# The Business of Sustainability

Presented by:

Joe Hunter

Sustainable Sturgeon Culture





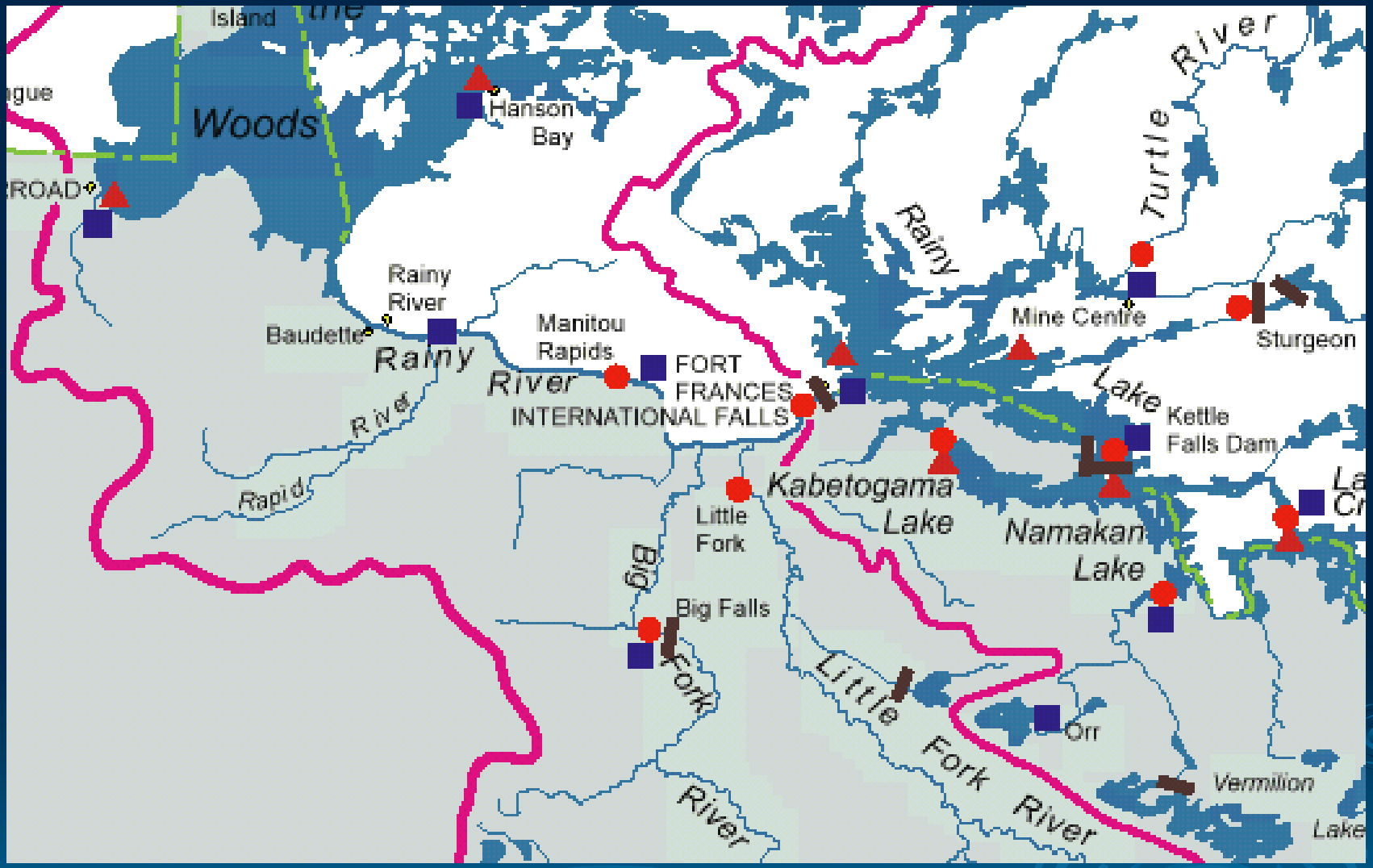
# Personal Background

- Graduate of Sir Sandford Fleming College-Aquaculture Technician Program
- Employed as Full-time Hatchery Manager in 1995
- Became Sole Proprietor in 2003.  Specializing in fertilized eggs and yolksac fry shipments
- First overseas egg shipment to China in 2004.  2 million egg contract
- 2010 participated in developing the Lake sturgeon Recovery Strategy
- Full-time employment with Rainy River First Nations as Community Wellness Worker

