

# Major commercial fishes of India - The Indian Mackerel

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## Introduction

The Indian mackerel (*Rastrelliger kanagartha*) is a species of mackerel in the Scombroid family. It is commonly found in the Indian and West Pacific oceans, and their surrounding seas. It is an important food fish and is commonly used in South and South-East Asian cuisine. This occurs in areas where surface water temperatures are at least below 17 °C in coastal bays, harbours, and deep lagoons, usually in some turbid plankton-rich waters. They form schools in coastal waters. The well being of the marine fishing industry of India is determined to a large extent by the sustaining yields from the mackerel fishery. About 80 to 90% of the mackerel catches come from the west coast.

## Scientific classification

*Rastrelliger kanagartha* locally known as *Ayala*, *Ayila* (Malayalam), *Ailai*, *Augalai*, *Kumla*, *Kanangeluthi* (Tamil), *Bangada* (Canarese), *Kaula gedar* (Marathi), *Kanagartha*, *Kannangadathaa* (Telugu), *Karan-kita* (Oriya), *Oibia gedar* (Sindhi), *Bangadi* (Hindi) and *Malbari bangada* (Gujarati). Besides *R. kanagartha*, two more species of mackerel



Indian mackerel (*Rastrelliger kanagartha*)

are found in Indian waters viz. *R. faughni* (Island mackerel) and *R. brachysoma* (Short mackerel).

## Distribution

The Indian mackerel is found in warm shallow waters along the coasts of the Indian and Western Pacific oceans. In the inshore waters up to about 25 m the species is well known to occur all along the east and the west coasts of India from Kathiawar in the north-western coast to Kolkata in the north-eastern coast. It is also recorded from many other places under the Union Territory viz. the Andaman-Nicobar Islands and the Laccadive group

of Islands. The trawlers operating from Veraval, Bombay, Karwar, Mangalore, Cochin and Kolkata have obtained the species from the deeper regions of the continental shelf. It often enters the estuaries and backwaters. It has been recorded from the Kali River estuary near Karwar, Netravati estuary near Mangalore and from the Cochin backwaters of Kerala.

#### Distinguishing characters

The body is moderately deep, its depth at margin of gill covers 4.3-5.2 times in fork length. Head longer than body depth. Maxilla partly concealed, covered by the lachrymal bone, but extending to about hind margin of eye. Colour: narrow dark longitudinal bands on upper part of body (golden in fresh specimens) and a black spot on body near lower margin of pectoral fin; dorsal fins yellowish with black tips, caudal and pectoral fins yellowish; other fins dusky.

#### Fishery

In India, the landings of Indian mackerel in 2013 showed slight improvement from 1.7 lakh t in 2012 to 2.0 lakh t, still below the 2.8 lakh t mark in 2011. Indian mackerel landings in Gujarat during 2013 were 4,301 t recording a decline over the previous year by 21%. It formed 1.8% of the total pelagic resources landed during the year. In Maharashtra *R. kanagurta* contributed 2.5% (9,262 t) to the total fish landings in the State. Catch of mackerel declined by 53.9% as compared to 2012. The contribution of mackerel in Karnataka was 11.7% and in Goa it was 15.6% against their total catch in 2013. Indian mackerel landings in Kerala

was 45,289 t during 2013. In Andhra Pradesh the total landing of mackerels in 2013 was 0.34 lakh t (22.9%)

#### Food and Feeding

Juveniles of the species feed on phytoplankton mainly on diatoms and small zooplankton such as cladocerans, ostracods, larval polychaetes, etc. With growth they gradually change their dietary habits, a process that is reflected in the relative shortening of their intestine. Hence, adult Indian mackerel prey primarily on macroplankton such as larval shrimps and fish.

#### Reproduction

Study shows that at the time of first spawning, mackerel are about two years old and measuring 200 - 220 mm in total length. The intensive spawning of mackerel starts by April/May. The spawning continues till around July. Young ones are recruited to the fishery by August when they are about three months old. They swarm in large shoals in the upper mixed layer to feed on the abundant plankton bloom caused by upwelling. By around December they start maturing. They become mature and start spawning by February. The breeding intensity increases and reaches a peak by May, the age at first spawning being around one year. They grow to a size of around 230 mm by the end of first year of their life. The Indian mackerel normally grows to a maximum size of 285 mm and weighs 270 gm, though an unusually large specimen of 480 mm was recorded from the Karnataka-Goa area.

### Migration and shoaling behaviour

The mackerel of different size groups move in separate shoals. They move in semicircular or arrow head formations and their speed is about 8-10 miles per hour. They scatter, when pursued by seer fish, but when the shoals are chased by sharks or porpoises, the mackerel submerge with the head downwards into a compact mass. When the mackerel dive a patch of muddy water is seen at the surface which is due to churning of water by a large mass of fish.

### Exploitation (Craft and Gear)

The Indian mackerel are harvested using a variety of nets. In Konkan region, north Kanara and South Kanara, the major gears in operation are shore seine (*Rampani*), gillnet (*Pattabale*) and cast net (*Pag*). The types of fishing boats are *Pandi*, *Hodi* and *Dhoni* with or without outriggers. In Kerala boat seines (*Odama vala*, *Paithua vala*, *Ayilakollivala*, *Thattumvala*, *Nonvala*), shore seines (*Karavala*) and gillnets (*Ayilachalavala*) are operated with the help of dugout canoes. In Tamil Nadu, masula boats, Tuticorin type of boats, canoes and catamarans are chiefly used for operating different types of shore seines, boat seines, bag nets and gillnets. In Andhra Pradesh and Odisha more or less similar types of gear are used as in Tamil Nadu, with masula boats, plank built boats and catamarans.

### Utilization

In India 20% of the catch is salt cured or pickled and approximately 5% are canned. A negligible portion of the salt

cured mackerel is exported to Sri Lanka and Far East, while canned mackerel is entirely sold within the country. The remaining 75% are consumed in fresh form in the country. Sometimes unsold mackerel are beach dried and then converted into manure for use in coconut, coffee and tea plantations.

The importance of mackerel fish meal as cattle and poultry feed is well known. It has easily digestible proteins, vitamins and minerals and is obtained by pressing the cooked fish and sundrying the same. It is also prepared by beach drying of fish in the open sun without being cooked. In both the cases it is then powdered, sieved and stored in tins. Canning of mackerel was attempted by the Tamil Nadu Govt. which proved to be a commercial failure due to lack of regular supply of fish, high cost of cans and ground nut oil.

Scombroid fish such as tuna, mackerel and bonito that contain high levels of free histamine in their muscle are often implicated in Scombroid poisoning incidents. Scombroid poisoning is usually a mild illness with a variety of symptoms including rash, urticaria, nausea, vomiting and diarrhoea, flushing and tingling and itching of the skin. Severity of the symptoms can vary considerably with the amount of histamine ingested and the individual's sensitivity to histamine.

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