Triploid Grass Carp and Aquatic Plant Management
A Brief History

- Scientific Name: *Ctenopharyngodon idella*
- Common Names: grass carp, white amur
- Native to large river systems in Asia
- Grass carp can now be found in 45 states (except Alaska, Maine, Montana, Rhode Island, and Vermont)
A Brief History (cont.)

- First imported to the U.S. in 1963 to control aquatic vegetation in aquaculture ponds

- Reproducing population was discovered in 1971 in the Mississippi drainage system

- Sterile carp were first produced in the U.S. in 1979 as inter-specific crosses between female grass carp and male bighead carp Aristichthys nobilis (Malone 1982)

- Currently found in 93 countries
Commonly Reach 30 lbs or More

Record weight is 99 lbs; length is 4.9 feet
Typically Live 10-15 Years, Unless...

Largemouth Bass by FWC

River Otter by FWC

American Alligator by SFWMD

Osprey by www.wildphotosphotography.com
Triploid Production

Eggs are subjected to hydrostatic pressure resulting in three sets of chromosomes – rendering the fish sterile.
Grass Carp Feeding Preferences
Frequently Eaten

- Brazilian elodea
- Duckweed
- Elodea
- Hydrilla
- Musk Grass (Chara)
- Pondweed
- Slender Spikerush
- Southern Naiad
- Widgeon Grass

Hydrilla
Grass Carp Feeding Preferences

Sometimes Eaten

- Algae, Filamentous
- Baby Tears
- Bacopa
- Banana Lily
- Bladderwort
- Bog Moss
- Bulrush
- Cattail
- Coontail
- Fanwort
- Hygrophila

By Michael Sowinski FWC
Grass Carp Feeding Preferences Sometimes Eaten (continued)

- Knotgrass
- **Limnophila**
- Maidencane
- Naiad, Marine
- Nitella (Stonewort)
- Rush Fuirena
- Soft Rush
- Southern Water grass
- Spikerush
- Water Meal
- Water Shield

Jointed Spikerush
Grass Carp Feeding Preferences
Rarely Eaten

- Algae, Planktonic
- **Alligator Weed**
- American Lotus
- Azolla (Mosquito Fern)
- Burhead Sedge
- Common Arrowhead
- Duck Potato
- Frog’s Bit
- **Para Grass**
- **Parrot’s Feather**
- Pennywort (Dollarweed)
- Pickerelweed

American Lotus

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Grass Carp Feeding Preferences
Rarely Eaten (continued)

- Red Ludwigia
- **Salvinia**
- Sawgrass
- Sedges
- Smartweed
- Spatterdock
- **Torpedo grass**
- Water Paspalum
- **Water Hyacinth**
- **Water Lettuce**
- Water Lilies
- **Wild Taro**

Smartweed
<table>
<thead>
<tr>
<th>State</th>
<th>Status</th>
<th>Genetic Requirements</th>
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<tbody>
<tr>
<td>Alabama</td>
<td>Legal - no permits required</td>
<td>Diploid or triploid</td>
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<tr>
<td>Arkansas</td>
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<td>Puerto Rico</td>
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<td>Virginia</td>
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<tr>
<td>Virgin Islands</td>
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</table>

From the Southern Regional Aquaculture Center (SRAC) July 2002 Publication
Permits may be obtained online if the following criteria are met:

- Single Owner
- No inlets or outlets exist where fish can escape
- No mitigation or water quality requirements
- Applying for 50 fish or less
- Size of the pond(s) is less than 5 acres
APPLICATION FOR TRIPLOID GRASS CARP PERMIT

CONTACT INFORMATION

Name First: ___________________________ Middle: ___________________________ Last: ___________________________
DOB (mm/dd/yyyy): ___________________________
Street: ___________________________
Street 2: ___________________________
City: ___________________________
State: ___________________________ Zip: ___________________________
Email: ___________________________
Cell Phone: ___________________________
Home Phone: ___________________________
Work Phone: ___________________________
Fax: ___________________________
Lake Management: ___________________________
Company: ___________________________
Homeowners: ___________________________
Association: ___________________________

WATER BODY INFORMATION

How many Triploid Grass Carp are you requesting: ___________________________
How many ponds at this site: ___________________________
Lake Name: ___________________________
Lake County: ___________________________ Acreage: ___________________________

What is the physical address of the body of water where the carp will be released?

Copy Address from Above ___________________________

Are there any water inlets or outlets to the water body? ○ Yes ○ no

Has any state, county, city, or other agency designated this site as a permitted mitigation or water-quality treatment site wherein specific aquatic vegetation must be maintained? ○ Yes ○ no

RIPARIAN OWNERSHIP

Please check the appropriate box to designate ownership of the waterbody and or adjacent property:

○ Single Owner ○ Multiple Private Owners

Do all riparian owners consent to the stocking of triploid grass carp in this water body? ○ Yes ○ no

Comments:

_________________________

By selecting the Apply for Permit button below, you certify that the information provided by you above is correct and true to the best of your knowledge.

Apply for Permit Return
## Permits Issued Statewide

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<thead>
<tr>
<th>Fiscal Year</th>
<th>Total Permits Issued</th>
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<th>Amendments</th>
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<td>1,698*</td>
<td>1,063</td>
<td>635*</td>
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<tr>
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<td>2008/2009</td>
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<td>2010/2011</td>
<td>1,472</td>
<td>817</td>
<td>655</td>
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</tbody>
</table>
Fish Barriers

- Need to be of sturdy construction
- Gaps must be: 1.25” for 10” fish; 1.5” for 12”
- Bars can be vertical or horizontal
- Overflow should allow for major rain events to alleviate flooding
Barrier Issues

Poor Construction

Need to be Maintained
Barrier Issues II

Underwater Pipes

Poor Design
Stocking Rates

Stocking rates are difficult to predict due to:

- differences in vegetation coverage and densities, (e.g., total plant acreage compared to total water body acreage)
- plant species present
- weather events (e.g., droughts, hurricanes)
Stocking Rates (cont.)

For 100% coverage of small ponds (<5 acres), using only grass carp, the recommended stocking rates are:

- 10 fish/acre for Hydrilla (higher preference plants)
- 15 fish/acre for Pondweed and Naiad (medium preference plants)
- 20 fish/acre for Slender Spikerush and Bladderwort (lower preference plants)
- 30 fish/acre for filamentous algae (lowest preference plants)
Public Lakes

- A stocking request is sent to FWC

- The South/Southwest Regional Grass Carp Team:
  - Invasive Plant Management Regional Biologist
  - Former Regional Grass Carp Biologist
  - Waterfowl Biologist
  - Freshwater Fisheries Biologist
  - Aquatic Habitat Restoration & Enhancement Section Biologist

- The Regional Grass Carp Team reviews the request, inspects the waterbody (if necessary), and determines if the stocking of TGC will be a benefit to the waterbody
Just a Reminder!

- Better to be very conservative in large water bodies using acres of vegetation instead of water surface acres

- There is always the possibility of the lake becoming totally devoid of aquatic vegetation

- Use an adaptive management approach

- Be patient!!!

- Questions call Rhonda Howell at 352-357-2951
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