# Hatchery Background

- 1992-Rainy River First Nations forms 4-year R&D program with Ontario Hydro Technologies Division
- 1993-Manitou Fish Hatchery constructed as prototype for culture of Lake sturgeon
- 1995-RRFNs enacts a Self-Imposed moratorium on commercial fishing of Lake sturgeon. OMNR buys out non-native commercial licenses
- 1996-Manitou Fish Hatchery begins Symbolic Release of Lake sturgeon offspring produced in hatchery
- 1997-Major capital investment converts hatchery to a recirculation aquaculture facility
- 2003-Manitou Fish Hatchery closes as a Band operated business

Since April 2003, the hatchery has been operating as a sole proprietorship (Sustainable Sturgeon Culture)




# Rainy River Watershed

**The Lake sturgeon's range includes the Hudson Bay Drainage, the Great Lakes and the Mississippi and St. Lawrence Rivers**

# Habitat & Feeding Behavior

- Inhabit large freshwater lakes and rivers
- Prefer feeding in water less than 10 metres deep, along bottoms of rivers and lakes
- Diet consists of zooplankton and chironimids in early life stages, and insect larvae, crayfish, clams etc. throughout later life stages

# Sexual Maturation and Spawning Frequency of the Lake sturgeon

- Of all our freshwater fish, the Lake sturgeon has the slowest maturation rate

- Males reach sexual maturity at 12-18 years of age
- Females at 23-26 years of age

- Once mature, males spawn every 2-3 years, while females will spawn every 4-7 years

