# International Souris River Study Board

# “Shifting into High Gear: an update”

**Public Presentation in Brandon, MB**

**February 2019**

International Souris River Study Board

# Study Purpose and Objectives

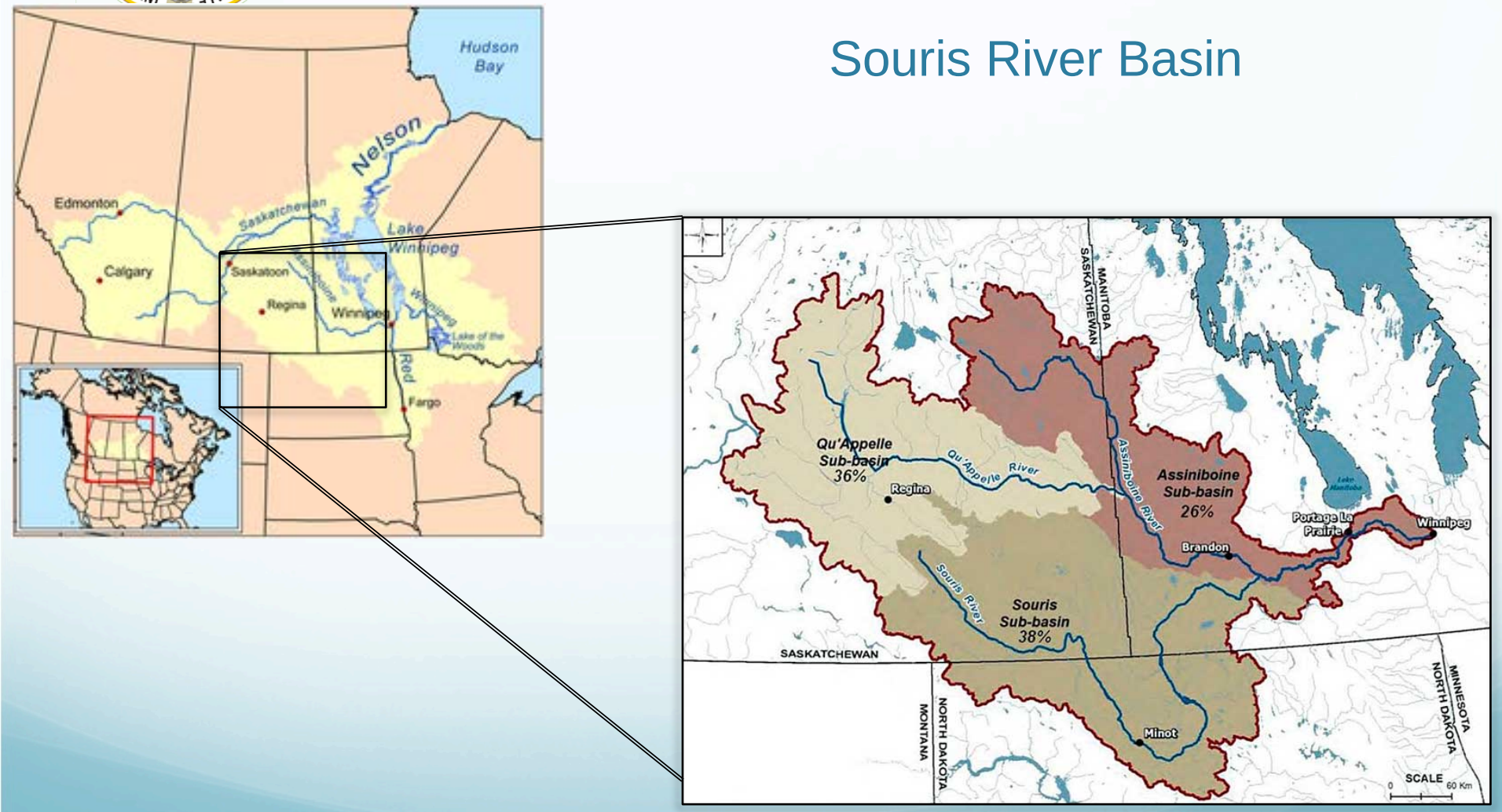
## September 2017 Directive:

1. Examine and report to the Commission on matters raised by Governments of Canada and the United States in reference dated July 5, 2017.
2. Evaluate and make recommendations regarding the Operating Plan contained in Annex A of the 1989 Agreement, and additional flood protection measures, and beneficial water supply measures.
3. Carry out the instructions provided by the Commission to guide the Study Board

