

25.2 Fish Diversity

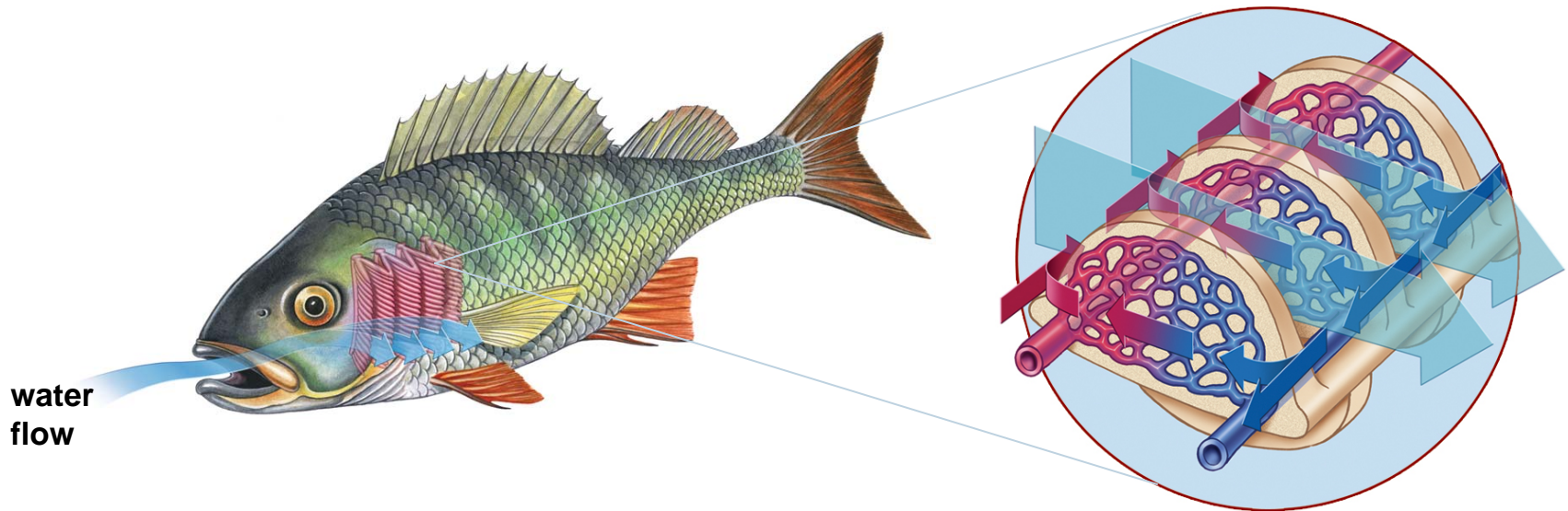
KEY CONCEPT

The dominant aquatic vertebrates are fish.



