

# SOUTH AFRICAN NATIONAL GRASS CARP POLICY

## REGULATION OF THE PRODUCTION, DISTRIBUTION AND USE OF STERILE GRASS CARP (CTENOPHARYNGODON IDELLA) IN SOUTH AFRICA

*Photograph*

As policy for use by all regulating authorities, permitting bodies,  
government departments, producers, conservationists and other interest  
groups in South Africa.

Product of the:  
National Grass Carp Workshop – Bonnievale, 04 & 05 March 2004 and facilitated by  
AquaEco

## Foreword

**This National Grass Carp Policy is the product of a workshop around the development of such a policy as held in Bonnievale, Western Cape, on 4 and 5 March 2004. It was subsequently circulated to all provincial delegates and is now recognised as the standard by which sterile Grass Carp will be produced, distributed and used in South Africa. The following provincial delegates were present at the policy development workshop:**

<b>Province</b>	<b>Name</b>	<b>Organisation</b>
Western Cape	Dean Impson	Western Cape Nature Conservation Board
Northern Cape	Charles Sekwele	Department of Agriculture, Land Reform, Environment and Conservation (DALREC)
Eastern Cape	Thembinkosi Tyali	Department of Economic Affairs, Environment and Tourism (DEAET)
Free State	Pierre de Villiers	Department of Tourism, Environmental and Economic Affairs (DTEEA)
North West	Willem Bosshoff	North West Department of Agriculture, Conservation and Environment
Limpopo	Mick Angliss	Limpopo Department of Finance and Economic Development
Gauteng	Reggy Nkosi	Department of Agriculture, Conservation, Environment and Land Affairs - Gauteng
Mpumalanga	Johan Engelbrecht	Mpumalanga Parks Board
Kwazulu-Natal	Peter Thomson	Ezemvelo KZN Wildlife

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## **APPENDIXES**

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<u>Appendix 2</u>	Checklist for the inspection of triploid Grass Carp by authorities for the purpose of issuing sterility certification of such a batch.
<u>Appendix 3</u>	Standardised permit application form for use by any person wishing to attain a permit for the stocking of sterile Grass Carp.

**Policy Statement**

The exotic Grass Carp (*Ctenopharyngodon idella*), although often effective in controlling aquatic weeds, is considered to pose a significant potential threat to certain natural aquatic habitats in South Africa. The stocking of this species should therefore be strictly controlled by a permit system. Furthermore only sterile (triploid), species pure, disease free, tagged fish from accredited producers should be stocked into non-sensitive waters in responsible manner.

## **1. Introduction.**

Grass Carp is exotic to South Africa and originates from east Asia. It is primarily used (in many countries) as a biological agent in the control of aquatic vegetation. No indigenous fish species is as effective in the control of aquatic vegetation.

In the past it was believed that Grass Carp would not breed outside of their native range and that spawning would not occur in South Africa. Nevertheless wild spawning has been confirmed both in the USA and more recently in the Vaal River (SA). The potential for feral spawning in the Orange - , Pongola -, Limpopo and many other South African rivers exists. For this reason only the use of certified sterile (triploid) grass carp is permitted to effect the precautionary principle.

Grass Carp are voracious feeders of aquatic vegetation, able to alter aquatic vegetation profiles dramatically. Under ideal conditions they are able to consume their own bodyweight (reaching 20kg. and more) in vegetation in a day. This has the potential to degrade aquatic environments if these fish are used irresponsibly.

Control of aqua-weeds with Grass Carp has been practised in South Africa since the 1970's. Through increased environmental awareness in the 1980's and 1990's, attempts were made to regulate the use of these fish. Factors such as the lack of capacity and funds, provincial differences (the split into nine provinces), the lack of updated national guidelines and the unavailability of locally produced fish, led to insufficient regulation in the use of these fish. This policy has been established (March 2004) to address any shortfalls in the regulation of Grass Carp, but also to standardise the application of these fish across all South African provinces.

This Policy must be implemented and promoted wherever possible to regulate the interest in Grass Carp, the underlying black market, general user ignorance, the potential environmental impact of the species and the sale of other species under the guise of Grass Carp. To assist with this, a summary of the policy has been produced as a guideline document (*Guidelines for the Regulation of Grass Carp based on the National Grass Carp Policy*) for everyday use by authorities, permitting offices, farmers and other users. This guideline is contained in Appendix 1 and replaces the Policy for Management and Stocking of Grass Carp that formed part of the National Aquatic Conservation Committee document of February 1995.

