for inclusion in the TMDL. For facilities that have not monitored as part of TMDL development, the initial step post-TMDL development will be to collect a prescribed number of sample results to compare with the assigned WLAs. The list includes municipalities, Industrial Individual Permits, and Industrial

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		have screened their effluents and exceed their WLA will be required to submit PMPs.			Stormwater General Permits. Facility effluents with existing loads that exceed WLAs will be asked to develop PMPs.
		1.2.3 Phase 1 MS4's which have been assigned a WLA within a PCB TMDL requiring a PCB load reduction are required to develop a PCB Implementation Plan within one year of an approved TMDL.	MD MS4's		Phase 1 MS4 Implementation Plans have been developed by Anne Arundel County for the Baltimore Harbor, Baltimore County for the Bird/Gunpowder River, and Harford County for the Bush River in 2015-2017. Counties that have submitted plans are currently developing monitoring programs to support PCB TMDL implementation.
		1.2.4 Finalize the District Consolidated TMDL Implementation Plan, and incorporate elements into District's next MS4 Permit.	DOEE, DDOT, DGS, and Federal Landholders		The TMDL IP was finalized in August 2016; 5 year milestones from the IP have been used to inform the performance metrics in each draft of the District's next MS4 permit, which is expected to be finalized in early 2018.
		1.2.5 Implement stormwater BMPs and green infrastructure to meet TMDL IP's first set of 5-year milestones.			Ongoing. DOEE is actively working to compile finalized collection of BMPs.
1.3	Determine consistent implementation measures to use throughout the Bay watershed for tracking	1.3.1 Develop maps to track locations where PCB TMDLs are active, under	CBP GIS team and Bay watershed	Entire Watershed	Completed. Outreach to jurisdictional partners was conducted and updates to the previous map have been incorporated (reflects current information as of calendar year 2017)

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	local TMDL development and implementation progress.	development, and needed.	jurisdiction GIS leads		
		1.3.2 Assess available information on identified management action implementation and determine next steps (e.g. status of npdes permits with regards to inclusion of PMP; MS4 action plans to ID potential IDDE connections to PMPs)	TCW and Bay watershed jurisdictions' TMDL programs		NPDES Permits and PMPs: Outcome was a memo on incorporating PMP approaches but not numeric effluent limitations. Follow up is needed to examine memo. Unsure if any progress made on ID of potential IDDE connection to PMPs. Will consider inclusion as a separate item for next workplan.
1.4	Determine whether the jurisdictions compile existing PCB outfall monitoring data for NPDES dischargers and assist with development of systems to compile all available information from governmental and academic organizations. This inventory will help determine whether there is a need for additional monitoring requirements to support TMDL	1.4.1 Reasonable potential analysis during permit reviews includes PCBs	PA		
		1.4.2 Virginia has an Access Database used to store PCB data obtained from a wide array of matrices (sediment, water, effluent, etc.). The database structure, obtained from DRBC, was designed specific to storing data analyzed and reported using method	VA		All PCB data generated using method 1668 are stored in this database; this includes results from sediment samples, ambient water samples and point source samples. These data are used for purposed of tracking point source PCB results (existing conditions and follow up results when implementing the PMP, provides site specific information that can be used for "fingerprinting" prospective sources when using available data.