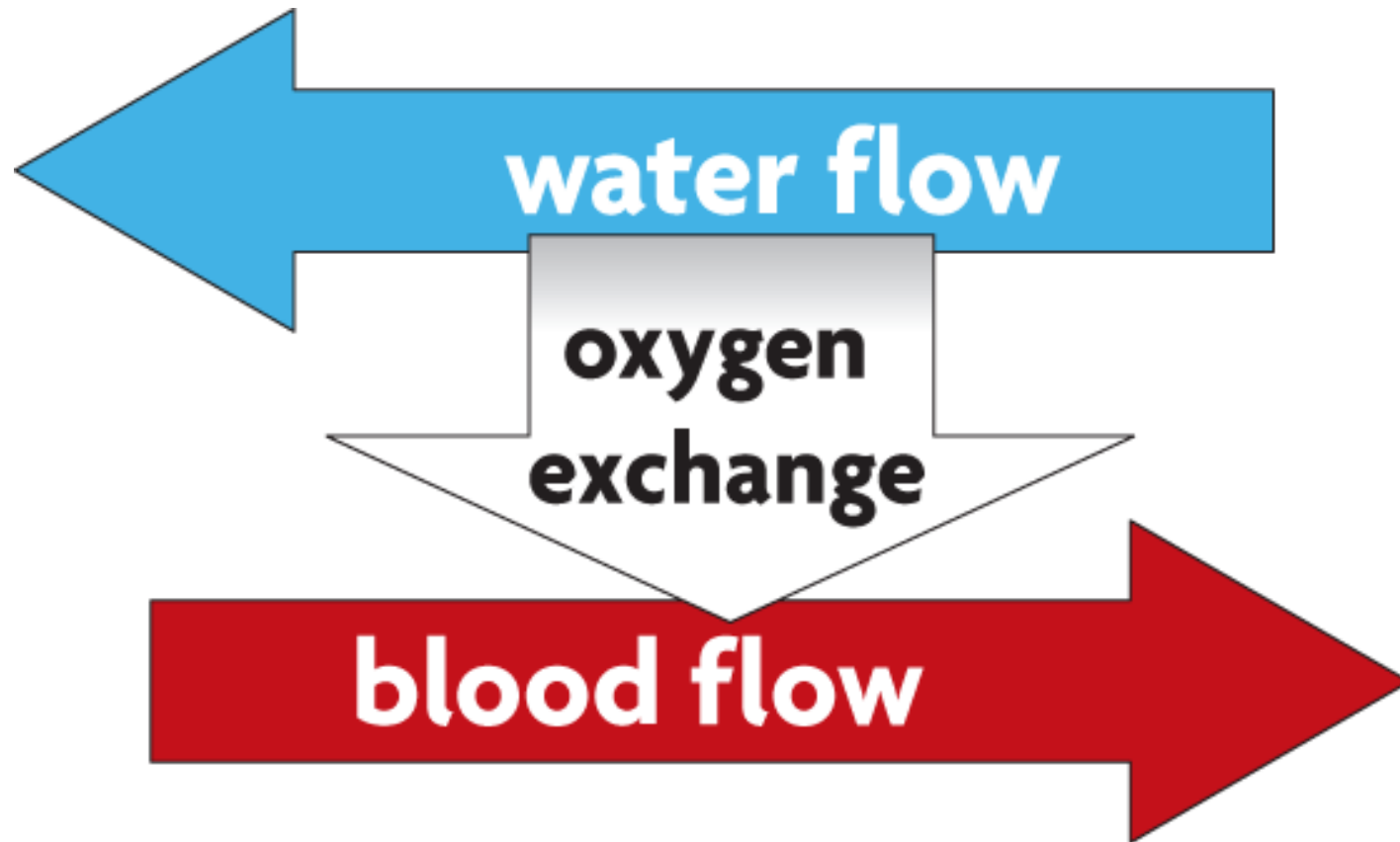
25.2 Fish Diversity

- ▶ **Fish are vertebrates with gills and paired fins.**
 - Fish use specialized organs called gills to breathe underwater.
 - sheets of thick, frilly tissue filled with capillaries
 - take in dissolved oxygen from water, release carbon dioxide