This policy contains a standardised, functional and practical policy for regulating and controlling the production and use of Grass Carp. It deals with aspects such as sterility testing, tagging, disease, permitting, producer controls and general use. It is specifically the national – and inter provincial permitting systems for grass carp that are standardised into a simplified, yet effective system of control.

This policy, based on similar international policies, is for use by authorities, permitting bodies, government departments, producers and conservationists.

## **2. Ensuring species purity in the use of Grass Carp.**

Due to the difficulty in attaining sterile (triploid) Grass Carp in the past, some unscrupulous suppliers still sell other (carp) species to unknowing users. This has the potential to create havoc in the ordered control of the Grass Carp business and could have severe ecological consequences.

### **Controls Required**

- All fish that are sold must be verified as being of the Grass Carp species.
- Recognised Grass Carp suppliers must be accredited after they have complied with the relevant statutory requirements (i.e. the EIA process and/or implementation of an Environmental Management Plan)

### **Aimed At**

- All producers, authorities and users of Grass Carp.

### **Enforcement Agency**

- Provincial (and national) regulatory authorities must be able to discern the difference between Grass Carp and other fish species that are made available for weed control.
- Through cooperation between all authorities, the recognised dealers in Grass Carp must be identified, independently audited (preferably on an annual basis) and accredited. Such accreditation must be based on the implementation of an approved Environmental Management Plan).

### **Comments**

Through the media (especially the agricultural press) it must be made known that Grass Carp are used for a very specific role in aqua-weed control and that the use of other species, or fish from unrecognised sources poses an environmental risk.

## **3. Protection of local production and its socio-economic influence.**

The technology for the production of sterile (triploid) Grass Carp is available in South Africa. For this reason the importation of these fish can no longer be justified and must be stopped for the following reasons:

- South Africa has a relatively healthy aquatic and aquaculture environment. This status must be protected and it may not be compromised by dependence on imported Grass Carp that can be produced locally.
- The potential for local job creation and economic activity in the agricultural sector must remain a motivation for not using imported Grass Carp.
- The line of responsibility in ensuring the sterility of fish from abroad is lengthened to such an extent that reliability of sterility certification done in other countries could be questionable.

## Controls Required

- Importation of Grass Carp into South Africa must be banned.

## Aimed At

- All producers, authorities and users of fish.

## Enforcement Agency

- Provincial and national authorities. Specifically the National Dept. of Agriculture and their Directorate of Animal Health and Directorate of Plant Quality Control.

## Comments

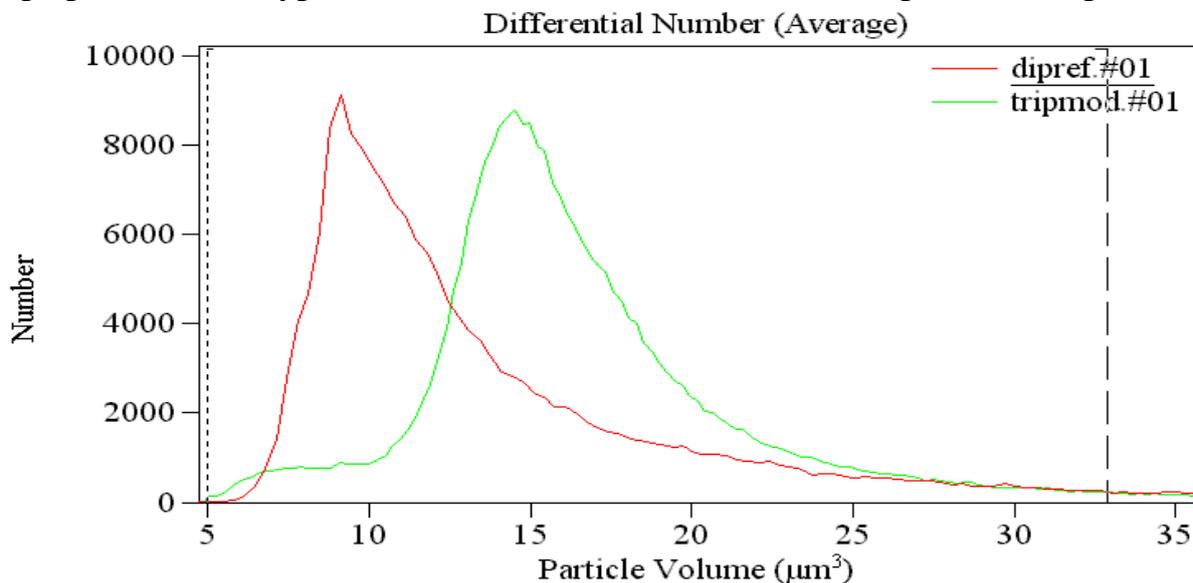
With the know-how to produce triploid Grass Carp locally, South Africa must become self-sufficient in this regard.

