

Lake Sturgeon Migration Patterns in the Pic River

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Anishinabek/Ontario Fisheries Resource Centre (A/OFRC)

- A/OFRC established through 1995 agreement with Union of Ontario Indians (UOI) & Province of Ontario
- To be a central & independent source of information on technical matters relevant to fisheries conservation and management issues for 41 Anishinabek communities

Pic River Sturgeon – Background

- Limited knowledge of Pic River sturgeon
- 2002 – joint international assessment conducted by several agencies – Pukaskwa National Park, Pic River First Nation, OMNR, DFO, Bad River Band, GLIFWC, and the U.S. Fish and Wildlife Service – with the sampling and PIT tagging of 16 sturgeon
- 2003 – similar undertaking captured and tagged approximately 20 sturgeon

Pic River Sturgeon – Background

- 2006 and 2007 – A/OFRC initiated lake sturgeon assessment for the Pic River First Nation
 - 36 lake sturgeon – adults and sub-adults – were biologically sampled and implanted with PIT tags.

2008 Study Objectives

- In 2008 expanded scope of assessment
 - Identify important habitat, particularly spawning habitat & movement patterns through use of radio-telemetry
 - Determine if sturgeon are lake or river resident
 - Obtain Anishinabek Traditional Knowledge (ATK) of Pic River sturgeon through interviews with Pic River elders

Location of Pic River



Overall Study Area

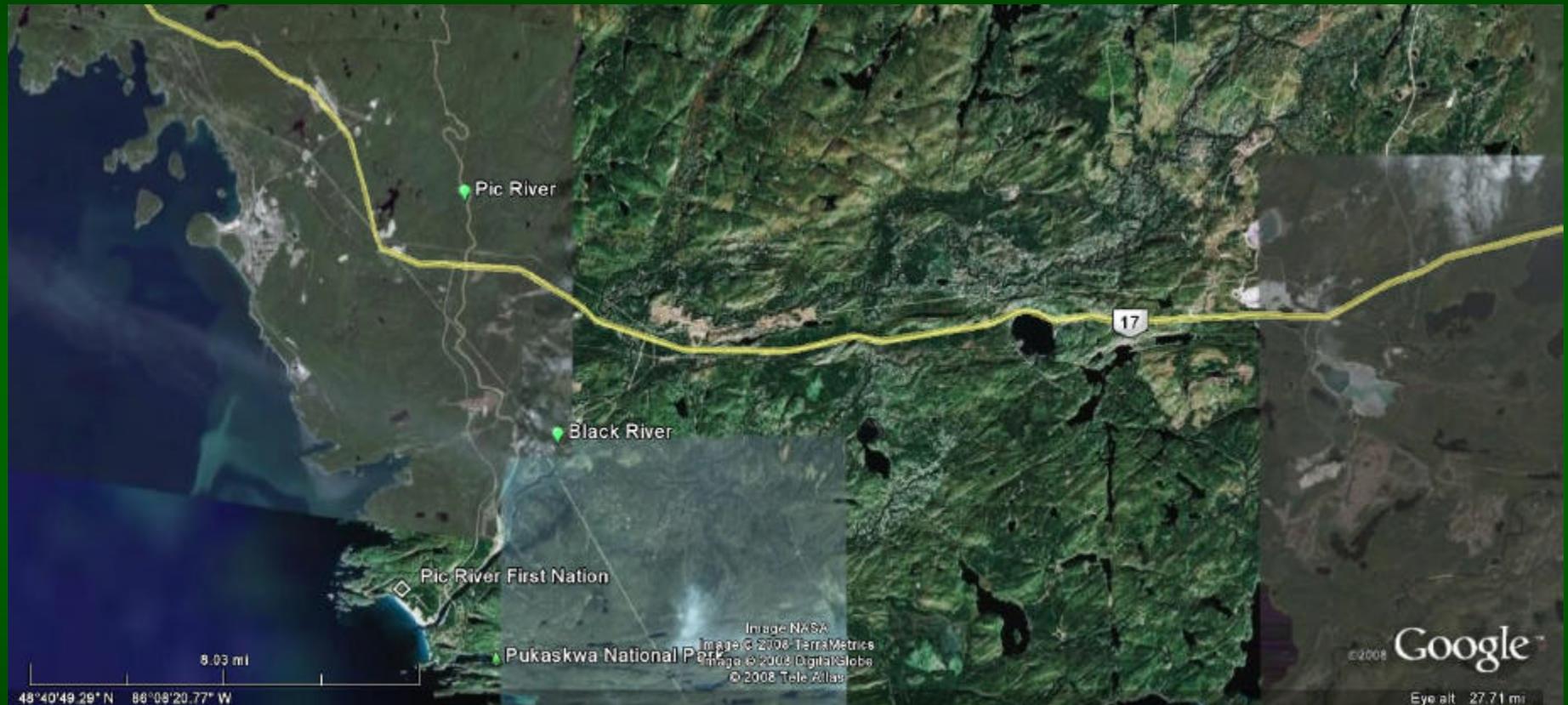
- From the mouth of the Pic River to Kagiano and Manitou Falls - ~100 km (60 miles)



