

# IMPERATIVE NEED FOR REGULATION OF MARINE FISHERIES IN INDIA

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The tendency of an unregulated fishery to expand until it becomes unprofitable is both predictable in theory as well as observable in practice. One of the techniques of effective management of fish stocks to obtain the maximum economic yield is the formulation of explicit regulations based on scientific studies. Although such fishing regulations are strange in the Indian context, they have been part of western fishing systems for many years. The view that freedom to fish is closely related to principles of democracy and that it is undemocratic to limit participation in fishing is fast changing. Therefore it is pertinent to begin by asking why regulations are necessary. Though the motives are many, they can be broadly placed into three categories.

## SAFETY

Safety to the fishermen, their craft and gear assumes paramount importance in India where the monsoon season is characterized by rough seas and winds. In the state of Karnataka the mechanised fishing boats are not given insurance coverage during the monsoon season and hence fishing activities are not carried out during these months. Prohibition of fishing in the name of safety and

safety precautions like ventilation, sanitation etc on board vessels has been practiced in many western countries, and they found that though fishing costs were higher initially, it helped to increase the working efficiency of those who were protected.

## CONFLICTS

Most fishing nations experience rivalries between groups of fishermen. Most common are the conflicts between the haves and have-nots; users of old gear and those who propose new fishing methods; natives (traditional) and foreigners (mechanised) and most importantly between economic groups and nations. Regulations can effectively manage these rivalries. In India and in other Asian countries, fisheries are considered the preserve of a particular group of people, the traditional fishermen, and by virtue of their poor economic conditions deserve a protected status. In many of the Indian maritime states like Kerala and Karnataka, conflicts between the traditional fishermen using non-mechanised gear and those using mechanised boats and gear are common and needs careful management through regulations. In fact the recent amendment of the Kerala Marine Fishing Regulating Act (1980) serves to protect the traditional

fishermen's interest but not so much to protect the spawning stock as claimed.

## OVER-FISHING

Over-fishing is regarded as a state of affairs where the stock and catch have declined absolutely, where incomes per head in the fisheries are down, and where the associated marketing trade is similarly economically depressed. Prevention of over-fishing is mainly concerned with conservation and rejuvenation of stock and this can be achieved by:

1. Protection of fish during spawning season to increase the number of older fish for a spawning stock.
2. Protection of small fish as the majority will grow into big fish.

A typical biological response of marine resources in response to fishing pressure is shown by the yield curve in Fig.1. The process normally gives rise to an increase in catch as fishing effort rises until the maximum yield is reached. Further increase in effort results in reduction of the catch because of a fall in fish stock. A number of fish stocks in India show their yield at the  $A_2$  level (Table:1), a reaction typical of an unregulated fishery.



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It is clear then that for getting sustained yields at the  $A_1$  level the fishing effort has to be regulated by passing suitable strictures. Unfortunately, in India, measures recommended for correcting the stock position are not implemented by the administrators, nor are the recommendations made at the appropriate time.

#### TYPES OF REGULATIONS

The following is a brief outline of the general types of fishery regulations which are practiced in different maritime countries.

**Gear Regulations:** The regulation of the size of mesh of fishing net is the most widely used method to protect small fish. By fixing a minimum mesh size young fishes are allowed to escape, grow and reach optimum size. This regulation played a major role in protecting small fishes in the international trawl fisheries of North Atlantic. In India, the stake net fishery for prawns in the backwaters and the nearshore Dol net fishery is very often destructive to young fish stock and hence requires urgent mesh size regulation.

Apart from the restriction on the mesh size of the gear, the gear itself can be subject to size regulation. Gears like purse seine can be restricted to have certain limits in length and depth.

Regulation on the use of gear in some areas has been made effective in certain maritime states in India. Purse seiners and trawlers are banned from specified inshore areas fished by traditional fishermen based on the alleged destructiveness of the gear on the inshore fish stock.

