



MARINE FISHES

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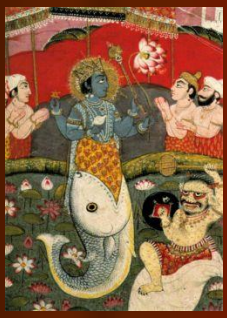
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FISH ?



Fishes are **aquatic vertebrate** animals that are typically **ectothermic**, covered with Scales, and equipped with two sets of paired fins and several unpaired fins.

Fish are abundant in the sea and in fresh water, with species being known from mountain streams (e.g., **char**) as well as in the deepest depths of the ocean (e.g., **gulpers** and **anglerfish**).

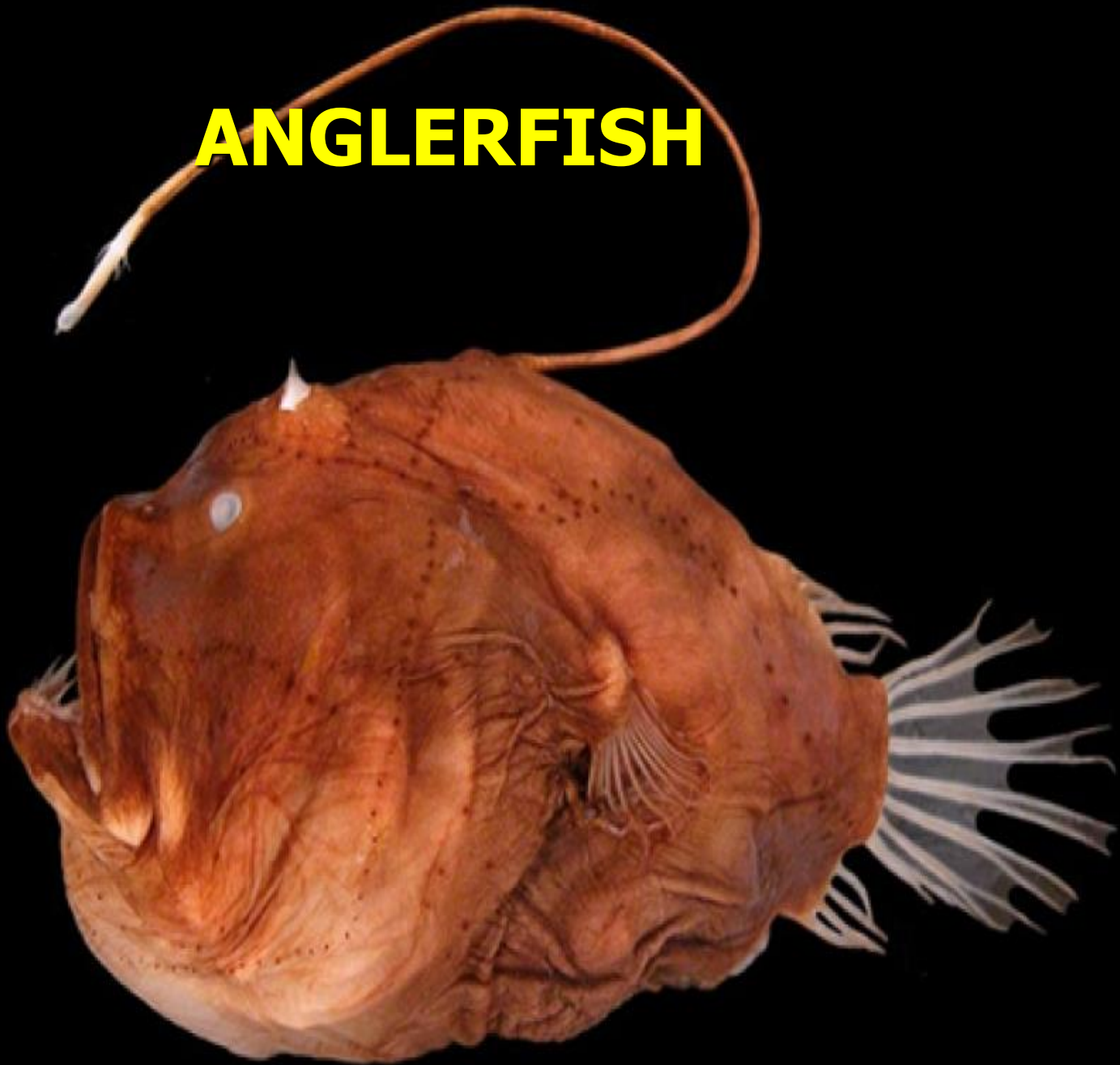
