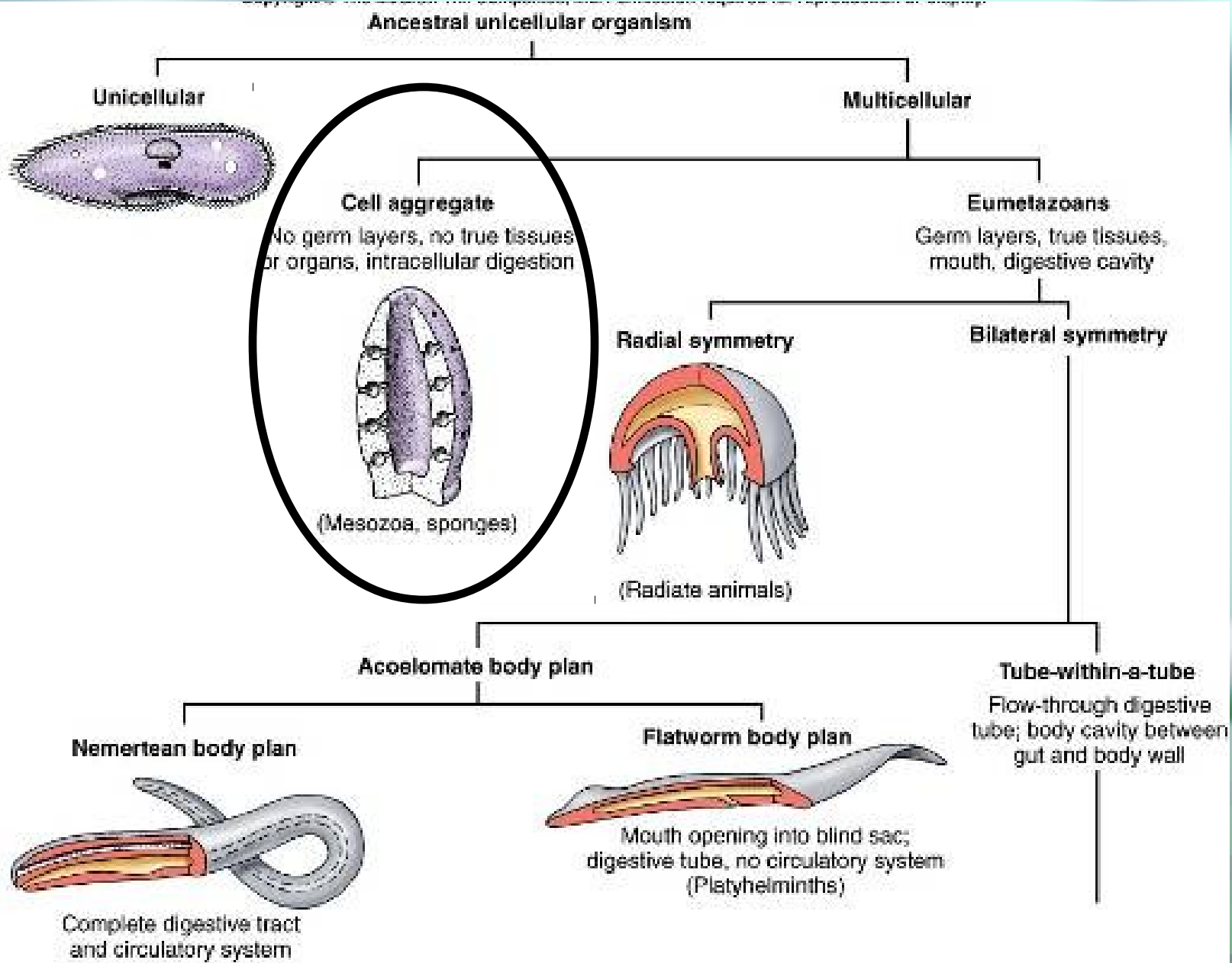


*Phylum - Porifera*  
*The Sponges*

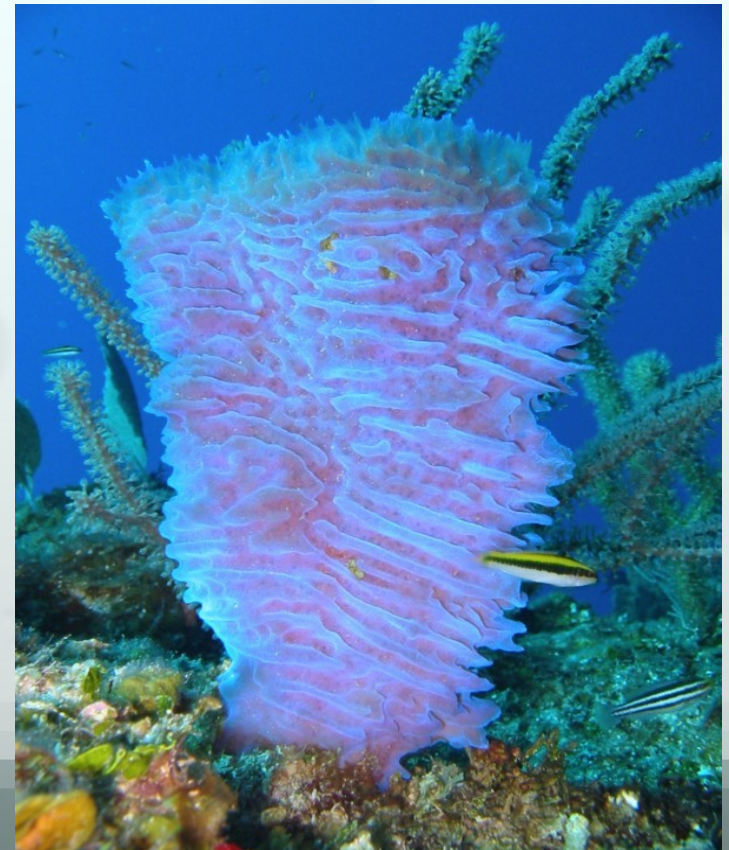






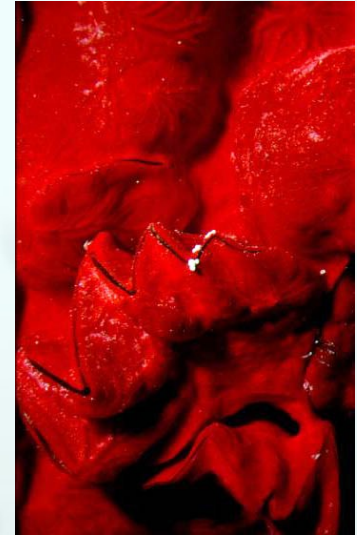
# Taxonomy

- Kingdom - **Animalia**
  - Phylum - **Porifera** (pores)



# Characteristics

- o **Simplest** of all animals
- o Contain **specialized cells** but no other organization level
- o Most are **marine**