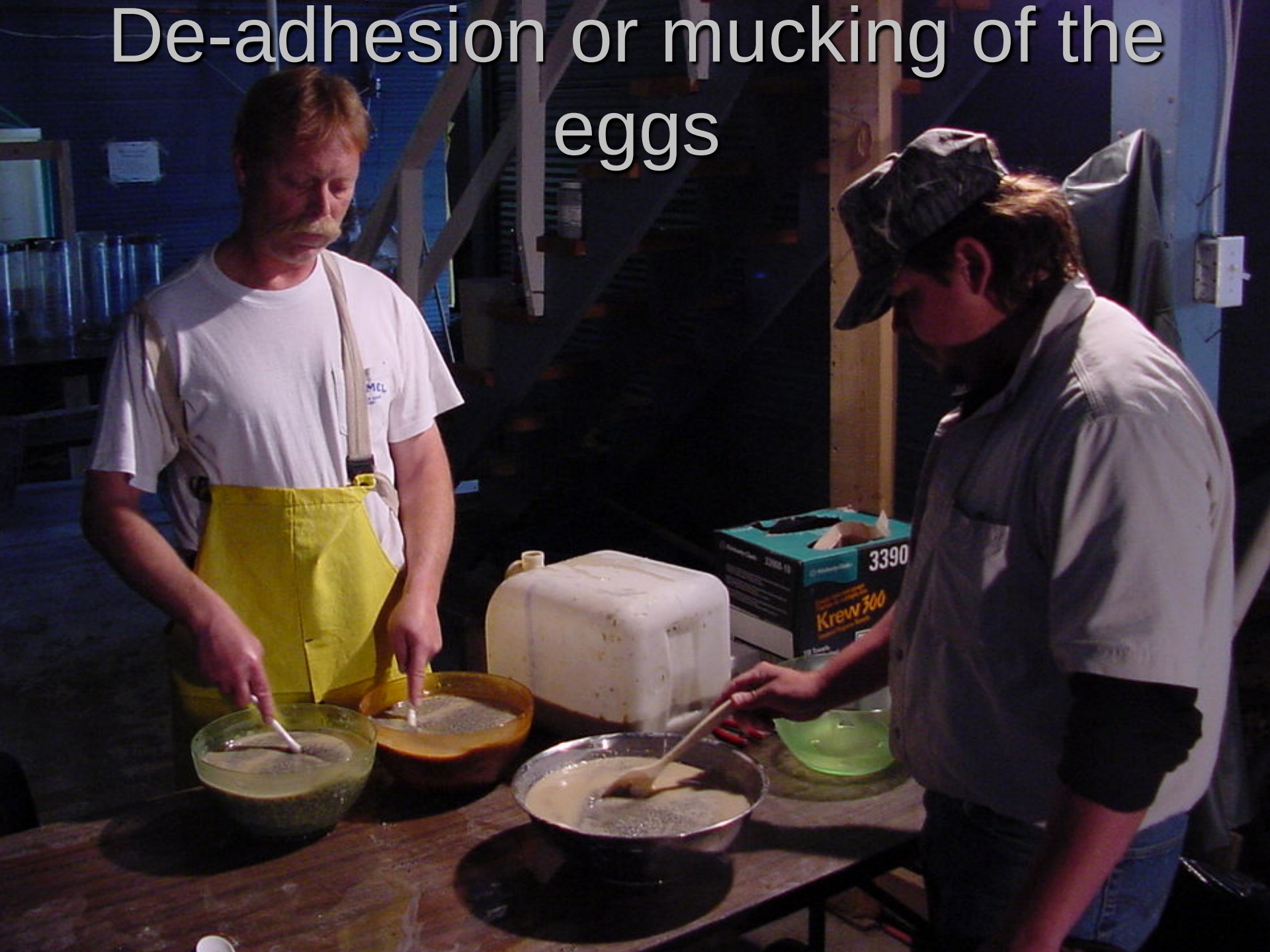
# Lake Sturgeon Spawning Process


Milt Extraction

# Clearing the Oviduct


OLD NAVY

# De-adhesion or mucking of the eggs



# Transferring eggs to incubation jars

# Egg Development and Fertilization Rate Estimation


# Broodstock returned to river

# Sub-Yearling Lake sturgeon

# Ceremonial Sturgeon Release

## Technology Transfer

MN Fish and Wildlife Society

UC Davis Sturgeon Conference-CA

The Fisheries-Sacramento CA

Stolt Fish Farm-CA

Malaspina College-BC

Sir Sandford Fleming College-ON

Forus Fish Farms-Hungary

BC Aboriginal Fisheries Conference

Sault Ste. Marie Fisheries Conference

DFO Sturgeon Recovery Conference

Keeyask Working Group-Manitoba

