

In partnership with:



Project addresses Rouge River Area of Concern (AOC) Beneficial Use Impairments (BUIs) for Loss of Fish and Wildlife Habitat, Degradation of Fish and Wildlife Populations, and Degradation of Benthos

The Nankin Lake Habitat Restoration Project will:

- Restore ecosystem function to Nankin Lake, increasing aquatic diversity throughout the Rouge River for fish species and other native aquatic life.
- Improve stormwater management and water quality along the Rouge River.

Wayne County received grant funding from the Environmental Protection Agency (EPA) Great Lakes Restoration Initiative (GLRI) for the Nankin Lake Habitat Restoration project as part of its effort to delist the Rouge River AOC. The Rouge River Advisory Council (RRAC) approved a list of projects that need to be completed in order to remove the Rouge AOC habitat BUIs. The list identifies the restoration of Nankin Lake as having a significant impact on the removal of the BUIs within the AOC.

Over the years, Nankin Lake, an impoundment located in Livonia, Michigan along the Middle Branch of the Rouge River, has slowly filled in with sediment. Due to this buildup, the lake is shallow in many areas and has visible depositional areas and islands, decreasing the total acreage of water and habitat present. Sedimentation and the invasion of phragmites and narrow-leaf cattail has degraded the shallow water habitats. Overall, fish productivity and the carrying capacity of the lake have declined dramatically. Flow during storm events effects the impoundment and downstream habitats significantly. The ability to reduce damaging storm flows will significantly aid in creating and maintaining habitat in the Middle Rouge River.

The Nankin Lake Restoration project will restore the ecosystem functions the lake provides; including valuable spawning, nursery, and cover habitat for fishes and other aquatic species of all life stages. As part of the restoration efforts, sediment will be removed and the reservoir basin will be reshaped to create more open water habitat, restore shallow water habitat, and provide over-wintering deep water habitat. To maintain the constructed underwater habitats, a sediment fore-bay will be constructed to capture sediment deposition from the river as it enters the lake. The sediment fore-bay will also provide Wayne County with a location to be monitored and maintained when conditions require. To accelerate the restoration of balance game fish and forage fish within the lake, native fish will be stocked following dredging and habitat construction. The completed habitat restoration will provide habitat for pike, yellow perch, salamanders, sunfish, black crappies, frogs, aquatic insect and more. In terms of vegetation, invasive species management will be conducted within the current vegetation corridor, targeting invasive species such as garlic mustard, buckthorn and Siberian elm. Additionally, native vegetation will be planted in shallow water areas and around the lake for habitat and to improve the overall water quality of Nankin Lake.