- o Saltwater sponges are **brightly colored**
- o **Freshwater sponges** are small and dull green color
- o **Size - 2 cm to 2 m**



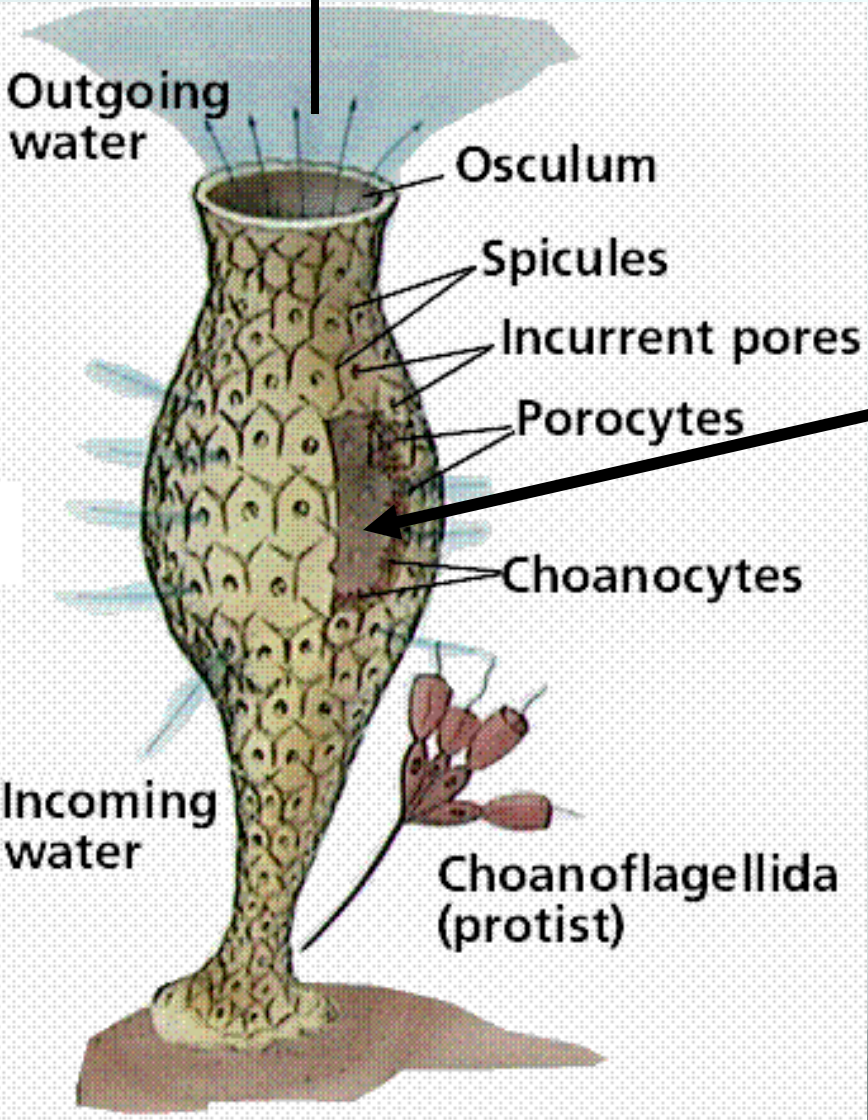
# Characteristics

- o **Porifera** means pore-bearing
- o **Water** enters through pores bringing in **food** and **oxygen**
- o **Filter feeders** on plankton
- o **Osculum** - large opening at the top where excess water leaves



