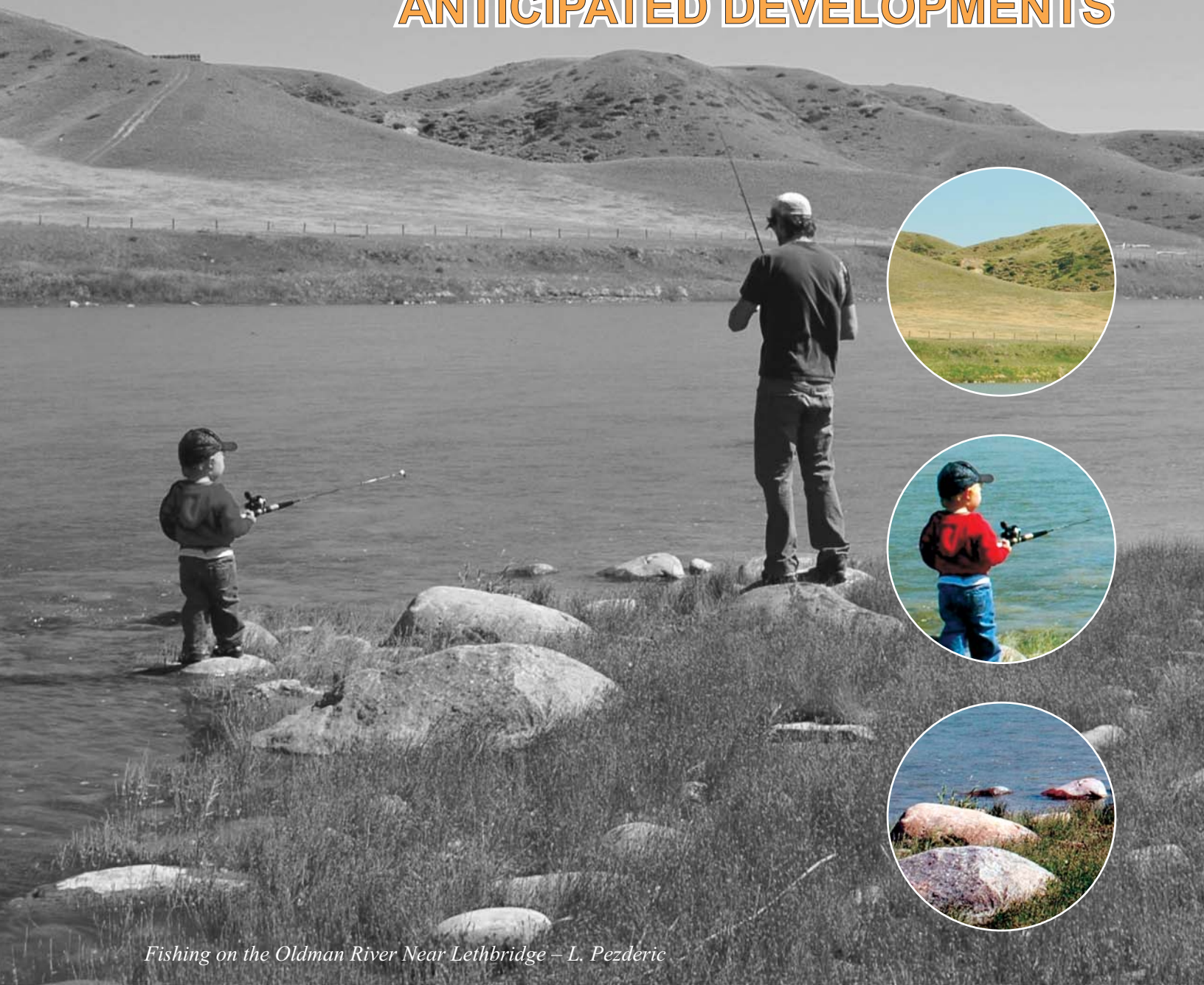


CHAPTER 9: FUTURE TRENDS AND ANTICIPATED DEVELOPMENTS



Fishing on the Oldman River Near Lethbridge – L. Pezderic

Chapter 9: Future trends and Anticipated Developments

9.1 Water Quantity

Based on available information, there are currently minor deficits to the Instream Objectives (IOs) in the watershed, and major deficits to the WCOs. Simulation modeling is necessary to determine the magnitude and frequency of deficits to current junior and senior priority consumptive users.

There is potential for increases in water use within existing allocations in the Southern Tributaries Sub-basins and along the Oldman River mainstem. Water use expansion would probably exasperate deficits to instream flow values and, possibly, consumptive users.

The Oldman watershed is closed to new surface water allocations other than those required for meeting needs of First Nations, to contribute to meeting WCOs, for outstanding applications completed by 13 August 2007, for commitments related to the Natural Resources Conservation Board (NRCB) approved Little Bow Project/Highwood Diversion Plan and the Pine Coulee Water Management Project, or for new storage which is constructed to improve performance in meeting instream needs or existing licenses (Government of Alberta 2007).

Groundwater comprises less than 3% of total license allocations in the Oldman watershed (AMEC 2007). Not all groundwater wells are licensed, however, the unlicensed wells would be primarily for household use and would probably increase total groundwater use by only a small amount. For example, household use is generally less than 1250 m³ per year. Also, it is not known the extent to which wells have been abandoned. Highest water use categories for groundwater is “Other” which includes drainage for flood control, then municipal and residential, followed by stockwater.

Use of groundwater will eventually decrease surface water base flows. It is difficult to say when and where surface water will be impacted without additional research. Surface water base flows are particularly important during low flow fall and winter periods. With the presence and likely expansion of the number of confined feeding operations (CFOs) and manure storage facilities, the incidence and potential for groundwater contamination stemming from these operations is of growing concern and importance (AMEC 2005).

Closure of the Oldman watershed to new surface licenses will heighten demand for groundwater. In subsequent state of the watershed reports, groundwater should be considered as an indicator.

9.2 Water Quality

The water quality in the Oldman watershed is good to fair. The more extensive monitoring data at some locations in the recent years show definite improvements and a reduction in frequency of guidelines exceedances. Upgrades to the Lethbridge water treatment plant, implemented in 2000, are credited with marked improvements in water quality (specifically nutrients and bacteria) downstream of Lethbridge (Saffran 2005, Hebben 2007). However, this observation does not apply to some upper and middle stream reaches within Foothills and Prairie sub-basins. The current trends show increasing tendency to potential deterioration in water quality in these regions. At the same time, the water quality downstream from abovementioned reaches shows signs of improvement and the trends turned to neutral or decreasing. This could indicate that the assimilation capacity of these streams has not been exceeded and they have an opportunity for self-treatment. A particular focus in monitoring and water resources management has to be on these upper and middle reaches in the Foothills and Prairie sub-basins.