

# EXPORT POTENTIAL OF ORNAMENTAL LIVE FISHES IN NIGERIA

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## INTRODUCTION

*Nigeria is blessed with an abundant variety of fish species, some of which have been exported over the years. These fish species are taken either from the wild or cultured. Large quantities of fishes and fishery products are exported from Nigeria in different forms and which have been sources of foreign exchange earnings for the Country. An estimate value of exports in the fishery sub-sector stood at approximately U.S \$48,212,070. For shrimps/sole-fish/cuttlefish/crabs and over U.S. \$500,000 for ornamental live fishes.*

Live fish: is fish that is alive, living, full of power, energy, that has animal life and in simple term 'not dead'. In this form of existence, they are exported with specialized techniques and methods to ensure high survival rate on arrival at their destinations.

Live Fishes exported from Nigeria may come under different categorization:

❖ **By use:** edible and non-edible (b) Species (c) by size table size, fingerlings and fry (d) Ornamental and non-ornamental species and (e) by purpose, commercial or scientific for studies which include identification for experiments (breeding etc). All these categorization however overlap but the essence of it is to have a good understanding of the existing laws and regulations (policies) relating to the exportation of live fish from the Country

The Inland Fisheries Act of 1992, which states that "No man shall export or import live fish or any aquatic animal without the permission of the Minister", was promulgated to acquire the means of monitoring the import and export of, live fishes and the protection of endemic fish species. The existing guidelines on the size species and types of live fishes that can be exported clearly states that "No edible live fish can be exported out of the Country except for research purposes and as a museum specimen which should be carried out under strict supervision". This is because the fish supply from all sources, which stood at 0.4/million tonnes in 2002 left a huge deficit of 1.1/million tonnes as the current annual demand for fish in Nigeria, is 1.5/million tonnes. The shortfall gap is widening each year.

There are also broad based international regulations on live fishes which include among others that all endangered live fishes and aquatic animals under the Convention of International Trade In Endangered Species (CITES) protected species cannot be exported. By regulations and the prevailing fish food situation, the potential for the exportation of live fish lies only with ornamental live fishes. Ornamental live fishes are those that are used to adorn a place (or add beauty) for their colour, shape, and overall aesthetic effects. The 1985 Western World Pet Supply Association (WWPSA) Trade Show, Long Beach California exposed many Countries like Germany, USA, Malaysia, Peru, France, and Singapore who subsequently took advantage of these opportunities. As of today, trade in ornamental fish is estimated at about 1.8 billion US Dollar per annum. Or US\$1.8billio Singapore, Malaysia, Honkong, Taiwan, Japan control about 60% of the World's Ornamental Fish Production and export earnings while North America and Europe have introduced new dimensions in high technology – biotechnology to produce genetically modified organisms. By so doing they have succeeded in modifying the natural

colours of the fish species to produce desired colour combinations as well as stronger and robust fish species.

## RESOURCE POTENTIAL

Nigeria though ranks high in export of live fishes amongst big African nations such as Republic of Congo, Malawi and Tanganyika, has not fully exploited her stock of colourful, dark and lovely shaped ornamental fish species. These fishes said to be over 300 species in number are often times exploited indiscriminately from the wild. Nigeria is blessed with numerous freshwater lakes, rivers, reservoirs, dams, and flood plains, the total water surface area of which is about 12.547million hectares *Ita et al*, 1985. If the different ornamental fish species are well harnessed, Nigeria is potentially endowed to compete with the big world exporters of ornamental fishes.

From documentation, most exported fishes were collected from the Western, Southern and South-Eastern parts of Nigeria. It has been verbally reported by those who started the trade years ago and by practitioners that there are large quantities of un-tapped resources in the Northern states of the country. For example, it is reported that large quantities of Polypterus sp., especially P. bichir (brown with dark spots) and different species of catfishes exist in large numbers in Lake Chad. Also large populations of Cichlids – Hemichromis, spp., Haplochromis are formed in the Cameroon/Nigeria border and coloured Puffer fish in the Calabar River. The resources though available are not easily accessible because of the remote location of the water bodies. Poor transportation networks especially the routing and irregular local flight schedules have adversely limited the Live Fish Export Trade. The fact that these areas are not linked to the only exit point which is the Murtala Mohammed International Airport and the poor road network have been great disadvantages to the Live Fish Export Trade. The non-existence of Fish houses at the International Airport is also a major constraint to the expansion of Live Fish Exports in Nigeria. Nigeria Exports Ornamental Fish to Europe (mainly Germany, Britain, Switzerland, Holland); U.S.A (Los Angeles, Miami) and Asia.

