

## AN OVERVIEW OF SOME COMMERCIALY IMPORTANT MARINE DEMERSAL FISHES AND FISHERY REGULATIONS

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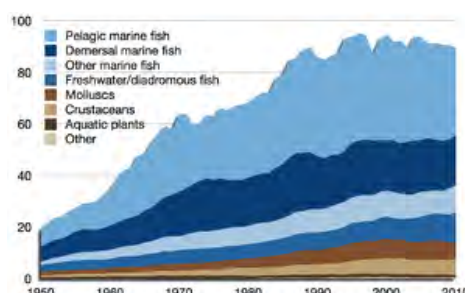
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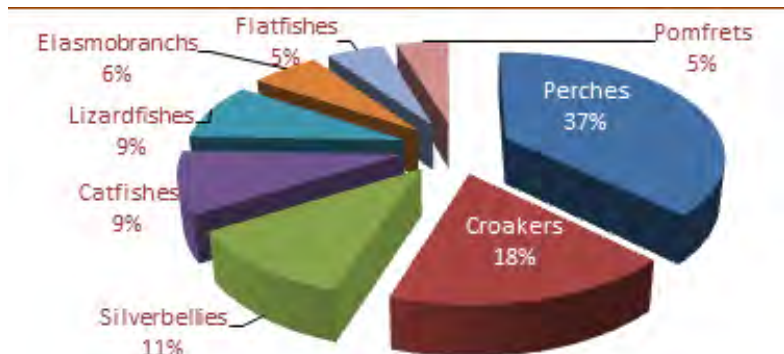
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Global total capture fishery production in 2014 was 93.4 million tonnes, of which 81.5 million tonnes from marine waters and 11.9 million tonnes from inland waters. Total capture production in marine waters was 81.5 million tonnes in 2014, a slight increase on the previous two years (SOFIA, 2016).

Marine fish production of the country has shown an increase of 6.6% compared to 2015 recording a total of 3.63 million t. Of the different maritime states of India, West Bengal, Kerala, Karnataka, Maharashtra, Gujarat and the U.T. of Daman & Diu registered increase in landings whereas the other coastal states Odisha, Andhra Pradesh, Tamil Nadu, Puducherry and Goa recorded a decline in landings. Among the four regions the north-west coast comprising of Maharashtra, Gujarat and Daman & Diu contributed the maximum landings (11.83 lakh t). with 33% followed by south-west region comprising of Kerala, Karnataka and Goa together with 11.13 lakh t (31%). The states of



West Bengal and Odisha which forms the northeast coast contributed 3.89 lakh t forming 11% of the all India landings.



**FIG. 2 CONTRIBUTION OF DEMERSALS TO ALL INDIA FISHERY 2016**

During 2016, the group wise composition of demersal finfish assemblages in the Indian marine fish landings indicate that the major contributors are the perches (37%), croakers (18%), silverbellies (11%), lizardfishes (9%), catfishes (9%), elasmobranchs (6%), flatfishes (5%) and promfrets (5%).

**Elasmobranchs:** The elasmobranchs represented by sharks, sawfishes, guitar fishes and rays are an important group of demersal fishes which are exploited for multifarious uses of their various body parts such as the meat, fins, liver, teeth and the hide. While shark fins and shark cartilage are considered as a delicacy fetching increased export market, their liver oil is utilized in pharmaceutical industry. Shark teeth is used for ornamental purposes and their

hide for a variety of leather products. Their characteristic life history pattern ie slow growth rate, delayed maturation, long reproductive cycle, low fecundity and long life span and their trans-boundary migration pattern make them susceptible to over fishing.

Shark fishing in India has progressed from being ‘incidental’ to ‘targeted’ over the years. The transformation occurred only during the 1990s due to increasing demand in the international market which has caused serious concerns about the sustainability of these catches.