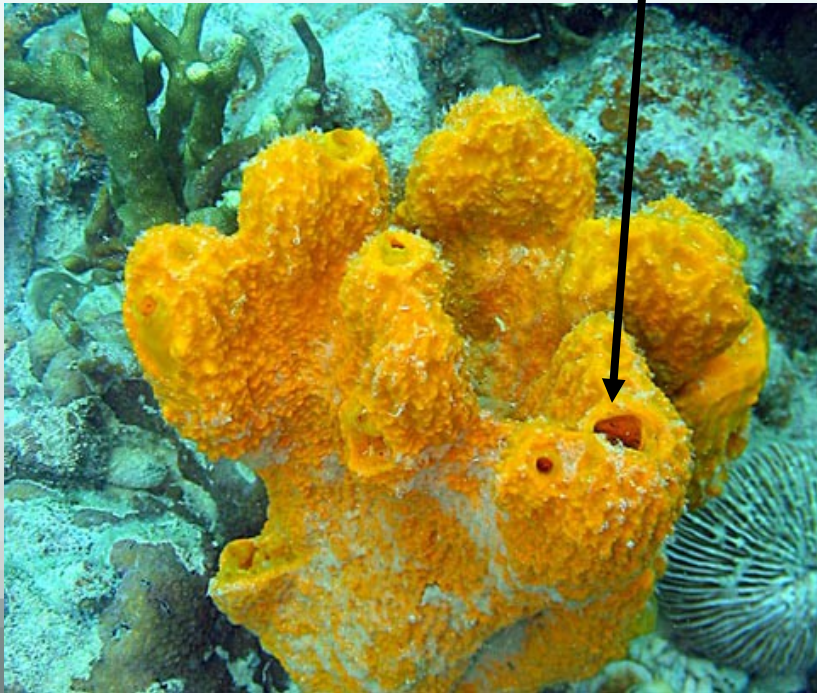
# Water Flow Through the Sponge

WATER OUT

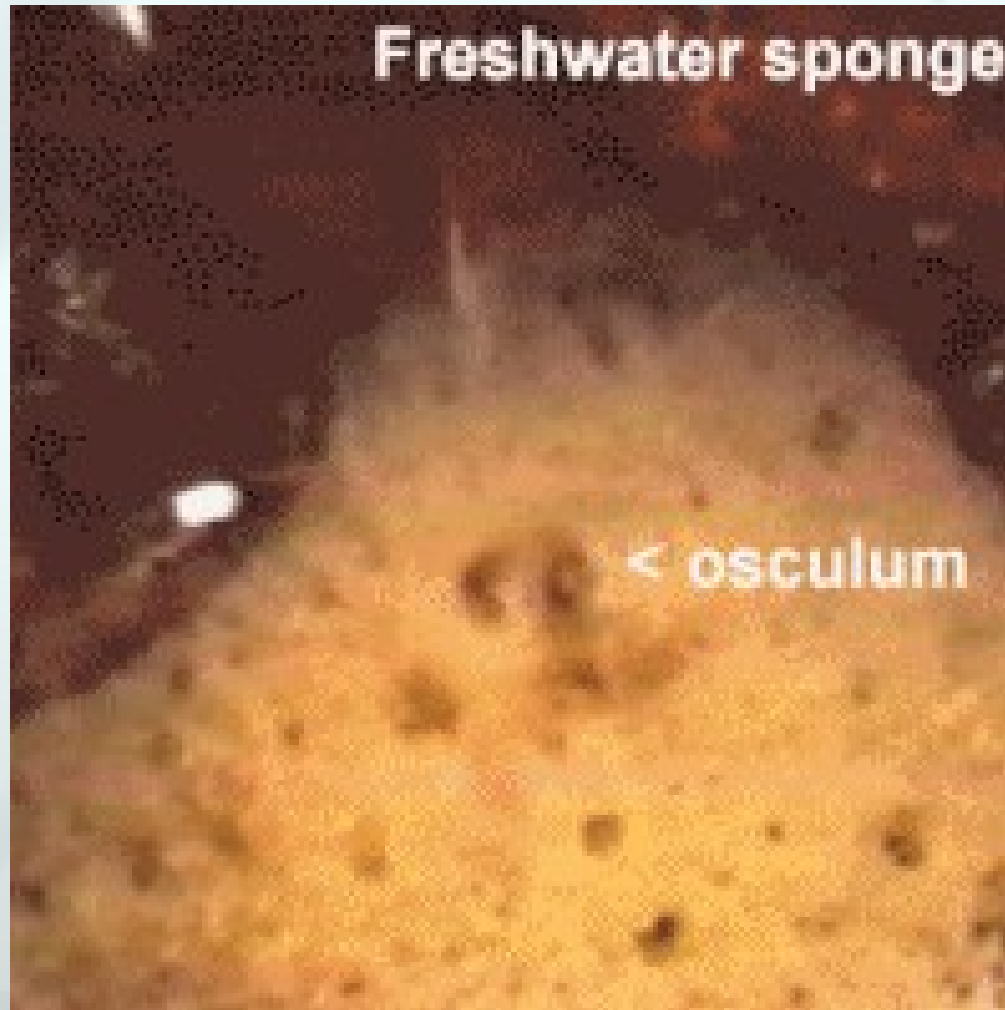


WATER IN

Osculum