## Rehabilitation/Scientific

- White Earth Natural Resources (MN)-Rehabilitation
- Minnesota DNR-Rehabilitation
- China Animal Breeding Stock-Commercial Trials
- University of Manitoba-Feeding Trials
- Kholov Sturgeon Farm (ON)-Commercial
- Red Lake Band of Chippewa (MN)-Rehabilitation
- OMNR/Dalles First Nation-Rehabilitation
- Illinois Technical Institute-Scientific
- Nelson River Co-management Board-Culture Methods/Rehabilitation
- River of Life Hatchery-Commercial
- Underwater World/Mall of America-Aquarium Stock
- Tennessee Aquarium-Aquarium Stock
- DFO-Scientific
- Keeyask Working Group-Lake sturgeon culture and restoration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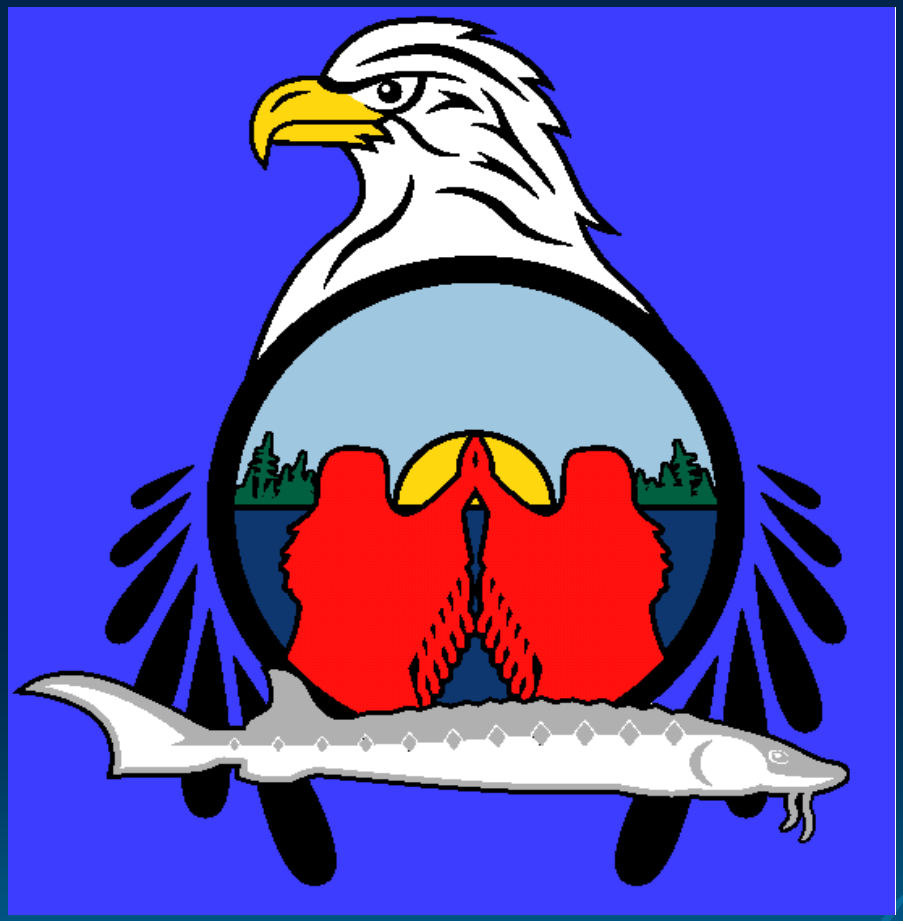
6/12/2014


