



IOWA DEPARTMENT OF NATURAL RESOURCES

Sport Fish Restoration Research Findings

Evaluation of Iowa's Standard Fisheries Sampling Program: Electrofishing



Project Duration: 2014-2020

Locations: Statewide

Study Number: 7046



Small Impoundments Fisheries Research:

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Evaluation of Iowa's Standard Fisheries Sampling Program: Electrofishing

Standardization of fisheries sampling gear and protocol is a necessary step to allow for accurate comparisons of results to be made across space or time, such as between lakes or between years at the same lake. Without standardization, two catch rates of a target fish species (like Walleye) cannot be meaningfully compared. If valid comparisons cannot be made, then the appropriate management action cannot be determined. Gaps in Iowa's standard protocol could unknowingly cause biases in data. For example, seemingly minor differences within a single piece of equipment can drastically affect catch composition, fish size, and catch rate. Electrofishing gear was selected because multiple anode and wiring designs were being used, increasing the probability of electrofishing setups not sampling the same way and troubleshooting faulty equipment more difficult. This study identified gaps in Iowa DNR's electrofishing practices along with other fish sampling methods and provided recommendations to modify standard protocols.

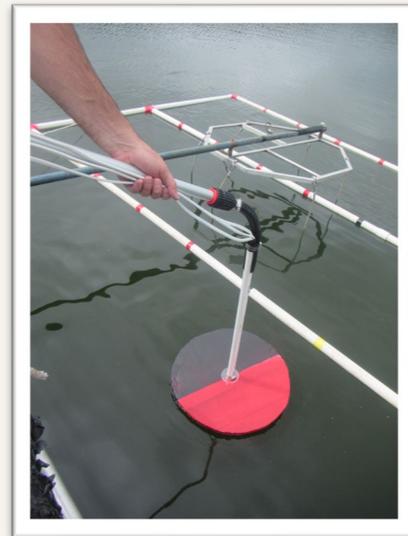
Electrofishing Equipment Standardization Goal

- Provide resource managers with safe and efficient electrofishing setups to sample fish populations in Iowa's lakes and rivers.



Results

- Anode dropper covers extending below the water surface did not produce a desired electrical field to capture fish.
- Cleaning at least 50 percent of the cathode starting at the bow and working aft reduced system resistance. This allows the boat to use less power collecting fish and to operate in lakes with a wide range of conductivities.
- Cathode cleaning increased power output at deeper water depths. More power at deeper depths increases the electrical field so netters have an increased chance of collecting more fish during a survey.



Management Recommendations

- Make ETS electrofishing control boxes the standard control box
- Incorporate American Fisheries Society standard electrofishing equipment setup guidelines into Iowa DNR standard electrofishing protocol document.
- Measure R_{100} as part of annual maintenance and clean boat hull when this value increases. The R_{100} value is calculated using ambient water conductivity and peak volts and peak amps from the control box meters.
- Clean boat hulls using a soft wire brush attached to an angle grinder.
- Check resistance levels throughout the entire electrical system annually and maintain levels below $.8 \Omega$, higher resistance values require more power from the electrofishing equipment to collect fish.