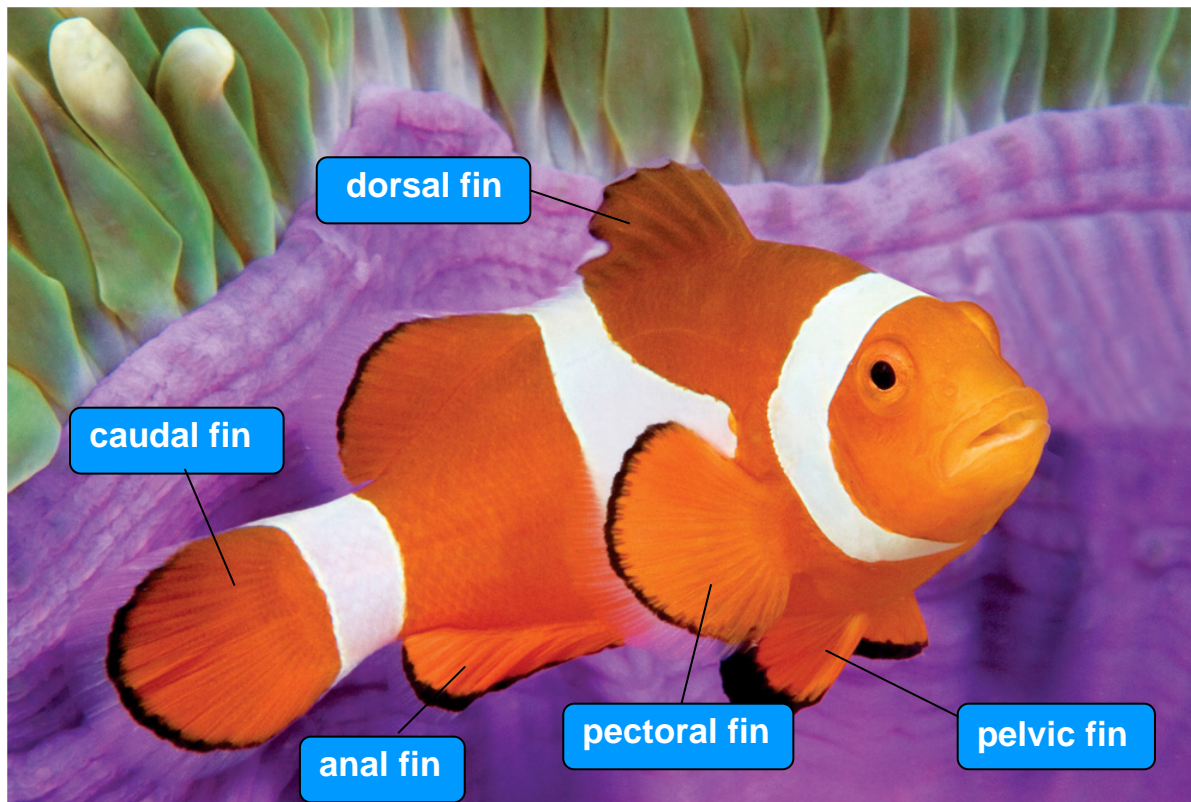
25.2 Fish Diversity

- Countercurrent flow is the opposite movement of water against the flow of blood in the fish's gills.



25.2 Fish Diversity

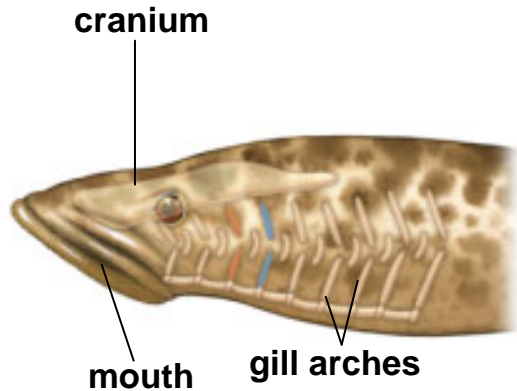
- Fins are surfaces that project from a fish's body.
 - keep fish stable
 - redirect water around fish as it swims
 - help fish maneuver in water



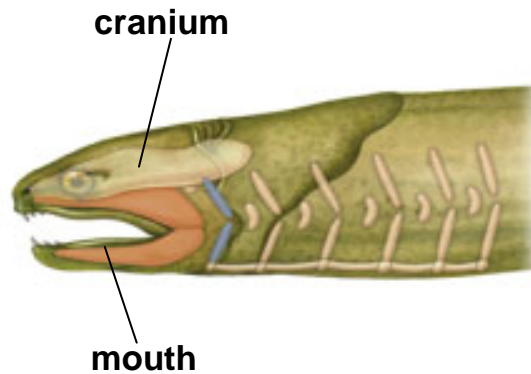
25.2 Fish Diversity

▶ Jaws evolved from gill supports.

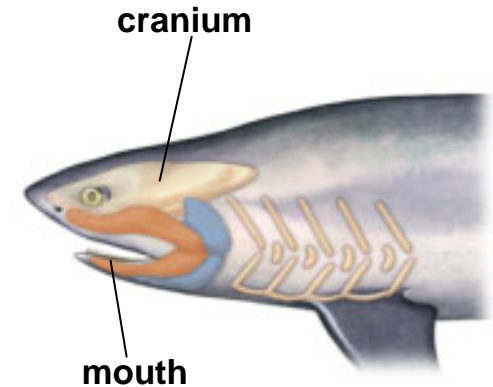
- Jaws developed from gill arches located around the pharynx.



superclass- Agnatha



sc- Osteichthyes



sc- Chondrichthyes

- Jaws gave vertebrates a huge advantage as predators.

