

International St.
Mary and Milk
Rivers Study Board
Progress Report

September 27

2024

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1. Executive Summary

- IJC approved Study extension to June 2026 (one additional year)
- Extensive progress on modeling scenarios – technical teams are working on the first two iterations (laps) out of four
- Final report technical writing has commenced, with three report sections already sent back to technical writers with comments and suggestions from the Study Board
- Public meetings were held in Alberta in June and are planned for Montana in October – large focus on modeling work that incorporated feedback on modeled scenarios from the public, Indigenous, and governmental advisory groups

2. Background

The St. Mary and Milk River basins are located within the state of Montana and the provinces of Alberta and Saskatchewan. Agricultural land has been irrigated in these basins for well over a century. Historically, the challenge of irrigating land in an area prone to recurring droughts had given rise to divergent interests and strategies between Canada and the United States concerning water availability. These conflicting goals for utilizing the limited water resources eventually necessitated the inclusion of water allocation provisions within Article VI of the Boundary Waters Treaty, which applies to these basin areas.



Figure 1. The St. Mary and Milk River basins in Alberta, Saskatchewan, and Montana.

Despite the Treaty, difficulties regarding the equitable distribution of water resources between the United States and Canada have persisted, especially considering evolving patterns in water utilization, shifting climate conditions, and variations in seasonal water availability. Possible adjustments to the current apportionment procedures and possible infrastructure developments and changes were identified by the Accredited Officers (AOs) between 2017 and 2019. It was believed that these suggested measures could enhance each country's capacity to utilize its allotted share of the water more effectively and promote its beneficial use.

In June 2021, governments indicated their support for the IJC to carry out the AO's proposed study for improved beneficial use and sharing and report back the results within 4 years. In November 2021, the IJC created the 6-member International St. Mary and Milk River Study Board to conduct the study. The Board began meeting in mid-December and has met about twice a month since then.

While the IJC was in the process of appointing Board members and laying the groundwork for the Study Board, IJC Commissioners and staff, in collaboration with the AOs, commenced the process of engaging with Indigenous Nations in the basin. The IJC and the AOs initiated the planning of diverse approaches to engage the many Indigenous populations residing in these basins.

The IJC's November 10, 2021 Directive establishing the Study asked the Study Board to provide the Commission with a final report, including all the Board's findings, conclusions, and recommendations by June 13, 2025. In May 2024, the ISMMRSB announced that a request to the IJC for an extension on the study was approved. The Study Board was given up to one year of additional time to complete its work and fully consider the results of its technical work and input from its public, Indigenous, and governmental advisory groups.

Within the IJC's Directive to the ISMMRSB, the Commission requested that the Study Board submit an annual report in the Fall of 2022, and each fall thereafter. This report fulfills that requirement.

3. Study Progress

The writing of the final report started in December 2023 with the contracted technical writers. A draft report has been created with ongoing edits and additions to sections regarding the Study setting, objectives, governance and organization, methodology, engagement and outreach, and Study options for consideration and analysis. State of Knowledge reports written by the Technical Working Groups have provided foundational information for the writers to draw from. The first three sections of the final report draft were shared with the Study Board in early August 2024 for review and feedback. The objective of this was to provide the Study Board with final report content in sections periodically to improve efficiency and scope of writing.

Another key milestone for the Study includes the technical working groups' modeling progress. The technical teams are working on the first and second water management modeling iterations. Lap 1 includes the initial modeling based on historical data and scenarios, focusing on irrigation and non-irrigation demands, and natural and managed flows. Lap 2 is a more detailed

analysis using lessons from Lap 1, considering both historical and potential future flows. There will be two additional laps of modeling.

Additionally, a factsheet was created to explain in plain language the modeling approach used for the Study, including using previously published data and models from American and Canadian agencies to produce multiple scenarios with varying climate, administrative, and infrastructure options.

