CHAPTER

09

Large Pelagic Resources and Their Fishery in Indian Waters

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These are a group of fishes represented by fast moving pelagics, occurring mainly in deeper waters. They undertake long distance migrations to varying extent depending on species. Along the Indian coasts species of tunas, billfishes, seerfishes, barracudas, dolphinfishes, cobia, queenfishes and rainbow runner represent this resources.

They enjoy wide distribution along the coastal and oceanic waters of mainland and island territories with distribution of adults in deeper waters and young ones of many in relatively shallow waters. Exploratory survey reports and analysis of fishery data suggested resource concentration along waters of Lakshadweep and Andaman Island territories and southern waters of mainland coast.

a. Tunas

They are the major group supporting the LP resource. The resource represented by nine species; five neritic and four oceanic species. Kawakawa (*Euthynnus affinis*), frigate tuna (*Auxis thazard*), bullet tunas (*Auxis rochei*), longtail tuna (*Thunnus tonggol*) and bonito (*Sarda orientalis*t) represent the netritic species. Oceanic species was represented by yellowfin tuna (*Thunnus albacares*), skipjack tuna (*Katsuwonus pelamis),* dogtooth tuna (*Gymnosarda unicolor*) and bigeye tuna (*Thunnus obesus*). They are distributed all along mainland coast and coast of Island territories.

b. Seerfishes

In Indian waters they are represented by four species; Narrow-barred Spanish mackerel (*Scomberomorus commerson)*,Indo Pacifickingmackerel (*Scomberomorusguttatus),* Streaked Spanish mackerel *(Scomberomorus lineolatus)* and Wahoo (*Acanthocybium solandri).* Their distribution restricted to mainland coast and supported fishery with major contributions from Kerala, Gujarat, Karnataka, Tamil Nadu and Andhra Pradesh. *S. lineolatus* supported fishery mainly along the southern coast of Tamil Nadu in small quantities.

c. Barracudas

Resource is constituted by thirteen species, including small coastal species; The great barracuda (*Sphyraena barracuda*), *pickhandle barracuda (Sphyraena jello),* sawtooth barracuda *(Sphyraena* ***putnamae),*** *Sphyraena forsteri, Sphyraena obtusata, Sphyraena picuda, Sphyraena acutipinnis*, *S. qenie, S. flavicauda*, *S. chrysotaenia, S. iburiensis* and *S. helleri* and the recently described species Arabian barracuda, *Sphyraena arabiansis.*

They are fished almost all along the coast. Their major abundance is along the southern coast comprising coast of Tamilnadu, Karnataka and Kerala, followed by along coast of Andhra Pradesh and Gujarat.

d. Billfishes

They are represented by five species; three species of marlins and one species each of sailfish and swordfishes. Marlins (Family: Istiophoridae) were represented by three genera; *Makaira, Istiompax and Tetrapturus*. Common in the catches are Black marlin (*Istiompax indica), Indopacific* Blue marlin *Makaira mazara,* and Striped marlin ((*Tetrapturus) Kajikia audax*). Sail fish was represented by *Istiophorus platypterus* and Swordfish (Family Xiphidae) by *Xiphias gladius.* Major share of their catch was landed along the Andhra Pradesh and Kerala coast.

e. Dolphinfishes

Two species; *Coryphaena hippurus* and *Coryphaena equiselis* supported the fishery. They are abundant along the northwest coast, with main fishery along Gujarat coast.

f. Cobia

They are represented by single species, *Rachycentron canadum.* They are abundant along the west coast with large concentration along northwest coast. They are available in appreciable quantity along the waters of Kerala and Karnataka.

g. Queenfishes and Rainbow runner

They are members of the carangid family. Four species represent queenfishes; *Scomberoides commersonianus, S. lysan, S. tala and S.tol* and rainbow runner by one species, *Elagaatis biinnulata* . They are distributed along the entire coast with large abundance along the coast of Andhrapradesh, Orissa and Gujarat.

Fishing methods

Commercial fisheries for large pelagics involves different craft and gear combination. Most fishing units carry different fishing gears and operation of each depends on the resource targeted and ground conditions. Large pelagics form aimed catch in some gears and bye catch in others. Major share of the catch was by hooks and lines and gillnets.

Gillneting: Drift gillnets are generally used to capture LP in the open ocean, consist of a series of individual nets connected together. Because of the high incidental capture of other species, the use of drift gillnets longer than 2.5 km. was banned on the high seas by the United Nations. Only a small percentage of the world catch of tunas is taken with gillnets.

Longlining: Longlines are passive and non-selective to the extent that it can capture several species of LP resources along with pelagic sharks. The gear fishes mostly below 100 m depth, where temperatures are cool and the largest of many species frequented.

Purse-seining: Purse seines target mostly shoaling resources especially tunas.

Pole and lining: Pole-and-line fishing is a two-mode type of fishing targeting mainly skipjack and yellowfin tunas. The live bait was used to attract the tuna to the vessel where they were caught by pole-and-line gear. If good aggregation of tunas attracted towards the live bait, large volumes could be captured in a short time. Pole-and-line fishing was at one time the major type of tuna fishing in Lakshadweep.

Trolling: Trolling consists of towing several lines with bait or lures attached from vessels, generally less than 20 meters in length. Most troll fisheries target large yellowfins and narrow barred Spanish mackerel, but several other species are also taken. Trolling accounts for only a very small percentage of the total LP catch.

Fish Aggregating Devices (FADs): Fish Aggregating Devices are structures located at surface or at mid-water depths to take advantage of attraction of pelagic fish to floating objects. FADs anchored in depths beyond 500 m are generally more successful in attracting schools of skipjack *(Katsuwonus pelamis),* yellowfin (Thunnus *albacares)* and bigeye *(T. obesus)* tunas. Smaller tunas (skipjack and immature yellowfin) at the surface and larger tunas (mature yellowfin and bigeye) at depths of 300-400 m. FAD's are deployed in Lakshadweep waters to support pole and line fishing

Catch and trend

Catch of all LP resources together constituted 206,207 t annually, which accounts nearly accounting 5.48 % of the total marine fish landings along the mainland during 2012-16. Their catch during the period varied between 194348 and 231,362 ton. Major share, over 50% of the catch was by tunas (88,417t) followed by seerfishes (51,811t), barracudas (29,782 t) and queenfishes and leather jackets (15925 t). Other resources contributing to the fishery are biillfishes-10,822 t, dolphinfishes-7,517 t and cobias-3,060 t. LP fishery of Lakshadweep and Andaman regions were supported mainly by tunas. It was respectively14,428 and 2,531 ton from the Island territory.

Over the years, the LP landing has steadily increased. It was 62,000 t in 1985, 1,98,991 t in 2012, 2,10,154 t in 2015 and. 231,362 t in 2016. The trend in production indicated that, LP fishery as such is in a developing state and there is scope for increasing production from Andaman and Lakshadweep waters and from distant waters within the Indian EEZ.

Landing by sector/gear

Mechanised and motorised sector together represent the LP fishery of the country, with only negligible contribution from artisanal sector. Major share of the landings was by mechanised sector (60.5%) and the rest by motorised sector. Large pelagics were caught both as targeted and incidental catch in several gears. Major share of the landings was realized in gillnets (39.6%), trawls (24.3%), purseseines (13.4%) and hooks and line (7.7%). Considerable variation was also observed in the catch composition by different gears as they operate in specific areas.