Caranx ignobilis (Forsskål, 1775)

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IDENTIFICATION

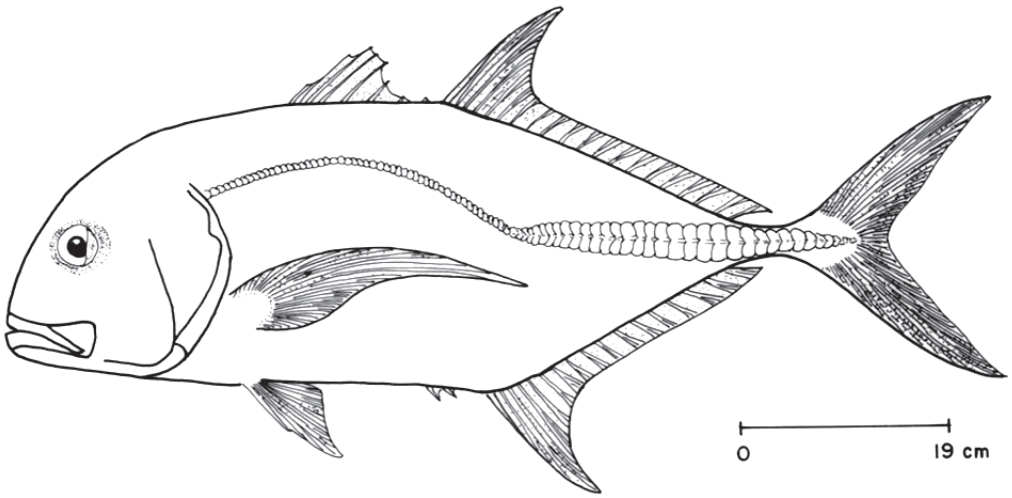
Order	:	**Perciformes**
Family	:	**Carangidae**
Common/FAO Name (English)	:	**Giant trevally**

Local names: Kuluvel, Manjavalan para, Manja para (**Malayalam**); Pulee paarai, Komaaraa paarai, Vennai paarai, Thaengaa paarai, Sem paarai, Keeleesai paarai (**Tamil**); Munjal paarah, Pulli paarah, Jarradendree paarah (**Telugu**)

MORPHOLOGICAL DESCRIPTION

It has an oval-shaped, compressed body with the dorsal body being more convex than the ventral part. The dorsal fin is split into two with a fully spinous part anteriorly with 8 spines and a soft part posteriorly with one spine followed by 17-22 rays. The anal fin has two free spines anteriorly, followed by one spine and 15-17 soft rays. The pelvic fins have a spine followed by 19-21 soft rays. The caudal fin is forked and pectoral fins are falcate. The lateral line is arched anteriorly, straightening into a line below the second dorsal fin lobe. The chest is scale-less with the exception of a small patch of scales in front of the pelvic fins. The upper jaw has an outer row of canine teeth with an inner band of smaller teeth, while the lower jaw has a single row of conical teeth. The species has 20-24 gill rakers in total and 24 vertebrae are present. It has an adipose eyelid.

Source of image : RC of CMFRI, Visakhapatnam



The giant trevally changes colour as it grows. At sizes less than 50 cm, males and females both are silvery-grey with dorsal part (including head) being darker. As the fish grows beyond 50 cm sexual dimorphism in colouration appears, with males becoming dusky to jet-black and females remaining silvery-grey. Silvery striations and markings on dorsal part of the body and sometimes black dots are also seen on larger fish. Fins are generally light grey to black, sometimes yellow coloured also.

PROFILE

GEOGRAPHICAL DISTRIBUTION

The giant trevally is widely distributed throughout the tropical and subtropical waters of the Indian and Pacific Oceans, ranging from Africa, Red Sea and Persian Gulf to Asia, including Pakistan, India and onto south-east Asia, the Indonesian Archipelago and northern Australia. In the Indian Ocean it has also been reported from Maldives, Seychelles, Madagascar and the Cocos Islands. In the Pacific region it is found up to the norther tip of New Zealand and onwards into the western Pacific regions of Tonga, Western Samoa and Polynesia with the western limit of its distribution being the Hawaiian Islands.

HABITAT AND BIOLOGY

The giant trevally inhabits a very wide range of habitats from offshore and inshore marine environments to low saline waters of estuaries and rivers. It is also easily attracted to artificial reefs, where studies have found it to be one of the predominant species around these structures in Taiwan. It is a solitary fish on attaining sexual maturity, only schooling for the purposes of reproduction and more rarely for feeding. Juveniles and sub-adults commonly school, both in marine and estuarine

environments. At smaller sizes, the species is prey to sharks, and large individuals have been recorded as a host of the shark sucker, *Echeneis naucrates*, a fish which is normally seen attached to the undersides of sharks.

Caranx ignobilis reaches sexual maturity at 54 to 61 cm in length and three to four years of age. Spawning occurs during the warmer months. In southern Africa, this occurs between July and March, with a peak between November and March; in the Philippines between December and January; and in Hawaii between April and November. It is the largest member of the genus *Caranx*, with a recorded maximum length of 170 cm and a weight of 80 kg. The average length reported is 100 cm.