### 4. Testing and Certification for Sterility or Triploidy.

The basic methodology for testing triploidy (sterility) needs to be standardised to ensure a high degree of accuracy, accountability and national consensus. Internationally, the most reliable method for testing sterility remains the determination of red blood cell nuclear diameter or volume by means of a Coulter Counter. The principal of the method is the measurement of the increased nuclear volume in triploid fish caused by the additional genetic material contained within the nuclei as opposed to that contained in the nucleus of the diploid (non-sterile) fish.

Blood must be drawn from each fish, the nucleus of the red blood cells retrieved and passed through a Coulter Counter with a suitable aperture for this measurement. Nuclear volumes from samples of control (known) diploids must be compared with the volumes for fish of unknown ploidy to discern between diploids and triploids.

The graph illustrates typical nuclear volume distributions for diploid and triploid fish.



In the graph the nuclear volume of diploid fish peaks between 8 and 11 cubic micron (or femto litres). The nuclear volume of triploid fish peaks between 13 and 16 cubic micron (or femto litres). Nevertheless, slight but consistent differences in the areas where nuclear volumes peak are observed from time to time (temporal) and from location to location (geographically). The United States Fish and Wildlife Services (USFWS) has clarified that it is the relative position of the different volume peaks rather than the precise position by which ploidy is recognised and distinguished. Therefore the reliability of the test is based on the distance between the nuclear volumes peaks for diploid and triploid fish, rather than the absolute values that may differ from station to station (geographical) and over time (temporal). This is the basis of the reason for the importance of direct comparison between know diploid fish from the same site with the fish that are being tested for triploidy from that site in the same point in time (same day). As guideline an area of 2,0 cubic micron (femto litres) must separate the peak for the largest diploid in a control sample from the peak of the smallest triploid fish that is certifiable as sterile.

From the information above the following standards must apply to the testing for triploid Grass Carp in South Africa (as adopted from the USFWS standards):

- The following standards will remain open for inspection by any official. In this regard producers of Grass Carp are obliged to take such steps as would be necessary to illustrate that these testing and certification procedures are in place, are reliable and are being implemented at all times.
- Due to the sensitivity of the measurements the Coulter Counter used in testing must be based on the premises of any sterile fish producer. Transport, handling, logistics and the effect of time delays on blood samples have been identified as problem areas in reliable testing. Furthermore on site sampling of know source diploids are to be used for benchmarking in the test and certification procedures.
- Coulter Counters must be in good working order and calibrated regularly with standard Latex bead calibrators. Calibration of Coulter Counters must also be performed in the company of an official that conducts an inspection of the facility or the certification of any batch of Grass Carp as being sterile.
- For benchmarking during the sterility testing at least 10 know diploids from the same facility (and of comparable generation) must be tested as average reference point and such diploid reference fish (and results) must also be made available to verifying authorities conducting sterility certification or compliance inspections.
- Batches of fish must be tested in totality and declared triploid by the producer before certification authorities are given the opportunity to retest a representative sample of fish from such a group on the premises and equipment of the producer.
- Samples (recommended 40 fish per batch) tested on the premises and equipment of the producer by the certifying authority must meet a 100% triploid status for a batch to be certified sterile. Failing this the entire batch must be failed for retesting by the producer in his own time for further certification. Repetitive failures of allegedly sterile batches must be regarded by authorities as grounds for the discontinuation of accreditation as a recognised Grass Carp dealer.

- In addition to the testing procedures above any authorities have the right to collect additional samples from any batch (after site testing) for independent verification by means of Coulter techniques or by Flow Cytometry. The cost of one such independent verification per annum will be carried by the producer, where after any further independent verifications within the same calendar year will be borne by the applicable authority. The results of such independent verifications must be open for scrutiny by authorities (also from other provinces) and by the producer.
- Grass Carp producers must maintain complete records of their testing and certification programmes and make such records available to any applicable authority as and when required. The maintenance of such record will also be applicable to the accreditation of a Grass Carp producer.