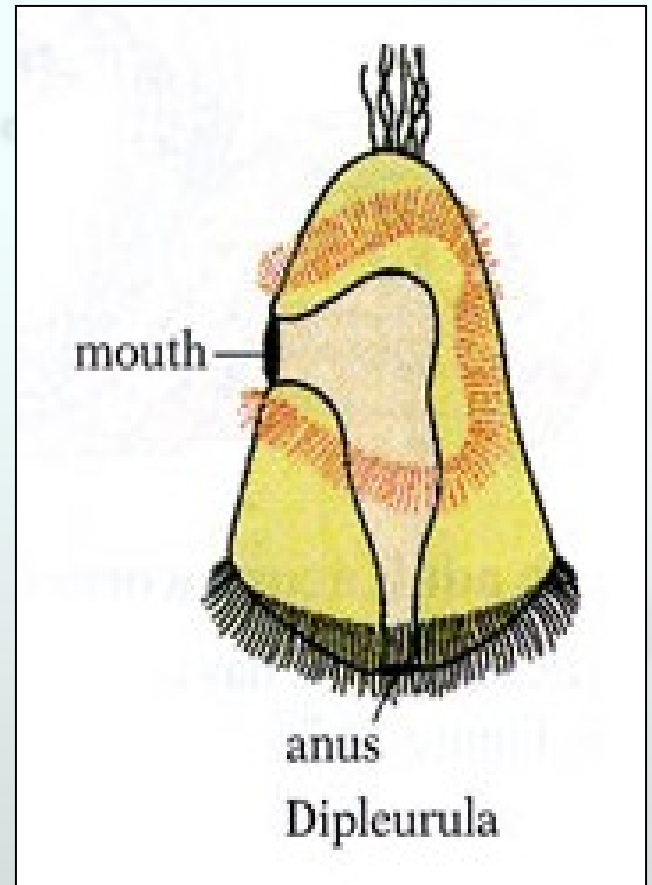
# Water Flow Through Sponge

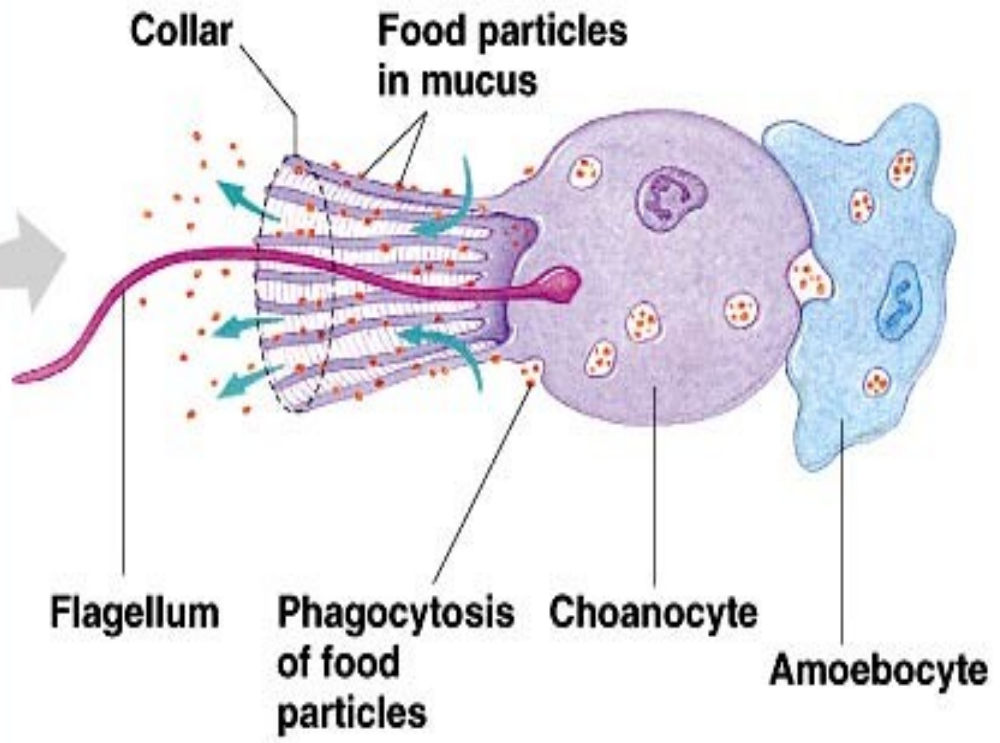
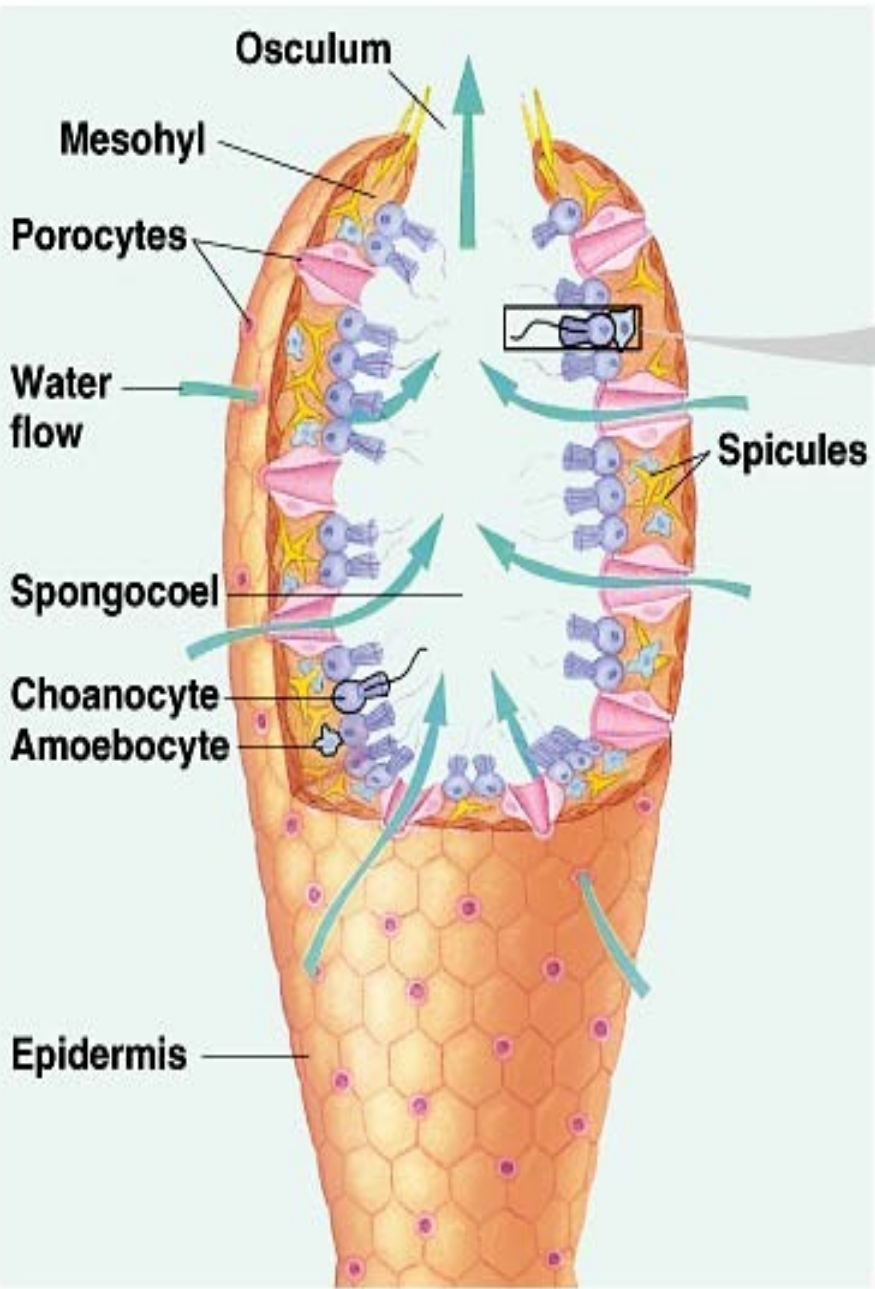




