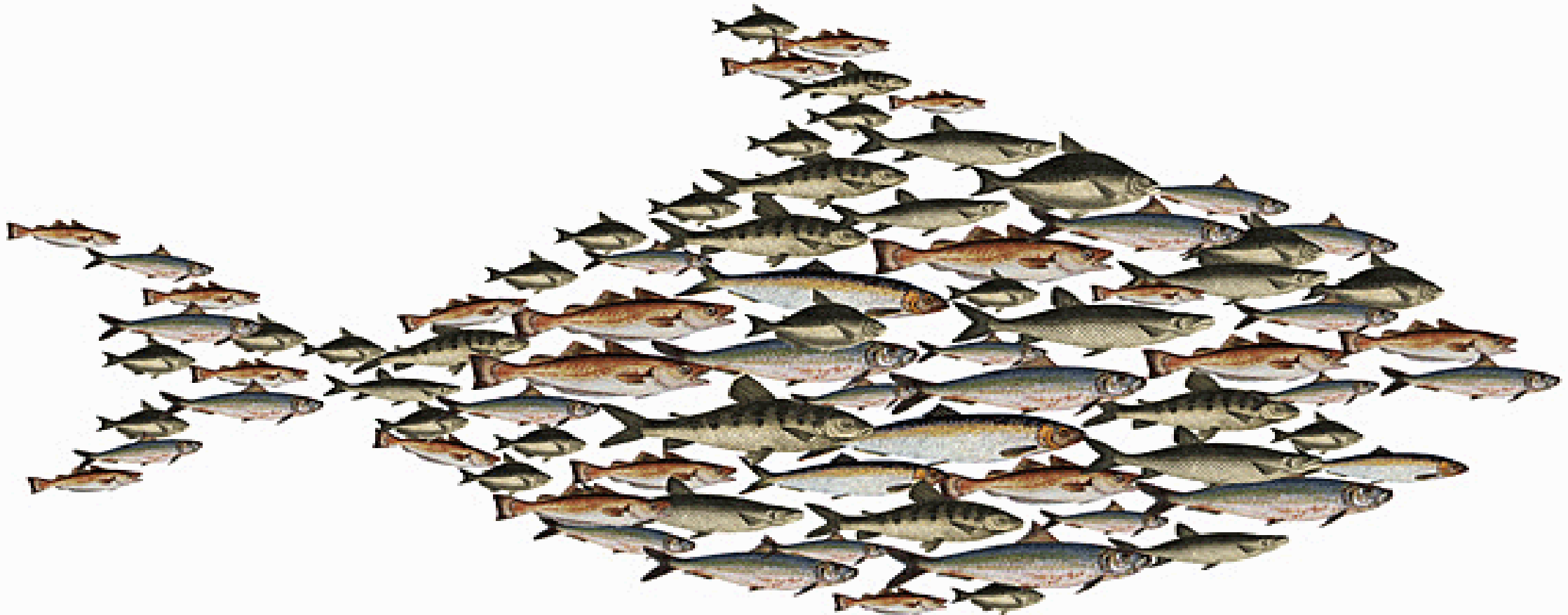


Aquatic Resources Management
ARM 105 1.0 Ichthyology
Practical No.01 (Virtual)
Fish Morphology and Identification



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Myxine sp. / Hag fish



Figure 01: *Myxine* sp.

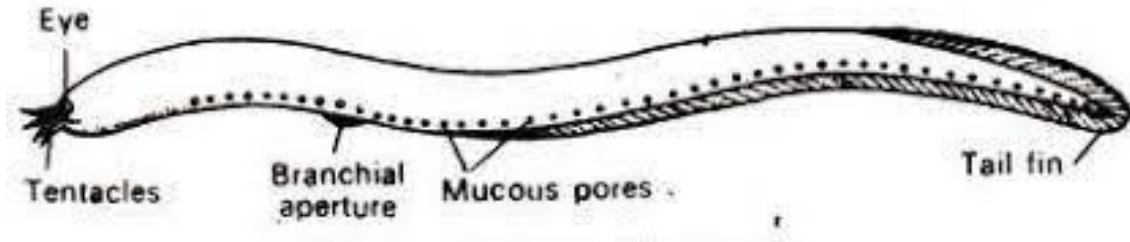


Figure 02: Body parts of *Myxine* sp.

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Order: Myxiniforms

- Body shape: Eel like / elongated
- Mouth type: Protrusible
- Teeth type: Tooth like structures (Keratin)
- Feeding habit: Scavengers
- Scale type: No scales
- Habitat: Marine environment
- Specifications:
 - Cartilaginous fish
 - Jawless
 - Barbels around the mouth
 - Loose skin
 - Fin is not differentiated
 - Eye spots

Polypterus sp. / Bichir

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Order: Polypteriforms



Figure 03: *Polypterus* sp.

