
Mollusks

General Info

- Symmetry?
- 2 openings
- Foot (movement)
- Mantle (secretes shell)

Getting Food

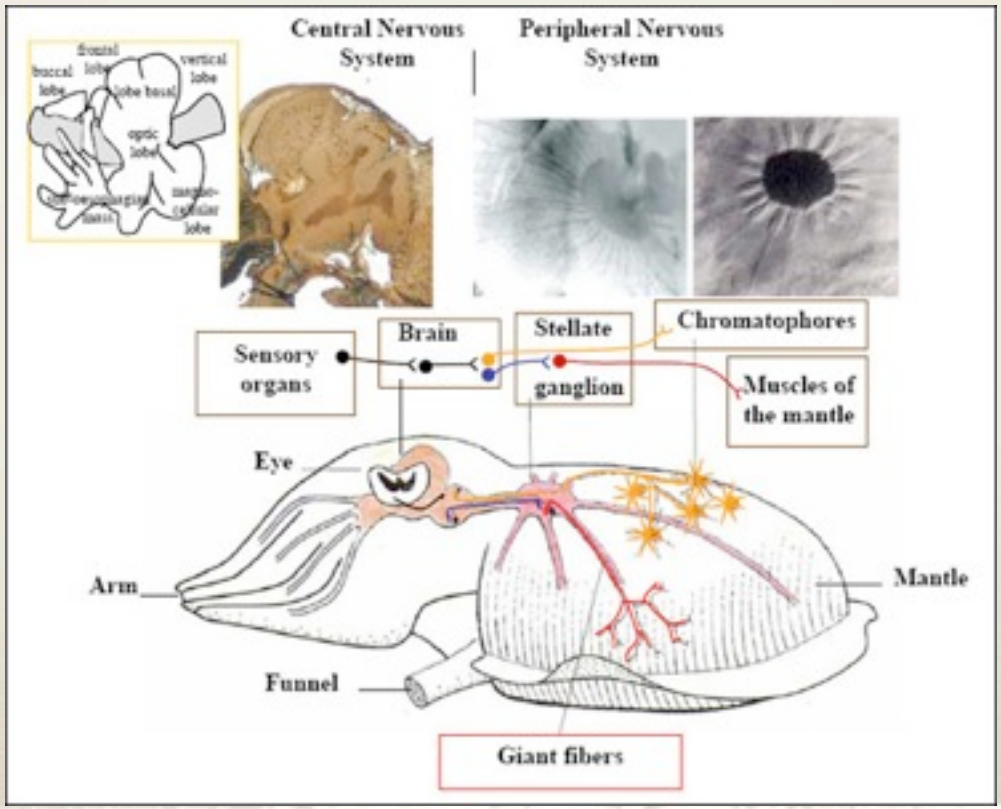
- Radula: tongue-like organ w/ rows of teeth
- can drill, scrape, cut or pull in food

Reproduction

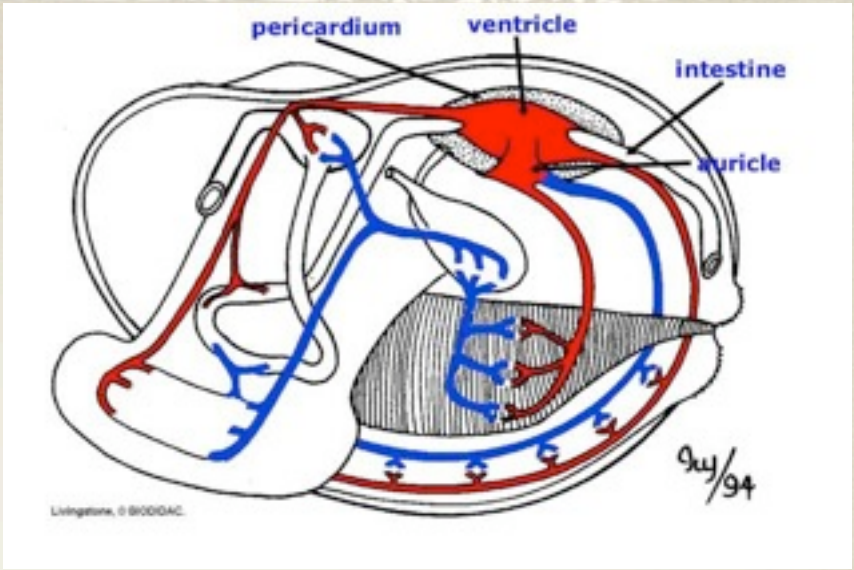
- Sexual
- External Fertilization
- Larvae: free-swimming with cilia

