

## Family MACRURIDÆ.

*Macrurus.*

Head generally with large muciferous cavities, most developed in the suborbital ring, and continued into the præoperculum and into the snout, which frequently projects more or less beyond the mouth. The mouth may be inferior or subterminal and lateral, is armed with small teeth, and the palate is toothless. A barbel at the symphysis of the lower jaw. Scales sometimes typically ctenoid, sometimes cycloid; no scaleless fossa on the side of the nape. The second dorsal is always less developed than the anal, and its anterior rays, or all of them, are more or less rudimentary. Gill-membranes slightly united in front. Four gills with well-developed gill-laminæ; no pseudobranchiæ. A broad fold of the membrane of the gill-cavity stretches across to the terminal portions of the first branchial arch, and renders the slit between that arch and the wall of the gill-cavity much narrower than the slits between the arches. Gill-rakers of the first branchial arch broad, low, cartilaginous bodies, generally armed with curved spines.

Before the Challenger Expedition the known species of *Macrurus* were few in number, and they were but sparingly represented in museums. Thus, when I gave a general account of them in the year 1862, I knew from autopsy five only, and I believed I recognised in them the types of three genera, which I distinguished by the form of the snout and position of the mouth, by the size of the scales and modifications of the dentition.

The dredge of the Challenger secured more than one hundred and forty examples, referable to thirty species, and proved that this type of fishes is not only one of the most widely spread in the depths of all oceans, but also extremely abundant with regard to species and individuals. These materials afforded the further evidence that the characters on which I had relied for the generic groups of *Macrurus*, *Coryphænoides*, and *Malacocephalus*, did not possess the taxonomic value assigned to them, with the exception of the modifications of the dentition, which, however, were capable of more precise definition.

With regard to the form of the snout and position of the mouth, there exists every gradation, from the most specialised types, such as *Macrurus japonicus* and *Macrurus parallelus*, to *Macrurus longifilis*, which may be regarded as representing the original type whence the others were derived. Its head is compressed, well proportioned, formed by firm bones, the superficial of which enclose a muciferous system not more enlarged than we find it in many surface fishes; its snout is not more tumid or projecting than in the majority of surface Gadoids, and the wide mouth terminal and lateral. As the muciferous cavities increase in width, the bones are expanded into thin lamellæ and lose