- Body shape: Elongated with dorsoventrally flattened head and laterally flattened tail
- Mouth type: Terminal
- Teeth type: Small, pointed teeth
- Feeding habit: Carnivorous
- Scale type: Ganoid scales
- Habitat: Fresh water environment
- Specifications:
 - Serrated dorsal fin
 - Pointed, flat caudal fin
 - Grow up to 2-3 feet
 - Lungs without trachea

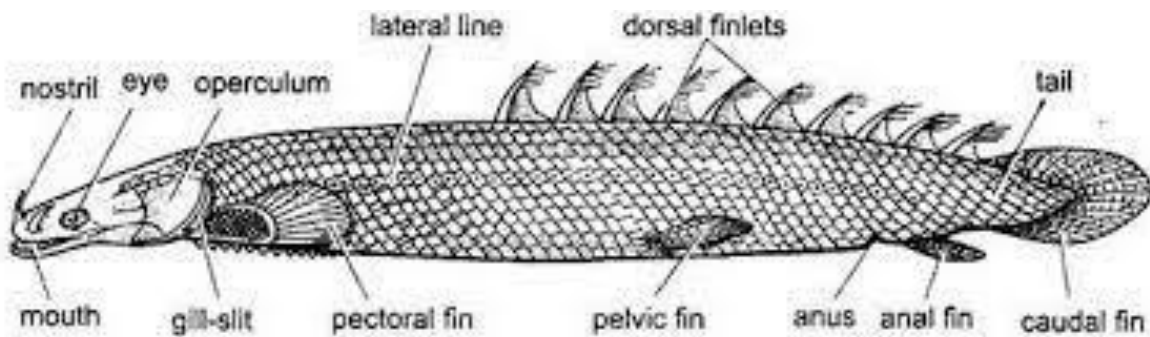


Figure 04: Body parts of *Polypterus* sp.

Protopterus sp. / Lung fish



Figure 05: *Protopterus* sp.

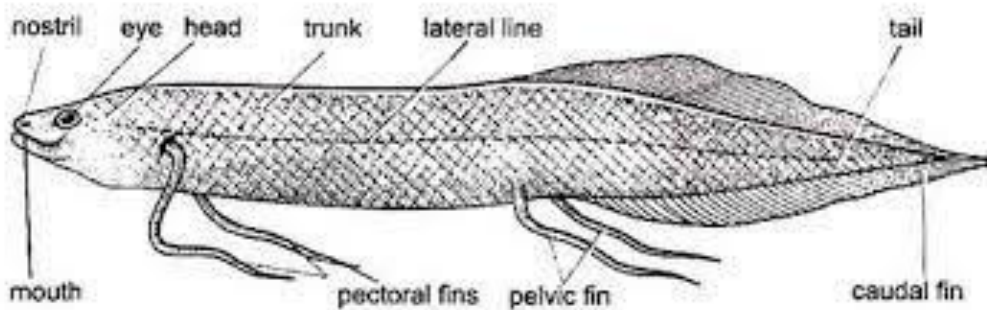


Figure 06: Body parts of *Protopterus* sp.

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Order: Lepidosireniformes

- Body shape: Eel like / elongated
- Mouth type: Protrusible upper jaw / pointed
- Teeth type: Covered with true enamel
- Feeding habit: Carnivorous
- Scale type: Cycloid scales
- Habitat: Fresh water environment
- Specifications:
 - Bony fish
 - Demersal
 - Walking leg like structures
 - Fused dorsal and caudal fins
 - Initially external gills and adults have lungs

Acipenser sp. / Sturgeon



Figure 07: *Acipenser* sp.