Nervous System

- Simple: brain/nerves to coordinate movement/behavior except...
- Paired eyes: simple or complex

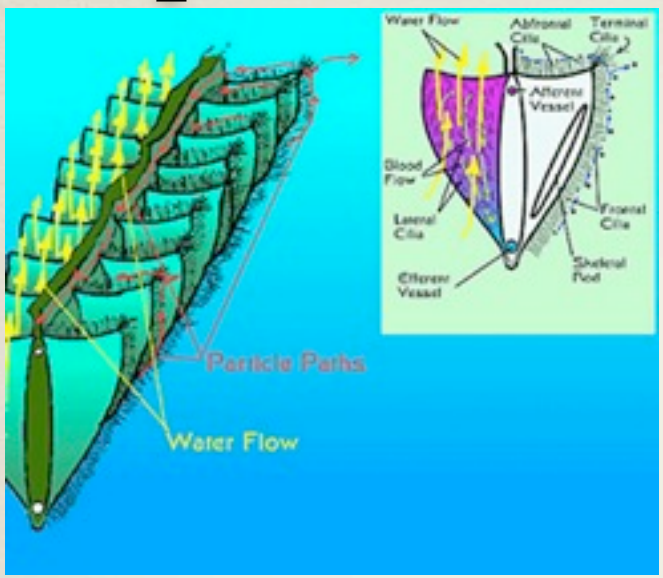


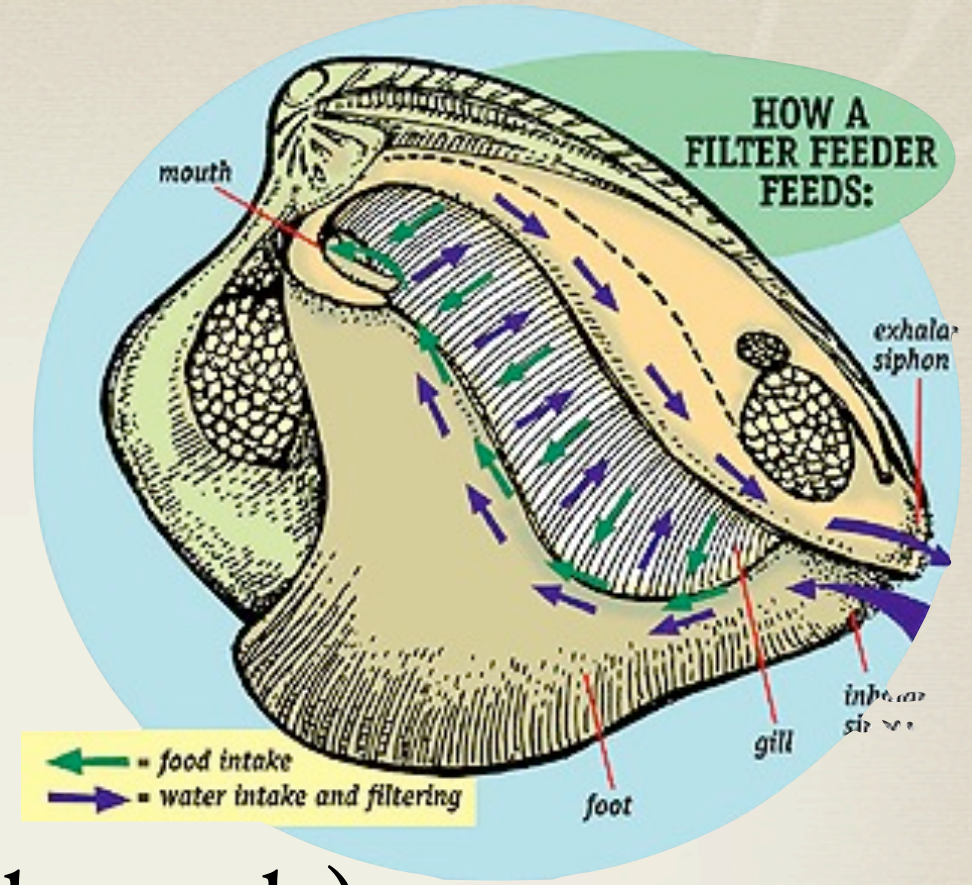
Circulation



- 3 chambered heart
- Open: blood moves through vessels into open spaces
- Closed: Blood enclosed in vessels, more efficient gas exchange (cephalopods)

