

VIRGINIA DEPARTMENT OF GAME AND INLAND FISHERIES
EXOTIC SPECIES APPLICATION/PERMIT
**TO IMPORT CERTIFIED TRIPLOID GRASS CARP FOR AQUATIC
VEGETATION CONTROL IN PRIVATE PONDS**

(Under Authority of 4 VAC 15-30-40 and §29.1-542 of the Code of Virginia)

Nonrefundable Application Fee: \$10.00

___ Mr. ___ Mrs. ___ Ms. ___ Miss.

Name of Applicant _____ Phone Number # _____

Mailing Address _____

_____ Email _____
City State Zip

Number of Fish to be Stocked _____

(Recommended Size Greater Than 8 Inches. Note: New ponds should not be stocked with Triploid Grass Carp.)

Pond Size (Acres) _____ Name of Pond _____

Address of Pond To Be Stocked: **(911 ADDRESS MUST BE PROVIDED)**

Address _____

_____ City State Zip

Name of Stream(s) That Flow Into The Pond _____

Triploid Grass Carp Supplier _____

What Degree of Aquatic Plant Infestation Can Be Found in Your Pond? Check One.

(___ Slight < 30%; ___ Moderate 30-60%; ___ Heavy > 60%)

Type(s) of Aquatic Plant Found in Pond _____

Primary Use of Pond _____

Are You Sole Owner of Pond? Yes _____ No _____

If no, do other owners concur with your intention to stock triploid grass carp in this pond/lake?

Yes _____ No _____ (List other owners on back or on a separate sheet of paper.)

Applicant signature _____ Date _____

By my signature above, I hereby certify that all entries made on this application are true and complete, and I agree and understand that any falsification of information herein, regardless of time of discovery, may result in denial or revocation of my permit.

TYPED SIGNATURE IS AUTHORIZED AND BINDING PER CODE OF VIRGINIA §1-13.32 AND §2.1-7.4

Make check payable to: **Treasurer of Virginia** and mail to:
Tripliod Grass Carp Program, VDGF, P O Box 3337 Henrico, VA 23228
804-367-6913

THIS PERMIT EXPIRES DECEMBER 31st

APPLICATION TO IMPORT TRIPLOID GRASS CARP INTO VIRGINIA

Virginia regulation 4 VAC 15-30-40 requires a permit for importing grass carp into the state of Virginia. Permits are issued only for the triploid (sterile) grass carp and can be obtained from the Department if you take the following steps:

1. Read the enclosed paper to determine if stocking grass carp may be a solution to your problem. Note: New ponds should not be stocked with triploid grass carp. There is no food available for them, and they will not survive.

2. Contact an approved supplier from the attached list to determine the cost and availability of fish. You need to specify that you are only interested in certified triploid grass carp and that certification will be required by this agency.

3. If you intend to purchase sterile grass carp, please fill out the enclosed application **YOU MUST PROVIDE THE PHYSICAL 911 ADDRESS OF THE POND TO BE STOCKED**. Your application must be sent to the Triploid Grass Carp Program in the Richmond Office (address listed below) at least 30 days prior to your anticipated date of purchase.

4. Permits are issued for the period **January 1 through December 31**, and a non-refundable application processing fee of \$10.00 must accompany your application.

5. **FEDERAL, STATE, OR LOCAL LAWS:** Issuance of a triploid grass carp permit does not absolve the applicant of any responsibilities or conditions of any other Federal, State, or Local laws and regulations, including those that apply to Threatened/Endangered Species.

DGIF will send you the permit. A copy of the permit will be sent to the supplier of your selection. The supplier will notify this agency of date, time, and place of arrival, prior to shipping the fish. This agency reserves the right to examine a sample of any shipment of fish into the state as a condition of the permit.

Triploid Grass Carp Program
VDGIF
P O Box 3337
Henrico, VA 23228
804-367-6913

General History

The white amur or grass carp is a rapid growing, plant-eating fish native to the large rivers of eastern China and Siberia. They are one of the largest members of the minnow family and fish as large as 110 pounds have been collected from the Yangtze River in China. A more typical size for Virginia waters would be 20 lbs. Life span typically ranges from 5 to 11 years, but fish over 20 years old have been collected in China.

Grass carp were first brought into the U.S. in 1963 for aquatic plant control research. Many researchers viewed the fish as being a natural weed control agent. However, fears of reproducing populations and reports of environmental damage caused most states to prohibit their use. Major spawning areas are large turbulent rivers. Reproduction outside its native range is rare, but has been documented in the U.S. (lower Mississippi River) and other countries. Therefore most research has been directed towards production of sterile fish. In 1984 a major breakthrough occurred with the production of sterile "triploid" grass carp. These genetic derivatives have 72 chromosomes instead of the normal 48. This is caused by shocking fertilized eggs during incubation either by heat, cold, or pressure to stimulate retention of chromosomes normally expelled during cell division. Because the method used to produce sterile fish is not 100% effective, individual fish must be examined to confirm sterility. The U.S. Fish and Wildlife Service does this testing before the fish are imported into Virginia.

