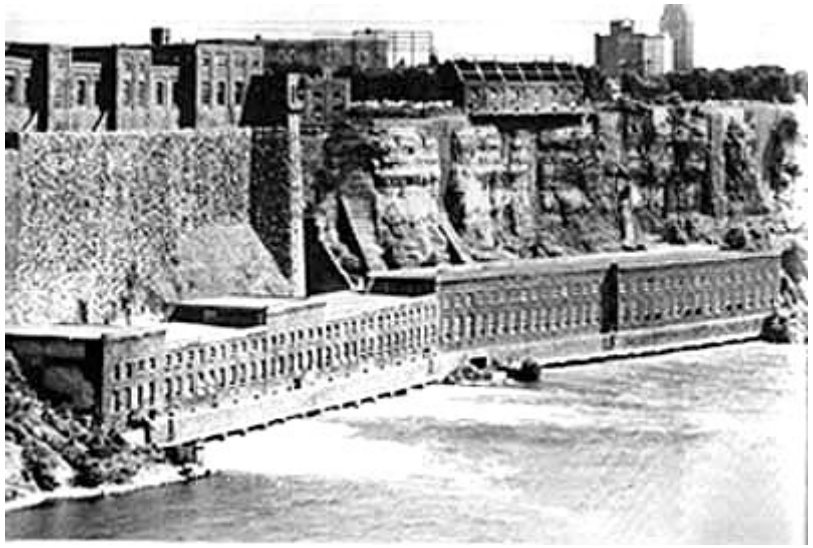
TRANSBOUNDARY COLLABORATION

IRRB & PPWB

- 1909 Boundary Waters Treaty
- 1969 Master Agreement on Apportionment
- International Red River Board
- Prairie Provinces Water Board
- Observations

Origins of the Boundary Waters Treaty

Boundary Waters Treaty Negotiated in 1909 at a time of industrialization and urbanization of the Great Lakes and other boundary waters



Schoellkopf Power Plant Niagara Falls NY, 1895

Sewage and manufacturing wastes that led to outbreaks of cholera among other water-borne public health problems

Origins of the Boundary Waters Treaty

Digging the St. Mary Canal

Montana, 1908

THE BOUNDARY WATERS TREATY (1909)

- Origin
  - Disputes over use of Canada-U.S. transboundary waters
- Scope
  - More than just boundary waters; deals with the Canada-United States transboundary environment
- Purpose
  - Provides the principles and mechanisms to help prevent and resolve disputes along the boundary

THE BOUNDARY WATERS TREATY (1909)

A TREATY AHEAD OF ITS TIME ON POLLUTION:

- *"the waters herein defined as boundary waters and waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other."*
- One of the earliest proactive and continuous references to water pollution in the world

IJC In Brief

- A Unitary Treaty Organization
- Six Commissioners Serve without Instructions
- Decides by Consensus
- Operates from Yukon to Gulf of Main
- Controls Flows in Boundary Water
- Prevents and Resolves Disputes Over Shared Water and Air
- Watchdog of Great Lakes Restoration Efforts
- Conducts Studies for Governments

Transboundary Basins

25/03/2019

1969 Master Agreement on Apportionment

1969 MAA

- An agreement between Jurisdictions
  - (Alberta, Saskatchewan, Manitoba, Canada)
- The agreement outlines “obligations” and “entitlements” vis-à-vis surface and groundwater quantity and quality.
- The agreement establishes the PPWB and creates the “environment” for continuous dialogue regarding cooperative water management.

