



IOWA DEPARTMENT OF NATURAL RESOURCES

Sport Fish Restoration Research Findings

Evaluation of Special Regulations for Managing
Walleye in Iowa's Natural Lakes



Project Duration: 1995-2005

Location: Spirit, East Okoboji, West Okoboji (Dickinson County), Storm (Buena Vista County), Clear (Cerro Gordo County), and Blackhawk (Sac County) lakes

Study Number: 7013

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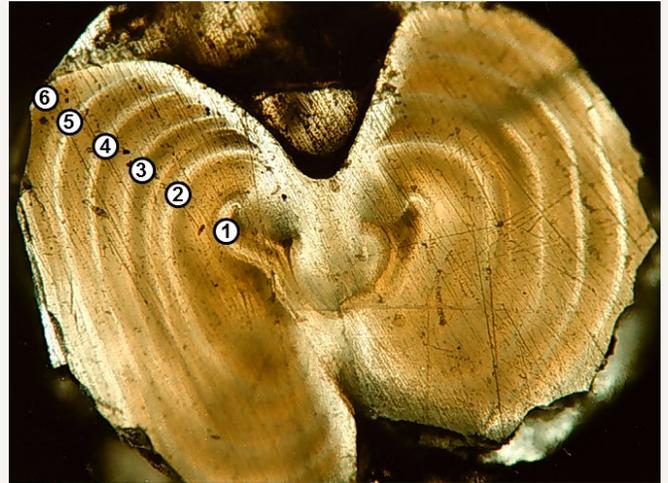
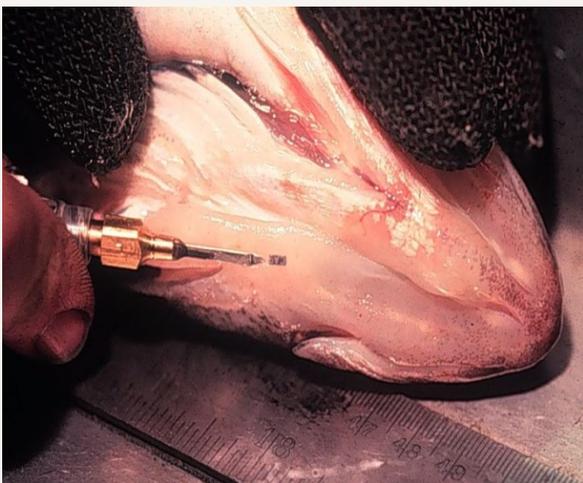
Walleye populations in Spirit Lake, East and West Okoboji, Clear Lake, and Storm Lake are used as a source of Walleye broodstock for the Spirit Lake Fish Hatchery. Broodstock Walleye densities in these lakes were not consistent enough to meet these demands via current management practices. This study examined reasons why densities of Walleye were lower than desired, and provided recommendations to increase densities of Walleyes in these lakes.

Goals

- Estimate adult Walleye population dynamics and angler harvest in Spirit Lake, East and West Okoboji lakes, Clear Lake, Storm Lake and Blackhawk Lake.
- Develop a comprehensive plan to manage Walleye populations in Iowa's natural lakes that addresses both Walleye stocking and harvest regulations.

Results

- Walleye growth and survival was similar among Spirit Lake, Okoboji lakes, and Clear Lake. Growth in Storm and Blackhawk lakes was faster and annual survival rates were lower.
- Walleye abundance varied in each lake, but was typically below management objectives.
- Minimum length limits slightly changed Walleye harvest dynamics, however, many of these metrics varied with the strength of the year-classes being harvested.
- Population modeling found that a 17-22 inch protected slot limit would protect more broodstock while still allowing harvest of slower growing fish.



Conclusions

Densities of broodstock Walleye have to be increased 1-2 times to reach management objectives. Inconsistent recruitment, not the angler, was the main reason for low densities and harvests of Walleye in these lakes. A combination of improved survival and recruitment of stocked Walleye and harvest regulations that protect broodstock females was needed to increase densities of walleyes. The reduction in the bag limit from five to three Walleye per day was not effective in reducing Walleye harvest. To be effective, the bag limit would have to be lowered to one fish per day, which was not angler acceptable. The 14-inch minimum length limit decreased Walleye harvest, but did not increase broodstock densities. In most cases, broodstock densities and harvest of Walleye would be significantly increased by replacing the minimum length limits with the 17-22 inch protected slot limit and by stabilizing Walleye recruitment.