# Characteristics

- o **Asymmetrical**
- o **Sessile** as adults (attach to rocks)
- o Free-swimming larval stage
- o Also reproduce by **fragmentation** (pieces break off & form a new sponge)

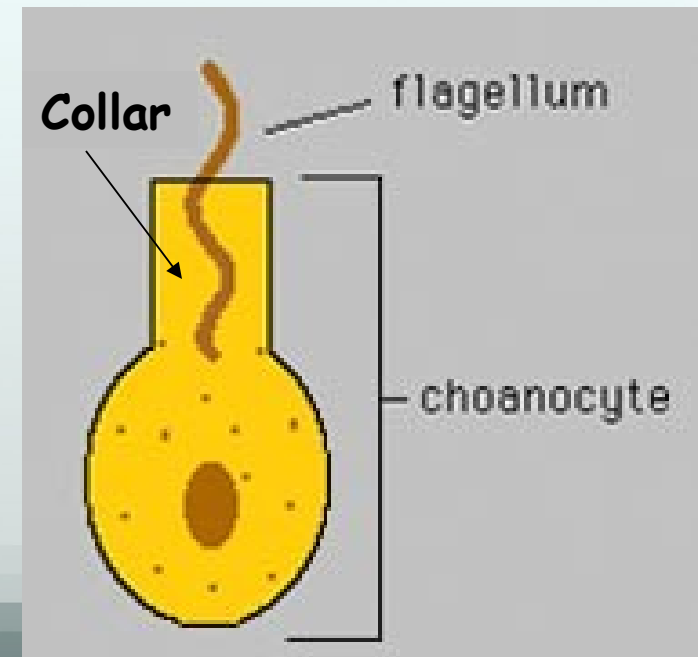
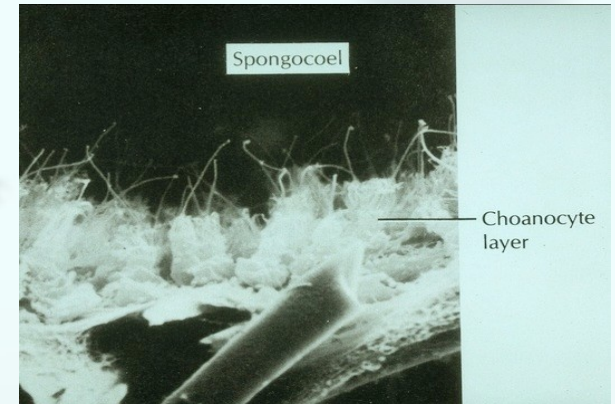


