

12. ON THE OCCURRENCE OF STING-RAY SPINES IN THE
JAWS AND GILLS OF THE HAMMERHEAD SHARK
SPHYRNA ZYGAENA (LINNAEUS)

(With a plate)

It is well-known that sharks are voracious feeders and prey upon a wide variety of marine animals such as planktonic crustaceans, crabs, molluscs, fishes, turtles and seals. While examining a specimen of

Sphyrna zygaena (Linnaeus) measuring 3.86 metres in total length (Photo 1) which was caught off Tuticorin at 40 fathoms depth by long line on 22nd April, 1971, several spines of sting-rays were found in the jaws and gills (Photo 2). The spines occurred in both jaws of *S. zygaena* but most of them were found in the upper jaw and they were observed to have pierced the jaws and gills deeply. Altogether seventeen spines were present. Of these, thirteen were in the jaws and the rest in the gills. The spines ranged in size from about 60 to 160 mm (Photo 3). *S. zygaena* has the habit of chasing rays on which it feeds (Norman & Fraser 1937; Bigelow & Schroeder 1948). The spines obviously pierced the jaws and gills while the shark chased and attacked the rays from behind as indicated by the position of the pointed ends of the spines which were directed towards the oesophagus. The spines found in the gills probably got stuck there when the shark swallowed the rays. Gudger as quoted by Norman & Fraser (op. cit.) has stated that cyst formation takes place around the spines which are embedded for a long time. However, such cyst formation was not seen in the present case though a worn out spine was collected from the gill region suggesting its presence there for a long time. Most of the spines had brownish-black patches as a result of being stained by blood. The spines most probably belong to the ray *Himantura alcockii* (Annandale) which occurs abundantly at Tuticorin.

Norman & [Fraser, and Bigelow & Schroeder (op. cit.), have recorded that sharks like *Galeocerdo*, *Negaprion*, *Carcharhinus* and *Sphyrna* feed on rays and have also reported the occurrence of sting-ray spines in the jaws and other parts of the body of these sharks. Bigelow & Schroeder (op. cit.) have stated that the diet of *zygaena-plana* group mainly consists of fish and in the southern part of their range they chiefly feed on sting-rays. Members of the above group also feed on shrimp, crabs, barnacles, crustaceans and squids. Chidambaram & Menon (1946) in their study of the shark fishery of Madras Presidency have stated that *Sphyrna* spp. feed on cat-fish, big-jawed jumper, oil sardine, cuttle-fish, ribbon-fish, mackerel, white bait, pomfret, *Pellona*, sprat and small sharks. The above authors have not recorded rays among the food items. It is possible that the specimens examined by them were small in size and this probably accounts for the absence of the rays in the stomachs. One partly digested ray which appears to be *Himantura alcockii* was found in the stomach of the present specimen (Photo 4).

Roedel & Ripley (1950) have recorded poison glands in rays and have stated that spines of the rays caused fatalities in human beings and that there is no specific treatment. The specimen of *S. zygaena* reported here did not appear to have suffered from any ill effects due to the poison secreted by the poison glands of the rays eaten by it and

looked normal and healthy with no external indication whatsoever of the presence of these spines. Local fishermen state that the occurrence of sting-ray spines in hammerhead sharks (*Sphyrna* spp.) and saw-fish (*Pristis* spp.) is common, indicating that these sharks regularly feed on sting-rays.

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