

Alberta Lake Management Society

FACTS ON DEVELOPMENT AROUND LAKES

SEPTEMBER 2010

The Alberta Lake Management Society was formed in 1991. Its mission is to build understanding and awareness among Albertans for responsible management of aquatic ecosystems, that is, *those ecosystems occurring in or on water or its beds and shores and includes their physical, chemical, and biologic characteristics*, in order to maintain our lakes in a healthy state. ALMS engages in programs, partnerships, and information-sharing to increase awareness and knowledge about lakes.

Lakes in Alberta are subject to many impacts that threaten their water quality and quantity. One of these is ongoing residential development around them. While ALMS realizes that this development will occur, it is important that the impacts of it are minimized by ensuring that the development is designed and carried out in a responsible, sustainable manner.

The following are features of development that must be closely designed, controlled, and regulated so that the water quality and quantity of the lake will not be impacted:

Surface run-off – The natural hydrology provided by the native vegetation e.g. trees, shrubs, grasses in the area must be preserved as much as possible. Where vegetation must be disturbed, native vegetation should be planted once construction is completed. Impervious surfaces such as asphalt should be limited to less than or equal to 10% of the development area to decrease the amount of surface run-off. Run-off that is generated should be effectively treated to remove both fine and coarse sediments and other contaminants using such structures as grassed swales, detention ponds, and infiltration strips.

Linear disturbance – Linear disturbances are roads, railways, power lines, pipe lines, etc. that interrupt wildlife corridors and permanently alter the drainage patterns of the lake watershed. These must be kept to a minimum within developments and municipal and reserve areas must be designed to not inhibit the natural wildlife corridors within the area.

Riparian areas – The natural ecological functions of riparian areas, which are to:

- trap and absorb nutrients, sediment, and pollutants from entering the lake
- stabilize the shoreline and protect it from erosion caused by waves and boat wakes
- act as a buffer that intercepts and stores run-off and flood water, then releases it back to the lake and recharges groundwater during drier periods

- provide important habitat for wildlife and waterfowl and feeding, spawning, and rearing areas for fish

Riparian areas must be preserved by leaving an at least 30 m buffer of natural vegetation between the water's edge and development. The exact width of this buffer will vary depending on the landscape and should be determined by a qualified Biologist. Beach areas that are to be constructed should be kept to a minimum size and should be placed in an area where they will have the least impact on wildlife, waterfowl, and fish habitat. All required government approvals must be obtained before a development is allowed to proceed.

Water supply – All residences in a development must draw from a communal source. The well(s) for the development must go down into an aquifer that does not provide groundwater feed to the lake. At the same time, it must be determined that the amount of water to be drawn from the aquifer will not decrease the drinking water supply of existing residences on the lake.

Sewage treatment – Sewage disposal is a critical feature of development on lakes. While it can be hauled away to a municipal treatment plant, this is costly and the treated sewage negatively impacts the receiving water body. It is more efficient for each development or group of developments to have their own sewage treatment system that is maintained to set and monitored standards either by the residents in the development or the municipality in which the development is located.

Boating practices, numbers, and areas – Boating presents a number of hazards to some lakes and in those cases must be controlled as to what kinds of watercraft are allowed, the number allowed, and the area(s) of the lake in which boating will be allowed. Boating in shallow areas causes the lake bed to be stirred up and results in resuspension of nutrients from the lake bed that lead to algal growth. Oil or gas that is spilled into the water from careless motor filling techniques pollutes large amounts of lake water. Boating close to shorelines causes increased wave action and erosion. Too many boats on a lake present a human safety hazard and decrease the recreational capacity and enjoyment of the lake.

Careful and responsible management of lakes is the responsibility of all the stakeholders on the lake and requires their active participation in advocating for practices in and around the lake that will maintain a healthy lake watershed where economic and social needs are in balance with the ecological needs of the watershed.

Additional Resources

Alberta Low Impact Development Partnership <http://alidp.org/>

Asplund, T.R.. 2000 The Effects of Motorized Watercraft on Aquatic Ecosystems
<http://www.dnr.wi.gov/org/water/fhp/papers/lakes.pdf>

NALMS. 2001. Managing lakes and reservoirs. Prepared by the North American Lake Management Society and Terrene Institute in cooperation with Off. Water Assess. Watershed Prot. Div., U.S. Environ. Prot Agency, Holdren, C.W., W. Jones, and J. Taggart (eds.) Madison WI.