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SHARK NEWS

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What future for manta rays?

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Rays belonging to the family Mobulidae, the devil rays, are considered by many, scientists and lay-persons alike, among the most fascinating and mysterious of marine animals. Yet, because of their present vulnerability to man's activities, we may no longer have the opportunity of finding out the details of their biology, ecology and behaviour.

Entire populations, if not species, may disappear without anybody even noticing it. Back in the early 1980s, I approached a community of fishermen near the southern tip of Baja California to collect data on mobulids for my doctoral thesis. According to the existing literature, there should have been two species of *Mobula* in that area, however the fishermen insisted that there were four. Of course they were right, and one of those species turned out to be new to science. Unfortunately, I also found out that my friends were mostly catching immature rays. Seventy-two per cent of bentfin devilray *M. thurstoni* – the most frequent species in their catch – had not had the chance of reproducing. I can hardly think of a better example for an unsustainable fishery.



A fisherman fillets a spinetail devilray *Mobula japonica* in Baja California. Photo: G. Notarbartolo-di-Sciara

I had stumbled on such conclusions by pure serendipity. However, how many situations such as this one exist, or have existed, scattered around the world's tropics? How many mobulid populations have been studied, what data are being or have been collected and published concerning the presence of mobulid rays in any of the world's fisheries' catch or by-catch? I regularly monitor *Current Contents*, and obtained a clean zero during the past ten years. Yet, we know from anecdotal sources that mantas and mobulas are often involved in fishing activities, be it in organised direct catches, by opportunistic harpooning, or in the by-catch of large-scale industrial fishing, such as pelagic driftnets or tuna purse seines.

Mobulids are extremely vulnerable animals. First of all, their reproductive rate is among the lowest of all Elasmobranchs, with a single huge pup being produced by each female presumably every 2 to 3 years, or longer. Secondly, although there are no data on population sizes, one can presume

that these large-bodied rays are rare and live in very low densities. Finally, mantas and mobulas are very easy to harpoon or to entangle in a gillnet, and for most fishermen living in precarious conditions these rays provide a very tempting source of extra proteins for their table.

One can think of several reasons why all possible action should be undertaken to prevent the disappearance of mobulid populations and species from the world's oceans. Obviously, to begin with, there is the catch-all but deservedly sacrosanct concept of preserving biodiversity. Secondly, mobulids are evolutionarily extraordinary batoids in many ways, having left the bottom for the surface, having attained the largest body size, having adopted a filter-feeding habit, and having developed the largest elasmobranch brain. It would be nice to be able to make some sense of all this before eating them out of existence.

In addition, mobulids (and particularly manta rays) are becoming a major attraction for many diving locations, and can thus be considered assets of economic importance for the tourism industry. Finally, I think mantas and mobulas have an important symbolic value, because they could be excellent indicators for the plight of the forgotten species – those which are disappearing without anyone knowing it. As such symbols, they could serve to greatly increase public awareness of the need for preserving marine biodiversity. In the Mediterranean Sea, for example, a war has been raging for almost a decade between fishermen and environmental groups over the use of driftnets. This was mainly due to the environmentalists' awareness of the tremendously large cetacean by-catch in this fishery. I feel personally very sympathetic with the plight of cetaceans in the Mediterranean, and spend a great deal of my energies in this field, realising that dolphins and whales are taking a very severe beating from human activities in this region. But at least we all know about this. By contrast, how many hundreds, or how many thousands of the giant devil ray *Mobula mobular* were obliterated from the Mediterranean by the very same driftnets? We will never know. Most environmentalists are not even aware of the existence of mobulid rays in the Mediterranean.

Mantas should have now the spotlights turned on them, to remind us of all those marine species, large and small, that are disappearing daily under our unseeing eyes.