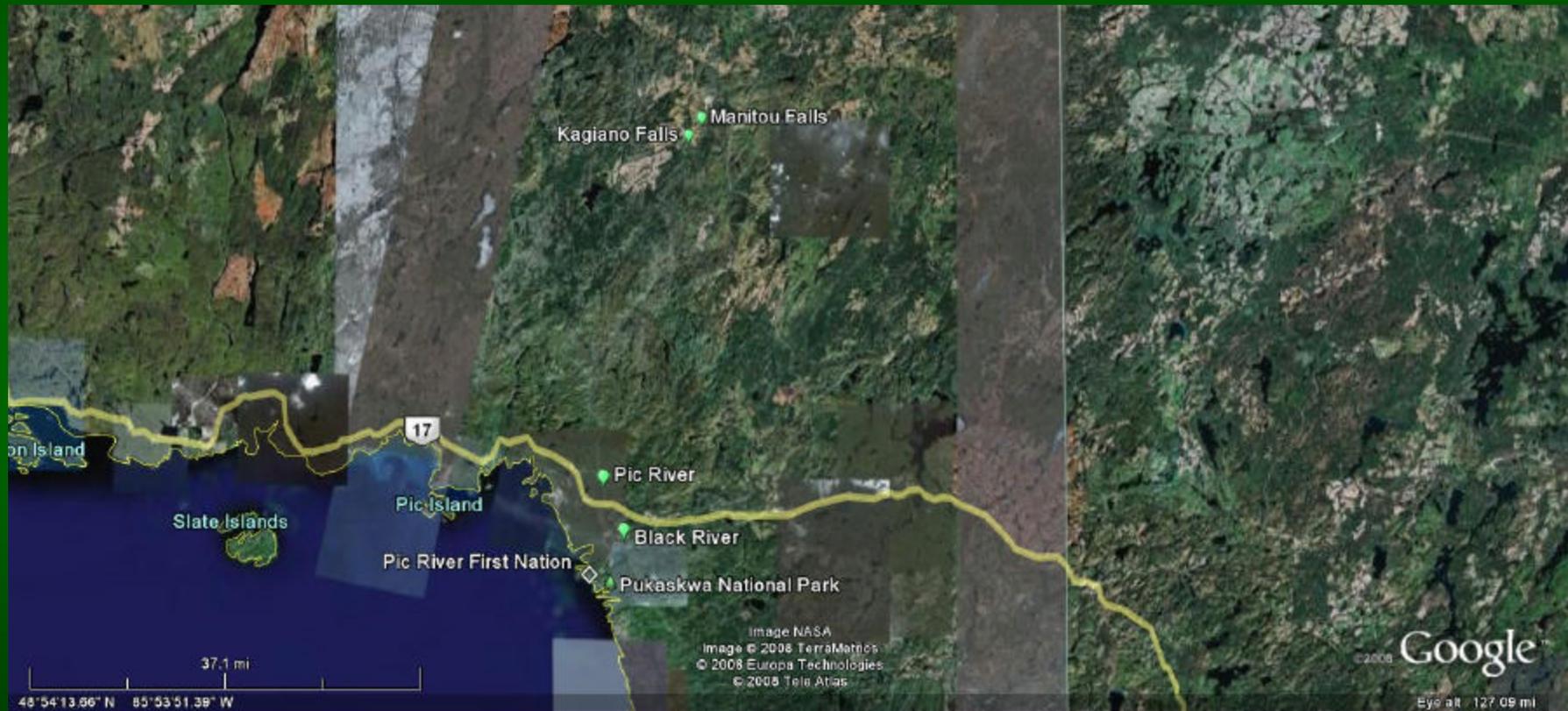
Study Logistics

- Limited road access within the 100 km length of the Pic River
 - 3 access points in first 25 km
 - 2 remote access points at upper limit
- River turbidity and high flow conditions limit ability to capture fish early in season and during precipitation events
 - also effect ability to navigate river and follow radio-tagged fish

A/OFRC study concentrated within first 25 km of river



DFO collaborative study conducted 100 km from river mouth at furthest upstream barriers – Kagiano & Manitou Falls*



* These results not included in this summary

Fish Capture

- 47 lake sturgeon captured between 31 May and 14 Aug 2008 using large mesh gill nets – 6.5 to 10 inch



Nikki Commanda



Charles Hardy

Fish Capture

- Net locations were selected using Anishinabek Traditional Knowledge obtained through the interview of 20 elders



Dan Couchie & Nikki Commanda

Sturgeon were biologically sampled – Fork and total lengths, girth, weight, sex, age structure, genetic samples, PIT and FLOY tagged

Dan Couchie & Caroline Deary





- 25 sturgeon were radio-tagged – 8 external tags, 17 internal tags



Nikki Commanda

- Fish were radio-tagged from June 4 to August 14 – water temperatures ranged from 13 to 20 °C



Dan Couchie



Nikki Commanda

Radio-tagged sturgeon:

| Tag Type | FLEN (cm) | TLEN (cm) | RWT (kg) | GIRTH (cm) |
|--------------------|---------------|--------------|------------|------------|
| Internal (n=17) | 112.9 ± 11.4* | 122.3 ± 10.1 | 11.5 ± 3.3 | 44.4 ± 5.1 |
| External (n=8) | 94.4 ± 13.6 | 103.2 ± 15.0 | 6.4 ± 2.9 | 38.1 ± 5.7 |

* SD

- Fish movements were monitored through manual tracking from a boat, or in rare cases from shore



Nikki Commanda



- Fish were also monitored by 3 automated fixed base stations covering ~ 25 km of river, from June 5 to November 18, 2008