As the Commissioners are aware, on June 17, 2024, both St. Mary Canal's 90-inch diameter steel pipes (siphons) used to cross the St. Mary River failed, forcing the immediate shutdown of the Canal. The Study Board is aware of this issue; however, it sees no immediate consequences for the study, and the study will continue as planned. The failure of the siphons highlights the need for this study and its potential recommendations to help offer additional resiliency during situations like this.

Chronological key milestones since October 2023:

- **October 2023:**
 - IJC Semi-annual appearance in Ottawa, Ontario
- **October/November 2023:**
 - Study board series of in-person meetings in Great Falls, Montana with PAG, IAG and Government Forum
- **November 2023:**
 - Climate and hydrology (CH) TWG workshop held at the University of Calgary
- **December 2023:**
 - [Newsletter #2](#) released, focusing on public meetings, CH workshop, road ahead
- **January 2024:**
 - PAG virtual meeting
- **March 2024:**
 - Study board hosted a public "Study Progress Webinar"
- **April 2024:**
 - IJC Semi-annual appearance in Washington, DC
- **May 2024:**
 - [Modeling factsheet](#) published, explaining model creation and development, performance indicators, and infrastructure and administrative options
 - Commissioners approve [request](#) to extend International St. Mary and Milk River Study for up to an additional year (June 2026)
- **June 2024:**
 - Study Board meetings with advisory groups in Lethbridge, Alberta
 - [Public townhall](#) in Lethbridge, Alberta
 - Basin tours

- Siphon catastrophic failure
- **July 2024:**
 - [Newsletter #3](#) released, focusing on public meetings and Study extension
- **August 2024:**
 - Updated budget and Study timeline memo sent to Commissioners regarding the Study extension
 - Virtual Indigenous Advisory Group meeting
- **October 2024:**
 - [Public meetings](#) in Malta, Montana
 - IJC Semi-annual appearance in Ottawa, Ontario

3.1. Study Governance

On the Government Forum, Carcey Heinz from Alberta Environment and Protected Areas (EPA) has resigned and has been replaced by Cam Lane from the same ministry. Also, Jeff Woodward, from the Saskatchewan Water Security Agency has recently retired and a replacement is being sought.

3.2. Public Engagement

Summary of public engagement since October 2023:

- **October/November 2023:**
 - Study board series of in-person meetings in Great Falls, Montana with PAG members in attendance
- **January 2024:**
 - PAG virtual meeting
- **March 2024:**
 - Study board hosted a public “Study Progress Webinar”
- **June 2024:**
 - Public townhall meetings in Lethbridge, Alberta
 - Study Board and advisory group visit to St. Mary River Irrigation District’s irrigation infrastructure and The Perry Family Farm
- **July 2024:** Newsletter #3 released
- **October 2024:** Public meetings in Malta, Montana

3.3. Indigenous Engagement

Overview

As a reminder, within the St. Mary and Milk Rivers basin, there are 14 Indigenous Nations that have historic and cultural ties to the basin:

- Canada (8) - Kainai Nation (Blood Tribe); Métis Nation of Alberta (District 1 and District 2); Métis Nation of Saskatchewan (Western Region III); Cega’kin Nation (Carry

the Kettle Nakoda Nation); Little Pine Cree Nation; Nekanee Cree First Nation; Sturgeon Lake First Nation; Cowessess First Nation

- U.S. (6) - Amskapi Piikani Blackfeet Tribe; Aaniiih & Nakoda Fort Belknap Indian Community; Assiniboine & Sioux Tribes of the Fort Peck Indian Reservation; Chippewa Cree Indians of the Rocky Boy's Reservation; Montana Little Shell Chippewa Tribe; Turtle Mountain Band of Chippewa Indians of North Dakota

