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Fish Containment Barriers ¹

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When stocking triploid grass carp (hereafter referred to as "grass carp") to control aquatic weeds, it is important to select the proper stocking rate of fish for the specific conditions in the treatment area. It is necessary to ensure that these fish will remain in the treatment area for weed control. If there are canals, ditches, culverts, streams, or any other type of flow into or from the water body, steps must be taken to prevent escape of the fish. One way to contain the grass carp is to place a barrier across the open channel that will not allow the fish to pass, yet will not significantly restrict water flow.

PURPOSE OF FISH BARRIER

The fish barriers described here are designed to:

- contain the grass carp;
- have openings large enough to allow floating materials, suspended detritus, and weed fragments to pass through the barrier during periods of water flow;
- and permit easy removal of vegetation and debris from the front of the barrier, for example by an individual using a hand tool such as a rake.

BARRIER DESCRIPTION

A free-standing barrier consisting of vertical bars, can be placed across a ditch, canal, or from shore to shore across any body of water at a location where it is desired to restrict the movement of the grass carp. A walkway across the top of the barrier allows easy access to the full width of the barrier for cleaning of debris which may collect against the vertical bars. The walkway also provides support for the vertical bars. As the width of the barrier increases, the horizontal channel and other material used to support the vertical bars should be of a heavier gauge to withstand pressures exerted from a head of water, should debris block the barrier.

ROUND CULVERT BARRIERS

To place a barrier on corrugated steel culvert, the vertical bars are supported in a square frame. This frame is welded to a steel band for mounting on the culvert. The steel band is placed over the culvert so that it encircles the end of the culvert. The steel band should be bolted or firmly attached in some way to secure the frame with the vertical bars flush against the opening of the culvert. This will prevent movement of the grass carp through the culvert.

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SUMMARY: RECOMMENDED BARRIER DESIGN

The barrier design that best fulfills the requirements is a steel frame supporting a single row of vertical bars of some material such as stainless steel conduit or PVC pipe. The use of stainless steel or PVC pipe eliminates the problems caused by corrosion of steel vertical bars. As the steel corrodes, there is a greater tendency for debris to catch in the barrier, and maintenance time increases. This design will contain effectively the grass carp, while permitting relatively easy cleaning of debris from the vertical bars. Steel rods may be inserted into the PVC pipe to add rigidity and strength to the design. The barrier should be mounted on the upstream side of the culverts so the floating debris will not collect inside the culverts. The steel used in the construction of the frame should have a suitable coating to prevent oxidation (rusting) and corrosion. The spacing of the vertical bars should be set as wide as possible to pass the maximum amount of debris, yet not large enough to permit escape of the grass carp being stocked. The 1/2 inch (1.3 cm) schedule 40 PVC pipe in a single row on 2-inch (5.1 cm) centers should contain most all grass now being sold for stocking.