Caroline Deary

Preliminary Results

- Although radio-tagged sturgeon were of spawning size, none of the captured sturgeon appeared to be in spawning condition
- Logistical and environmental conditions limited access to potential spawning destinations

Preliminary Results

- Focused on radio-tagging appropriate sized fish with long-term radio transmitters in hopes that in future years information may be obtained regarding spawning habitat and the spawning population

Preliminary Summary of Captured Fish

- 6 captured sturgeon had been previously tagged
 - 3 fish had been PIT tagged in the Pic River in previous years – 2002, 2003 & 2007–1 fish from each tagging year
 - 2 fish had PIT tags which originated in another river or lake system, the source of which is still unknown

- a sixth fish, caught in the Pic River in August, had been originally FLOY tagged at the mouth of the Amnicon River, Wisconsin in 1997; it was also recaptured in 2000 in Black Bay near Thunder Bay



Preliminary summary of fish movements

- Primary movements following release after radio-tagging include:
 - upstream and downstream movements of varying lengths, within the 25 km section of monitored river
 - Continuous downstream movement until entering Lake Superior

Preliminary summary of fish movements

- Downstream excursions to the lake followed by movement back into Pic river and then back to the lake
- 1 fish made extensive movements upstream and downstream in the Pic River, entered the Black River & then eventually moved into the lake

Future Work

- Continue to monitor radio-tagged fish
 - Install fixed radio-telemetry stations by mid-April 2009 to possibly record the arrival of spawning sturgeon
 - Manually radio-track fish to confirm critical habitat and migratory movements

Acknowledgments

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Miigwetch

