

Best Management Practices – Beaver Dam Removal in Municipal Drains

This document describes the conditions on which one may proceed with removing a beaver dam in a municipal drain without DFO approval/notification. All municipal, provincial, or federal legislation that applies to the work being proposed must be respected. If the below conditions/requirements cannot be met, please complete the drain notification form and submit it to the Fisheries Protection Program form review at: FisheriesProtection@dfo-mpo.gc.ca.

Requirements

The following requirements must be met:

- There are no aquatic Species at Risk present in the work zone or impact zone. To confirm there are no aquatic Species at Risk present, refer to the document, [A Guide for Interpreting Fish and Mussel Species at Risk Maps in Ontario](http://www.dfo-mpo.gc.ca/Library/356763.pdf) which can be found at: <http://www.dfo-mpo.gc.ca/Library/356763.pdf>. Links for Ontario Conservation Area specific fish and mussel maps that include critical habitat extents and a list of aquatic Species at Risk found within the conversation authority boundary can be found on Page 5 of [A Guide for Interpreting Fish and Mussel Species at Risk Maps in Ontario](#).
- The municipal drain has low flow at the time of removal.
- In-water work is scheduled to respect timing windows (Table 1) to protect fish, including their eggs, juveniles, spawning adults, and/or the organisms upon which they feed.
- The work can be conducted using the beaver dam removal method described below and standard measures to avoid causing *serious harm to fish* will be implemented when required.

Potential Impacts to Fish and Fish Habitat

- Disruption of downstream fish during spawning or nursery periods.
- Physical impacts from use of heavy machinery on land.
- Deposit of deleterious substances into the watercourse.
- Erosion and sediment release into watercourse.
- Re-entry of sediment that was removed/stockpiled into the watercourse.
- Sediment release and bank damage due to uncontrolled, cascading breaches of multiple dams.
- Release of sediments and other deleterious substances stored in the bottom of the beaver pond.
- Release of large volumes of water (that can be devoid of oxygen, particularly in winter) in a short period of time.
- Damage of the downstream channel from erosion due to sudden release of water.
- Release of excessive woody debris from the dam to downstream channel.
- Stranding of fish in isolated ponds following de-watering of pond.
- Impingement or entrainment of fish when de-watering pumps are used.

Considerations

The removal of a beaver dam may not prevent future beaver activity in the area. Persistent removal of a beaver dam can increase the risk of negative impacts to fish habitat. To be effective, other beaver management techniques should be used in conjunction with beaver dam removal otherwise the dam could be repaired quickly. Contact your local Ontario Ministry of Natural Resources and Forestry (MNRF) District Office for advice.

When implementing a beaver dam removal project in a municipal drain, the *Fisheries Act* still requires a Municipality and/or contractor to ensure they avoid causing *serious harm to fish* during any activities in

or near water. The following advice will help one avoid causing harm and comply with the *Act* (see <http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/measures-mesures-eng.html>).

Beaver Dam Removal Methodology

- Whenever possible, remove beaver dams by using hand tools. Where removal by hand tools is not possible, then machinery may be used.
- If machinery is required, operations should be conducted in the manner described in the following manner:
 - Whenever possible, operate machinery on land above the high water mark or on ice and in a manner that minimizes disturbance to the banks and bed of the municipal drain.
 - Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks.
 - Limit machinery fording of the municipal drain to a one-time event (i.e., over and back), and only if no alternative crossing method is available. If repeated crossings of the municipal drain are required, construct a temporary crossing structure.
 - Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.
 - Keep an emergency spill kit on site in case of fluid leaks or spills from machinery.
- If blasting is required, the following website should be consulted: <http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/measures-mesures-eng.html>).
- Remove the dam gradually (~20 cm at a time) to allow the water to release slowly and prevent sediment at the bottom of the pond from being released downstream. As the water levels drop in the upstream pond, increase the size of the opening to drain the pond to the desired level. The width of the breach opening of the beaver dam should not exceed the width of the original stream channel to prevent bank erosion and flooding of adjacent properties.
- When a series of dams is to be removed, this should typically be done from downstream to upstream in order to avoid severe flooding and damage to fish habitat.
- Relocate any fish that become trapped in isolated pools or stranded in newly flooded areas to the main channel of the watercourse.
- Implement measures for containing and stabilizing waste material (e.g. dredging spoils, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) above the high water mark of nearby waterbodies to prevent re-entry.
- Stabilize banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.
- If replacement rock reinforcement/armouring is required to stabilize eroding or exposed areas, then ensure that appropriately-sized, clean rock is used; and that rock is installed at a similar slope to maintain a uniform bank and natural stream alignment.
- Remove all construction materials from site upon project completion.

Timing Windows

Figure 1 and Tables 2 and 3 can be used to determine the Restricted Activity period for the drain based on its classification. Note: Timing windows identified on [Conservation Authority](#) permits or [Ministry of Natural Resources](#) (Government of Ontario) work permits may differ and take precedence.



Figure 1. Ontario’s Northern and Southern Region boundaries for determining application of restricted activity timing windows.

Table 2. Restricted Activity timing windows for the protection of spawning fish and developing eggs and fry in the Northern Region. Dates represent when work should be avoided.

DRAIN TYPE	RESTRICTED ACTIVITY PERIOD
A	SEPTEMBER 1 TO JULY 15
B	SEPTEMBER 1 TO JULY 15
C	APRIL 1 TO JULY 15
D	SEPTEMBER 1 TO JULY 15
E	APRIL 1 TO JULY 15

Table 3. Restricted Activity timing windows for the protection of spawning fish and developing eggs and fry in the Southern Region. Dates represent when work should be avoided.

DRAIN TYPE	RESTRICTED ACTIVITY PERIOD
A	SEPTEMBER 15 TO JULY 15
B	MARCH 15 TO JULY 15
C	MARCH 15 TO JULY 15
D	OCTOBER 1 TO JULY 15
E	MARCH 15 TO JULY 15