Prescription for Lake Trout Recovery

Key Events Leading to Strategy

By Jim Johnson, retired Michigan DNR fish biologist

Between 1998 and 2004, three major developments shaped the recovery strategy for Lake Trout:

- Nearly complete removal of Alewives from Lake Huron
- Effective control of Sea Lampreys originating from the St. Marys River
- Reduction in gill-net fishing by Native American fishers, as established by the 2000 Consent Decree

Alewives: Alewives, although consumed eagerly by Lake Trout, contribute to thiamine (vitamin B) deficiency (Thiamine the Alewives Revenge). This deficiency impairs the survival of Lake Trout embryos and fry, preventing successful reproduction. In addition, Alewives prey on trout fry, further hampering the population's ability to sustain itself. Therefore, for Lake Trout reproduction to resume, Alewife numbers had to be drastically reduced.

Sea Lampreys: After about 1980, Sea Lamprey populations soared in the St. Marys River. The St. Marys is the outlet of Lake Superior and Lake Huron's largest tributary. By the 1990s it was producing as many lampreys as all other Great Lakes tributaries combined. Thanks to increased funding by Canada and the U.S., as well as a one-time contribution of $4.5 million by Michigan, the St. Marys was first successfully treated in 1998.

One way of dealing with Sea Lamprey depredations is to stock Lake Trout that show resistance to Sea Lamprey attacks. Sea Lampreys have been in Seneca Lake, New York for at least 150 years. Lake trout have persisted in Seneca Lake despite these lampreys and Lake Trout of Seneca Lake origin stocked in Lake Huron have survived to maturity and reproduced much more successfully than any other strain. Most Lake Trout and almost all wild Lake Trout in Lake Huron today are of this Seneca Strain.

Reduction in gill-net effort: Although Michigan had converted its gill-net effort to trap nets, gill-net fishing prevailed in Treaty of 1836 waters of the upper Great Lakes. A Consent Decree of 2000 called for the conversion of half the Treaty Waters gill-net effort to the less lethal trap nets. This measure sharply reduced the kill of Lake Trout by commercial fishers pursuing Lake Whitefish.

The result: restored Lake Trout reproduction and the beginning of a gradual recovery
All three "prescription" elements came together for Lake Huron between 1998 and 2004, when Alewives all but disappeared in the wake of the Quagga Mussel invasion. Since about 2000, the number of wild Lake Trout has steadily risen as the abundance of mature, spawning-age Lake Trout has also climbed. Almost all the wild Lake Trout are of Seneca Lake strain. The recovery has been gradual and especially slow in southern Lake Huron, where spawning habitat is less abundant and proximity to Ontario commercial gill nets means fewer Lake Trout survive to spawning age.