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	development and implementation.	1668 including 209 PCB congeners (aka DRBC protocol).			
1.6	Assess the information that is available and forthcoming (e.g., the characterization of Anacostia river sediments by DC Department of Energy and Environment) that describes the most highly contaminated in-stream sediments in the watershed to engage the jurisdictions and federal regulators to explore the feasibility of additional remedial actions such as capping and/or dredging.	1.6.1 Develop a final Remedial Investigation Report (RI Report) based on the 700 samples already collected along the 9-mile tidal portion of Anacostia River between FY14 and end of FY15.	DOEE and federal partners		DOEE has completed all field activities for the Anacostia River sediment monitoring project. DOEE contractor has submitted a draft RI report to the Agency and is currently under review. Release of the RI report for public comment will be in early 2018. DOEE has held multiple meting engaging the public on the project, and providing updated during 2017.
		1.6.2 Study brown bullhead tumors in tidal Potomac River and Anacostia River between 2014-2016, establish trends, if any, and to determine whether or not any established trends are local or regional;).	DOEE and FWS		FWS has completed the brown bullhead catfish study and DOEE is awaiting a draft to the final report for this 3rd round of data collection.
		1.6.3 Install gauging and sampling stations in NW Branch, NE Branch and Lower Beaver dam Creek. Sampling storms by collecting sediment	DOEE and USGS		DOEE in contract with USGS continues to collect water-quality samples for both lowflow and stormflow samples at NE Branch, NW Branch, Beaverdam Creek (BDC), Hickey Run, and Watts Branch; and 4 smaller non-gaged tributaries that flow through Washington, D.C. -- Nash Run, Ft. DuPont, Pope's Branch, and Ft. Stanton;

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		samples using innovative USGS tested methods to calculate loads for six episodes.			
		1.6.4 Collect data to identify sources and characterize contributions from those sources, including CSOs, MS4 outfalls, streams, and upstream contributions.	DOEE and USGS		
1.7	The EPA Region 3 HSCD Site Assessment program will continue to track sites that are being evaluated in the Chesapeake Bay Watershed. Additionally, a GIS desktop tool is being developed to assist HSCD in identifying potential land sources of contamination in the	1.7.1 Ongoing tracking in SEMS of work in Ches. Bay Watershed Site assessment decision forms have been updated to include checkbox on whether site is in Ches. Bay Watershed, and/or priority areas (Baltimore Harbor, Anacostia, Elizabeth River)	EPA HSCD		Tracking is ongoing in the CB watershed. HSCD is still in the process of developing GIS desktop tool.

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	watershed. This project is not limited to PCBs, but any type of contamination that could be migrating from CERCLA sites and affecting the watershed. The GIS tool will help to identify potential CERCLA sites and their proximity to environmentally sensitive areas and receptors to better focus on priority site evaluations. The use of EJ SCREEN will be evaluated to identify the location of such sites in areas with diverse populations.	Site Assessment Mapper (SAM) GIS tool is completed and ready for use – EJScreen is a data layer in SAM	EPA HSCD, TCW		
		1.7.2 Provide information to TCW for potential GIS mapping on CERCLA NPL sites in the watershed that may be undergoing PCB remediation.	EPA HSCD		
1.8	The HSCD Site Assessment Program will conduct work share meetings with our State counterparts once per year to determine who will be the lead agency for further investigation of	1.8.1 During yearly workshare meeting, TCW workplan will be a discussion point at the meetings and will use the initiative in the prioritization of sites to be evaluated in the CA	HSCD, State Site Assessment Counterparts		Pending source discovery effort

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	any potential PCBs sites that are on the active sites list.	1.8.2 Also, other sites identified in #10 below or by other methods in trackdown studies, etc. may be better addressed under State VCP or other State programs. This will also be discussed at workshare meetings.			
1.9	HSCD and TCW will continue to evaluate sites to identify industries or processes that used PCBs. Once this list is generated, the CERCLA, Brownfields, and RCRA programs can better focus resources on identifying and investigating these types of sites. As significant sources of PCBs, or other contaminants that are migrating into the watershed from contaminated land sources are discovered, HSCD will share this	1.9.1 Identification and mapping of potential industries that historically used PCBs in the watershed	HSCD, TCW, TSCA		
		1.9.2 Discuss potential PCB sources with TCW and TSCA (e.g., power plants, railroad maintenance yards, etc.)			
		1.9.3 Identify locations of industries within the watershed that may be potential PCB sources	HSCD		
		1.9.4 Obtain information on PCB hotspot areas within the watershed and try to correlate CERCLA sites or other sites	HSCD, TCW		

