Heavy landings of snappers at Mumbai with notes on the biology of *Lutjanus argentimaculatus* (Forsskal, 1975) and *Lutjanus johnii* (Bloch,1792)

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Snappers are considered valuable seafood delicacy and enjoy great demand in international market. Snapper landings in Maharashtra have increased over a period of time. The major species of snappers landed in Maharashtra is *Lutjanus johnii* which is accompanied by occasional landings of *Lutjanus argentimaculatus*. Apart from these, other species of snappers are also observed from Maharashtra waters, but their landings are meagre. Juveniles of snappers usually inhabit mangroves and shallow waters adjacent to sea shore but adults abode reefs and are sometimes caught from even 80 m depth in the sea.

An unprecedented high quantity of *L. argentimaculatus* was landed at Sassoon Docks on 23-10-2009 by purse seiners (Fig.1). *L. argentimaculatus* is commonly called as 'mangrove red snapper' and is locally known as '*chavri tamb*' in Maharashtra. The total catch of the species on the day was about 4.5 t and the fishing ground was south of Mumbai up to Ratnagiri in the depth range 40-50 m. As the size of each fish was fairly large weighing 1.5 – 2.5 kg, they were sold at the rate of ₹ 250/kg at the landing centre. Although landings of red snappers were common in Mumbai during October-November prior to 1990, the landing of *L. argentimaculatus* in such a magnitude is uncommon and hence the present observation gains importance.

Fig. 2. *Lutjanus argentimaculatus* landed at Sassoon Docks, Mumbai

In the present catch, the maximum size observed was 59 cm. *L. argentimaculatus* was identified by its distinct red brown colour. The dorsal fin has 10 spines and 13-15 rays while caudal fin is truncate and slightly emarginated with the soft parts of dorsal and anal fins having a scaly sheath. The species is very similar to *Lutjanus malabaricus* but the head profile of *L. argentimaculatus* is straight and slightly convex unlike *L. malabaricus*, in which the head profile is slightly concave.

Ten specimens of *L. argentimaculatus* ranging in total length from 50.2 to 59 cm with the corresponding weight ranging from 1.68 to 2.72 kg were analysed for further biological characteristics. Majority of the guts (60%) had little food or was in 'empty' condition and the remaining 40% were '1/4' full. The gut content revealed that it feeds mainly on crabs (50.8%) followed by fish (35.6%), cephalopods (8.5%) and digested matter (5.1%) beyond recognition. Of the 10 specimens analysed, 3 were females and the remaining were males. Among the females, one specimen had ovary with immature eggs while two specimens had maturing ovaries (stage III) weighing 15.9 to 16.1 g. The number of maturing ova in stage III ranged from 62,000 to 80,500.

Lutjanus johnii is commonly known as 'John's snapper' and is locally known as'*tamb*'. *L. johnii* was identified by its steeply sloped head and the centre of each scale with a reddish brown spot. A distinct large black blotch is present above the lateral line below the anterior dorsal fin rays.

An unprecedented high quantity of *L. johnii* was landed at Sassoon Docks on 04-11-09 by purse seiners (Fig. 2). The total catch of the species was about 3.2 t. They were sold at the rate of ₹ 200/kg at the landing centre. Over the years, the catch of this species has dwindled in alarming proportions in Maharashtra, but, of late, there seems to be a revival of the fishery. The landings were observed during October to March and peak landings of juveniles observed during January - March. The fishing ground for *L. johnii* in Maharashtra was south of Mumbai up to Ratnagiri in the depth range 40-50 m.

Fig. 2. Landings of *Lutjanus johnii* at Sassoon Docks, Mumbai

Thirty specimens of *L. johnii* ranging in total length from 31 to 56 cm with the corresponding weight ranging from 0.5 to 2.2 kg were analysed for biological aspects.Majority of the guts (51.4%) had little food or were in 'empty' condition followed by '1/4' (18.6%), '1/2' (11.8%) and 'full' (18.2%). The gut contents revealed that it feeds mainly on crabs (51.6%) followed by fish (26.2%), prawn (20.2%) and 2% was digested matter beyond recognition. The sex ratio was estimated as 1:0.3. In the catch, 85% of the specimens analysed were mature followed by gravid (15%). The number of maturing ova ranged from 45,500 to 1,90,500.

In view of prospects for open sea culture in cages, large snappers like *L. argentimaculatus* and *L. johnii* have assumed great importance in recent years. Owing to fast growth, delicately flavoured flesh, high market value and export potential, snappers are an

important species cultured in Indonesia and Thailand. Since both these species are highly commercial and can be cultured in captivity, biological studies on the species are required as there is not much biological work carried out on these species from Indian waters. Further studies on both the species are presently being carried out at Mumbai Research Centre of CMFRI.