

Why the Rainbow Smelt?

We did our project on the Rainbow Smelt because it was something we hadn't heard of before and wanted to find out more about it. American Smelt, Leefish, Freshwater Smelt, and Frost Fish other names for the Rainbow Smelt.



The red areas show where the Rainbow Smelt has been introduced.



Summary & Conclusion:

Rainbow smelt invaded the Great Lakes watershed through an intentional introduction of eggs to Crystal Lake in 1912. This lake drains into Lake Michigan, from which fish escaped into Lake Michigan and spread quickly throughout the Great Lakes and their tributaries. Early records documenting the smelt's range expansion in the Great Lakes include Lake Michigan, Lake Erie, Lake Huron, Lake Ontario, and Lake Superior. Rainbow smelt were first reported from Lake Ontario in 1929, and probably reached it by dispersal along natural waterways from the Finger Lakes, New York, where they were intentionally introduced in 1917. The ability of rainbow smelt to disperse is determined by the connectivity of lakes, the ability of smelt to move through connecting streams, and the suitability of connected lakes as habitat. Rainbow smelt are weak swimmers so they cannot make it over fish ladders. This has helped to prevent an even wider spread of their range.

Rainbow smelt occur in rivers, coastal areas and ponds. In their anadromous territories, they spend the summers along the coast, normally in waters no more than 20 feet (6.1 m) deep and no more than 1 mile (1.6 km) from shore. They overwinter under the ice in estuaries, producing an antifreeze protein and glycerol. In the spring, they spawn at night.

Rainbow Smelt

Osmerus mordax



Why They Are Bad:

The Rainbow Smelt is considered to be an invasive species because they can cause serious damage to a place when introduced to the wrong habitat.

- The rise in erosion and dams help to decimate the smelt population in the 1980s.
- Smelt compete directly with juvenile walleye for food, which may be a principal mechanism in limiting walleye recruitment.
- Smelt will even eat other fish in their early or larval life stages.
- Rainbow smelt are also rich in thiaminase, an enzyme that destroys thiamin, which is necessary for development of fish embryos; as lake trout and other sport fish consume the smelt, their ability to successfully reproduce diminishes because of thiamin-deficiency.
- The smelt concentrates PCBs in its fatty tissue, and magnifies it through the food chain.
- High mercury levels also accumulate in the top food chain predators



What We Can Do:

- Always drain your livewells, bilge water, and transom wells before leaving the water access.
- Never empty your bait bucket into the water, always empty it on land.
- Never dip your bait bucket into a lake or river if it has water in it from another.
- Never dump live fish from one body of water into another.
- Never rinse out a container that has held smelt captured during spawning season into any lake or stream (it may contain fertilized eggs).



1. Streamlined body.
2. Adipose fin.
3. Large teeth on jaw and tongue.

General Characteristics:

- Body is slender and cylindrical. Back is silvery pale green and the sides are iridescent purple, blue, and pink. The underside is white.
- The body has 26-35 gill rakers, a dorsal fin, an anal fin, pectoral fins, pelvic fins, an adipose fin, and a deeply forked tail fin.
- It has a pointed snout and large black and silver eyes.
- The average size when full-grown is 7 – 9 inches.
- Weight: 3 oz.



Rainbow Smelt compared to hand