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	information as part of the progress monitoring of this strategy. Additionally, if there are potential land sources that other programs have found, HSCD can investigate those potential sources through coordination with the appropriate authority.	identified from above with those hotspots.			
		1.9.5 Use information and data generated from above to pre-screen and prioritize sites to determine whether further assessment is needed and by whom.			
1.10	The EPA R3 NPDES Permits Branch will continue to address PCBs through the CWA framework. Where waters have been identified as impaired and a local TMDL has been established creating WLA for point sources, the NPDES Permitting program will ensure that permits are consistent with the TMDL. The NPDES Permitting Program will draft and review permits with a	1.10.1 The NPDES Permitting Program will draft permits with a focus on ensuring that PCB WLAs are clear and enforceable and consistent with the TMDL.	EPA R3 NPDES Permits Branch		Ongoing
		1.10.2 The NPDES Permitting Program will review permits developed by the jurisdictions with a focus on ensuring that PCB WLAs are clear and enforceable and consistent with the TMDL.			Ongoing

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	focus on ensuring that PCB WLAs are clear and enforceable. The NPDES Enforcement Program, through state oversight and its independent compliance monitoring and enforcement authorities, will ensure that permit requirements are met. If a permittee is in non-compliance with its compliance obligations, EPA will take timely and appropriate action, including exercising its enforcement authority, to ensure that the permittee returns to compliance in an expeditious manner.	1.10.3 The NPDES Enforcement Program, through state oversight and its independent compliance monitoring and enforcement authorities, will ensure that permit requirements are met. If a permittee is in non-compliance with its compliance obligations, EPA will take timely and appropriate action, including exercising its enforcement authority, to ensure that the permittee returns to compliance in an expeditious manner.			Ongoing
1.11	The EPA R3 Land and Chemicals (LCD) Toxics Program Branch will continue to ensure compliance with PCB TSCA regulations through its PCB inspection and	1.11.1 In 2016 and 2017, the EPA R3 LCD Toxics Program will perform inspections at facilities within the R3 states based on potential for PCB releases, cumulative	EPA Region 3 Land and Chemicals Devision		There were 2 inspections at Aberdeen and Delmarva stations in 2016-2017, and more planned for 2018

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	enforcement program. Inspections will be targeted based on potential for releases, cumulative burden on EJ communities, or permitting. The R3 Toxics Program Branch will also responds to on tips/complaints that involve potential for illegal disposal and significant risk.	burden on EJ communities, or permitting. The R3 Toxics Program Branch will also responds to on tips/complaints that involve potential for illegal disposal and significant risk.			
1.12	The EPA R3 LCD Office of Materials Management will continue to partner with the Maryland Department of Environment to oversee the PCB clean up at the Lockheed Martin plant located in Middle River, Maryland. The Middle River facility, which is located on Cowpen Creek, is considered to be a major contributor to PCBs	1.12.1 Overall performance target is completion of remedial actions specified in the Feasibility Study approved by MDE and EPA Region III. Incremental steps include permit applications, approvals, mobilization, sediment removal, confirmatory sampling, in situ treatment amendment application, post-closure	Lockheed Martin; MDE; will require EPA approval of a Risk Based Disposal Approval Application (RBDAA)		Upal Ghosh and UMBC researchers were involved in carbon amendment work for use in remediation activities. Tech decisions for remediation may be useful as case studies to inform other remediation activities (e.g. Anacostia)

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	in the Bay. Phase 2 of the clean-up is commencing.	bioaccumulation monitoring, and a 5-year review submittal			
1.13	The Chesapeake Bay Commission will work collaboratively with the Bay Program partners to identify legislative, budgetary and policy needs to advance the goals of the Chesapeake Watershed Agreement.	1.13.1 CBC will, in turn, pursue action within our member state General Assemblies and the United States Congress. See CBC Resolution #14-1 for additional information on the CBC's participation in the management strategies.	CBC		
Management Approach 2: Education and Awareness					
2.1	Develop PMP guidance document for the control and reduction of PCBs in NPDES regulated stormwater and wastewater including an inventory of stormwater BMP options. This document would provide guidance to all Bay jurisdictions in implementing PCB load reductions established for dischargers through local	2.1.1 Contingent upon completion of VA DEQ's work to evaluate and assess cross-jurisdiction applicability	VA DEQ (The document will be Virginia Specific, but can serve as a prototype for a larger effort)		Still important to pursue, working to free up staff resources to keep developing materials for draft PMP guidance.