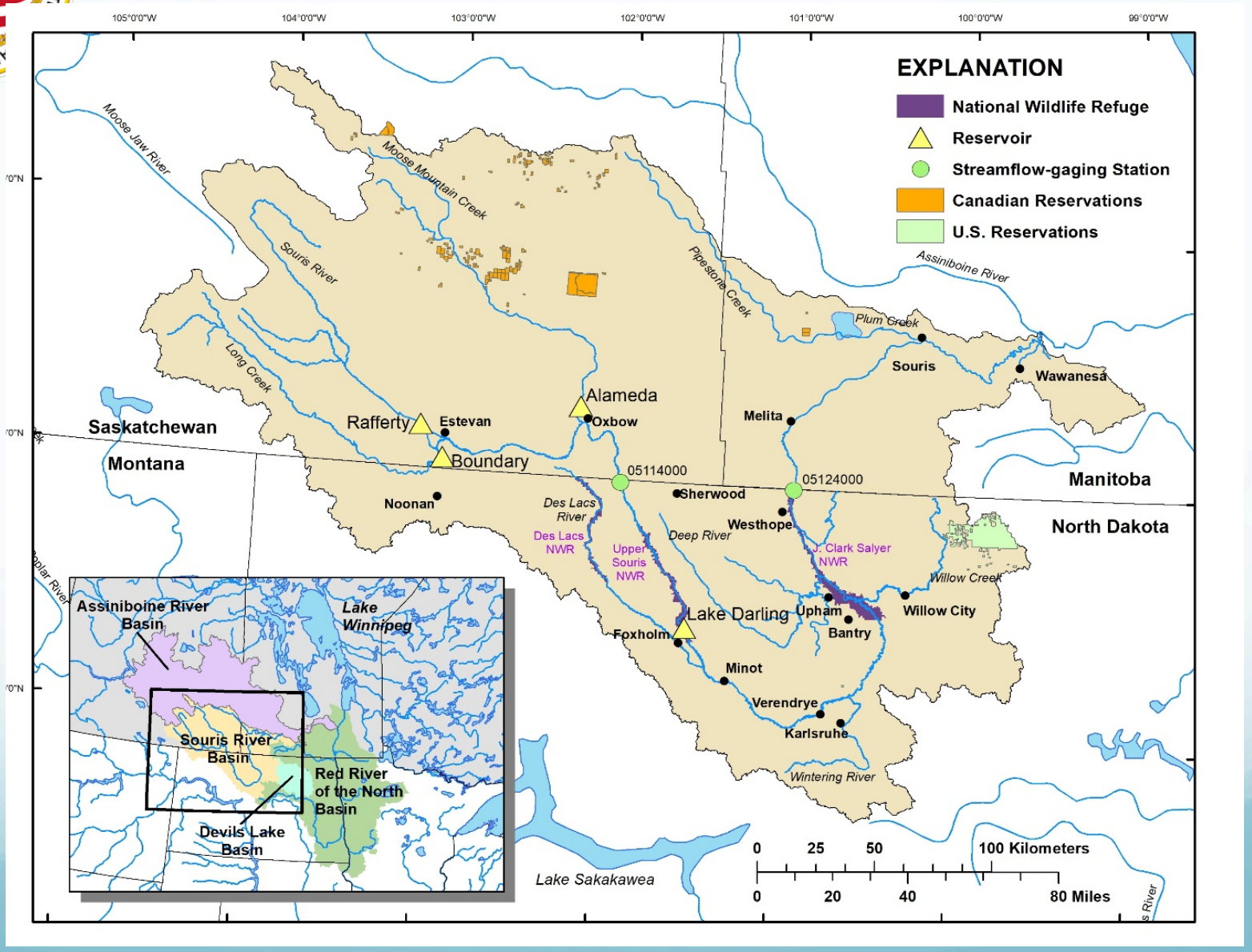
# Nelson River Basin

## Assiniboine River Basin

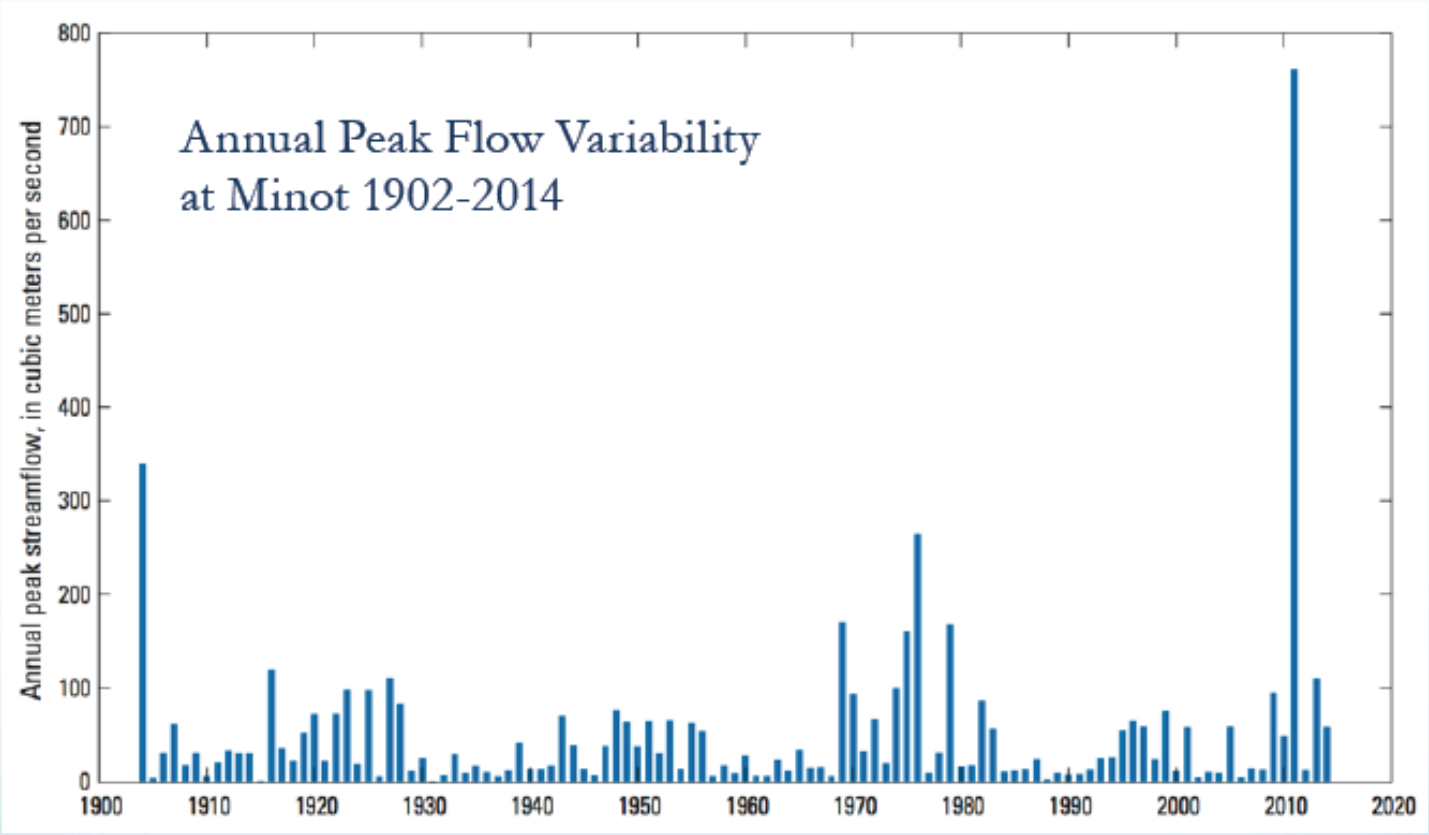
### Souris River Basin



# Souris River Basin



# 2011 