

## **North Bay, ON (December 13, 2019) – Anishinabek/Ontario Fisheries Resource Centre enters into research agreement with Pioneer Commercial Fishers of Manitoba**

### **Backgrounder**

Recreational and commercial fisheries on Lake Winnipeg face many challenges. Among these is the great deal of uncertainty that surrounds the current state of the fishery, especially those fisheries directed at lake whitefish, sauger and walleye. Some stakeholders believe that the present state of the Lake Winnipeg fishery, especially for walleye and sauger, is poor. Others hold the view that current harvest levels pose no threat to the sustainability of the fishery.

One thing that does not appear to be in dispute is that information for making decisions about appropriate management actions is not perhaps as readily available as anyone might wish<sup>1</sup>. It is widely acknowledged that managing a fishery in the face of such limitations can lead to decisions that may have unnecessary negative consequences for the various users as well as the fish stocks they depend on for their recreation and/or livelihoods. In similar situations worldwide, collaborative approaches that respect scientific, local and traditional knowledge are increasingly used to reduce the uncertainty that can threaten to undermine both ecological and economic viability<sup>2</sup>.

The Pioneer Commercial Fishers of Manitoba (PCFM)<sup>3</sup> was formed by Lake Winnipeg fishers in 2019 in the wake of the dissolution of the former Co-Management Board. Its purpose is to increase public awareness of Manitoba's commercial fishing industry and activities; to support and conduct nonpartisan research, educational and informational activities to increase public awareness of issues in commercial fishing, fishery protection and restoration; to sponsor research, meetings and workshops for commercial fishers and stakeholders about how to strengthen the industry; and to educate the public about the needs of the communities and end users that work to protect and restore Manitoba's commercial fisheries.

During a recent annual general meeting in Gimli, the PCFM entered into an arm's-length agreement with the Anishinabek/Ontario Fisheries Resource Centre (A/OFRC)<sup>4</sup> to engage a team of researchers who are experienced with fisheries research, stock assessment and management on the Laurentian Great Lakes and elsewhere. The A/OFRC was established in 1995 to serve as an independent source of information on fisheries assessment, conservation and management, promoting the value of both western science and traditional ecological knowledge. The roles of the A/OFRC are to report on stock status, evaluate stresses on fish populations and habitats, promote the use of state of the art science and technology, and to provide a forum for

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<sup>1</sup> Lake Winnipeg Quota Review Task Force Report <https://www.gov.mb.ca/sd/waterstewardship/fisheries/commercial/pdf/lwtf2011.pdf>

<sup>2</sup> Gregory, R., Failing, L., Harstone, M., Long, G., McDaniels, T., Ohlson, D. 2012. Structured Decision Making: A Practical Guide to Environmental Management Choices. Wiley & Sons, Ltd: Chichester, UK.; Jones, M.L., Catalano, M.J., Peterson, L.K., Berger, A.M. 2016. Stakeholder-centered development of a harvest control rule for Lake Erie walleye *Sander vitreus*. In: Edwards, C.C.T. Dankel, D.J. (Eds.), Management Science in Fisheries: An Introduction to Simulation-based Methods. pp. 163-183. Taylor and Francis.

<sup>3</sup> <https://www.pioneercommercialfishersofmanitoba.ca/>

<sup>4</sup> <https://www.aofrc.org/aofrc/>

information sharing and participation with stakeholders. The A/OFRC also plays an important role in recommending management options to promote sustainable fisheries and resolve conflict.

The PCFM is funding the research by the A/OFRC via an arm's-length arrangement known as a Grant in Aid of Research (GIAR). The intention of the GIAR is to ensure the independence of the research team and allow for transparency. Key elements include i) no limitation on the publication of results arising from the research, and ii) the grant will be awarded in advance payments, with no requirements for invoicing or administrative reporting by the A/OFRC. The only restriction on the A/OFRC team, understandably, is that if and when the research runs to questions that require the use of personal information, that data will remain confidential with A/OFRC and reported if necessary in aggregate to protect privacy.

The work of the research team is focused on development and potential application of state-of-the-art stock assessment methods for Lake Winnipeg walleye, sauger and lake whitefish that will depend on the quantity and quality of available data. This will be followed by analyses to better understand the effects of alternative management options such as changes to minimum gill net mesh size restrictions on the status of the fished stocks, as well as on the harvest and its value. The research team will seek to understand what effect existing data limitations may have on the analyses when they have had an opportunity to obtain and compile all of the pertinent available fisheries data, discussed the data, and its caveats, with fisheries staff at Manitoba Agriculture and Natural Resources, and conducted some preliminary analyses. The A/OFRC team intend to use recent advances in statistics, stock assessment and simulation modeling that can use sparse data in better ways than prior approaches. The team includes Dr. Yan Jiao, a fisheries science professor at Virginia Polytechnic Institute and State University and a leading expert in the latest approaches to stock assessment and evaluation of management options.

The project will be administered by A/OFRC General Manager Peter Meisenheimer. A/OFRC board member Dr. Kevin Reid will be the project lead and Dr. Thomas D. Nudds, a conservation ecologist at the University of Guelph, will serve as a technical advisor and facilitator. All of these team members worked together on various fisheries sustainability challenges in the Great Lakes, especially in the case of Lake Erie<sup>2</sup>. In particular, several of the team members are experienced with the development of graphical tools and techniques for communicating the sometimes complex, complicated and ambiguous methods and results of stock assessment<sup>5</sup>, risk and trade-off analyses necessary for meaningful, respectful dialogue and collaboration among stakeholders from a wide range of backgrounds with other skills and experience.

Accumulating evidence from fisheries sustainability initiatives worldwide suggests that effective governance is central to sustainability, and that fisheries governance is a wicked problem<sup>6</sup>.