6/ 4/2013

# Rainy River Watershed Program



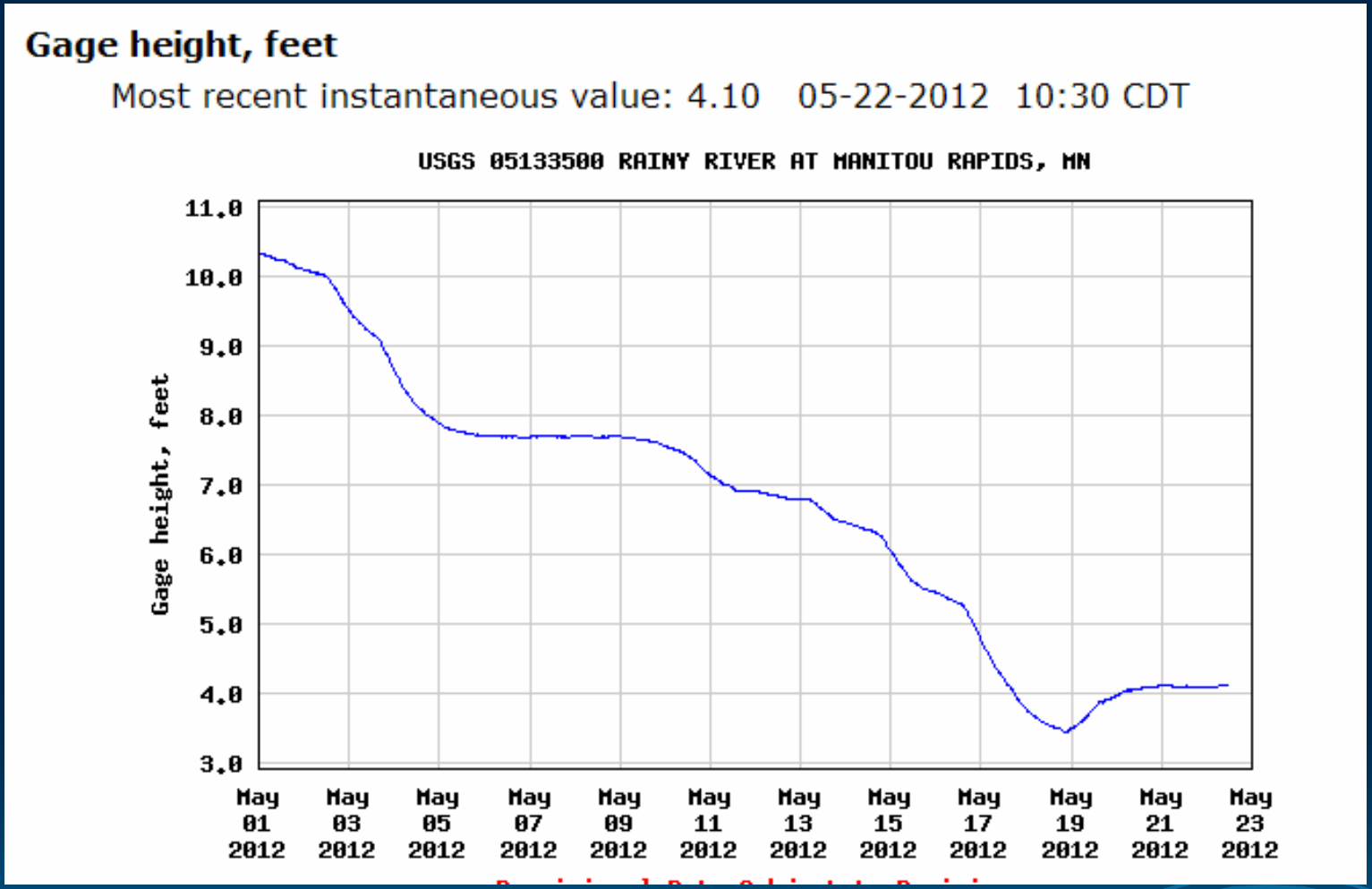
To protect, conserve, and revitalize the Rainy River watershed

# Controlling Cattle Access to Eliminate Erosion

# 2012 Sturgeon Egg Dewatering of Sturgeon Eggs


# International Rainy-Lake of the Woods Watershed Board

Through our assertion of our interests and obligations to protect and preserve the environment in the Rainy River-Lake of the Woods, the Rainy River First Nations has influenced, and been involved in developing procedures on flow regimes of the Rainy River to protect the Lake sturgeon environment and habitat




