

MSU Extension Publication Archive

Archive copy of publication, do not use for current recommendations. Up-to-date information about many topics can be obtained from your local Extension office.

Great Lakes 4H Fact Sheet – Rainbow Smelt

Michigan State University Cooperative Extension Service

4-H Club Bulletin

Michael F. Masterson, Donald L. Garling, Shari L. McCarty, Fisheries and Wildlife

Issued April 1986

2 pages

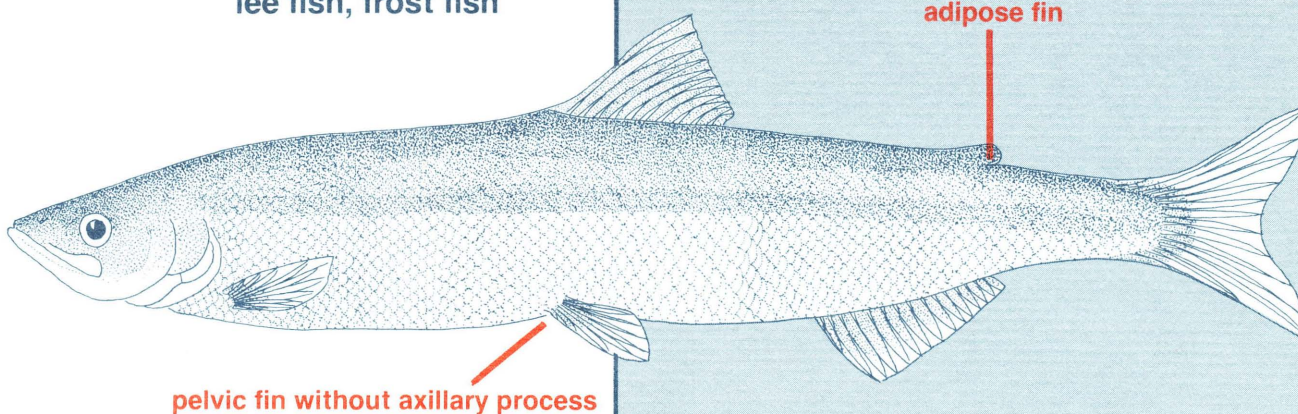
The PDF file was provided courtesy of the Michigan State University Library

Scroll down to view the publication.

M.S.U. EXTENSION
NEWAYGO COUNTY
817 S. Stewart
Fremont, MI 49412
(616) 924-0500

Rainbow Smelt

Scientific name: *Osmerus mordax*
Common names: Smelt, American smelt,
freshwater smelt,
lee fish, frost fish



Description

The rainbow smelt is a small, common fish of the Great Lakes and eastern Atlantic coastal states. The average length for an adult smelt is 7 inches. It usually weighs less than 3.8 ounces.

The smelt has a long body with flattened sides. It also has a long snout and head. The smelt's lower jaw protrudes beyond the upper jaw. These long jaws have many teeth. During the spawning (reproduction) season, male smelt have **nuptial tubercles**, small raised bumps over the head, body, and fins.

The rainbow smelt was so-named because of its bright colors when first caught. After it is out of the water for a while, the smelt's colors fade to silver or slate gray. The smelt is silvery with a pale green back. The sides of the smelt show **iridescent** or rainbow-like reflections of pink, purple, and blue.

An easy way to distinguish smelt from other small Great Lakes fishes is to look for the smelt's **adipose fin**, a small fleshy fin on the back near the tail area. Like other fish, the smelt has a pair of **pelvic fins**, which protrude from the belly. The smelt's pelvic fins lack an **axillary process**, a

dagger-like projection found in many other fish which have an adipose fin (such as trout, salmon, and whitefish).

Life History

Along the Atlantic sea coast, the smelt is a true **anadromous** fish. This means the adults live in saltwater and migrate to freshwater streams to spawn. Smelt were brought from the Atlantic coast to the Great Lakes in 1912 in hopes they would be **forage fish** (food) for lake trout. In the Great Lakes, the smelt lives in freshwater throughout its life cycle, but it still migrates upstream in rivers to spawn.

Smelt are schooling, **pelagic** fish, which means they inhabit the midwaters of lakes and coastal areas. Smelt prefer a water temperature of 45 °F, and they gather in **schools** (groups of fish) where this temperature is found. Older fish, however, prefer deeper areas than younger fish.

Adult smelt mature in the ocean or Great Lakes when they are two or three years old. After the ice thaws in the spring, adult smelt congregate and swim upstream in rivers to spawn. Since smelt are sensitive to light, they travel upstream and spawn at night. During spawning, several

males will surround a female, usually slightly in front of and over her, to fertilize the eggs. The eggs stick to the streambed and hatch in two to three weeks depending on water temperature. Once hatched, the **fry** (young fish) drift downstream to larger bodies of water (Great Lakes, large lakes, or rivers) to grow and mature.