Respiration

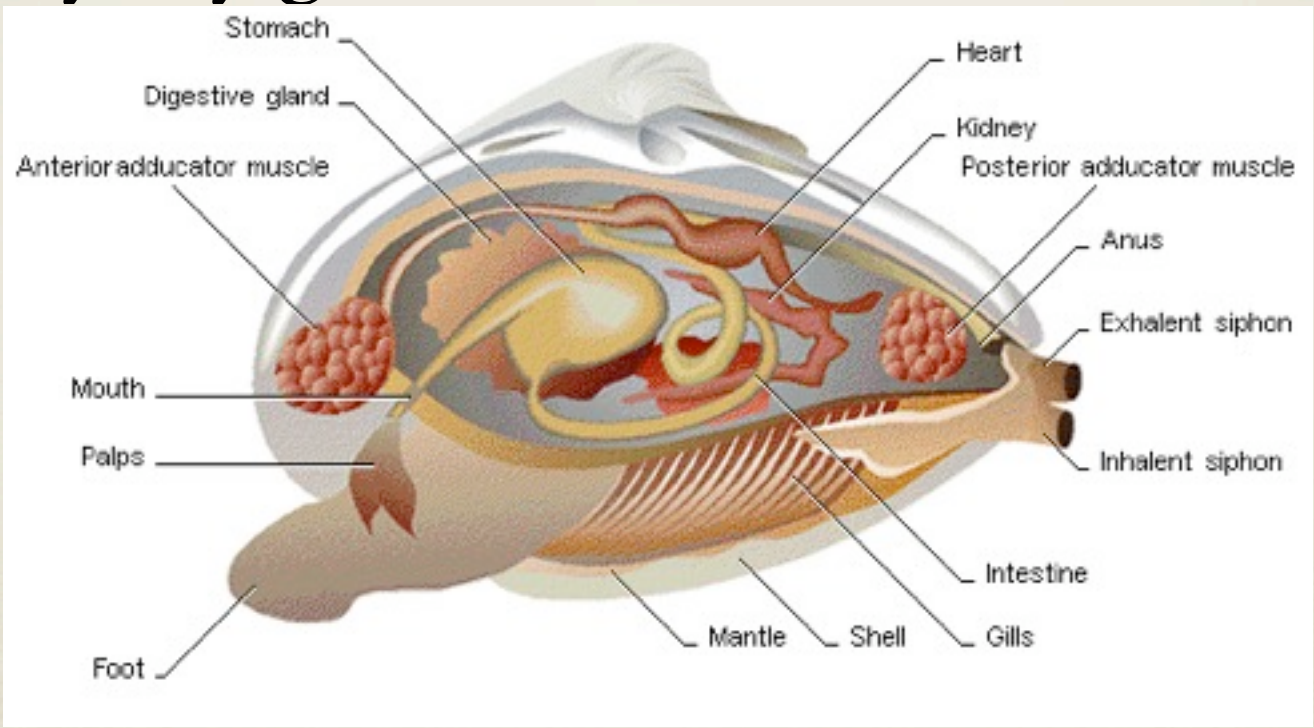




- Gills (specialized mantle)
- Increase surface area for gas exchange

Excretion

- Nephridia: organs that collect metabolic wastes and remove from body (by gills)



Gastropods

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- Largest class

Abalone

- Herbivore
- Up to 37 cm shell
- Holes on top, respiratory water flows
- Big foot

Abalone

Conches

Can repair damaged shells

Limpets

Can shut mantle into shell - operculum- closes off hole,
Have siphons to carry water to gills

Snail

Periwinkles

Periwinkles

Can completely cover shell with mantle
Glossy colorful appearance

Cowrie

Whelks

Colorful - taste bad, some have poison glands or spicules from sponges

Nudibranch

Can regenerate “tentacles” on back

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Eat cnidarians, have undischarged nematocysts on their back

Nudibranch

Bivalves

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- Large foot to burrow in mud or sand

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- Larger particles rejected and expelled though excurrent siphon

Cockle

Blue Mussels

Blue Mussel

- The giant clam, the world's largest bivalve mollusk, can weigh up to 500 pounds. Also known as the bear's paw clam, it lives in the South Pacific and Indian Oceans.