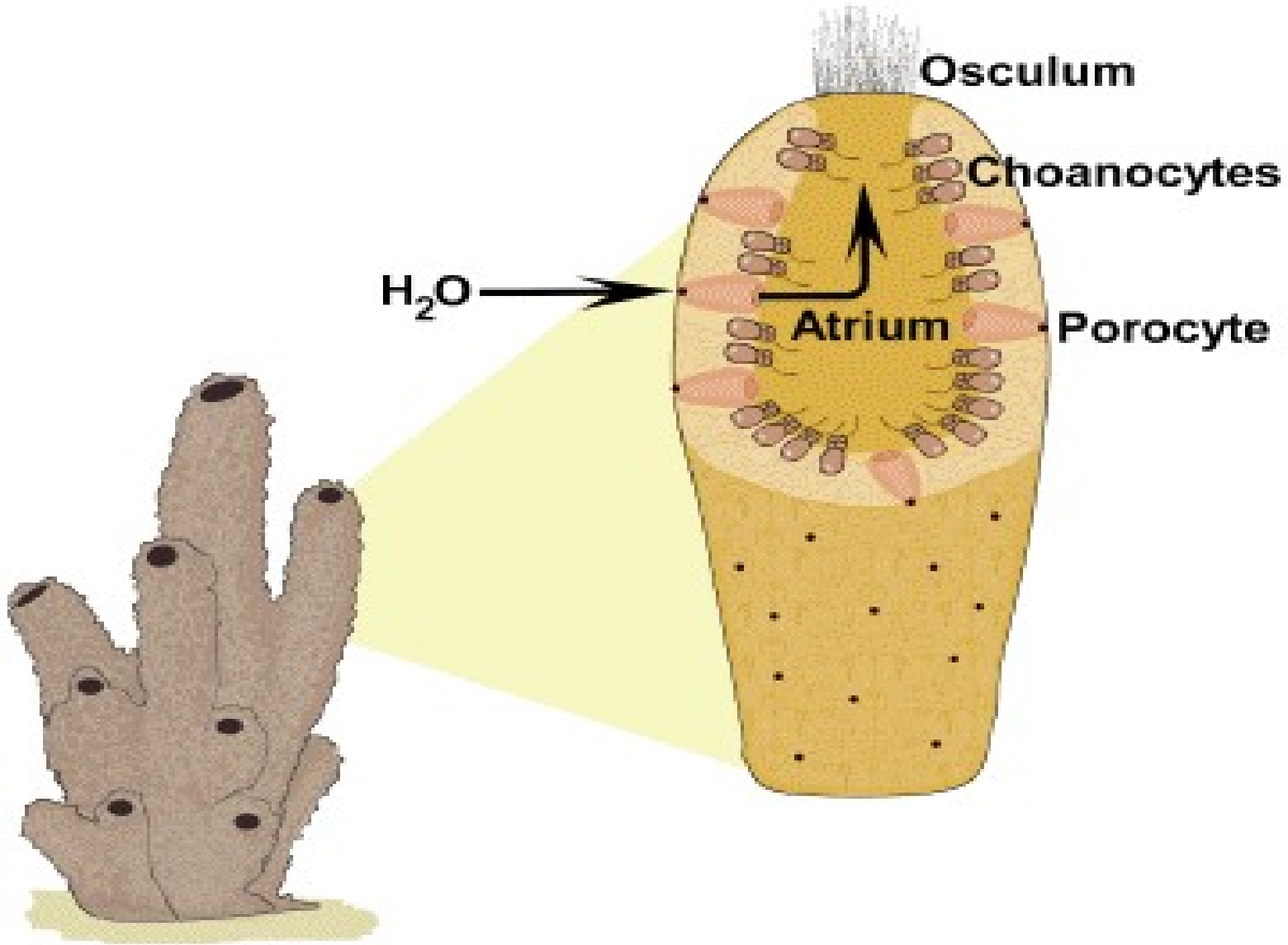


- **Choanocytes** line the gastrovascular cavity & capture food
- **Amebocytes** digest & distribute food

# Specialized Cells

- **Choanocytes** (collar cells) line inside of body cavity
- Have **flagella** that spins to pull in water & food
- **Collar** traps **plankton** (food) from water

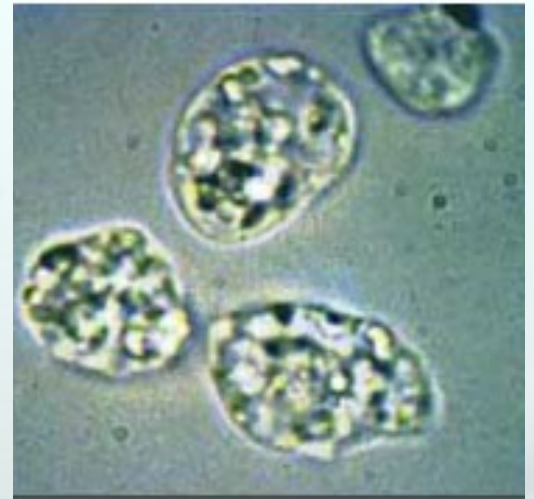




# Other Specialized Cells

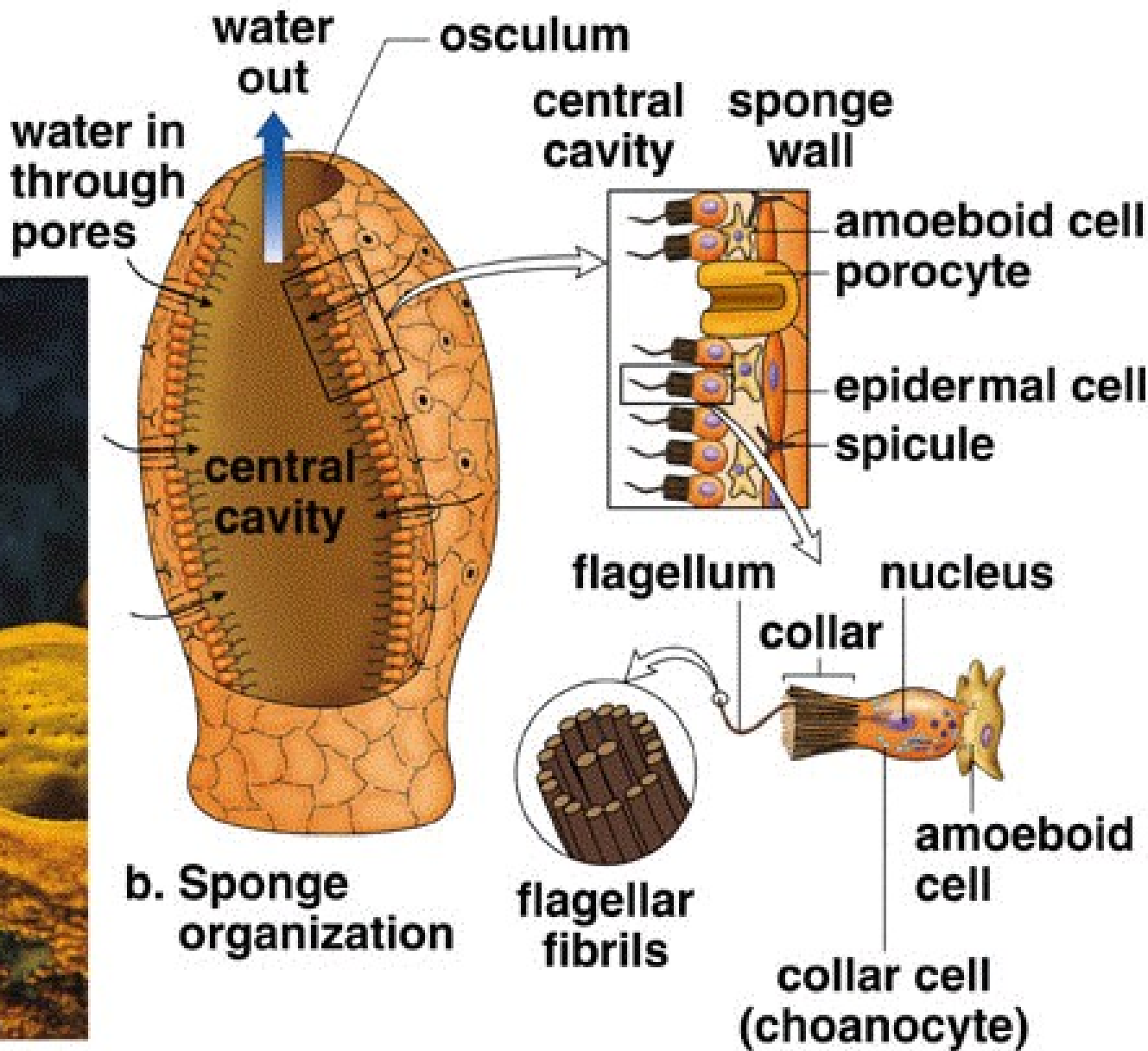
## o Amebocytes:

- Pick up food from choanocytes
- Finish digestion
- Move & take food to other cells





a. Yellow tube sponge, *Aplysina fistularis*



# Skeletal Structure of the Sponge

- Skeleton made of network of protein fibers and **Spicules**
- Spicules made of  **$\text{CaCO}_3$**  (limestone) or **silica** (glass)

# Sponge Reproduction

- o Sponges can **regenerate** (regrow) lost body parts through mitotic cell division (asexual)
- o Sponges also reproduce **asexually** by **budding**

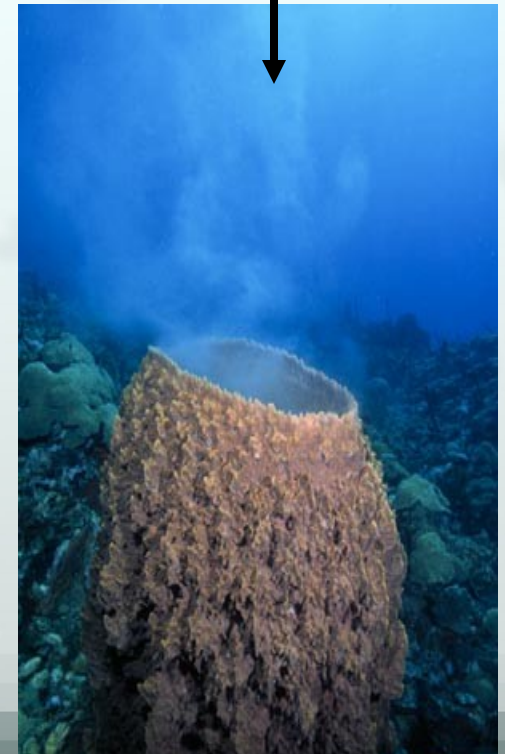




# Sponge Reproduction

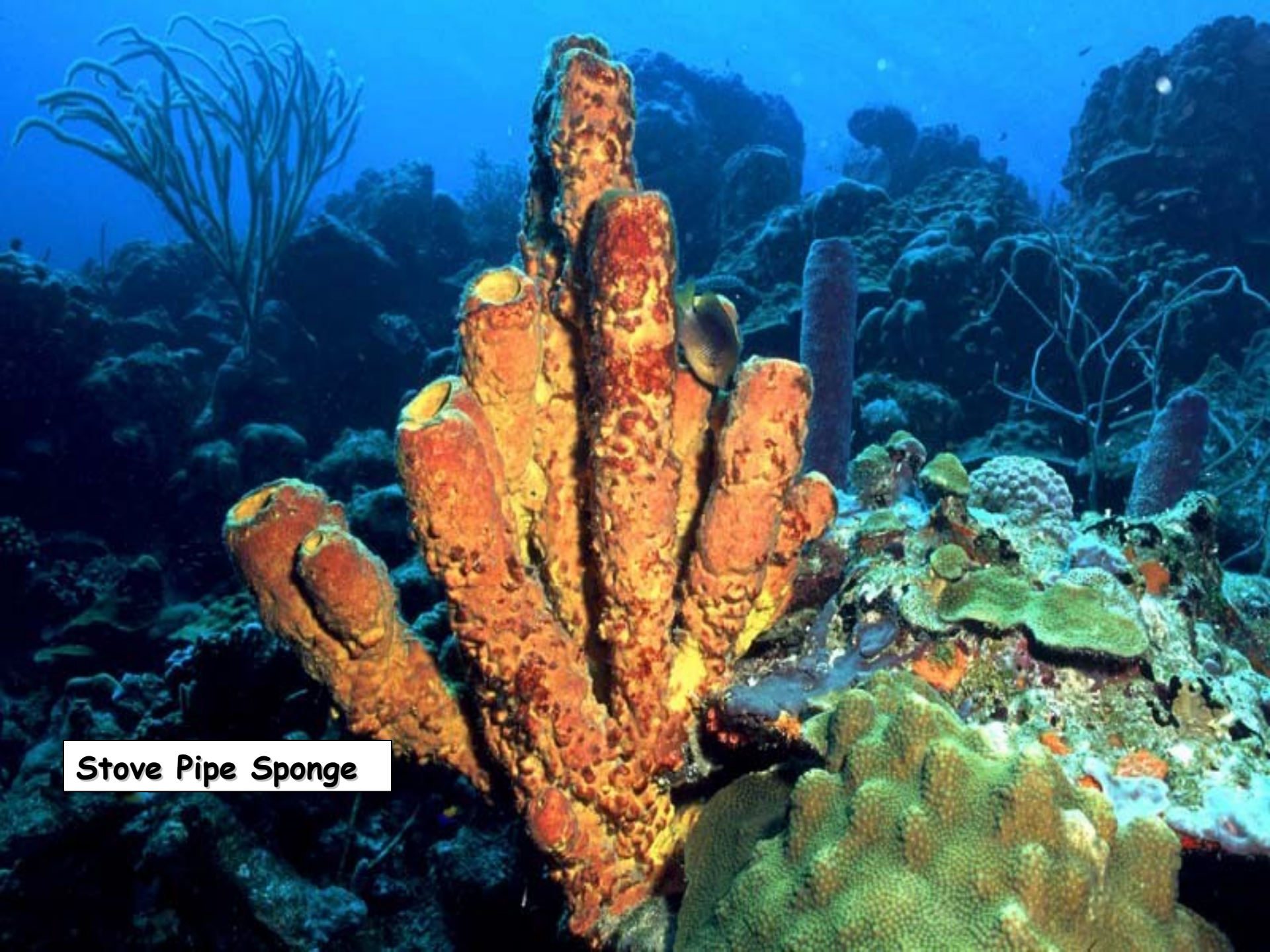
- o Sponges are **hermaphrodites** (produce both eggs & sperm)
- o Sponges reproduce **Sexually** by releasing **eggs & sperm** into the water from the **Osculum**

