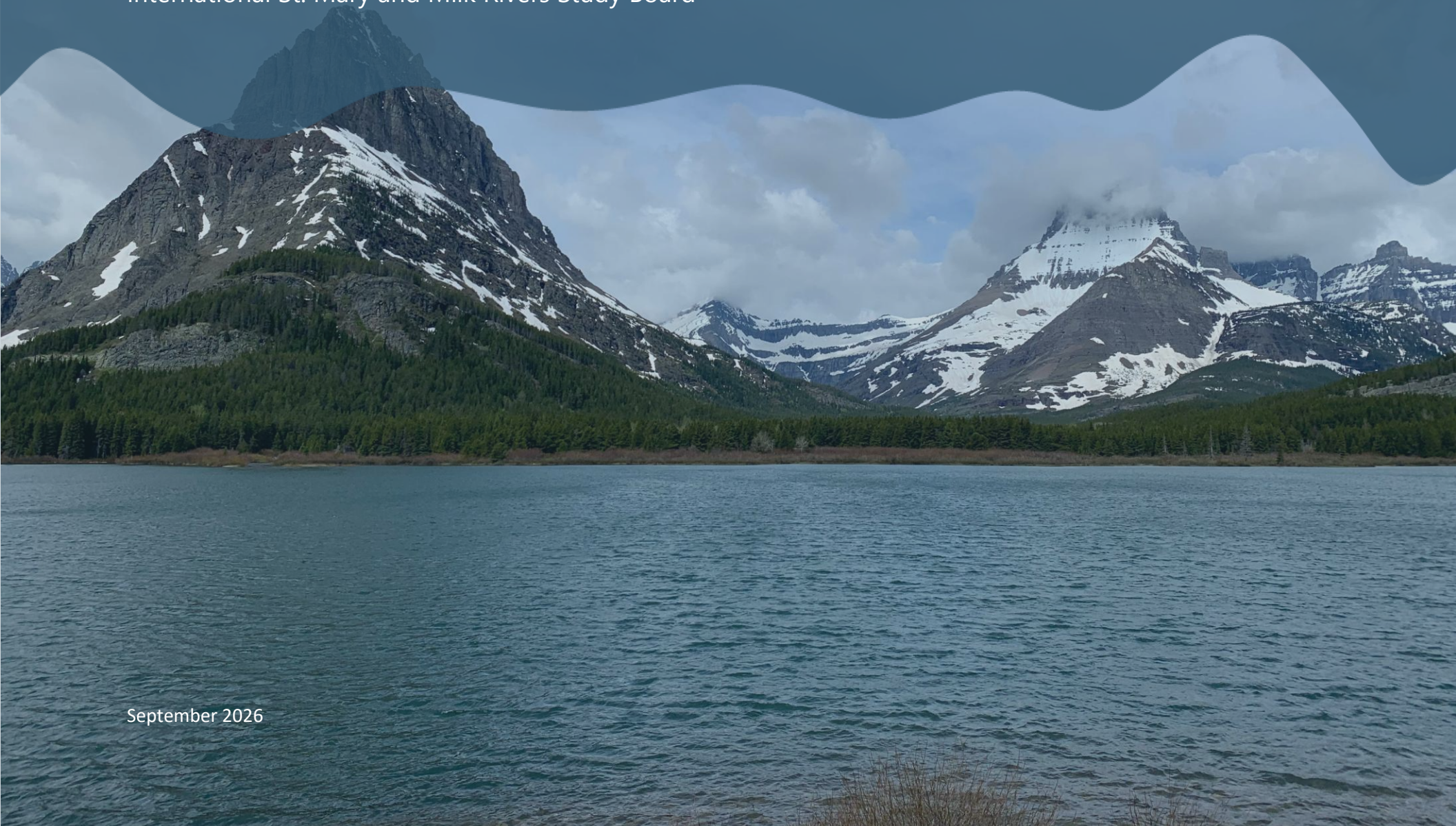
Highlights of the

International St. Mary and Milk Rivers Study

International St. Mary and Milk Rivers Study Board



September 2026

THE INTERNATIONAL JOINT COMMISSION

Under the Boundary Waters Treaty of 1909 (the Treaty), the governments of the United States and Canada established the basic principles for managing many water-related issues along their shared international boundary. The Treaty established the IJC as a permanent international organization to advise and assist the governments on a range of water management issues. The IJC has two main responsibilities: regulating shared water uses; and investigating transboundary issues and recommending solutions.

THE INTERNATIONAL ST. MARY AND MILK RIVERS STUDY BOARD

Members from Canada	Members from the United States
Dr. Alain Pietroniro (Study Co-Chair) University of Calgary (Professor), ECCC (retired) and former CAN Accredited Officer	Mr. John Kilpatrick (Study Co-Chair) US Geological Survey (retired), US Accredited Officer
Dr. Dena McMartin Vice-President (Research), University of Lethbridge	Mr. Mark T. Anderson US Geological Survey (retired), Adjunct Faculty, South Dakota School of Mines, Owner, Anderson Hydrology Consulting, LLC.
Mr. Laurie Tollefson, PAG, VPH ICID	Ms. Sue Lowry Owner, Avocet Consult, LLC; Chair, Red River Compact Commission
FM (Malcolm) Conly (Alternate Co-Chair) ECCC/NHS (retired)	Melissa Schaar (Alternate Co-Chair) Acting Director of Wyoming-Montana and Dakota Water Science Centers, USGS and Field Representative of the US Accredited Officer

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Contents

This report summarizes some of the key findings from the multi-year International St. Mary and Milk Rivers Study (the Study) and is organized around a set of four questions:

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Additional details about the Study's evaluations, as well as the associated technical reports, are available on the Study's website:
International St. Mary and Milk Rivers Study Board | International Joint Commission

How did we get where we are today?