CHAR



GULPERS



ANGLERFISH



Fish Are Diverse

- Live in diverse habitats
- Have different body shapes
- Have different body structures
- Have different reproductive strategies
- Have different feeding styles
- Inhabit multiple niches in life cycle

Where do fish live?

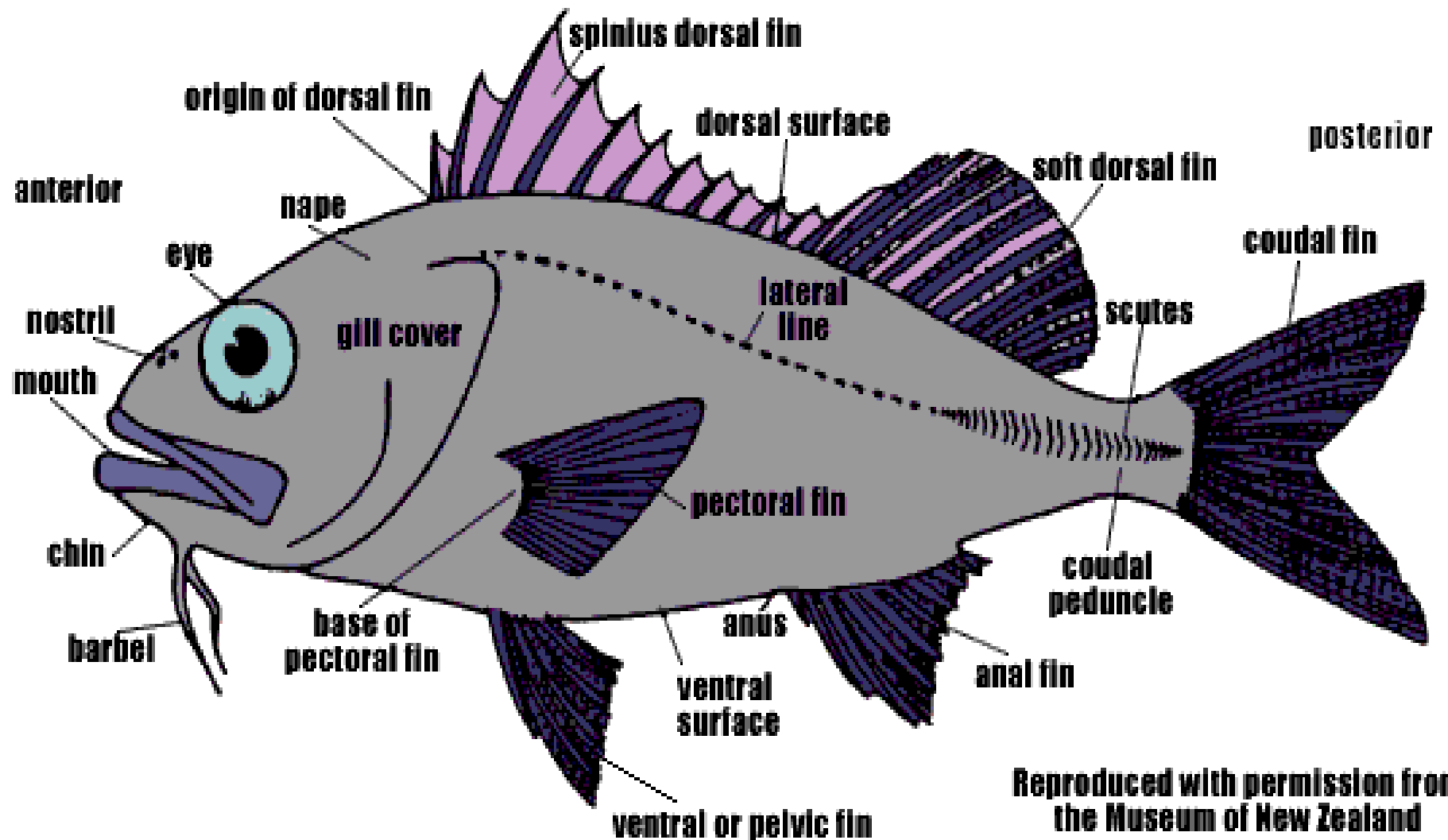
- Salt water covers 70% of earth's surface; fresh covers 1%
- By volume salt water comprises 97% of all water; fresh comprises 3%, the majority of which is ice, atmospheric water, etc. (where fish do not live)
- Anadromy, catadromy, amphidromy