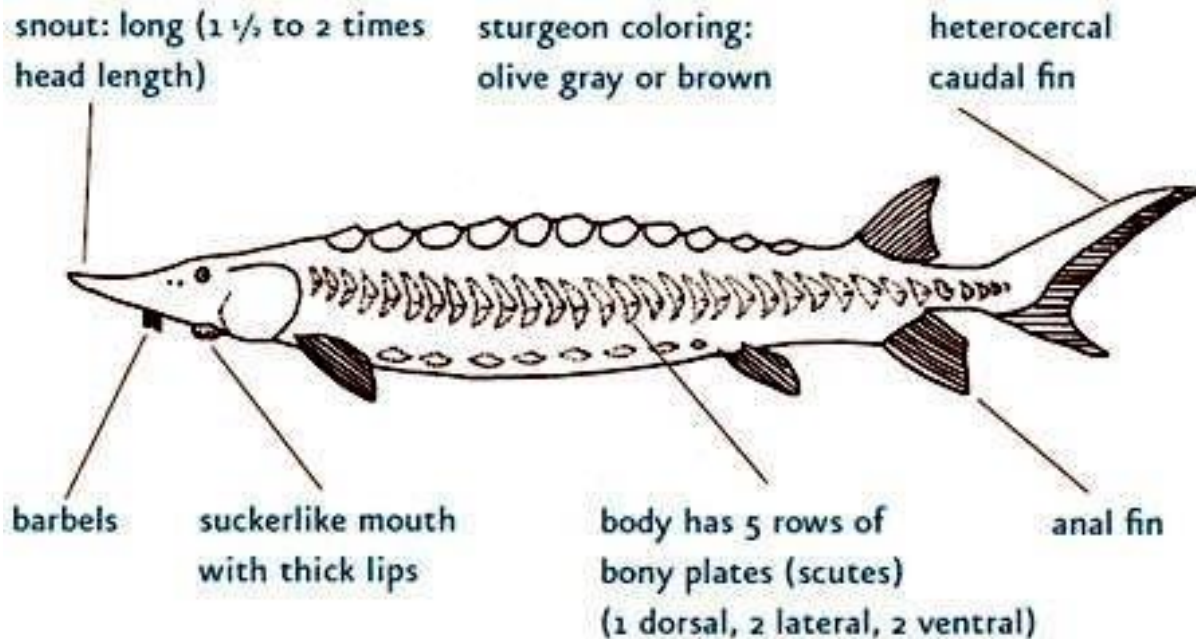


Figure 08: Body parts of *Acipenser* sp.

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Order: Acipenseriformes

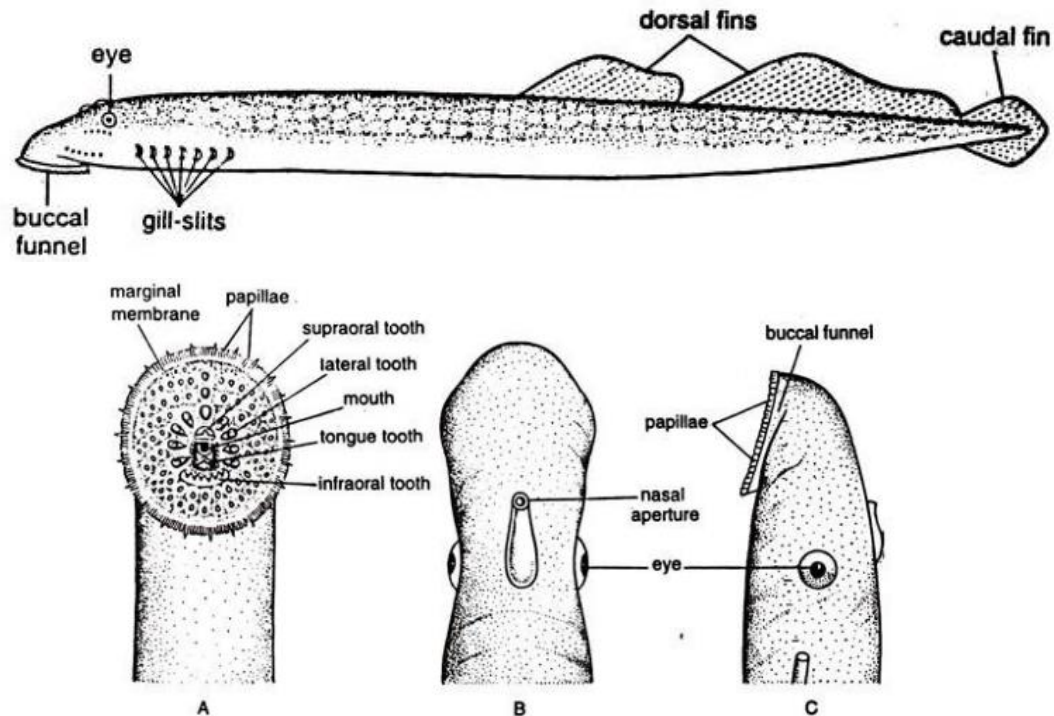
- Body shape: Elongated
- Mouth type: Duck like
- Teeth type: No teeth
- Feeding habit: Omnivorous
- Scale type: Ganoid scales
- Habitat: Fresh water and marine environment
- Specifications:
 - Some are about 20 feet long
 - Slow moving / bottom living
 - Scales are arranged in to bony plates (act as a body armour)
 - Four barbels
 - Naustriles and eyes

Petromyzone sp. / Lamprey

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Order: Petromyzontiformes



Figure 09: *Petromyzone* sp.



g. 32.2. *Petromyzon* sp. Anterior region. A. Ventral view showing buccal funnel. B. Dorsal view. C. Lateral view

Figure 10: Body parts of *Petromyzone* sp.

- Body shape: Eel like / elongated
- Mouth type: Sucker like
- Teeth type: Several cycles
- Feeding habit: Parasitic
- Scale type: No scales
- Habitat: Marine environment
- Specifications:
 - Paddle like tail
 - No paired fins
 - 7 gill slits
 - Jawless
 - Produce mucus which do not clot the blood of the prey
 - Simple eyes
 - Ram ventilation

Anguilla sp. / Eel / wdod



Figure 11: *Anguilla* sp.