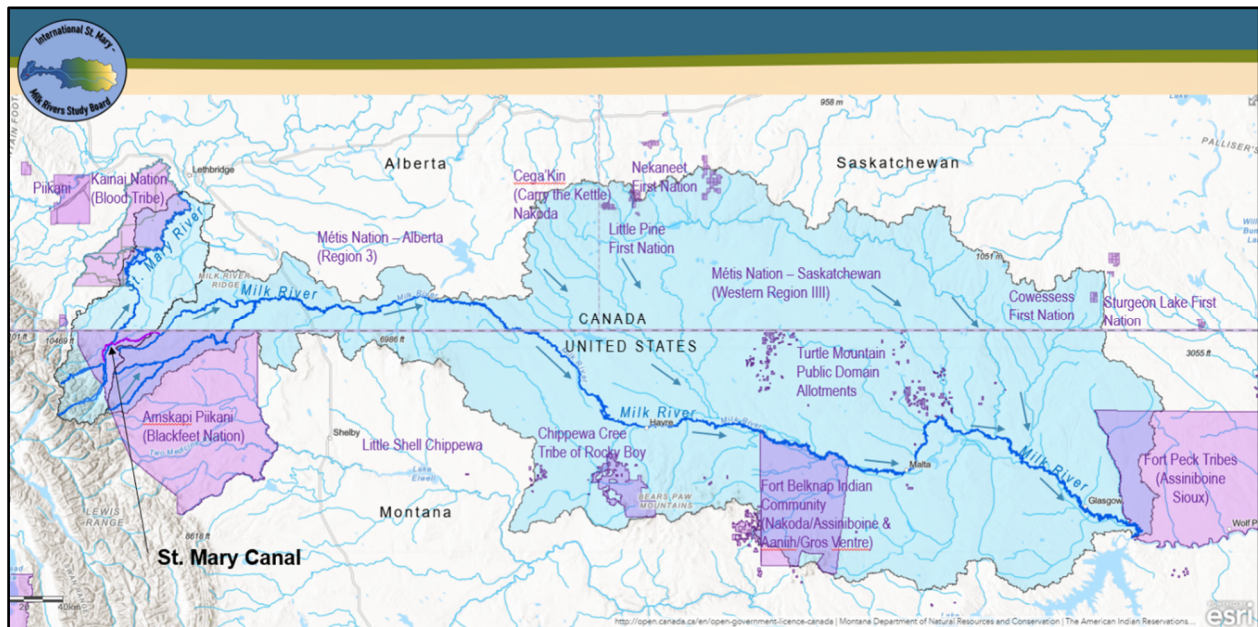


Figure 2. Map of Indigenous Nations that have historic and cultural ties to the St. Mary-Milk Rivers Basin.

As mentioned in earlier progress reports, the location of Indigenous Nations in the watershed and their connection to the basin appears to be a significant influence on overall level of engagement with the study. Indigenous Nations having land and community sites directly adjacent to the rivers have been the most engaged, and Indigenous Nations located in the upstream reaches, including the eastern and southern tributaries of the Milk River, have shown less interest to date in getting involved with the study. Despite different levels of engagement, all 14 of the Indigenous Nations residing or having land in the basin have been contacted and will continue to be given the opportunity to engage with the study, inclusive of also receiving study communication products (including fact sheets, public townhall notices, newsletters etc.).

Indigenous Advisory Group

As of Fall 2024, the study's Indigenous Advisory Group (IAG) has five members including members from Fort Belknap Indian Community, Blackfeet Nation, Little Shell Tribe of Chippewa Indians of Montana, Assiniboine & Sioux Fort Peck Tribes and an 'at-large' IAG member from Cowessess First Nation. In addition to this there are members participating as

observers from Kainai Nation, Fort Belknap Indian Community, and the Blackfoot Confederacy Tribal Council.

Since October 2023, the Indigenous Advisory Group has met on several occasions:

