



ULAO AND KAUL CREEK HABITAT RESTORATION

Ozaukee Fish Passage Program

Fish Passage Program

Between 2009-2016, the Ozaukee County Planning and Parks Department was awarded over \$10.5 million in federal, state, local, and private funding to develop, refine, and implement a comprehensive "Ozaukee Fish Passage Program" (Program). The Program reconnects naturally existing high-quality habitat in the Lake Michigan Basin and Milwaukee River Watershed by modifying or removing impediments to fish and aquatic life passage. The Program seeks to re-establish migratory fish passage between 119,000 acres and 215 stream miles of the Milwaukee River Watershed, the Milwaukee Estuary, and Lake Michigan.

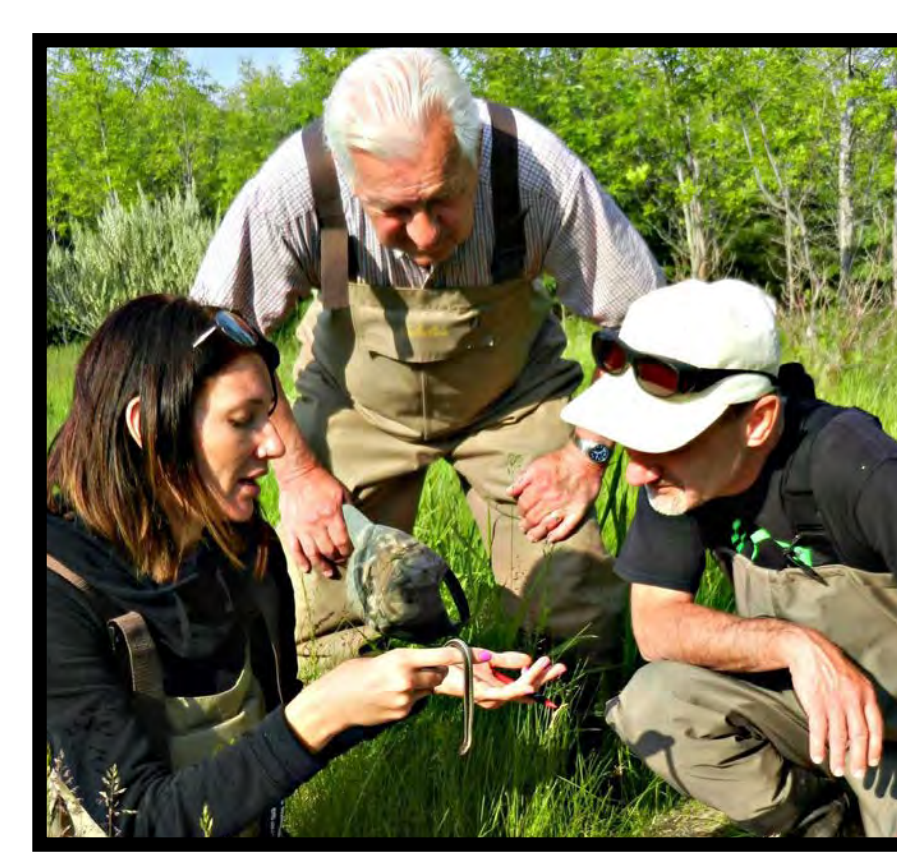
Fish and other aquatic life require access to various habitats at different times of the year to reproduce, grow, feed, and survive. Human activities can directly or indirectly create linear or lateral impediments that fragment and inhibit access to high quality

habitats. This directly affects species abundance, distribution, genetic diversity, and recreational opportunities. Passage for healthy adults moving upstream and young-of-the-year moving downstream are equally crucial. Impediments such as dams, improperly placed or sized culverts, and channelized tributary streams can prevent fish and aquatic organisms from accessing critical habitats.

Wisconsin's native fish, including northern pike, are poor swimmers and jumpers and are often most impacted by impediments. Pike can only jump about eight inches, cannot swim effectively in water velocities greater than two feet per second, and require frequent rest areas when traveling through streams. The Program reconstructs road/stream crossings to replicate natural features of the adjacent stream and establish conditions supporting native fish and aquatic life passage. The Program also works with local municipalities, non-profits, volunteers, landowners, and

conservation groups to remove small-scale barriers including log and debris jams, railroad ballast deposits, and invasive vegetation.

