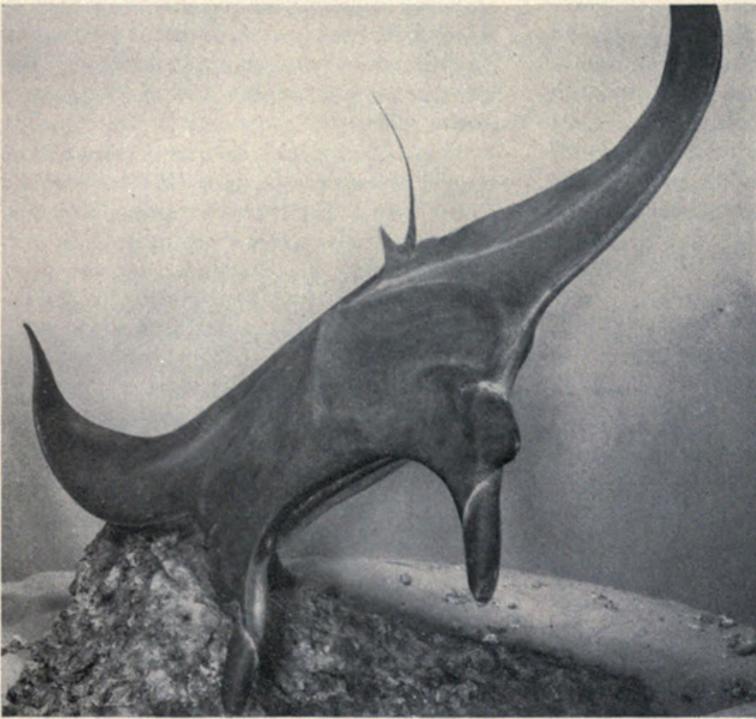


GIANT DEVIL FISH, CAUGHT IN GALAPAGOS BY MANDEL EXPEDITION, IS NOW EXHIBITED

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The giant devil fish has long been near the top of the list of animals especially desired for exhibition by Field Museum. Several expeditions both for fishes and other animals have been made to points along the Gulf of Mexico or in the eastern Pacific where these giant rays were plentiful, but other circumstances were never favorable because the difficulties accompanying the



MANTA—LARGEST SPECIES OF RAY

New exhibit in Hall of Fishes (Hall O). Specimen from Leon Mandel Expedition to the Galapagos. The fish is 10 feet long, 12 feet wide.

collecting and making of proper studies of any animal so bulky are enormous. Consequently, when the Leon Mandel Galapagos Expedition was organized in 1941, plans were made and the more difficult aspects concerning the field preparation of a large devil fish were discussed and prepared for.

The Pacific species of devil fish (*Manta hamiltoni*) was known to be especially abundant in the waters surrounding Indefatigable and South Seymour Islands in the Galapagos Archipelago. Here it was possible to select, from several that were seen in the course of one afternoon, a female specimen about ten feet long and twelve feet across. This was only a half grown example, but one of the fully grown ones of twenty to twenty-four feet in breadth with a weight of three or four thousand pounds would have been too large to handle or to exhibit in the best possible way. Even though our specimen was one of juvenile proportions, sixty continuous hours were required, working with all possible speed, to make a plaster mold of both top and bottom sides so that upon our return to Field Museum a complete reproduction in celluloid could be made.

Devil fishes are among the most specialized of the great group of sharks and rays. Although undoubtedly descended from flattened, bottom-living skates and rays, the devil fishes are no longer bound to this habitat, but are well adapted to a free swimming existence along shores and reefs at or near the surface of the sea. Their wing-fins are pointed, enabling them to swim easily yet rapidly, and thus to cover large areas in search of food. Their swimming motions greatly resemble those some of the largest soaring birds use in flying.

Part of the wing fin is separated and projects from the head as a broad, palmate flap; when tightly rolled it resembles a horn. It is this head fin's horn-like aspect plus the sooty black color of the back which has suggested the name devil fish. These "horns" may be tightly rolled as the fish cruises along, but when attempting to capture food they are extended and moved slowly back and forth in front of the mouth. They may even fold around forming a funnel, thus serving as hands do to guide food to the mouth.

Unlike that of the other rays, the mouth of the devil fish is broad, extending across the front of the head. The teeth, minute tubercles, number in the thousands and are arranged in rows over the lower jaw only. When the nature of the food is considered, this reduction of size of teeth is easily understood. Devil fishes feed on the small crustaceans, fishes, and other plankton found drifting at the surface of the sea. To obtain this food the devil fish simply opens its mouth and swims along, removing the nutritious organisms as the sea water is sucked into the mouth and strained out through the gills. There is a special sieving apparatus located just in front of the gills which is found in no other fish. This consists of rows of elongated plates the appearance of which has been likened to the stems of ferns with tiny leaflets turned backwards.

The largest devil fishes are usually solitary except in the case of a mated pair. It is not especially remarkable, however, to find several in a favorable feeding area. One of their most extraordinary habits, and one which has been often commented upon, is their graceful leaping and somersaulting.

The return to the water after a leap is often accompanied by a noise as loud as the report of a three-inch cannon. The leaping may be of the nature of play, but it may have the more practical effect of ridding the manta of the sucking fish, the remoras, which are usually found in some numbers fastened onto the gills and in the mouth cavity. On the specimen collected in the Galapagos four of these "louse-fishes" were found fastened to the gills, but had it been infested with twice this number it would not have been surprising.

So far as known, the young of devil fishes are produced singly, only one to a female during a season. They are born alive and in a well developed condition, able to swim and to feed immediately after their extrusion into the water. One newly born young was five feet wide, and this from an adult only fifteen feet in extent.

Devil fishes show no fear of men or boats, and frequently come so close that they are easily harpooned. Once harpooned, the killing and landing is likely to be not so simple because the devil fish is a strong fighter and often able to resist capture by sheer weight. Though they are at other times harmless to man, when harpooned they may turn on the boat and upset it or stave in the planking. The small one captured in the Galapagos fought its captors for almost two hours during which time it towed a large fishing cruiser for several miles. By finally planting a second harpoon in the wing so the fish was able to swim only in circles, it was brought close enough to the boat to be dispatched with several shots from a heavy rifle.

The flesh of the devil fish is quite wholesome and is eaten by natives along the tropical shores of various parts of the world.



MAKING CAST OF MANTA

Members of Leon Mandel Expedition to Galapagos at work in field on devil fish specimen from which new Museum exhibit has been prepared.

The liver, as in many other members of this great shark and ray group, produces a large quantity of valuable oil. The skin is often used as sandpaper when it is dried.

The specimen recently placed on exhibition in Field Museum's new Hall of Fishes (Hall O) was reproduced in celluloid by Staff Taxidermist Leon L. Walters.



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