

## Evaluation of Lake Trout Egg Plants in Michigan Waters of Lakes Michigan and Huron

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*Abstract.*—Lake trout *Salvelinus namaycush* eggs were planted on two Lake Michigan and nine Lake Huron reefs during 1973-81 to evaluate this method to propagate lake trout. Most eggs were taken from hatchery broodstock and incubated in a hatchery to the eyed stage. Eggs were planted either by releasing them at the surface or by scuba divers who released them just above the substrate. The number of eggs planted at each site ranged from 27,000 to 6,600,000. Survival of eggs to hatching was assessed by placing samples of eggs in containers on the sites. Many containers on offshore reefs were moved by severe turbulence during the winter and were lost. Mean survival of eggs to the fry stage in containers on protected nearshore sites averaged 77% prior to early June, then decreased. Prolonged confinement in the containers probably was the cause of the low survival after mid-June. Emergent fry traps were used to collect swim-up fry during 1977-82. Fry production was estimated by extrapolation of the number of fry caught. Survival from planted egg to swim-up fry was 1.8% or less. Gill nets fished over the planting sites 6 to 8 years later caught 60 fin-clipped, hatchery-reared lake trout, but only one unclipped lake trout. That fish could have been either a survivor from the planted eggs, from successful natural reproduction, or a hatchery fish that was improperly clipped. Planting eyed eggs by seeding them on reefs is not a practical method to propagate lake trout.

Lake trout *Salvelinus namaycush* have been planted in Lake Michigan since 1965 and in Lake Huron since 1973 in an attempt to reestablish self-sustaining populations of lake trout. In 1973, when this study was initiated, there was no evidence of successful reproduction. No wild lake trout fry had been collected, and the few older unclipped lake trout that were seen were believed to be hatchery-reared fish that had been improperly fin clipped. Most fish were planted at shore sites that were easily accessible to the fish planting trucks. Lake trout from these plants apparently did not reproduced successfully because they tended to return to the planting sites to spawn, and generally the substrate at

the planting sites was unsuitable for reproduction (Peck 1979a; Rybicki and Keller 1978). Some plants of yearling lake trout have been made on traditional spawning reefs, so that when these fish matured they would home to the suitable spawning substrate on those reefs and thus establish a naturally reproducing population. However, the same goal might be accomplished by planting eggs on the reef instead of planting yearlings. Lake trout which are hatched from eggs planted on the spawning grounds likely would receive a much better imprint than yearlings. This would be cheaper and result in a better return of mature lake trout, if survival were sufficiently high.