Achieving a 95 % + rate of triploidy is quite normal if the triploid treatment on eggs is administered correctly. For this reason any producer not able to meet such a high percentage of sterility could compromise the efforts for the controls against fertile fish purely due to the risk in producing and keeping high numbers of non-sterile fish.

### **Controls Required**

- All fish made available must be tested for triploidy by means of a standard Coulter Counter technique on the site of production with equipment that is dedicated to the testing of Grass Carp from that source. Results must be verified and regulating authorities must have the opportunity to test a representative sample (recommended 40 per batch) from a group of fish that has been presented as all triploid. Sterility certification of such a batch of fish may be granted if all fish in the sample are show to be triploid as compared to know diploid fish from the same site.

### **Aimed At**

- All producers, authorities and users of fish.

### **Enforcement Agency**

- Provincial regulatory authorities or conservation bodies must be given the opportunity to verify and certify the sterility status of any group of fish and must hereby be able to declare any group of fish all triploid.

### **Comments**

In order to streamline the functions of any authorising body or official in performing a sterility certification inspection, a checklist of items to be conducted / checked during an inspection of a batch of fish has been compiled and included into Appendix 2.

## **5. Tagging of Grass Carp.**

In the past many Grass Carp (diploids and triploids) have been distributed in South Africa with very few traceable measures and accountabilities in place. Tagging fish with a reliable and traceable tag is the only means by which this can be controlled.

The cost of micro chipping (with electromagnetic unique codes) can make fish unit prices very high, thus stimulating illegal trade. Alternative tagging methods that allow for reliable identification must be able to deliver the following with regard to controlling the distribution of fish:

- Fish must be identifiable as tagged or not tagged.
- By reading a tag (whether electronically or physically) fish must be identified to the level of:
  - A specifically certified batch of fish.
  - The supplier/ producer of fish.

Currently (March 2004) all Grass Carp producers in South Africa use Coded Wire Tags (CWT) as supplied by Northwest Marine Technologies (NMT). These tags consist of microscopically etched and unique codes on small sections of stainless steel wire that are implanted into the fish (most often next to the dorsal fin or into the nose bone). Each producer has a unique producer code which remains standard to all tags that are supplied to the producer. In this manner fish can be distinguished between producers. Furthermore the presence of a CWT tag can be detected electromagnetically, but the reading of the specific codes required removal of the tag from the fish.

### **Controls Required**

- All fish sold must be tagged reliably to ensure traceability.
- Producers must keep complete records of their tagging practises and these must align with the numbers of fish permitted and sold.

### **Aimed At**

- All producers, authorities and users of fish.

### **Enforcement Agency**

- Provincial regulatory authorities must ensure that only fish with tags are permitted for sale. Any authorising body or official must be granted access to any shipment of fish at any time and producers of such fish must prove that they are tagged. The credibility of any producer must depend strongly on the reliability of each fish being tagged.

### **Comments**

In years to come no young fish (in systems where natural spawning is not occurring) should be without a tag.

## **6. Preventing Fish Escape.**

The integrity of any production system against the escape of Grass Carp is as important as the verification of sterility. For accreditation of any suppliers his/her production facilities must implement the following management practises:

- All Grass Carp must be housed in secure, closed and static water bodies and a register of stock numbers maintained and made available to the relevant provincial authorities every 12 months. The register must show the following:
  - Number of male and female brood fish.
  - Details of mortalities and culls in the preceding period.
  - Details of new diploid juveniles kept for future brood stock.
  - Details of diploid fish kept for triploid test benchmarking.
  - Details of numbers of triploid fish certified and sold.
- No production facilities will be allowed within flood prone areas as determined by the provincial authority. In addition to this no production facilities may be within 100 meters of any natural surface water sources.
- Production facilities should allow for the zoning of diploid fish from triploid fish so that accidental contamination of triploid populations are prevented.
- All production units must be covered with bird netting.
- Production facilities must be under fulltime supervision and the necessary access control and security measures implemented to prevent the theft of fish.
- Inflow water must be controlled (preferably via elevated piping) to prevent the upstream migration of any Grass Carp.
- Any outflow water – especially in which eggs are being hatched, must be subject to at least two effective physical barriers acceptable to the applicable provincial authorities. These should consist of one screen type barrier and one sand or stone type barrier. In spite of these barriers the final fate of any outflow water must be terminal in nature, i.e. via a closed irrigation cycle or through effective soak away.
- The principals of the National Environmental Management Act, the Environment Conservation Act, the Water Act and other applicable legislation must apply.

