Craig Andrew McDougall
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Expertise and experience for Lake Sturgeon

I have over 14 years of experience working with Lake Sturgeon populations, primarily in large river systems developed for hydroelectric power generation. I am proficient in analysis of complex biological, acoustic telemetry and genetic datasets, having addressed questions related to coarse- and fine-scale movements, entrainment susceptibility, downstream passage route determination and survival, population genetics, habitat utilization, recruitment variation and relative stocking success of age-1 versus age-0 fish. I have authored numerous peer-reviewed articles, technical reports, management briefings and synthesis reports on Lake Sturgeon.

Expertise and experience in the development and implementation of mitigation, effects monitoring, and effectiveness monitoring for Lake Sturgeon

Some relevant experience includes: 1) development of a standardized gillnetting methodology for a rapid evaluation of juvenile year-class strength and recruitment patterns in large rivers (lead author); 2) juvenile recruitment section, Aquatic Effects Monitoring Program (Pointe du Bois Generating Station Spillway Replacement Project) - mitigation and adaptive management strategies include retrospective quantification of pre-project year-class strength and future monitoring using an age-structured recruitment model, and; 3) development of a Lake Sturgeon stocking feasibility assessment for the upper Churchill River (lead author).

Expertise and experience in the hydroelectric sector

Most of my Lake Sturgeon experience comes from working on rivers developed for hydroelectric power generation, including the Winnipeg, Nelson, Saskatchewan and Seine (Ontario) rivers. I have designed studies and led many field programs related to environmental impact assessments and stewardship initiatives, and have authored numerous technical reports and management briefings for a variety of hydroelectric producers. Expertise gained through my thesis research, which examined downstream passage of Lake Sturgeon through a Winnipeg River hydroelectric generating station, is directly applicable to the hydroelectric sector. Currently, I am responsible for project management of Manitoba's Hydro's Lake Sturgeon Stewardship and Enhancement Program, and am focused on addressing data gaps relating to population status and limiting factors in Manitoba rivers, and monitoring population rehabilitation initiatives.

EDUCATION

2011   **Master of Science, Department of Biological Sciences, University of Manitoba**

Thesis - Investigating downstream passage of lake sturgeon, *Acipenser fulvescens*, through a Winnipeg River generating station. Supervisor: Dr. W.G. Anderson

2005   **Bachelor of Environmental Science (Honours), Department of Environment and Geography, University of Manitoba**

RELATED EXPERIENCE

- **Manitoba Hydro:** Project Manager for the Lake Sturgeon Stewardship and Enhancement Program (LSSEP). Led studies to assess Lake Sturgeon recruitment, juvenile abundance, mark-recapture population estimation, life-stage specific distribution and habitat use in in the Winnipeg and Nelson Rivers.
- **SaskPower Corporation:** Led acoustic telemetry studies to assess movement patterns and entrainment susceptibility of Lake Sturgeon in the Codette Lake and Tobin Lake reservoirs on the Saskatchewan River. Lead author on Churchill River stocking feasibility study.

SELECTED PUBLICATIONS

MCDOUGALL, C.A., W.G. ANDERSON and S.J. PEAKE. 2014. Downstream passage of Lake Sturgeon through a hydroelectric generating station: passage route determination, survival and fine-scale movements. North American Journal of Fisheries Management 34: 546 – 558.

MCDOUGALL, C.A., A.B. WELSH, T. GOSSELIN, W.G. ANDERSON, AND P.A. NELSON. (accepted). Rethinking the influence of hydroelectric development on gene flow in a long-lived fish, the Lake Sturgeon *Acipenser fulvescens*. Accepted to PLOS One.

MCDOUGALL, C.A., P.J. BLANCHFIELD, S.J. PEAKE and W.G. ANDERSON. 2013. Movement patterns and size-class influence entrainment susceptibility of lake sturgeon in a small hydroelectric reservoir. Transactions of the American Fisheries Society 142: 1508 – 1521.

MCDOUGALL, C. A., C. C. BARTH, J. K. AIKEN, L. M. HENDERSON, M. A. BLANCHARD, K. M. AMBROSE, C. L. HRENCHUK, M. A. GILLESPIE, AND P. A. NELSON. 2014. How to sample juvenile Lake Sturgeon, (*Acipenser fulvescens* Rafinesque, 1817), in Boreal Shield rivers using gill nets, with an emphasis on assessing recruitment patterns. Journal of Applied Ichthyology 30:1402–1415.

MCDOUGALL, C.A., C.L. HRENCHUK, W.G. ANDERSON, and S.J. PEAKE. 2013. The rapid upstream migration of pre-spawn lake sturgeon following trap-and-transport over a hydroelectric generating station. North American Journal of Fisheries Management 33: 1236 – 1242.

MCDOUGALL, C. A., D. J. PISIAK, C. C. BARTH, M. A. BLANCHARD, D. S. MACDONELL, AND D. MACDONALD. 2014. Relative recruitment success of stocked age-1 vs age-0 lake sturgeon (*Acipenser fulvescens* Rafinesque, 1817) in the Nelson River, northern Canada. Journal of Applied Ichthyology 30:1451–1460.