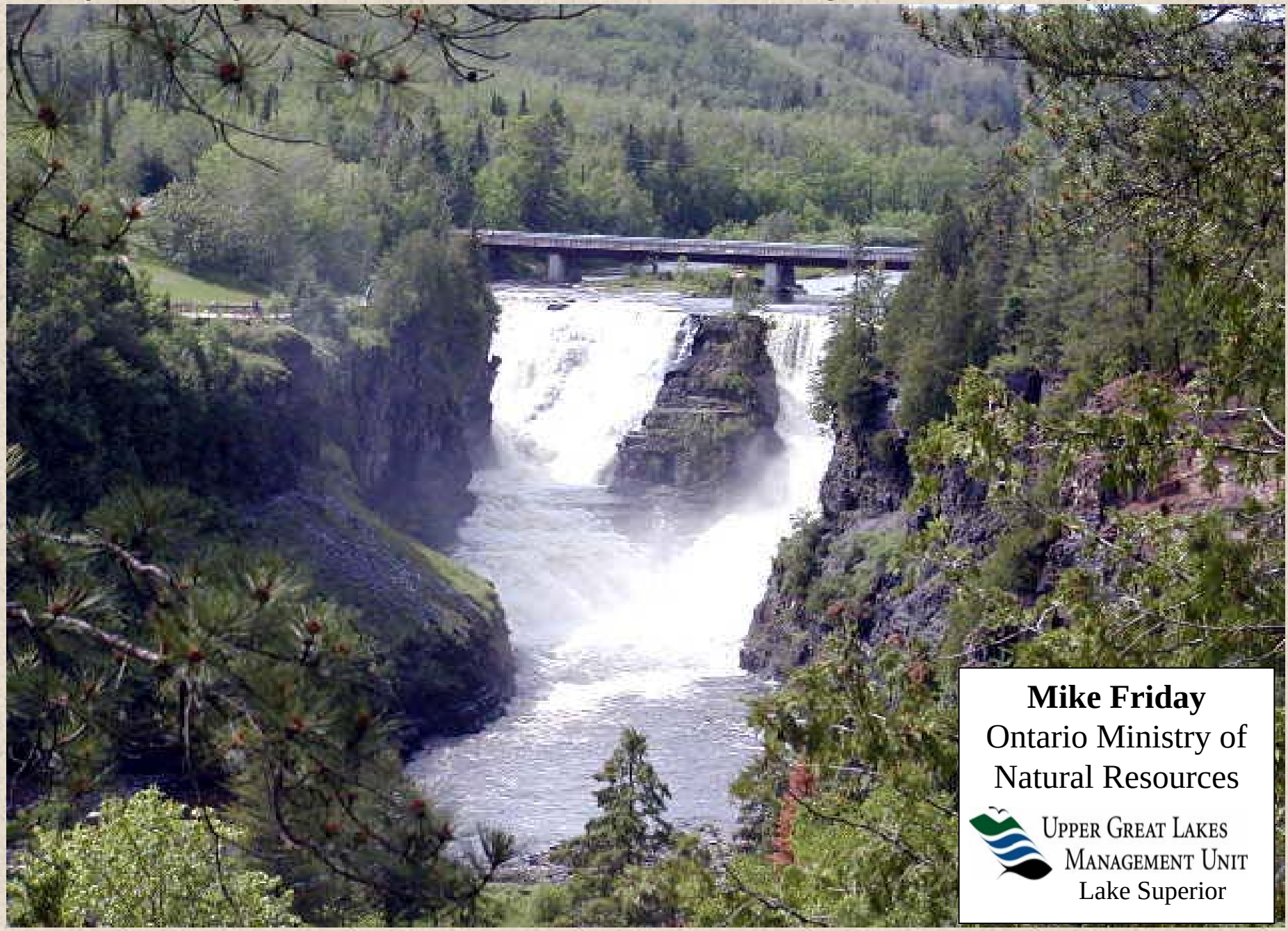
Spawning Habitat Enhancement Through Flow Manipulation



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Ontario Ministry of Natural Resources
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Water use at Kakabeka Falls Provincial Park and generating Station

Preparation of a Water Management Plan for the Kaministiquia River Watershed 2002

Issue 1 Access to traditional spawning site and successful spawn, hatch and larval drift