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<sup>5</sup> Jiao, Y., Reid, K., Nudds, T. and E. Smith. 2009. Graphical evaluation of fishery status with a likelihood inference approach. *North American Journal of Fisheries Management* 29:1106-1118. <https://www.researchgate.net/publication/232929124>; Jiao, Y., Reid, K., Nudds, T. 2010. Consideration of uncertainty in the design and use of harvest control rules. *Scientia Marina* 74(2):371-384. <https://www.ocfa.ca/downloads/sm74n2371-8pdf.pdf>

<sup>6</sup> Rittel, H. and M. M. Webber. 1973. Dilemmas in a General Theory of Planning. *Policy Sciences* 4(2): 155-169. [http://urbanpolicy.net/wp-content/uploads/2012/11/Rittel+Webber\\_1973\\_PolicySciences4-2.pdf](http://urbanpolicy.net/wp-content/uploads/2012/11/Rittel+Webber_1973_PolicySciences4-2.pdf).

Wicked problems are complex, involve numerous distinct entities (e.g., stakeholders, governments, researchers, non-governmental organizations (NGOs), and multiple jurisdictions), are ambiguous, and include high levels of uncertainty. By definition, a wicked problem has no single or optimal solution; there is certainly no ‘silver bullet’. In fact, advocating panacea for wicked governance problems often causes unforeseen problems and clashes among the entities involved with the original problem. Fisheries governance in Lake Winnipeg is one such wicked problem. All entities, government and stakeholders, involved in attempts to better resolve wicked fisheries problems will need to appreciate that open, collaborative, evidence-based approaches<sup>7</sup> will have better chances of improving the situation than will other approaches. Such approaches to mitigation of wicked fisheries problems inevitably take some time as the unwieldy process of meaningful stakeholder engagement and multiple iterations of analysis and deliberation can be a drawn out affair, but are necessary.

On Lake Erie, over a period of time, with the help of independent researchers and facilitators, recreational and commercial fishers who had been at similar odds eventually learned together that there was, in fact, lots of fish for recreational and commercial fishers<sup>8</sup> and, under the present management system<sup>9</sup>, that changes in fish abundance<sup>10</sup> and size and maturity<sup>11</sup> today result from environmental factors, not from harvest<sup>12</sup>. Such sentiments have been expressed about Lake Winnipeg too, and the A/OFRC team looks forward to working with others to test them. In the meantime, A/OFRC’s research on Lake Winnipeg begins with stock assessments and, to the extent possible, a look into the effects of changes to mesh size that are of special concern to managers and stakeholders right now. It is hoped that this PCFM-sponsored research will help to inform discussions about the future of decision-making processes for the Lake Winnipeg fishery.

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<sup>7</sup> Such approaches were described in a press release announcing measures to be introduced by government in early 2019 that unfortunately did not come to fruition. See: <https://mwf.mb.ca/wp-content/uploads/2019/03/Province-of-Manitoba-News-Releases-Province-Takes-Steps-to-Address-Sustainability-of-Lake-Winnipeg-Fishery.pdf>

<sup>8</sup> Jones, M.L., Catalano, M.J., Peterson, L.K., Berger, A.M. 2016. Stakeholder-centered development of a harvest control rule for Lake Erie walleye *Sander vitreus*. In: Edwards, C.C.T. Dankel, D.J. (Eds.), *Management Science in Fisheries: An Introduction to Simulation-based Methods*. pp. 163-183. Taylor and Francis.

<sup>9</sup> Turgeon, K., Reid, K.B., Fryxell, J.M., Nudds, T.D. 2016. Compensatory responses by managers, commercial and recreational harvesters to variation in stock abundance of Lake Erie walleye (*Sander vitreus vitreus*). bioRxiv: 061143. doi:10.1101/061143.

<sup>10</sup> Zhang, F., Reid, K.B. and T.D. Nudds. 2018. Effects of walleye predation on variation in the stock-recruitment relationship of Lake Erie yellow perch, *Journal of Great Lakes Research*, Volume 44, Issue 4, Pages 805-812, ISSN 0380-1330, <https://doi.org/10.1016/j.jglr.2018.05.007>. (<http://www.sciencedirect.com/science/article/pii/S0380133018300790>); Zhang, F., Reid, K.B. and T.D. Nudds. 2018. Ecosystem change and decadal variation in stock–recruitment relationships of Lake Erie yellow perch (*Perca flavescens*). *ICES Journal of Marine Science*, Volume 75, Issue 2, March–April 2018, Pages 531–540, <https://doi.org/10.1093/icesims/fsx188>

<sup>11</sup> Gíslason, D., McLaughlin, R.L., Robinson, B.W., Cook, A. and Dunlop, E.S. 2017. Rapid changes in age and size at maturity in Lake Erie yellow perch (*Perca flavescens*) are not explained by harvest. *Canadian Journal of Fisheries and Aquatic Sciences*, 2017, 75(2): 211-223, <https://doi.org/10.1139/cjfas-2016-0211>; Gíslason, D., Heino, M., Robinson, B.W., McLaughlin, R.L., and Dunlop, E.S.. 2019. Reaction norm analysis reveals rapid shifts toward delayed maturation in harvested Lake Erie yellow perch (*Perca flavescens*). *Evolutionary Applications* <https://onlinelibrary.wiley.com/doi/pdf/10.1111/eva.12764>

<sup>12</sup> Zhang, F., Gíslason, D., Reid, K.B., Debertin, A.J., Turgeon, K. and T. D. Nudds. 2018. Failure to detect ecological and evolutionary effects of harvest on exploited fish populations in a managed fisheries ecosystem. *Canadian Journal of Fisheries and Aquatic Sciences*, 2018, 75(10): 1764-1771, <https://doi.org/10.1139/cjfas-2017-0217>