CHAPTER 10: RECOMMENDATIONS AND BEST MANAGEMENT PRACTICES

Wind Surfing on Chin Reservoir – S. Palechek

Chapter 10: Recommendations and Best Management Practices

Recommendations for the Oldman watershed have been organized into the following categories:

1. Planning – This includes the ongoing watershed management planning processes that the Oldman Watershed Council (OWC) has implemented for several years. It also includes the municipal planning process.
2. Stewardship – This too is ongoing, and incorporates community involvement, including education and awareness.
3. Reclamation and restoration.
4. Data Gaps.

Planning

Early awareness of significant stream flow and water quality trends is essential for preparing water management plans and adaptation measures to minimize impacts on users and environmental resources.

1. Develop adaptation plans to manage potential declining flows in Beaver Creek and Little Bow River sub-basins. Trends in other Sub-basins should be updated on a regular basis: continue to monitor diversion rates, timing of withdrawals, and return flow volumes within the watershed.
2. Undertake the monitoring programs to support adaptive management for environmental protection and mitigation, such as the plan recommended by the Highwood Management Plan Public Advisory Committee to assess performance of the Highwood Diversion Plan and support adaptive adjustments.
3. Consider modifying allocations and other options to achieve sustainable water use levels in the future, especially within the Southern Tributaries Sub-basins and Oldman River mainstem.
4. Consider development of "Riparian Policies" throughout the watershed to protect areas that are key to managing water quality indicators, such as total suspended solids (TSS) and fecal coliforms.
5. Establish targets under a municipal planning framework for municipalities with increasing populations and land use pressures. These targets can establish short, medium and long-term goals or thresholds that reflect their capacity to supply municipal drinking water, and water for industrial or recreational purposes.
6. Update the State of the Watershed report on a periodic basis – every five years.

The use of Instream Objectives (IOs) and Water Conservation Objectives (WCOs), to monitor stream flows and determine whether or not instream needs of the aquatic ecosystem are being met, has proven to be a good management tool. However, several of the current IOs and WCOs could be adjusted within the Oldman watershed to avoid the false impression of mismanagement.

7. Currently, on unregulated streams (e.g., Castle River and Lee Creek) there is no way to meet IOs or WCOs that are set higher than natural flow. On such streams, instream targets should be limited to a target value or natural flow, whichever is less.
8. On regulated streams, the IO and WCO could be set higher than natural flow to provide instream benefits beyond that of natural conditions or to mitigate human impacts. Such instream conditions could become targets for regulation of stream flow.

Bioengineering Project on Stream Bank – S. Palechek

The Oldman watershed is closed to new surface water allocations which will increase demand for groundwater. Data on groundwater resources, water use, or water quality are generally not known for the Oldman watershed.

9. Use of groundwater as an indicator is recommended for future State of the Watershed reports.

Stewardship

10. Support implementation of good stewardship practices.

Nitrogen and phosphorus associated with human activities, such as municipal wastewater effluent and agricultural operations, enters surface waters as a result of insufficient treatment. Improving quality of surface waters can be accomplished by ensuring municipal wastewater is treated and reducing the amount of runoff and leaching directly into surface waters from feedlots and pastures. Advances in wastewater treatment technology in recent years have resulted in significant reductions from this source.

11. Support rural beneficial management practices: off-stream watering systems, riparian zone protection, buffer strips, manure incorporation (Oldman River Basin Water Quality Initiative Five Year Summary Report 2005).

12. Support urban beneficial management practices: storm water management; water conservation (Oldman River Basin Water Quality Initiative Five Year Summary Report, 2005).

As population density increases, soil erosion risk increases. Soil erosion is a result of weather patterns and land use practices within a watershed. Land uses which expose the soil, such as cultivation, subdivision stripping and grading, logging, mining and temporary road construction, allow the rain, snow and wind to move sediments into the surface waters.

13. Areas of moderate to high risk of soil erosion may require additional land management practices to ensure the continued health of riparian and aquatic life. Model soil erosion at a scale relevant to individual activities.

14. Consider implementing and monitoring source and erosion controls for all new developments and in areas with exposed earth; moving livestock watering, holding, and overwintering areas away from stream banks; and minimizing the width of stream crossings.

15. Expand public education and awareness of water and water use within the Oldman watershed.

Reclamation and Restoration

Riparian health assessments are sporadic throughout the watershed. As more are completed, they provide the mechanism for highlighting areas of concern and focusing restoration efforts and best management practices.

16. Support the Cows and Fish program, especially in the Oldman River mainstem.

17. Implement drainage erosion control measures including revegetation and reforestation as soon as possible following surface disturbance.

18. Continue with beneficial management practices, including field shelter belts, avoidance of overgrazing, summer fallowing, and reduced tillage.

Data Gaps

19. Further studies of water supply and demand should be carried out to assess options for sustainability.

20. Develop a watershed-wide monitoring approach for nutrients (nitrogen and phosphorus), total suspended solids (TSS) and fecal coliforms that will support watershed-wide assessments.

21. Continue to monitor flows and land use changes in Beaver Creek and Little Bow River to determine what is causing the decrease in flows.

22. Use data from the soon to be complete Grasslands Vegetation Inventory in five years to re-evaluate land cover.

23. Land use data for the Peigan (North Piikani) and Blood (Kainai) Indian Reserves Nos. 147 and 148 should be incorporated into the five-year update of the State of the Watershed report.

24. Add forest harvest data to supplement the land use assessment.

25. Incorporate random-use recreation data, if available, into the land use assessment.

26. Incorporate economic growth indicators to support historical changes and possible future trends in human population.
27. Incorporate a biodiversity indicator into the landuse assessment.
28. Research and technology development will be required to provide the necessary understanding and tools to make a risk-based approach to soil conservation, as affected by climate change.
29. Develop monitoring programs to update the baseline, identify and confirm trends, and determine the effectiveness of management plans. This could include:
    - obtain recent satellite imagery to update land cover information;
    - regular update (five year) of land use data;
    - continue periodic (five year) riparian health assessment on all major streams;
    - regular updates (five year) on natural flow database;
    - develop a synchronized water quality and water quantity monitoring program to assess pollutant transport with the watershed; and
    - the adaptive management monitoring program recommended by the Highwood Management Plan Public Advisory Committee to assess performance of the Highwood Diversion Plan and support adaptive adjustments.

Shoreline Cleanup – S. Palechek