West Milk River Canyon, Alberta, Canada, by Jason Woodhead, 2020, Flickr, CC BY 2.0

HOW DID WE GET WHERE WE ARE TODAY?

The St. Mary and Milk Rivers and the lands they drain (Figure 1) have sustained people, animals, and the environment for millennia. In the late 1800s, as pressure increased from governments and settlers to develop farms and industry in the border region between Canada and the United States, disputes over the waters shared by the two countries became more frequent. **The St. Mary and Milk River watersheds – two separate river basins that are treated as one for the purposes of the Boundary Waters Treaty**[1] – straddle the border between the two countries. The desire by both countries to share a reliable supply of water for agricultural and ranch lands in southern Alberta and northern Montana led, in part, to the signing of the **1909 Boundary Waters Treaty** (BWT) and the creation of the International Joint Commission (IJC). The IJC prevents and resolves disputes over the use, obstruction, diversion, measurement, and apportionment of water that crosses the international boundary.

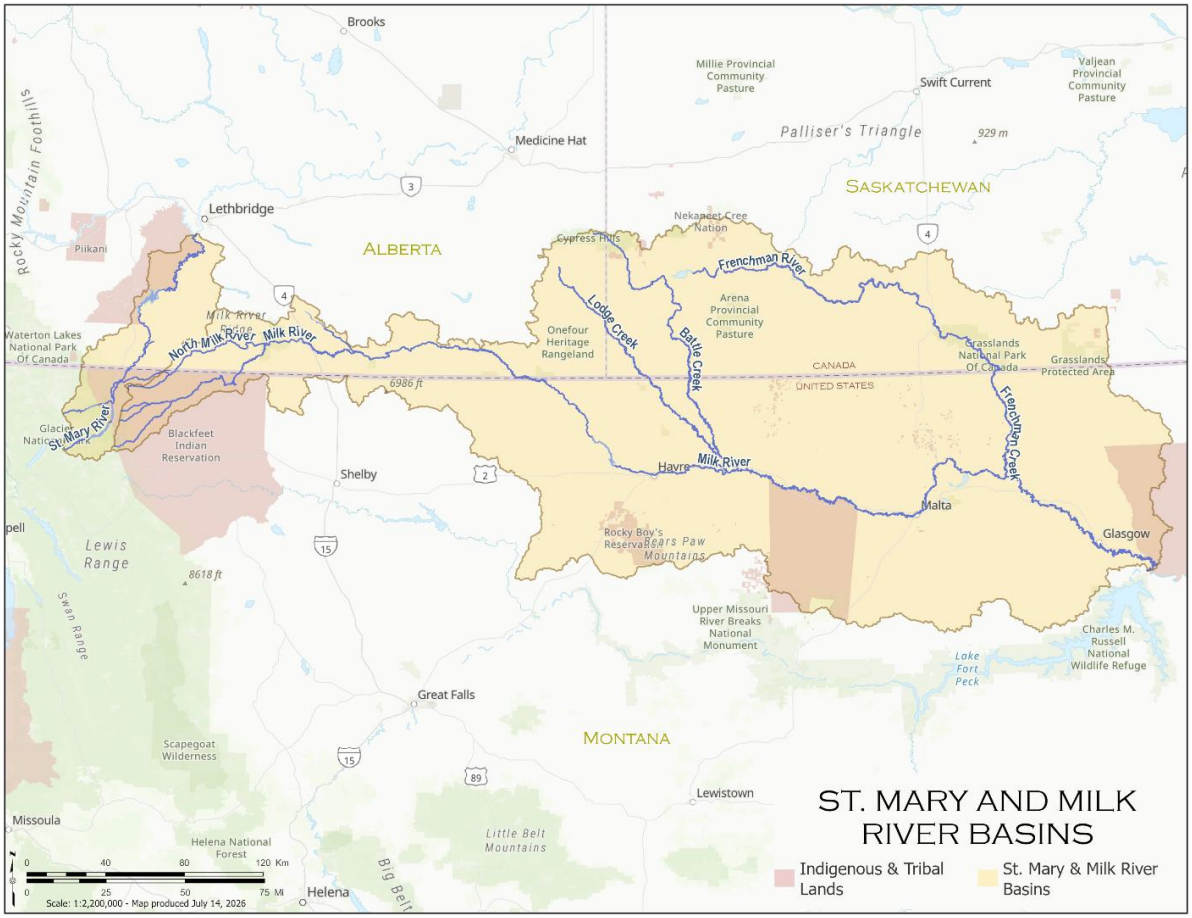

Figure 1. The St. Mary and Milk River Basin in Alberta, Saskatchewan, and Montana

[1] This report uses the term "Basin" to represent the overall St. Mary and Milk River Basin, the subject of this study, and "watershed" when referring to drainages of the individual rivers.

Article VI of the BWT specifically addressed the St. Mary and Milk Rivers, and an **IJC Order** was signed in 1921 with more detailed instructions on how the measurement and apportionment (sharing) of water from these two rivers is to be managed by the Reclamation and Irrigation Officers – now known as the 'Accredited Officers' (AOs) – appointed by the government of each country.

The Accredited Officers determine the daily natural flows at the border for the St. Mary, Milk, and Frenchman Rivers, and Lodge and Battle Creeks[2]. The natural flow is the quantity of water which would naturally flow in a watercourse, had the flow not been affected by human-made features (including diversions, reservoirs, or consumptive uses). The entitlement and receipt for the main stems of the St. Mary and Milk Rivers for each country are tracked and reported for the irrigation season (April 1 – October 31), by calendar year. Meanwhile, entitlements and receipt for the Eastern Tributaries (Lodge Creek, Battle Creek, and Frenchman River) and all apportioned streams are tracked for the full calendar year outlines the entitlements for Canada and the United States.

