

# Nigeria Manpower Needs and Opportunities in Freshwater Fish Seed Production

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## Abstract

*Aquaculture is presently recognized as having a steady growth in Nigeria, however, the sustainability of its contribution to food security is hinged on availability of quality fish seed from hatcheries for stocking. Unfortunately, most hatcheries in the country are managed by quack whose actions or inactions kill people interest in aquaculture business. Therefore, a major constraint to steady contribution of aquaculture sub sector to the economic growth of the country is lack of adequately skilled manpower especially in the area of fish seed production. For aquaculture to ultimately provide the much needed employment and wealth for sustainable economic growth, adequately equipped, skilled and experienced manpower must be available. Urgent need arises for skilled personnel in the area of Broodstock development and management, Fish Seed Production, Geneticists and Ecologists to continually boost fish production. These will lead to arrays of opportunities for employment generation, food security and economic transformation. This paper therefore reviews the manpower need and opportunities in freshwater fish seed production in Nigeria.*

**Keywords:** Aquaculture, Broodstock, Geneticists, Ecologists, Employment.

## INTRODUCTION

Aquaculture has been accepted the world over as a mean for increasing fish production. In Nigeria, a large proportion of both urban and rural populations lives beside the lakes, rivers, reservoirs, swamps, floodplains, lagoons, wetlands and estuaries, all of which are important ecosystem for fisheries and aquaculture. (Ita, 1993). This, therefore, offers tremendous opportunity for fish culture. With the expected increase returns from aquaculture, the number of fish farmers is increasing. Faturoti (2010) stated that aquaculture has been clearly demonstrated to be an economically viable, private enterprise in Nigeria, with 2,642 fish farms inventoried. Despite the popularity enjoyed by aquaculture practice and its great market potentials in Nigeria, the production is yet to meet up with local fish demand. One major causal to this trend is lack of access to adequate amount of viable seed for stocking. Charo and Orirere (2000) x-rayed the constraint to intensification and expansion of fish culture in Nigeria to inadequate supply of quality fingerlings and juveniles for stocking of ponds, cages and pens, due principally to inadequate number of hatcheries occasioned by lack of

qualified manpower. Also, Atanda (2006) stressed that fish farmers in most part of the country (especially in the northern region), are perpetually in need of hatchery-produced fish seed for their farm. This factor had limited their production and hence returns from their investment capabilities.

Aquaculture - a multi-disciplinary endeavour, had over the years in Nigeria, been characterized by serious deficiencies of adequately trained personnel capable of identifying and addressing challenges in aquaculture production projects (Fagbenro *et al.*, 2003). Insufficient number of such personnel remains a major constraint to the growth of this subsector and had manifested more in fish hatchery unit of the industry. There are many fish hatcheries in the country which have folded-up, due to poor management. Many small-scale farmers failed to profitably operate their fish farm as a result of dearth of good quality seed. Even in areas where fingerlings are produced in sufficient quantities, the genetic viability of such seeds is perceived as another major constraint to expansion of freshwater fish culture. This could also be an offshoot of insufficient and/or inadequate manpower to select good parent stock and lack / inadequate research into the genetic

viability of the local and exotic breed used for artificial propagation. The dearth of manpower is therefore reflected in the area of fish breeding and genetics which are so crucial to boosting fingerlings production.

It has been observed that shortage of skilled manpower constrains developing countries from implementing most of their developmental programmes effectively. No country can realize its full economic potential without adequately harnessing its human resources. Hossain *et al.* (2008) noted that in the developing and developed countries where aquaculture plays a vital role in promoting production of aquatic organisms, alleviating poverty, ensuring environmental compatibility, replenishing and improving the natural stocks, increasing socio-economic improvement through integrated development approach, developing and managing the aquatic resources, maintaining gene banks and preserving the diversity of fish stocks, human resource development (HRD) remain inevitable for optimum and sustainable practice within the system. Hence, Nigeria, with her large population and array of seasoned fisheries professionals, prospective investors and entrepreneurs in the African sub-region should blaze the trail in provision of sufficient fish breeders and geneticists. This paper was therefore, borne out of the need to draw attention to the critical issue of demand and supply of skilled manpower in freshwater fish seed production.

