

FISH APPENDAGES – FINS

The fish external appendages are essentially the fins which constitute the most vital external features for identifying fish using the ray counts especially of the dorsal and anal fins. The sizes and shapes of fins, their location on the body and positions in relation to each other are important in classification. Each fin is made up of a number of rays which are usually bony and flexible and they may be either simple or branched. In many fishes, some of the rays especially of the dorsal fin are replaced by strong and sharp spines which are counted as a tool in systematic e.g. Tilapias. An appendage may be median in that their rays are in line with the axis of the fish. They are found at the back of the fish e.g. dorsal fin or at the tail region referred to as the caudal fin and the lower edge behind the vent called the anal fin. In some fishes, there are two dorsal fins e.g. lamprey, shark, *Mugil*, *Pentanemus*.

However, there are some species which second smaller posterior dorsal fin is soft, fleshy tissue that is not rayed. This is termed adipose fin e.g. in *Heterobranchus*, *Bagrus*, *Chrysichthys* etc. The function of the adipose fin remains unclear but it is useful to fishery scientists and farmers to mark or identify individual fish. It is incapable of regeneration once cuts.

Some mackerel groups have small series of dorsal fins which are soft rayed, referred to as finlets, may also occur ventrally. (Illustrate all these in class).

The second categories of fins are called the paired fins. These are the pectoral and pelvic fins. Fins are generally used by fishes to achieve all forms of locomotion, stabilization, balancing, change of direction and brake in the aquatic environment.

It should be noted that the internal skeleton is noted to form the frame to which are attached the muscles used for swimming and breathing. The fish propels itself through the water by sinusoidal movements of the body amplified by the flat tail.

There are modifications in some fishes to the general functions of some fins e.g.

Pectoral fins are modified for crawling in Australian lungfish; used as tactile organ for feeling in *Trichurus trichurus*; as gliding organ in some flying fish e.g. *Exocoetus sp*; as taste organ in primitive species e.g. Hag fishes or as a protective organ because of the associated powerful spines e.g. *Synodontis*, *Clarias*, *Heterobranchus*.

Pelvic fin is also modified as tactile organ in *Protopterus*; as suckers in gobies or even as intromittent organ known as Clasper e.g. in shark and skates. It aids in reproductive activity.

Anal fin is modified as intromittent organ in the family Poecillidae.

The caudal fin in most fishes is lobed i.e. it is forked given rise to upper and lower lobes attenuated to points. But in some fishes, it is rounded, pointed, truncate etc. Caudal fin is used for identification.

Illustrate in class the different types of caudal fins in fishes.

The Lateral line: Constitutes a visible feature of the extraordinary sensory system in fishes. It consists of a series of marks or pits usually one on each scale, running along. The midline of each side of the body and also at times on the head e.g. *Heterotis*.

Some fishes have a discontinuous lateral line, the anterior part often being higher on the body and more conspicuous e.g. Tilapias. A few fishes have no lateral lines e.g. Clariids. These pits are connected through special sensory organs to the nerves running to the brain. By means of these sense organ, fishes are able to detect movement and vibrations which are far beyond their range of vision.