

## **EXTERNAL FEATURES AND INTERNAL ANATOMY**

### **GENERAL EXTERNAL FEATURES**

• The overall structure of a fish is arranged to present a more or less streamlined shape [Fig. 1] consisting of the head, trunk and tail regions.

#### **The Head**

• The mouth, the snout, the nostril, the chin, the upper jaw [premaxilla and maxilla], the lower jaw, sub-orbital plate, the eye.

• The pre-opercle, sub-opercle, opercular membrane all constitute the external parts of the head. .

• When barbells are present as in cat fishes they take the designation of the structure that bears them such as maxillary, mandibular or nasal barbells.

• Barbels are sensory structures which carry tactile and chemical receptors.

• Most fishes have two nostrils on each side of the head in front of the eyes.

• Fishes' nostrils are usually connected to olfactory organ and have no respiratory functions.

• Lungfishes have internal opening nostrils.

• Head spines are commonly found on the preopercle or opercle and make some fish such as Bigger perch (*Lates niloticus*) difficult to handle.

#### **The Trunk**

• The regions of the trunk include the nuchal on the dorsal part, the breast and the belly on the ventral (Fig. 1).

• The conspicuous features on the trunk are the fins (unpaired and paired), the scales and the lateral line.

• Most fish have their body regions (head, trunk and tail) covered by scales and the lateral line runs along the midlines of each side of the body and also a times on the head.

• Pelvic appendages are generally smaller than the pectorals, more restricted in function and subjected to greater variation in placement.

• Pelvic fins usually function in stabilizing and braking and are of very little use in locomotion.

• The dorsal fin(s) may extend the length of the back, be divided into two or three separate fins or be single and small.

• The usual function appears to be stabilization with the caudal and anal in braking. The anal fin is generally short-based.

• The scales are embedded below the skin.

• There are four types of scales namely cycloid, ctenoid, ganoid (rhomboid) and placoid (in marine species).

• Scales are termed cycloid when the exposed margin are evenly rounded giving the skin a smooth surface.

• The ctenoid scales have their exposed edges ciliated or toothed which give the surface of skin a rough texture.

• Ganoid or rhomboid scales are usually interlocked and cannot be removed singly.

• The most primitive type of scale is the placoid which consists of a basal plate that is buried in the skin with a raised portion exposed

#### **The Tail**

• The tail region consists of the caudal peduncle and caudal fin.

• The caudal fins appear in a variety of shapes, sizes and kinds and often reflect evolutionary levels and relationships more than other fins.

• Those fishes with lunate caudal and a narrow caudal peduncle are generally among the

speediest of fishes and are capable of rapid sustained motion.

#### General Body Form

- The body forms of fishes can be used in quick appraisal of the fish's way of life.
- The ultra-streamlined configuration with elliptical cross-section and narrow caudal peduncle is called fusiform.
- These are fast swimming open water fishes.
- Those that are constantly moving are capable of quick bursts of speed are markedly compressed laterally and are called compressiform.
- depressiform fish are dorsoventrally compressed and are bottom dwellers e.g rays, Eel-shaped fishes are called anguiliform whilem filiform are threadlike in shapes.
- Taeniform have ribbon-like shape while sagittiform have arrow-like shape.
- Other shape include the globiform e.g Tetraodon fahaka.