As of 2016, over 286 impediments have been identified and remediated on the mainstem Milwaukee River and 30 tributary streams, reconnecting over 132 miles of streams and rivers and thousands of acres of wetland habitat to fish passage. Major projects include construction of a nature-like fishway at the Mequon-Thiensville Dam (Village of Thiensville and City of Mequon), designing a fishway for the Bridge Street Dam (Village of Grafton), removal of the Lime Kiln (Village of Grafton) and Newburg Dams (Village of Newburg), and several large-scale habitat enhancement projects (floodplain and wetland connectivity) on multiple tributary streams (e.g. Mole, Ulaio and Kaul Creeks) identified by a Geographic Information System (GIS) – based fish and wildlife habitat decision support tool as high priority habitat restoration areas for maximum ecological benefit.

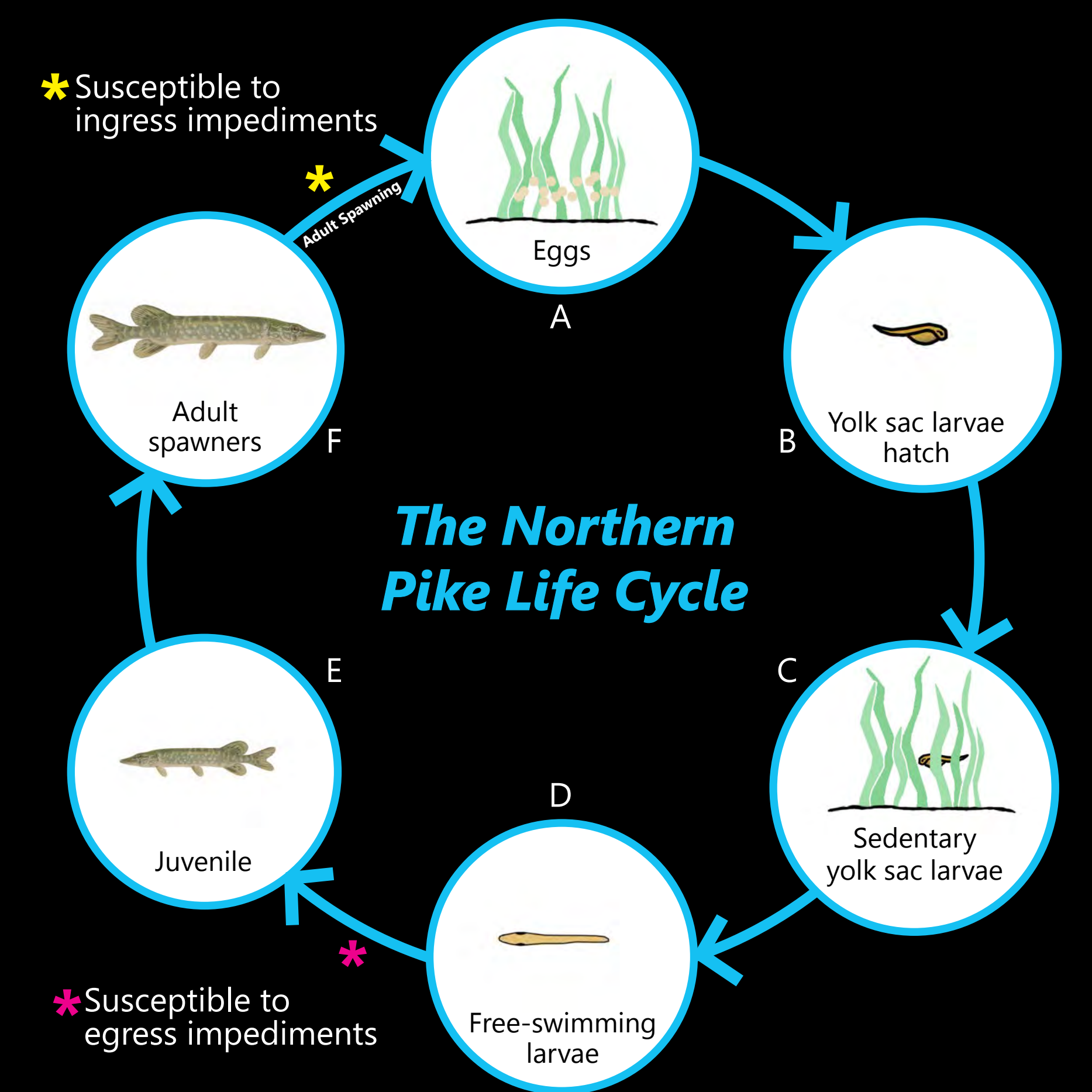
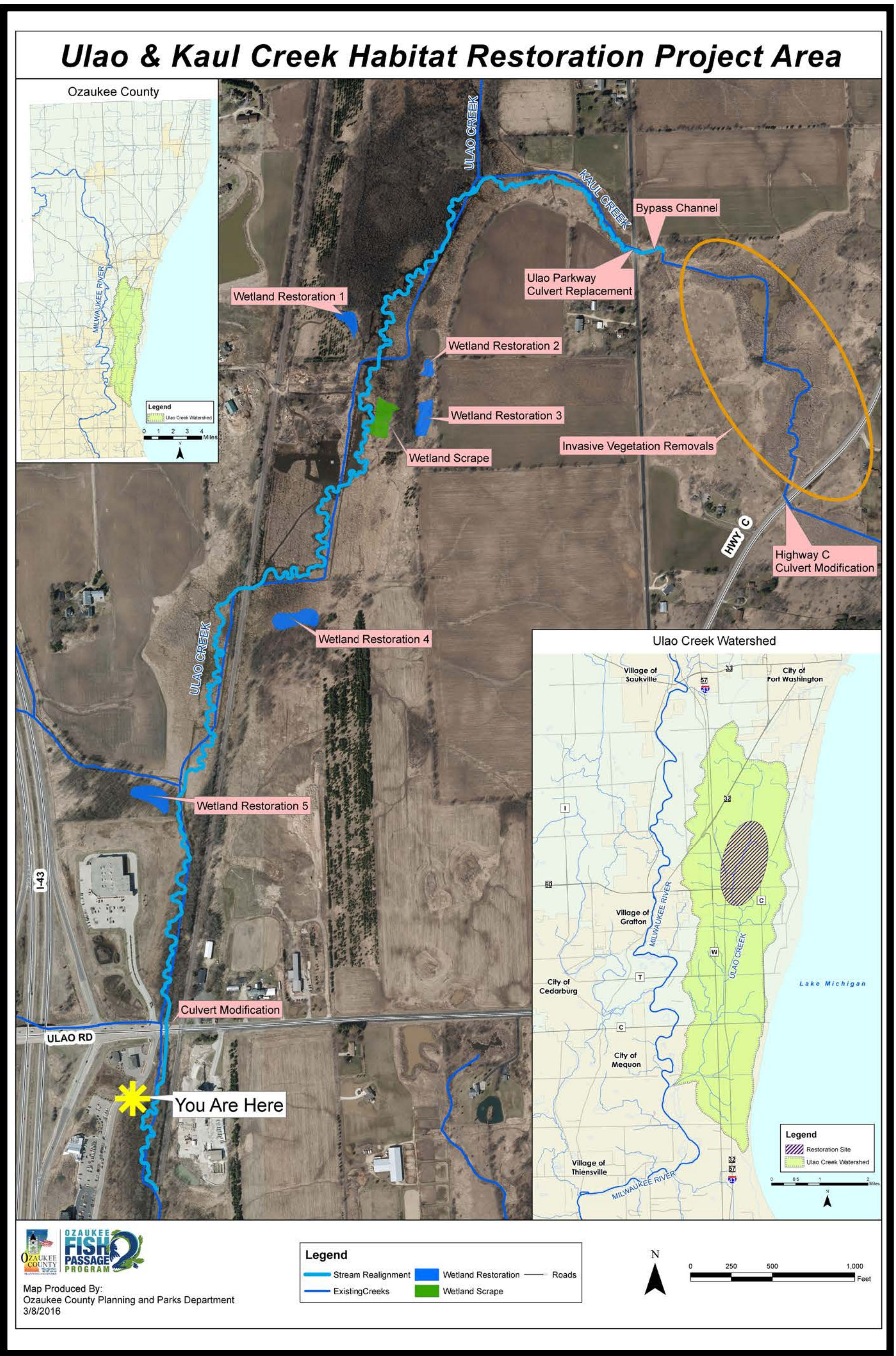