Under good conditions a five-pound fish will eat about five pounds of aquatic plants a day! As fish become larger consumption decreases, and a 20-pound fish may eat only four pounds of plants a day. Feeding rates are temperature dependent and slow down drastically below 60oF. Therefore grass carp are not recommended for trout ponds.

Management Objectives

Nuisance aquatic plants are probably the small pond or lake owner's greatest threat to a productive and enjoyable impoundment. When vegetation becomes over abundant in a pond or lake, it can have adverse impacts. Too much vegetation reduces nesting sites for fish; provides too many hiding areas for small fish, allowing them to overpopulate; hampers navigation of motor boats; restricts swimming areas; and interferes with fishing. If controlled, aquatic vegetation is both desirable and beneficial. Generally, 30-40% plant coverage will result in good fishing. This level provides areas for nesting, feeding, and protection of forage fish and insects. Vegetation produces oxygen, helps balance mineral and nutrient levels, and helps stabilize and prevent sedimentation problems. If your pond or lake is used exclusively for swimming and boating, total plant eradication may be appropriate. However, if fishing is a primary concern, controlling vegetation is more important than eradication.

Controlling plants in your swimming area or boat ramp may require immediate results, and mechanical harvesting or chemicals would be more effective. However, to reduce heavy plant infestations to 30-40% of the surface area, a combination of chemicals for spot treatments, and stocking triploid grass carp for long term control may be appropriate. Getting the desired results is no accident. Planning your treatment and following your plan achieves results!

Stocking Recommendations

Stocking rates for triploid grass carp depend on the amount of aquatic plant control desired, and the type of vegetation to be controlled. New ponds should not be stocked with triploid grass carp and the Agency will not issue permits for new ponds. Food preferences for grass carp are variable, but studies have documented their dislike for woody-stemmed plants such as lily pads and cattails. Stocking grass carp for control of these nuisance aquatic plants is not recommended. It is also publicized that plants such as duckweed and water meal are not readily eaten by these fish. Grass carp are recommended for plants illustrated in Figure 1. For correct identification of the category of aquatic plant (floating, emergent, submergent, etc.), please refer to the DGIF website (www.dgif.virginia.gov) or contact your local fisheries

biologist.

Pond owners need to keep in mind that every pond or lake is a dynamic system with unique conditions. Water quality (alkalinity, dissolved oxygen, pH, and temperature), vegetation, and aquatic organisms present can be quite variable between water bodies and response to the following recommendations may vary. For control of aquatic vegetation, use the following formula to determine the number of triploid grass carp to stock. First determine the acreage of your pond. Secondly, determine the degree of aquatic plant infestation in your pond (Slight <30%; Moderate 30-60%; Heavy >60%). Recommended stocking rates for each category of aquatic plant infestation are as follows to control vegetation: **Slight (2 fish/acre), Moderate (5 fish/acre), Heavy (10 fish/acre)**. If complete eradication of vegetation is desired, triploid grass carp should be stocked at a rate of 15 fish/acre (this is the maximum stocking rate; the Agency will not issue permits for more than 15/acre). In ponds smaller than 1 acre, it is recommended that a minimum of 3 triploid grass carp be stocked to account for any potential mortality or predation of newly stocked fish. Examples of stocking rates follow:

Example #1 - If your pond is 5 acres in size and 50% covered (Moderate infestation) with hydrilla you would like to control, calculate your stocking rate by multiplying 5 acres x 5 fish/acre (Moderate infestation) = 25 triploid grass carp to stock.

Example #2 - You have a 1 acre pond with 30% (Slight infestation) coverage of elodea you would like to control, calculate your stocking rate by multiplying 1 acre x 2 fish/acre (Slight infestation) = 2 triploid grass carp, but go ahead and order the minimum of 3 triploid grass carp to stock.

If desired results are not achieved after the **second** year, additional fish should be added at one half of the initial stocking rate.

An effective program requires monitoring and evaluation. If total plant eradication is your management objective, monitoring the results is straightforward. Your approach is successful if all vegetation is removed. Eventually, more fish will need to be stocked if plant growth returns to undesirable levels. Restock triploid grass carp at 3 fish per acre to maintain control, and 5 fish per acre to keep the pond or lake devoid of vegetation.

Minimizing Escapement

To help protect your investment in grass carp and prevent your fish from invading/affecting other bodies of water it is recommended that your overflow structure be equipped with a barrier (Figure 2). Grass carp are attracted to flowing water and can escape from your pond if there are no barriers at the outflow. Pond owners are responsible for the installation and maintenance of such barriers as well as dam safety.