About 100 species of Ornamental live fishes have been identified to be regularly exported (Annex 1). There is no stock assessment of the different species but records do show that ornamental live fish export trade has been carried out in Nigeria for almost forty years. It was started by some Americans who invested heavily in the identification and location of these species per water bodies. To date they are said to still send in requests indicating the exact body of water where the species can be found or will be found in very large quantities. Unfortunately the reports of these findings are not documented.

There has been little or no research on the available local species of live fishes for export. There is little known about the biology, species variation, and seasonal abundance of these fishes with the exception of some that are fingerlings of table-sized fish which have been researched locally or in other parts of the World. Until recently, when the Government through the Federal Department of Fisheries has put in place acts and regulations and encouraged the formation of the Association of Ornamental Fish Farmers and Exporters of Nigeria, it was a free for all trade with indiscriminate methods of removal of these species from the wild.

Nigeria is particularly blessed with some species of ornamental live fishes, which are in high demand in the World market. These fish species are not brightly coloured but have characteristically distinctive shapes which make them unique and in very high demand. These include Longnose (Elephant nose), Reed, Butterfly and Synodontis sp. Longnose is available in large numbers in Nigeria during the dry season. (Exists large population). Butterfly and Reed are rare species found in our waters. Long nose is used as pollution indicator and also in

entertainment centres and games resorts as souvenirs/ gifts for its high market price. Unsubstantiated verbal reports have it that it is used in laboratories for the preparation of vaccines and anti-allergic ointment and in the formulation of vaccines. Fortunately for Nigeria, the high demand of some of these ornamental fish species is predicated on the fact that all known and reported attempts to reproduce them artificially over the years have failed. Some Americans were reported to have spent close to two years in Nigeria trying to reproduce Long nose unsuccessfully. The opportunity therefore exists to capitalize on this and dictate the market price of these species of fish.

## **EXPORT PROCEDURES**

The methodological procedure for the exportation of Live Fish can be simplified thus:

- Sourcing of ornamental fishes
- Transportation to holding facility
- Holding of the Fishes prior to export
- Packaging and labelling
- Transportation & export.

### **Sourcing:**

Sourcing of ornamental fishes for export involves breeding and collection from the wild. The exporters directly from the wild or through middlemen/suppliers source the fishes. These suppliers are either paid in advance to source for specific species or they source and hold these fishes in anticipation of a request. Very few suppliers are also exporters. There is existing cooperation between the exporters whereby they help in meeting each other's demand for export from their holdings.

### **Holding of Fishes prior to Export**

All exporters must have holding facilities. These facilities/tanks could be concrete, fibreglass or carpet tanks or happas. These are used to keep the fishes prior to export. This is to allow for the application of medication for disease control and for the fishes to use up the food in their system. These fishes while being kept in readiness for export must not be fed, to avoid pollution from fish waste or contamination, which could result in high mortality, termed Dead On Arrival (DOA) during export.

### **Packaging & Labelling**

The fish must be conditioned to suitable water temperatures for long distance travel making sure that the temperature in the concealed bags remain constant hence the use of Styrofoam boxes. To export, fish are counted, bagged, gassed and firmly knotted before individually placed in Styrofoam boxes. Each box must be clearly labelled (name of the fish, the consignee and the consignor and country of import/export). The species, the size, and the country of export, which determines the length of the journey, determine the number of fish/bag. For example, for a particular species of the fish, the number packed in the bag being sent to the US or the Far East will be fewer than if being sent to Europe. Usually also, only one species is packed in a bag and fish of the same or of almost equal sizes are bagged together.

## **GUIDELINES FOR EXPORT OF LIVE FISH**

There are Government guidelines for the export of Live Fish, which must be strictly adhered to. The Inland fisheries Decree No. 108 of 1992 Section 8, prohibits the import or export of Live Fish or any other aquatic animal without permit. The Federal Department of Fisheries is charged with the responsibility of effectively enforcing the provisions of this Decree. The

following requirements or modalities must be met for the purpose of obtaining an export permit for Live Fish.