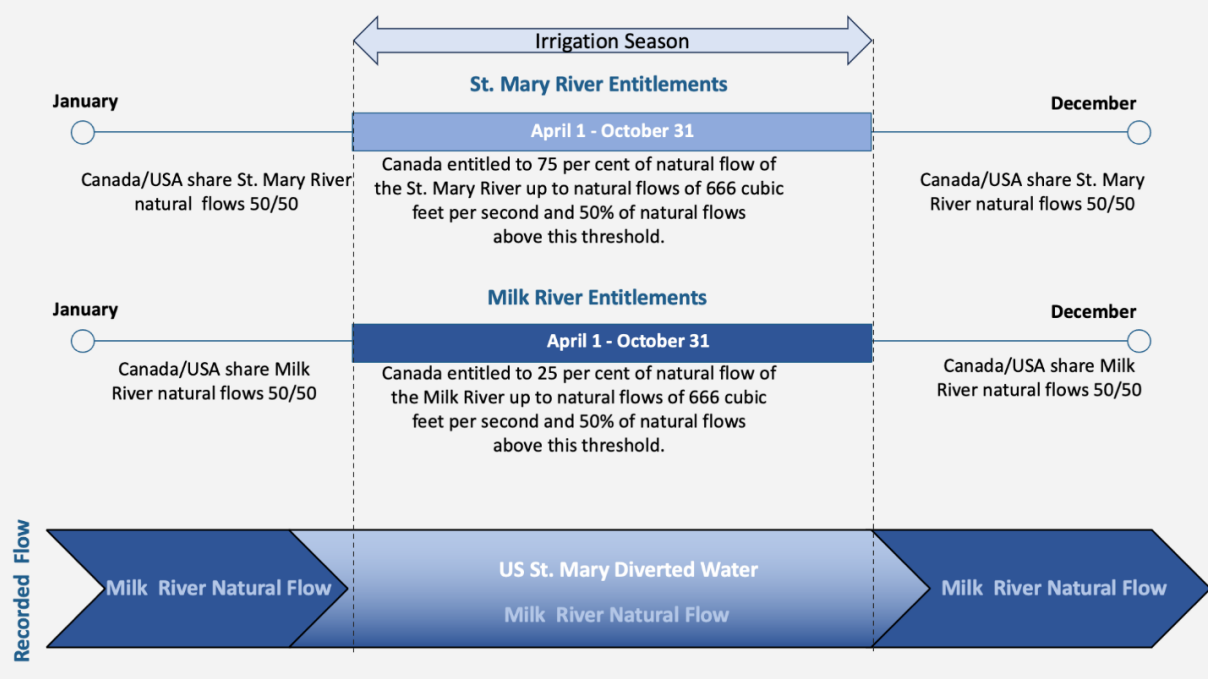

Figure 2. Water Apportionment in the St. Mary and Milk River Basins under the 1921 IJC Order

[2] The **official record of natural flows** is agreed to by the AOs.

Although the treaty mandates flow rate entitlements, it does not address the timing for balancing of any deficits.

Application of the apportionment provisions of the 1921 Order results in a specific amount of water being identified as each country's apportioned amount or "entitlement". In practice, the amount of water received by the upstream country has been less than its entitlement. The upstream country's receipt is what it actually uses or accesses. The downstream country receives what the upstream country doesn't access. Despite the governing framework established under the 1909 Boundary Waters Treaty and the 1921 IJC Order, both countries have historically faced difficulties fully accessing their water entitlements due to hydrologic variability, infrastructure limitations, and rigid administrative procedures.

The St. Mary River provides a relatively reliable, snowmelt-driven water supply, while the Milk River is highly variable and dependent on seasonal runoff and precipitation. This imbalance has resulted in differing levels of water security and irrigation development between the two watersheds, with the Milk River watershed particularly vulnerable to shortages and drought. Climate change is expected to exacerbate these challenges by increasing temperatures, shifting runoff timing, and intensifying drought frequency and severity, especially in the Milk River basin.

Periodic attempts to resolve the matter and resulting study efforts have allowed for some flexibility but have failed to solve the issue. Over the years, there have been many efforts to review how water is shared along the boundary, particularly in the face of present and expected future impacts from a changing climate and aging infrastructure used to store, regulate, and/or transport water. These long-standing challenges in accessing entitlements prompted the request for a study to identify potential changes in procedures and infrastructure that might improve each country's ability to access its entitlements.

What has the IJC done to find solutions?

St. Mary River, Glacier National Park, Montana by the Glacier National Park Service (NPS), 2017, Flickr, CC BY PDM 1.0

WHAT HAS THE IJC DONE TO FIND SOLUTIONS?

Changing weather and runoff patterns are making water less available when users need it most.

In 2019, the AOs proposed a study to identify potential changes in procedures and infrastructure that might improve each country's ability to receive its entitlement of the water and add more flexibility in how water is managed in response to changing climate.

To this end, the United States and Canada issued a letter on June 28, 2021, in support of the IJC's plans to undertake a new study. Subsequently, the IJC issued a Directive on November 10, 2021, to create the International St. Mary and Milk Rivers Study Board ("Study Board"). The Study Board, which included three members from Canada and three from the United States, was formed to study and make recommendations to the IJC regarding structural (infrastructure) and non-structural (administrative) options and combinations thereof to improve each country's receipt of its water entitlement.

