

# Investigation of Stocking Methods for Expanding the Steelhead Fishery in Lake Huron

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## *Background*

Since the massive change in Lake Huron's forage base that led to the loss of Chinook Salmon began over a decade ago, fisheries managers have sought to diversify the fishery by taking advantage of new opportunities to match stocking strategies and methods with the realities of nearshore predator abundance and the remaining offshore food resources in the new food web. Past data and observations suggested that migratory rainbow trout, commonly known as steelhead, do not require prey fish for their diets and an increase in steelhead numbers would take advantage of alternative food resources such as insects while having minimal effect on Lake Huron's depleted prey fish community. Fisheries Division has traditionally stocked steelhead to produce recreational opportunities for spawning fish that return "home", through a learning process known as imprinting, to the tributaries where they were stocked. The purpose of this project is to test the use of acclimation pens, where fish are temporarily held before release, for imprinting steelhead at both river and harbor stocking sites.

Since the goal of using acclimation pens is to enhance catch rates or harvest of spawning steelhead in the vicinity of stocking sites, angler returns of tagged yearling fish held in acclimation pens before their release were compared with returns of tagged yearling fish released directly from a hatchery truck (Photo 1). The primary objective of this project is to determine whether such stocking can produce cost-effective improvements in the nearshore fisheries for spawning steelhead at major harbors in Lake Huron's main basin. A secondary objective is to determine how the size of stocked steelhead influences their return to anglers. Successful enhancements of steelhead fisheries at these sites could partially mitigate losses in Chinook Salmon opportunities.



Photo 1. Stocking steelhead into acclimation pens for this study.

## *What are the results?*

The final year of the stocking and tagging phase of this study was completed in 2013 with acclimation pen and direct stocking efforts at Van Etten Creek (Au Sable River), Harrisville, and Harbor Beach. Slightly more than half of all fish collected from all ports and stocking years have been from the direct stocking groups (227 fish) compared to the acclimation pen groups (184

fish). Since the fish stocked during 2013 had not moved into the fishery by the end of the most recent (2014) fishing season for which data are available, comparisons of returns of small versus large yearlings will be deferred until 2015 results are known, and the evaluation of coded-wire tag returns will continue until at least 2016. Final results for the project will be published in a Fisheries Report, which will be posted to Fisheries Division's web site when complete.

*What does this project do for fisheries managers and anglers?*

This project will determine whether the cost-effectiveness of steelhead stocking can be improved by acclimation pens. This study will help Fisheries Division better align its trout and salmon management strategies with the realities imposed by the changes in Lake Huron's food web. Ultimately, the study may lead to a partial mitigation of the loss of Chinook Salmon in Lake Huron's main basin by providing advice on the best methods for enhancing fisheries for other trout and salmon species.

Additional detailed information on this study can be found at [http://www.michigan.gov/dnr/0,4570,7-153-10364\\_52259\\_19056-333302--,00.html](http://www.michigan.gov/dnr/0,4570,7-153-10364_52259_19056-333302--,00.html).



Photo 2. The expected end result of this research project.