Issue 2 Stranding of adults between the Falls and the generating station

Research and Data Gathering Agreement

To study sturgeon movements (access) and spawning success under different spill conditions

In 2004 and 2005:

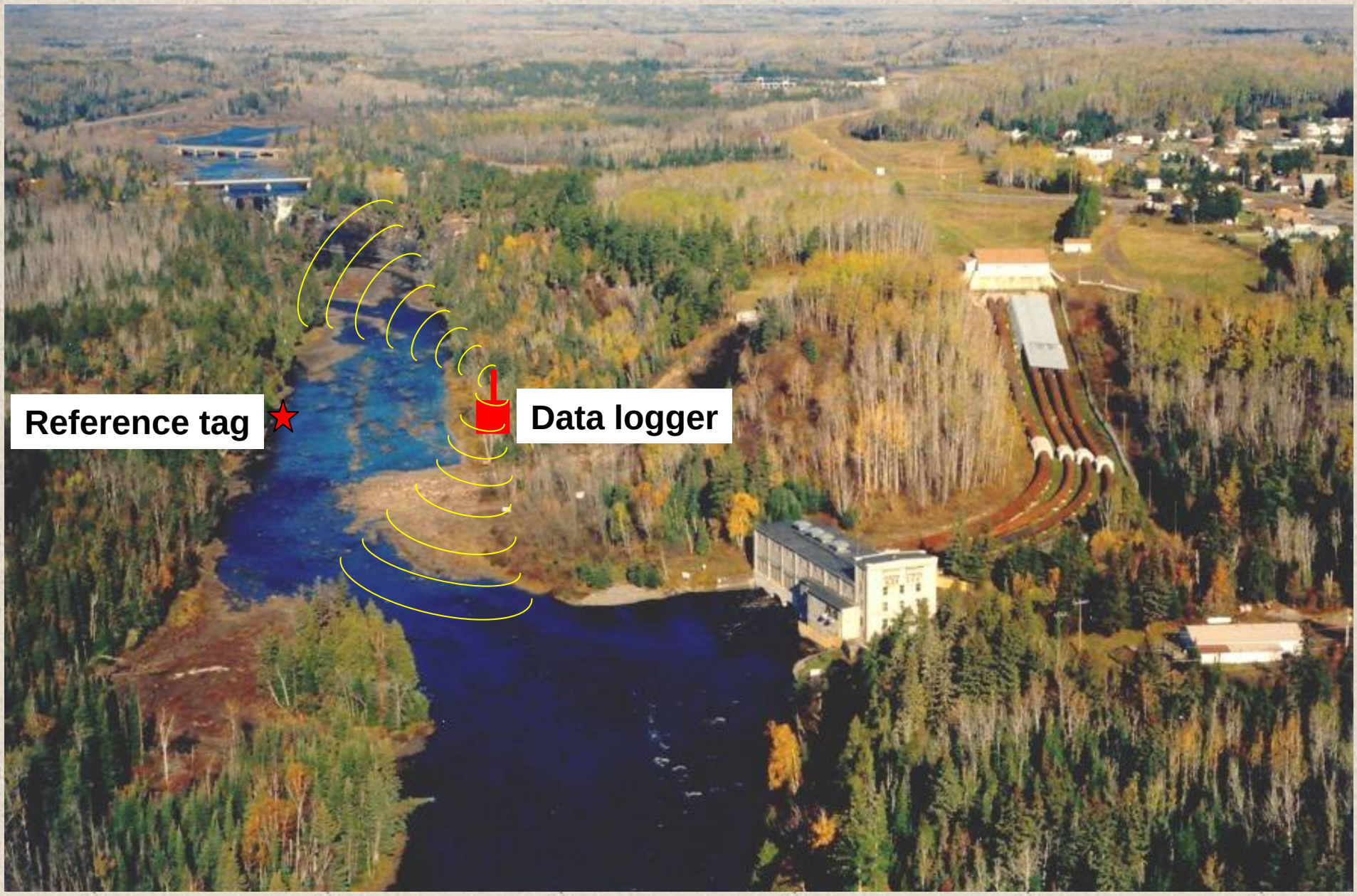
Provide continuous flow of 23 m^3/sec, over Kakabeka Falls commencing on May 15 and continuing for 5 weeks.

During week 6, flows are reduced by 3 m^3/sec every 24 h until scenic flows are reached.