Fish live

- 13% associated with open ocean
- 1% in surface (epipelagic) layer
- 5% in unlighted sections of water column (deepwater pelagic fishes)
- 7% on bottom (deepwater benthic fishes)
- 78% of marine fishes (44% of all fishes) live in narrow band along continents in water less than 200m (continental shelf)

FISH ANATOMY

External characteristics of a generalised bony fish



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Marine Fishes-Classification

Marine Fishes

Jawless fishes
(Class: Agnatha)



Jawed fishes
(Class: Gnathostomata)







Marine Fishes-Classification

Jawless Fishes: (Class: Agnatha)

- The most primitive fishes living today are the jawless fishes
- They lack jaws, they feed by suction with the aid of a round, muscular mouth and rows of teeth
- The body is cylindrical and elongate like that of eels or sea snakes
- They lack paired fins and scales of most fishes
- Hag fishes or slime eels (*Myxine* – *Eptatretus*) are jawless fishes that feed on dead or dying fishes



Marine Fishes-Classification

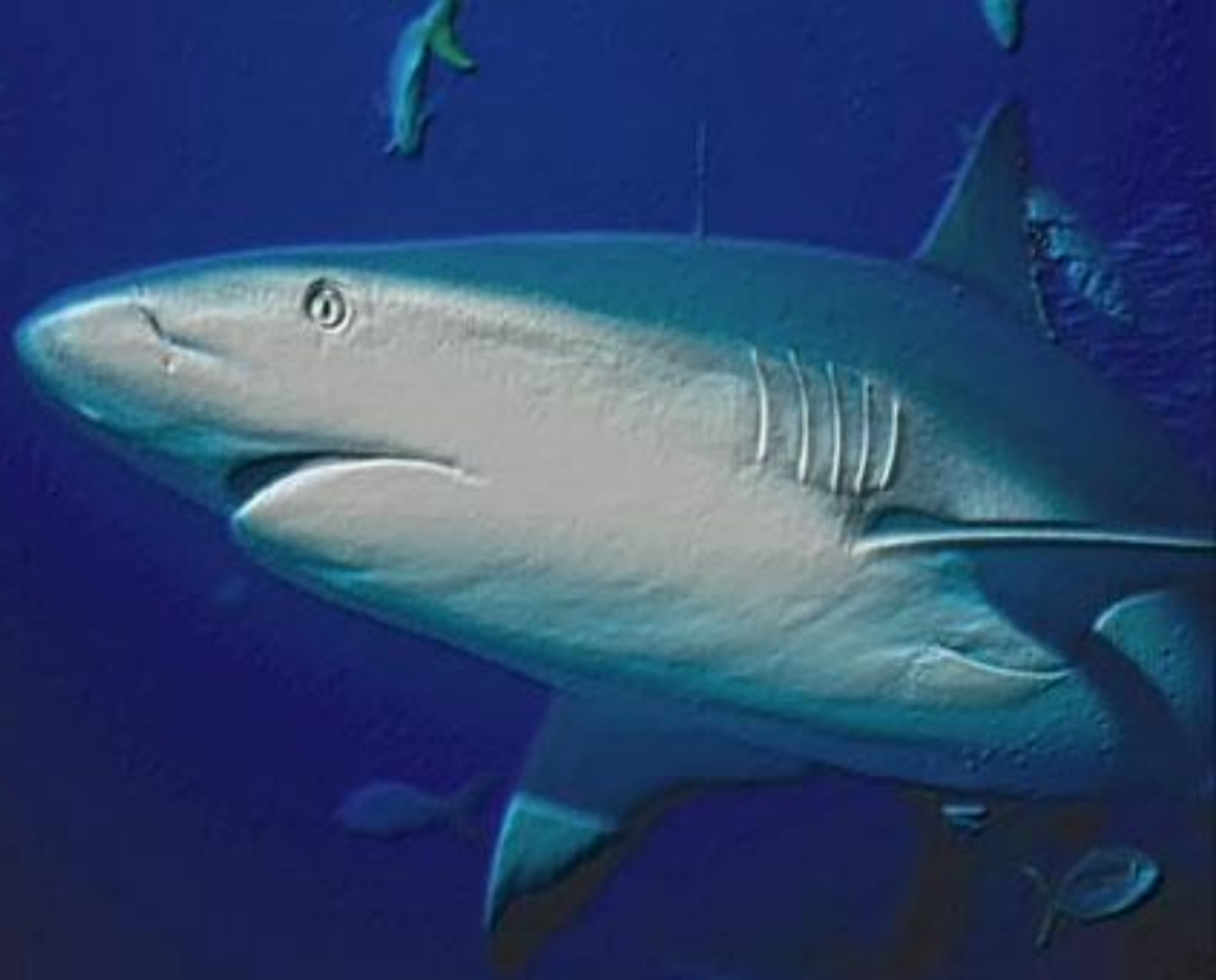
- They bore into their prey and eat them from the inside out
- Hagfishes live in burrows they dig in muddy bottoms
- They reach a maximum length of 80 cm
- Their skin is used in the manufacture of leather goods
- Lampreys (*Petromyzon*) found in most temperature regions
- There are 30 species of lampreys



Jawed fishes

