



IOWA DEPARTMENT OF NATURAL RESOURCES

Sport Fish Restoration Research Findings

Evaluation of Importance of Specific In-Stream Habitats to Fish Populations and Potential to Protect or Enhance Iowa's Interior River Resources



Project Duration: 1995-2013
Location: Statewide



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Evaluation of Importance of Specific In-Stream Habitats to Fish Populations and Potential to Protect or Enhance Iowa's Interior River Resources

Interior rivers and streams are the most abundant and locally accessible water resources available to Iowa anglers and provide diverse fishing opportunities. Stream habitat is a key factor influencing the composition and abundance of stream fish. Iowa's river and stream fish resources have been, and continue to be, impacted by habitat degradation. Identifying factors impacting fish in Iowa's interior rivers increases our ability to protect and improve these important resources. Successful habitat protection or enhancement depends on identifying critical habitats of target species, understanding physical and hydrological parameters of those habitats, and knowing how and when fish use these habitats and move between them.

Goals

- Describe and evaluate the role of barriers to fish passage and physical habitat in structuring fish groups in Iowa's non-wadeable rivers.
- Identify the importance and function of river habitats by documenting seasonal movements and habitat use of game fish.
- Identify specific physical and hydrologic conditions of critical river habitats and their associated value to game fish.



Results

- Connectivity to downstream large water bodies (Mississippi River or large reservoirs) played a key role in structuring fish groups. Relationships between fish groups and physical habitat were likely confounded by the influence of dams.
- Seasonal movement patterns of Channel Catfish, Walleye, and Smallmouth Bass were mainly associated with movements to and from overwintering areas. Overwintering areas for all three species were deeper, and had lower water speeds than habitats used during other seasons. Northern Pike moved laterally to floodplain backwaters whenever river levels made these habitats available.
- Overwintering areas on the Wapsipinicon River were deep (12-25 feet) with little to no flow.

Conclusions

- Modifying or removing dams to stop barriers to upstream fish passage is likely to affect fish groups.
- Consider the influence of dams in the design of future studies of fish group/habitat relationships in Iowa's non-wadeable rivers to better understand the role of habitat in structuring fish groups.
- Barriers to fish movement, such as dams, can have damaging impacts on river game fish populations in Iowa. Consider seasonal movement patterns and shifts in habitat in the management of fish populations in river systems, and the design and interpretation of river fish population surveys.
- Protect existing backwater and maintain and enhance, wherever possible, connections between these areas and the main channel.
- Identify and protect potential overwintering areas for other interior river reaches in Iowa that share characteristics of those on the Wapsipinicon River. Identify river reaches that lack overwintering habitats and explore options to restore connections to reaches with winter habitats.