



Pisciculture Management

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INTRODUCTION

Pisciculture has become the integral part of human society. It is playing an important role in social, economic and industrial areas of the world. Almost 12.5 million people are employed in fishery-related activities, and in recent years global production from capture fisheries has tended to vary between approximately 85 and 90 million tonnes. Various types of products are ready to use from fishery industry for instance oil, food and snacks. According to FAO the value of fish trading is approximately US\$40 billion per year at world level to increase the production man is over exploiting the aquatic accessible resources. The FAO Code of Conduct for Responsible Fisheries was produced in response to global concern over the clear signs of over-exploitation of fish stocks throughout the world and to recommend new approaches to fisheries management which included conservation, environmental, social and economic considerations. There has been a long held but true perception that because the commercial fishing sector catch a large quantity of fish it needs to be heavily regulated. Due to the above concern it is good time to take step for fish and aquatic resource management. Additionally, Fisheries resource must be managed to ensure that stocks are harvested at sustainable levels for the benefit of present and future generations.

Reasons for over exploitation

1. Poor planning
2. Poor quality of water parameters
3. Poor post harvesting techniques and handling
4. Inbreeding depression
5. Less scientific approach
6. Low availability of cultivable water
7. Decrease in quality while transporting
8. Poor catchment practices
9. Decrease in genetic diversity
10. Improper vigilance of coastal area

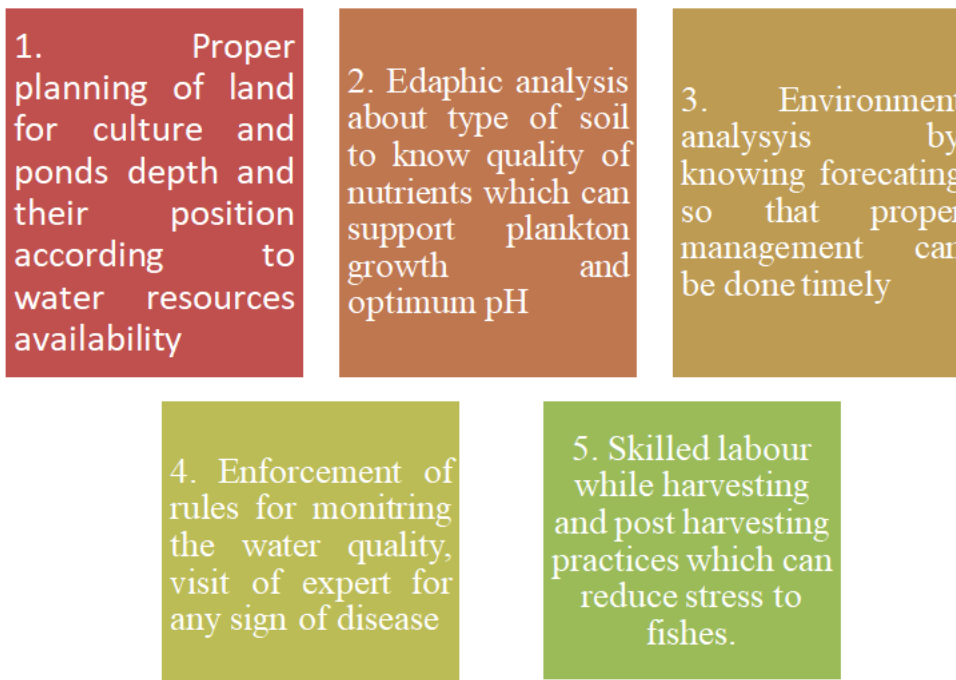
Problem arises due to improper management and over exploitation

1. Low production
2. Frequent disease outbreak
3. Unhygienicity
4. Risk to genetic diversity of fishes
5. Decrease in water resources and land

Management practices

The responsibility for declining stocks and falling economic returns and employment opportunities in fisheries must be shared amongst fishers, fisheries management authorities, fishery scientists and those involved in environmental degradation. More scientist should be involved in committees so that more scientific ideas can be involved in

planning's and policies provided by government. At present we want to increase production to overcome the scarcity of nutritious food. But the water resources are limited and fixed. To increase production high stocking is plasticised which decrease the water quality parameters, increase the inbreeding depression and decrease the food availability to fishes. The deterioration of water properties ultimately decrease the growth and increase the chances of disease outbreak. At the end instead of increase in quantity it decreases. So proper planning with scientific approach can helpful in better management. An overview for planning is shown here.



Further to decrease inbreeding depression which comes mainly by mating in closely related individuals, it is necessary to study on various wild genes occurring in the species. Artificial pituitary extraction technique can also be an alternative to decrease inbreeding depression. Additionally there are two broad types of fishery management tool. One is input controls and another is output controls to avoid overexploitation which are practised in Australia. Input controls limit the amount of

effort commercial fishers put into their fishing activities i.e. control the amount of fish caught. It can include constraints on the number of licences, the size and engine capacity of boats, the length and mesh size of nets, and the areas and times which can be worked. This ensure the appropriate size of fish which is needed. In some areas, commercial fishers are not permitted during weekends or public holidays. For instance how input controls work is the juvenile king prawn closure near the mouth of

the Richmond River at Ballina (A location in Australia). King prawns live in the estuaries as juveniles and migrate to the ocean during the young adult stage of their life cycle. This makes them vulnerable to capture at a small size by prawn trawlers. To protect the stocks of smaller prawns and to increase the value of the prawns sold, prawn boats are prohibited from trawling within an area bounded by a 2.2 nautical mile radius from the mouth of the Richmond River. This management measure also helps to reduce the capture of juvenile fish in prawn trawl nets.

Output controls directly limit the amount of fish which can be taken from the water. The first step in implementing an output control management system is setting a total allowable catch (TAC) for the species. Once established, the TAC can be either fished on a competitive basis or divided up between the participants in the fishery so that all fishers have an individual quota. A TAC which is divided

between the participants means that in any one year a commercial fisher is not able to catch more than their allocated weight of that species. Output controls are generally regarded as good mechanisms to control the total catch in single species, high value fisheries which are targeted using a single gear type (such as abalone and lobster). For this, monitoring schemes such as daily catch data are usually required to ensure that individual quotas are not exceeded. By using these techniques and ideas we will be able to decrease the overexploitation and proper management of fishes as well as water resources.

Benefits

This will be helpful in both natural and artificial culture as well by preventing:

- i. Exploitation of fish small in size
- ii. Large no. of catch fish
- iii. High stocking density
- iv. Disease outbreaks etc.