PRODUCTION SYSTEMS

BREEDING IN CAPTIVE CONDITIONS

The captive breeding and seed production of the species has been reported from the Philippines in 2006. The successful induced breeding was carried out at National Fisheries Research and Development Institute, National Fisheries Biological Centre, Butang, Phillipines. The sexually matured brooders of age 5-7 years with 500 µm ova diameter were selected and were injected intramuscularly, with two doses of human chorionic gonadatropin (hCG; 1000 IU/kg) and two doses of Luteinizing hormone-releasing hormone analog (LHRHa) separately for two groups of fish. After injection, fish were stocked in 40 t (5 m diameter) circular tank. Spawning occurred 24-36.5 h after second dose of hCG and 25-52 h after LHRHa injection. The eggs were pelagic, clear and spherical with a single oil globule and mean diameter 800 µm. The mean number of eggs spawned was 3,500-4,000 eggs/g of fish weight. The eggs hatched out in 11-17 h. The fertilization and hatching rate was 60.88 % and 71.07 % respectively.

LARVAL REARING

Newly hatched larvae measured 1.6 mm mean length. Larval rearing was carried out in concrete tanks (3 x 3 m) with green water system using *Nannochloropsis* sp. Larvae were fed initially with rotifer (*Brachionus* spp.) and followed by brine shrimp (*Artemia salina*). Heavy mortalities were observed during 1-7 and 19-22 days of larval rearing. The metamorphosis was completed within 26-28 days and at that time, larvae measured a mean length of 8.1 mm.

The giant trevally's early larval stages and their behaviour have been extensively described, with all fins formed in 8 mm size of fish; with larvae and sub-juveniles being silver in colour with six dark vertical bars. Growth rates in larvae between 8.0 and 16.5 mm were on average 0.36 mm/day. The speed at which larvae swam increased with age from 12 cm/s at 8 mm in length to 40 cm/s at 16.5 mm. The species became an effective swimmer (is able to swim against a current) around 7-14 mm.

NURSERY REARING

Information not available

GROW-OUT

Grow out culture was carried out in cage in Philippines. A 10 x 10 m cages were stocked with 900 juveniles (50-100 g) and cultured for a period of 8-12 months. During this period the fish grew to an average of 23-27 cm with weights of approximately 600 g. This species has been cultured in floating cages in lagoons in Tahiti on an experimental basis. In Tahiti it was seen that for this species to grow well, either trash fish or pelletized feed with 40 % protein is good. The pellet feed should be moistened and contain 15 % fresh fish which is an appetizer (bonito fish in Tahiti) for the fish to feed well. With this feed the fish attained an average 420 g in 180 days.

FOOD AND FEEDING

The fish is carnivorous in nature. Young ones feed on juveniles of sardines, anchovies, other finfishes, prawns, crab instars and amphipods. Major food components of large fishes include *Decapterus* sp., other carangids, silver bellies, threadfin breams, goatfishes, lizardfishes, crabs and prawns. In cage culture, fish were fed with low value fish such as *Oreochromis niloticus, Carassius auratus, Parachromis manaaguenis,* silverfish, cardinal fish and archer fish.

GROWTH RATE

Daily growth was estimated to be between 3.82 and 20.87 g/day, with larger fish growing at a more rapid rate. Length of one year old was 18 cm, two years was 35 cm and by three years, the fish was around 50 to 60 cm. Giant trevally were grown to a size of 750 g in 12 months from 5 g in cages in Philippines. In Tahiti the fish attained an average of 420 g in 180 days.

DISEASES AND CONTROL MEASURES

Acanthocephalus dirus infection in internal organs was reported in *C. ignobilis*. These parasites destroy the internal tissues of the fish.

PRODUCTION, MARKET AND TRADE

PRODUCTION

The species is cultured in cages in the Philippines and farmed on a small scale in Malaysia. It is also a very popular sport fish in the Indo-Pacific area. In India too its demand as a sport fish is on the rise.

MARKET AND TRADE

The fishes of genus *Caranx* have good consumer acceptability due to their flesh quality without inter muscular bones. It is marketed as fresh, frozen, salted and smoked. Even fish meal and fish oil were

prepared from this fish. Approximate price for the fish in domestic market in India is ₹ 180/kg. The average weekly price in international market is US $ 3-4/kg.

CHALLENGES TO MARICULTURE

The breeding and seed production of *Caranx ignobilis* has been reported from different countries; however it has not been reported from India. The main researchable issues, which have to be sorted out for this species in India, are (i) Healthy broodstock development protocol (ii) Larval rearing protocol: standardization of larval rearing by environmental and nutritional manipulation (iii) Disease and feed management and (iv) culture practices.

FUTURE PROSPECTS

Caranx ignobilis is a good candidate species for mariculture due to its fast growth, good meat quality and high market value. With the development of successful captive breeding and hatchery seed production practices, the culture of *C. ignobilis* will be established in future.

SUGGESTED READING

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