### **Controls Required**

- All fish production units must be escape free and protected from theft of fish.

### **Aimed At**

- All producers and authorities.

### **Enforcement Agency**

- Provincial regulatory authorities.

### **Comments**

The accreditation of suppliers will also rest on their ability to demonstrate the measures that are taken to prevent the escape of fish from any housing facilities.

## **7. Disease.**

There is a general ignorance to disease and disease control on South African fish farms. Grass Carp are carriers of many different aquatic diseases (including parasites) and control measures to prevent the spread of disease are important.

In Grass Carp one primary concern is the Asian Tape Worm (*Bothriocephalus spp.*). Sadly this tapeworm is already commonly found in South Africa. The internationally accepted list of OIE listed diseases must also be monitored in Grass Carp prior to any fish being made available on the local market.

All producers should be screened for their diseases status twice a year (once in winter and once in summer), at the cost of the relevant producer. The results of such disease inspections by a competent fish pathologists must be forwarded to the relevant provincial authority when it is received. The authorities from any other province in South Africa may request copies of such disease inspections before issuing permits for fish to enter into their respective provinces.

If Asian Tapeworm, any OIE identified disease or disease (or parasite) regarded by a recognised fish pathologists as posing an risk, is detected, all sales of fish from such a source must be halted until the disease has been cleared from the system and verified as such by the above pathologist.

As a precautionary measure all Grass Carp must be treated against Asian Tapeworm with Praziquantel under the dosage and recommendations of a recognised fish pathologists. Details of such treatments (dosages, dates etc.) must be made know to authorities on the 12 monthly register referred to in point 6 above.

### **Controls Required**

- All fish production units must be free of diseases (and parasites) that could harm indigenous fish and other aquaculture ventures in South Africa.

### **Aimed At**

- All producers, authorities and users of fish.

### **Enforcement Agency**

- National Department of Agriculture: Directorate of Veterinary Services with applicable provincial authorities and recognised fish pathologists.

### **Comments**

The impact of disease in South Africa has not been felt thus far due to our relative isolation from international fish diseases. Not implementing controls is detrimental to the future growth of aquaculture and also to the survival of indigenous fish species.

## **8. Permits, Regulations and other Legislation.**

In order for producers to provide a professional service to clients (while maintaining the required controls) the permitting systems must be effective and standardised nationally. Following are the required standardisations for Grass Carp permits.

### **8.1 Format of the permit application.**

An application for use of Grass Carp must be presented in a standard format as per the document in Appendix 3. The application must contain:

- Full contact details of the client (users).
- The water resource's location and size.
- The intended supplier (provider).
- The number of fish required.

### **8.2 Procedure for stocking within the same province.**

The procedures for stocking in the same province in which the fish are produced are:

- A permit application must be made to the provincial regulatory authority by the user, or by the producer his behalf, with the information set out in 8.1 above and as per Appendix 3.
- Once the permit has been received the stocking may take place and the permit holder (or producer on his behalf) must inform the regulatory authority within seven (7) days that stocking has been completed.
- The producer must inform the regulatory authority by means of an annual register of completed supplies for the applicable province, making reference to the permit numbers, fish numbers and tagging codes.

### **8.3 Procedure for stocking outside of the production province.**

The procedures for stocking outside the province in which the fish are produced are:

- A permit application must be made to the provincial regulatory authority, in the province to where the fish will be shipped, by the user, or by the producer on his behalf, with the information set out in 8.1 above and as per Appendix 3.
- The producer must apply for a transport export permit from the regulatory authority in the province where the fish are situated. The application must include the information set out in point 8.1 above and as per the format in Appendix 3 as well as a copy of the stocking permit of the receiving province.
- Once both permits have been received the stocking may take place and the permit holder (or producer on his behalf) must inform both the applicable regulatory authorities within seven (7) days that stocking has been completed.
- The producer must inform the regulatory authorities of the resident and receiving provinces by means of an annual register of completed supplies for the applicable provinces, making reference to the permit numbers, fish numbers and tagging codes.

## **8.4 Permit Turnaround Time.**

Grass Carp can be supplied as a quality product that is environmentally acceptable. If this is achieved it puts pressure on the illegal use of Grass Carp in South Africa.

