Constructed Ditch
FACTSHEET

BRITISH COLUMBIA
Ministry of Agriculture, Food and Fisheries

Drainage Management Guide - No. 9 in series

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SEDIMENT TRAPS

Sediment traps can be an effective tool for preventing flood of property and infrastructure in both agricultural and urban areas. A sediment trap is generally a constructed 'basin' or depression on a watercourse where sediment settles out and accumulates allowing for its removal. Maintenance of sediment traps (removal of accumulated sediment) is a necessity to ensure their proper function.

The construction of sediment traps on a watercourse can have benefits and drawbacks to fish and other aquatic life. Some potential benefits may include the provision of deep pools as fish habitat and the moderation of sediment accumulation where, if in excess, it can negatively affect downstream habitat function. Potential drawbacks may include the removal of instream vegetation on which fish depend, physiological stresses to fish, sedimentation of the watercourse, upstream head cutting (which can destabilize a watercourse) and the reduction of downstream habitat complexity through gravel or large wood removal.

This Factsheet describes how to construct and maintain small sediment traps placed along *constructed ditches* (only). For sediment trap construction or maintenance projects on *streams (channelized or natural)* the sediment trap should be professionally designed and contact with the agencies is necessary prior to maintenance.

In some municipalities there may be a Memorandum of Understanding (MOU) or other protocol agreement with the agencies that applies to installation of Sediment Traps.

Prior to undertaking any work for a Sediment Trap refer to the following Factsheets in this series:

- Factsheet No. 3 *Agency Contact Requirements for Constructed Ditch Maintenance*
- Factsheet No. 17 *Fish Salvage.*

Locating a Sediment Trap

Sediment traps may be installed where accumulations of sediment consistently occur, such as the point where two constructed ditches meet or at a significant break in slope where water velocity slows and sediment drops out of the water column and accumulates.

Figure 1 Sediment Trap with Temporary Silt Fence During Cleaning

Constructing a Sediment Trap

The size of a sediment trap depends on the velocity of the water entering the trap and the size of particles that are to be filtered out. Heavier sediments such as gravel and sand settle out faster than fine sediments such as silt or clay.

In lowland agricultural areas small traps may be simply constructed by widening and deepening a portion of the constructed ditch. Generally, the effective flow length of the sediment basin should be at least twice the width of the basin and to ensure slope stability the bank side slopes should be 2H:1V or flatter with a maximum height of 3m (10ft).

To address site-specific conditions and for drainage areas larger than 10 hectares, qualified professionals should be consulted for design parameters.

Maintaining Sediment Traps

The best method of on going sediment control is to identify the source of sediment and whenever possible, implement out-of-watercourse practices or controls to prevent sedimentation from occurring.

To be effective, sediment traps need to be periodically maintained. The trap should be cleaned either periodically (every 1 to 10 years) when the constructed ditch water level is lowest or when half of the storage space has been filled

If the ditch is *dry*, the sediment trap may be cleaned at any time. If the ditch is *wet*, the work must be done within the timing window following the Best Management Practices (BMP's) below.

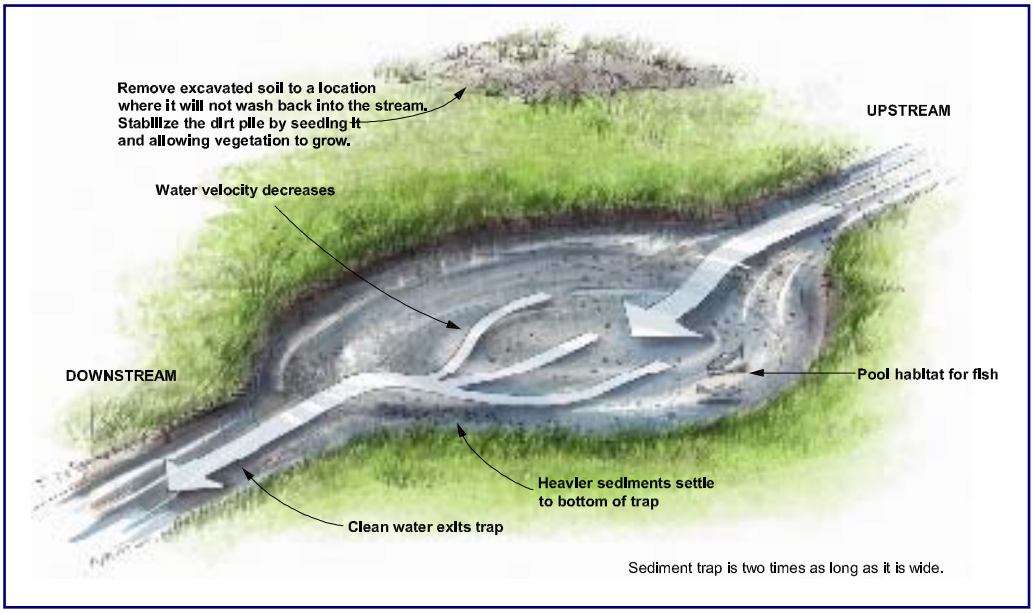

Figure 2 Sediment Trap

Best Management Practices for Sediment Trap Clean-out on a Constructed Ditch

1. All work must be undertaken during the fisheries 'Timing Window' for your area. Refer to Factsheet No. 4 *Fishery Timing Windows for Maintenance Work in Constructed Ditches*.
2. If the constructed ditch has fish present a fish salvage must be undertaken. Fish collection permits are required from DFO. Refer to Factsheet No. 17 *Fish Salvage*.
3. Work must be conducted in isolation of flowing water. Refer to Factsheet No.8 *Sediment Control*.
4. All work must be conducted during favourable weather and low water conditions.
5. Work must be undertaken in a manner as to prevent the release of sediment, sediment-laden water or any other deleterious (harmful) substance to the watercourse. Refer to Factsheet No. 8 *Sediment Control*.
6. There should be no disturbance to riparian vegetation along the banks of the constructed ditch. Excavation should be limited to the constructed ditch invert (bottom); widening or channel re-shaping requires agency contact.
7. Machinery must work from the top of bank and not from within the constructed ditch.
8. Works should be conducted from one side of the constructed ditch only. It is recommended that access be from the north or east side of the constructed ditch such that vegetation is left intact on the south and west sides where it can provide shade.
9. Dredged materials must be placed a minimum of one (1) meter landward from the *top of bank* and in such a way that its re-entry into the constructed ditch is prevented. It may also be trucked off site.
10. To avoid sediment re-suspension, sediment removal works should be commenced at the upstream end of the constructed ditch and progress downstream.

Contact Information

See Factsheet No. 19
Agency Contacts for Environmental Issues.