Current conditions at Nankin Lake



Conditions upstream of lake



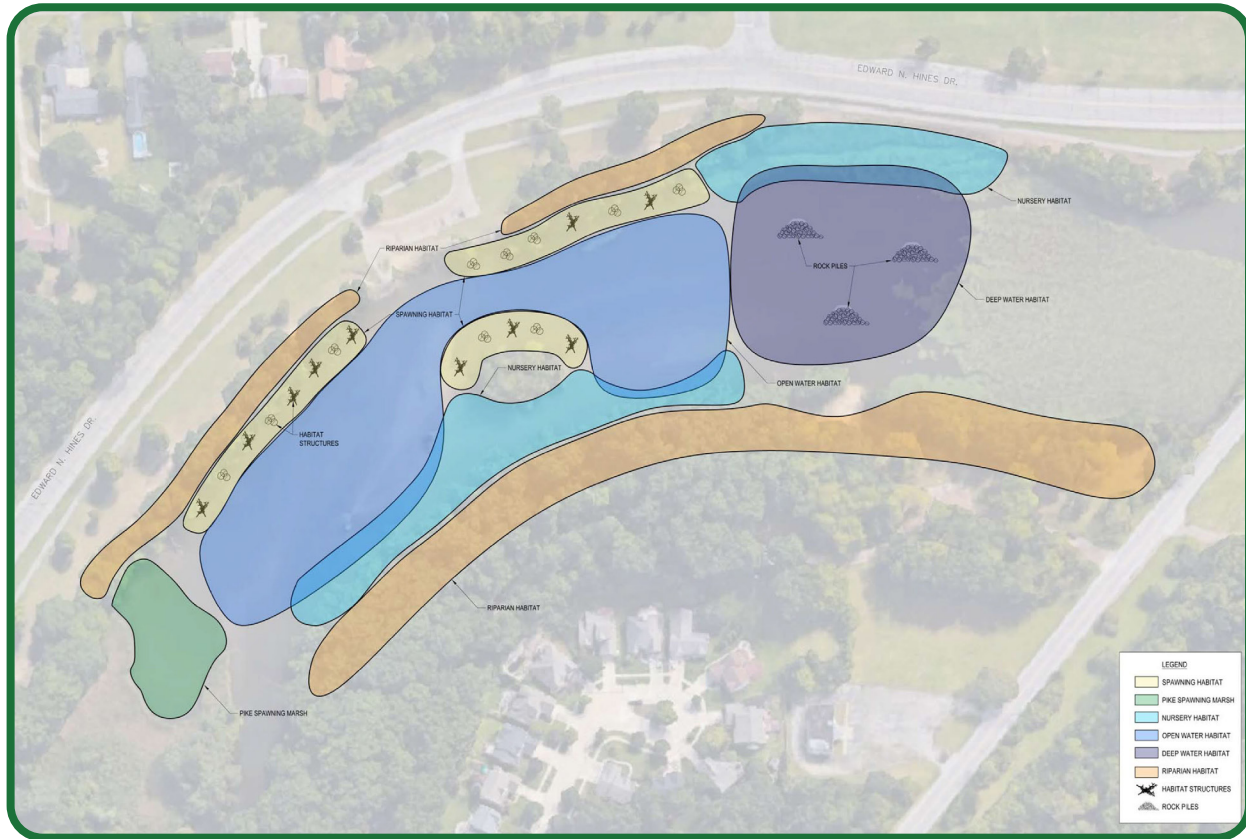
Invasive phragmites



Shallow lake conditions due to sedimentation & erosion

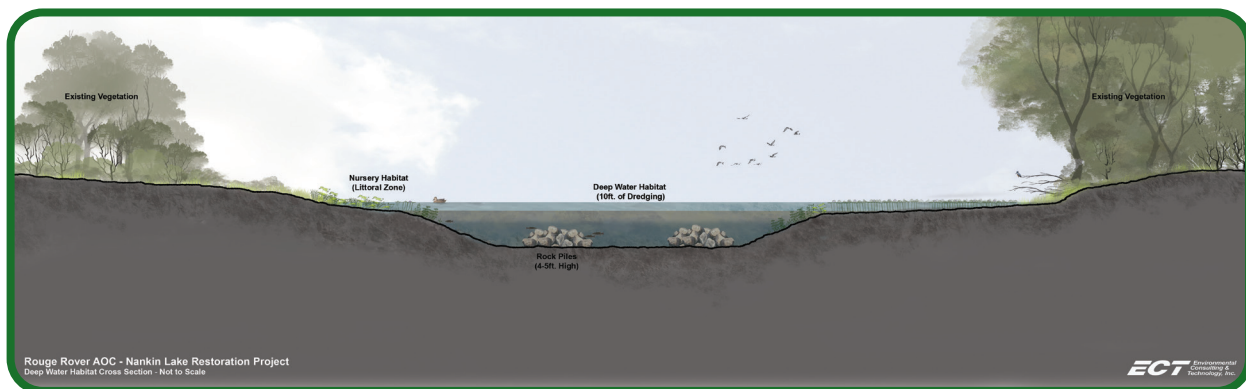
Anticipated Habitat Restoration at Nankin Lake

Conceptual Plan



Anticipated Outcomes

- ~47,500 cu. yds. of sediment removal
- Sediment trap
- An additional 3.0 acres of open water habitat
- 1 acre of deep water habitat (~12 feet of water depth)
- 1.4 acres of fish spawning habitat
- 0.5-acre pike spawning and amphibian marsh
- 20 fish habitat structures (felled trees, boulder clusters)
- 1.9 acres of littoral zone aquatic bed wetlands (planted with emergent, submergent, and floating-leaf plants)
- 5.9 acres of phragmites control
- 3,500 feet, 4 acres of riparian corridor habitat restoration



Deep water habitat provides the necessary conditions for over-wintering of the lake, ensuring the survival of the lake's habitants. The construction of the deep water habitat will involve sedimentation removal and habitat creation.