IRLBC DIRECTIVE

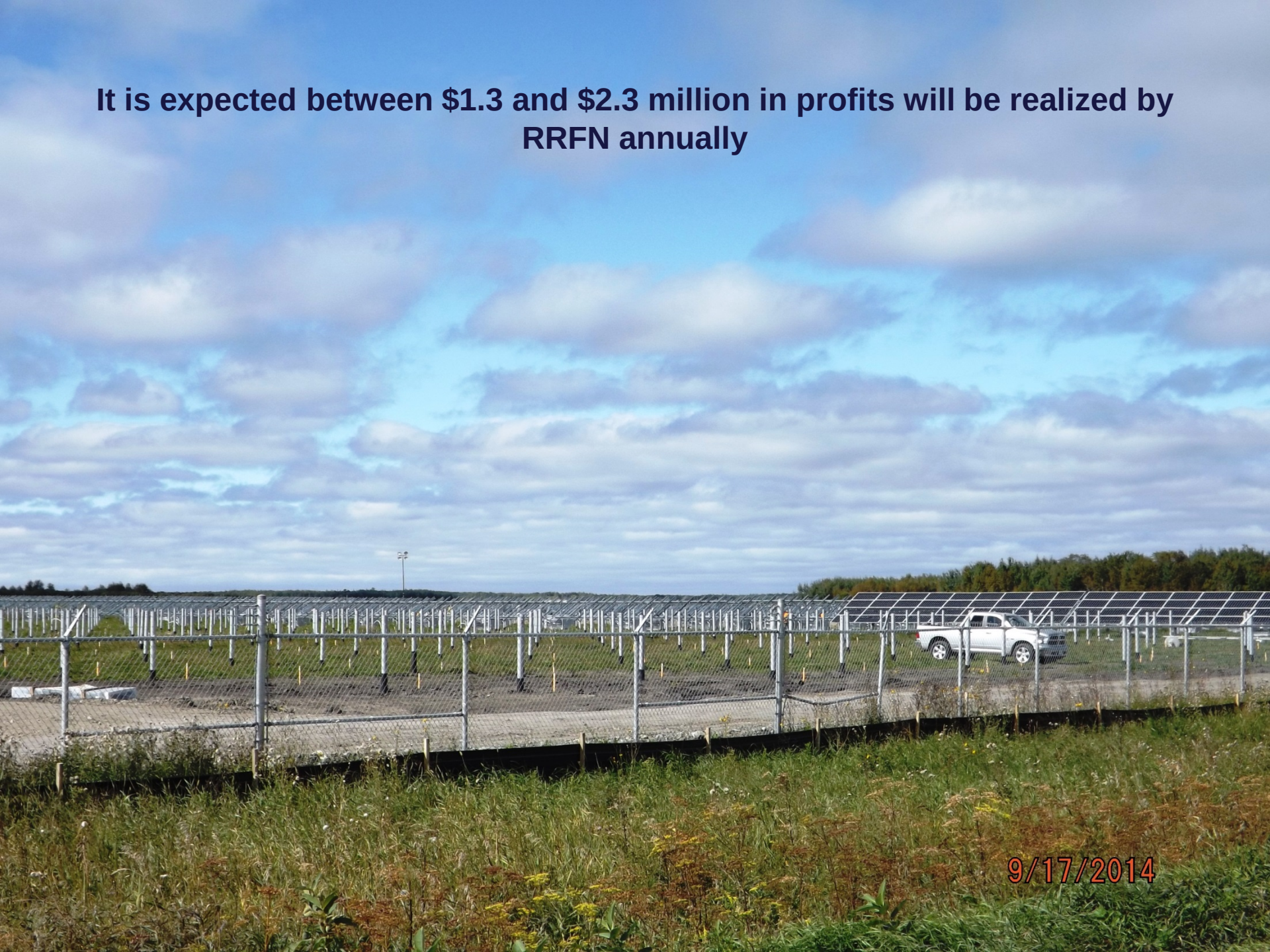
Illustrated below is the response at Manitou Rapids in terms of gauge (height) as a result of the IRLBC directive to increase flows from 100 cms to 150 cms. At Manitou rapids water levels increased approximately 6 inches.

# NEW DIRECTIONS

# RAINY RIVER SOLAR PROJECT

- Partnership between Rainy River First Nations, Connor Clark & Lunn and Terrma Capital
- The Project encompasses two 10 MW facilities and a 5 MW facility
- Full commercial operation of the facilities is anticipated in the first half of 2015
- The Rainy River Solar Project will produce enough clean energy to meet the needs of over 3,900 households

**It is expected between $1.3 and $2.3 million in profits will be realized by RRFN annually**



# Thank you for your time

Questions/Comments