1. October/November 2023 (In-Person):
 - a. The Study Board held in-person meetings with its advisory groups in Great Falls, Montana from October 31 to November 2, 2023. This was one of the first opportunities for the study boards and its advisory groups (Indigenous Advisory Group, Public Advisory Group, and Government Forum) to gather in-person. As part of the meeting, several Indigenous participants from the Indigenous Advisory Group and Government Forum were able to share their perspectives with the Study Board. While all groups met together, the Indigenous Advisory Group also had time to meet separately to discuss technical work being done in greater detail.
 - b. Following the meetings in Great Falls, Montana OFEG Leads followed up with individual Indigenous Advisory Group members to discuss and elaborate upon performance indicators.
2. March 2024
 - a. OFEG Leads led a virtual public webinar on March 26, 2024, to share updates on technical work to date; IAG members/observers were invited to attend, and a meeting recording was shared with those that were unable to attend the meeting.
3. June 2024 (In-Person):
 - a. Indigenous Advisory Group members were invited to attend in-person board meetings in Lethbridge, AB from June 4-6, 2024. During these in-person meetings, the study board and its advisory groups were invited to provide input on the technical work being done. The three Indigenous members of the Government Forum participated in the meetings and were active participants in the breakout groups during the meetings. Additionally, the study board and its advisory groups had the opportunity to visit Kainai Nation lands to listen and speak with the Blood Tribe Agricultural Project and learn more about what the St. Mary River means to the Kainai Nation.
4. August 2024 (Virtual):
 - a. Due to scheduling conflicts, several Indigenous Advisory Group members were unavailable to attend the in-person meetings in Lethbridge, AB. To ensure that Indigenous Advisory Group members received the information shared at the Lethbridge meeting and had an opportunity to comment on the technical work being done, a virtual meeting was hosted on August 19th, 2024. The focus of this meeting was largely technical work completed to date including modelling, scenarios and performance indicators; Indigenous Advisory Group members and observers were offered the opportunity to provide feedback for upcoming technical work that will be done. Materials from the in-person meetings, and virtual meetings were sent to all IAG members as a follow-up to our summer

meetings. In addition, newsletters and correspondence is sent out quarterly to our Indigenous network created as part of the Study.

In addition to the study's Indigenous Advisory Group there is Indigenous participation on the Government Forum (Fort Belknap Indian Community, Blackfeet Nation and the Kainai Nation), as well as the Aquatic Ecosystem, Socio-Economic Analysis and Climate and Hydrology Technical Working Groups.

3.4. Technical Tasks and Working Groups

The six technical working groups (TWG) have been coordinating efforts for implementation of the first and second rounds of modeling. One TWG is developing hydrologic models and a method to simulate streamflow using future climate inputs. The Water Management Modelling TWG is developing two water management models (RiverWare and WRMM) to model how changes in the infrastructure and/or the administrative procedures will affect water availability and supply within the basin. All model runs to date have used historic streamflow data. Upcoming work will use modeled stream flows and the same infrastructure and administrative scenarios as the model runs with historical data. These results will allow the Study Board to evaluate the scenarios and make informed recommendations on structural and administrative options.

The Study will perform four modeling iterations, or Laps, to produce managed flows and reservoir elevations based on various scenarios. Streamflow of the St. Mary River at the border, Milk River at the western crossing, and Milk River at the eastern crossing will be the primary locations where outputs are analyzed. The iterative Lap process is designed as follows:

- Lap 1: Preliminary testing of the water management models
- Lap 2: A robust modeling effort to examine more scenarios, incorporate hydrologic model outputs into water management models, simulate future climate scenarios, and refine visualizations to present water management model outcomes
- Lap 3: A more refined water management modelling effort that fully incorporates future climate scenarios, and ensures a more accurate and comprehensive approach to water resource planning and management
- Lap 4: A final lap of modeling using historic and possible future climatic conditions

Modeling scenarios for Lap 1 include:

- Base case: St. Mary Canal at 600 cfs without LOI (Letter of Intent)
- St. Mary Canal at 850 cfs without LOI
- Capped credit for surplus deliveries with St. Mary Canal at 600 cfs, 850 cfs
- Split capped credit for surplus deliveries with St. Mary Canal at 600 cfs, 850 cfs
- No-cap credit for surplus deliveries with St. Mary Canal at 600 cfs, 850 cfs
- 600 cfs + Lower St. Mary storage

- 850 cfs + Lower St. Mary storage

Proposed modeling scenarios for Lap 2 include:

- Canadian Milk River Storage (Forks Reservoir) with St. Mary Canal at 600 cfs, 850 cfs
- Deficit trading with St. Mary Canal at 600 cfs, 850 cfs
- Conveyance loss (total failure)
- Conveyance loss (assume canal equilibrium capacity of 500 cfs)
- 850 cfs + Canadian Milk River Coulee Storage
- 600 cfs + Upper St. Mary Lake Storage
- 850 cfs + Upper St. Mary Lake Storage
- 600 cfs + Lower and Upper St. Mary Lake Storage
- 850 cfs + Lower and Upper St. Mary Lake Storage
- Lower St. Mary Lake Storage with 600 cfs canal and split-cap credit
- Lower St. Mary Lake Storage with 600 cfs canal and cap credit

The Study is using performance indicators (PIs) to evaluate how different structural and administrative changes affect reservoir volumes and streamflow throughout the basins which subsequently affect the different uses and needs for the water. PIs have been developed for the study and are being reviewed with input from the Study Board, PAG, IAG, and GF. PI categories include access to entitlements for both countries, irrigation water availability for irrigators in all basins, ecological and socioeconomic interests, as well as water availability that considers Indigenous interests.

Continuous engagement with stakeholders is crucial for developing relevant and effective PIs and scenarios. Results from each lap are shared with the public and advisory groups to gather input and refine the study's approach. This comprehensive approach ensures that the study incorporates diverse perspectives and robust data analysis to improve water management strategies for the St. Mary and Milk Rivers.

Notable technical accomplishments:

- Project planning progression – lap concept developed, defined, and implemented.
- Lap 1 modeling results from U.S. RiverWare and Alberta WRMM water management models are in review and are being used to visualize first draft performance indicators
- Infrastructure scenarios developed and prioritized for Laps 1 and 2 based on feedback from advisory groups
- Innovative administrative options conceived and refined for incorporation into the model during Lap 2.
- Visualization tools for initial PIs have been developed and are under review
- Finalization of development of hydrologic models used to model hydrology in both basins.
- Future climate data have been processed for input into hydrologic models.

4. Budget and Timelines

On May 30, 2024, the ISMMRSB announced that a request to the IJC for an extension on the study was approved. The Study Board was given up to one year of additional time to complete its work and fully consider the results of its technical work and input from its public, Indigenous, and governmental advisory groups. The additional time allows the Study to complete Laps 3 and 4 to ensure that it explores structural and non-structural options, and combinations thereof, that were not considered by the Alberta-Montana Joint Initiative. Anticipated modeling completion dates include:

- Lap 1: September 30, 2024
- Lap 2: December 31, 2024
- Lap 3: August 29, 2025
- Lap 4: October 31, 2025

Beginning in November 2025, all technical work is planned to be completed, with the remaining time until the end of December 2025 reserved for technical writing. An initial draft of the final report will be completed by December 31, 2025. This timeline allows the Study Board five months to seek public comment and further refine the draft report based on feedback. The Study Board will provide the Commission with a final report, including all the Board's findings, conclusions, and recommendations by June 1, 2026.

The Study Co-Chairs, along with IJC staff from both Sections, have reviewed the budget and current spending. They expect the remaining funds will be enough to complete the study by June 2026.

5. Summary of Emerging Issues/Challenges

The study currently does not have any issues of emerging concern. The board appreciates the additional time allocated to the study as it has allowed the water management modelling efforts to be achievable.

6. Next Steps

The TWGs and OFEG are continuing their progress on the Study. OFEG will be presenting results of Laps 1 and 2 modelling at technical in-person meetings with the Study Board in November 2024 in Denver, Colorado. This meeting is primarily focused on discussion of Lap 1 and 2 results, performance indicators, and scenario priorities for Lap 3. Advisory groups will be involved with feedback for the modeling laps at a later date.

Regarding the technical writing of the final report, the Study Board reviewed sections of the draft report in August and left comments and suggestions for the technical writers.

The IJC Commissioner Spring 2025 Tour will review recommendations that the Study Board is proposing while seeing basin sites.

7. Issues Requiring IJC direction

None at this time.