- Divided into three groups early in evolution
- The **Placodermi** (now extinct)
- **Chondrichthyes** – cartilaginous fishes
- **Osteichthyes** – bony fishes







Cartilaginous fishes (Class: Chondrichthyes)

- Cartilaginous fishes have a skeleton made of cartilage
- They have movable jaws that are usually armed with well developed teeth
- The mouth is almost always neutral
- Paired lateral fins for efficient swimming is present
- They have rough, sand pipes-like skin because of the presence of tiny placoid scales

Marine Fishes-Classification

Sharks:

- Nearly 350 living species
- Sharks are present throughout the oceans at all depths



Marine Fishes-Classification

Rays and Skates:

- 450-550 species of rays and skates have flattened bodies and for the most part live on the bottom
- Fishes that live on the bottom are called demersal
- Sting rays – *Urolophus jamicensis*
- Electric rays – Torpedo (upto 200 volts)
- The ancient Greeks and Romans used the shocks of electric rays to cure headaches and other ailments



Marine Fishes-Classification

Rat fishes:

- About 30 species – deep water, have only one pair of gill slits – have a long rat-like tail.



Bony fishes (Class: Osteichthyes)

- 26,000 sp. of bony fishes – about 96% of all fishes and almost half of all vertebrates
- Between 75 and 100 new species are described every year
- Ctenoid or Cycloid scales present
- Swim bladder present

