

Drainage Management FACTSHEET

FISH SALVAGE

Ditches and Fish Habitat

At first glance, some constructed agricultural ditches may look like artificially created ditches with little or no value as fish habitat. However, constructed ditches can become important habitat for several salmon and other fish species. Over time, constructed ditches may develop the habitat features that provide food, shelter and migratory routes for fish. Although ditches may need cleaning to improve farm productivity, this should be done in a way that prevents harming fish and minimizes the loss of fish habitat. The best choice is to do ditch maintenance works while the channel is dry and when fish are not present.

If fish are present a fish salvage should be done as part of a drainage maintenance plan to avoid injuring or killing fish that live in the ditch.

Under section 32 of the Federal *Fisheries Act*, no person may destroy fish by any means other than fishing except as authorized by the minister. It is the proponents responsibility to ensure that all appropriate means have been utilized to avoid impacts to fish through fish salvage, isolation or sediment control.



Figure 1 An example of a constructed ditch that provides valuable habitat for fish.

What is a Fish Salvage ?

A fish salvage involves collecting fish from the isolated section where the ditch maintenance work is being done and relocating them upstream or downstream of this section.

How do I Conduct a Fish Salvage?

1. You will need to get permits from the Ministry of Water, Land and Air Protection (WLAP) and Fisheries and Oceans Canada (DFO) before you perform a fish salvage. WLAP issues permits to collect freshwater fish, while DFO issues permits to collect saltwater fish and salmon in freshwater. More information on how to apply for permits is on the back page.

Remember to keep copies of these permits with you while salvaging fish.

2. Isolate the works area by placing a *seine net* or an impenetrable barrier, such as a coffer dam, steel plate, plywood sheet or gravel plug at the top and bottom end of the section. The material used to isolate the ditch may also be used for sediment control during maintenance activities.

A coffer dam is a temporary dam used to carry out work under dry conditions. This dam usually consists of rows of sandbags lined with plastic that isolate a section of the stream from water flow.

3. Select a fish collection method best suited to the size of the ditch and the approximate number and size of fish in the section. A *description of different fishing methods is provided for reference on the back page.*
4. Repeat this method three times to make sure all the fish have been captured from the isolated section. For example, if you use a seine net, do three passes with the net and stop to empty the net after each pass.
5. Once all the fish have been salvaged you can proceed with ditch maintenance work.

Passive Fish Collection Techniques

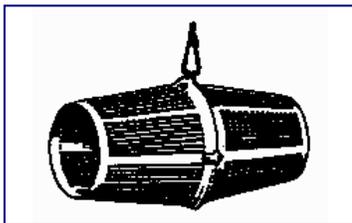
Seine net: a net with weights along the bottom and floats at the top to enable the net to stand in water, encircle a school of fish and entrap them. Typically, seine nets with a small mesh size (0.3–0.6 cm) are adequate for trapping young fish in small-sized channels. These types of nets are relatively small and easy to maneuver in smaller channels.



Beach Seine Net

(Photo taken from Smithsonian Environmental Research Centre website)

Minnow traps (or gee-minnow traps): are net or wire enclosures that trap live fish. Fish swim through the funnel shaped openings and are guided to a narrow opening at the centre of the trap. These traps are best suited for collecting juvenile fish or small adult fish. Traps should be baited and set for a 24 hour period (three times or until no more fish are caught).



Typical Minnow Trap

(Photo taken from, *Fish Collection Methods and Standards*, Version 4.0 (B.C. Ministry of Environment, Lands and Parks, 1997))

Active Fish Collection Techniques

Electrofishing: passes electric current through the water that attracts and stuns fish and is most effective in small streams and rivers. Electro-fishing is commonly done on foot using a backpack shocking device or from a boat with a boat-shocker. Special training and certification is required to electrofish.

Electrofishing can be highly stressful to fish. Mortality can be extremely high in warm water conditions.

What Else Do I Need to Know ?

If you do not have the proper equipment or time to perform your own fish salvage you can hire someone to do this for you. Fish salvage work is specialized and it is therefore recommended that a professional be hired. Look under *Environmental & Ecological Services* in the Yellow Pages to find a professional to do this job for you.

- Fish salvaging follows the same timing window as ditch maintenance works and can only be done between June 15 and Sept. 30.

How Do I Obtain a Fish Collection Permit ?

Contact WLAP-Victoria office at (866) 433-7272 for a permit to collect **freshwater fish**.

Contact DFO-Nanaimo at (250) 756-7270 for a permit to collect **saltwater fish and salmon in freshwater**.

Contact DFO-Delta at (604) 666-2417 for a permit to collect **saltwater fish and salmon in freshwater**.

This factsheet series was designed to help you maintain your agricultural ditches keeping fish habitat protection in mind. They outline best management practices for common maintenance activities, such as vegetation removal, sediment control, bank stabilization and more. See the other factsheets in this series for additional information on protecting fish habitat when maintaining constructed ditches.

A common practice is to use a passive method (i.e., seine net or minnow trap) for the first two passes and then use a more exhaustive approach (i.e. electrofishing) for the third and final pass.

Once each pass is done, immediately relocate the salvaged fish into the upstream or downstream portion of the ditch.