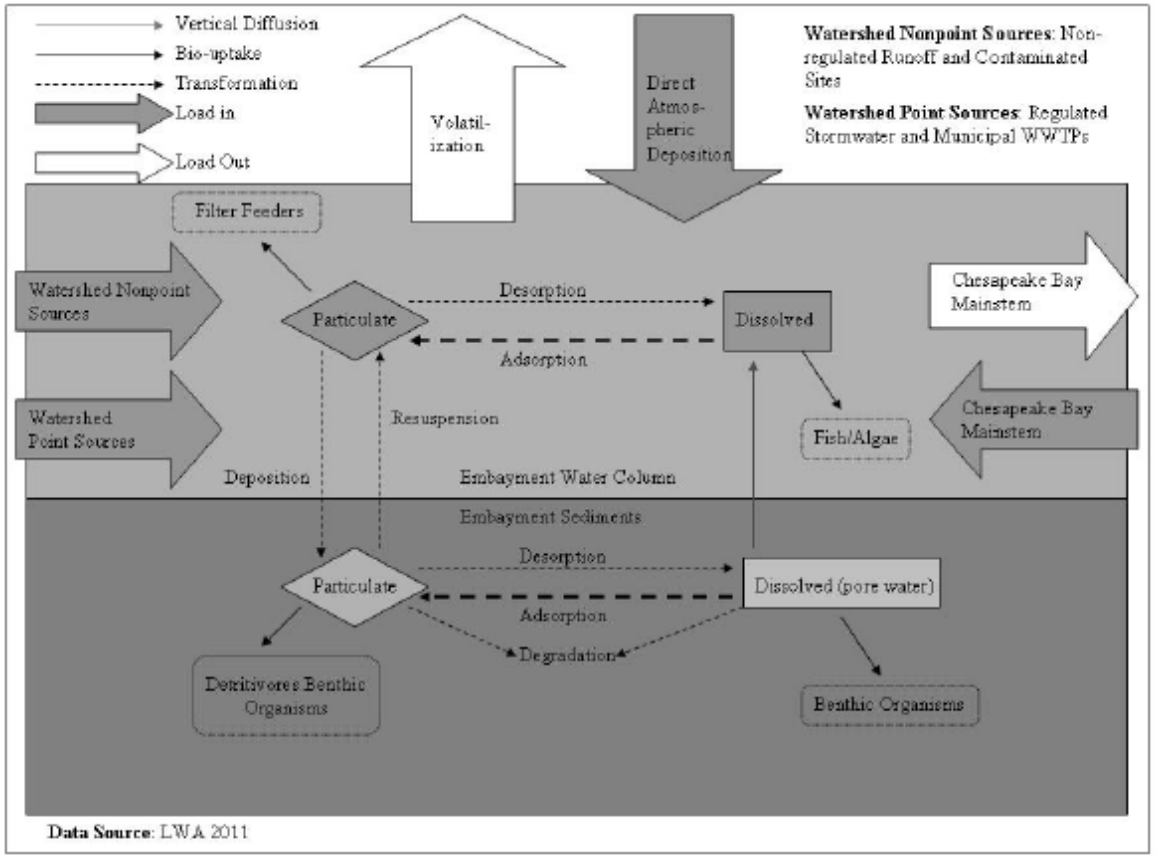
Research Work Plan Item – PCB Modeling Inventory



Research Work Plan Item – PCB Modeling Inventory

Management Approach 1: Supply information to make fish and shellfish safe for human consumption					
Action #	**Description**	**Performance Target(s)**	**Responsible Party (or Parties)**	**Geographic Location**	**Expected Timeline**
1.2	Inventory any ongoing progress of regional PCB models within the Chesapeake Bay.	Stay informed on progress of models in James River, Anacostia, upper Potomac, any others as they may inform adaptive management decisions/areas of focus for others in the watershed. Assess if information could be used to inform co-benefits and CBP tools (such as CAST), (see Management Approach 4).	TCW partners constructing models and USGS.	CB watershed	2018-2020

