GRASS CARP PERMIT REQUIREMENT HIGHLIGHTS

- Grass carp cannot be stocked where they will be detrimental to any population of a state- or federal-listed threatened or endangered species, or their habitat

- Grass carp stocked into water bodies within the 100-year flood plain must be removed annually during seasons of potential flooding.

- All inlets and outlets of water bodies into which grass carp will be stocked must be screened with screens approved by ODFW. (Note: at a minimum, screens must be 1) self-cleaning or 2) fixed panels installed in tandem to allow one screen at a time to be removed for cleaning, with a third backup screen available for emergency replacement. Each screen must have openings 1 inch or less for fish stocked12-19 inches total length, or 2 inches or less for fish stocked over 19 inches total length.)

- Part of the approval process to stock grass carp includes an on-site visit and evaluation by an ODFW fish biologist.

- Grass carp may only be stocked into water bodies on private land or land owned or controlled by an irrigation or drainage district; public access must be restricted in order that no individual or entity may remove grass carp from the site and transport them to any other site without prior written approval from ODFW.

- Each grass carp must be implanted with a unique Passive Induced Transmitter tag (PIT-tag) of frequency 134.2 kilohertz.

- Grass carp stocked must be 12 inches or greater in length.

- Stocking will occur only in lakes, ponds, or reservoirs less than 10 acres; or ditches and canals.

These are a few of the primary requirements to obtain grass carp. If you feel that you can meet these requirements, the process to obtain a grass carp stocking permit begins with a call to the Grass Carp Coordinator at ODFW. The telephone number is 503. 947. 6200. The Coordinator will discuss your specific situation with you and will send an application packet afterwards if you desire.

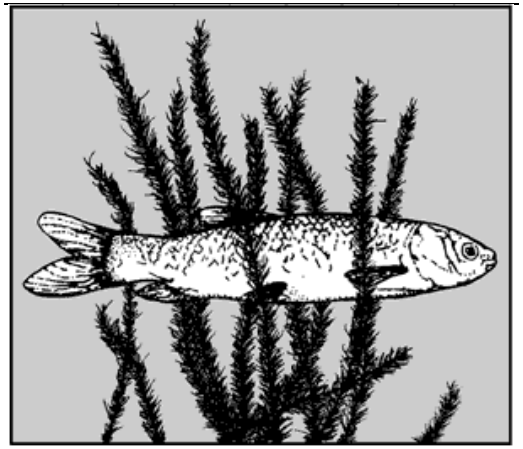
Once ODFW receives an application from you, review can take up to 8 weeks, so please plan in advance.

ADDITIONAL INFORMATION

Aquatic weed management techniques:
www.clr.pdx.edu/publications/iavmp.pdf

Aquatic plant identification:
http://aquaplant.tamu.edu/
http://dnr.metrokc.gov/wlr/waterres/smlakes/weed.htm
http://www.ppws.vt.edu/scott/weed_id/aquatics.htm

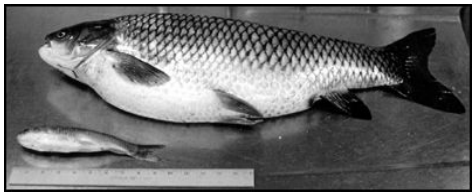
THE USE OF GRASS CARP TO CONTROL AQUATIC WEEDS



Oregon Department of Fish and Wildlife
Grass Carp Coordinator
3406 Cherry Avenue NE
Salem OR 97303

(503) 947- 6200

Aquatic weeds can be a serious problem for pond owners in Oregon. They restrict access to fishing areas, reduce fish harvest, and decrease the usefulness, attractiveness and aesthetic values of a pond. Herbicides, water change regimes, dyes, nutrient loading, proper pond construction, pond renovation and biological methods can successfully control unwanted aquatic weed growth. The physical and chemical characteristics of the pond and the pond owner's objectives dictate which method is most appropriate. One method of aquatic weed control is the use of sterile triploid grass carp.



A nine- inch triploid grass carp stocked in a pond with heavy weed infestation grew to a length of 29 inches and weight of almost 20 pounds in 16 months.

Grass carp (*Ctenopharyngodon idella*) occur naturally in large rivers of eastern China and the former Soviet Union. The U.S. Bureau of Sport Fisheries and Wildlife introduced it into the United Sates in 1963 in cooperation with Auburn University. The feeding habits of the grass carp were well known and it was thought to have great potential as a biological weed control agent. However, many concerns existed about grass carp reproducing in the wild and becoming an environmental nuisance by destroying valuable areas such as wetlands, swamps, and waterfowl feeding grounds. Because of these concerns, early research focused on developing a sterile population. Attempts included creating single gender populations, which resulted in sterile hybrids; success was limited because these methods were seldom 100% effective and verification of sterility was difficult. In the early 1980s researchers and commercial producers began treating eggs with heat, cold, or pressure to produce fish with abnormal chromosome numbers. The normal diploid grass carp has 48 chromosomes; the triploid grass car has 72. These extra chromosomes result in sterility. Oregon law requires each grass carp be verified and documented as a triploid by the U.S. Fish and Wildlife Service.

FEEDING HABITS

Triploid grass carp prefer succulent young submersed plants. Recent field studies in Washington State have shown that use of grass carp for maintenance of desired level of vegetation has rarely been successful. Use of grass carp can also increase non native plants as grass carp selectively remove highly preferred native plants. The table below lists some common aquatic plants and rates them by grass carp preference.

Table 1. *Feeding preferences of grass carp on some common aquatic plants*

HIGH	**LOW**
Elodea (American and Brazilian)	Cattail
Water celery	Arrowhead
Pondweed (thin leaved)	Bulrush
	Milfoil
MODERATE	Parrot feather
	Reeds
Bladderwort	Sedges
Coontail	Filamentous Algae
Duckweeds	Water Hyacinth
Fanwort	Waterlily
Pondweeds (broad leaved)	Watermeal
	Watershield
Water pennywort	Yellow cowlily

Use of grass carp can also increase non- native plants as grass carp selectively remove highly preferred native plants. In most situations, complete removal of vegetation is not desirable as it provides cover for other fish and attachment surfaces for fish food organisms.

STOCKING RATES

Stocking rates vary depending on plant species, distribution, density, and the pond owner's objectives. In Oregon, the stocked limit of grass carp per acre is 22 fish.

WHAT ELSE SHOULD I KNOW?

Combining grass carp and other methods can reduce the number of fish and time required to control aquatic weeds. For example, mechanical removal can be used before fish introductions. If the established vegetation is removed, fewer fish can control the tender new growth.

Time of stocking affects the initial degree of weed control. Fish are cold- blooded animals whose feeding rates and metabolism are affected by water temperature. Grass carp feeding is greatest when water temperatures are between 70°F and 80°F and negligible when water temperatures are less than 50°F. Mortality associated with handling stress is less when water temperatures are cooler,: fish stocked in the late spring are more likely to survive, but they will not begin feeding heavily until early summer.

Grass carp will not reproduce in ponds. The lifespan of grass carp is between 10 to 20 years. Grass carp will provide effective vegetation control for eight to ten years. Once stocked, grass carp are extremely difficult to remove from ponds. They are almost impossible to remove by seining or angling. The only option is draining the pond.