

2011 New York Sea Grant Aquatic Invasive Species Education Series

Native or Invasive?

Part II: Fishes

By New York Sea Grant Resource Educator Stacy Furgal

This article is the second in a three-part series exploring the impacts of aquatic invasive species. Part I introduces the impact of invasive species; Part I introduced the impact of invasive species on the Lake Ontario ecosystem; Part III will focus on native and invasive aquatic plants.

According to the US Environmental Protection Agency, the Great Lakes sport fishing industry of the United States is valued at an estimated 4.5 billion dollars annually. In New York state, fish are an essential part of the Lake Ontario region's culture, history, environment, and economy. Small fishes, however, are often overlooked, losing the spotlight to larger sport fish. These fishes may be small, but the role they play in the ecosystem is vitally important.

Lake Ontario, its tributaries, and its native fish populations are no stranger to invasive disturbance. For example, the mottled sculpin (*Cottus bairdii*) is a small, native species of fish that has been particularly affected by the invasion of the round goby (*Appollonia melanostomus*) into Lake Ontario.

The mottled sculpin grows no larger than five inches and dwells among the rocks on the bottoms of cool rivers, lakes and streams. It is an important prey fish for yellow perch, trout, and northern pike in the Great Lakes.

The round goby made its way from the Black Sea into the Great Lakes in the ballast water of shipping freighters during the 1990s. In areas where the round goby has become abundant, some native fish species have declined.

The mottled sculpin and the round goby prefer the same spawning habitat. The round goby is extremely aggressive in guarding its nesting areas, which successfully keeps native fishes out of prime spawning habitat. Such competition for habitat and resources between the two species has led to the ultimate decline of mottled sculpin populations.

The Eurasian ruffe (*Gymnocephalus cernuus*) is another, small, aggressive fish invader. The ruffe looks similar to the native yellow perch (*Perca flavescens*), but can be distinguished from it by the lack of scales on its head and the presence of a continuous dorsal fin.

In areas the ruffe has invaded, populations of native species like yellow perch, emerald shiners, and trout-perch have declined. The trout-perch, like the name implies, bears a mixture of traits of both trout and perch, however it is genetically different from both. Yellow perch are a popular sportfish in the Great Lakes, a favorite of many anglers. Emerald shiners are important forage fish for larger, predaceous fish.

The ruffe has an advantage over all of these native species. It can reproduce multiple times a year, matures faster, and can adapt to a greater variety of habitat types. For these reasons, it is a threat to Great Lakes fisheries.

To protect the diversity of native fishes in New York's waters, you can become aware of the native species that make our area unique and be on the lookout for the invasive aquatic invaders that could threaten them.

If you spot what you think may be an invasive species, please contact St. Lawrence Eastern Lake Ontario (SLELO) Partnership for Regional Invasive Species Management (PRISM) Coordinator Rob Williams at 315-387-3600 x25, or at rwilliams@tnc.org.

New York Sea Grant is celebrating its 40th anniversary of "Bringing Science to the Shore" this year. Learn more at www.nyseagrant.org.