

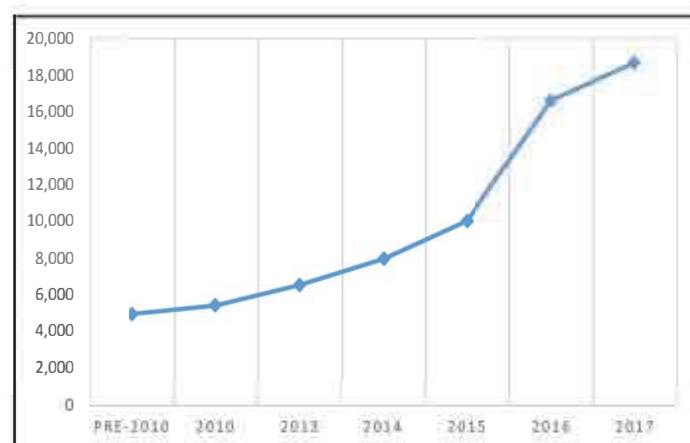
## Sediment and Riverbank Cleanup

There are distinct areas in and along the Tittabawassee River that require cleanup called Sediment Management Areas, or SMAs, and Bank Management Areas, or BMAs. EPA has two main cleanup goals for these areas: 1) limit the spread of dioxin-contaminated riverbank soil and sediment to reduce dioxin levels farther downstream; and 2) help keep dioxin from building up in Tittabawassee River fish.

SMA cleanups typically involve digging up contaminated sediment and disposing of it or covering contaminated sediment to keep it safely in place. BMA cleanups usually include technologies that stabilize the bank to stop erosion of contaminated riverbank soil. Bank stabilization always includes planting deep-rooted, erosion-resistant, native vegetation. These plants increase habitat diversity along the river. In some cases, the banks have been completely removed.

Dow has conducted cleanups of SMAs and BMAs: in Segment 1, a 3-mile stretch next to Dow's Midland plant, in 2012 and 2013, in Segment 2, a 4-mile stretch, in 2010 through 2015, and in Segment 3, another 4-mile stretch, in 2016. EPA finalized a cleanup plan for Segments 4 & 5 of the Tittabawassee River early in 2017. Work in Segment 4 was completed in 2017, while the Segment 5 sediment and bank cleanups should be finished in 2018.

As of the end of 2017, more than 3 miles (>18,000 feet) of banks and 17 SMAs have been cleaned up.



Cumulative feet of riverbank addressed

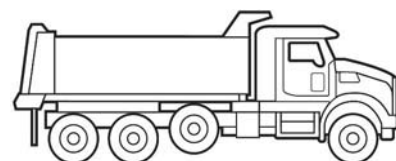
## Floodplain Cleanup

In 2015, EPA, working with MDEQ, selected a plan to clean up dioxin-contaminated soil in frequently flooded areas

along the Tittabawassee River. The floodplain includes the river below Dow's plant in Midland. EPA's cleanup plan will ensure that people are safe when they come in contact with Tittabawassee River floodplain soil.

Not every floodplain property will need a cleanup. We are focusing on properties in frequently flooded areas, known as the 8-year floodplain. Contamination is not found evenly throughout the 8-year floodplain. EPA and MDEQ developed cleanup numbers in order to determine where a cleanup is needed. Properties that have dioxin levels lower than the cleanup numbers require no further action under this program. If dioxin levels are higher than the cleanup numbers, Dow will contact the property owner to begin discussions about a cleanup. Soil is removed and replaced, and the vegetation is replanted.

Dow began floodplain cleanups in 2015, and the pace has increased each year. The project will likely extend through 2020.



*More than 228,000 cubic yards of soil and sediment have been removed from the SMAs, BMAs and floodplain and disposed of. This has filled more than 9,000 truckloads.*

## Future Project Activities

EPA expects to have a cleanup proposal for Segments 6 & 7 sometime in 2018, with work starting in 2019. Action is expected to continue in and along the Tittabawassee until 2020. Then the project team will focus on the Saginaw River and Bay.