Giant Clam

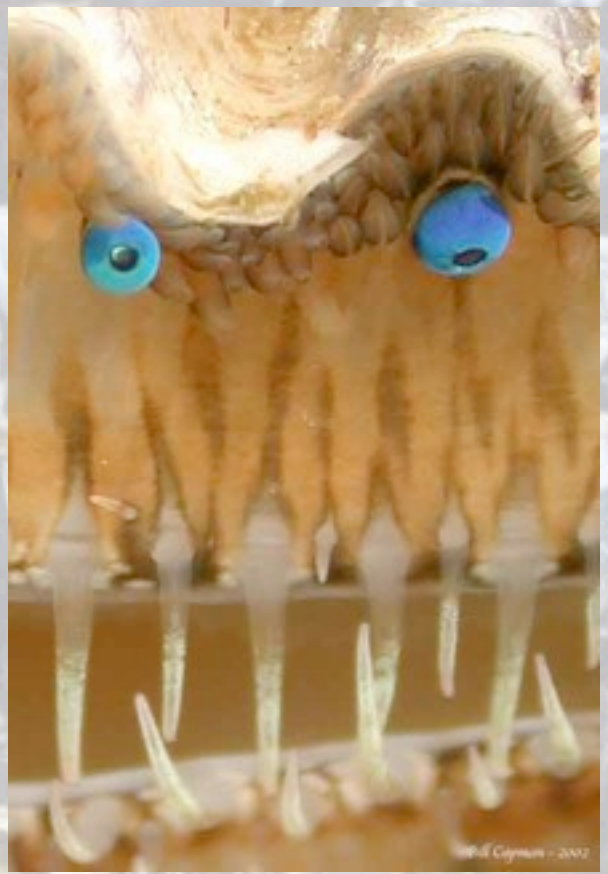
Razor clam

Oysters

Electric flame scallop

Scallops

Scallop eyes



Scallop Eyes

Scallops for dinner!

Cephalopods

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- Use radula to pull in food
- Use siphons to expel water for JET PROPULSION