Study Approach and Structure

To accomplish its goals, the Study Board received assistance from several key committees and advisory groups:

- **Government Forum** – A working group including members from federal, Indigenous, state, and provincial governments having a direct interest in water apportionment and/or St. Mary and Milk River basin infrastructure.
- **Options Formulation and Evaluation Group (OFEG)** - A working group responsible for overseeing and coordinating the work done by the Technical Working Groups.
- **Technical Working Groups (TWGs)** – Six TWGs were established to conduct the Study's technical work. Each TWG included co-chairs, members, advisors and observers who are experts in hydrology, climate change and adaptation, socioeconomics, infrastructure, water apportionment, aquatic ecosystems, and the formulation and evaluation of options.
- **Public Advisory Group (PAG)** – A group that included members from non-governmental organizations, resource agencies and the public, who provided informed input and helped with public and stakeholder engagement.
- **Indigenous Advisory Group (IAG)** – A group that included members and interested observers from Indigenous Nations (First Nations, Métis Nation, Tribes) residing or having land in the basin, who informed the Study on Indigenous interests, Indigenous Knowledge, and Indigenous Science.
- **Independent Review Group (IRG)** – A group of experts who carry out independent technical reviews of study materials.

In carrying out this study, the Study Board integrated as many considerations and perspectives as possible as it explored options and combinations of options to improve access to entitled waters by each country, recognizing the challenges to apportionment and considering the risks posed by climate change. **The Study structure and outcomes were designed to work towards mutually beneficial solutions for both countries**. The Board considered the effects of recommended options on the socioeconomics and aquatic ecosystems of the basins and incorporated Indigenous perspectives and climate change considerations in its evaluations.

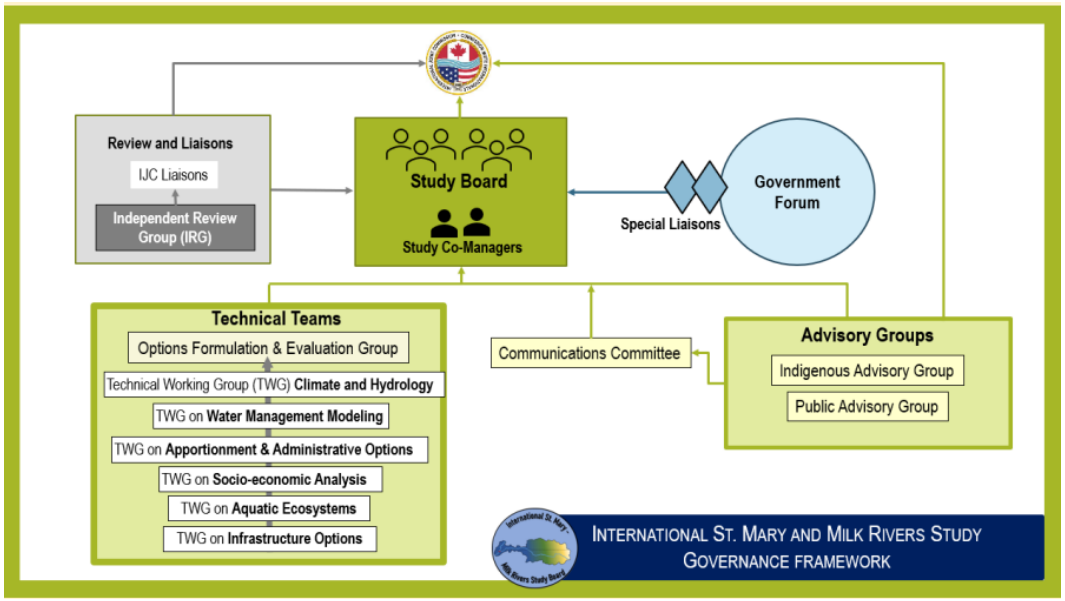

Figure 3. St. Mary-Milk River Study governance framework

Study Evaluations

Previous state and provincial efforts served as a starting point for the options considered. The options that were considered, singly or in combination, can be broken down into two categories: structural and non-structural (administrative) options. Structural options require building or restoring infrastructure and the participation of federal/state/provincial governments to evaluate, fund, and implement. Examples include St. Mary Canal improvement, Lower St. Mary Lake storage improvement, Canadian Milk River storage, and Canadian conveyance alternative. Non-structural (administrative) options (i.e., changes in water management administrative procedures) are largely within the authority or control of the Accredited Officers for the St. Mary and Milk River Basin. Examples include modified balancing periods and capped credit systems.

As with many past efforts in the basin, efforts were focused on the St. Mary and Milk Rivers. Some of the study's findings may have implications for the Eastern Tributaries of the Milk River, so the entire system needed to be considered. However, the analysis and option formulations in this study focused on deliveries of water on the St. Mary and Milk Rivers down to the first major reservoir on each river, the St. Mary and Fresno reservoirs, respectively. The Study did not evaluate water-sharing allocations within each country, nor recommend changes to current domestic (federal, Indigenous, state, provincial, regional) water-sharing agreements, rights, or frameworks.

Fulfilling the goals of the study entailed the following activities :

- Characterize historic water use and water availability in the study area;
- Develop combinations of potential changes in administrative procedures and infrastructure for simulation;
- Develop updated hydrologic and water management models to evaluate water availability under various climate and apportionment scenarios;
- Describe the socioeconomic and ecological effects of the scenarios; and
- Recommend to the IJC the preferred combination(s) of changes in administrative procedures and/or infrastructure that will improve each country's ability to access its share of water from these basins.

The **Study developed Performance Indicators (PIs)** to **measure** and **communicate** the **effects of the structural** and **non-structural options** being examined. PIs in this Study are metrics that quantify the effects of changing water availability on the use or value of water. The PIs were developed in coordination with input from advisory groups, public meetings, and stakeholders and used to compare various scenarios of structural and administrative options to a base case scenario. The PIs focused on three main areas of interest:

- receipt of entitlements
- impacts on irrigation
- aquatic ecosystem health.