1969 MAA

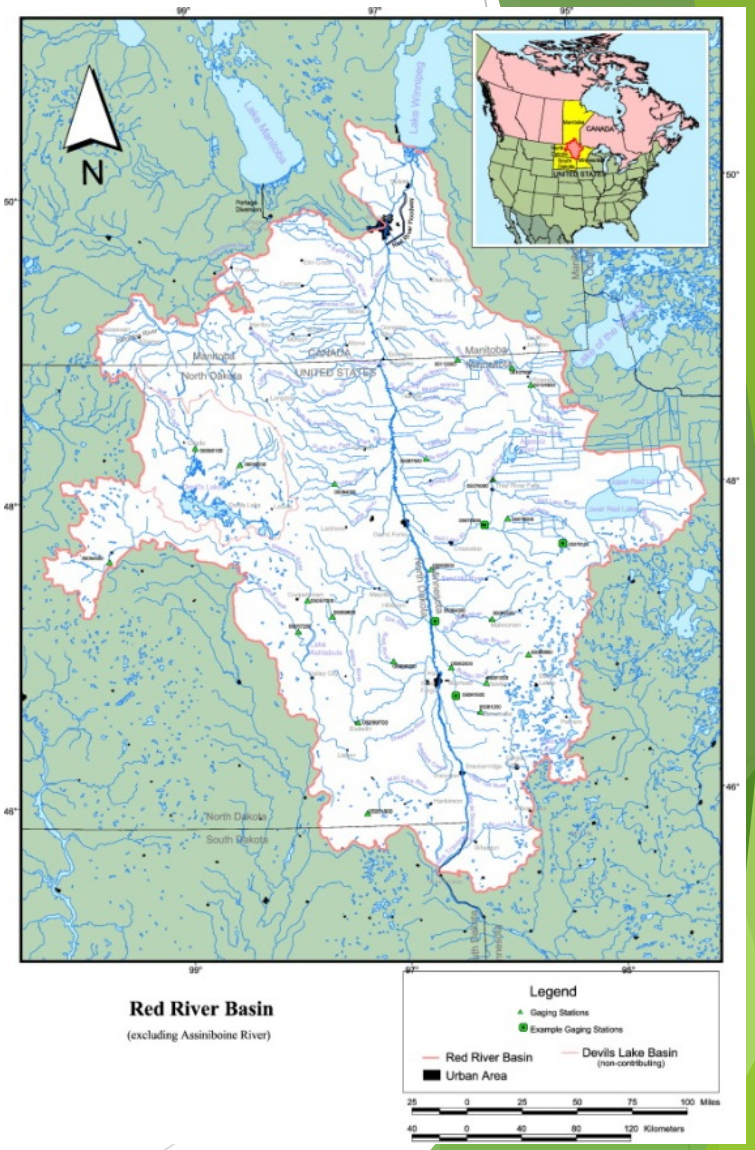
OBLIGATIONS

- To achieve equitable apportionment of shared waters by passing water downstream.
- To protect the quality of shared waters.

ENTITLEMENTS

- To access and utilize the waters that are apportioned to you.
- To access water that meets agreed to quality objectives.

International Red River Board



IJC Red River Authorities

Docket	Region	Date	Topic
26R	Red River	1929	Drainage Project
58R	Red River	1948	Regulation
76R	Red River	1962	Hydro Power – Regulation
81R	Red River	1964	Water Quality
101R	Red River	1975	Water Quality
113R	Red River	1997	Flooding
114R	Red River	1997	International Watershed Boards

International Red River Board created in 2001

Exceedances of Objectives Levels
Summary of Results
Red River at International Boundary,
(Provisional-not all data reported yet)
Water Year 2017-2018 (October 1, 2017 to September 30, 2018)

Parameter	Objective	Exceedances		Exceedance Value
		Number (total # samples)	% samples exceeding	Maximum (Date)
Dissolved Oxygen	>5 mg/L	0 (39)	0	6.40 (Jun 27)**
Total Dissolved Solids(up to Jun 15)	500 mg/L	20 (26)	77	1097 (Nov 14)
Chloride (up to Aug 10)	100 mg/L	0 (32)	0	88 (Mar 9)
Sulphate (up to Aug 10)	250 mg/L	14 (32)	44	498 (Oct 23)
E. coli	<200 colonies /100 ml	0 (12)	0	150 (Oct 10)