Flood-Driving Force


Annual Peak Flow Variability
at Minot 1902-2014
Annual peak streamflow, in cubic meters per second
800
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100
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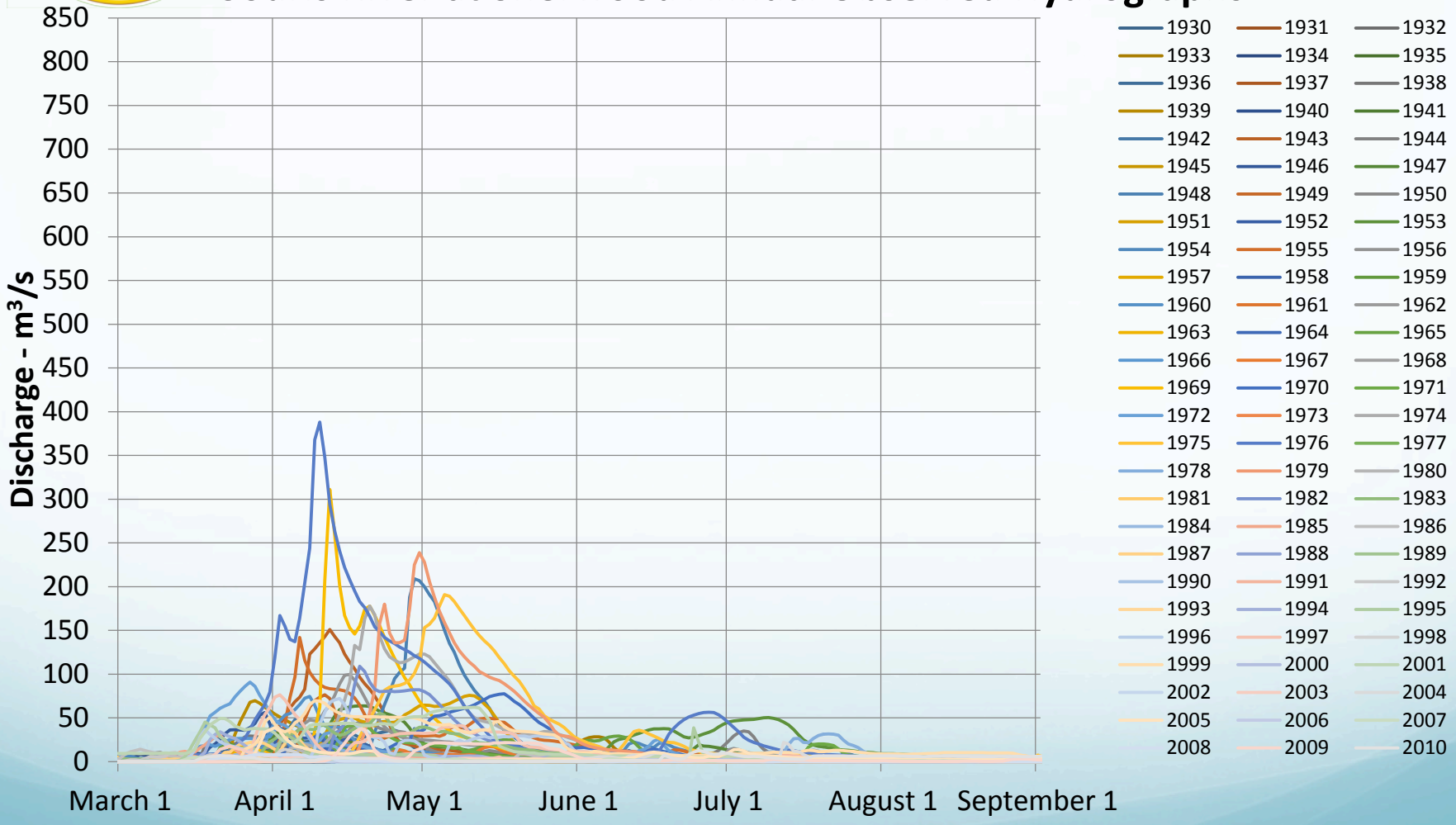
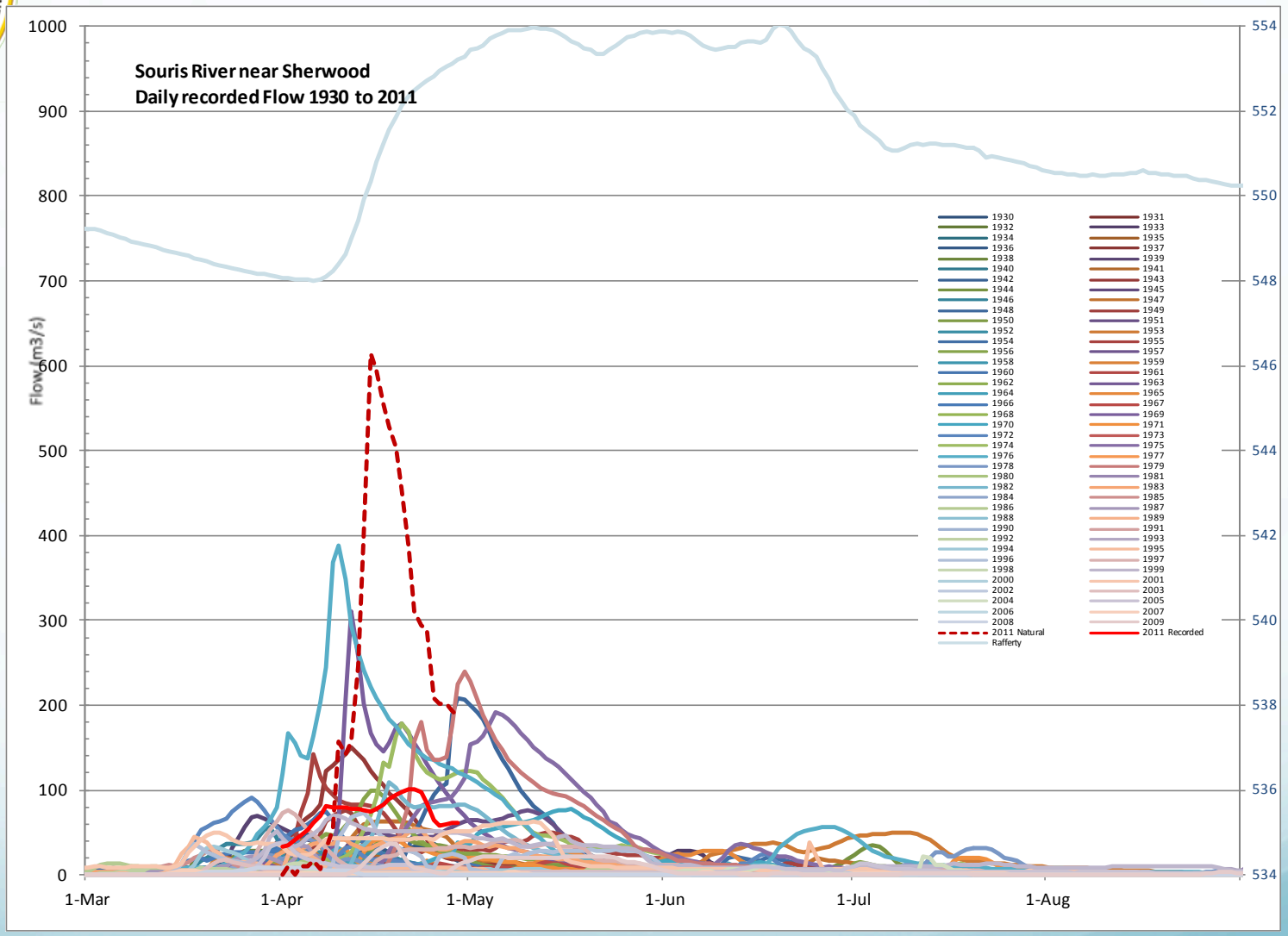
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020