- ❖ An application letter by the intending importer or exporter must be addressed to the Director of Fisheries, Federal Department of Fisheries, Victoria Island, Lagos. Attention Quarantine Unit. The letter should have attached to it certified true copies of the Certificate of Incorporation of the Company Invoice from Overseas customer, Current price list per species of fish to be exported. The letter should indicate the expected frequency of exports, airline to be used and a declaration that no endangered species as contained in the Convention of International Trade in Endangered Species (CITES) shall be exported.
- ❖ An Exporter must have a HOLDING FACILITY and the letter of application must state the address of the facility.
- ❖ The Fish Quarantine Services Branch of the Federal Department of Fisheries shall carry out assessment and verification of applicant's facilities for holding fish and disease control.
- ❖ The Head of the Fish quarantine Service shall process all applications and issue successful applicants with Live Fish Export Permit. Each permit is valid for six months only from January – June, July – December and is issued only on payment of required fee.
- ❖ Fish export from Nigeria is allowed only when accompanied with a Valid Export Permit and Fish Health Certificate issued only by the Federal Department of Fisheries. Documentation of export must be done on the Fish Quarantine Certificate of Inspection Form D and duly signed.
- ❖ An applicant shall also show evidence of remittance to Nigeria, the Foreign exchange earned in previous export transactions to qualify for a new permit.

## **COMPETITION OPPORTUNITIES AND LIMITING FACTORS**

### **Competition**

The exportation of live fishes from Nigeria faces great challenges and competition. While the developed countries are taking great strides in innovation and with technology, Nigeria is still grappling with the simple methods of artificial propagation of these fisheries resources. In Europe it is possible through technology to produce different colours and combinations of fish while Japan has been extremely innovative in packaging materials and printing. These countries also organise International Trade Shows to showcase their products and provide an opportunity to expand their export potentials through exchange of ideas and contracts.

### **Opportunities**

There are great opportunities in developing Nigeria's Live Fishes export potentials. Nigeria is blessed with large expanse of water bodies and a wide diversity of ornamental fish species. Only the ornamental freshwater species are being exploited while the great potential of the marine resources are at present untapped. There had been requests for such species like red mullet, and brightly coloured puffer.

## **LIMITING FACTORS**

Live Fish Export requires a lot of skill, knowledge and technology. The Industry has remained at the subsistence level in Nigeria because of several limiting factors, which include:

## **PAUCITY OF INFORMATION ON AVAILABLE RESOURCES:**

- (a) **Availability of Fish Resources:** To date, there is no detailed resources survey to determine the species abundance and distribution of exportable live fish nor neither the species abundance and distribution of exportable live fish nor the production of

checklist of exportable fish species in Nigeria. Sourcing of Ornamental Fish from the wild: The collection of these fishes from the wild is not sustainable. There are problems of transportation from collection points to point of export, loss of time, man-hour and high fish mortality due to stress. Very few exporters are breeding some common species such as the cichlids, catfishes etc. Most often orders are cancelled for lack of the specific fish species.

#### **FLOODING AND INACCESSIBILITY IN THE WET SEASON:**

- (b) **Seasonal Variations:** During the rainy season, the volume of water discharge and flooding does not allow for easy exploitation of these species of fishes. The roads leading to the remote areas where they are located are often not motorable resulting in little or no export activity during the rainy season.
- (c) **Limited Exit Ports:** About 99% of export is through the Murtala Mohammed International Airport. This curtails sourcing and exploitation of the vast abundant resource in the Northern and Eastern states.
- (d) **Poor Packaging Materials:** Before 2003, the exporters re-use any type of old carton for their export activity. It took the rejection of their consignments by the air lines for the exporters to agree to have a standardized packaging material - The Styrofoam box.

#### **Other factors include:**

1. Pricing and poaching of customers
2. Losses or "Dead on Arrival" reports and Antics of dubious customers.
3. Airline bookings and Air Freight charges
4. Sourcing for Finance for the export of Ornamental Fishes.

#### **RECOMMENDATIONS**

Globally, Nigeria is occupying a position of prominence in the ornamental fish trade because of some of the unique species the nation is endowed with. However to be competitive, there is the need to develop and enhance the quality of these fish species. It is therefore paramount that the Fish Farmers, Breeders, Suppliers, Exporters, Airline Operators and Government work together to increase the resource base, improve fish treatment, water quality, transportation and every aspect of the trade. A few recommendations are given below.

- (a) Development of Ornamental Live Fish Breeding Centres: In order to expand the Live Fishes export trade and make it sustainable, there is the need to establish and develop breeding centres specifically for the ornamental live Fish Species. The breeding programmes should be such that will produce large quantities to guarantee availability throughout the year.
- (b) Research Programmes: There is need to develop research programmes in the following areas:
  1. Breeding
  2. Exploration and exploitation of Marine Ornamental Live Fishes
  3. Improved methods of transportation and holding facilities
  4. Technological research into the development of colourful varieties of the popularly sought after species.
  5. Improvement of the packaging materials etc.
- (c) Government should be more committed into expanding Live Fishes export trade in Nigeria. This can be achieved by:

- (i) Establishing Fish Houses in at least three International Airports such as Murtala Mohammed Airport, Lagos, Aminu Kano Airport, Kano, Nnamdi Azikwe Airport, Port Harcourt. This will encourage exporters to exploit the vast resources in the Northern and Eastern parts of the Country by reducing loss of time and resources.
- (ii) Funding Research Programmes, International Fish Trade Exhibitions, Enlightening Campaigns, etc.,

## CONCLUSION

The sector has the potential to support a steady export trade and earn foreign exchange with adequate funding, research, provision of facilities and good management strategies. With the Government new drive at fish seed multiplication programmes and the propagation of water cycling system, the possibility exist in future to export fish food.

