# Increasing Catfish Production as a try to Combat Growth Crayfish in the River Nile and its Branches

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**Abstract:** The objective of this review is to increase the production of the catfish species as a try to solve the problem of crayfish fingerlings continuous growth in the River Nile and a try to decrease the Crayfish dangers on the ecological system. It will also give an approach to the economic and social values of this research. Three approaches will be used to accomplish this goal. The first will focus on artificial reproduction of catfish. The second approach will be the identification and control of nuisance algae. The third will focus on the use of catfish as a predator for the young generation of Crayfish in River Nile and its branches. The project well be divided into three major sections dealing with:- general biology, including feeding habits and reproduction; artificial reproduction, including induced propagation without and through hormone injection; fry nursing in earthen ponds, including pond preparation, fertilization, feeding and management. In addition, information will be provided concerning the economics of different fingerling and grow-out farming practices in River Nile and its branches, Egypt, and there affecting on Crayfish fingerlings.

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## Introduction

The African catfish, *Claries gariepinus* has been reared for almost 20 years in Africa with mixed success; the total farm production of this species being only 3,978 metric tones or 7.4% of the total farmed fish production of 69,434 mt in Africa in 1994. To a large extent the poor performance of this freshwater fish species in Africa has been due to the absence of reliable production techniques for the reproduction and rearing of the species under practical farming conditions. The document is based on the practical field experience of the artificial reproduction and rearing of the African catfish within the experience farmers in the Central of fish production, Kafr El Sheikh Governorate, Egypt. Water quality, feed input and fish production were monitored. The study was planned to run for complete production cycles, but the second production cycle could not be initiated due to a severe industry-wide fingerling shortage. Stocker-size fish were not available to restock all ponds for food-fish production after the first harvest, and some were used for fingerling-to-stocker grow out or other purposes, and will not be available for this research study.

This information highlights the high quality of farm raised catfish from production ponds relative to wild-caught fish. Crayfish cases damage to agriculture farms and cases tunnels in fish ponds.

Finally, will be focus on the use of Catfish as a predator for the young generation of Crayfish in River Nile and its branches.

## Background

The African catfish *Claries gariepinus* was one of the most suitable species for aquaculture in Africa (CTFT, 1972; Micha, 1973.; Pham, 1975; Jocque, 1975; Kelleher and Vincke, 1976; Richter, 1979.; Hogendoorn, 1979) and since the 1970's it has been considered to hold great promise for fish farming in Africa; the African catfish having a high growth rate, being very resistant to handling and stress, and being very well appreciated in a wide number of African countries. The development of a reliable method for the production of Clarias gariepinus fingerlings was one of the priorities of aquaculture research in Africa (Anonymous, 1987a). Hormone-induced reproduction of the African catfish using deoxycorticosterone acetate, human chronic gonadotrophin and common carp pituitaries has been carried out successfully (Hogendoorn and Wieme, 1976; Hogendoorn and Vismans, 1980; Micha, 1976; Kelleher and Vincke, 1976; El Bolock, 1976). Hogendoorn (1980) and Hogendoorn and Vismans, (1980) successfully developed an intensive production system for African catfish fingerling production based on the use of Artemia salina nauplii and a commercial trout starter as feed. However the existence of technically feasible farming methods and manuals (Viveen et al., 1985) did not guarantee a successful implementation, as the impact of local socio-economic and technical conditions are more often than not always under-estimated (Anonymous, 1987b).The main problem of fingerling production within ponds was fish survival

rate which was unreliable and varied between 0 – 60 fingerlings/m2/cycle (Micha, 1973, 1976; Hogendoorn, 1979; Hogendoorn and Wieme, 1976; Kelleher and Vincke, 1976). It has been suggested that the lack of appropriate feed and the presence of predators are likely causes of mortality.

In general diseases are not serious a problem in polyculture or monoculture of the African catfish at low densities, up to 5/m2. Some fungal, parasitic and bacterial diseases can occur but will not described here as diagnostics and treatment are well presented in several handbooks (Amlacher, 1970 and Reichenbach-Klinke and Elkan, 1965).More disease problems will be encountered at higher stocking densities (over 10/m2), the "Egyption rearing system", as often the pond environment quickly detoriates. The specific problems encountered at high stocking densities are well described , However, the diseases all encountered in intensive rearing systems and indoor hatcheries will be described.Continuous increase of crayfish species in the River Nile and its branches is causing problems in our ecological system. Introducing catfish fries to combat the crayfish generation.The African catfish, Claries gariepinus has been reared for almost 20 years in Africa with mixed success; the total farm production of this species being only 3,978 metric tones or 7.4% of the total farmed fish production of 69,434 mt in Africa in 1994. To a large extent the poor performance of this freshwater fish species in Africa has been due to the absence of reliable production techniques for the reproduction and rearing of the species under practical farming conditions. The document is based on the practical field experience of the artificial reproduction and rearing of the African catfish within the experience farmers in the Central of fish production, Kafr El Sheikh Governorate, Egypt.

A recent study has shown that the entire delta is infested with crayfish after the above mishap. The crayfish have not yet made its way south of the delta, stopping at Bani Sweif.

**4.1. The problem:**

Crayfish caused big problems to the inhabitants of the River Nile valley especially in the irrigation system as they make holes in the cultivated land and destroys crops. Also, many species of fish are endangered.

**4.2. Benefits and expected impact :**

1-restoring the full capabilities of our agriculture.

2- producing large quantity of catfish may help to lessen the food crises especially proteins.

**4.3. The plan of work depends on:**

Introducing the catfish as a predator of the crayfish.

