

United States Department of the Interior
Fish and Wildlife Service
La Crosse Fish Health Center
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The La Crosse Fish Health Center (LFHC) has detected the microsporidean parasite *Nucleospora salmonis* at Jordan River National Fish Hatchery (NFH), Pendills Creek NFH and Sullivan Creek NFH. Although the parasite is believed to be ubiquitous world-wide, this appears to be the first report of *N. salmonis* within the Great Lakes basin. In North America, *N. salmonis* has been detected in hatchery-reared and wild fish from the Pacific Northwest, including Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*O. mykiss*) from the Pacific Northwest.

The first detection of the microsporidean was at Jordan River NFH, a lake trout (*Salvelinus namaycush*) rearing facility located near Elmira in Lower Michigan. Jordan River NFH receives eggs from Iron River NFH (WI), Saratoga NFH (WY), and Sullivan Creek NFH (MI). The Five-tile and Six-tile springs serve as the source of water for Jordan River NFH. *N. salmonis* was initially diagnosed in lake trout fry at Jordan River NFH in June, 2004, and in fry in April of 2008. A slight increase in mortality was observed during the 2004 event; the mortality in 2008 was more significant. Mortality at Jordan River NFH has since returned to normal levels. All lots of lake trout fry at Jordan River have tested positive for *N. salmonis*, but the outbreak appears to be stress related. The sub-lot of Lewis Lake-strain lake trout that was significantly affected in 2008 was initially reared in an outside metal building and was subjected to poor rearing conditions, including secondpass water from the main hatchery building and high densities. This sub-lot of fish was destroyed to limit possible transmission to other fish at the hatchery. Mortality was not

observed in fish reared inside the main building. Jordan River NFH has a history of bacterial gill disease. It is likely that *N. salmonis* was present at Jordan River NFH prior to the initial diagnosis in 2004, but had been diagnosed as bacterial gill disease, or bacterial gill disease may have been a concurrent disease. Tissue samples to screen for *N. salmonis* have also been taken from the water supply at Jordan River and these results are pending.

Pendills Creek NFH is a lake trout production facility located near Brimley in the Upper Peninsula of Michigan that receives lake trout fry from Iron River NFH and Jordan River NFH. Videans Creek is the water source for Pendills Creek. Two lots of lake trout were transferred to Pendills Creek NFH from Jordan River NFH in the summer of 2008. Because of raceway construction at Pendills Creek NFH, the fish are being reared in crowded conditions. One lot of lake trout has shown a slight increase in mortality and has tested positive for *N. salmonis*; the remaining lot of lake trout from Jordan River was not tested. Lake trout lots had not been received from Iron River NFH at the time of testing. Tissue samples for *N. salmonis* testing via PCR have been taken from Videan's Creek and results are currently pending.

The Sullivan Creek NFH in Raco, MI is a lake trout brood stock facility located in Michigan's Upper Peninsula and provides eggs to Iron River NFH and Jordan River NFH. Sullivan Creek is the water source for Sullivan Creek NFH. In order to determine the source of *N. salmonis* at Jordan River, samples were collected from each lot to screen for *N. salmonis* at Sullivan Creek during the semi-annual fish health inspection in August. Each of the lots was positive for *N. salmonis*. Mortality or clinical disease has not been reported at Sullivan Creek NFH. One of five samples collected from brook trout

(S. fontinalis) taken from the water source (Sullivan Creek) at Sullivan Creek NFH tested positive for N. salmonis via PCR.

Iron River NFH is located in Northern Wisconsin and serves as a production and brood stock facility, rearing both lake trout and coaster brook trout. In addition to eggs from its own brood stock, Iron River NFH also receives eggs from Sullivan Creek NFH. Schacte Creek is the water source for Iron River NFH. Tissue samples were collected from each brood stock lot to screen for N. salmonis at Iron River NFH during the semi-annual inspection in August; results are pending. There have been no atypical mortalities observed at Iron River. Tissue samples to screen for N. salmonis have also been taken from brook trout collected from Schacte Creek and results are pending. Lake trout brood stock at Saratoga NFH (WY) were also screened for N. salmonis during a routine fish health inspection this summer. The lake trout at Saratoga NFH were negative for N. salmonis.

The U.S. Fish and Wildlife Service will work to implement best management practices at each of the Great Lakes fish hatcheries in Region 3 in order to minimize the impact of N. salmonis. These will include, but are not limited, to the discontinuation of reuse water for rearing fry, using optimal water flows, and rearing fry at lower densities. The Service will continue to monitor fish at each of those facilities for N. salmonis, and will collect tissue samples from feral salmonid populations for N. salmonis screening as part of the National Wild Fish Health Survey to determine the distribution of N. salmonis in the Great Lakes Basin.

Sincerely,
Ken Phillips

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