For the regulation of Grass Carp to develop to a level where it is mutually beneficial to the suppliers (providers), the clients (users) and the environment and the regulatory authorities, the permitting bodies must assist in providing feedback on permit applications within reasonable time.

It is proposed that the issuing of a permit (or feedback as to why a permit cannot be issued) be completed within 3 weeks from the date of application.

## **8.5 Permit Conditions.**

When a permit is issued by any permitting authority, certain permit conditions apply. These conditions must be met for the stocking of Grass Carp to remain within statutory obligations.

To assist with the eradication of illegal use of Grass Carp the following standard permit conditions must apply. In this way the industry becomes controlled and orderly in a standardised fashion.

### Standard Conditions for stocking / transport permits:

- Fish must be stocked within 6 months of a permit being issued.
- Fish must be acceptably tagged (CWT tags) and tag details provided to permitting authorities.
- Fish must be certified sterile by means of acceptable methods.
- Fish must be supplied from a recognised / accredited producer with a disease control program.
- Grass Carp may only be sold to the end user by the accredited producer. Therefore no fish may be resold, sub sold, redistributed, handled or held by a sub agent or dealt with in any other manner than through a direct transaction between the accredited producer and the final client.
- Fish may not be stocked into any system other than that which the permit is issued for.
- The inlets and outlets of the water system into which the fish are stocked must be screened to reasonably prevent the escape of the Grass Carp.
- No fish may be moved from the system into which they are stocked into another system (even on the same property) without the necessary permits.
- The provincial authorities retain the right to inspect the stocked system at any time and may scan the fish for tags or request that a blood sample be drawn from the fish for the purpose of testing sterility.
- If deemed necessary (due to suspected environmental degradation) an independent assessment of the impact of the fish may be requested by the regulating or authorising authority at the cost of the owner of the Grass Carp.

## **8.6 Potential Permit Income.**

It is not suggested that the permitting system become a source of income generation but the fact that regulatory authorities are limited in resources and funds must be recognised. For this reason provincial authorities may charge a reasonable sum for the issuing of a permit (as internally determined), provided that Grass Carp producers are given the opportunity to pay an once off or annual fee to minimise the cost and administrative efforts of continuously having to pay for permits on behalf of their clients.

## **9. Accreditation of all Potential Producers.**

The Grass Carp industry will grow in South Africa. Through this policy an effective control system has been designed that is mutually beneficial to the producers, the clients, the environment and the permitting and regulating authorities. For this reason it is important that all Grass Carp production and use in South Africa be done under the same standardised regulatory system. This will lead to a decrease in the illegal use of Grass Carp.

### **Controls Required**

- Grass Carp producers that meet the control standards in the supply of Grass Carp stated in this policy must be recognised and nationally accredited as suppliers. It is recommended that producers are inspected and accredited by their respective local regulatory authorities on an annual basis and that the information pertaining to such an audit be made available to all other South African provincial authorities.
- All producers must implement the statutory processes underpinned by the Environment Conservation Act, the National Environmental Management Act, the Water Act and other applicable legislation. This must culminate in the implementation of an approved Environmental Management Plan.

### **Aimed At**

- All producers and authorities.

### **Enforcement Agency**

- The National Department of Agriculture under advise of individual provincial regulatory authorities.

### **Comments**

Accrediting suppliers will ensure that less uncontrolled supply of Grass Carp takes place. Accredited suppliers will educate the market in time as to there responsibilities to purchase fish from reputable sources.

## **10. Responsible Application and Use of Grass Carp**

Grass Carp is a control agent against the symptomatic occurrence of abundant aquatic vegetation. It is thus the responsibility of producers and authorities to advise any users of Grass Carp that the reduction of aquatic vegetation should also be a function of controlling the primary causes (most often water nutrification and in some cases the introduction of alien aquatic plant species). In this manner a holistic approach to aquatic conservation is achieved.

Furthermore it is the responsibility of Grass Carp producers to use their knowledge of these fish to advise on appropriate stocking methods. The complete eradication of aquatic vegetation can cause its own set of ecological problems and careful stocking programmes that involve aquatic vegetation biomass calculations, phased stocking and monitoring are a prerequisite of responsible application of these fish in aquatic weed control.