# Souris River at Sherwood Annual Observed Hydrographs




Souris River near Sherwood
Daily recorded Flow 1930 to 2011
Flow (m3/s)
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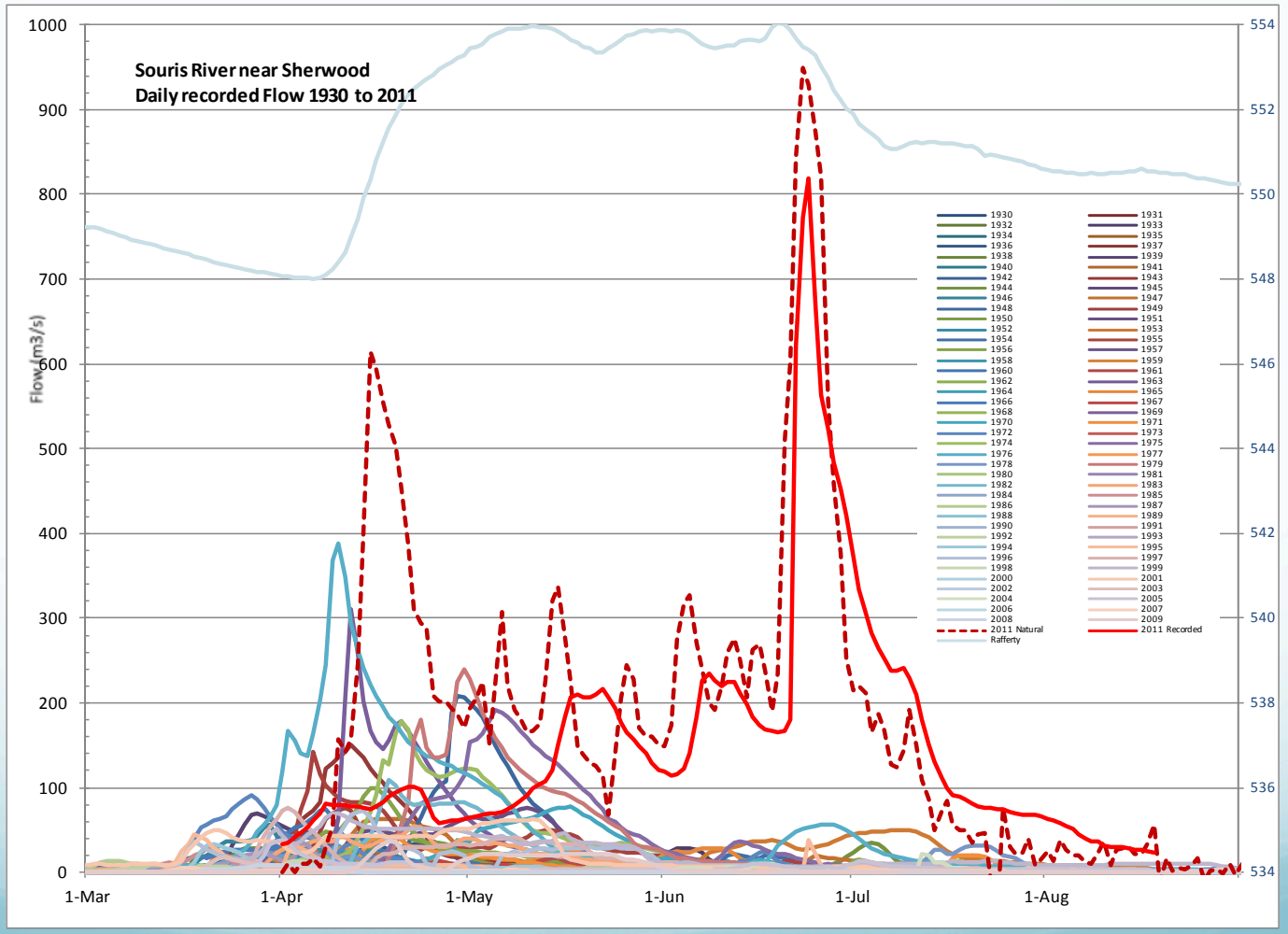
2011 Natural
2011 Recorded
Rafferty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2006
2007
2008
2009
2011 Natural
2011 Recorded
Rafferty