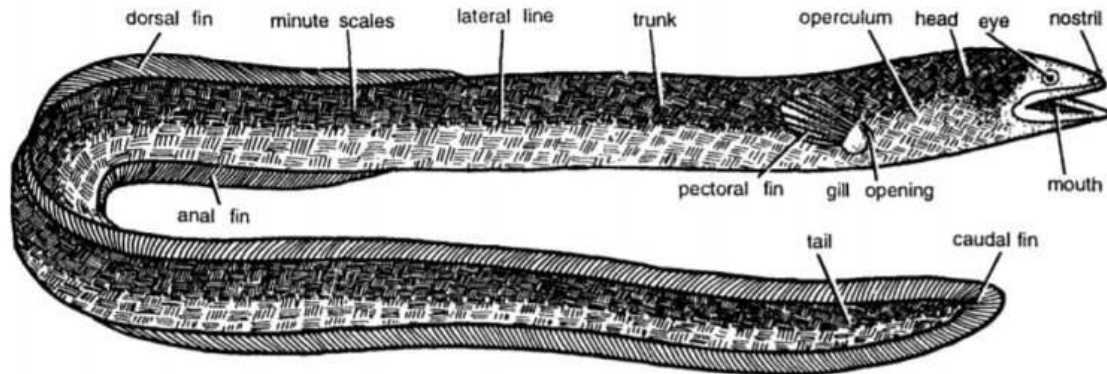


Figure 12: Body parts of *Anguilla* sp.

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Order: Anguilliformes

- Body shape: Elongated
- Mouth type: Protrusible upper jaw / pointed
- Teeth type: Sharp, piercing teeth
- Feeding habit: Carnivorous
- Scale type: No scales
- Habitat: Fresh, brackish and marine environments
- Specifications:
 - Dorsoventrally flattened head
 - Laterally compressed tail
 - Fused fins
 - No pelvic fins
 - Bottom dwellers

Shark / fudard



Figure 13: Shark

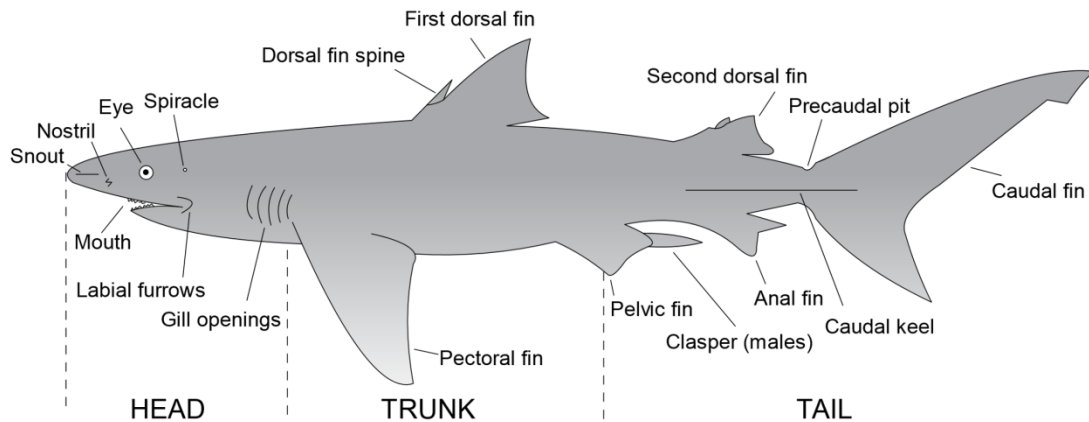


Figure 14: Body parts of Shark

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Super order: Selachimorpha

- Body shape: Streamlined
- Mouth type: Inferior
- Teeth type: Triangular and oblique with serrated edges
- Feeding habit: Carnivorous
- Scale type: Placoid scales
- Habitat: Marine environment
- Specifications:
 - Cartilaginous fish
 - 5-7 gill slits
 - Pectoral fins are not fused to the head
 - Heterocercal caudal fins

