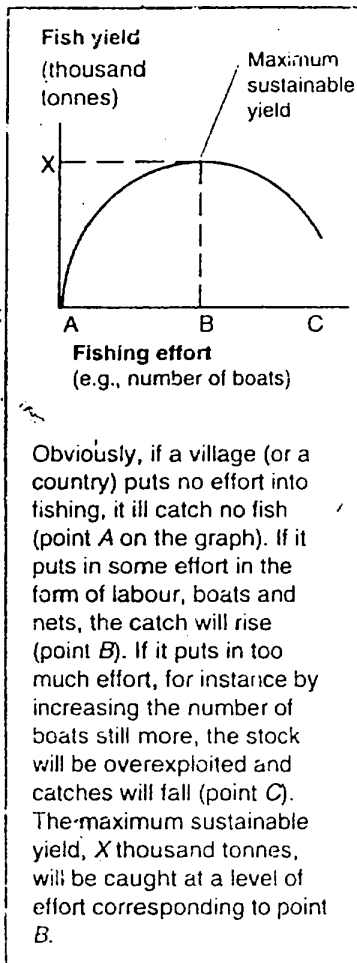


Overexploitation of marine living resources



Marine living resources include fish, whales, shrimps, crabs and other species. They vary from place to place and over time, and are affected by human activities.

Fisheries around the world face various problems:

- Catches vary from year to year.
- Large amounts of money have been invested to exploit a limited resource.
- The average size of fish caught is declining.
- Conflicts between management and traditional fisherfolk are increasing.

Fishery management is complex: it involves social, political, legal and economic as well as biological and environmental factors. The scarcity of fish in one area is linked to many factors, including overexploitation in other areas.

Overfishing

Overfishing means simply "fishing harder than is desirable". It reduces fish populations to a level where the numbers of young cannot replace the fish caught. This reduces the total fish stock. Several major fisheries (e.g., the Antarctic blue whale) have collapsed completely as a result of overexploitation.

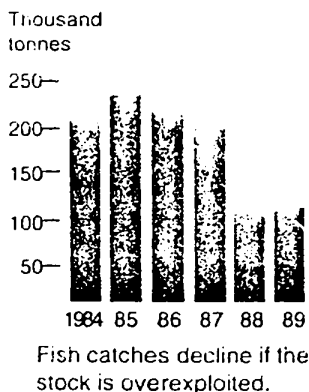
Misuse of fish resources

Overcatches

Sometimes fisherfolk catch more than the actual requirement. For want of buyers, the excess catch is thrown back into the sea or left at landing places to decay. This not only affects the resources; it also creates environmental problems in coastal areas.

By-catch

When specific kinds of fish are targeted, other species also get caught. These other species are called the "by-catch". In shrimp trawling, the by-catch can be much greater and more varied than the targeted species. While some of the larger, commercially valuable species are sold along with the shrimp, the remaining by-catch is thrown overboard at sea. It is "trash fish". In the central west coast of India, the "trash fish" from trawling is



Maximum sustainable yield

The maximum sustainable yield is the greatest yield of a resource (such as a fish species) that can be removed each year without impairing the capacity of the resource to renew itself.

Three types of overfishing

Growth overfishing takes place when the fish are caught before they have time to grow.

Recruitment overfishing reduces the number of young fish entering the fishing ground.

Ecosystem overfishing occurs when fishing alters the balance of the system, allowing some species to multiply but failing to replace the depleted ones.

Demersal fish

Fish living on or near the sea bed.

Pelagic fish

Free-swimming fish inhabiting the open sea, independently of the sea bed.

Information kit produced by WWF-India, Goa division and the International Institute of Rural Reconstruction.

mainly Squilla, Ribbon fishes, Carangids, Tongil soles, Silver biddies and Croakers. The by-catch also contains many immature fish; this is of great concern for resource management.

Banned fishing practices

Out of ignorance or necessity, fisherfolk may put short-term gain before future benefit and try to catch as much fish as possible— young, juveniles and mature adults. Faced with declining catches, they destroy the resource in an effort to obtain a livelihood. They may:

- Use gear and net mesh sizes not sanctioned by government.
- Use gear that destroys the resource base.
- Use techniques such as dynamite or sodium cyanide that endanger the fisherfolk themselves as well as the environment.

Management techniques

Frequently recommended techniques for conserving the fishery resource are:

- Restrict fishing efforts
- Establish a quota system
- Regulate net mesh sizes
- Limit the number of fisherfolk or vessels
- Institute a closed fishing season
- Close an area for fishing temporarily.

These methods are suited mainly for the single-species fisheries of temperate regions. But most tropical fisheries (particularly demersal) are multispecies, so these methods are inappropriate.

Diagnosis of overfishing is easy, but integrated management is needed to remedy it. Mesh size regulations and temporary area closure seem useful and can be implemented successfully in India and other parts of the tropics. There is an urgent need to monitor systematically changes in catch size, rate and relative proportion of various fish species caught in the shrimp trawl.

Pelagic fisheries are more likely to be monospecies; mesh size regulations can be enforced to maintain their optimum economic yield.

Prepared by Z. A. Ansari and B. S. Ingole