**4.4. The innovation of the project:**

Using natural predators is safer and more effective than using mechanical and chemical ways. It is a matter of great benefit on both sides the scientific researcher side and the social and economic side.

**References**


1. Amlacher,E.,1970.textbook of fish diseases. T.F.H. Publications, Neptune city, USA, 301 pp.
2. Anonymous,1981.A handbook of diseases of cultured Clarias (pla duk) in Thailand. National Inland Fisheries Institute,Freshwater Fisheries Div., Department of Fisheries.
3. Anonymous, 1987a. Les priorités pour la recherche aquicole en Afrique. Compte rendu d'un atelier à Dakar,Senegal, 1986,le Centre de Recherche pour le Développement International, MR 149f, Ottawa (Canada).
4. Anonymous, 1987b. Thematic evaluation of Aquaculture.UNDP/FAO/Norwegian Ministry of Development Cooperation.
5. Bosworth, B. and E. Torrans. 2006. Production and processing traits of blue, blue catfish X channel catfish hybrids, and three strains of channel catfish. 2006. Aquaculture February 13-16, Riviera Hotel and Casino, Las Vegas, NV. Abstract #29, Book of Abstracts, page 34.
6. Bucollo, A.P., M.J. Sullivan, P.V. Zimba. 2006. Effects of nutrient enrichment on biomass and primary production of sediment microalgae in Halodule wrightii Ascherson (shoalgrass) seagrass beds. Phycological Society of America annual meeting 7-12 July 2006, Juneau, Alaska, Abstract 11, page 30.
7. C.T.F.T,1972.Premieres directives pour l'introduction de Clarias lazera en pisciculture. SF/ RAF/66/054: Annexe 8.Centre Technique Forestier Tropical, Nogent-sur-Marne, 16 pp.
8. Coln, P.D., J. D. Heffington, J. D. Bell, and J. P. Chambers, "Temperature Gradient Measurement in a Shallow Water Environment", Mississippi Academy of Sciences Meeting (2/06), Vicksburg, MS.
9. Li, M., E. Robinson, C. Mischke, E. Torrans, and B. Bosworth. 2006. Effects of organic fertilization and organic diets on production of channel catfish Ictalurus punctatus in earthen ponds. Aquaculture 2006, February 13-16, Riviera Hotel and Casino, Las Vegas, NV. Abstract #162, Book of Abstracts, page 167.
10. Hogendoorn,H.,1979. Controlled propagation of the African catfish, Clarias lazera (C&V). I. Reproductive biology and field experiments. Aquaculture, 17 (4): 323-333.
11. Hogendoorn, H., 1980. Controlled propagation of the African catfish, Clarias lazera (C&V). III.

Feeding and growth of fry.Aquaculture, 21: 233-241.
12. Hogendoorn, H., and Vismans, M.M., 1980. Controlled propagation of the African catfish, Clarias lazera (C&V). II.Artificial reproduction. Aquaculture, 21: 39-53.
13. Micha, J.C., 1973. Etude des populations piscicoles de l'Ubangui et tentative de selection et d'adaptation de quelques especes a l'etang de pisciculture. Centre Technique Forestiere Tropical, Nogent sur Marne, 100 pp.
14. Micha, J.C., 1976. Synthèse des essais de reproduction, d'alevinage et de production chez un silure Africain: Clarias lazera Val. Symp. FAO/CPCA on Aquaculture in Africa.Accra, Ghana. CIFA Techn. Pap. 4 (1): 450-473.
15. Reichenbach-Klinke, H. and Elkan, E., 1965. The principal diseases of lower vertebrates; Book I, Diseases of fishes.T.F.H. Publications, Neptune city, USA, 205 pp.
16. Torrans, L. 2006. A micro-respirometer for measuring oxygen consumption of channel catfish Ictalurus punctatus eggs and fry. Aquaculture 2006, February 13-16, Riviera Hotel and Casino, Las Vegas, NV. Poster#201 and Abstract #324, Book of Abstracts, page 329.
17. Torrans, L. 2006. Disposal of small-scale fish processing waste through composting. Aquaculture 2006, February 13-16, Riviera Hotel and Casino, Las Vegas, NV. Poster #705 and Abstract #325,
18. Torrans, E. L. and P. D. Dees. 2006. New thoughts on paddlewheel placement. Catfish Farmers of America Catfish Research Workshop, February 23-24, San Antonio Texas, Abstract, Page 31,
19. Torrans, E. L. and C. D. Hogue, Jr. 2006. Pushing the envelope - what's possible? Catfish Farmers of America Catfish Research Workshop, February 23-24, San Antonio, Texas, Abstract, Pages 33-34, Book of Abstracts.
20. Triemer, R.,M. Bennett, P.V. Zimba, P. Moeller, and K. Beauchesne. 2006. A novel pigment biomarker for identification of some Euglenophyceae. Phycological Society of America annual meeting 7-12 July 2006, Juneau, Alaska. Abstract 139, page 80.
21. Viveen, W.J.A.R., Richter, C.J.J., Van Oordt, P.G.W.J., Janssen, J.A.L. and Huisman, E.A., 1985. Practical manual for the culture of the African catfish (Clarias gariepinus). The Netherlands Ministry for Development Cooperation, Section for Research and Technology, P.O. Box 20061, 2500 EB The Hague, The Netherlands, 128 pp.
22. Zimba, P.V. 2006. An update on algal toxin occurrence in channel catfish production ponds. Catfish Farmers of America meeting. 23-25 February 2006. San Antonio, TX.

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