Sphyrnidae sp. / Hammerhead shark

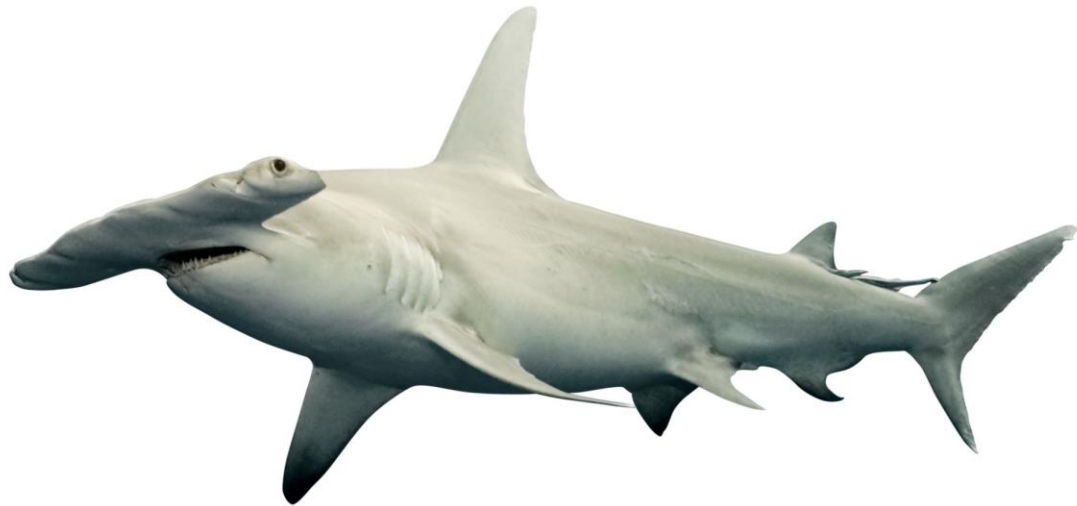


Figure 15: Hammerhead shark

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Order: Carcharhiniformes

- Body shape: Streamlined
- Mouth type: Inferior
- Teeth type: Heavily serrated triangular teeth
- Feeding habit: Carnivorous
- Scale type: Placoid scales
- Habitat: Marine environment
- Specifications:
 - Head is flattened and laterally extended in to a hammer shape
 - Extra pointed dorsal fin

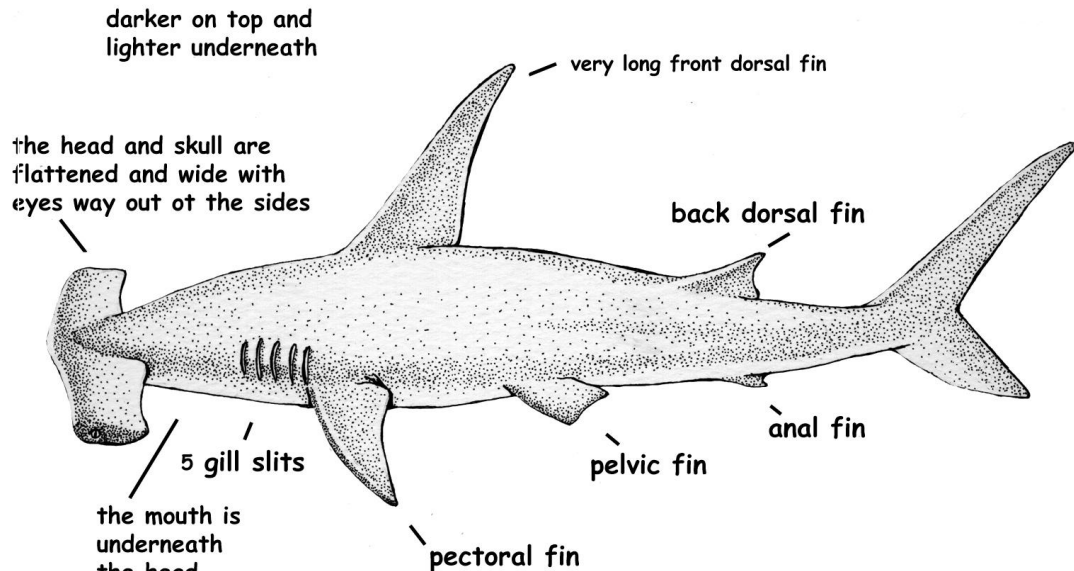


Figure 16: Body parts of Hammerhead shark

Remora sp. / Sucker fish /

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Order: Perciformes



Figure 17: *Remora* sp.

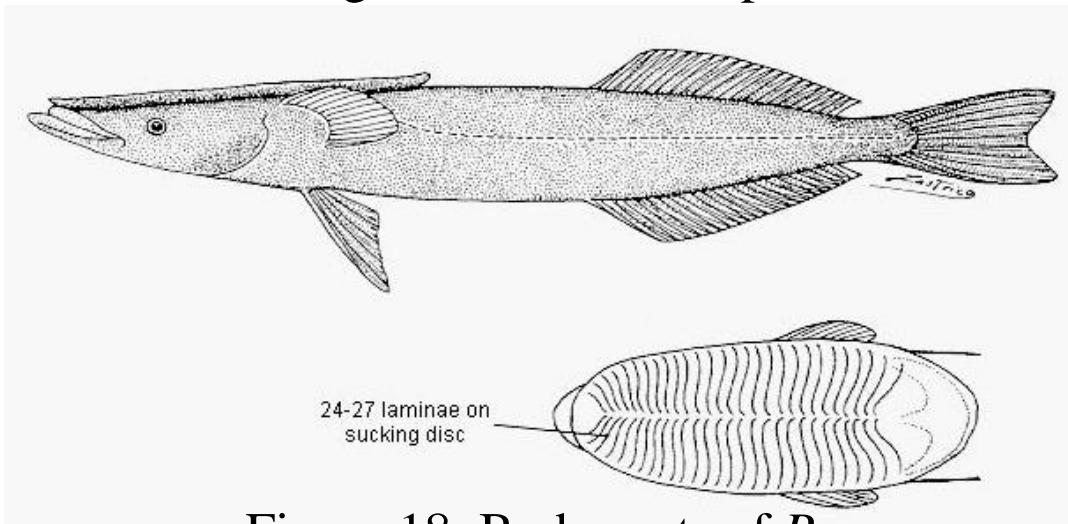


Figure 18: Body parts of *Remora* sp.

