



BOW RIVER PHOSPHORUS MANAGEMENT PLAN

Taking Action to Manage Phosphorus Together

Bow River Phosphorus Management Plan A Cumulative Effects Management Initiative

Update April 2014

The Bow River Phosphorus Management Plan project brought together a voluntary and collaborative group of stakeholders who have developed a set of strategies and actions to address excess phosphorus entering the Bow River from the part of the basin between the Bearspaw Dam and the Bassano Dam.

Heightened nutrient levels along the Bow River downstream of Calgary have long been a concern, and in the past these levels were primarily managed by placing concentration limits on point source discharges. The decision to discharge treated wastewater from Strathmore to the Bow River was a turning point. The environmental approval for the activity was successfully appealed to the Environmental Appeals Board (2007), who in their ruling emphasized that such decisions ought to be managed in light of their cumulative environmental impacts, particularly given that water quality guidelines were being exceeded. Additionally, water quality modelling by Environment and Sustainable Resource Development in 2010 showed that if the regulated entities discharged phosphorus at their approved limits, the water quality guidelines for phosphorus would be frequently exceeded. The results further showed that in the spring and summer months, the phosphorus loading from non-point sources would be similar in magnitude to the approved limit from point sources.

Responding to the direction to use a cumulative effects approach to address environmental issues, this project is positioned for collective action by contributing parties to help maintain the current water quality conditions in this reach over the long term, taking into account the ever increasing pressure of population and growth in this region. Stakeholders from multiple backgrounds and with sector-specific expertise have been involved in identifying phosphorus loading “hot spots”, finding innovative strategies and actions to reduce phosphorus loading across the reach, and recommending how reductions can be achieved. Members of the Steering Committee represent point and non-point sources, rural and urban, agricultural and industrial sectors.

A Sub-Regional Plan that aligns with the South Saskatchewan Regional Plan

This project supports the implementation of the South Saskatchewan Regional Plan and the Surface Water Quality Management Framework, which has set triggers and limits for a number of ambient water quality indicators. While phosphorus does not have a defined limit, excess phosphorus can lead to lower levels of dissolved oxygen in the water body and other negative effects. Therefore, the Bow River Phosphorus Management Plan has determined that its objective is to manage phosphorus inputs to help protect the current water quality conditions by controlling phosphorus inputs in this reach of the Bow River.

The Bow River Phosphorus Management Plan is a prototype to test and demonstrate how Albertans can work together to address an evolving environmental issue from both point and non-point perspectives, and to demonstrate how management frameworks could be implemented through collaboration and shared stewardship.

Participatory Decision Making: Task Teams

Tackling phosphorus is complex, requiring a lot of work. To make this manageable, the work was delegated to subject matter experts who understood the problem and their sectors. The stakeholders involved in this project brought a variety of skills and expertise that aligned along distinct subject matter lines. They were drawn from urban and rural sectors representing both point and non-point sources of phosphorus. The task teams included Urban Point Source, Urban Non-point Source, Rural Non-point Source, and a data team, and the teams built their work on a risk assessment done by the Steering Committee in early 2012.

The task teams worked through a group-generated list of possible strategies and actions, applying a series of questions to determine, among other criteria, the feasibility of the strategy, current research demonstrating its potential efficacy, willingness of the relevant agencies to implement, and measures to determine the success of the strategy.

Parallel to the conversations of the task teams, a data acquisition team collected and refined data sets from the City of Calgary, Alberta Environment and Sustainable Resource Development, Alberta Agriculture and Rural Development, EPCOR, and the Western Irrigation District. This updates the data set for water quality and quantity through 2011, providing the information needed to update and run a series of modeling scenarios for the reach. As well, a decision support model was tested to look at the Benefit: Cost ratio of selected strategies and actions, using a process called INFFER (Investment Framework for Environmental Resources).

The Steering Committee and Task Teams have reviewed their prioritized strategies and actions, and have reached agreement on the contents of the Plan, recognizing that as an adaptive management plan; it is a living document that will be evaluated and adjusted as information about the success of the implementation of strategies is determined. Steering Committee members are planning appropriate venues to engage their constituents, and following the endorsement of a final plan, an implementation team will be struck and work plans to implement the strategies and actions will be developed.

As this is a prototype for the implementation of a cumulative effects management system to address chronic environmental issues, the lessons learned over the course of the planning process will be collected, analyzed and shared with other projects to further refine and clarify what it means in the Alberta context to work collaboratively with all applicable sectors to ensure that we respond effectively to maintain and improve our environment.

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