# IJC Plans of Studies

- When a board wants to address a large scale problem they develop a “Plan of Study”
- A bi-national task team is formed to create and execute the Plan of Study
- A Plan of Study is a proposal containing many individual projects and can be a mix of engineering, science, policy, or public consultation tasks
- Large input by local experts and the public
- The IJC approves the Plan of Study and asks to federal governments to fund the projects

# International Souris River Study Board Administration

- **Board Structure**
  - 4 Members for Canada - agency and public
  - 4 Members for the United States - agency and public

    - First Nations/Metis/Tribal
    - Public Advisory Group
    - Resource Agency Advisory Group
    - Independent Review Group
    - Climate Advisory Group
    - United States and Canadian Study Managers
    - Observer status for Interested Parties

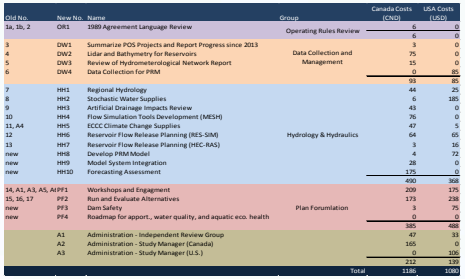
# Public Engagement

- February 19, 2019 (7 – 9 pm): Public Meeting Brandon, MB
- PAG / RAAG Webinars: Jan 28th 2019, March 4th 2019 Study update with alternatives background briefing and input on useable data formats
- PAG was expanded to 12 members to spread workload
- June 25, 2018 (7 – 9 pm): Public Meeting in Estevan, SK
  - Introduced study board and PAG. Provided overview of Work Plan.
- February 20, 2018 (7 – 9 pm): Public Meeting in Minot, ND