- Body shape: Laterally elongated
- Mouth type: Superior
- Teeth type: Small, pointed teeth
- Feeding habit: Carnivorous
- Scale type: Cycloid scales
- Habitat: Marine environment
- Specifications:
 - Pelagic
 - Dorsal fin acts as a suction cup
 - Flat head
 - Not active swimmers
 - Ram ventilation

Himantura sp. / Ray / uvqjd

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Order: Myliobatiformes



Figure 19: Ray

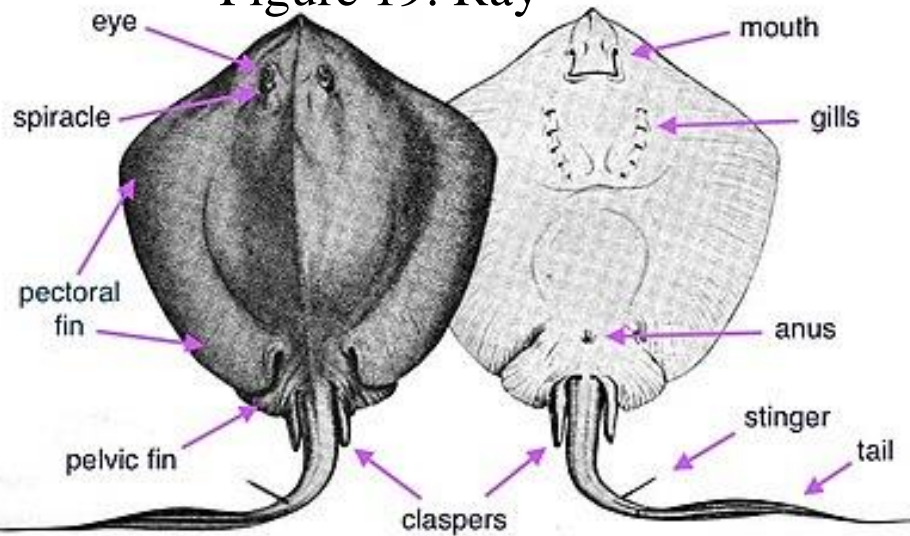


Figure 20: Body parts of Ray

- Body shape: Dorsoventrally flattened
- Mouth type: Inferior
- Teeth type: Developed heavy rounded teeth
- Feeding habit: Carnivorous
- Scale type: No scales
- Habitat: Marine environment
- Specifications:
 - Anterior eyes
 - Wing like pectoral fins
 - Extended caudal fin / tail
 - Largest group of cartilaginous fish
 - Gill slits under the pectoral fins

Syngnathus sp. / Pipe fish

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Order: Syngnathiformes



Figure 21: Pipe fish

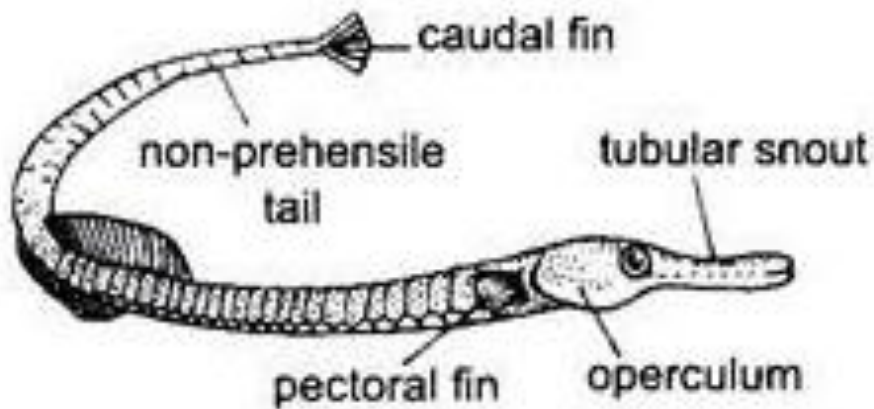


Figure 22: Body parts of Pipe fish

- Body shape: Elongated
- Mouth type: Tubular
- Teeth type: Toothless
- Feeding habit: Carnivorous
- Scale type: Bony platelike scales
- Habitat: Fresh, brackish and marine environments
- Specifications:
 - Fused scales form body plates
 - Benthic / live in seagrasses
 - Prehensile tail

