Ministry of Natural Resources and Forestry

Biodiversity and Monitoring Section

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Ministère des Richesses naturelles et des Forêts

Section de la biodiversité et de la surveillance

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TOWN OF FORT FRANCES

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Dear Stakeholder

SUBJECT: Rainy River Fish Community Assessment

From June 20th to August 31st 2018, Ministry of Natural Resources and Forestry (MNRF) science staff will be conducting netting operations in Canadian and US waters of Rainy River from Fort Frances to the confluence with Lake of the Woods. Nets are checked and moved to a new location daily. All nets will be clearly marked with orange MNRF buoys. Please do not lift the nets or buoys, and avoid recreational activities between and around the buoys.

The purpose of this program is to assess the Rainy River fish community using a standard index netting protocol and to investigate different sampling techniques (drift nets) for large rivers.

If you have any questions about this program, please contact:

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Yours truly,

Shelagh Duckett
Co-ordinator
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Attach.

Rainy River Fish Community Assessment

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Purpose

Quantitatively assess the riverine fish community including juvenile and adult lake sturgeon using a standard index netting protocol (Haxton et al. 2014). Refine and develop biodiversity sampling techniques (presence absence) for large rivers by testing gear including drift nets and small mesh gill nets. Test the use of sidescan imaging to enumerate adult lake sturgeon. Collect bathymetry information for mapping and habitat assessements.

Gill Netting

The fish community will be assessed using a standardized index netting protocol (Haxton et al 2014) from mid-June until the end of September. In general, eight netting nights will be expended at each of the 5 reaches (25km in length). Three large mesh nets (monofilament gillnets incorporating panels of 38, 51, 64, 76, 89, 102, 114 and 127 mm stretched mesh sewn together in random order, 1.8 m deep, with a total length of 24.8 m (i.e. North American gillnets), three extra-large mesh nets (multifilament gillnet incorporating panels of 204, 230, 255 and 306 mm stretched mesh sewn together in random order, 2.13 m deep, with a total length of 24.8 m) and one small mesh (monofilament gillnets incorporating panels of 13, 19,25, 32, and 38 mm stretched mesh sewn together in random order, 1.8 m deep, with a total length of 24.8 m were set each night. Nets will be set perpendicular to the shore where flows permit, or angular (e.g. 45°) where flows are deemed substantial enough to impede the effectiveness of a perpendicular set. Nets will be fished for 22 h (minimum 18 h, maximum 26 h). We hope to set 102 large and extra-large nets and 34 small mesh nets over the entire river length (21L, 21XL and 7 Small per 25 km reach).

Netting sites will be selected by creating a grid (block size 250m) based on the size of the river of the river and randomly selecting a block using Arc GIS. There are no depth restrictions within the study (i.e., the design was not depth stratified) and therefore a variety of depths are represented through random selection. Net placement will not be within 250 m of each other. Netting sites will be re-used if site selection is limited within the river and the block had been randomly reselected, however, they will not be re-used within a 48 hour period.

Fish will be sampled following the Manual of Instructions for Broad-scale Fish Community Monitoring using large and small mesh gillnets (Sandstrom et al 2010). Lake sturgeon will be extricated from gillnets, sampled and released. Measurements include fork length and total length (to the nearest mm), and weight (nearest 10 g). A purple disc tag, with ONT MNR (five digits) will be applied to the mid base of the dorsal fin. A section of the leading pectoral ray will be removed for aging (approximately a 1 cm section extracted approximately 2 mm from the articulation using a 24/1 tooth hacksaw). Age structures will be prepped and aged at the Northwest Biodiversity and Monitoring Ageing Lab in Dryden ON. Genetics samples from lake sturgeon, northern pike and walleye will be collected and preserved in 70% ethanol. All samples will be preserved together in one vial (batch). Samples will be analyzed by OMNRF staff at the provincial genetics laboratory at Tent University.

Drift Netting

Drift netting for larval fish will take place from mid to late June. We will use stainless steel, D-frame drift nets that measure 0.76 m across the base, 0.53 m high and had a 3.6 m tapered mesh bag that terminates at collection container with filtering holes covered by 1000 µm mesh. Nets will be fished for 22 h (minimum 18 h, maximum 26 h).

Drift nets are held in place by attaching a 4.5 kg fishing anchor to the bridle of each frame. To sample the catch, the cod end is lifted from the water and the collection container is detached and rinsed in a shallow white pan for examination. All fish species will be identified on site (if possible), counted and measured. Dead specimens or those which cannot be identified in the field will be placed in vials and preserved in 70% ethanol. Live lake sturgeon will be counted and measured and released downstream.

Bathymetry

Bathymetry data will be collected for the portion of the river that is safely accessible from the dam at Fort Frances to the confluence with Lake of the Woods. Bathymetry data will be collected for each 25 km reach on the first field day (once the gill nets have been set) and continually throughout the 8 days on the water. The tracks will be saved to an SD card daily, and data will be analysed by MNRF staff with the biodiversity and Monitoring section.

Testing Sidescan Imaging

We are still in the process of working out the approach to take regarding sturgeon enumeration with sidescan. We will continue to field test our Humminbird Helix 9 (455 KHz) on the Kaministiquia River in Thunder Bay and test this unit further on the Rainy River in early September.

Water Temperature

Logged hourly using a HOBO data logger commencing May 9, 2018 at landowner (Reid Road off HWY 11, Ontario).

References:

Haxton, T.J., M.Friday, T. Cano and C. Hendry. 2014. Evaluation of a netting protocolto quantitatively assess lake sturgeon in Ontario rivers. Ontario Ministry of Natural Resources, Peterborough Ontario.

Sandstrom, S, M. Rawson and N. Lester. 2010. Manual of instructions for Broad-scale Fish Community Monitoring: using Large Mesh Gillnets and Small Mesh gillnets. Ontario Ministry of Natural Resources. Peterborough, Ontario. Version 2010.2 34 p. + appendices.