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	TMDL development while recognizing the need for flexibility in PMP design. Develop guidance for unregulated sources of PCBs for use in developing implementation plans under TMDLs.				
2.2	Working with local government and non-profit organizations, the TCW will inform the public regarding risks from consuming contaminated fish by developing communications materials and corresponding procedures for their dissemination throughout the targeted communities.	2.2.1 Secure GIT Project funding.	Diversity Action Team		GIT Project funding was awarded in early 2016 Release of first phase (poster/infographic) expected early 2018
		2.2.2 Inventory existing approaches to issuing fish consumption advisories and study effectiveness of and compliance with those advisories in order to develop enhanced tools	Project award recipient in coordination with DAT and TCW		
		2.2.3 Test the new tools and work on optimization	Project award recipient in coordination with DAT and TCW		
		2.2.4 Implement and disseminate new tools in order to explore the	Bay Program partners		

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		extent to which diverse populations are located in areas where fish advisories are being issued, using EPA's EJSCREEN tool.			
2.3	Compile education materials regarding existing procedures and best practices for containment and prevention of release of PCBs.	2.3.1 Identify potential resources	TCW		FCA infographic poster in final stages of development. Will be published and distributed through the watershed in 2018.
		2.3.2 Compile education materials			
Management Approach 3: Voluntary Programs					
3.1	Coordinate a voluntary action program to reduce transformers and other PCB containing equipment (e.g., fluorescent light ballasts). Include those classified as PCB free (less than 50 ppm) Provide to program participants information on remediating PCB contamination on-site from historical releases of	3.1.1 Identify a project lead	TCW		Have RFP out for GIT funded project to do a feasibility study. After awards are given, work will begin and project will be completed by end of calendar year 2018.
		3.1.2 Estimate location and volume of PCB-containing equipment	Contingent upon available resources		
		3.1.3 Estimate costs of replacing PCB-containing equipment			
		3.1.4 Identify potential incentives and present summary of cost information to land owners			

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	these transformers and use EPA's EJ SCREEN tool to help identify where such equipment is located in areas with diverse populations.	3.1.5 Obtain commitment from land owners to voluntarily replace PCB containing equipment with consideration to include activities in areas with diverse populations			
Management Approach 4: Science					
4.1	Refine and improve understanding of PCB sources to inform the Conceptual Model of PCB fate in the environment	4.1.1 Complete information gathering and develop a guidance document on best practices for effective implementation of PCB track down studies in the TMDL context	TCW		Further work on trackdown study ongoing. Possibility of a PCB consortium on trackdown and resources in fall 2018 in coordination with Baltimore Urban Waters Partnership
		4.1.2 Communicate results of completed research study investigating the PCB content of wastewater biosolids and effluent in an urban WWTP. Ongoing studies of fat-oil-and-grease (FOG) deposits as potential source of PCBs in aging gray infrastructure.	UMBC USGS		2018 briefing of completed WWTP study, ongoing study will be briefed once complete 2020

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4.2	Inform status and changes in environmental conditions through the use of the 1668 congener-based analytical method, communicate lessons learned from innovative monitoring devices, and assess changes over time through the TMDL implementation plan progress	4.2.1 Identify barriers and opportunities related to more frequent use of EPA 1668 for contaminated sites, wastewater and regulated and unregulated stormwater dischargers as a screening tool (as is underway in VA) or for a targeted subset of permittees.			
		4.2.2 Encourage use of the high-sensitivity congener-based methods to analyze PCBs to ensure that PCB sources are being characterized accurately when such characterization can help with source identification			
		4.2.3 Communicate innovative monitoring tools for PCB sampling (such as high-volume suspended sediment, diffusion samplers, and mussels as an indicator of bioaccumumation) as	USGS		2018

