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Natural Factors Affecting Aquatic Ecosystems

Beavers

Beavers can alter the structure and dynamics of an aquatic system through [dam](#) building and feeding. These modifications can include (Naiman *et al.* 1986):

1. The creation of wetlands through flooding of the riparian zone;
2. Alteration of channel [hydrology](#) and geomorphology;
3. Changes in [nutrient cycling](#) and decomposition;
4. Increased holding time of sediment and organic matter due to reduced velocities;
5. Alteration of the riparian zone including species composition and dynamics;
6. Influence of habitat and thus the overall species found in the altered habitat; and
7. Impacts on the material transported downstream of the altered area.

The beaver's ability to alter its environment and create new habitat makes it a keystone species, because its removal would affect all species that rely on these habitats.

Flooding

Flooding can be part of the natural hydrological cycle, and is essential to the ecosystems it affects. Hydrological connectivity between floodplains and rivers is maintained through flooding. When a river floods, it deposits nutrient rich sediment on the banks, and in turn washes bits of vegetation into the river that become food for aquatic organisms. Floods can also replenish lakes and ponds found within the floodplain, and can raise the water table. The perched basins in the [Peace-Athabasca Delta](#), for example, rely upon seasonal flooding for replenishment.

When flooding is introduced through damming or extreme events it can be detrimental to an aquatic system until balance is reached. In the case of dams, achieving this balance is just a matter of time—one habitat is destroyed and another is created. In the case of extreme flood events, the balance often occurs once the flood has receded and the aquatic organisms can rebuild their habitat in a more nutrient rich environment.

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