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## ANNEX 1

## LIST OF SOME COMMON EXPORTABLE FISH SPECIES

S/ N	ENGLISH NAME	LATIN NAME	LOCATION
1.	ELEPHANT NOSES	<u><i>Gnathonemus petersi</i></u>	EDO/DELTA/EPE
2.	BUTTERFLY	<u><i>Pantodon bucholzi</i></u>	LAGOS/OGUN/ONDO
3.	ABA BABIES (NILE)	<u><i>Gymnachus niloticus</i></u>	DELTA/OGUN/ONDO
4.	AROWANA (BABIES)	<i>Osteoglossumbicirrosom</i>	ALL WATERS
5.	ALESTES	<u><i>Brycinus afer/longipinis</i></u>	ALL WATERS
6.	BUSH FISH	<u><i>Ctenopoma kingslayea</i></u>	ALL WATERS
7.	LEAF FISH	<u><i>Monocirrus polyacanthus</i></u>	ALL WATERS
8.	MUDSKIPPERS	<u><i>Perophtalmus vulgaris</i></u>	LAGOS/BRACHY WATERS
9.	SPINNY EEL	<u><i>Afromastacembelus frenatus</i></u>	LAGOS/DELTA
10.	LUNG FISH	<u><i>Protopterus annectens/dollol</i></u>	DELTA
11.	REED	<u><i>Erpetoichthys calabaricus</i></u>	ALL WATERS
12.	POLYPTERUS	<u><i>Polypterus congicus</i></u>	OGUN/DELTA
13.	PALMAS	<u><i>Polypterus palmas</i></u>	DELTA
14.	DELHEZI	<i>Polypterus delhezi</i>	EDO/OGUN/NIGER
15.	KNIFE FISH	<u><i>Xenomystus nigri</i></u>	ALL WATERS
16.	MARBLE KNIFE FISH	<u><i>Papyrocranus aqfer</i></u>	MOST WATERS
17.	BLOOD FISH	<i>Phractoleemus ansorgh</i>	MOST WATERS
18.	SILVER ROUND NOSE	<u><i>Petrocephalus simus</i></u>	LAGOS/DELTA
19.	ROUND NOSE	<u><i>Pollimrus nigripinnis</i></u>	ALL WATERS
20.	SHORT NOSES	<u><i>Mercusenius angolensis</i></u>	ALL WATERS
21.	DOLPHINS	<u><i>Mommyrus longirosteris</i></u>	LAGOS/EDO
22.	LUSSOSSO	<u><i>Distichodus lussosso</i></u>	BAYELSA/DELTA
23.	NEON TETRA	<u><i>Neolebias ansorgh</i></u>	MOST WATERS
24.	TIGER FISH	<u><i>Hepsetus odoe</i></u>	MOST WATERS
25.	MOMMYRUS	<u><i>Briemommyrus brachyistus</i></u>	ALL WATERS
26.	CONGO TETRA	<u><i>Phenacogramus interruptus</i></u>	CROSS RIVER
27.	LONG FIN ALESTES	<u><i>Hemigramus caudalis</i></u>	DELTA/ONDO/OGUN
28.	RED EYES	<u><i>Arnoldichytis spilopterus</i></u>	MOST WATERS
29.	PENCIL FISH	<u><i>Nannocharax specie</i></u>	MOST WATERS
30.	RED TAIL	<u><i>Alestes micralestes stormsi</i></u>	MOST WATERS
31.	MOON FISH	<u><i>Citharinus citharus</i></u>	BAYELSA
32.	CLARIAS	<u><i>Clarias angolensis</i></u>	MOST WATERS
33.	PHAGO	<u><i>Phago maculates</i></u>	LAGOS/OGUN/ONDO
34.	GLASS CATFISH	<u><i>Paraila pellucida</i></u>	AGOS/OGUN/ONDO
35.	GRASS CUTTER	<u><i>Schilbe mystus</i></u>	LAGOS/OGUN
36.	ELECTRIC CATFISH	<u><i>Malapterus electricus</i></u>	MOST WATERS
37.	DEBAUWIE	<u><i>Entropiel debauwie</i></u>	LAGOS/OGUN/ONDO
38.	WHIPTAIL CATFISH	<u><i>Phractura ansorgh</i></u>	DELTA/CROSS RIVER
39.	SPOTTED CAT	<u><i>Parachenoglanis macrostoma</i></u>	LAGOS/DELTA