**Licencing:** This is otherwise called the limited entry system and its chief objective is to reduce the fleet strength until the marginal product

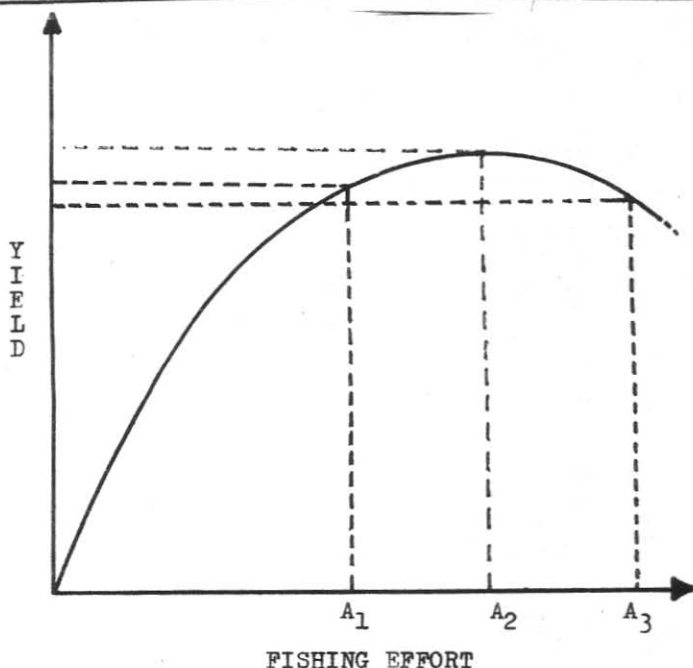


Fig.1: Bioeconomic model of a fishery

$A_1$  - Maximum Economic Yield

$A_2$  - Maximum Sustainable Yield

$A_3$  - Yield from an unregulated fishery

of fishing just equals the cost and opportunity income of the fishermen. In India the open entry system is practiced without any control over the fishing effort.

#### Quotas and Closed Seasons:

With ample knowledge of the standing stock, quotas can be set and administrators who set the quotas can state a date on which the season opens and on fulfilment of the quota the season is closed. Such a quota was set by the nations which exploit the halibut on the North East Pacific coast.

**Closed areas:** By its ease of enforcement and simplicity for fishermen to understand this regulation has become very popular and is well accepted in western countries.

**Closed nursery areas** are a regulatory measure to protect young fish that would otherwise be liable to capture by the gears in use. Its effect is primarily to increase the size at entry into the fishery.

**Closure of areas in part** that are occupied by an adult population decreases the overall fishing intensity, assuming that the areas can be divided into clearly identified areas. The effectiveness of this depends on the mobility of the fish between open and closed areas. If they are not mobile a closed area policy is equivalent to not exploiting the stock. If mobile, more total effort will be required to catch

a given amount of fish. This regulatory measure can find wide application in India.

**Regulations on size of marketed fish:** This controls the sizes of the fish removed from the population. This is comparatively easy to enforce, since enforcement takes place on shore and often can be done at a limited number of major landing centres. Such limits form a support to more effective measures for the protection of small fish.

#### FACTORS INFLUENCING REGULATORY MEASURES

**Biological Factors:** The most important constitutive elements that influence any regulation of marine fisheries are those directly related to the biological characteristics of the living resources. The sea's living resources, unlike the non-living mineral resources, possess a number of unique characteristics like mobility, short life-span, variety and sensitivity to environmental conditions. These have to be borne in mind while framing regulations.

**Technological Factors:** These are concerned with fishing methods and fishing equipments. Generally, a fishing gear is never completely selective. Consequently, fishing for one species usually results in catch of other species (as is typical of tropical fisheries). Thus regulation of a specific fishery may have an undesirable effect on another fisheries. Technological improvements in fishing crafts and gears have to be kept in mind while making regulations.

**Economic Factors:** Almost all marine fishing operations are commercial in nature and are carried out to make profit, or to obtain at least a return on the invested capital. This implies that the catch must have economic

Table: 1  
Some of the over exploited fish stocks in India +

Resource	Area	Exploitation Rate	Recommended corrective measure +
<b>CAT FISH</b>			
T. thalassinus	Waltair	0.81 (high)	reduction in effort.
T. serratus	Cochin	0.93 (high)	increase in size at first capture.
T. dussumieri	Veraval	0.91 (high)	reduction in effort & increase size at first capture.
<b>SILVER BELLY</b>			
L. bindus	Kakinada	0.67 (high)	increase in mesh size.
<b>THREADFIN BREEM</b>			
N. japonicus	Waltair	0.70 (high)	decrease effort & increase mesh size.
N. japonicus	Cochin	0.64 (opti)	maintain effort & increase mesh size.
N. japonicus	Bombay	0.76 (high)	decrease effort & increase mesh size.

+ Source: CMFRI R & D Series 1 to 11.

value. Thus regulatory measures designed to bring about a fuller exploitation of a certain species may, for example, be useless if there is no demand for the species either as food or for reduction into fish-meal. The cost involved in fishing operations should also be considered while forming regulations for the efficient use of manpower and capital.