# Work Plan Progress

| Old No. | New No. | Name | Group | Canada Costs (CND) | USA Costs (USD) |
|---|---|---|---|---|---|
| 1a, 1b, 2 | OR1 | 1989 Agreement Language Review | Operating Rules Review | 6 | 0 |
| | | | | 6 | 0 |
| 3 | DW1 | Summarize POS Projects and Report Progress since 2013 | Data Collection and Management | 3 | 0 |
| 4 | DW2 | Lidar and Bathymetry for Reservoirs | | 75 | 0 |
| 5 | DW3 | Review of Hydrometerological Network Report | | 15 | 0 |
| 6 | DW4 | Data Collection for PRM | | 0 | 85 |
| | | | | 93 | 85 |
| 7 | HH1 | Regional Hydrology | Hydrology & Hydraulics | 44 | 25 |
| 8 | HH2 | Stochastic Water Supplies | | 6 | 185 |
| 9 | HH3 | Artificial Drainage Impacts Review | | 43 | 0 |
| 10 | HH4 | Flow Simulation Tools Development (MESH) | | 76 | 0 |
| 11, A4 | HH5 | ECCC Climate Change Supplies | | 47 | 5 |
| 12 | HH6 | Reservoir Flow Release Planning (RES-SIM) | | 64 | 65 |
| 13 | HH7 | Reservoir Flow Release Planning (HEC-RAS) | | 3 | 16 |
| new | HH8 | Develop PRM Model | | 4 | 72 |
| new | HH9 | Model System Integration | | 28 | 0 |
| new | HH10 | Forecasting Assessment | | 175 | 0 |
| | | | | 490 | 368 |
| 14, A1, A3, A5, A | PF1 | Workshops and Engagment | Plan Forumlation | 209 | 175 |
| 15, 16, 17 | PF2 | Run and Evaluate Alternatives | | 173 | 238 |
| new | PF3 | Dam Safety | | 3 | 75 |
| new | PF4 | Roadmap for apport., water quality, and aquatic eco. health | | 0 | 0 |
| | | | | 385 | 488 |
| | A1 | Administration - Independent Review Group | | 47 | 33 |
| | A2 | Administration - Study Manager (Canada) | | 165 | 0 |
| | A3 | Administration - Study Manager (U.S.) | | 0 | 106 |
| | | | | 212 | 139 |
| | | | Total | 1186 | 1080 |

# Work Plan Progress



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- Operating Rules Review (OR1) is close to completion

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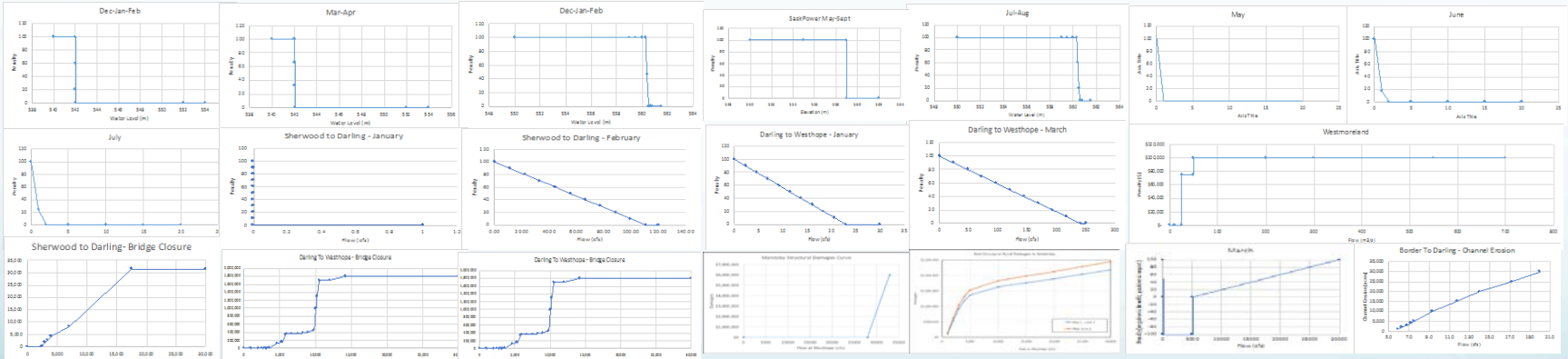
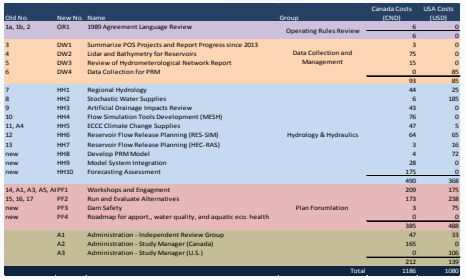
- Data Collection and Management group tasks DW1-DW4 are mostly complete
  - DW1-draft report summarizing Plan of Study projects since 2013 has been written
  - DW2-lidar and bathymetry data for reservoirs has been obtained/collected
  - DW3-draft report of review and update of the Hydro-meteorological data network is complete
  - DW4-data collection to be used as input to Prescriptive Modelling System (HH8) is mostly complete – Performance Indicators.



