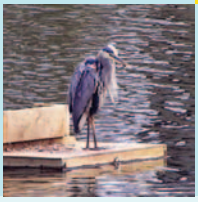
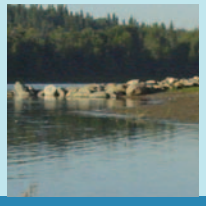


Chapter 6.0

Data and Data Gaps Discussion






6.0 DATA AND DATA GAPS DISCUSSION

The Hydrological Overview Maps for each of the eighteen Subwatersheds includes a minimum of four inset maps (Linear Disturbance, Municipal, Commercial and Industrial Disturbance, PFRA/AAFC Land Classification, and Agriculture Census data of unimproved pasture, improved pasture, cropland and summer fallow). Other overviews include two other maps of Forest Management Units and Parks and Protected Areas. The data sources for each of these maps are described below. The latter two maps were compiled from data taken from the same source as the Linear Disturbance map and the Commercial and Industrial Disturbance map. Additional non-digital data sources are also described. Data used in these maps were from prior to 2003.

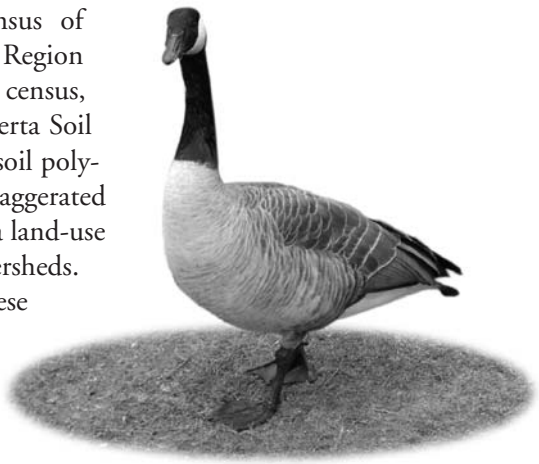
6.1 LAND USE DATA SOURCES

Riparian health data were provided by the Cows and Fish riparian health inventory community program. Cows and Fish are the only recognized agency providing technical riparian health assessments in Alberta. As this group is still very new in the Province, many sites still need to be assessed within the North Saskatchewan Watershed and throughout Alberta. Many of the sites that have been assessed in this report have too few data sites to allow for an overall conclusion of riparian health. This data gap will have to be addressed in future watershed studies.

The hydrological features (lakes, reservoirs, creeks, streams, rivers), linear disturbance, forest management units, parks and protected areas and municipal, commercial and industrial disturbance digital data is sourced from Alberta Sustainable Resource Development. The data is current as of 1990, and accurate to +/- 3 metres. The arc network is not clean, and there are numerous dangling arcs and the stream network is not contiguous. The datasets are complete for the entire watershed for all of these coverages.

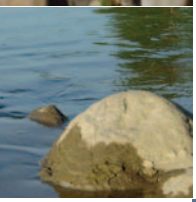
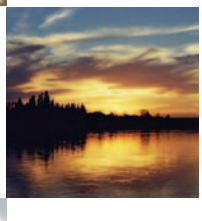
The land use inventory is sourced from Agriculture and Agri-Food Canada's Prairie Farm Rehabilitation Association Western Grain Transportation Payment Program –- Landcover Generalization Process. This data is current as of 1993 – 1995, and accurate to 30 metres and should be used at a 1:1 million scale, as a generalized land cover for planning use. The dataset was created from 1:50,000 LANDSAT 7 imagery. Data gaps for this dataset exist for the western portion of the North Saskatchewan Watershed (i.e. no data exists for the Cline Subwatershed).

For the improved pasture, unimproved pasture, cropland, summer fallow, manure production, pesticides and herbicides maps, data was sourced from Statistics Canada's Census of Agriculture by Agriculture and Agri-Food Canada's defined landscapes in the Prairie Region (including the British Columbia Peace River region). The data is current as of 1996 census, and accurate to +/- 3 metres. A limitation of this dataset is that data are fitted to Alberta Soil polygon units. Several polygons have cropland area greater than the shape area of the soil polygon. This is due to the clipping of the data to fit the NSWA boundary and will be exaggerated again when that data is clipped to fit the Subwatershed polygons. For example, Ag-data land-use soil polygon #0883 falls inside the boundaries of the Brazeau, Ram and Cline Subwatersheds. Data for that land-use soil polygon will be equally attributed to all three of these Subwatersheds, which will inflate the overall value by a factor of three over the entire watershed area.








