

Wetlands



Noteworthy:

- The cumulative loss of wetlands and the long periods of drought during the 1970s and early 1980s caused waterfowl populations to decline by 1/3 in the mid-1980s.
- Alberta has lost non-peat wetlands due mostly to draining for agricultural land and land development.
- A study of wetlands in a portion of the agricultural area of Alberta in the 1980s indicated that 66% of the remaining wetlands had been adversely affected by agriculture, while the degradation at the margins (which included haying, clearing, grazing and cultivating) was as high as 93%.
- Research in Saskatchewan found that in three of the six years studied, between 9% and 24% of the wetlands examined had pesticide levels that exceeded the guidelines for the protection of aquatic life.
- Increasing activity in the non-settled area, including oil and gas development, and road and utility construction, may be affecting the wetland resources to an extent that has not been evaluated and in ways that are not fully understood.
- No policy is currently in place to guide resource management decisions concerning provincial wetlands in the non-settled area of the province.
- Currently no single government department has the mandate to manage wetlands in Alberta.

The State of Alberta's Wetlands

This wetlands summary refers to non-peat wetlands.

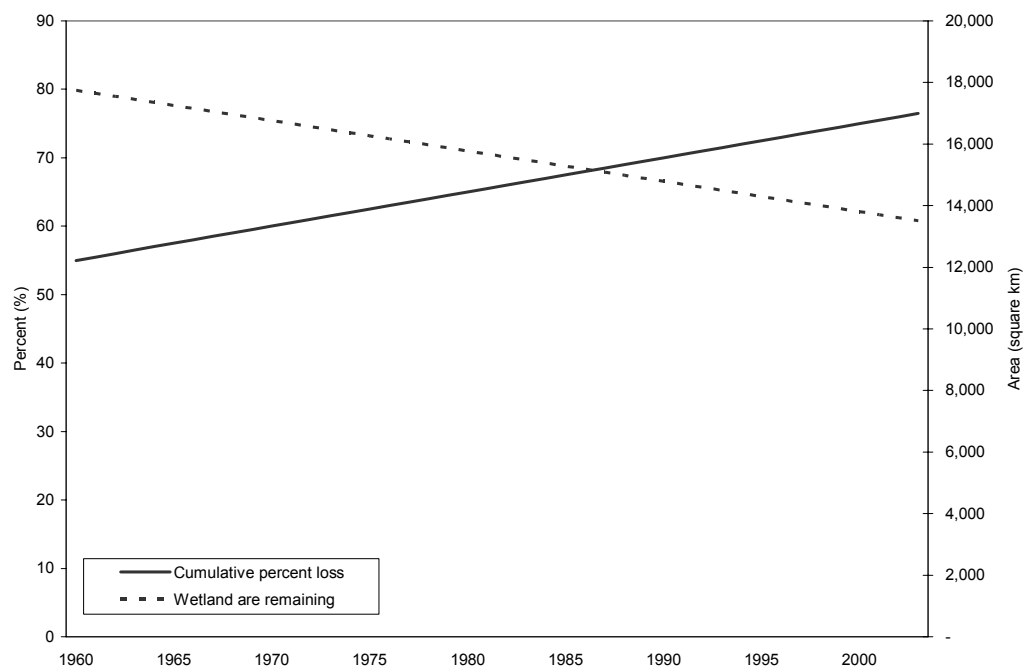
Wetlands provide many services including water purification and storage, flood control, shoreline stabilization, and recreation. Both peat and non-peat wetlands absorb water from spring snowmelt and summer storms, reducing flooding, erosion and sedimentation, and recharging the wa-

ter table in times of drought. They are natural filters, cleansing the water that passes through them. Wetlands provide habitat for a wide variety of plants and wildlife, including rare and endangered species.

It is estimated that about 50% of Alberta's original non-peat wetland area was gone by 1960, and about 60% had disappeared by 1996. Based

on the 1996 inventory, the original extent of wetlands would have been about 35,500 sq. km. Therefore, an estimated 17,750 square kilometres (50% of the estimated pre-settlement wetlands) of Alberta's wetlands had been lost by 1960, 21,300 square kilometres by 1996, and 21,990 square kilometres by 2003. The area remaining is about 13,500 square kilometres.