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		part of synthesis report of PCB TMDL workshop			
		4.2.4 Inventory and update TMDL implementation plans and monitoring progress, (methods used) as part of collaborative Confluence site	TCW; BUWP, USGS		2018
4.3	BMP Effectiveness for removal of Toxic Contaminants	4.3.1 Communicate results of project that investigated amount of PCB reduction across range of BMPs, and their association with land use and industrial sources	Chesapeake Stormwater Network and TCW		
		4.3.2 Explore feasibility of including qualitative scoring tools into BMP implementation scenarios in Phase 6 CAST	EPA		2018-2019
		4.3.3 Collaborate with other source sector groups to identify projects and topics for co-benefit reduction of PCBs with nutrients and sediment reductions.	TCW		2018-2019

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		4.3.4 Investigate the impact of Stormwater Best Management Practices (BMPs) on PCB loadings to waterways).	MDE		2018-2019
		4.3.5 Communicate ongoing results of the investigations of PCB reduction in biofiltration and enhanced of media in stormwater controls to promote removal of PCBs; include summary in synthesis report of PCB TMDL workshop	UMCP, UMBC, USGS		
		4.3.6 Estimate data needs to include toxic contaminant reduction associated with the implementation of BMPs for sediment and nutrient reduction under the Chesapeake Bay TMDL (e.g., assessment of data needs for CAST)	TCW		2018-2019

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Management Approach 5: PCB Consortium					
5.1	Explore the value and feasibility of creating and sustaining a broader scale forum for collaboration (e.g. a consortium) on PCB TMDLs that are in place and under development across the watershed	5.1.1 Form an exploratory team Collect information about the role for a consortium and expected assistance to be provided to TMDL implementers. Estimate the cost of a consortium Evaluate other models (e.g. Chesapeake Conservancy) for methods of funding one or more part-time or full-time positions to manage the operations of the consortium. Prepare a report with jurisdiction input (after WIP III draft in April 2019) that summarizes options, costs and means of sustaining a collaborative forum.	TCW		December 2019
5.2	Present the findings from 5.1 above to the CBP Management Board for a	5.2.1 Deliver a presentation of findings and determine next	TCW		March 2020

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	partnership decision on whether to invest in a new collaboration forum or other new approaches to foster collaboration	steps, if any, from consensus-based decisions by the CBP as to forming a consortium or other actions.			

Definitions:	
EPA	U.S. Environmental Protection Agency
DE DNREC	Delaware Department of Natural Resources and Environmental Control
DOEE	District of Columbia Department of Energy and Environment
MDE	Maryland Department of the Environment
MD DNR	Maryland Department of Natural Resources
NYS DEC	New York State Department of Environmental Control
PA DEP	Pennsylvania Department of Environmental Protection
VA DEQ	Virginia Department of Environmental Quality
WV DEP	West Virginia Department of Environmental Protection
USGS	U.S. Geological Survey
FWS	U.S. Fish and Wildlife Service
UMCES	University of Maryland Center for Environmental Science
UMBC	University of Maryland Baltimore County
NOAA	National Oceanic and Atmospheric Administration
USDA	U.S. Department of Agriculture
NRCS	National Resource Conservation Service

DoD	U.S. Department of Defense
USACE	U.S. Army Corps of Engineers
DOT	Department of Transportation
SRBC	Susquehanna River Basin Commission
CBP	Chesapeake Bay Program Partnership
CBPO	Chesapeake Bay Program Office
WQGIT	Water Quality Goal Implementation Team
STAC	Scientific and Technical Advisory Committee
MB	Chesapeake Bay Program's Management Board
PSC	Chesapeake Bay Program's Principles' Staff Committee
WIP	Watershed Implementation Plan
TMDL	Total Maximum Daily Load
DAT	Chesapeake Bay Program Diversity Action Team
HSCD	EPA Hazardous Site Cleanup Division
TSCA	Toxic Substance Control Act
PMP	Pollution Minimization Plan
ASTSWMO	Association of State and Territorial Solid Waste Management Officials
CSN	Chesapeake Stormwater Network