

CONSERVATION NEEDS OF FISHERIES RESOURCES AND REORIENTATION FOR SUSTAINABLE CAPTIVE AND CULTURE PRACTICES

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1.0 INTRODUCTION:

More than two thirds of the earth surface is covered by water in various forms, oceans Lagoons, Seas, Rivers, Streams, Lakes and rivulets. Other man-made water retaining structures like dams, reservoirs and fish ponds had also contributed to the aquatic habitat in the last two centuries.

Both the marine and freshwater aquatic environment support diverse species of living organisms - Fishes, crustaceans, cephalopods, molluscs, amphibians, reptiles and aquatic weeds. They constitute the most widely exploited natural resources by man. In fact, aquatic resources are God's gift to humanity when one considers their availability, accessibility, diversity, simplicity and nutritional value.

Fish and fish products constitute more than 60% of the total protein intake in adults especially in the rural areas. Like any other animal product 48 - 52% is edible, easily digestible and contain low cholesterol level. They are widely acceptable on the menu card and form a much cherished delicacy that cuts across socio-economic, age, religious, cultural, sex and educational barrier.

International trade in fish and other aquatic products had been put at US dollars 10 Billion annually. Apart from food, they are used in medical preparation (fish oils), in fashion industry (crocodile skins), in recreation (sport fishing) in other agricultural industries as vital protein concentrate (fish meals as ornament and decoration (oyster shell). Exploitation of these resources date back to the first appearance of man on the surface of the earth. With the advent of Industrial fishing and the sophistication of fishing technology the rate of exploitation is putting much pressure on this supposed - Inexhaustive aquatic resources.

2.0 Why Conservation is necessary.

Fishes and other aquatic animals were supposed to be inexhaustive the general belief, especially among the artisanal fishermen is that, anytime you want to go fishing, some fishes are waiting to be caught. Provided the fisherman is armed with the appropriate fishing gear, fishing skill developed over the years and sacrifices offered to the river gods and goddesses. But from landing record of artisanal fishermen, the catch per unit effort is becoming increasingly low. This suggests nothing but the barrenness of our waters due to over fishing.

The precision of fishing technology (echo sounder, fish detector, sonar etc.) had increased the rate of exploitation faster than regeneration, thus it is common observation that a fishing vessel, trawling at 140 - 250m depth may record not more than 60kg/trawling hour.

It is an erroneous belief that the aquatic environment is self-regulatory. That is, when a body of water is overfished, it becomes barren, there is low catch, fishermen abandon those

area and the system has time to rejuvenate. Some school of thought had even postulated that the presence of water hyacinth on our water bodies with its attendant impediment to fishing, is a natural device for the recovery of the overfished water. Fishes and other aquatic products have declined due to ruthless exploitation, habitat loss due to sand filling operations, desecration of wetlands pollution from oil exploration and Industries. Also important is the uncontrolled practice of year round trawling for fishes and crustaceans. This has led to the extinction of some species and a drastic reduction in many others.

This trend had led the country into huge trade deficit incurred through importation of frozen fish (low quality) to meet with the shortfall between production and consumption. Taking into consideration the scarcity of foreign exchange this trend must be reversed. Nigeria is blessed with a long coastline and rich Inland waters, in order to harness the resources, some conservation is necessary.

3.0 Previous attempts at Conservation

3.1. Cultural Practices:

Each community within a rural setting has its norms and ethics aimed at providing checks and balances on the activities of its members. That is, where taboos and superstition take pre-eminence. Fishes in certain river are dedicated to a particular god or goddess. They should not be caught. Various myths and fables are used to reinforce this belief. The fish will not be boiled no matter how long one cook on the fire, the river goddess will visit the culprit at night to demand for her 'children', where this intimidation fails, the offender and members of his family are fined heavily. Goats, yams palm oil, hot drinks and chicken are some of the materials demanded to appease the vexed goddess.

In Nigeria, many communities have intricate cultural relationships with aquatic animals. In parts of Anambra, Edo, Delta and River State, crocodile is worshiped. Some communities are doing is indirectly conserving the fauna in their environment and preventing the extinction of the aquatic animals nature had bestowed on them.

3.2 Legislations:

Various legislation had been made by government through various State Ministry of Agriculture and Water Resources in attempt to conserve the aquatic resources. Obnoxious fishing practice especially the use of pesticide, insecticides, and explosives in killing fishes along our river systems. This practice constitute one of the most serious threat to fish and aquatic resources conservation in our inland waters. All living organisms within the vicinity are killed including fry and fingerlings. It also constitute serious health hazard to the unsuspecting consumer. Thus the use of chemicals for fishing, especially lindale based (Gamalin - 2-) attracts a term of Imprisonment and fine or both on the part of the erring fishermen.