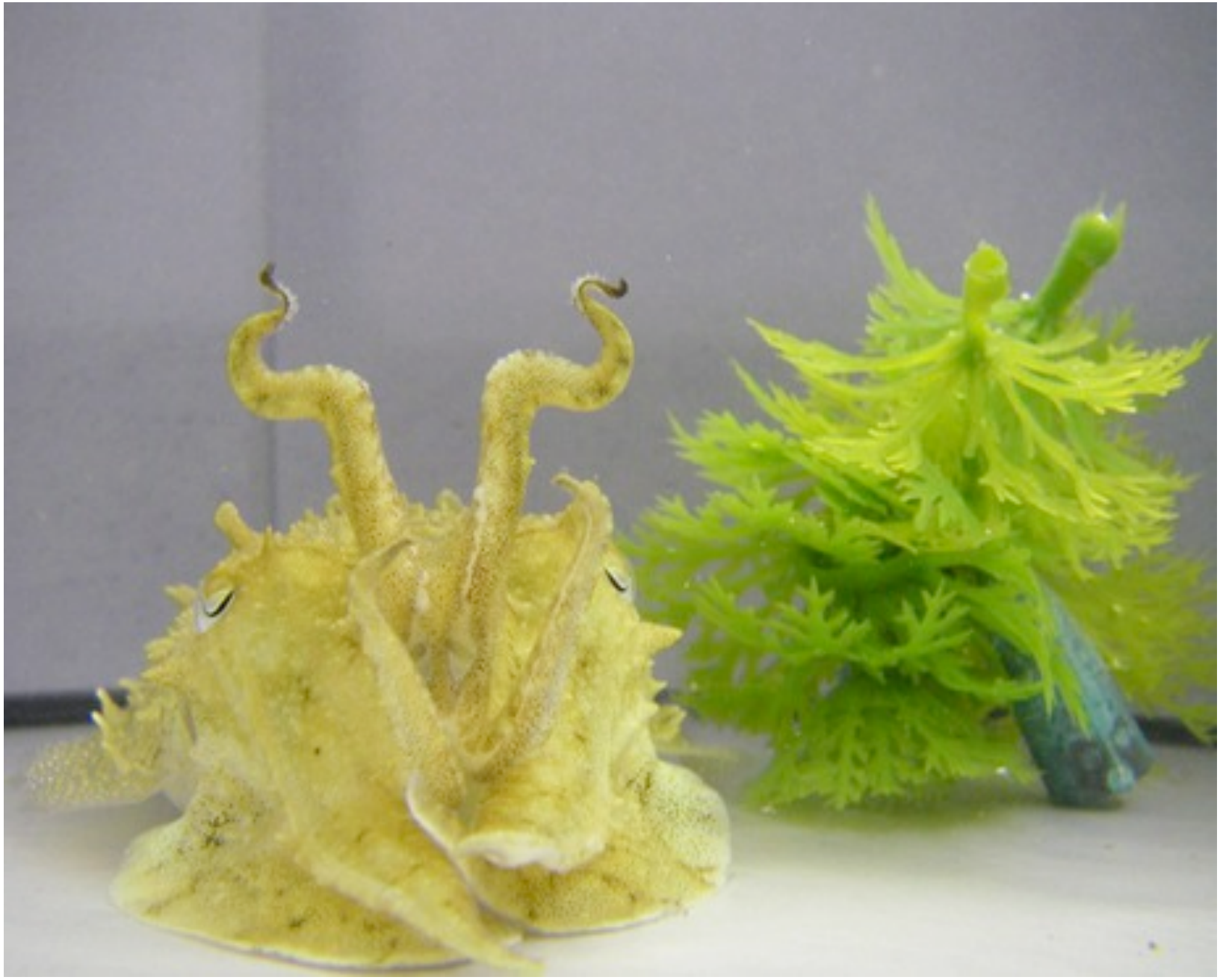
Nautilus

90+Tentacles
Chambers filled with gas

head, 8 arms, 2 feeding tentacles

Cuttlefish

Angry Cuttlefish



- These cuttlefish use their tentacles to blend in with a man-made pattern.