Inventory of PCB Modeling in the Watershed

- Why is model being used/purpose? (e.g., TMDL development, endpoint evaluation, mass balance, food web, etc.)
- What is the model framework and operating platform?
- Scale (HUC8, HUC12, other), input data set used (e.g., surface water, sediment, fish tissue)?
- Output/ use of results
- Lessons learned? Could the application be of benefit to other locations in the watershed?
- Who is leading the work to develop your PCB models? (POC)
- Would you or someone in your organization be willing to give a brief, directed overview of these modeling activities at a future TCW meeting?

Inventory of PCB Modeling in the Watershed

Jurisdiction	General Location	Model purpose or use	Model framework/platform	Scale	Input data set	Output/use of results	Lessons learned?	Model poc	Value in briefing TCW?
Virginia	Tidal James/Elizabeth River	TMDL Development	VIMS HEM-3D (EFDC) - simulates hydrologic, eutrophic and PCB fate and Transport	James River (681×106 m2), Watershed (10,432 square miles)	Tide, salinity, temperature, freshwater discharge, nutrient loading (carbon, nitrogen, phosphorus), solar radiation, wind, algae, and PCB	PCB homolog, PCB source reduction	Sediment suspension and deposition is an important process. Point source and nonpoint sources both contribute to the PCB problem. Large reduction and long time are needed to meet water criteria	Dr. Jian Shen, VIMS	The model can be used for other estuaries
Maryland	Baltimore Harbor	TMDL Development	VIMS HEM-3D (EFDC) - simulates hydrologic, eutrophic and PCB fate and Transport	watershed (1,514 square kilometers (km2) (374,040 acres))	Tide, salinity, temperature, freshwater discharge, nutrient loading (carbon, nitrogen, phosphorus), solar radiation, wind, algae, and PCB	PCB homolog, PCB source reduction	Sediment suspension and deposition is an important process. Point source and nonpoint sources both contribute to the PCB problem. Large reduction and long time are needed to meet water criteria. Bay is a large soruce of PCB.	1. Total Maximum Daily Loads of Polychlorinated Biphenyls in Baltimore Harbor, Curtis Creek/Bay, and Bear Creek Portions of Patapsco River Mesohaline Tidal Chesapeake Bay Segment, Maryland 2. 46. Shen, J., Hong, B., Schugam, L., Zhao, Y., White, J. 2012. Modeling of Polychlorinated Biphenyls (PCBs) in the Baltimore Harbor. Ecological modeling, 242, 54-68 (doi: 10.1016/j.ecolmodel.2012.05.025).	The model can be used for other estuaries
Maryland	Back River	TMDL Development	Simplified model based on tidal prism or o	Watershed (141.7 ac)	Sediment, flow, PCB, deposition and settling rates for sediment and PCB, exchange rate between watershed and atmosphere	PCB homolog, PCB source reduction	Simple model works for small estuaries. Long-time is need for waterbody to meet water quality criteria	Total Maximum Daily Load of Polychlorinated Biphenyls in Back River Oligohaline Tidal Chesapeake Bay Segment, Maryland	The approach can be used for small waterbody. It has been used for many Maryland PCB TMDL
Maryland	Conowingo Pool	TMDL Development	VIMS HEM-3D (EFDC) - simulates hydrologic, eutrophic and PCB fate and Transport	45 km^2	temperature, freshwater discharge, nutrient loading (carbon, nitrogen, phosphorus), solar radiation, wind, algae, and PCB		On going	Ref. Total Maximum Daily Load of Polychlorinated Biphenyls in Back	
Maryland (MD	Conowingo Pool/Lo	TMDL development to address PCB fish ti	EFDC	MD 8-Digit watershed	Surface water, sediment, and fish tissue data		Under Development	Dr. Shen (VIMS)	