During the following years of the plan, flows less than 23 m^3/sec will be provided to determine at what point sturgeon stop moving to the base of the falls.

Methods:
Radio telemetry to document access to the spawning site

Base station to monitor migrating sturgeon

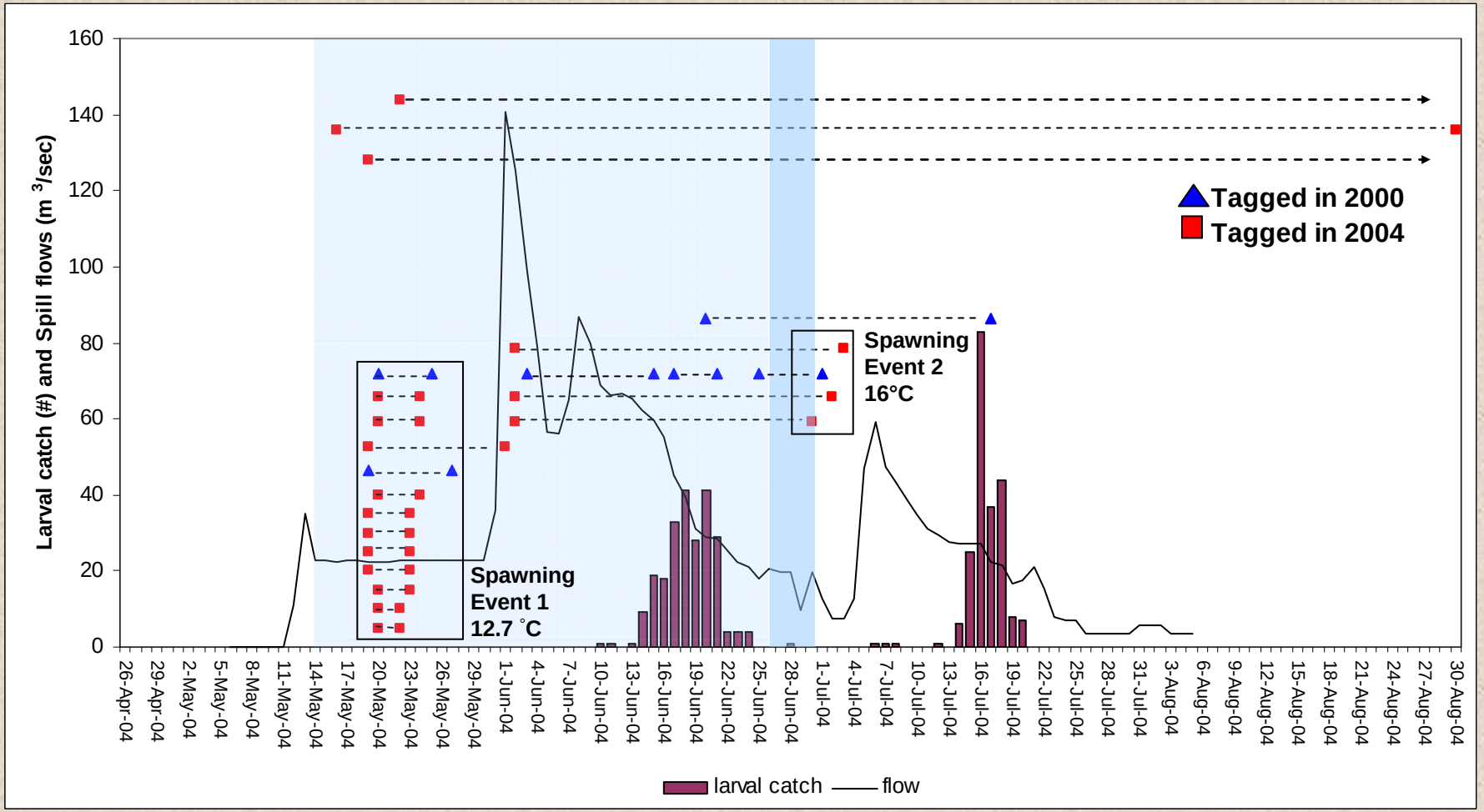


Drift netting to document spawning success

23 m³/sec

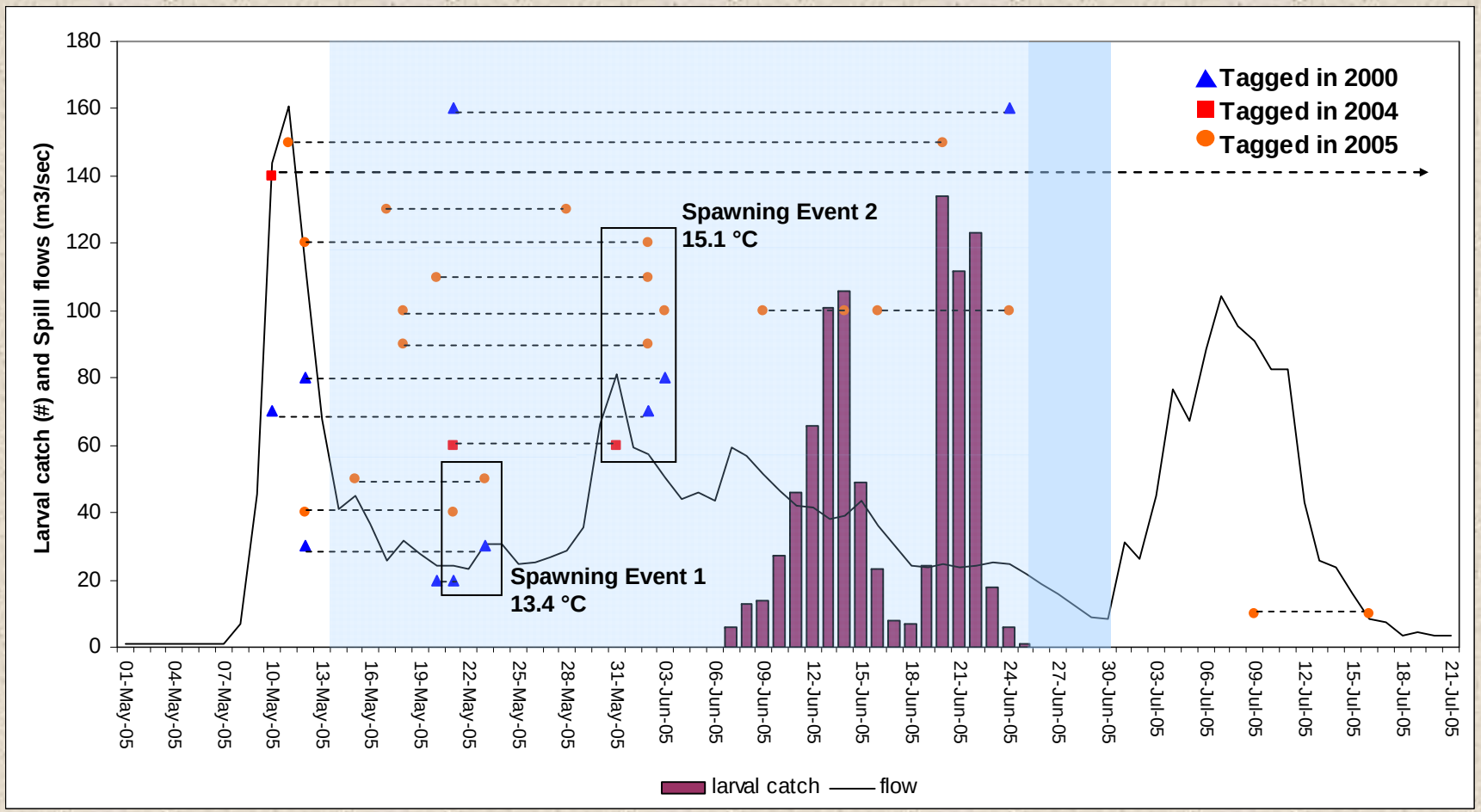
Results

Spill flows at Kakabeka Falls in relation to spawning migrations, approximate spawning dates, and catches of downstream drifting larvae 2004