40.	APPLE CAT FISH	<u>Synodontis budgeth</u>	DELTA/LAGOS
41.	NETWORK CATFISH	<u>Synodontis eupterus</u>	BAYELSA
42.	OCCELLIFER	<u>Synodontis ocellatus</u>	BAYELSA
43.	UD CAT	<u>Synodontis nigriventris</u>	ALL WATERS
44.	BATENSODA	<u>Synodontis brachy</u>	BAYELSA
45.	BAGRUS	<u>Bagrus ubangensis</u>	BAYELSA
46.	STRIPPED CATFISH	<u>Clarotes laticeps</u>	BAYELSA
47.	BARBS (COMMON)	<u>Barbodes callipterus</u>	ALL WATERS
48.	SILVER BARBS	<u>Barbodes camptacanthus</u>	CROSS RIVER
49.	BARBS SILVERHCUS	<u>Puntius vaticus</u>	RIVER STATE
50.	LABEO	<u>Labeo rubropunctatus</u>	BAYELSA
51.	APHYOSEMION	<u>Aphy. Australis/bivitatum</u>	LAGOS/DELTA
52.	APHY. CALLIURUM	<u>Aphyosemion calliurum</u>	DELTA
53.	BIG APYOSEMION	<u>Aphy. Deltahense</u>	DELTA
54.	APHY. ARNOLDH	<u>Aphy. Arnoldh</u>	DELTA
55.	BLUE FISH	<u>Aplocheilichthysmyersi</u>	LAGOS
56.	SCHEELI	<u>Aplochehlichthys scheeli</u>	LAGOS
57.	MACROPHTALMUS	<u>Aplocheili macrophtalmus</u>	LAGOS/RIVERS
58.	FLAVESENCE BLUE FISH	<u>Apl. Flavescence</u>	RIVERS
59.	PSIMILIS	<u>Procatopus similis</u>	OGUN/RIVERS/CROSS RIVER
60.	BIFASCIATUS	<u>Epiplatys bifasciatus</u>	DELTA
61.	KRIBENSIS (YELLOW)	<u>Pelvicachromis pulcher</u>	DELTA
62.	RED KRIBENSIS	<u>Pelvicavhromis pulcher</u>	ABIA
63.	TAENIATUS	<u>Pelvicachromis taeniatus</u>	DELTA/RIVERS
64.	CHROMIDOTILAPIA	<u>Chr. Guentheri</u>	LAGOS/DELTA/CROSS RIVER
65.	THYSIA CYCLID	<u>Thysia ansorgh</u>	LAGOS/DELTA
66.	JEWEL FISH	<u>Hemichromis bimaculatus</u>	LAGOS/DELTA
67.	PUFFER	<u>Tetraodon fahaka</u>	BAYELSA/CROSS RIVER
68.	CRAYFISH (SMALL)	<u>Crustacea specie</u>	ALL WATERS
69.	SHRIMPS (BIG)	<u>Crustacea specie</u>	ALL WATERS
70.	WATER SNAIL	<u>Pomacie bridgesh</u>	ALL WATERS
71.	GOBIES	<u>Gobio gudgeon</u>	LAGOS/DELTA
72.	UNDERWATER FROGS	<u>Pipa-pipa</u>	DELTA/LAGOS
73.	LAMPEYES	<u>Aplocheilichthys specie</u>	MOST WATERS
74.	MONO	<u>Monodactylus sebae</u>	LAGOS
75.	BLUE PANCHARES	<u>Epiplatys specie</u>	LAGOS
76.	SNAKE HEAD	<u>Channas striatus/asiatica</u>	LAGOS
77.	PIPE FISH	<u>Microphis brachyurus</u>	LAGOS/DELTA
78.	ONE LINETETRA	<u>Nannocharax latifasciatus</u>	LAGOS/ONDO
79.	ATYA SHRIMPS	<u>Atya gabonesis</u>	EDO/BAYELSA/CROSS RIVER
80.	N.POWELLI	<u>Neolebias powelli</u>	RIVERS
81.	LATES	<u>Lates niloticus/microlepis</u>	NIGER