### **Nigeria's manpower needs in freshwater fish seed production**

In Nigeria, freshwater fish seed production through artificial propagation has become popular and helpful in aquaculture development. The total seed production and supply from all sources amounts to 55 million fingerlings. This is far less than the requirement of about 500 million per annum to satisfy the immediate needs of the market (Atanda, 2007). However, aquaculture (table fish) production increased from 30,000 metric tonnes in 2000/2001 to 80,000 metric tonnes in December, 2006 (Areola, 2007). This growth is commendable and attributable to various interventions by governmental and non-governmental organizations but still fall short of the nation aquaculture potential of 2.5 million metric tonnes per annum (FAO, 2007).

It is appalling to note that many of the so-called manpower involved in catfish breeding in the country are either untrained or poorly trained who within a week or two weeks of training,

assume the responsibility of producing fingerlings for farmers. This implies that quackery is being promoted in the industry with relish to the detriment of the unsuspecting investors who end up paying dearly for this oversight. Seed quality according to Food and Agriculture Organisation (FAO, 2007) is an essential attribute to optimizing the potential of aquaculture production (better yield and returns) and is related to the quality of the brood stock used which can only be identified by an adequately trained personnel. Therefore, sustainable aquaculture requires reliable supply of good quality seed for pond stocking which can only be guaranteed through fish hatchery managed by skilled/trained personnel.

Nigeria aquaculture industry is dominated by the culture of two fish species and their hybrid. These are the African mud catfish- *Heterobranchus sp.*, *Clarias sp.*, their hybrid and Tilapia whereas over 20 species of freshwater fish can be cultured. This implies that sufficient intervention is required in the area of research and extension services to develop these other freshwater fish species to increase consumer choices and consequently enhance the returns for the fish farmers.

Although, the few fish geneticists available in the country have developed some other species of improved quality through hybridization, these are yet to be commercialized because the techniques of handling require highly skilled individuals to avoid inbreeding and further genetic complications. Dunham *et al.* (2001) noted that well trained fishery and aquaculture geneticists are needed to ensure that genetic research and genetic development are appropriate for the commercial sector, applied properly and disseminated efficiently to achieve maximum benefit.

The overriding challenges to aquaculture development remain the production of quality fish seed for stocking. FAO (2007) identified genetic profile and good hatchery management as the two main factors affecting seed quality. This could only be avoided by addressing the issue of skilled manpower in fish genetics as well as in hatchery management. The development of breeding and hatchery technology, genetic improvement and domestication are important for securing the supply of quality fish seeds of major aquaculture species. This will ensure that aquaculture production advances at the same speed with the increasing need of a growing population. Hence, the high demand for freshwater fish seed in Nigeria's growing aquaculture industry has called

for adequately equipped skilled personnel in fish breeding and hatchery management.

### **Opportunities in freshwater fish seed production**

There is an increasing need for skilled personnel to serve the aquaculture industry in the area of Broodstock development and management, Fish Seed Production which statistics have shown to be in serious short supply, Ecologist to study the biology and adaptability of other freshwater fish species for culture and Geneticist to continually develop improve varieties and conserve the local strains. Fish seed is an essential input for fish farming, and the supply of quality fish seed is key to the profitability and expansion of fish farming business. Fingerlings production remains a gold mine that is yet to be effectively and optimally exploited in Nigeria. It is a gateway to employment generation and food security. Many hatcheries in Nigeria find it difficult to breed all year round due to lack of viable brood stock. Fish breeding therefore, remain a major un-tapped area of immense opportunities available to skilled manpower only.

### **CONCLUSION**

Skilled manpower is definitely a challenge today, especially in freshwater fish seed production. Inadequate skilled manpower in fish breeding, genetics, and hatchery management has seriously led to poor quality fish seed, poor production performance consequently; loss of capital and much needed sustainable investment in the sub-sector. Nigeria aquaculture sub sector has recently made some strides through increased seed production engineered by private sector. However, the gain recorded in this sector may be unsustainable and consequently food security threatened if concerted effort is not made toward ensuring availability of adequately trained and equipped skilled manpower in the area of freshwater fish seed production.

Also, the high demand for freshwater fish seed in Nigeria's growing aquaculture industry has called for well trained personnel. Fingerlings production has the potential to be an important income and employment generator in the country. Opportunities exist for commercial scale production of both fish seed and brood stock. The passage of relevant laws aim at professionalizing Fisheries will go a long way to sanitize the industry, promote Best Management Practices (BMP) and enhance investor confidence in the industry. Above all it will complement the

Federal Government drive to alleviate poverty, generate employment and conserve our Foreign Exchange.

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