There are other legislative acts guiding the use of nets (cast, set or seine) of particular mesh size by fishermen. This is aimed at preventing the capture of small fishes (frys and fingerlings) which should grow to replace the adults being exploited. The use of longlines with hooks placed in close succession that does not discriminate between small and big fishes had also been prohibited in some states. Construction of fish fences across the streams and rivers has also been declared illegal because they constitute impediments to migration of fishes from one habitat to the other. Agitating or beating the water in an attempt to scare and coerce fishes into a waiting net had been viewed as destructive to the breeding nest of the fishes and consequently outlawed.

In fact the various tiers of government had put in place numerous legislative acts to protect the aquatic resources from indiscriminate exploitation. Oil spillage and the dumping of industrial waste into water desecration of the aquatic habitat, this necessitate a constant revision of the anti-pollution law as it affects the aquatic environment.

3.3 Education:

Fisherfolks are continually being educated through extension messages, radio programmes, group discussion, fishing demonstration and contact fishermen on the dangers of mortgaging their future by adopting fishing practice that may be detrimental to the aquatic environment.

4.1 Appreciation of Government Legislation:

The fishing populace, especially the rural artisanal fishermen are yet to appreciate the essence of government legislation on the conservation of aquatic resources as a gesture on the part of the government to protect them, their immediate families, the fishes upon which their lives depend from danger. They view such act as unnecessary government intervention aimed at making lives difficult for the poor and uneducated. This view had often times generated hostility between the fishermen and the fisheries extension worker who is supposed to advise the fishermen on the dangers of these practices.

4.2 Enforcement and Surveillance:

Enforcement of the various legislative acts proposed to conserve aquatic resources had been very difficult especially in the inland waters and creeks. Although there are some level of surveillance by patrol boats in our coastal waters and lagoons, and there are 'courts set-up to try erring fishing vessels, the case of foreign fishing vessels venturing into the countries Exclusive Economic Zone (EEZ) illegally is rampant. The activities of fishing trawlers going into the non-trawling Zone, thus destroying the fishing gear of artisanal fishermen is on the increase. The inspection of the mesh sizes of the various fishing nets and the landing records of fishermen (size of fish species) had not been taken seriously. In the inland waters, no law enforcement agent keep surveillance obnoxious fishing practices.

On the International scene, there is the control commerce in wild animals by controlling the markets. This had resulted in the formation of CITES, the convention of International Trade in Endangered species of wild Fauna and Flora. The convention requires party nations to prohibit imports of wild life taken or exported illegally from its country of origin. Nigeria is a party to the convention. Many party nations have not been keeping to the spirit of the law, thus making it easy for some of these endangered species to be exported illegally. Many of the aquatic species in Nigeria are also not listed in various appendices of the Law, since there are no detailed scientific studies that demonstrate trends in population size and geographic range or reports on habitat destruction or other potential causes of extinction.

4.3 Consumption Culture:

The consumption culture of many Nigerian especially the rural populace and the lowest stratum in the socio-economic grouping which unfortunately accounts for over 80% of the entire population, leaves much to be desired. No fish is considered too small to be consumed. In a particular species of *Sardinella* (Sawa), the juvenile is consumed, (Efolo) while the fries (Yoyo) are also collected at the shoaling stage and eaten. Since there is no market resistance to these products, fishermen will continue to exploit them as long as there are willing members of the public to buy them.

4.4 High Cost of Fishing Inputs

The cost of fishing inputs - Nets floats, twines, ropes, lead weight and out board engines is on the increase and beyond the reach of most fishermen. The inavailability of these inputs have forced these fishermen to adopt unwholesome and obnoxious fishing practices that are detrimental to the conservation of fisheries resources within the vicinity.

4.5 Lack of Adequate Information on Stock Assessment:

There is dearth of information on the various species of fish available in most of our water bodies. This had made long term planning very difficult. The impending dangers posed by over fishing are not readily realised until the harm had been done. Since there is no data on population trend, size and geographic distribution, it is very difficult to predict and prevent the extinction of some species. Also, biological studies on some of our marine species as it affects breeding season, spawning grounds migration pattern and seasonal abundance seem to be inadequate.

4.6 Activities of Foreign Fishing Vessel:

The nefarious activities of foreign fishing vessels is a major threat to conservation of aquatic resources in these country. Their presence in our territorial waters and exclusive economic zone (EEZ), with their superior fishing technology had resulted in over-exploitation of fishes and shrimps in our waters.

More often than not these foreign fishing vessels, apart from constituting security risks, do not show enough respect for the laws of the land. There had been reports of occasional incursion into the non-trawling zone thus causing considerable damage and losses to the artisanal fishermen.

4.7 Inability to find Alternative use for Non-Food Aquatic Resources:

Inability to find alternative uses for non-food aquatic resources had often times prompted the massive destruction of these organisms. A point in case is that of water hyacinth (*Eicchornia Crassipes*) which had been termed as an obstructive weed. The danger it constitute to fishing and navigation had been well orchestrated, so much, that all hands are on deck to destroy these weeds. One of the methods being contemplated is herbicide (Chemical control). Although, some of these herbicide had been authenticated to be safe and non-toxic but any mis-application especially by the uniformed could desecrate the aquatic habitat.

