

## Fish Habitat Factsheet #1

# Why is Fish Habitat Important?

***Like all animals, fish need a healthy living space, or habitat, to survive, grow, and reproduce. The quality and quantity of fish habitat in a water body directly affects fish populations. Recent studies have improved our understanding of the relationships between fish populations and their habitats and have led to many successful fish habitat improvement projects.***

A fish's habitat includes all the required physical factors (temperature, water depth, current, waves, bottom types, cover, etc.) and chemical factors (oxygen levels, dissolved minerals, and other substances) in their environment. Habitat requirements for each stage of a fish's life cycle — egg, larvae, juvenile and adult — may also be quite different within the same water body. In areas where fish habitats have been changed or lost by humans, many important fish species have declined in numbers, become extinct, or have been replaced by other species more tolerant of the habitat changes.

Anglers and biologists have long recognized that suitable fish habitat is an essential part of maintaining healthy fish populations. Many fish habitats have been harmed to the point where fish populations cannot recover on their own without help.

Fisheries managers work to balance protection of fish and their habitat while providing enough fish for people to catch. Throughout North America many fisheries are in trouble, mostly from damage or loss of important reproductive habitat that is so necessary to sustain native fish populations for future generations to enjoy.

Managing fish habitat involves intensive studies to answer important questions concerning fish habitats (see side panel on next page). Determining causes of fish habitat problems and identifying threats to existing fish habitat is extremely important.

Damaged fish habitats are most often repaired, improved and protected against further damage. In some cases, habitats can be restored toward their original condition. All these approaches can help native fish successfully reproduce and can help young fish survive to adulthood.



*Fish habitat is closely tied to the surrounding land. Photo: Mary Penney, New York Sea Grant*

**Important Information Needed to Better Manage Fish Habitats**

**What habitats are important to each species of fish over their lifetime (adults, eggs, fry, juveniles)?**

**Where fish are located in a water body over time?**

**How did these habitats change over time?**

**What are the causes of habitat changes?**

**How have fish populations been effected by habitat changes?**

**How may habitats be improved upon to benefit fish?**

*Invasive plants (cattails) can choke out native plants that provide important fish habitat. Photo: Mary Penney, New York Sea Grant*



**Threats to fish habitat include:**

- Excessive removal of trees can cause soil erosion that results in increased runoff of sediment, silt, woody debris and sawdust into waterbodies, and changes in stream bank structure, affecting stream flows; and increased stream temperatures
- Mining can cause fish habitat loss due to increased sediment loading/toxic runoff in streams/rivers and direct removal of stream channel or bank gravel beds
- Older agricultural practices, such as improper field fertilization that leads to nutrient flows into waterbodies, causing fish kills and nuisance algal blooms that crowd out native plants in important fish habitats; and water flow diversion for irrigation or artificial water level regulation that expose fish habitat to air
- Residential and industrial development, such as improperly planned parking lots/roads, causes increased runoff of sediment, sand, road salt, oil, lawn fertilizers, and toxic substances into streams, rivers, and lakes
- Inland navigation: construction of canals and unregulated dredging can change stream flows, which can either fill in or remove important habitats
- Invasive species: many foreign invaders have colonized important fish habitats reducing water quality in these habitats and some prey on eggs and larvae of important fish

A number of scientifically-based projects have shown that these threats can be reduced or removed to the point where local fisheries have substantially improved. As you have read in other factsheets in this series, many of the most successful projects involved biologists and the public working closely together to help native fish species recover and increase in numbers, often to the point where local fisheries have substantially improved.

*This factsheet was written by  
New York Sea Grant Fisheries Specialist David B. MacNeill,  
315-312-3042, dbm4@cornell.edu*

*This fish habitat factsheet is one in a series written by New York Sea Grant as part of SUNY-ESF's "Conservation Strategy for Enhancement of St. Lawrence River Native Fish Populations" project. Funding was provided by the U.S. Fish and Wildlife Service under the Fish Enhancement, Mitigation, and Research Fund. Project partners include U.S. Fish & Wildlife Service, SUNY College of Environmental Science & Forestry, New York State Department of Environmental Conservation, New York Sea Grant, National Oceanic and Atmospheric Administration, U.S. Geological Survey, USDA Natural Resources Conservation Service, Save the River, and Thousand Islands Land Trust.*