**Social Factors:** In third world countries like India, there exists extreme differences among participants in marine fisheries. They range from the traditional fisherman going out to sea in a canoe to multinational companies with several high-tech fishing vessels. This diversity in social status must be taken into account while framing regulations. Group clashes and rivalries are frequently due to the sharing of stocks between different interests.

**Political Factors:** Confrontations between nations over fishing rights are primarily

political in nature. In India socio-economic problems in the fisheries sector frequently acquire political hues and very often recommended regulatory measures have to be sacrificed in favour of political viewpoints representing vested interests. Therefore it may perhaps be prudent to enhance the authority of fisheries research organizations to function on the lines of independent commissions like the International Halibut Commission or International Whaling Commission.

#### ARE FISHING REGULATIONS NECESSARY IN INDIA?

The maxim by the great biologist Michael Graham that "All unregulated fisheries will become unprofitable" should be borne in mind while answering this question. For augmenting the marine fish production in India in a rational manner, marine fishing regulations appear



to be a must. Only few maritime states in India have any regulations. Self imposed closed seasons or bans on gears are also prevalent in certain fishing zones (eg. upper east coast). However, it is abundantly clear that there cannot be a uniform law applicable to all areas, as each zone and state differs in fishing practices and social conditions and therefore separate regulations for each zone may be necessary. Moreover no single regulation can claim to be the most suited and hence only by trial and error can an ideal method/methods be found for rationalizing our fishery exploitation.

The current trend in the development of marine fisheries in India indicates clearly that the open entry system practiced presently should be stopped and a limited entry system should be encouraged. Vessel licencing and personal fishing licencing offers the most immediately effective method of regulating the fisheries in our waters. All fishermen should be made to obtain a personal fishing licence at a very nominal charge (say Rs.10/-) and all fishing vessels should be made to register and display licence plates at reasonable charges (say Rs.25/-). Although not immediately designed with a view to limiting entry into the fishery, this simple scheme can form the basis for later legislations. Such a system will also help scientists to compute more realistic data on exploited/exploitable fish stocks.

#### ENFORCEMENT

If states accept the regulations proposed by a fisheries research institute/commission, their fishing vessels and fishermen must comply with such regulations. This raises the question of how these rules can be enforced. This process includes not

only inspection by duly appointed fishery inspectors at sea or in port, but also the prosecution and punishment of offenders. Policing the large coast line of many Indian states appear to be a problem involving much

manpower and sincerity. Perhaps this can be made the additional responsibility of the Coast-Guard by strengthening their fleet and manpower.



## DEVELOPMENT PLANS TO AUGMENT MARINE PRODUCTS EXPORTS

It is stated that MPEDA would encourage the setting up of joint ventures for the exploitation of off-shore and deep sea fishery resource of Indian EEZ in order to achieve the export target of 1.5 lakh tonnes of seafoods valued at Rs.850 crores during 1990-91. It was mentioned by the Chairman of MPEDA, Mr.C.T.Sukumaran that an investment of the order of Rs.600 crores was required to achieve this target. He visualised the introduction of 55 additional deep sea fishing vessels during 1990-91 which might lead to an additional export of Rs.150 crores from the deep sea fishing sector.

It is reported that, according to what Mr.Sukumaran has said there are 171 deep sea fishing vessels and 60 chartered fishing vessels operating in the Indian EEZ.

It is expected that an additional 1500 hectares would be brought under scientific shrimp farming during the year. This would give an extra shrimp production of 2,000 tonnes valued at Rs.15 crores. It was mentioned that 10,000 hectares had already been brought under scientific prawn culture. Over 3,700 prawn farmers all along the coastline were availing the technical assistance extended by MPEDA.

It is heartening to note that MPEDA would

soon be introducing new subsidy schemes for providing seed and feed at concessional rates to traditional farmers. There are also proposals to set up demonstration projects in A.P. and Orissa for semi-intensive shrimp farming with financial assistance from the department of bio-technology and ocean development. One such project has already been inaugurated near Nellore in A.P. It is expected that the present quantum of subsidy for brackishwater pond excavation would be increased from the present level of Rs.7,500 to Rs.30,000 per hectare.

According to Mr.Sukumaran, plans are also afoot to set up a fresh water prawn hatchery in West Bengal with Japanese assistance.



#### SOVIET FISHING CONTRACT WITH PERU COMES TO A CLOSE

It is reported that Soviet Fishing Contract with Peru for fishing in Peruvian waters, has ended in April 1990, more than 2 years earlier than scheduled. This brings to an end the operation of 20 Soviet trawlers in the EEZ of Peru.