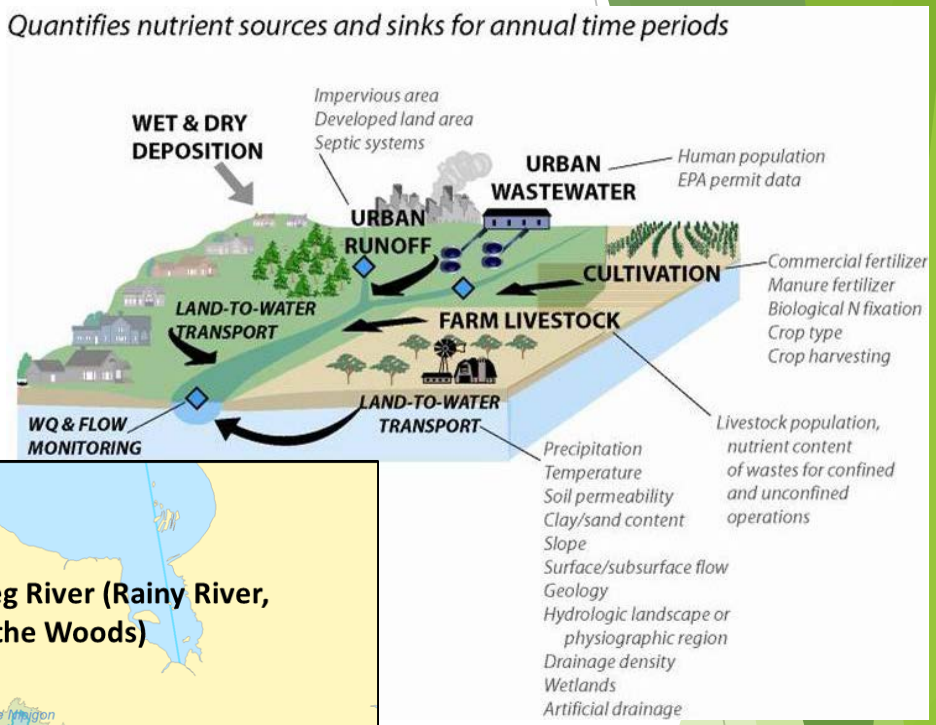
**Dissolved Oxygen objective is a minimum criterion and value reported is lowest recorded.

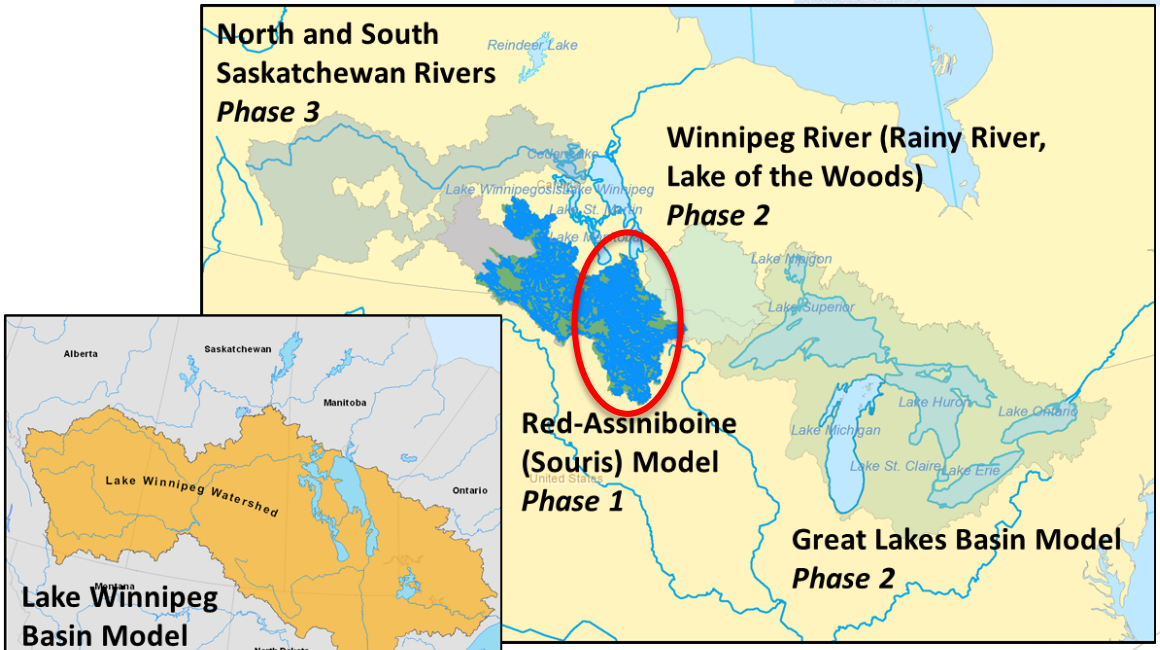
Water Quality Objectives Review

- The IRRB is at the outset of reviewing the water quality objectives for the international boundary:
  - We have an IWI funded project to study trends of selected parameters at various locations within the basin;
  - The results of the trend analysis will support the prioritization of parameters for review.
  - The Board continues to discuss the longer term process that would eventually lead to recommendations to the governments for modifications to binational water quality objectives.

