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Pelagic Fin Fishery Resources of India – Their Potential and Status of Exploitation

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Introduction

India is endowed with a long coastline of 8129 km. Being tropical country, the marine ecosystem bordering Indian sub-continent contain large number of species adapted to wide range of habitats, from mangrove swamps, estuaries, saline lagoons, sea grass meadows, sandy/ muddy/rocky coasts, coral reefs, oceanic islands to deep oceanic realms. These resources are supporting the marine fishery of the country. The water spread of continental shelf is 0.5 million sq. km and of EEZ is 2.02 million sq. km. The annual catchable marine fishery potential of the EEZ is 4.42 million tonnes. India is one of the leading nations of the world in marine fish production and export.

Growth in Marine Fisheries

Coastal marine fishery made remarkable growth since mechanisation started in early sixties. The marine fish production increased steadily from 0.5 million t in 1950 to a high of 3.94 million t in 2012. This increase can be attributed mainly to the increase in fishing intensity coupled with introduction of mechanised fishing vessels, motorisation of the country crafts, modernisation of harvesting techniques coupled and extension of fishing to deeper waters. Mechanisation and diversification of fishing have slowly extended fishing activity beyond the continental shelf. Adoption of advanced techniques to detect resources and to identify productive ground and use of fish aggregating devices added to the efficiency of fishing operation.

Marine Finfish Resources:

Finfish resources are classified broadly as pelagic and demersal based on their distribution in the water column. Pelagics are diverse group of small to large fishes which occupy mainly the surface and subsurface layers of the water column. Most of them are characterised by their shoaling behaviour. Large

numbers of species which are either bottom dwelling or inhabiting mainly along the lower layers of water column are termed as demersal resources.

Pelagic fishes in the marine sector, includes shoaling fishes like sardines, anchovies and mackerel which concentrate in coastal pelagic zones as well as solitary fishes like billfishes and sharks that occur in the oceanic waters beyond the continental shelf area. Pelagic fishes contribute more than 50% to the total marine fish landing of the country. The Oil sardine (Sardinella longiceps), Indian mackerel (Rastrelliger kanagurta), Ribbonfish (Trichiurus lepturus) and Bombay duck (Harpadon nehereus) form major single species fisheries The other major group were the lesser sardines carangids, seerfishes, billfishes, king fish,mahimahi and Barracudas.

Oil sardine

The resource is represented by a single species, Sardinella longiceps and distributed widely along the Indo-Pacific region. They form the mainstay of pelagic fishery of the country. Till recently their abundance was largely restricted to the coastal waters between Quilon and Ratnagiri with 90% of the fishery from this area alone. However, in recent years, they are emerged as a major resource all along the east and west coast.

Annual exploitable stock of the resource is estimated at 510,513 tonnes. However, their production was 4, 62,976 t during the last decade (2003-2012), with largest production of 720,250 t during 2012. They constituted 15.1 % of the total marine fish production of the country during this period.

Lesser sardines

Nearly 13 species constituted the resource and fishery. They occur along the entire Indian coast but their abundance and fishery confined largely to the inshore waters of Kerala, Tamilnadu and Andhrapradesh. It includes 10 species under the genus Sardinella, two species under Dussumieria and Esculosa thoracat. Dominant species are *Sardinella gibbosa, S.albella S.fimbriata S.dayii* and *S.sirm*. Species show discontinuous distribution.

Annual exploitable stock of the resource is 116,641 tonnes. The present average production was 102,361 t during the decade. They constitute nearly 3.3% of the marine fish production during this period.

Wolf herrings

They are non-shoaling fishes, abundant along both east and west coast with large abundance along the southeast coast. Two species namely, Chirocentrus dorab and C.nudus supported the resource and fishery. Their major abundance

is in shallow waters between 10 –30 m depth. They migrate to deeper waters for spawning. They usually form fishery along with other resources. Their average annual landing is 18,403 t during the last decade, forming 0.6% of the total marine production. 50% of the total landing is from the Tamilnadu coast between Palkbay and Gulf of Mannar. Annual exploitable stock of the resource is 20,732 tonnes

Anchovies

Resources and fishery are supported by species belonging to the genera Stolephores, Thryssa, Thryssina, Coilia and Setipinna. White bait belonging to the genus Stolephores constitutes nearly 70% of the catch. They are abundant in coastal waters of 5-20 m depth. 90% of the resource was concentrated in area between Ratnagiri and Gulf of Mannar. Abundance of other anchovies is relatively large along the coastal waters of Andhra, Tamilnadu, Kerala, Karnataka and Maharashtra.

Their exploitable potential is 147,695 t. Present level of production is 131,606 ton during the last decade. They form nearly 4.3% of the marine production.

Other clupeid fishes

Several species belonging to different genera, Pellona, Hilsa, Ilisha, Elops, Megalops, Anadontosoma etc. support the fishery. They are widely distributed along the east and west coast, with large abundance along the east coast.

Potential yield of the resource was 67.626 t. Present production ranged between 61,491 t during the last decade. They constitute 2% of the total marine fish production.