- http://www.youtube.com/watch?v=IznlT8XkmkY&feature=player_embedded

Gas-filled bone

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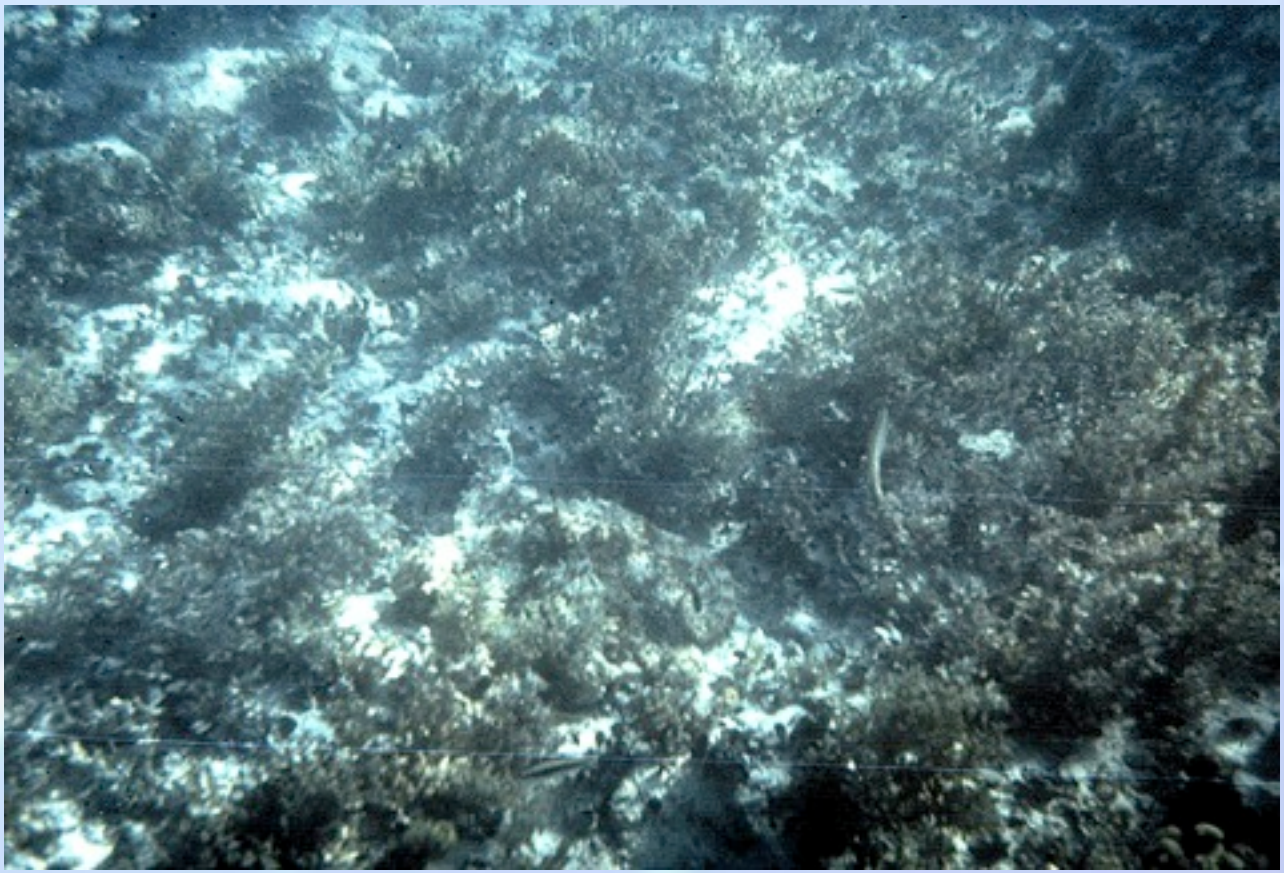
Find the octopus…