Figure 1 Triploid grass carp stocking rates that will have success controlling common aquatic plant problems in Virginia

	Control	Eradication
No. of fish per vegetated acre	8	16

Examples:

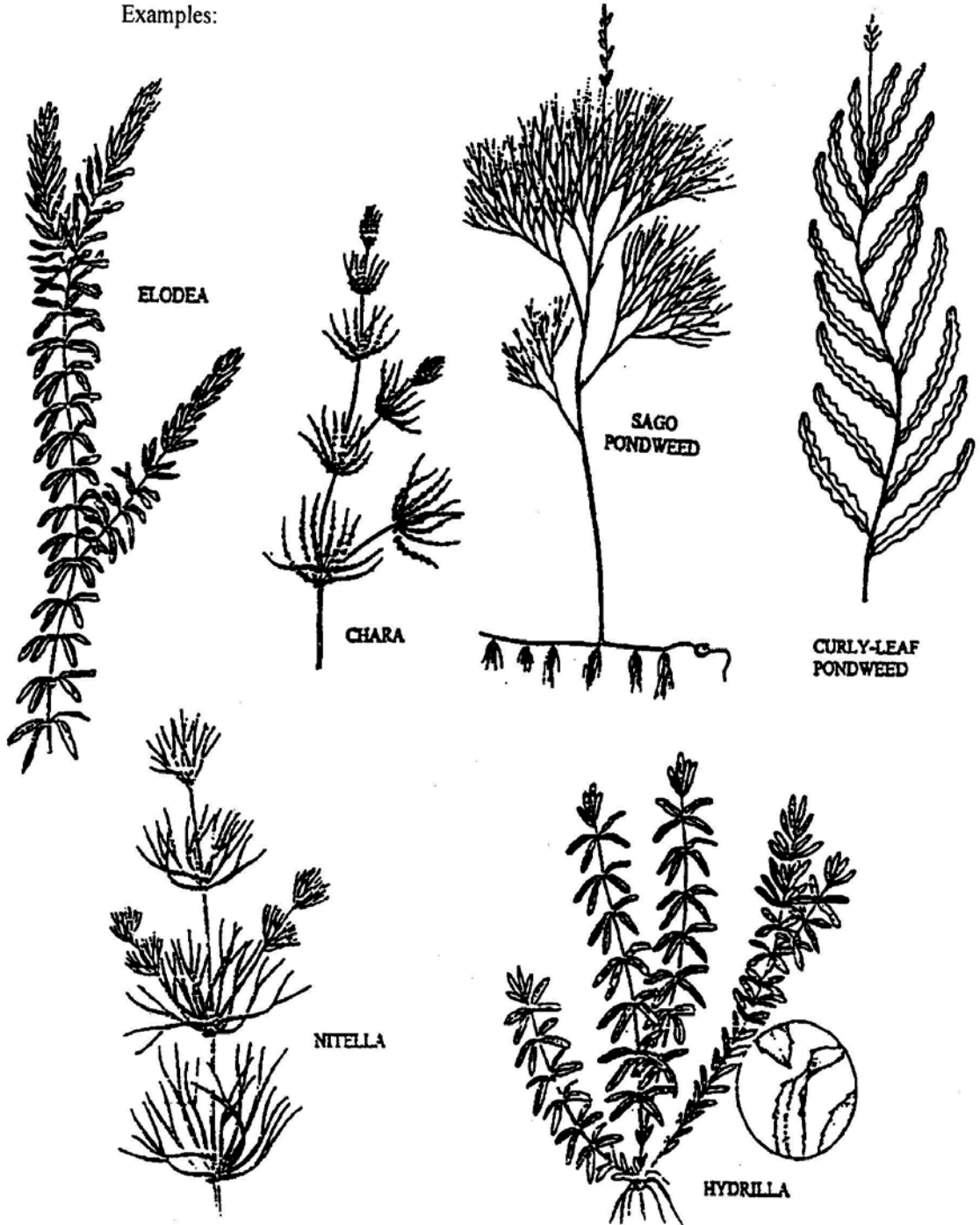


FIGURE 2 FISH BARRIER SUGGESTIONS

Triploid grass carp have behavioral habits that attract them to flowing water. They will escape from your water body via flowing water (i.e. ditch, creek, canal) unless restrained. A permanently anchored structure can be constructed of one of the following materials:

- 1) 3/4" - 1" mesh screening (NO CHICKEN WIRE)
- 2) Series of 3/8" - 1" diameter horizontal metal bars with a 1" - 1-1/2" spacing between bars. Outer framework usually consists of 1/8" - 1/4" flat metal. For easier maintenance and greater longevity, aluminum is recommended.
- 3) Series of 3/8" - 1" diameter horizontal PVC tubing with a 1" - 1-1/2" spacing between bars. Outer framework can be constructed of 2" - 4" diameter PVC tubing.

In order for the barriers to be effective, they should extend a minimum 36" above normal high water level and should be constructed to restrain fish during a 20-year flood. Materials used to construct barriers should be durable enough to withstand environmental elements and be expected to have a life expectancy of 10 years. Barriers should be braced flush against the outfall structure to ensure that there are no gaps present.

TYPES OF BARRIERS

