

Walleye Plantings in Big Platte Lake Do Not Decrease Percentage of Returning Adult Coho Salmon to the Platte River State Fish Hatchery

Study objective: To examine the impact of walleye planting in Big Platte Lake on the return rate of Coho Salmon to the Platte River State Fish Hatchery.

Methods: In this observational retrospective study we obtained historical data from the Michigan Department of Natural Resources (MDNR) and the Platte River State Fish Hatchery (PRSFH). This data encompassed 42 years of yearling coho salmon (*Oncorhynchus kisutch*) release numbers and adult salmon return to the Platte River, Honor, Michigan from 1979 to 2021. MDNR and PRSFH data from 1987-2021 on walleye (*Sander vitreus*) planting in Big Platte Lake was used to measure the impact of those plantings on the percentage of adult coho salmon returning one year later.

Results:

During the study period from 1988 to 2021 the percentage of released coho salmon returning annually ranged from 0.6% to 12.7%. Walleye plantings occurred sporadically during that period (1987, 1990, 1991, 1992, 2002, 2003, 2004, 2009, 2013) with releases ranging from 63,11 to 5,075,000. Estimated adult walleye populations ranged from 0 to 614,684 annually during this time period.

We calculated a simple correlation and linear regression for the time series from 1988 to 2020 when data sets were available for both variables. The data shows a positive correlation between walleye abundance and Coho returns ($\rho = 0.3323$, $t\text{-value}=1.96$).

Conclusions:

This study, encompassing 33 years of MDNR data, demonstrated that, in spite of the fact that walleyes are piscivorous and prey on salmon yearlings, walleye plantings in Big Platte Lake have a positive impact on the return rate of adult salmon.