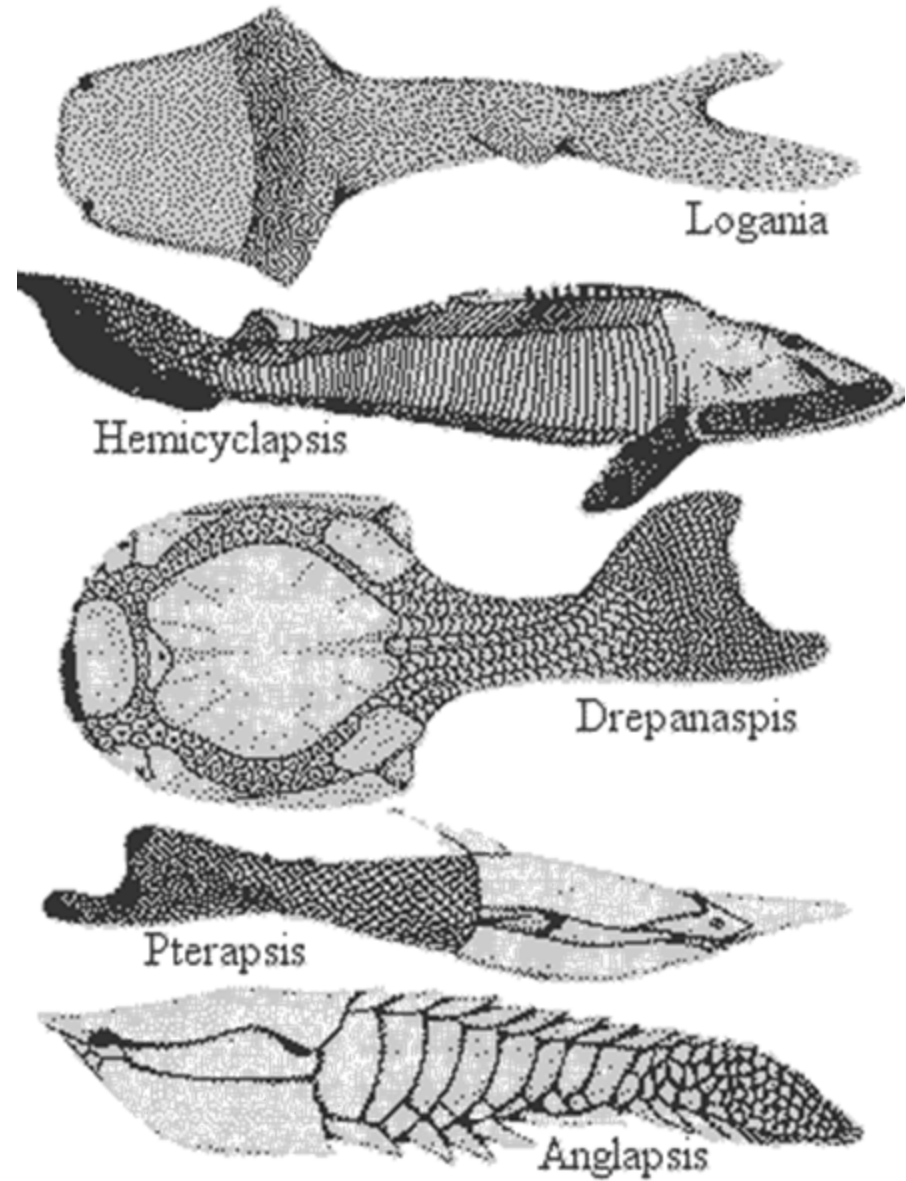
25.2 Fish Diversity

▶ Class Agnatha

- Includes the hagfish, lampreys, and extinct armored jawless fish
- Jaw “bones” absent (there is a mouth, but it lacks internal cartilaginous or bony supports)
- paired limbs absent for the most part
- cartilaginous endoskeletons are present; living forms lack bone, external bony skeleton may be present in fossil forms
- Living forms are elongate, scaleless, slimy parasites and scavengers