Wetland Inventory data were gathered from three sources—Alberta Sustainable Resource Development, Agriculture and Agri-Food Canada and Ducks Unlimited Canada. All three sources were used to cover gaps that were apparent in each approach. Alberta Sustainable Resource Development data covered each Subwatershed, but the methodology used did not capture smaller waterbodies. The Ducks Unlimited Canada data collection method was the most sensitive to smaller waterbodies, but covered the smallest geographic area. A comprehensive wetland resource inventory, including drained wetlands, is a key component of a complete land use inventory. By identifying areas of wetland loss, land management planners can effectively implement watershed management plans which address this fundamental element of source water protection and restoration.

Wetland data was used from Alberta Sustainable Resource Development's hydrological features. This data is current as of 1990, and accurate to +/- 3 metres. The dataset is complete for the whole watershed for this coverage.

Wetland data from Agriculture and Agri-Food Canada was sourced from the Prairie Farm Rehabilitation Association Western Grain Transportation Payment Program Landcover Generalization Process. This data is current as of 1993 – 1995, and accurate to 30 metres and should be used at a 1:1 million scale. The data is limited to use at a 1 to 1 million scale with 30 meter resolution, as a generalized land cover for planning use. The dataset was created from 1:50,000 LANDSAT 7 imagery. Data gaps for this dataset exist for the western portion of the North Saskatchewan Watershed (i.e. no wetland data exist for the Cline Subwatershed).

Wetland data from Ducks Unlimited Canada was sourced from Ducks Unlimited Canada Habitat Inventory Data - Landsat Based Inventory (30m) from mid-1980's that includes permanent and temporary wetlands. Classes included open water, deep marsh, shallow marsh, wet meadow, mudflat, dry wetland, forested wetland and river acres. Data gaps exist for the western portion of the North Saskatchewan Watershed, as there is no data for the Brazeau, Ram, Cline, and Clearwater Subwatersheds.

6.2 WATER QUALITY AND QUANTITY DATA SOURCES

Alberta Environment currently generates an Alberta Surface Quality Index for 2 river stations within the entire North Saskatchewan Watershed; upstream of Edmonton at Devon and downstream of Pakan. Environment Canada generates their own indices for 3 more stations—one at the headwaters at Whirlpool Point near Rocky Mountain House and two sites near the Saskatchewan border. Individual stakeholders (i.e. municipalities, industry) or small community watershed groups currently drive additional water quality monitoring programs.

To obtain a more 'holistic' snap-shot of the watershed, it is recommended that stakeholders interested in water quality collaborate and develop more comprehensive monitoring programs. This may serve to increase monitoring efficiencies, in terms of cost and time, while alleviating sample duplications.

Few data exists on groundwater sources and quality. However, Alberta Environment, Alberta Sustainable Resource Development, Agriculture and Agri-Food Canada — PFRA, the Alberta Geological Survey or your local municipality should be contacted for any information on groundwater aquifers within the North Saskatchewan Watershed.




6.3 BIOLOGICAL INDICATOR DATA SOURCES

Aquatic macrophyte, fish population estimates, and benthic invertebrate data were gathered from a literature survey of work undertaken in the North Saskatchewan Watershed. Sources searched to complete the survey were Alberta Environment, Alberta Sustainable Development, the Alberta Lake Management Society, partner organizations, scientific abstract databases, and consultant reports.

Vegetation data was sourced from Agriculture and Agri-Food Canada's Prairie Farm Rehabilitation Association Western Grain Transportation Payment Program Landcover Generalization Process. This data is current as of 1993 – 1995, and accurate to 30 metres and should be used at a 1:1 million scale. The data is limited to use at a 1 to 1 million scale with 30 meter resolution, as a generalized land cover for planning use. The dataset was created from 1:50,000 LANDSAT 7 imagery. Data gaps for this dataset exist for the western portion of the North Saskatchewan Watershed (i.e. no wetland data exist for the Cline Subwatershed).