# Work Plan Progress



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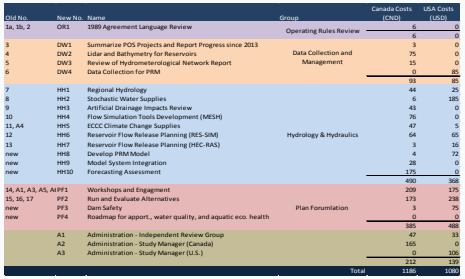
| | A2 | Administration - Study Manager (Canada) | | 165 | 0 |
| | A3 | Administration - Study Manager (U.S.) | | 0 | 106 |
| | | | | 212 | 139 |
| | | | Total | 1180 | 1080 |

- Hydrology and Hydraulics-majority of group tasks are underway
  - HH1- regional and reconstructed hydrology task is almost complete
    - HH2- stochastic model used to generate unregulated flows has been developed
    - HH3- artificial drainage impacts review is underway
    - HH4- MESH modelling is well underway
    - HH5- ECCC climate change supplies will be coming in due course
  - HH6- HEC-RESSIM model development is well underway
    - HH7- HEC-RAS model development is well underway
    - HH8- PRM model development is well underway
    - HH9- Model system integration is well underway
    - HH10- Forecasting Assessment has begun

# Work Plan Progress



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- Plan Formulation tasks (PF1-PF4) are beginning
  - PF1 – Workshops and Engagement is well underway
  - PF2 – Running and Evaluating Alternatives will begin with reconstructed hydrology inputs
  - PF3 – Dam Safety work is underway
  - PF4 – Roadmap work for apportionment, water quality and ecosystem health is pending

# Plan Formulation

**POS has changed gears from developing the tools to assessing options**

**Where the Rubber Hits the Road**

# What We need to do

- Use the data and tools to analyze water supply, floods, apportionment, etc. to see if operations can be improved and to see how resilient the basin and agreement are with a changing climate.
- This should include the performance of the system either under the current constraints of the agreement, or by changing specific elements in the agreement.

# Public Engagement
# How you can help

- Data Collection for Evaluating Alternative
- Impacts have been sorted into seven study themes

| Study Theme | Reference Requirement |
|---|---|
| Flood Control | X |
| Water Supply | X |
| Environmental | X |
| Agriculture | X |
| Erosion | |
| Recreation | |
| Cultural | |

# Public Engagement--continued

- Create various Performance Indicators (PI) that fit into each study theme
- Each PI relates a river condition (flow or elevation) to a benefit or impact

## How can my story make a difference?

**By sharing your story of what happens, where it happens, when it happens, and what you wish would happen, you may help to build an alternative for operating the reservoirs.**

One great example comes from a story shared with the Public Advisory Group:

*"There is a large reef in Rafferty reservoir that stretches across a major waterway for fishers and boaters. When the reservoir drops below elevation 550 m, the reef is exposed and becomes dangerous."*

**Now we know:**

- **where** the impact is and which reservoir is involved (Rafferty Reservoir)
- **when** it happens: reservoir elevation below 550 m.
- **what** happens: reef is exposed and dangerous to fishers and boaters

**What you wish would happen is a possible alternative**: Keep normal pool elevation of Rafferty during the summer months at 550 m.

**How do reservoir operations, water elevations or flows affect you? Your story should include what happens, where and when it happens, and what you wish would happen.**

**If you have a story to tell, or want to suggest changes to the way the basin works now, please let us know as soon as possible so that it can be considered.**

**Submit your story by email to sourisriverstudy@ottawa.ijc.org**

# Stay Connected

**Do you follow the IJC on Facebook? Search #sourisriverstudy for news and updates on the study, or email us at sourisriverstudy@ottawa.ijc.org**

**Our mailing address is:**
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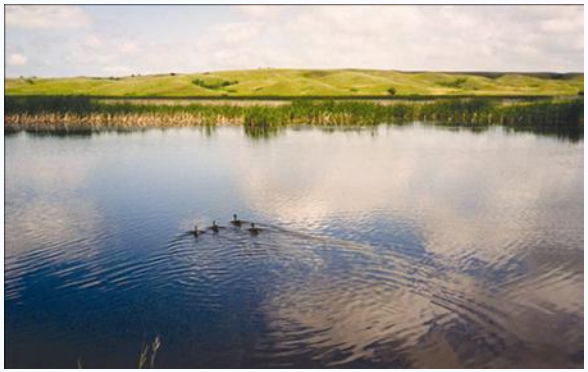
234 Laurier Avenue West 22nd Floor
Ottawa, Ontario K1P 6K6
Canada

# Questions and Comments



# Contacts

| | |
|---|---|
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| Bruce Davison<br>Canadian Co-Study Manager<br>bruce.davison@canada.ca<br>ph. 306-975-5788 | Gregg Wiche<br>US Co-Study Manager<br>gjwiche@usgs.gov<br>ph. 701-250-7433 |