Mackerel

Resource is represented by three species in Indian waters. However more than 98% of the stock and fishery was supported by Indian mackerel, *Rastrelliger kanagurta* alone. *R.brachisoma* and *R.faugni* form sporadic fishery respectively in Andaman Madras waters. Mackerel is abundant in coastal waters within 25 m depth. Nearly 80-90% of the total mackerel catch is from west coast. However in recent years, their abundance and fishery is on the increase along east coast. Annual exploitable potential is 204,596 tonnes. The present average production was 176,103 t during the last decade and constitutes nearly 5.7% of the marine fish production during this period.

Tunas

These are typical oceanic fast swimming and highly migratory pelagic fishes and most of them have cosmopolitan distribution. Resource is represented by nine

species belonging to the genus Auxis, Euthynnus, Thunnus, Katsuwonus, Sarda and Gymnosarda. These are typical shoaling fishes and aggregate in large numbers around any floating objects in open sea.

Their annual exploitable potential is 268,883 tonnes. The present average production was 60,590 tonnes during the last decade and constitutes nearly 2% of the marine fish production during this period.

Seerfishes

They are the most relished fishes with very high market demand. Five species namely *Scomberomores commerson, S.guttatus, S.lineolatus, S.koreanus* and *Acanthocybium solandri* supported the resource and fishery. They are abundant in the neretic and oceanic waters of both coasts. But undertake long term inshore migration and form fishery in shallow waters. *S.guttatus* is available in less saline turbid waters of coastal belt. Annual exploitable stock of the resource is 75,078 tonnes. Average production was 50,450 t during the last decade and constitutes nearly 1.6 % of the marine fish production.

Billfishes

Bill fishes form by-catch in oceanic tuna and shark fishery. They are represented by Istiophores, Makyra and Xiphia Spp. Their annual exploitable stock is 13,486 tonnes. Their average production was 6,372 t during last decade. They constitute only 0.3% of the marine fish production during this period.

Bombay duck

The Bombay duck or bummalo (*Harpadon nehereus*), is a lizardfish. Adults may grow to a size of 30-35 cm, but the usual size is around 25 cm.

They enjoy a discontinuous distribution along the Indian coast, with abundance along the northwest and northeast coast. It has been traditionally caught in the waters off Maharashtra and Gujarat along west coast and west Bengal and Orissa along the east coast. The fish is often dried and salted before it is consumed, as its meat does not have a distinctive taste of its own.

Carangids

Carangids are a diverse group of fishes having different body shapes. They are widely distributed along the entire coastal waters of India, Their major abundance confined to shallow waters up to 60 m depth. More than 35 species constituted the resource, with many species showing discontinuous distribution. However, commercial fishery was supported by few species. Horse mackerel and scads dominated the fishery. Annual exploitable stock of the resource is 232,313 tonnes. Average production was 200,324 t during the last year and constitutes

nearly 6.5% of the marine fish production.

Ribbonfishes

They are abundant along east and west coast with large abundance along the peninsular region. Resource was supported by six species dominated by *Trichiurus lepturus.* Their maximum abundance was reported in deeper waters between 25-75 m depth. Being carnivores they follow shoals of small pelagics and Acetes and were fished in large quantities by shrimp trawls. Annual exploitable stock of the resource is 243,210 tonnes. Average production was 168,853 t during last decade and constitutes nearly 5.5% of the marine fish production.

Belonid fishes

They inhabit off shore waters of 30-40 km away from the shore Good resource of garfishes, half- beaks and flying fishes were available in the Gulf of Mannar andd Palk Bay and support a potential local fishery. Fishery was supported by several species Flying fishes were supported by species belonging to genera Parexocoetus, Cypselurus and Exocoetus. Good fishery occurs along the Coramandal and Gulf of Mannar coast of Tamilnadu and small quantities from Andhra coast. Annual exploitable stock of the resource is 10,067 tonnes. Average production was 1,825 t during last decade.

Half and fullbeaks resources supported good fishery in the Gulf of Mannar andd Palk Bay. Their, annual exploitable stock is 11,624 tonnes. Average production was 4,140 t during during last decade.

Other pelagics

Other resources which contribute considerably to pelagic fishery are barracudas, king fishes, mahi mahi Bombay ducks, myctophids etc. They form commercial fishery at varying levels at certain areas

Marine fishery has made rapid changes with motorisation of traditional crafts and introduction of mechanised fishing units coupled with wide use of innovative gears and methods in line with mass harvesting technologies. With the growth of coastal marine fisheries and ever increasing demand from domestic and export markets, fishing pressure has increased on the limited resource. Tropical resource being multi-species and co-exist in the same area, effect of fishing is felt not only on the target groups but on other resources also. The peculiar nature of resource combination made the task of adopting a harvesting technology which will harvest only selected resource totally impossible. With rare exception of few

gears almost all gears or methods in one way or another harvest one species or another from different habitats at their different pace of life. But the extent and degree varies.