**Table 1. Demersal fishes landed in 2016 in India**

Mechanized trawl nets, gills nets and line gear operations contribute to maximum exploitation. Under the Wildlife Protection Act of India (1972), of the 88 shark species found in Indian waters, four have been listed as Protected under Schedule I of the WPA. Hunting, exploitation and trade of these species, namely, the whale shark (*Rhincodon typus*), the Pondicherry shark (*Carcharhinus hemiodon*), the Ganges shark (*Glyphis gangeticus*) and the spartooth shark (*Glyphis glyphis*), is banned. India is also a signatory party to the CITES Appendix II listing of 5 species of sharks (of which 4 species are found in Indian waters) and 2 species of manta rays, thereby initiating regulation in fin and gill plate trade in these species.

**PERCHES**

This group is abundant in the rocky grounds off the South west coast and south east coast of India and is exploited by, hooks and lines, traps and gill nets. All India landings of perches is 4.27 lakh tonnes. Around 42 species of groupers have been reported from different parts of India. Family Serranidae includes *Epinephelus malabaricus* (Malabar grouper), *E.tauvina* (Greasy grouper), *E.bleekeri* (Dusky-tail grouper),*E.areolatus* (Areolate grouper),*E .diacanthus* (Spring cheek grouper/ six-bandedreef cod), *E.epistictus* (Broken-line grouper), *E.fasciatus* (Red banded grouper),*E.flavocaeruleus* (Blue and yellow reef cod), *E.latifasciatus* (Banded grouper),*E.morrhua* (Banded cheek reef cod), *E.undulosus* (Brown- lined reef cod), *E.merra* (Wire netting reef cod), *E.fuscoguttatus* (Brown marbled grouper), *E.chlorostigma* (Brown

Demersal finfish	
Elasmobranchs	
Sharks	29002
Skates	9627
Rays	28211
Eels	11171
Catfishes	80559
Lizard fishes	94817
Perches	
Rock cods	42781
Snappers	10533
Pig-face breams	12519
Threadfin breams	170349
Bull's eyes	130740
Other perches	40321
Goatfishes	30276
Threadfins	9728
Croakers	157793
Silverbellies	92764
Whitefish	6312
Pomfrets	
Black pomfret	13924
Silver pomfret	26012
Chinese pomfret	4227
Flat fishes	
Halibut	2713
Flounders	100
Soles	41015

Source: CMFRI Annual Report)

spotted grouper), *Cephalopholis sonnerati* (Red coral cod) and *C.boenack* (Blue-lined seabass).

**Snappers:** The family Lutjanidae collectively known as snappers, contains 17 genera and 105 species, which are mainly confined to tropical and subtropical marine waters, with few occurring in estuaries. A total of 35 species under 8 genera of snappers were recorded during the present study, of which, 3 species are new additions to the Indian waters. The major species observed in the all India landings of snappers were *Pristipomoidestypus*, *L. argentimaculatus*, *Lutjanus gibbus*, *L. rivulatus*, *L. bohar*, and *L. lutjanus*.