Four performance indicators were developed to evaluate the impact of different scenarios on the receipt of entitlements:

- Canada's receipt of entitlement of the St. Mary River at the International Boundary
- United States' receipt of entitlement of the St. Mary River at the International Boundary
- Canada's receipt of entitlement of the Milk River at the International Boundary
- United States' receipt of entitlement of the Milk River at the International Boundary.

Fifteen performance indicators were developed to evaluate the impact of different scenarios on the receipt of entitlements:

Impacts on Canadian St. Mary River irrigators:	Impacts on Canadian Milk River irrigators:	Impacts on United States Milk River irrigators:
May	May	May
June	June	June
July	July	July
August	August	August
Combined period, May-August	Combined period, May-August	Combined period, May-August

Three performance indicators were developed representing aquatic ecosystem health (AEH), for the bull trout, a threatened species of fish in the St. Mary River:

- bull trout population growth rate in July
- bull trout population growth rate in August
- bull trout population growth rate in September

Options evaluated

A summary of options/scenarios evaluated is shown in Table 1.

Table 1. Options/Scenarios modelled during the Study

Gray shading demotes scenarios that were proposed in the Study workplan.

***Options/Scenarios modelled as a combination, with both 600 and 850 ft^3/s St. Mary Canal capacity are noted with an asterisk.**

Option/Scenario	Description	Option/Scenario type
Base Case	Estimated current conditions using administrative procedures defined in the Treaty and the Order, without the current administrative flexible balancing option utilized by the AOs, and the US St. Mary Canal capacity of 600 ft^3/s (17 m^3/s). The base case was used as a consistent scenario to which all others were compared.	None
St. Mary Canal Improvement	Rehabilitation of the US St. Mary Canal to the original capacity of 850 ft^3/s (24.1 m^3/s)	Structural
US Lower St. Mary Lake Storage*	Inflatable dam creates storage in the Lower St. Mary Lake by retaining the spring freshet until later in the irrigation season. Lake level will not exceed the typical high-water level naturally achieved. Storage could be refilled during the year depending on snowmelt timing. Maximum storage of 8,800 acre-feet (10,900 dam^3)	Structural
Canadian Milk River Storage (1)* (Forks Reservoir)	On-channel storage on the Milk River in Canada 3 miles downstream of confluence of Milk River and North Milk River. Maximum storage of 257,000 acre-feet (317,000 dam^3).	Structural
Canadian Milk River Storage (2)* (Miners Coulee)	Off-channel storage in a Milk River tributary Coulee at confluence of Miners Coulee and MacDonald in Canada. Maximum storage of 15,000 acre-feet (18,500 dam^3)	Structural
US Upper and Lower St. Mary Lake Storage*	Inflatable dam creates storage in both Upper and Lower St. Mary Lakes by retaining the spring freshet until later in the irrigation season. Lake levels will not exceed the typical high-water level naturally achieved. Seasonal maximum combined storage of both Lakes is 16,800 acre-feet (20,700 dam^3)	Structural

Option/Scenario	Description	Option/Scenario type
Modified Annual Balancing*	For each river, surplus and deficit deliveries are accounted for as a cumulative balance over the period from November 1 to October 31 of the following year. The United States may carry a maximum deficit of 20,000 acre-feet (24,700 dam^3) on the St. Mary River, and Canada may carry a maximum over-delivery credit on the Milk River of 4,000 acre-feet (4,900 dam^3). The United States may divert additional water from the St. Mary River utilizing accumulated credits and/or deficits below the cumulative maximum, while maintaining minimum daily instream flow on the St. Mary River of 200 ft^3/s or the Canadian Share (whichever is less). Canadian irrigators on the Milk River may withdraw their share or accumulated credits, if their share is insufficient to meet needs.	Administrative
Capped Credit*	Upstream countries allowed to accumulate credit for surplus flows delivered between November 1 and October 31. US credit is capped at 32,000 acre-feet (39,500 dam^3) on the St. Mary River, and Canadian credit is capped at 16,000 acre-feet (19,700 dam^3) on the Milk River. Canadian credits on the Milk River are drawn from the natural flow of the Milk River at the Eastern Crossing, except when the natural flow is insufficient, in which case, Canada may draw upon a maximum credit of 4,000 acre-feet (4,934 dam^3) from the US St. Mary Canal diversions flowing through the Milk River.	Administrative
No Cap Credit*	Upstream countries allowed to accumulate credit for surplus flows delivered between November 1 and October 31 with no cap on accumulated credits. The upstream country is not permitted to make deficit deliveries unless they have accumulated credit water. Canadian credits on the Milk River are drawn from the naturalized flow of the Milk River at the Eastern Crossing, except when the naturalized flow is insufficient, in which Canada may draw a maximum credit of 4,000 acre-feet (4,934 dam^3) from the US St. Mary Canal diversions flowing through the Milk River.	Administrative

Option/Scenario	Description	Option/Scenario type
Lower St. Mary Lake Storage and Capped Credit*	See descriptions of individual scenarios above	Combination
Upper and Lower St. Mary Lake Storage and Modified Annual Balancing*	See descriptions of individual scenarios above	Combination
Upper and Lower St. Mary Lake Storage, Modified Annual Balancing, and Forks Reservoir*	See descriptions of individual scenarios above	Combination
Miners Coulee and Capped Credit*	See descriptions of individual scenarios above	Combination
Miners Coulee and Modified Annual Balancing	See descriptions of individual scenarios above	Combination

The various modelled scenarios were assessed for their impacts, both positive and negative, on the performance indicators. These evaluations formed the basis for developing the Study Board's recommendations.

What should be done in the future?

WHAT SHOULD BE DONE IN THE FUTURE?

