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Band of the Pottawatomie Tribe



National Oceanic and  
Atmospheric Administration



State of Michigan  
Department of Natural Resources



State of Michigan  
Department of Environmental Quality



State of Michigan  
Department of the Attorney General



Nottawaseppi Huron  
Band of the Pottawatomie Tribe



U.S.  
Department of the Interior

# Kalamazoo River Oil Spill Restoration

*Timbers and woody material used to rebuild habitats*

From aquatic insects to turtles, forage fish to smallmouth bass, and large wading birds, they all depend in some way on wood that finds its way to the water. Insects feed on it, fish find shelter around it, turtles bask and birds perch on top of it. Abundant material, such as root wads and logs, stabilize banks and help to control erosion. Its abundance is a good measure of river health, and its absence is an indicator of impairment.

Following the oil spill from Enbridge's Lakehead Line 6B on July 25, 2010, substantial amounts of vegetation, brush, and fallen trees were removed to facilitate spill response and cleanup of the Kalamazoo River (Figure 1). Recognizing the loss to aquatic habitats, the Natural Resource Trustees made the replacement of large wood material a priority during restoration planning.

The Natural Resource Trustees working to restore the Kalamazoo River following the 2010 Enbridge Oil Spill include the

Michigan Department of Environmental Quality, Michigan Department of Natural Resources, the Michigan Department of the Attorney General, U.S. Fish & Wildlife Service, the National Oceanic and Atmospheric Administration, Match-E-Be-Nash-She-Wish Band of the Pottawatomie Tribe, and the Nottawaseppi Huron Band of the Potawatomi Tribe.

The Trustees issued a notice of intent to conduct restoration planning on March 1, 2012 while cleanup of the spill was still underway. Restoration planning began with a rigorous assessment of the injury to natural resources and the loss of related services, such as recreation. The Trustees then solicited restoration proposals and provided the public an opportunity to comment on the restoration plan developed by the Trustees. The Damage Assessment and Restoration Plan was finalized in October of 2015 and the Trustees began implementing restoration projects in 2016.



Figure 1. Crews removed substantial amounts of wood and vegetation from the river and floodplain during cleanup of the Kalamazoo River after the 2010 Enbridge Line 6B Oil Spill.





Figure 2. Equipment must be used to prepare installation sites and then place the large timbers or assembled wood structures into the bank and river bed.

The project to restore large wood material began with a characterization of what had been removed from the river during cleanup of the spill. Enbridge Energy, MDNR, and MDEQ staff then evaluated the type and orientation of large wood structures that remained in the river or that had been naturally recruited to the river since the spill response and cleanup. This included tree trunks, root wads, or complexes of large wood in the river. Both assessments were then used to build the “Large Woody Debris Replacement Work Plan”. The replacement plan identified certain impacted reaches within the Kalamazoo River where replacement of wood would provide the most substantial habitat benefit.

While respecting the concerns of landowners along the river, specific objectives guided the replacement of wood in the river:

- to provide stable wood material without creating a safety hazard
- to mimic the type, size, and location of naturally occurring wood, and
- to anchor wood using natural materials when appropriate

Four types of wood replacement structures were developed that ranged from single logs to assemblies of multiple logs with smaller racked cross-pieces. Crews often assembled the wood structures in staging areas along the river and then floated them to installation sites that had been previously identified (Figure 2).



Figure 3. Large pieces of wood are firmly anchored to the river bed or bank. These ‘key’ structures then trap smaller pieces of wood that improve habitat.

An amphibious track-hoe was then used to prepare the installation site and place the structure in the stream bed or bank (Figures 2 & 3). Natural fiber mats were used to protect bank soils at the installation sites. Because freshwater mussels are

sensitive to disturbance and inhabit the stream bed, a field crew surveyed the river bed to identify routes for the amphibious track-hoe that would avoid mussel beds.

Enbridge’s crews placed over 260 separate natural wood structures throughout the affected area of the river to improve aquatic habitat. They began in June of 2016 and finished in October. More pictures of the project are available at the website of the Fish and Wildlife Service (<https://www.fws.gov/midwest/es/ec/nrda/MichiganEnbridge/>).

Additional information related to the 2010 Enbridge Oil Spill on the Kalamazoo River, the Damage Assessment and Restoration Plan, and the progress of implementation of restoration projects, may be found at the Fish and Wildlife Service’s website (above) and on the website of the Michigan Department of Environmental Quality (<http://www.michigan.gov/oilspill>).

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