



## Changes in Lake Sturgeon Spawning Periodicity is Associated with Prior Reproductive Effort

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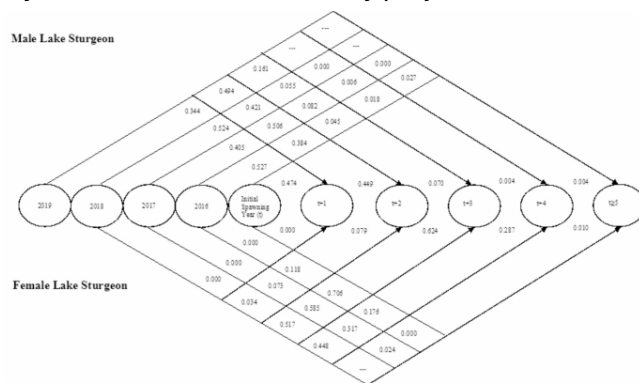
*Caption: Female lake sturgeon captured from Black River. Photo credit: Scott Colborne*

**Goal:** Evaluate factors associated with spawning periodicity for male and female lake sturgeon from the Black River, MI across multiple reproductive seasons

- Objectives:**
1. Test whether physical stream conditions experience during the spawning season are associated with inter-spawning intervals in male and female lake sturgeon
  2. Evaluate how individual behaviors (e.g., river residence time, number of complete migrations, number of intra- and inter-sexual individual encounters) influence the probability that adult lake sturgeon will delay spawning
  3. Test whether spawning periodicity shortens with increasing body size (a surrogate for fish age)

**Management Implications:** Spawning periodicity in species of conservation concern, like lake sturgeon, reduces annual reproductive output and can lead to overestimation of population productivity and underestimation of recovery time. Understanding factors contributing to this periodicity can yield more realistic recovery projections.

- Methods:**
- Radio frequency ID (RFID) tagging and RFID antenna arrays were used to track lake sturgeon migrations within and between years and measure duration of occupancy in specific spawning areas of Black River over a nearly 7-yr period
  - Hourly physical stream data were collected using in-river HOBO loggers and historical USGS records, enabling assessment of environmental conditions experienced seasonally
  - Sex-specific ordinal logistic regression modeling was used to relate behavioral, demographic, and environmental variables to spawning periodicity



*Caption: Probability of return to the river to spawn in years following first observed spawning*

- Key Findings:**
- Male spawning periodicity was influenced by physical and behavioral factors, including discharge, temperature, and number of within-season migrations, with all factors leading to an increased interval between the next spawning events. Periodicity decreased with fish size, suggesting more effort towards spawning as opportunities to spawn diminish
  - Female spawning periodicity was longer on average than male periodicity and not associated with physical stream conditions, but was affected by greater swimming time and more inter-sex interactions, suggesting a more individualized resource-driven strategy

**Deliverables:** Larson, D.L., T.O. Brenden, E.A. Baker, and K.T. Scribner. 2025. Changes in lake sturgeon spawning periodicity is associated with prior reproductive effort. Scientific Reports 15:3783. [Download here.](#)

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