Anthropocentric and environmental factors regulating largemouth bass populations

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Collaborators: Iowa DNR

Duration: May 2015 to May 2019

Objective:

1. Evaluate anthropogenic (e.g., angling pressure) and environmental factors (e.g., land use, water quality, temperature) affecting largemouth bass population dynamics in Iowa lakes.

PROGRESS: Andrea Sylvia (PhD student) started working on the project in May 2015 and a largemouth bass tagging experiment began on Brushy Creek Lake during spring 2015. Largemouth bass are being tagged with individually numbered metal jaw tags at bass tournaments and monthly electrofishing trips. A total of 2,087 largemouth bass were tagged during 2015: 1,430 bass were tagged at 41 largemouth bass tournaments captured during ~7,000 tournament angler hours. The average length and weight of bass brought into tournaments were 16.5" and 2.8 lbs while the largest bass was >21" and weighed 6.7 lbs. Additionally, anglers brought 289 recaptured bass to tournament weigh-ins. Recreational anglers recaptured an additional 131 tagged bass of which 14 bass were harvested. A total of 44.6 hours was spent electrofishing from April to November: 657 bass were tagged during these trips and 156 tagged bass were recaptured. Of the total 576 bass that were recaptured, 487 bass were recaptured once, 75 bass were recaptured twice, 12 bass were recaptured three times and two bass were recaptured four times (see graph below).

In addition to jaw tags, 50 largemouth bass were surgically implanted with radio transmitters to track movement and estimate survival rates. Twenty bass were tagged in early May and 30 bass were tagged in early November. Fish are located weekly and fish location and habitat features, including vegetation, woody cover and depth are recorded to analyze seasonal habitat preference. Of the original 20 bass, only one fish (5%) is absent from the study area suggesting the fish was harvested. Throughout the course of the summer, a large number of hook wounds and jaw deformities have been observed on largemouth bass in Brushy Creek. Two undergraduate research projects have been initiated to evaluate 1) the detectability and longevity of hook wounds and 2) potential impacts of jaw deformities on bass growth, condition, and survival.

IMPACTS: We have been able to gain considerable tournament angler interest, support, and cooperation for this project and are planning to present results from the first field season to two angler groups that participated in the study and the Iowa DNR this winter.

FUTURE PLANS: A research proposal will be develop over the winter. We plan to continue tracking telemetry bass throughout the winter, and resume electrofishing, tournament monitoring, and jaw tagging next spring.