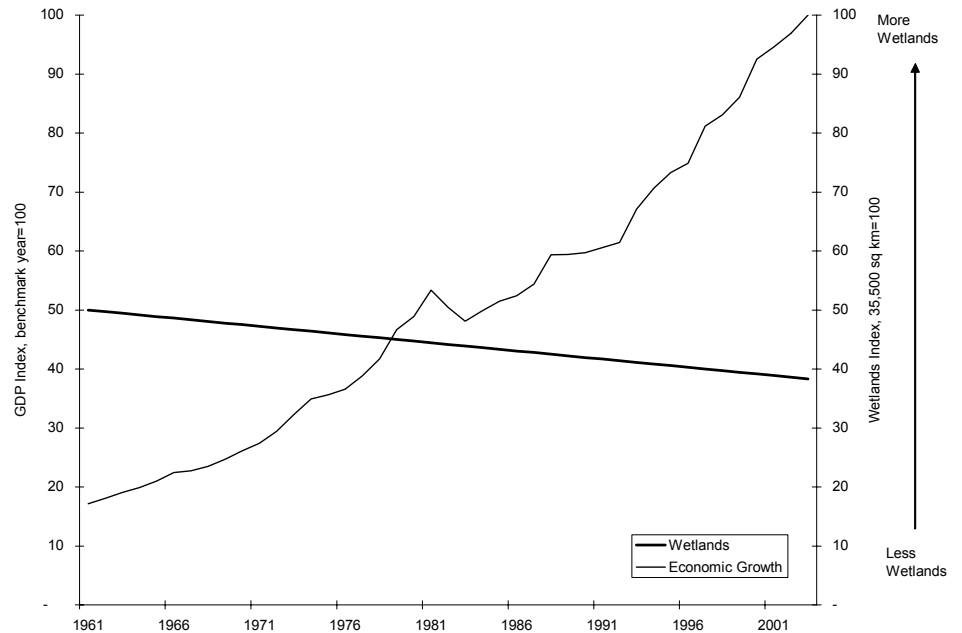
Percent Wetland Area Lost and Percent Remaining in Alberta, 1961 to 2003



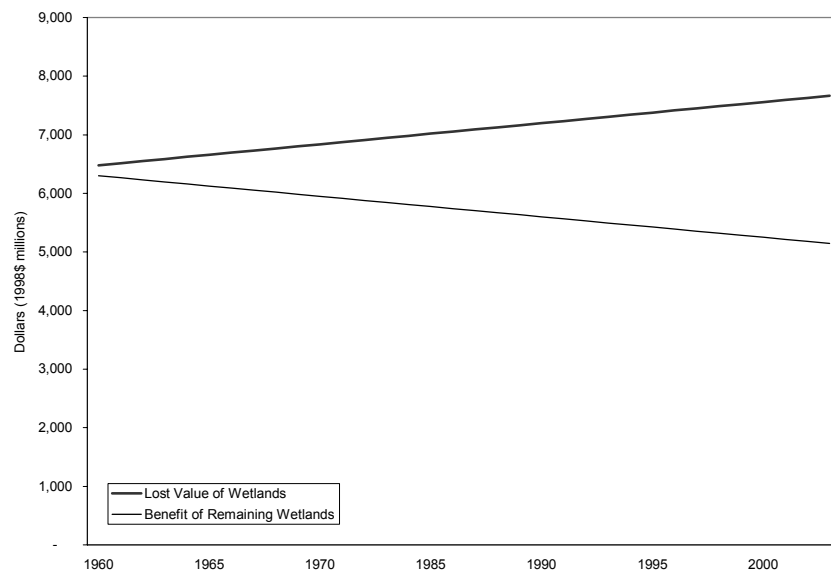
So What?

The figure at the upper right compares Alberta's wetlands as an index with provincial Gross Domestic Product (GDP) as an index. The estimated original area, approximately 35,500 square kilometres, was set equal to 100 on the index for wetlands. Change from that benchmark size is measured as movement towards zero. In 1961, the wetlands index was equal to 50; by 2003, the index had dropped to 38. Wetlands provide habitat for wildlife, migratory birds and fish, flood and stormwater control, water filtration, shoreline protection, groundwater replenishment, and aesthetic, recreational and educational values. When wetlands disappear, the loss of ecosystem function (e.g., wildlife habitat and water purification) implies that costs are incurred. In addition, the intrinsic values of wetlands are lost. The estimated dollar value used to calculate the annual cost of lost wetlands—\$3,650 (1998\$) per hectare—is based on the average annual value of the wetland services, from several studies in Minnesota and South Dakota. The annual economic benefit of wetlands remaining has declined from \$6.3 billion in 1961 to about \$5.1 billion in 2003. The annual cost due to the estimated cumulative loss of 50% of Alberta's wetlands by 1960, was an estimated \$6.4 billion (excluding shoreline protection services). By 2003 the estimated annual cost was \$7.7 billion. If we assume that 50% of the lost wetland area provided shoreline protection services, then the estimated annual cost was about \$15.5 billion in 1961, and over \$18 billion in 2003. If the annual value per hectare estimated by Costanza et al. (1997) is used, then the costs range from \$38.0 billion in 1961 to over \$45 billion in 2003.

Alberta's Wetland Index: Where are we today?



Cost of Lost Wetland Services Due to Cumulative Losses in Wetland Area and the Economic Benefits of Wetland Remaining in Alberta, 1961 to 2003 (1998\$)



The cost of the lost area of Alberta's wetlands was \$7.7 billion (1998\$) in 2003, equal to 9% of Alberta's 2003 GDP. The value of remaining wetlands in 2003 was \$5.0 to \$45 billion.

As an index, where 100 is the original area of wetlands in Alberta, the wetlands index was 38 in 2003.