As the Technical Working Groups and Options Formulation and Evaluation Group were completing their work and providing preliminary findings, the Study Board began considering recommendations based on four and a half years of gaining a better understanding of how water is apportioned in the St. Mary and Milk Rivers and considering how that could be improved.

This new understanding led the Board to consider **two classes** or kinds of **recommendations**:

1. **general recommendations** about how the AOs and the IJC could more effectively work with local citizens and government entities in these watersheds and

2. **specific recommendations** on how the AOs' administrative procedures or the infrastructure in these watersheds could be changed to help each country better access its share of the water.

General recommendations focused on the following areas:

- Water management modelling
- Data analysis and evaluation
- Infrastructure investments
- Engagement of Advisory Groups following the completion of the Study

More specific recommendations focused on a significant change in administrative procedures as well as a list of infrastructure changes that seem most likely to improve access to entitlements for one country or the other in some circumstances. The administrative and infrastructure changes that are recommended included:

- Modified Annual Balancing Administrative Option
- 850 ft^3/s Canal
- Control structures on Upper and Lower St. Mary Lakes
- Long-term storage development on the Milk River

General Recommendations

Starting in the fall of 2025, while awaiting the final modelling results to evaluate different administrative and infrastructure options, the Study Board began developing a group of general recommendations to the IJC and AOs based on the board's observations and vision for how water could be apportioned in these watersheds in the future. Through its engagement activities, the Study Board gained a broader understanding of stakeholder perspectives and watershed governance issues, allowing it to develop general recommendations focused on improving collaboration, transparency, and decision-making in the apportionment process. The process to develop these recommendations was simple and straightforward and the Board had no difficulty quickly reaching consensus on the need for four recommendations described in the following subsections.

The Board discussed potential recommendations through a series of regular weekly meetings. Initial recommendation concepts were developed and drafted by a subset of the study team and subsequently circulated to the full Board for review. Draft recommendations were refined through an iterative process of editing and discussion during weekly meetings, allowing Board members to provide input and build consensus. Recommendations received tentative approval during these regular meetings before being formally deliberated upon and approved by the Board at an in-person meeting held in Calgary in February 2026.

Water Management Modelling

Findings

The Study Board invested considerable resources updating two proprietary, legacy water management models developed by partner agencies in each country for use in this study. The Board considered other potential water management modelling software and was unable to identify an appropriate open-source and cost-effective alternative. After comparing results from these two primarily independently developed models, the board recognized that the use of two models greatly enhanced understanding of water apportionment in these watersheds and increased confidence in the models' results.

Recommendation

The Study Board recommends the IJC and Accredited Officers maintain the ability to use one or more of these water management models to evaluate new scenarios that might be developed in the coming years.

Data Analysis and Visualization

Findings

Given the complexity and amount of data produced by the two water management models, the development of a data analysis and visualization tool was required so the Study Board, as well as the members of Advisory Groups and the Government Forum, could view the data and compare different scenarios that were modelled, increasing transparency of the work conducted throughout the study.

Recommendation

The Study Board recommends the IJC consider this type of data analysis and visualization application within the basin and noted that such an approach could be effective for use across other boards.

Infrastructure Investments

Findings

The IJC should be aware that, at times, both countries are affected by changes/improvements in infrastructure by the upstream country. Also, the perception or reality that the downstream country can benefit from the upstream infrastructure changes, without a financial contribution, can potentially harm the sharing of the water in these watersheds and the willingness for jurisdictions to work together to make the most effective and efficient use of water in these watersheds.

The Board consistently heard participants identifying infrastructure as a key factor in improving water management in the St. Mary and Milk River basins. Stakeholders emphasized the need to repair, upgrade, and replace aging diversion and conveyance systems to improve reliability, support water users, increase resilience to changing conditions, and sustain long-term watershed health and cross-border water-sharing arrangements. Therefore, when infrastructure options are being evaluated, there are benefits and costs to both countries.

Recommendations

The Study Board recommends that the IJC and governments ensure that, when changes/improvements in infrastructure and administrative options are being considered, governments evaluate the benefits and the costs to each country.

The Study Board also recommends that governments explore ways that ongoing maintenance costs as well as capital improvement or initial building costs can be shared, when reasonable, should both countries benefit from existing, upgraded, or new infrastructure.

Integrating Aquatic Ecosystem Considerations

Findings

The Aquatic Ecosystems Technical Working Group identified aquatic species that are threatened, endangered, extirpated or are of special concern, including those listed under the Canadian Species at Risk Act (SARA) and the US Endangered Species Act (ESA). Performance indicators were developed for bull trout response to streamflow in the St. Mary system and were used to conduct a preliminary assessment of how modelled apportionment scenarios could potentially affect population-level responses. Knowledge gaps and the lack of available data to inform the development and application of other relevant environmental flow indicators were also identified. Over the course of the Study, input from the Public Advisory Group and the Indigenous Advisory Group provided additional perspectives on knowledge gaps and concerns regarding future water apportionment decisions and their potential effects on the ecological integrity and aquatic health of the basins.

The Board recognizes that under the IJC's 1921 Order, the Accredited Officers' (AOs') mandate is strictly water apportionment, and the following recommended efforts would be undertaken by relevant parties outside of or in addition to the AOs' current responsibilities.

Recommendations

The Study Board recommends that the AOs, in cooperation with relevant agencies, Indigenous Nations/Tribes, stakeholders, and other interested parties, investigate opportunities to improve understanding of the impacts of water apportionment decisions on aquatic ecosystem considerations within the St. Mary and Milk River basins. Such efforts should build upon existing scientific studies, monitoring programs, Indigenous Knowledge, and local expertise to better understand the relationship between water apportionment, flow regimes, and ecosystem health.