4.8 Industrilaization and Urbanisation:

Most Industries in Nigeria discharge their liquid waste untreated. These toxic chemicals find their way to the big rivers, lagoons and the ocean. The rate of deforestation for road construction bridges and jetties had resulted in the destruction of many wet-lands which are the natural habitat of some of these organisms.

4.9 Poor Preservation, Processing and Storage of Harvested Aquatic Resources:

At peak season, when there is abundance, and consequently big catch, the artisanal fishermen is faced with what to do with the boom. He either sells at rock bottom prices or discards a substantial part of the catch as wastes, since he has no technology to preserve the fish and prevent spoilage. He returns to sea the following day and follows the same cycle. His activities no doubt put tremendous pressure on the available aquatic resources.

5.0 Suggested Solutions

5.1 Education on the Importance of Conservation:

There should be proper and regular public enlightenment on the importance of aquatic resources conservation and the benefits that would accrue from same. Agricultural radio and television programmes highlighting the importance of conservation should be stepped up. Artisanal fishermen could be reached through Co-operative Societies, group meetings fishing festivals, and Agricultural shows.

The various organ of Agricultural services like the Ministry of Agriculture and Water Resources (M.A.N.R.) Agricultural Development Programmes (A.D.P.) and Fisheries Departments should be used as avenue to inform the fishermen of the importance and the need to conserve aquatic resources by not engaging unwholesome fishing practices that should be detrimental to same. Incentives, either in cash or in kind should be awarded to the best fishermen/fishing group annually.

Extension agents that visit the fishermen regularly, apart from teaching improved fishing techniques should also inform the fishermen on the importance of aquatic resource conservation.

5.2 Fish Farming or Aquaculture:

Aquaculture is the branch of agriculture that deals with the rearing (culture) of aquatic animals (fisheries prawns, oyster, snail, crabs, crocodiles, alligators) and even weeds in a controlled aquatic environment. Fish farming helps to conserve aquatic resources by reducing the pressure or the level of exploitation of the wild species.

It guarantees regular availability of fish and fish products, ensures the regular and mass production of a particular species, improvement of species through genetic manipulation and biotechnology, improves the protein intake and the economy of the rural populace.

Although, the contribution of fish farming to the total national fish requirement is still low, but if encouraged, the shortfall between the consumption of fish and fish production (through capture fisheries) could be reduced and thus conserve foreign exchange. More importantly, lands hitherto considered agricultural unproductive (swamps, bogs) could be put to use. Other agricultural waste and by products could also be channeled into fish feeds. If farmers could appreciate the need to tend and nurture cultured fish to maturity through fish farming, then the concept of exploiting aquatic resources less ruthlessly and the desecration of aquatic habitat will be readily imbibed.

5.3 Restocking or Rejuvenation of Depleted Water Bodies:

As a means of correcting the imbalance that had been created by overfishing and over exploitation of other aquatic resources, government through the various agricultural agencies could as a matter of policy produce a large number of fingerlings of one or many species based on data obtained from survey and restock the various water bodies in order to create the required balance on the aquatic environment.

5.4 Stock Assessment:

Stock assessment of our water bodies should be done on a regular basis. Apart from provision of information on the standing 'Crop', the productivity of the water, level of pollution, habitat studies and other data that is required for conservation, policy formulation and long term planning would be readily available. The status, population density and

distribution of various species could easily be ascertained.

5.5 Monitoring and Surveillance:

Proper monitoring of fishing vessels and artisanal fishermen on the sea and inland waters. There should be spot checks on the mesh sizes of the net, landing records, activities of fishermen and boat transport operators.

The observance of close or off-season periods, or non-fishing zone especially the breeding grounds of the fishes should be well monitored. Stiff penalties should also be prescribed for fishermen or fishing groups that engage in activities considered to be detrimental to the conservation of aquatic resources.

5.6 Provision of Fishing Inputs:

Fishing inputs could also be procured by the appropriate Government Agencies and sold to the fishermen or fishermen groups at subsidized rate or at instalmental payments. This would ensure that the appropriate fishing gear is used for fishing and at the same time reduce the temptation of adopting obnoxious fishing practices and its attendant consequence on aquatic resources conservation.

5.7 Extension Research Linkage:

There should be research back-up into the various level of exploitation, preservation, processing and storage. These improved technology should be passed on to the fisherman. such that wastages through spoilage could be reduced and increased catch per unit effort could be achieved.

6.0 Conclusion:

The need to conserve aquatic resources had never been pressing than it is at the moment. Various factors - environmental and behavioural had contributed to the depletion of these natural resources faster than they could be regenerated.

The pressure on these resources is also great. Population is increasing at alarming rate more than what the environment could support. The level of exploitation is becoming ruthlessly efficient. There is the threat of pollution from oil exploration and exploitation, effluent from industries, toxic waste from nuclear plants, destruction of the natural habitats due to urbanization and the ever increasing urge to export for foreign currency.

Necessary machinery should be mobilised to halt this trend, at least for our collective survival as human beings, otherwise like the proverbial trader, who live off his capital instead of his income, the day of reckoning await.