Stream Restoration

The Ulaio Creek Watershed contains approximately 28% of the riparian wetlands potentially suitable for northern pike (project target species) spawning in the Milwaukee River Watershed. The creek has multiple ephemeral and intermittent tributaries and provides fish refuge from drought and low-flow conditions in the form of pools and deep runs. Historic manipulation has left over 90% of the channel dredged and straightened and separated from adjacent floodplains and wetlands.

The Ulaio and Kaul Creek fish and wildlife habitat restoration project in the Town and Village of Grafton restores multiple stream reaches through channel re-meandering, floodplain reconnection, wetland creation or enhancement, invasive plant removal, native plant restoration, and installation of fish and wildlife habitat structures. Work covers an area of stream corridor approximately 2.5 linear miles between State HWY 60 and Ulaio Parkway. Improved habitat promotes the long-term restoration of naturally-reproducing, native fish, wildlife and migratory bird species in the lower Milwaukee River and nearshore Lake Michigan.

Project activities are funded by multiple federal, state, local, and private foundation grants and with the assistance of multiple volunteers and the Ulaio Creek Partnership. Ecological monitoring activities include larval fish trapping, frog call surveys, reptile and amphibian trapping, bird point counts, breeding bird surveys, and water quality monitoring.



- A** Sticky eggs (up to 30,000 per female) are deposited on submerged grassy vegetation in creeks, wetlands, and road-side ditches keeping the eggs out of the sediment. Male northern pike then release milt to fertilize eggs.
- B** In about two weeks, the sticky eggs turn into yolk sac larvae, which are only 8 mm long, and swim for about one day.
- C** The yolk sac larvae reattach to vegetation for the four or five days it takes to absorb the yolk sac.
- D** Free-swimming northern pike larvae break free from vegetation and stay in warm shallow water, soon feeding on insects and other fish.
- E** Northern pike grow quickly and move to larger waterbodies. One year old males (12-16") and two year old females (18-20") are ready to spawn.
- F** In late March and early April, mature adults travel up streams and ditches to spawn in shallow, flooded marshy floodplain and wetland areas, returning to areas where they were born or have previously spawned.

Northern Pike Swimming Performance

- Good for short distance "bursts" of less than 15 seconds
- Fair for "sustained" movements in velocities of less than two feet per second
- Poor for "prolonged" swimming
- Poor jumpers
- Short jumps of less than eight inches
- Require frequent rest areas

Funding Sources

- EPA Great Lakes Restoration Initiative Fund for Lake Michigan
- NOAA Great Lakes Habitat Restoration Wisconsin DNR
- National Fish and Wildlife Foundation
- US Fish and Wildlife Service
- The Brookby Foundation

Ozaukee County Planning & Parks Department
<http://www.co.ozaukee.wi.us/540/Planning-Parks>
 262-238-8257





































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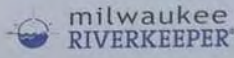
Ulao Creek Habitat Restoration Project

"Making Connections Across Our Watersheds"



www.co.ozaukee.wi.us/planningparks
www.ozaukee-fishpassage.org

In Partnership With



The Planning and Parks Department Fish Passage Program restores natural stream habitat and enhance high quality habitat for native fish, birds and wildlife.















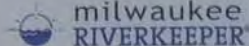
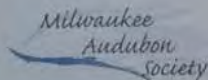
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