IWI – Binational Water Quality Modelling

- **Collaboration between the IJC, the USGS, National Research Council, MCWS, Environment Canada and many others**



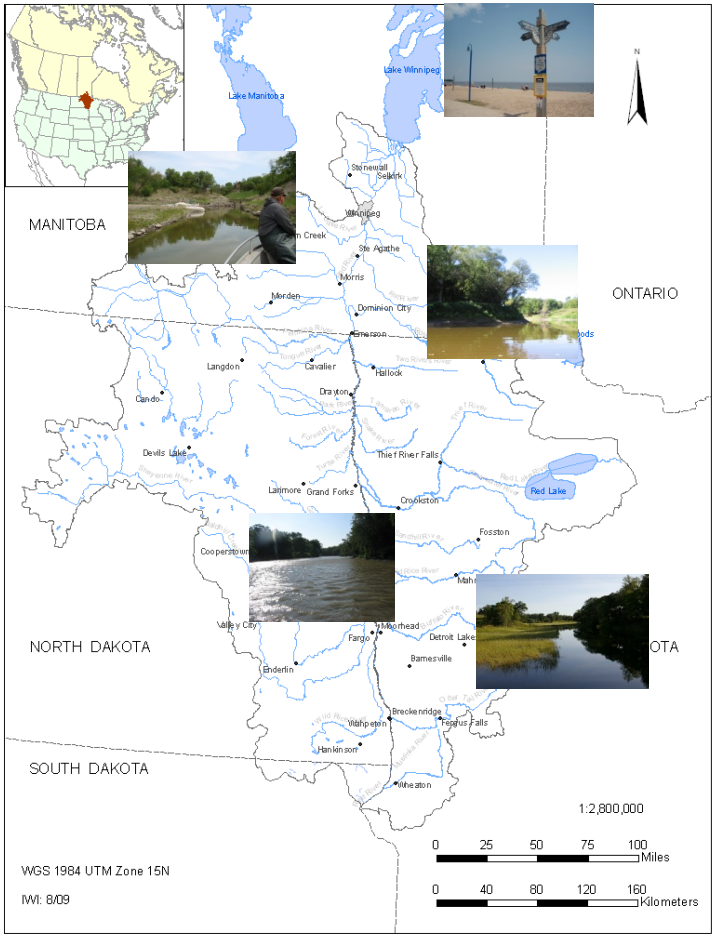


IRRB Nutrient Management Strategy Mission

- To develop a collaborative, science and watershed-based approach to managing nutrients in the Red River and its watershed with the goal of restoring and protecting aquatic ecosystem health and water uses in the Red River watershed and Lake Winnipeg

Guiding Principles

- Scientifically defensible
- Integrated watershed perspective
- Coordinated, cooperative and collaborative
- Jurisdictional independence
- Protection and/or restoration of aquatic ecosystems and water uses
- Lake Winnipeg is the end point
- Benefit local water quality and Lake Winnipeg
- Consensus-based



Six Components to the Development of a Nutrient Management Strategy

- Work is occurring concurrently on the components

- Component One – endorsement by the International Red River Board ✓

- Component Two - Develop a Shared Understanding of Jurisdictions' Nutrient Regulatory Frameworks and Identify Current Nutrient Reduction Actions, Activities and Plans for the Red River Watershed ✓

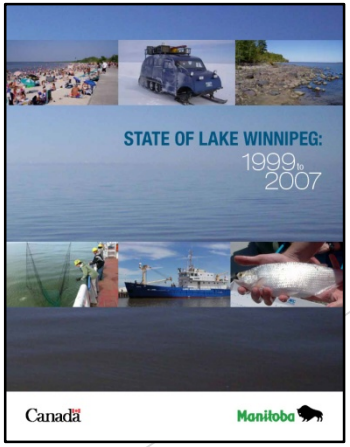
Component Three – Nutrient Targets

- Recommend and Implement Nutrient Load Allocations and/or Water Quality Targets for Nutrients
- Identify High Priority Areas for Implementing Nutrient Reduction Measures
- Identify Nutrient Reduction Actions and Activities for the Red River Watershed that could assist in achieving Nutrient Load Allocations and/or Water Quality Targets for Nutrients
- Develop a Common Set of Indicators for Measuring Progress

Lorenz et al. USGS Scientific Investigations Report 2008–5213

Components Four, Five and Six

- Component Four - Monitor and Report on Progress
- Component Five - Facilitate ongoing technical, scientific and methodological dialogue and information sharing
- Component Six - Adapt the nutrient management strategy