## Learn more about the cleanup:

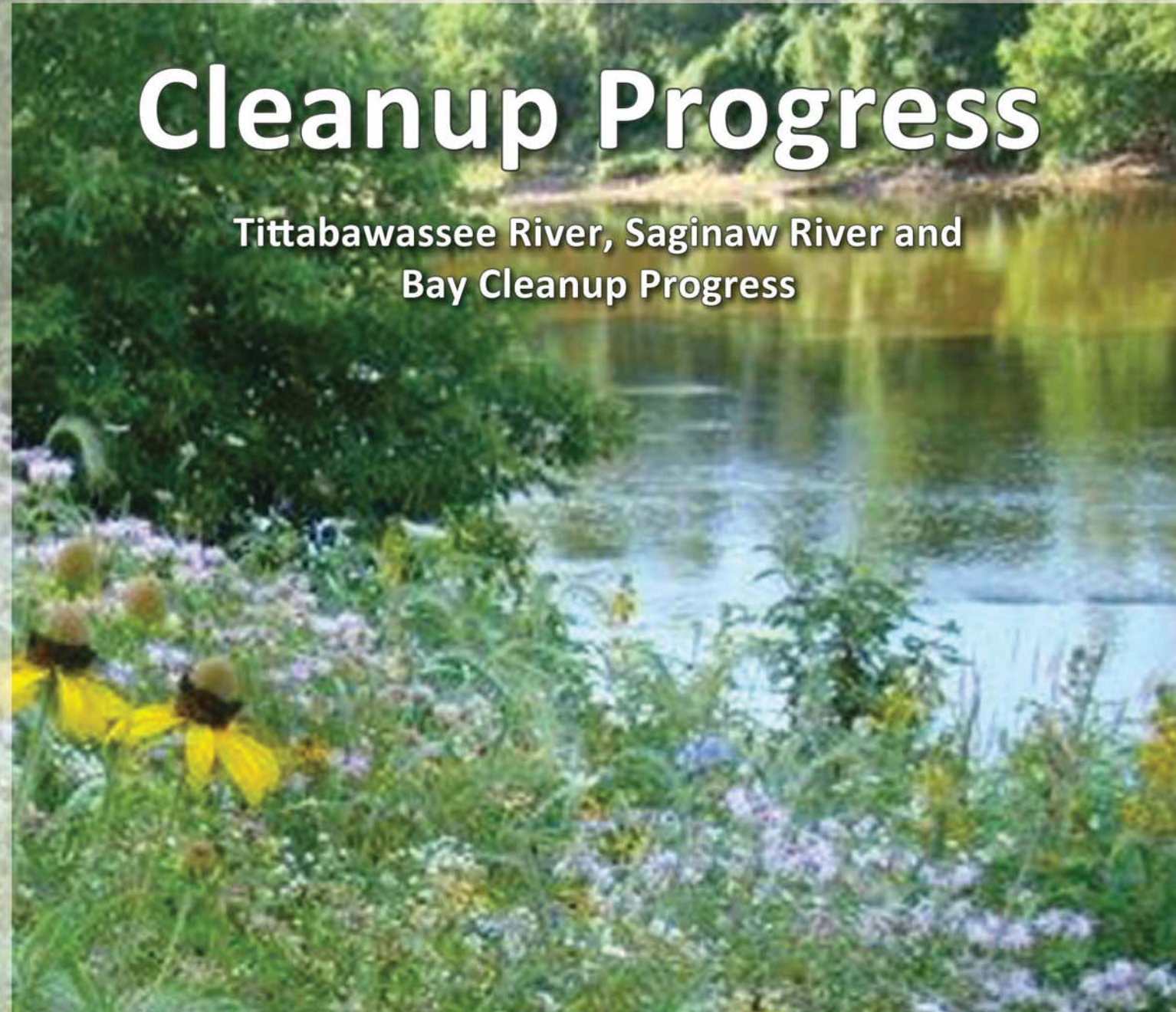
[www.epa.gov/superfund/tittabawassee-river](http://www.epa.gov/superfund/tittabawassee-river)

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# Cleanup Progress

## Tittabawassee River, Saginaw River and Bay Cleanup Progress



Winter 2018

The above photo shows deep-rooted native vegetation stabilizing a riverbank.

## Overview

Cleanup actions have been underway for several years to manage contaminants in the Tittabawassee River, Saginaw River & Bay site. These actions are being implemented by the Dow Chemical Co. with oversight by U.S. Environmental Protection Agency and Michigan Department of Environmental Quality.

Preliminary work was conducted before 2010. In 2010, EPA divided the Tittabawassee River into seven segments ranging from 3 to 4 miles each. River work is being done segment-by-segment from upstream to downstream. As discussed on the back page, cleanup work targets specific sediment deposits and riverbank areas in each segment. Evaluations and cleanup of properties in the adjacent Tittabawassee floodplain started in 2015 and is an ongoing, multi-year project.

This brochure provides information about the cleanup progress achieved. The map on the inside shows the 24-mile lower Tittabawassee River and a small part of the upper Saginaw River. Not every cleanup action is depicted. The pictures highlight some typical projects.





**LEGEND: Cleanups completed within the Tittabawasse River and its floodplain from Midland to the confluence of the Shiawassee River.**

Early Actions Pre 2010	2010 & 2011	2012	2013	2014	2015	2016	2017

- Sediment Cleanup Areas
- Bank Cleanup Areas
- Floodplain Cleanup Areas
- Early Actions
- Tittabawasse and Saginaw River
- Tittabawasse River Floodplain Area

SCALE:  
0 1/4 1/2 1 Mile 2 Miles

[www.epa.gov/superfund/tittabawasse-river](http://www.epa.gov/superfund/tittabawasse-river)