Sponge  
releasing eggs  
& sperm



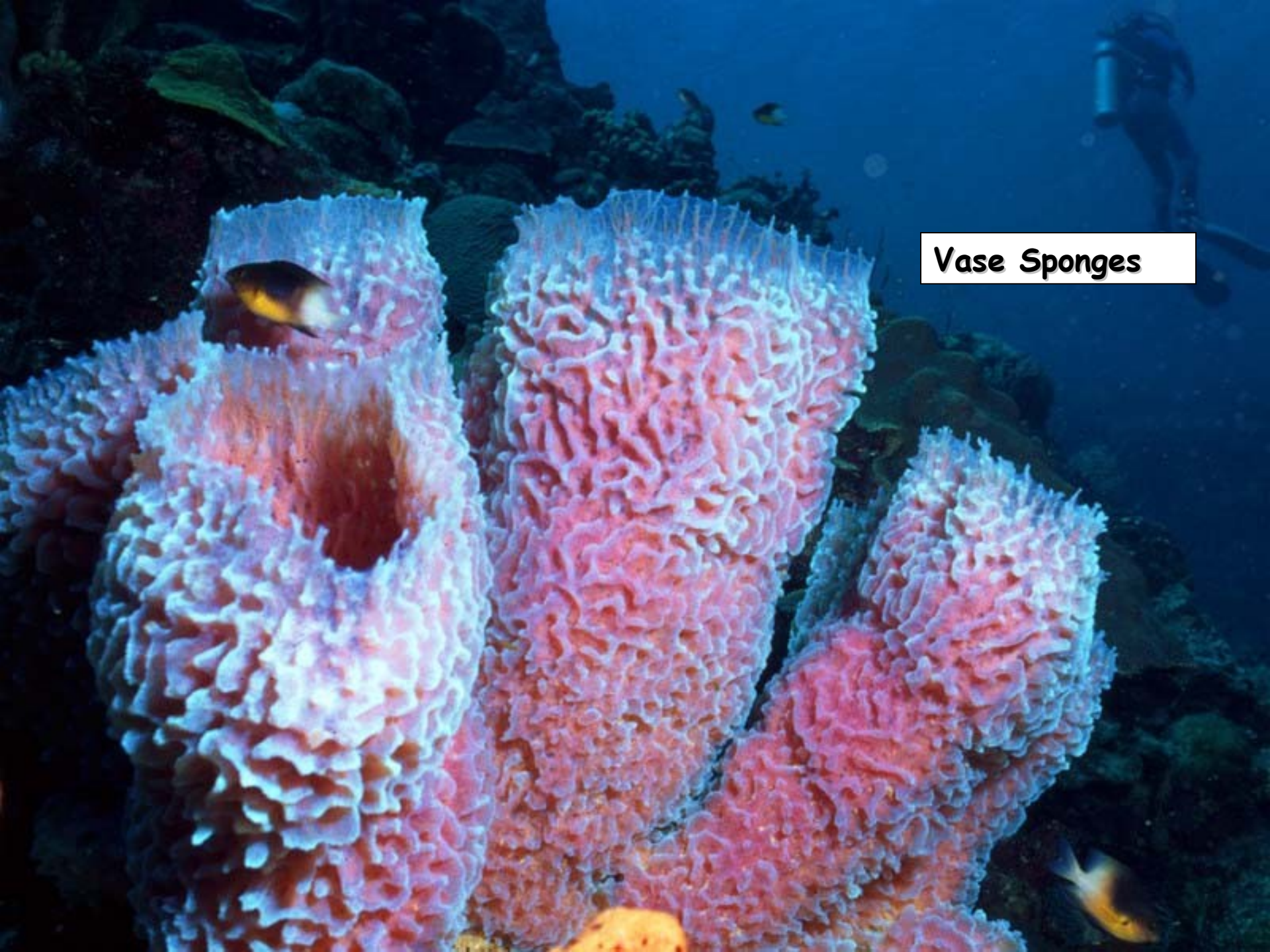


**Branching Tube Sponge**



**Stove Pipe Sponge**

**Vase Sponges**





**Barrel Sponges**



**Ball Sponges**

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# Rope Sponges