The Accredited Officers should consider whether additional information, monitoring, or analytical approaches could support the future consideration of aquatic ecosystem health within the framework of the Boundary Waters Treaty, the 1921 Order, and existing water accounting and apportionment procedures. This may include evaluating ecological flow relationships, seasonal flow requirements, and indicators related to species and habitats of

concern where such information is available and relevant to water management decisions.

The Study Board further recommends that the development of ecological flow relationships continue to advance and mature through existing programs and initiatives to identify critical thresholds, seasonal needs, and management considerations for species and habitats of concern. This may include the further development of performance indicators for aquatic species and riparian communities (e.g., cottonwood) that could improve understanding of the potential ecological implications of future water management and apportionment decisions.

This approach would provide additional information to support future decision-making while recognizing the Accredited Officers' primary responsibility for water apportionment under the Boundary Waters Treaty and the 1921 Order.

Engagement of Advisory Groups Following the Completion of the Study

Findings

As part of the Study's directive, the IJC, in cooperation with the Study Board, established three advisory groups (Indigenous Advisory Group, Public Advisory Group, and Government Forum) that included members of Indigenous Nations, irrigators, stakeholders, and resource managers from local, State, Indigenous, Provincial and Federal governments. Members of these advisory groups have contributed valuable perspectives from the basin.

Engaging Indigenous Peoples, governments, and the public through these Advisory Groups has positively impacted the Study outcomes. Most of the engineers and scientists in the TWGs do not depend upon water resources in the basin and their interpretation of Study outcomes benefits from shared information from the Advisory Group members with experiential and historical knowledge in the basin.

Insights offered during Advisory Group meetings were tracked and ultimately helped the Study Board make final recommendations. Among the most successful engagement activities for advisory groups were in-person meetings held in Canada and the United States. Meetings built an avenue for connection and sharing amongst people in the basin and the Study Board and resulted in greater understanding of what it means to be "upstream and downstream." For example, a conversation between irrigators in 2023 during an unusual hydro-climatic year in the basin (e.g. persistent wet conditions in the United States compared with drier conditions in Canada) resulted in an additional sharing of water from the United States to Canada. During this period, US irrigators encouraged the Accredited Officers to allow Canadian Milk River irrigators to continue pumping after their share of Milk River flows fell below their average use, benefiting Canadian irrigators without harming US irrigators who needed no additional Milk River water for the season. As a result, the Study has generated positive momentum regarding understanding of shared waters of the St. Mary and Milk River basin, and the collaboration must continue beyond the life of the Study.

Recommendation

The Study Board recommends that the Accredited Officers, in consultations with IJC and governments at all levels, continue engagement, involvement and education of basin communities (Indigenous Nations, irrigators, Federal, State, Provincial, and local resource managers) in the work of water apportionment.

Administrative and Infrastructure Recommendations

The Study Board considered a number of changes in administrative procedures and infrastructure that could improve the ability of each country to access its full entitlement of St. Mary and Milk River natural flows. Examination of the modelled effects of a wide variety of administrative and infrastructure options, individually and in combination, indicated that each country came closer to receiving its full entitlement. All options were evaluated using all performance indicators, with a primary focus on each country's ability to access its full entitlement and availability of water to meet irrigation demands between May and August.

The Study Board recognized that infrastructure investment and the allocation of costs for water resources infrastructure are significant issues on both sides of the international border. Infrastructure costs and allocation remain the responsibility of water users and the local, State/Provincial, Indigenous, and Federal governments in Canada and the United States. The allocation of costs and the political realities of potential infrastructure options were not considered in deliberations toward final recommendations.

All model runs were constrained by the Boundary Waters Treaty, the IJC's 1921 Order to the AOs, and local water rights. Limited environmental effects of each option were also considered, along with potential advantages or disadvantages under future potential climate differences.

Modified Annual Balancing Administrative Option

Findings

The three viable administrative options (Capped Credits, No-Cap Credits, and Modified Annual Balancing) performed comparably in improving each country's access to its entitlement. All three administrative options allow Canadian Milk River users access to up to 4,000 acre-feet (4,900 dam^3) of US St. Mary water flowing in the Milk River canal when the natural flow of the Milk River is insufficient to meet current Canadian Milk River irrigation demand. The Modified Annual Balancing administrative option is simpler to implement compared to the other two, while providing greater administrative flexibility and resilience in the system.

Under the existing 600 ft^3/s (17 m^3/s) canal capacity: On the Milk River, modelling results indicate that the Modified Annual Balancing option provides a modest but meaningful increase to US receipt of St. Mary River entitlement while enabling Canadian Milk River irrigators to reliably meet their existing irrigation demand. On the St. Mary River, implementation of the Modified Annual Balancing administrative option would ensure that Canadian St. Mary River irrigators can continue to access their full entitlement in most years and would incrementally increase US access to its entitlement.

The ability of the United States to receive its full entitlement requires the 850 ft^3/s canal in addition to implementing the Modified Annual Balancing administrative option.

Recommendation

The Study Board recommends that the Modified Annual Balancing administrative option be implemented as soon as administratively practical.

850 ft^3/s Canal

Findings

Rehabilitation of the US St. Mary Canal to its original engineered design capacity of 850 ft^3/s (24.1 m^3/s) would have by far the greatest positive effect on the ability of the United States to more fully access its entitlement of St. Mary water by providing the most additional water to Fresno Reservoir during irrigation season compared to any other changes considered. In wetter years (median or greater annual natural flow), model results indicated an estimated additional 35,000-60,000 acre-feet (43,000 – 74,000 dam^3) of St. Mary River water could be delivered into the Milk River system for use by the US Milk River Project or potentially by individual Canadian Milk River irrigators in conjunction with changes in administrative procedures. Operation of the Canal at 850 ft^3/s for most of the irrigation season could cause increased bank erosion and those effects should be understood before construction.