The smelt's diet mainly includes small **crustaceans** (hard-shelled animals such as crayfish), insect larvae (young), worms, and other small fish. The smelt is an important food fish for many of the large, popular game fish of the Great Lakes. Some fish which eat smelt include lake trout, brook trout, salmon, walleye, and northern pike.

Fishery

Great Lakes smelt populations support both commercial fisheries and sportfishing. The smelt catch by commercial fishermen has varied from zero to millions of pounds annually in Lake Michigan alone. The variation is probably due to disease outbreaks. Commercial fishermen capture smelt with **midwater trawls**, cone-shaped nets pulled behind the boat.

Sportfishing for smelt is a very popular and festive spring event. Smelt are caught with dip nets at night as they swim upstream to spawn. These small silvery fish make a tasty meal when rolled in cracker crumbs and fried to a golden brown.

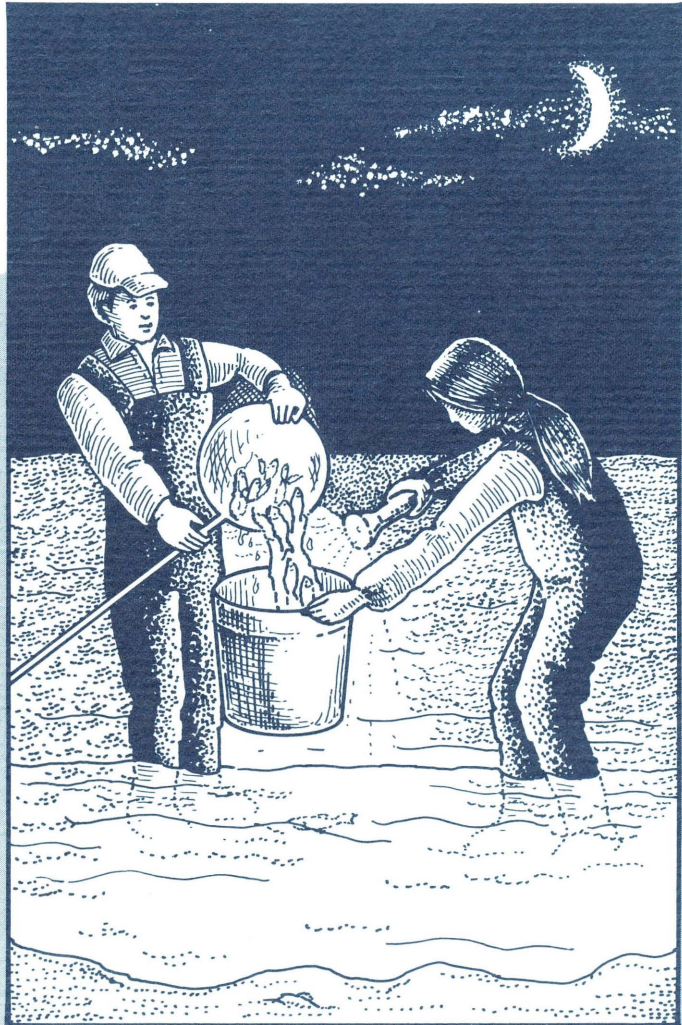
Written by:

Douglas Sweet, Graduate Assistant
Donald Garling, Fisheries Specialist
Shari McCarty, 4-H Youth Specialist
Department of Fisheries and Wildlife

Illustration by:

Maureen Kay Hein

Partial funding for this project was provided by the U.S. Fish and Wildlife Service, U.S. Department of Interior.



Glossary

Adipose fin—small fatty fin between dorsal (back) fin and tail

Anadromous—fish that normally grow and mature in saltwater and return to freshwater to spawn

Axillary process—small dagger-like projection at the base of pelvic fins

Crustaceans—hard-shelled, joint-legged animals that breathe by gills. Examples: crayfish, shrimp, crabs, and lobsters

Forage fish—a fish commonly fed upon by other fish or animals

Fry—young fish

Iridescent—shifting rainbow-like color

Midwater trawl—a cone-shaped net pulled behind a boat which is designed to catch fish and animals in midwater

Nuptial tubercles—small raised bumps which develop on the skin of fish during the breeding season

Pelagic—of open waters, living not on the bottom but suspended in the water

Pelvic fins—set of paired fins protruding from the fish's belly

School—a large number of fish swimming or feeding together

GMSU is an Affirmative Action/Equal Opportunity Institution. Michigan 4-H — Youth educational programs and all other Cooperative Extension programs are available to all without regard to race, color, national origin, sex, or handicap.

Issued in furtherance of Cooperative Extension work, acts of May 8, and June 30, 1914, in cooperation with the U.S. Department of Agriculture. W.J. Moline, Director, Cooperative Extension Service, Michigan State University, E. Lansing, MI 48824.

This information is for educational purposes only. Reference to commercial products or trade names does not imply endorsement by the Cooperative Extension Service or bias against those not mentioned. This bulletin becomes public property upon publication and may be reprinted verbatim as a separate or within another publication with credit to MSU. Reprinting cannot be used to endorse or advertise a commercial product or company.