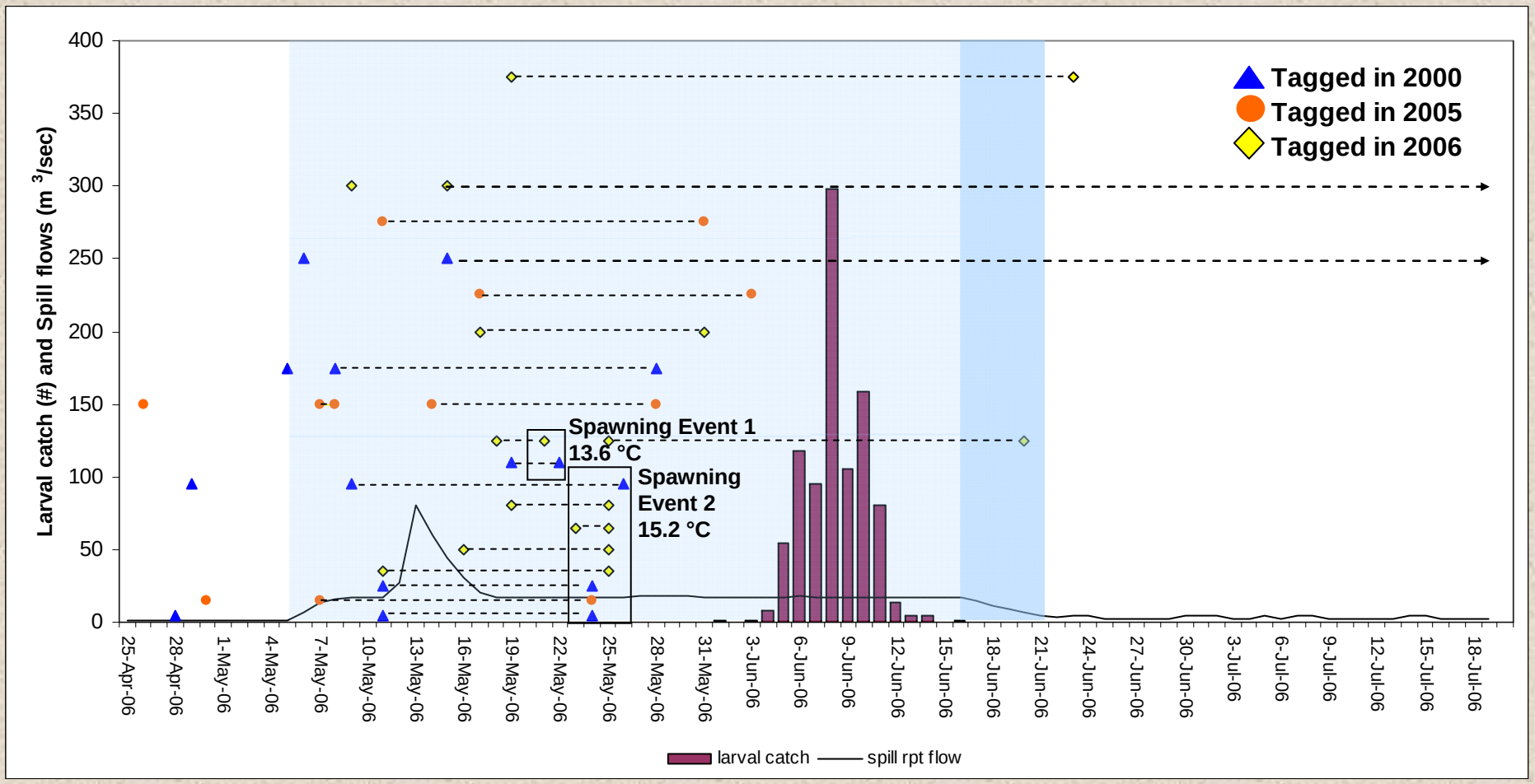
Continuous flow of 23 cms, over Kakabeka Falls commencing on May 15 and continuing for 5 weeks.

Spill flows at Kakabeka Falls in relation to spawning migrations, approximate spawning dates, and catches of downstream drifting larvae 2005



Continuous flow of 23 cms, over Kakabeka Falls commencing on May 15 and continuing for 5 weeks.