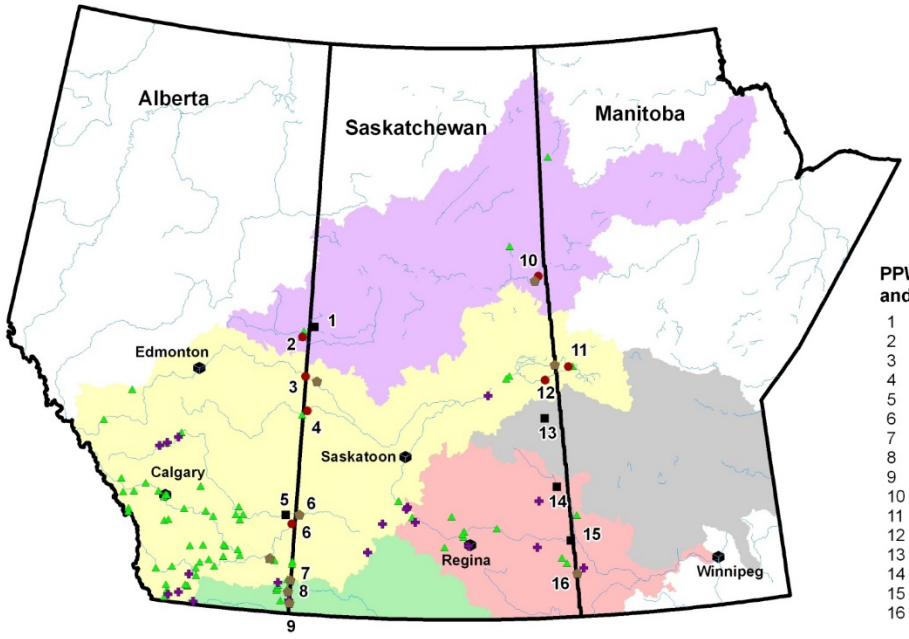
Nutrient Objective Development

- The Water Quality Committee has recommended a dual approach for total nitrogen and total phosphorus targets at the border to the International Red River Board. The dual approach results in both concentration objectives and nutrient load allocation targets at the US/Canada border at Emerson.
- The recommended targets are:

	Nitrogen	Phosphorus
Concentrations (mg/l)	1.15	0.15
Loads (tonnes/year)	9,525	1,400

- The Board has postponed acceptance of the targets while an independent review of the stressor response modeling project, which lead to the concentration objectives, is conducted.

THE PAIRIE PROVINCES WATER BOARD



PPWB Water Quantity and/or Quality Monitoring

1 Cold River
2 Beaver River
3 North Saskatchewan River
4 Battle River
5 Red Deer River A/S
6 South Saskatchewan River
7 Battle Creek
8 Middle Creek
9 Lodge Creek
10 Churchill River
11 Saskatchewan River
12 Carrot River
13 Red Deer River S/M
14 Assiniboine River
15 Qu'Appelle River
16 Pipestone Creek

The PPWB

- 5 Members: ECCC, AAFC, AB, SK, MB
- Observes and reports on achievement of agreement (apportionment, water quality, etc.)
- Provides the forum for the jurisdictions to:
  - Agree on apportionment methods
  - Agree on water quality objectives
  - Agree on monitoring needs
  - Engage in continuous dialogue on plans, activities, concerns, etc.
- Can make recommendations to jurisdictions
- Has 40+ years of cooperative consensus building

1969 MAA – Schedule E (1992)

1. Names reaches and lists objectives.
2. If human activities cause a parameter to exceed the objective
   - Jurisdiction will “take reasonable and practical measures” to return river to an acceptable quality.
3. If a worsening trend is detected
   - Parties will agree to “reasonable and practical measures” to “maintain the water quality within a reach”.
4. Objectives are updated by agreement of the parties on a periodic basis (5 yrs.)

2015 Water Quality Objectives Update

- First since 1992.
- 7 years to complete.
- Added 12th river reach.
- Protects for all uses on all rivers.
- 71 parameters for each river.
- Nutrients objectives based on statistical background approach
- Unionized Ammonia, Total Phosphorus, Total Dissolved Phosphorus, Total Nitrogen, Dissolved Nitrogen (NO_3 and NO_2)

Other PPWB Water Quality Work

- Trending every 5 years (2008 & 2013 on web site)
- Follow-up studies in response to observed exceedances and trends:
  - Jurisdictional reports
  - PPWB reports
- Next water quality objectives update due 2020

Observations

- Water Boards are primarily government-to-government relationships.
- Water Boards have strong collective technical capability
- Working collectively via water boards builds trust between jurisdictions.
- Change takes time.
- There can be very positive synergies between water boards and NGOs.