Recommendation

The Study Board recommends that governments prioritize the rehabilitation of the US St. Mary Canal to its original design capacity of 850 ft^3/s.

Control Structures on Upper and Lower St. Mary Lakes

Findings

The Board investigated the value of adding control structures on Upper and Lower St. Mary Lakes. This would provide approximately 16,640 acre-feet (20,500 dam^3) of additional active storage. This measure would enhance basin-wide operational flexibility, as well as drought and environmental resilience. Under a 600 ft^3/s canal capacity, the incremental benefit of this added storage is expected to be marginal, as conveyance capacity, rather than storage, is limiting. Under an 850 ft^3/s canal capacity, the additional storage could meaningfully improve water availability for United States irrigators during drier periods.

Recommendation

The Study Board recommends that control structures be installed on Upper and Lower St. Mary Lakes and therefore that feasibility analyses be conducted on the addition of these control structures, including analysis of alternatives, such as adding storage in Duck and Goose Lakes instead.

Long-Term Storage Development on the Milk River

Findings

On the Canadian portion of the Milk River basin, Canada's ability to access its full entitlement is storage dependent. Without additional storage, entitlement access remains constrained by hydrologic variability and operational limitations. The Board evaluated two different Canadian Milk River storage options: on-channel (Forks Reservoir) and off-channel (Miners Coulee Reservoir).

As noted earlier, the Modified Annual Balancing administrative option allows Canadian Milk River receipts to fully support current irrigation demand, adding limited resiliency since it allows access to available water on the Milk River to meet Canada's minimum irrigation demand, but adds no storage. Miners Coulee Reservoir could be used to provide increased interannual resiliency as well as a modest improvement to entitlement receipt. Forks Reservoir would allow Canadian Milk River receipts to approach full entitlement, allowing increased use, and would contribute additional resiliency to the Milk River basin.

Recommendation

For Canada to achieve increased interannual resiliency on the Milk River, construction of either Miners Coulee or Forks Reservoirs is required.

For Canada to access its full entitlement on the Milk River, construction of the Forks Reservoir is required, without the need for Miners Coulee Reservoir.

Anticipated Outcome if Recommendations are Implemented

The Study results indicate that no single solution resolves all apportionment challenges. However, several options consistently improve outcomes.

Administrative changes, particularly a modified annual balancing approach, provide increased flexibility in managing water across seasons and improve both countries' ability to access entitlements. Infrastructure improvements also play a critical role. Rehabilitation of the St. Mary Canal to its original capacity of 850 cubic feet per second (ft^3/s) offers the largest benefit to the United States by significantly increasing water deliveries to the Milk River system. Additional storage in the St. Mary system enhances operational flexibility, particularly under higher canal capacity conditions.

For Canada, the study finds that increased storage on the Milk River is essential to fully utilize its entitlement. Without new storage, Canadian access remains constrained by limited ability to capture and retain flows during high-water periods. Larger storage options, such as the proposed Forks Reservoir, could substantially improve reliability and enable Canada to approach full use of its entitlement, while also increasing resilience to drought and interannual variability.

The study also identifies important trade-offs. Improvements for one country may reduce flows available to the other, and economic impacts reflect differences in the value of water use across regions. The Directive to the Study Board from the IJC was to examine options for increasing each country's receipt of its water entitlement and to report on the economic effect of changes in the receipts. Water has substantial value in both countries, so changes in receipts are not without both positive and negative effects.

Unfortunately, options recommended to improve receipts and bring them more in accordance with the Treaty and the Order of 1921 have a greater negative economic impact on Canadian water users than the positive effect on those in the United States due to different irrigation and cropping practices. The Study noted these differences, but did not consider them when developing recommendations because neither the Treaty nor the IJC's Directive suggest water should be apportioned based on greatest economic benefit, but instead on equal shares, after taking prior appropriation into account. Additionally, environmental considerations, including aquatic ecosystem health and flow needs for species such as bull trout, must be incorporated into future decision-making.

Implementing flexible administrative procedures, enhancing conveyance capacity, and developing additional storage—particularly in the Milk River basin—would significantly improve the reliability and equity of water use between the two countries.

What comes next?

WHAT COMES NEXT?

Together, the Study Board's recommendations provide a practical and adaptive pathway toward improving water management in the St. Mary and Milk River basin under both current and future conditions.

Substantial feedback was received during the public comment period for the final report. The Study Board carefully considered these comments and incorporated relevant suggestions in the development of the final report.

Going forward, the process will move from recommendation to review and potential implementation. The Study Board identified options, but cannot implement them. The Study Board received and incorporated public review comments and will submit its recommendations to the International Joint Commission. The IJC will then evaluate the recommendations and seek additional input from the Accredited Officers, who may engage provincial, state, federal, Indigenous, and other interested parties on matters related to implementation. The IJC will consider this information in developing its own recommendations to the Governments of Canada and the United States.

Administrative recommendations, such as changes to apportionment procedures, could be addressed through future actions by the Accredited Officers and may be implemented relatively quickly if accepted. Structural recommendations, however, would proceed through domestic government processes that may include engineering studies, environmental assessments, funding decisions, regulatory approvals, and potential future IJC review where shared boundary waters are affected. Structural projects typically take many years to decades, due to planning, approvals, funding, and construction requirements. In all cases, implementation decisions ultimately rest with the responsible governments and agencies, while the IJC continues its role of providing independent oversight and fostering cooperative management of these shared international waters.

Through its integrated approach, the Study provided science-based, stakeholder-informed recommendations that address water management challenges while supporting the long-term sustainability and cooperative management of the shared St. Mary and Milk River basins.