

Papineau Lake Telemetry Project

Title: Towards sustainable recreational fisheries on Papineau Lake

Institution: Carleton University, University of Waterloo, University of Vermont, and the Fisheries Conservation Foundation (FCF)

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Description: The goal of this project is to understand the spatial ecology, population dynamics and fishery for lake trout and black bass in Papineau Lake. This project will provide the data and tools to identify sustainable conservation strategies to help ensure high quality fishing on Papineau Lake while protecting its natural assets for future generations. The objectives of this project include: 1) Identify the life history characteristics for lake trout sub-populations and/or ecotypes. 2) Characterize their use of different habitats (ex. depth and thermal habitat) on a seasonal basis (ex. spawning and overwintering). 3) Identify their level of reproductive success. 4) Determine why most lake trout in the lake fail to become greater than ~2kg.



Results Summary:

- Tags have been implanted in 66 lake trout and 56 bass.
- 4 spawning sites have been identified in the lake.
- Movement patterns indicate that lake trout tend to stay within their capture basin (Figure 1).
- Small and large lake trout have been identified. Large lake trout seem to be solely cannibalistic while smaller lake trout feed on zooplankton and aquatic insects.
- Ageing structures show two life histories (slow and fast growing); the fish sampled were 3 to 25 years old.
- Stable isotope and gut content analysis indicate differences in lake trout prey based on their home basin.
- Bioenergetic models indicate that seasonal thermal habitat availability influences the amount of energy lake trout have to move, grow, reproduce, and survive.
- Overall, in Papineau Lake, body size and condition of lake trout appear to be limited by prey types (i.e., predominately zooplankton and aquatic insects), warm-water species, and thermal habitats. These factors influence growth and survival. Recommendations to ensure lake trout in the system are to protect vital spawning habitat, reduce angling pressure and harvest, prevent and mitigate aquatic invasive species, and ensure stability and connectivity of thermal habitats by limiting development and anthropogenic disturbances.

Status: This project is now complete.

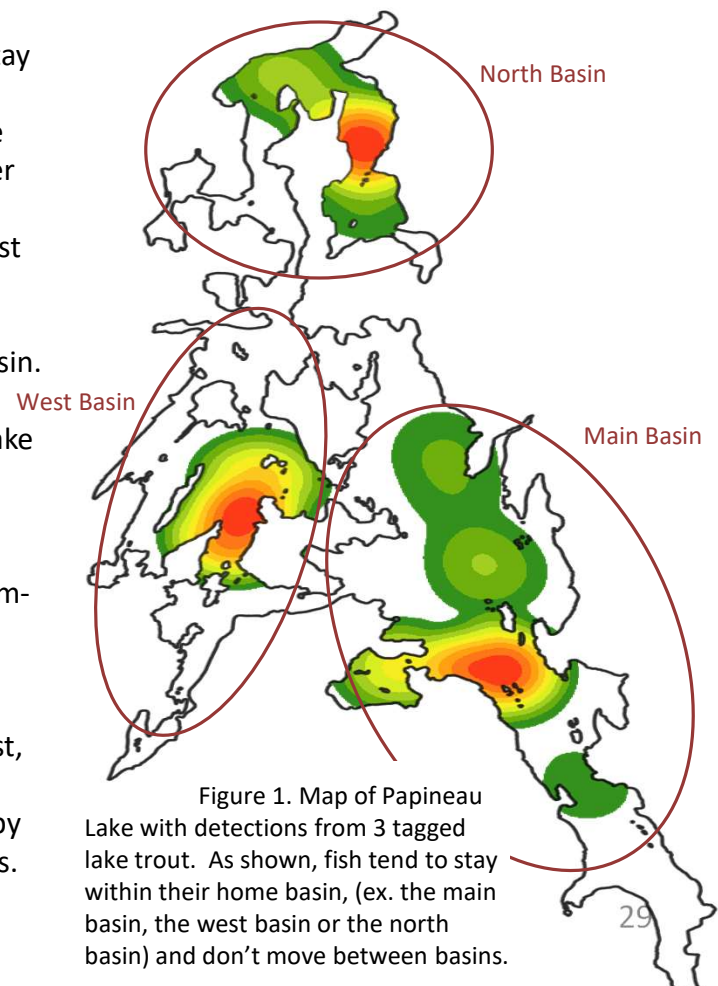


Figure 1. Map of Papineau Lake with detections from 3 tagged lake trout. As shown, fish tend to stay within their home basin, (ex. the main basin, the west basin or the north basin) and don't move between basins.