pollution-reduction strategies, known as "total maximum daily loads," for eliminating PCB contamination in dozens of tidal waterways, mostly in Maryland.

The District worked with Maryland, Virginia and the EPA to develop a PCB-reduction strategy for its stretch of the Anacostia and Potomac in 2007. The plan unveiled by the district last December came after years of studies.

District officials say the measures they're considering for dealing with hot spots in the lower Anacostia should reduce health risks from eating fish caught there by 90%. Some dredging is proposed, but in other areas the district is weighing sequestering contaminated silt under a layer of clean sediment or treating it on the river bottom.

Upal Ghosh and Kevin Sowers, a pair of researchers at the University of Maryland Baltimore County, have shown that depositing activated carbon pellets on contaminated sediment can "lock up" the PCBs and dramatically reduce what's getting into the water. Coating the pellets with certain bacteria can even speed up the normally slow breakdown of the chemicals "from decades to months," according to Sowers.

Fresh sources of PCBs

But cleaning up legacy contamination in sediment won't be enough as long as more PCBs are getting into the river, as studies have shown, Ghosh said.

A 2019 report by the U.S. Geological Survey concluded that lower Beaverdam Creek is the dominant source of fresh PCBs to the lower Anacostia. A study that Ghosh and other researchers presented to the district earlier this year found dissolved PCB levels in the creek to be "screaming high," as he put it — up to 20 times the levels measured in the river.

In March, Maryland regulators reported finding elevated PCBs in both sediment and water in two stretches of the creek in Prince George's County. One is by the Landover Metro Station, they said, and the other is near the creek's confluence with the Anacostia. That stretch flows through a metal recycling facility owned by Joseph Smith & Sons. The MDE said PCB levels in creek sediment "spike rapidly" at this location, "indicating that there may be legacy contamination" on land there.

State inspectors last year also sampled a retention pond at the 16-acre scrapyard and found PCBs in the water, according to information supplied by the MDE.

Dale Mullen, a lawyer representing the company, said it is voluntarily cooperating with the state and has taken steps to address the situation, including building a new concrete wall to prevent runoff or seepage to the creek and installing a new stormwater treatment system capable of removing PCBs and other contaminants. All stormwater outfalls from the site have been closed for now.

"Small fish tell a big story," said Fred Pinkney. The U.S. Fish & Wildlife Service biologist spent two years collecting mummichogs and other minnow-like fish (shown here) from the Anacostia River. Because they don't move around much, analysis of PCBs in their bodies can help guide efforts to clean up hot spots in the river's sediment and reveal locations of fresh contamination. (Dave Harp)

The next steps in the investigation, MDE officials said, include checking storm drains for PCB-tainted sediment that may be flushed out when it rains as well as other possible sources of runoff and seepage from tainted soil.

Elsewhere, there's not been as much activity. Maryland has produced PCB-reduction strategies for 31 of its rivers. But nearly half of those, including the one for the Gunpowder and Bird rivers, don't identify any sources of contamination to be remediated.

State officials say that's because water sampling and computer modeling indicates the vast majority of PCBs in those rivers come from other waterbodies, particularly the Susquehanna River. PCBs from there are flowing into the Bay, they say, where currents and tides carry them into the tributaries.

"To see meaningful progress, you would need to change what's flowing in from the Chesapeake," said Lee Currey, director of MDE's water and science administration. The agency is working on a strategy for reducing PCBs in the lower Susquehanna, including in the sediments built up behind the Conowingo Dam.

Problems on the Gunpowder

But Le Gardeur, the Gunpowder Riverkeeper, contends that the state's PCB reduction strategy for the Gunpowder and Bird rivers doesn't address the major source: chemicals already in the sediments, which can get back into the water to be ingested by fish.

Le Gardeur argues that the state also overlooked potential local sources of PCBs, such as Aberdeen Proving Ground, where the Army tests munitions and at one time tested chemical warfare agents. The entire base is a federal Superfund site undergoing multiple cleanups as a legacy of past releases and the burial of hazardous and explosive materials.

In developing its strategy, the MDE said a review of its records didn't find any legacy PCB contamination in the areas of the proving ground that drain into the Gunpowder.

But a 2016 consultant's report measured high levels of PCBs, along with other contaminants, in upper Canal Creek, which drains into the Gunpowder from the proving ground's Edgewood area. The Army is studying the feasibility of options for remediating the PCBs in Canal Creek, according to Bethani Crouch, a base spokesperson.

MDE spokesman Jay Apperson acknowledged the PCB contamination in Canal Creek and said it "will be considered" in any future revision to the rivers' cleanup strategy.

Le Gardeur questioned why the MDE didn't consider dredging or treating contaminated sediments in the rivers, as was done in waters just south of the Gunpowder. From 2016 through 2018, Lockheed Martin Corp., which for decades has produced aircraft and aviation electronics on Middle River, removed PCB-laden sediment from two of its tributaries, Darkhead Cove and Cowpen Creek. The company also treated an undredged portion of the bottom with activated carbon to keep the chemicals there from getting back into the water.

The MDE has said it generally doesn't favor dredging because it could stir up contaminated sediments and harm aquatic life. In Middle River, Currey said the agency approved dredging and treatment of the bottom because it was a relatively small area with documented high levels of the chemicals.

Brady Locher, deputy director of Baltimore County's Department of Environmental Protection and Sustainability, said the county "has worked diligently" to address PCB contamination, which impairs Back River and Baltimore Harbor in addition to the Gunpowder and Bird.

The county partnered with state regulators and the UMBC researchers to assess PCB levels in fish tissue, aquatic insects, sediment and water in Back River. County officials are now looking to contract with an external laboratory capable of analyzing contaminant concentrations.

"Because PCB remediation is so expensive, it is crucial that we base our actions on reliable and comprehensive monitoring results," Locher said.

The county is preparing to dredge more than 50 acres of the Bird River — but to improve boater access, not remove PCBs. The MDE is reviewing the county's plan. Apperson said a study of dredging in Baltimore Harbor, where contamination is worse, indicated only "limited impact" on fish tissue levels.

Meanwhile, the county should soon have more resources for combating PCBs. Officials expect to get more than $7.5 million from a federal class-action lawsuit against Monsanto Corp., which at one time made PCBs. The company agreed to pay a total of $550 million to settle water contamination claims by nearly 2,000 towns, cities, counties and port districts.

Le Gardeur has yet to decide whether to go ahead with a lawsuit, but said he had little choice given the lack of action proposed. Similar lawsuits alleging inadequate cleanup plans have on occasion led to revisions that strengthened them.

A spokesman for EPA's mid-Atlantic regional office said the agency can't comment on Le Gardeur's threatened suit.

The tidal Gunpowder and Bird are used by boaters and swimmers, the riverkeeper noted. They're also popular for fishing and crabbing. Bill Temmink, a local angler, said he doesn't eat what he catches in the Gunpowder, but he knows of "a bunch of people who are out here three and four times a week and keep the fish."

Of the projected date when the MDE said the river's fish should be free of PCB contamination, Temmink said, "50 years is a long time." ■