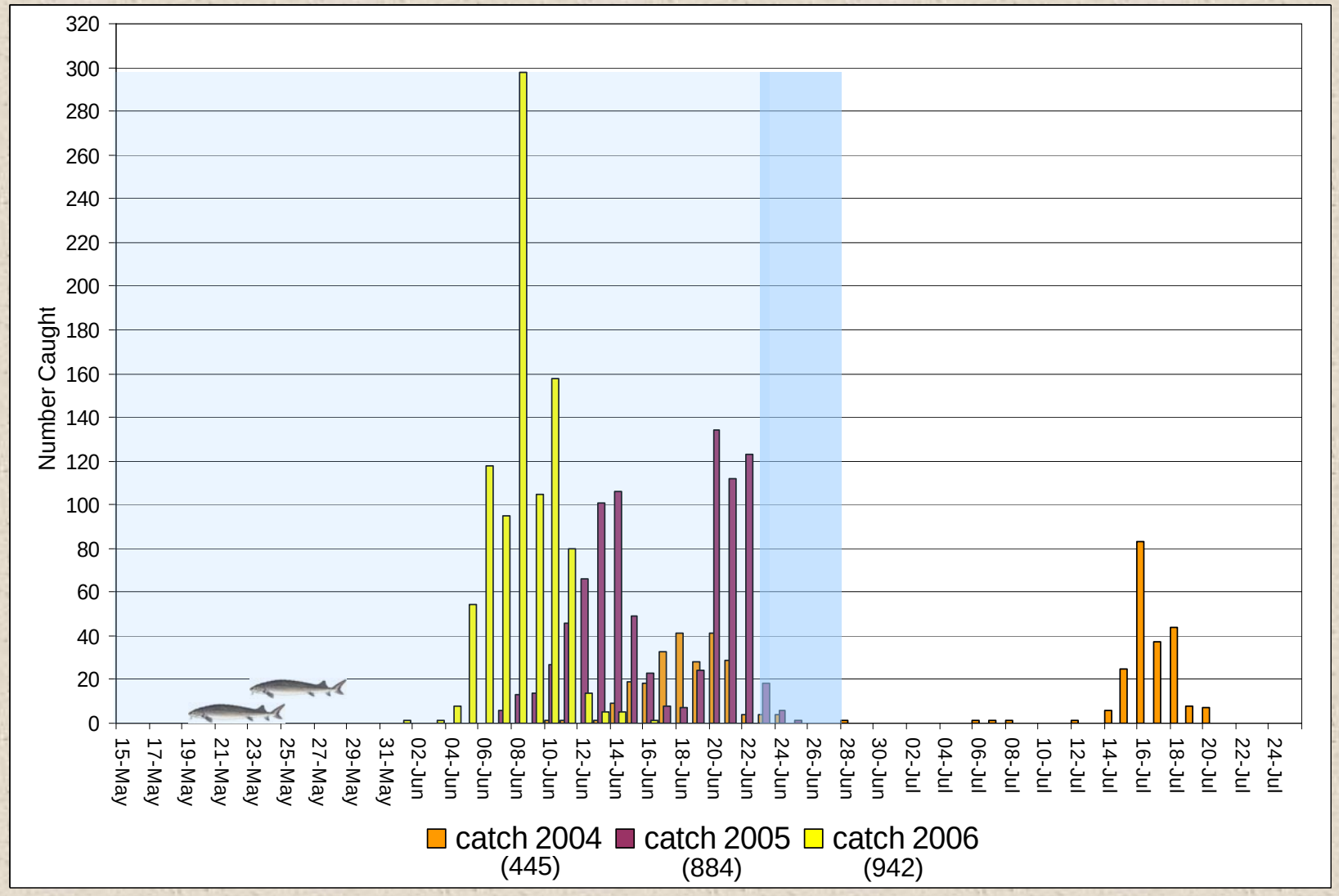
Spill flows at Kakabeka Falls in relation to spawning migrations, approximate spawning dates, and catches of downstream drifting larvae 2006



Initiate flow of 14 cms, over Kakabeka Falls for 2 days (May 6 – 8)

Continuous flow of 17 cms, over Kakabeka Falls commencing on May 8 and continuing for 5 weeks.

Summary of Results



Conclusions

- Timing of arrival to Kakabeka is variable (i.e. occurred prior to May 15 in 2005 and 2006) and occurs as water temperatures approach 9°C

- Sturgeon gained access to the spawning site and spawned successfully during 23 and 17 m^3/sec flows

- Flows of 14 m^3/sec may exclude larger fish from reaching the spawning site

- There were two separate spawning events in all years

- The first spawning event occurred around the same time (May 21)

- The timing of the second spawning event is variable (May 24 to June 27)

- Larvae successfully drifted from the spawning site during flows as low as 17 m^3/sec

Questions?

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