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## Milk River Dam an Option, Says International Report

By Dr. Shirley Bray

The Milk River dam is still an option to help Alberta capture its annual share of the Milk River, according to a report by a special international task force. In its final draft report released in April 2006, the International St. Mary and Milk Rivers Administrative Measures Task Force found that based on 55 years of records, application of the 1921 International Joint Commission (IJC) Order does not provide for equal entitlements to both countries of the annual flows of the St. Mary and Milk Rivers. The U.S. has historically received 4% less than the combined flows to which it is entitled, and Canada has received 4% more.

The IJC established the Task Force in December 2004 to determine whether water from the two rivers was being apportioned equitably and what administrative improvements could be made to help each country optimize the use of their apportioned waters. The Task Force also looked briefly at other potential options, including infrastructure improvements and enhancements. The Task Force found that improvements to the St. Mary storage and conveyance facilities in Montana and additional storage on the Milk River in Alberta may allow diversion of full entitlement by both countries; however, environmental impacts and instream flow needs would have to be considered.

The aquatic and riparian environments of both the St. Mary and Milk Rivers are stressed and degraded by current water management. The Southern Alberta Environmental Group (SAGE) noted in their submission that "healthy rivers reflect healthy societies." SAGE and AWA urged the IJC, which is responsible for making decisions regarding the use and quality of boundary waters, to make decisions that would lead to the protection and restoration of the health of these rivers. The Task Force recognized the importance of instream flows and touched on some possible new management options at the end of their report, but focused largely on dealing with problems within the current administrative structure.

The IJC established the Task Force in December 2004 in response to a request in 2004 by then-governor of Montana Judy Martz that the IJC review its 1921 Order to determine whether the waters of the St. Mary and Milk Rivers were being shared equitably. Alberta and Saskatchewan wrote letters supporting the existing Order. The dispute is not new (see *WLA* Feb. 2005).

### Diversions Dilemmas

The 1921 Order outlines how water from the two rivers is allocated. The combined entitlement for the St. Mary River, Milk River, and Eastern Tributaries (from the Cypress Hills), which is based on natural flows, results in approximately 45% going to the U. S. and 55% going to Canada. Montana is currently receiving only 41% but would like 50%, while Canada is getting 59%.

The Task Force showed that over the 1950-2004 period of recording, on average, the U.S. has diverted approximately 62% of its entitlement of the St. Mary River total annual volume, while Canada has received approximately 126% of its entitlement. Over this same period, the U.S. has received approximately 141% of its entitlement of Milk River total annual volume, while Canada has diverted approximately 25% of its entitlement.

Although both rivers arise in Montana and cross the border into Alberta, the St. Mary River does not flow back into the States, but the Milk River does. So the U.S. must try to divert its entitlement from the St. Mary before it crosses the border, while its entitlement from the Milk can be captured further downstream





as well. Canada has the opposite problem; it must capture its Milk River entitlement before it flows back into Montana.

Canada and the U.S. have not been able to fully divert or use their entitlements from the Milk and St. Mary Rivers respectively for three main reasons: lack of sufficient infrastructure to capture flows, inability to capture winter flows, and lack of a credit system to allow for surplus deliveries. The Task Force investigated a number of opportunities for improving the current administrative measures used in apportioning the flows, including natural flow calculations, balancing periods, allowing for surpluses and deficits, and letters of intent.

During the winter, Alberta cannot divert its share of the Milk River and Montana cannot divert its share of the St. Mary River, so diversions must occur during the irrigation season from approximately March to October, preferably during periods of higher flows. However, because diversions must occur from the natural flow and because of the current accounting methods, Alberta cannot divert more of its share from the Milk River without more infrastructure or different accounting methods.

To capture its share of the St. Mary River, the U.S. stores water from Swiftcurrent Creek, a tributary of the St. Mary, in the Sherburne Reservoir in the spring. The U.S. also diverts St. Mary water, from both natural flows of the river and the reservoir, into the Milk River via the St. Mary Canal for use in the lower Milk River valley in Montana. Here water from the Milk River can be captured in the Fresno Reservoir. The canal operates from April to October, providing much of the water in the Milk River flowing through Alberta during these months, often 10 to 20 times the natural flow of the river.

With no onstream storage on the St. Mary, the U.S. is limited in its ability to divert St. Mary water by the St. Mary Diversion Dam and Canal. After almost 90 years, the capacity of the canal has diminished by 22%. The Task Force noted that the St. Mary storage, diversion, and conveyance facilities in the U.S. are reaching the end of their design life and are in need of rehabilitation. It recommended trying to optimize the system to allow the U.S. to divert its full share of St. Mary water – an expensive proposition.