Hippocampus sp. / Sea horse / uqyqoq wYajhd

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Order: Syngnathidae



Figure 23: Sea horse

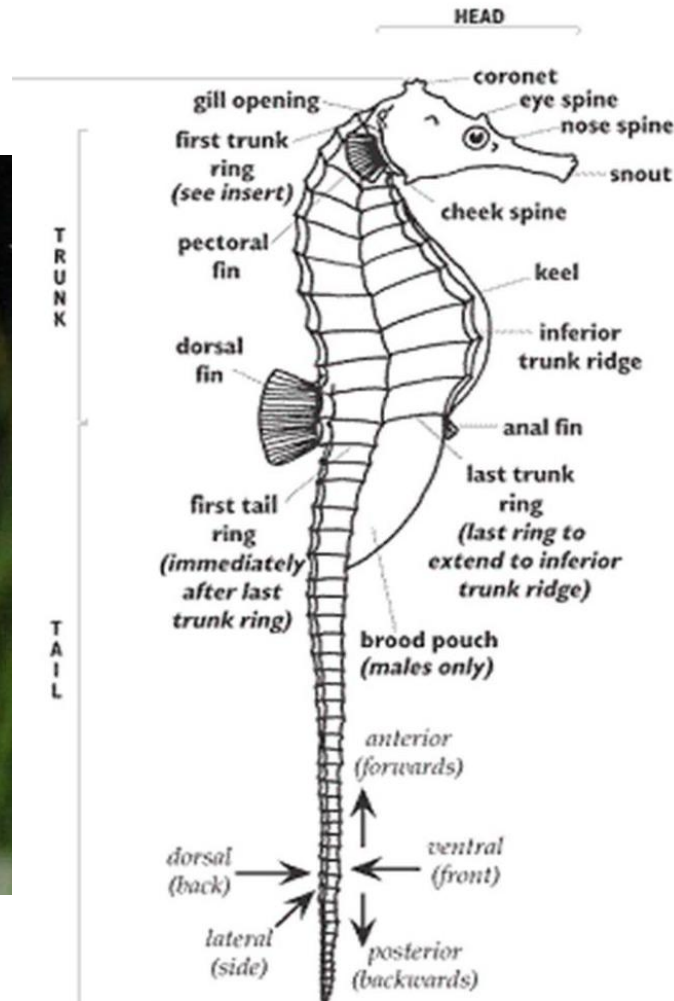


Figure 24: Body parts of Sea horse

- Body shape: Eel like / elongated
- Mouth type: Tubular
- Teeth type: Toothless
- Feeding habit: Carnivorous
- Scale type: No scales
- Habitat: Marine environment
- Specifications:
 - Horse like head and neck
 - Segmented body armour
 - Prehensile tail
 - Pectoral fin is on the head
 - Anal fin is near the stomach
 - Live in sea grass beds
 - Swim in upright posture
 - Male bears eggs

