Heavy landings of mobulids reported at Cochin Fisheries Harbour, Kerala

Rekha J. Nair, Zacharia, P. U., Kishor, T. G., Dinesh Kumar, S., Dhaneesh, K. V.
Suraj, K. S., Siva Kumar, G. and Seetha, P. K.
Central Marine Fisheries Research Institute, Kochi

Heavy landings of mobulids was seen for four days during 19 - 22 August and again during 31 August - 3 September 2013 at Cochin Fisheries Harbour. During the first phase, around 600 mobulids (16 tonnes) were landed by gillnetters which operated off the coast of Vizhinjam, Kovalam and Colachel. The vessels operated for a period of 5-7 days in the fishing ground $08^0$14'N; $76^0$33'E at a depth of 15 -30 m. The gear used was "*ozhukkuvalai*" with a square mesh size of 80 - 150 mm. On an average, 15 – 30 numbers of mobulids were landed per boat. The three species which were landed were Sickle fin devil ray *Mobula tarpacana*, Spine-tail devil ray *Mobula japanica* and oceanic manta ray *Manta birostris*. On 19 August, 2013, around 3.5 tonnes of mobulids were landed. *Mobula tarpacana* dominated the landings followed by *Mobula japanica* and *Manta birostris*. On 20th August, *Mobula japanica* was the dominant species; two numbers of *Mobula tarpacana* were also landed. On 21st August, 115 numbers of mobulids were landed. *M. japanica* was the dominant species landed; besides, 4 numbers of *M. tarpacana* and 1 *Manta birostris* was landed. On 22nd August around 150 numbers of mobulids were landed with *Mobula japanica* dominating the landings followed by 2 numbers of *Mobula tarpacana* and 1 *Manta birostris*.

The second phase of heavy landing started on 31 August and extended upto 3 September 2013. During the period, around 300 numbers of mobulids were landed by around 24 units daily. The fishing ground was located $08^0$31'N; $76^0$51'E at a depth of 180 m to $08^0$44'N; $76^0$45'E at a depth of 190 m. The mobulids were caught as bycatch during tuna fishing; the ground had a heavy population of tuna, mobulids and sharks. The fishery coincided with the full moon and landings reportedly decrease with the onset of new moon. (pers. comm).

The disc width of the *Mobula japanica* landed ranged between 67 - 304 cm with body weights 35 kg -300 kg; *Mobula tarpacana* landed had disc width 206 – 297 cm and body weight 150 -450 kg ; *Manta birostris* had disc width 226 -280 cm and body weight 320 -400 kg.

Details of heavy landings of mobulids at Cochin fisheries harbour

Date	Total catch	Total mobulids	*Mobula japanica*	*Mobula tarpacana*	*Manta birostris*
19/08/13	3.7 ton	140	135	4	1
20/08/13	3.2 ton	120	116	4	*
21/08/13	3.8 ton	130	126	3	1
22/08/13	3.3 ton	120	119	*	1
31/08/13	14 ton	300	278	20	2
2/9/2013	12 ton	280	230	50	*
3/9/2013	10 ton	220	216	4	*

The mobulids were auctioned at ₹ 5000 - ₹ 9000 per boat; the fishes were first cut to remove their filter plates and the meat sold separately. The filter plates were removed from the brachial apparatus and sorted grade wise in the harbor itself. Prices of the gill plates are based on the grades – First Grade consists of the gill plates of *Manta birostris* which are larger in size, black in colour; Second Grade consists of the gill plates of *Mobula tarpacana* which are large in size, with an inner white and outer black colour and Third Grade which consists of the gill plates of *Mobula japanica* which are smaller in size, with black colour and pointed tips. Meats of manta and mobulid rays are mostly sold in local markets in Central Kerala in fresh form or as salted chunks. Fresh meat fetches only ₹150 kg^{-1}. The filter plates are sun dried and sent to Chennai where they are further processed before export. Dried filter plates of *Mobula diabolus* fetches upto ₹ 9,000 kg^{-1}; 'white' filter plates fetch upto ₹ 8,000 kg^{-1} dry weight while black fetches upto ₹ 2,000 kg^{-1} dry weight.

The Mobulidae are zooplanktivorous elasmobranchs, found circumglobally in tropical, subtropical and temperate coastal waters. It comprises two recognized species of manta rays (*Manta* spp.) and nine recognized species of devil rays (*Mobula* spp.). Fisheries for mobulids are considered to be unsustainable because of large, directed catches coupled with the very low fecundity, long gestation period and conservation life history of this group (Couturier *et al*. 2012). Manta rays are assessed by the International Union for the Conservation of Nature (IUCN) Red List of Threatened Species as Vulnerable globally. Manta rays bear only one pup on average every two to three years, which makes them highly vulnerable to overexploitation. They are killed as bycatch and in targeted fisheries throughout the Atlantic, Pacific, and Indian Oceans. Manta rays and the rest of family Mobulidae have been highlighted by the CITES Animals Committee as a "taxonomic group that contains a significant proportion of species subjected to unregulated, unsustainable fishing pressures, leading to severe stock depletion, and whose high value products enter international trade in large numbers." The retention and/or trade of manta rays is specifically prohibited in regulations adopted by the Maldives, Philippines, Mexico, Brazil, Ecuador, Yap, Australia, New Zealand, the European Union, and Hawaii (USA). The giant manta was listed under Appendix I and Appendix II of the Convention for the Conservation of Migratory Species (CMS) in 2011. These designations signal international recognition of the need for cooperative conservation measures and strict species-specific protections. So far, however, few fishing regulations have resulted from the CMS listing. There are no binding, manta-specific measures under the various Regional Fisheries Management Organizations. The sudden increase in landing of mobulids seems to have a link to the international trade in the gill rakers as the meat does not have a high value even in the local market.