**Appendix 1**

**Guidelines for the Regulation of Grass Carp based on the National  
Grass Carp Policy of March 2004.**

## **Guidelines for the Regulation of Grass Carp.**

The exotic Grass Carp (*Ctenopharyngodon idella*), although often effective in controlling aquatic weeds, is considered to pose a significant potential threat to certain natural aquatic habitats in South Africa. The stocking of this species should therefore be strictly controlled by a permit system. Furthermore only sterile (triploid), species pure, disease free, tagged fish from accredited producers should be stocked into non-sensitive waters in responsible manner.

This document is based on the National Grass Carp Policy and the purpose thereof is to serve as guideline for farmers, landowners, conservationists, authorities, permitting offices etc. when faced with the proposed use or presence of Grass Carp.

Grass Carp are voracious feeders of aquatic vegetation, able to alter aquatic vegetation profiles dramatically. They are able to consume their own bodyweight in vegetation in a day and can degrade aquatic environments if used irresponsibly.

It was once believed that Grass Carp would not breed in South Africa. Nevertheless spawning has been confirmed and the potential for feral spawning in other rivers exists. Therefore only certified sterile (triploid) Grass Carp are permitted.

Following is a list of aspects that need to be taken into account when faced with situations that pertain to the use of Grass Carp. These would include decisions for use, permitting, conservation and planning decisions, the sourcing of Grass Carp etc.

### **1. Ensuring species purity in the use of Grass Carp**

It is advisable that Grass Carp are independently identified as being of the correct species. Hybrids and other species are often confused and unscrupulously distributed. Grass Carp should only be sourced (and permitted) from accredited producers).

### **2. Local production of Grass Carp**

As the technology for the production of sterile (triploid) Grass Carp is available in South Africa, the importation of these fish from other countries is no longer allowed. South Africa have accredited producers of sterile (triploid) Grass Carp.

### **3. Testing and Certification of Sterility or Triploidy**

Only sterile (triploid) Grass Carp is permitted in South Africa. This sterility is tested by means of a Coulter Counter. Each Grass Carp must be individually tested for sterility and this status must be verified by the provincial authority. Once this verification has been completed the fish will be certified sterile.

### **4. Tagging of Grass Carp**

Grass Carp in South Africa must be tagged by means of a suitable tagging system. Currently all accredited Grass Carp producers in South Africa use Coded Wire Tags (CWT), which. implanted into the fish. Each producer has a unique producer code.

### **5. Disease**

Grass Carp in South Africa must be sourced from an accredited facility where the disease status is regularly checked and reported to the provincial authority.

## **6. Permits, Regulations and other Legislation.**

The stocking of Grass Carp in South Africa must be done with the correct permits. Following is a summary of the permitting system within and between provinces:

### **Format of the permit application.**

An application for use of Grass Carp must be presented in a standard format as per the document in Appendix 3 of the National Grass Carp Policy (2004).

### **Permit procedure for stocking within the same province.**

- A standard permit application must be made to the provincial authority.
- The permit holder (or producer on his behalf) must inform the regulatory authority within 7 days that stocking has been completed.

### **Permit procedure for stocking outside of the production province.**

- A standard permit application must be made to the provincial authority in the province to where the fish will be shipped.
- The producer must apply for an permit from the authority where the fish reside. The application must include the stocking permit of the receiving province.
- The permit holder (or producer on his behalf) must inform both the applicable authorities within 7 days that stocking has been completed.

## **7. Permit Turnaround Time.**

The issue of a permit (or feedback) must be done in 3 weeks from date of application.

## **8. Permit Conditions.**

The following standard permit conditions apply:

- Fish must be stocked within 6 months of a permit being issued.
- Fish must be tagged and tag details provided to permitting authorities.
- Fish must be certified sterile by means of acceptable methods.
- Fish must be supplied from an accredited producer.
- Grass Carp may only be sold to an end user by an accredited producer.
- Fish may only be stocked into the system for which the permit is issued.
- Inlets and outlets must be screened to prevent the escape of the Grass Carp.
- No fish may be moved from the system into which they are stocked into another system (even on the same property) without the necessary permits.
- Authorities retain the right to inspect the stocked system and may scan the fish for tags or request that a blood sample be drawn for sterility testing.

## **9. Accreditation of all Potential Producers.**

Grass Carp producers that meet the control standards in the supply of Grass Carp stated in the National Grass Carp Policy for South Africa (2004) are accredited.