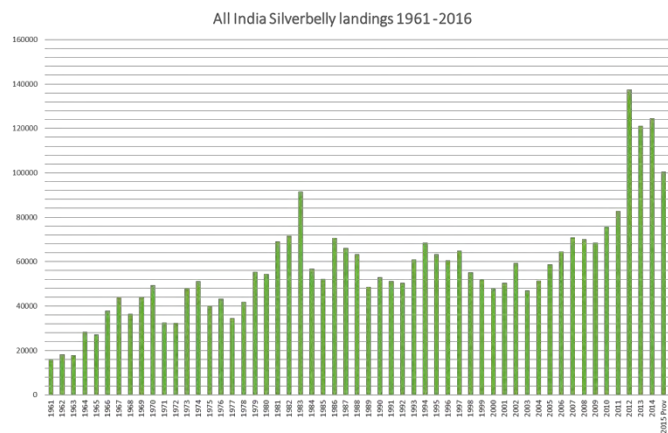
**Catfishes:** Catfishes wide distributional range in the Indo-Pacific region. They are distributed all along the Indian coastal waters up to the middle shelf with preferential concentration on muddy grounds of 30-70 m depths. In India, catfish landings increased from 1961 -2009 but decreased in the commercial landings after 2010. The fishery is in the recovery phase now. The drastic decrease was due to exploitation of the exploitation of the mouth brooders destroying both the parents and the eggs by the fishing vessels. Catfishes migrate both vertically (diurnal migration) and horizontally (seasonal) in small schools to large shoals in response to seasonal climatic / hydrographic variations. Catfishes exhibit parental care - the male carrying the brood (25-120 eggs) in the oro-buccal cavity for 1 to 2 months' time until the juveniles (4-7 cm) are released. This group is one of the most vulnerable resources for irrational harvest during their migratory and breeding phase. With the advent of mass harvesting gear like purse seine and trawlers, there has been a continuous onslaught on this resource during the periods of south bound or north bound migrations parallel to the coast. The damage is further aggravated when their spawning shoals are exploited from the surface often causing large scale destruction of parents and egg / embryos, leading to overfishing affecting the recruitment to the population. Indiscriminate exploitation of juvenile and sub-adult populations by bottom trawlers and brooders / spawners by purse seiners has resulted in poor recruitment, spawning stock decline and infrequent shoreward migrations. Ultimately the production gradually declined in 1986-1990, though several innovative gears contributed towards the coastal fisheries in this period, with an annual average catch of 51,244 t. The landings further declined to 40,008 t in 1991- 1995 inspite of extended fishing to deeper ground upto 80 -100 m depth and species replacements. (Menon et al. 2000)

**Bulls eye:** The landings of Bullseyes during 2016 in India was 130740 tonnes. The major species observed in the landings are *Priacanthus hamrur*, *Cookeolus japonicas* and *Priacanthus sagittarius*.

**Silverbellies:** 21 species are reported in Indian waters. The fishery has improved over the period, with a major improvement in 2013, but decreased after that. The major fishery area is on the Southeast coast.



Previous name	Present name
<i>Leiognathus bindus</i>	<i>Photopectoralis bindus</i>
<i>L. blochi</i>	<i>Nuchequula blochii</i>
<i>L. edwardsi</i>	<i>Equulites elongatus</i>
<i>L. insidiator</i>	<i>Secutor insidiator</i>
<i>L. jonesi</i>	<i>Eubleekeria jonesi</i>
<i>L. splendens</i>	<i>Eubleekeria splendens</i>
<i>L. ruconius</i>	<i>Secutor ruconius</i>
<i>L. daura</i>	<i>L. daura</i>
<i>L. dussumieri</i>	<i>L. dussumieri</i>
<i>L. longispinis</i>	<i>L. longispinis</i>



## **INSTRUMENTS/ORGANISATIONS in CONSERVATION**

### ➤ Fishery Regulation Acts

-Indian Fisheries Act 1897 for regulation and protection of fisheries.

- The Indian Wildlife Act 1972. 21b-The territorial waters, continental shelf, EEZ and other maritime zones Act 1972.
- The Marine Products Export Development Authority Act 1972
- The Kerala Marine Fishing Regulation Act and Rules 1980 (Act 10 of 1981)
- **Marine Protected Areas (MPAs):** India has 33 coastal and marine protected areas and 3 marine bio reserves, with a total area of 5,319 km<sup>2</sup>. The protected areas cover less than 1.3% of the Indian coast
- The **International Union for Conservation of Nature (IUCN)** is the world's oldest and largest global environmental organization. Founded in 1948 a unique organization - a democratic membership union composed of over 1,200 Members, 11,000 scientific experts. Today the largest professional global conservation network and a leading authority on the environment and sustainable development in more than 160 countries. **Principle: Global production and consumption patterns are destroying our life support system – nature – at persistent and dangerously high rates.**
- **CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora)** is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.
- CITES was drafted as a result of a resolution adopted in 1963 at a meeting of members of IUCN (The World Conservation Union).

Additional reading:

1. CMFRI 2016. Annual Report 2016-17 (e-prints@cmfri.org.in).