Alberta's contention is that the aging infrastructure is failing to capture Montana's share of the St. Mary and the extra is flowing to Alberta. Alberta has spent millions keeping up infrastructure on this side of the border, and the sprinkler irrigation systems are state of the art. Now Montana needs to do their share in a much less favourable economic situation.

The Task Force also pointed out that adding additional diversion and conveyance capacity (such as a dam) could increase the ability of both countries to use their entitlements, although environmental impacts, as well as administrative and operational considerations, would have to be addressed.

In Alberta, water from the St. Mary, Belly, and Waterton Rivers is stored in the onstream St. Mary reservoir. This water can be released through irrigation canals or into the St. Mary River itself for environmental uses. Hydroelectric turbines have been installed to make opportunistic use of these releases.

With no storage on the Milk River, Canada diverts water from the Milk River during April or early May until the end of the irrigation season in October, and very little water is diverted at other times. However, the Milk River often has very little or no natural flow by late June and Canada is not allowed to use the water in the Milk River that is due to diversion by Montana from the St. Mary. But if Alberta is thinking of creating storage via an onstream dam on the Milk, it should consider the fact that the Fresno Reservoir is now 60% full of silt that has come down the Milk River.

### **Accounting Balancing Act**





However, this is in large part an accounting problem. The key to apportioning water equitably is to have an accurate measure of natural flow, and the Task Force recommended improving this calculation by additional flow monitoring, better accounting of consumptive uses, and determining conveyance losses for the U.S. St. Mary Canal.

Another key is how often flow is measured. Currently the reporting of natural flow is done twice monthly for practical reasons and is known as the balancing period, the time period allowed for balancing any surplus or deficit. A surplus is the amount of entitlement that is not diverted. A deficit is the amount of water in excess of the upstream jurisdiction's entitlement that is diverted for that jurisdiction's use.

Current rules allow for refunding deficits when one country is calculated to have diverted more than its apportioned share, either during the subsequent balancing period or at a mutually agreeable time. The rules don't allow credit for surplus deliveries during those times when a country cannot divert its apportioned flows.

Modeling showed that under longer seasonal or annual balancing periods, Canada and the U.S. could divert greater volumes of their entitlements from the Milk and St. Mary Rivers respectively. But this would only work if there were a mechanism allowing credit for surplus deliveries, with the caveat that credits should be allowed only for that portion of the surplus delivery that is of beneficial use to the downstream jurisdiction.

Canada could build a surplus, or credit, either during the spring runoff period or by including both spring and winter flows, when it cannot fully use its Milk River entitlement and then divert these credited flows later in the irrigation season. But Canada could not use the credited surpluses if it could only draw from the natural flow of the Milk River during the irrigation season; it would have to be allowed to draw from the water Montana diverts from the St. Mary.

The two countries dealt with some constraints of the balancing period and diversion limitations through a 1991 Letter of Intent which allows the U.S. to accumulate a deficit on the St. Mary and Canada a deficit on the Milk. A Letter of Intent is a mechanism to modify strict interpretations of the 1921 Order for mutual benefit. This voluntary agreement allows Canada to take more than its entitlement of Milk River natural flow during the irrigation season, while the U.S. is allowed to divert more than its entitlement of St. Mary River natural flow prior to the irrigation season. Deficits are to be repaid by each country by the end of the year. It does not allow credit for surplus deliveries.

While each country is entitled to a share of the two rivers, they must also meet their management requirements out of that share, including maintaining a "live" stream and meeting instream flow needs. These things must be considered if an upstream jurisdiction is to take more than its share during certain periods of time. The Task Force recognized that much more work is required if accounting alterations are to be made; further details can be found in their report.

Other potential options that the Task Force briefly considered included water banking and trading; developing a more collaborative ecosystem-based approach to managing the transboundary watershed as proposed in two IJC reports on international watershed boards; and using the technique of Integrated Water Resource Management (IWRM) to foster environmental management through a collaborative, problem-focused, and adaptive framework. IWRM recognizes that water management should use the river basin as a management unit and be based on a holistic (social, economic, and ecosystem) and participatory approach involving users, planners, and policymakers at all levels.

*The Task Force will accept written comments on their report until June 30, 2006. The report is available at [www.ijc.org](http://www.ijc.org), under Boards, Current Task Forces. Comments should be mailed to Ross Herrington, P. Eng., Senior Water Policy Advisor, Environmental Conservation Branch, Environment Canada, Room*





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300, 2365 Albert Street, Regina, SK S4P 4K1; phone: 306-780-3883. For more information on IWRM see <http://www.cap-net.org/iwrmtutorial/mainmenu.htm>.