## **10. Responsible Application and Use of Grass Carp**

Grass Carp can control the occurrence of aquatic vegetation, but such control should also be a function of addressing the primary causes (often nutrification).

Appropriate stocking rates must be used as complete removal of aquatic vegetation can cause ecological problems.

## **Appendix 2**

**Checklist for the inspection of triploid Grass Carp by authorities for the purpose of issuing sterility certification of such a batch.**

**Checklist for the inspection of triploid Grass Carp by authorities for the purpose of issuing sterility certification of such a batch**

<b>Inspection Date</b>		
<b>Inspection Site (Farm)</b>		
<b>Inspection Authority</b>		
<b>Inspector Name</b>		
<b>Checklist Items</b>		
		<b><u>Yes / No</u></b>
<b>1</b>	Are the fish presented for inspection of the Grass Carp species.	
<b>2</b>	Is a working Coulter Counter present on site for testing.	
<b>3</b>	Has the Coulter Counter been calibrated with standard Latex beads.	
<b>4</b>	Do the test operators show process competence.	
<b>5</b>	Have 10 know diploids been tested as benchmark/ reference size	
<b>6</b>	Has the alleged triploid batch been isolated and zoned on the farm.	
<b>7</b>	Has a sample (40) of the alleged triploid batch retested all triploid.	
<b>8</b>	Have careful records of testing, numbers of fish etc. been kept.	
<b>9</b>	Has the fish farm stock record been updated.	
<b>10</b>	Have tagging records been kept updated.	
<b>11</b>	Have measures to prevent the escape of fish been implemented.	
<b>12</b>	Is independent disease monitoring taking place six-monthly.	
<b>13</b>	Are the disease monitoring records in order.	
<b>14</b>	Are the permits records for previous sales in order.	
<b>15</b>	Is an Environmental Management Plan being implemented.	
<p>Answers to all of the questions must be affirmative for any batch of sterile fish to be certified for sale. For a non-affirmative answer to any of these questions the batch will be condemned. Non-affirmative answers to questions no. 1 and 8 to 15 could lead to a producer / farm being stripped of its accreditation as a Grass Carp supplier.</p>		
<b>Inspector Signature</b>		<b>Producer Signature</b>

### **Appendix 3**

**Standardised permit application form for use by any person wishing to attain a permit for the stocking of sterile Grass Carp.**

### Standard Permit Application for Triploid (Sterile) Grass Carp

This standard permit application is to be read in conjunction with the National Grass Carp Policy and Guideline with the subtitle: "Regulation of the Production, Distribution and Use of Sterile Grass Carp (*Ctenopharyngodon idella*) in South Africa". This policy is the product of a national Grass Carp workshop held in Bonnievale, Western Cape on 4 & 5 March 2004. Henceforth this form will be used to standardise the information that is captured on the application for a permit to transport and/or stock Grass Carp.

#### PERMIT APPLICATION NOTES:

- Permits issued by the relevant provincial authorities must conform with the principals of the aforementioned policy and guidelines. Nevertheless any of these authorities may add permit conditions as deemed relevant.
- Provincial authorities must attempt to issue permits within 3 weeks of the application date.
- When Grass Carp are supplied within the province where they are produced, only the applicable authority of that province will issue the transport and/or stocking permit. When fish are supplied to provinces other than that in which they are produced, the receiving province must issue the transport and/or stocking permit (for import) first and this is to be used in the application for a transport and/or stocking permit (for export) from the authority in the province where the fish reside.
- Grass Carp must be obtained from a recognised supplier that implements and conforms to the abovementioned policy and guidelines.
- Recognised suppliers of Grass Carp may apply for permits on behalf of client, provided that the details of the client receiving the fish are entered below.

#### **PARTY THAT REQUIRES THE GRASS CARP**

<b>Contact person</b>			
<b>SA Identity Number</b>			
<b>Residential address</b>		<b>Code</b>	
<b>Postal address</b>		<b>Code</b>	
<b>Tel. no.</b>		<b>Fax. no.</b>	
<b>Cell no.</b>		<b>Email</b>	

#### **LOCALITY**

<b>Farm/ Property name</b>			
<b>Farm/ Erf no.</b>			
<b>Water body name</b>		<b>Size (m<sup>2</sup>)</b>	
<b>Catchment area / river system</b>			

<b>No. of Grass Carp</b>			
<b>Name of supplier</b>		<b>Supplier tel. no.</b>	
<b>Applicant's signature</b>		<b>Date</b>	