Tetraodontidae sp. / Puffer fish

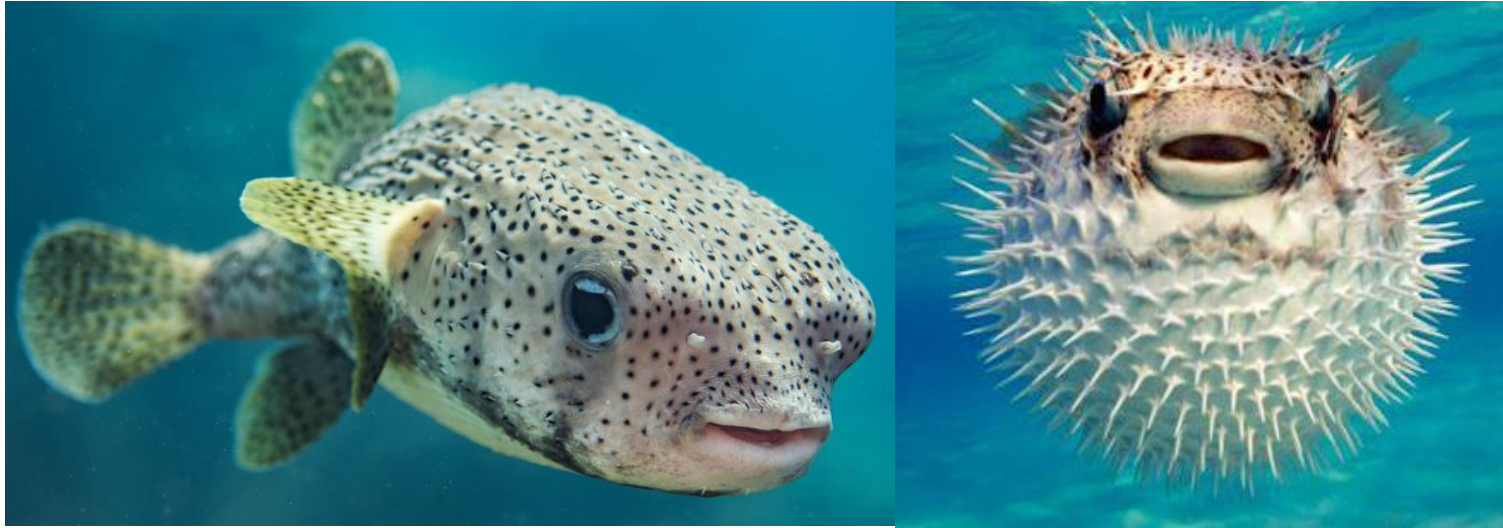


Figure 25: Puffer fish

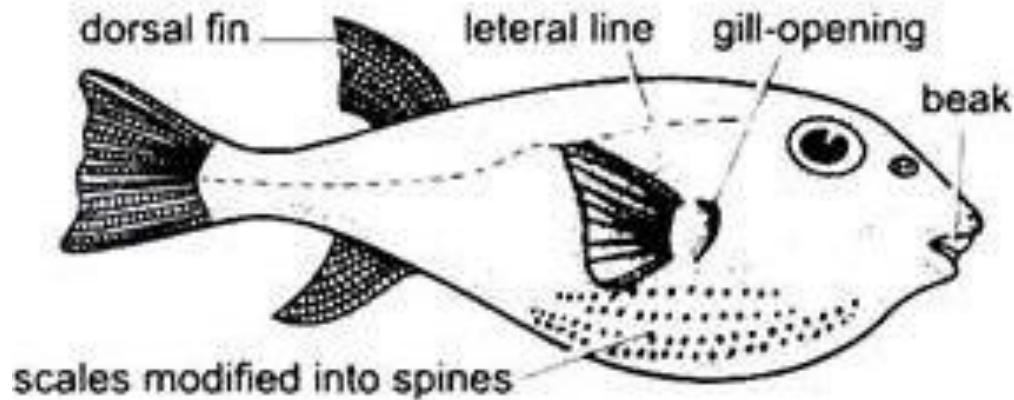


Figure 26: Body parts of Puffer fish

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Order: Tetraodontiformes

- Body shape: Tube shaped
- Mouth type: Beak like mouth
- Teeth type: Two tooth plates in one jaw
- Feeding habit: Carnivorous
- Scale type: No scales / have spines
- Habitat: Marine and brackish environment
- Specifications:
 - Inflatable belly
 - Majority are toxic (produce tetrodo toxin)

Leiognathus sp. / Pony fish / Idr,a,d

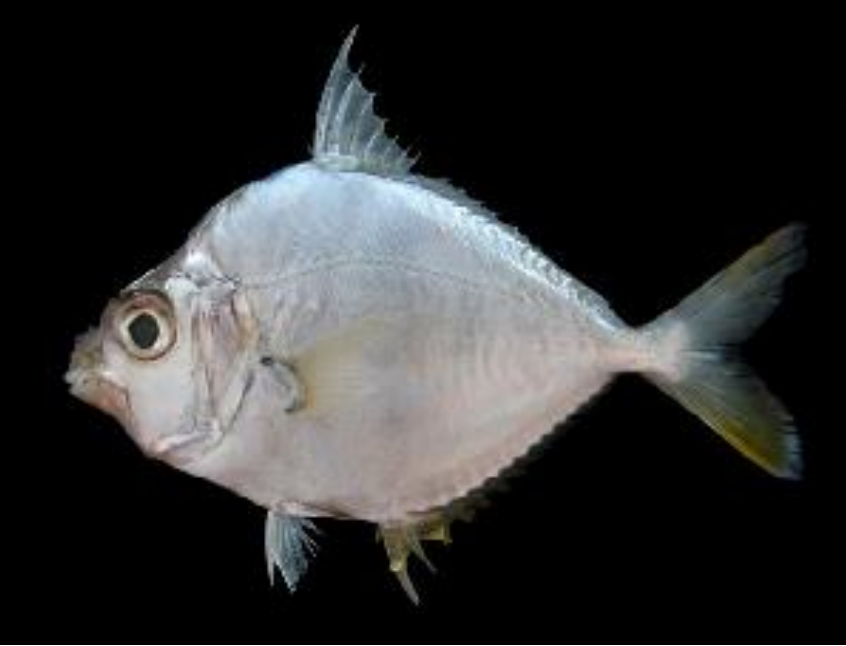


Figure 27: *Leiognathus* sp.

Kingdom: Animalia
Phylum: Chordata
Class: Actinopterygii
Order: Perciformes

- Body shape: Laterally compressed / oval shaped
- Mouth type: Protrusible
- Teeth type: Canine teeth
- Feeding habit: Carnivorous
- Scale type: Tubed scales on lateral line / head and breast scaleless
- Habitat: Marine environment
- Specifications:
 - Spiny dorsal fin and anal fin
 - Very sharp first spine in the anal fin
 - Scutes in the base of the dorsal fin