25.2 Fish Diversity

Extinct armored jawless fish



25.2 Fish Diversity

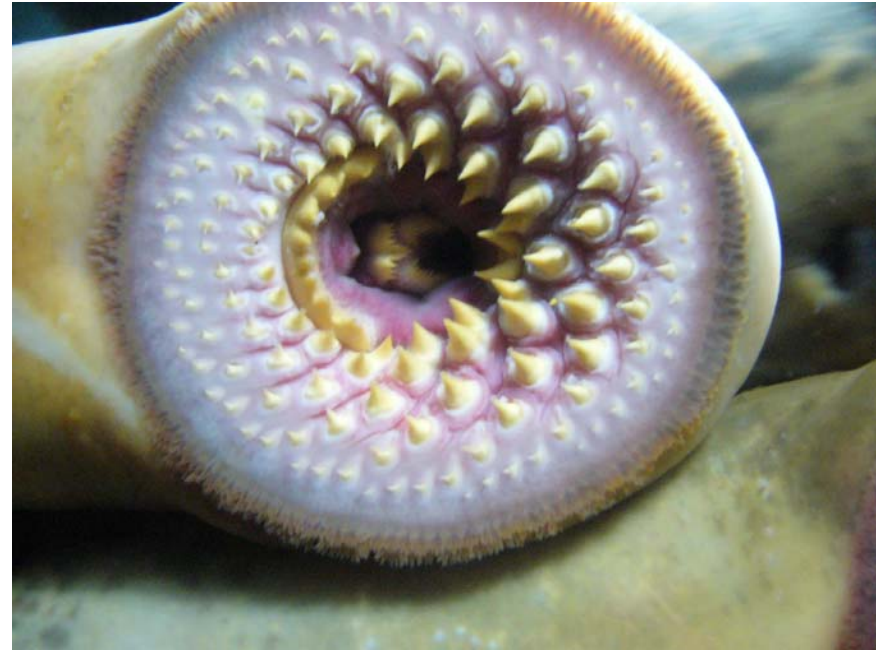


Hagfish



25.2 Fish Diversity

Lamprey



25.2 Fish Diversity

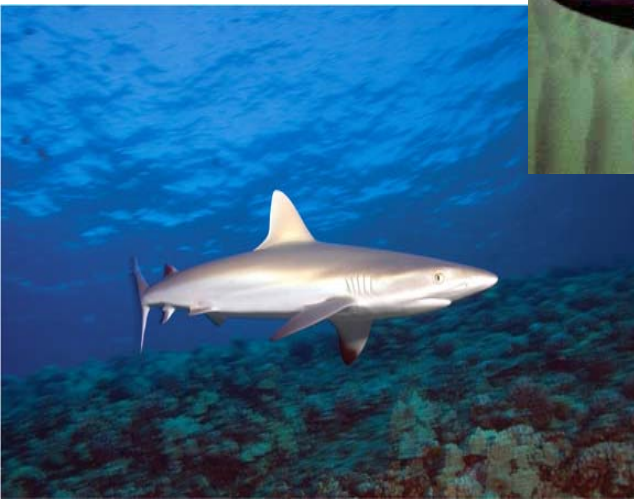
- ▶ **Only two groups of jawed fish still exist.**
 - Cartilaginous fish and bony fish are still in existence.



- Cartilaginous fish have skeletons made of cartilage.

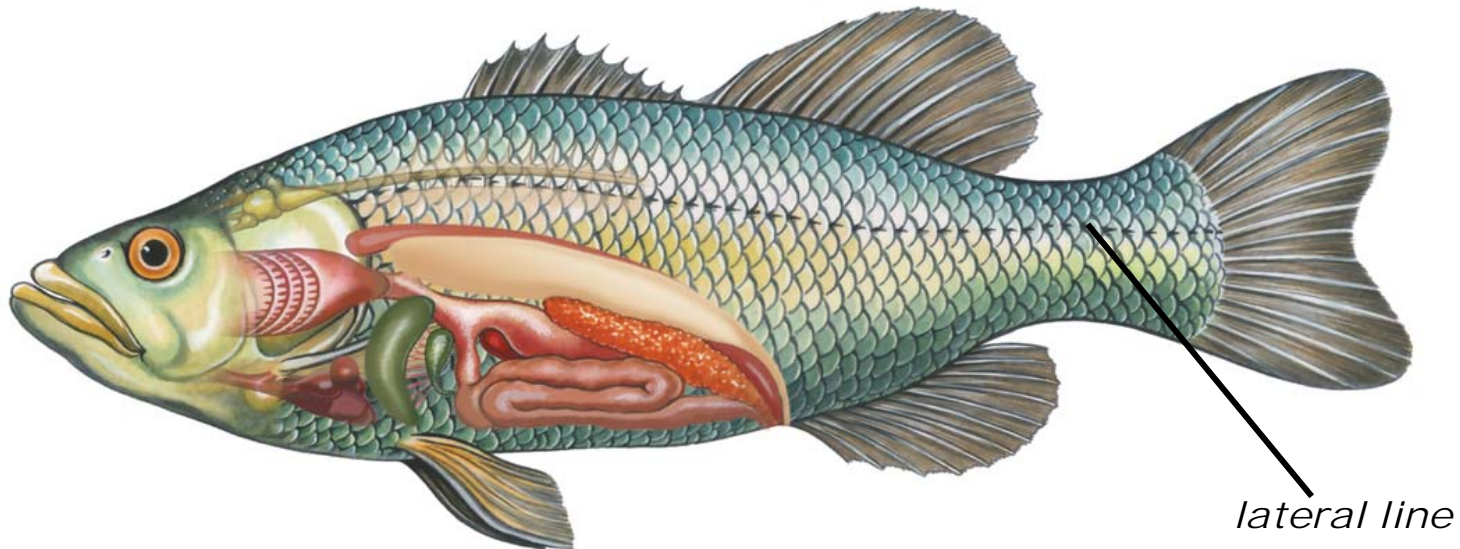
25.2 Fish Diversity

- Cartilaginous fish include the Holocephali and Elasmobranchs.
 - Holocephali include ratfish, a small group of deep-sea fish.
 - Elasmobranchs include sharks, rays, and skates.



25.2 Fish Diversity

- All fish have a lateral line system.
 - sensory system
 - sensitive to small changes in water movement



25.2 Fish Diversity

- Bony fish have skeletons made of bone.
 - operculum protects a bony fish's gills
 - movements of operculum help bony fish move water over gills