Octopus Attack

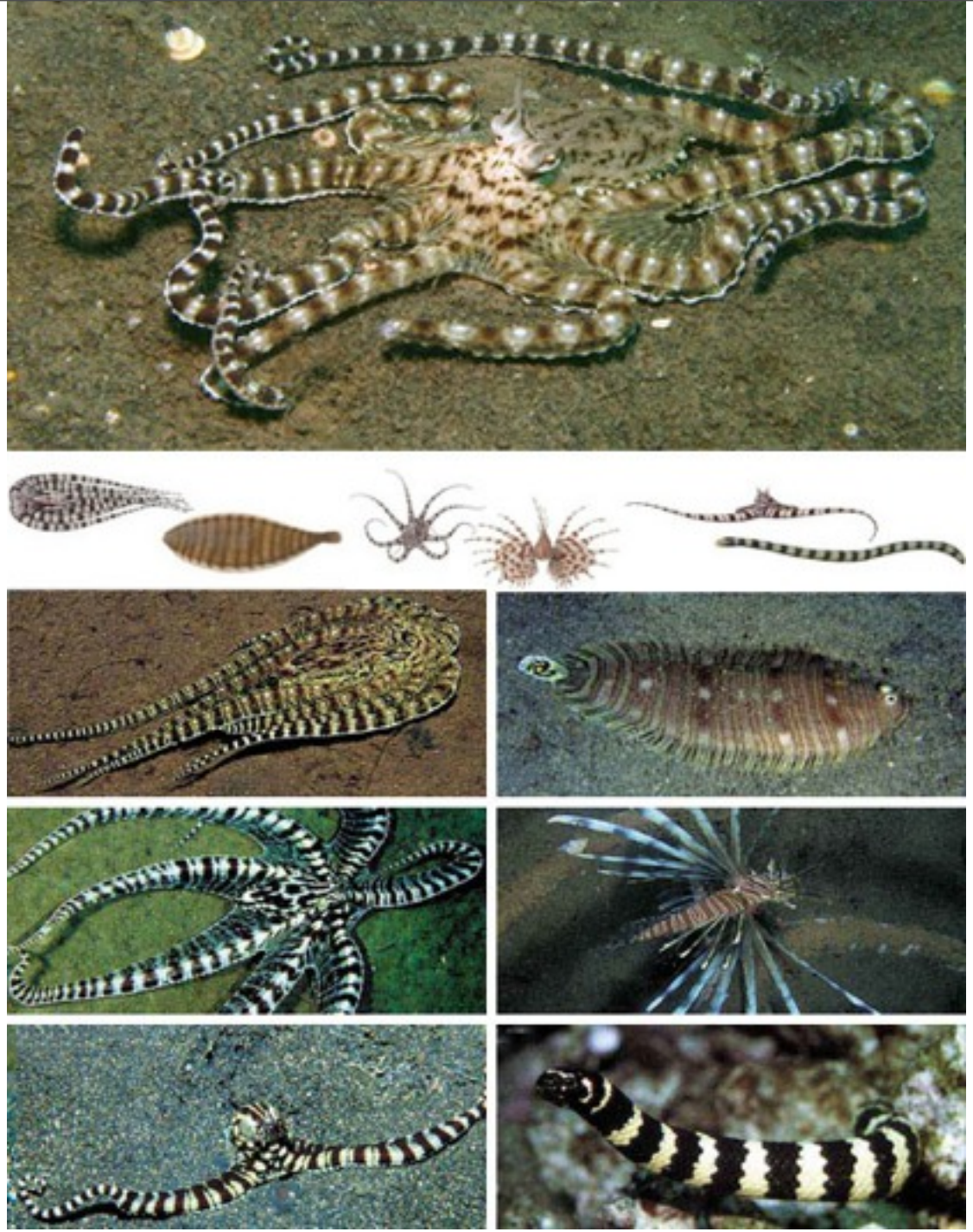
Find the octopus…

Octopus Attack

240 suckers
on each arm!

Octopus

Mimic Octopus

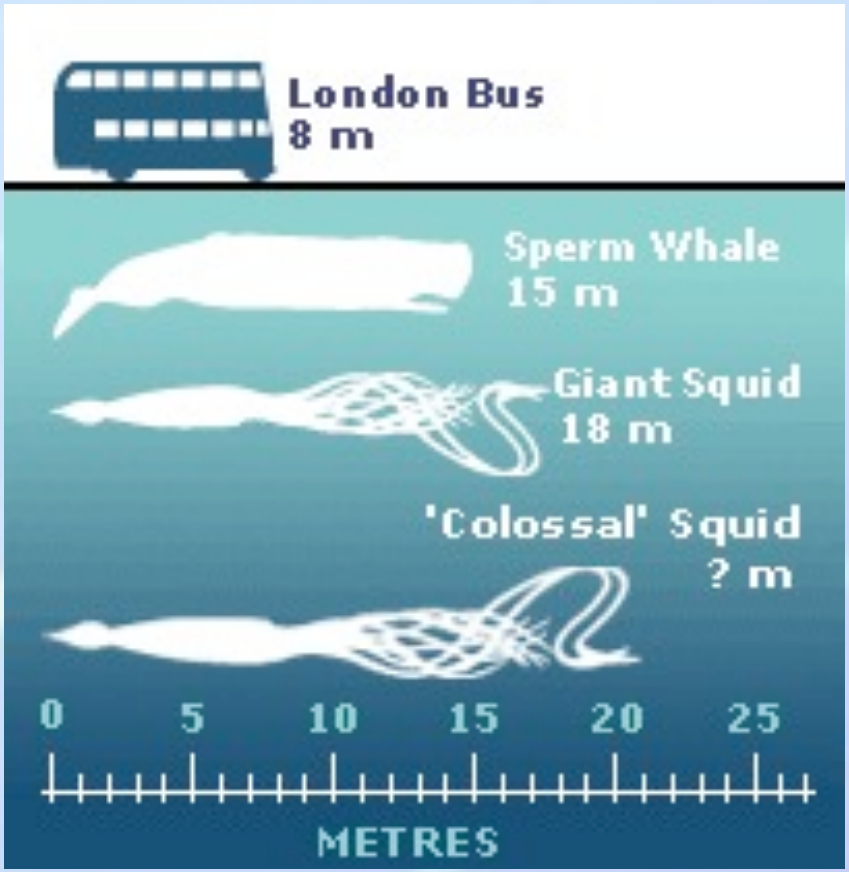


mimic octopus

direct funnel to swim backward, forward stabilizing fins

Colossal squid

Colossal squid



hooks on tentacles

Colossal squid beak

Colossal squid

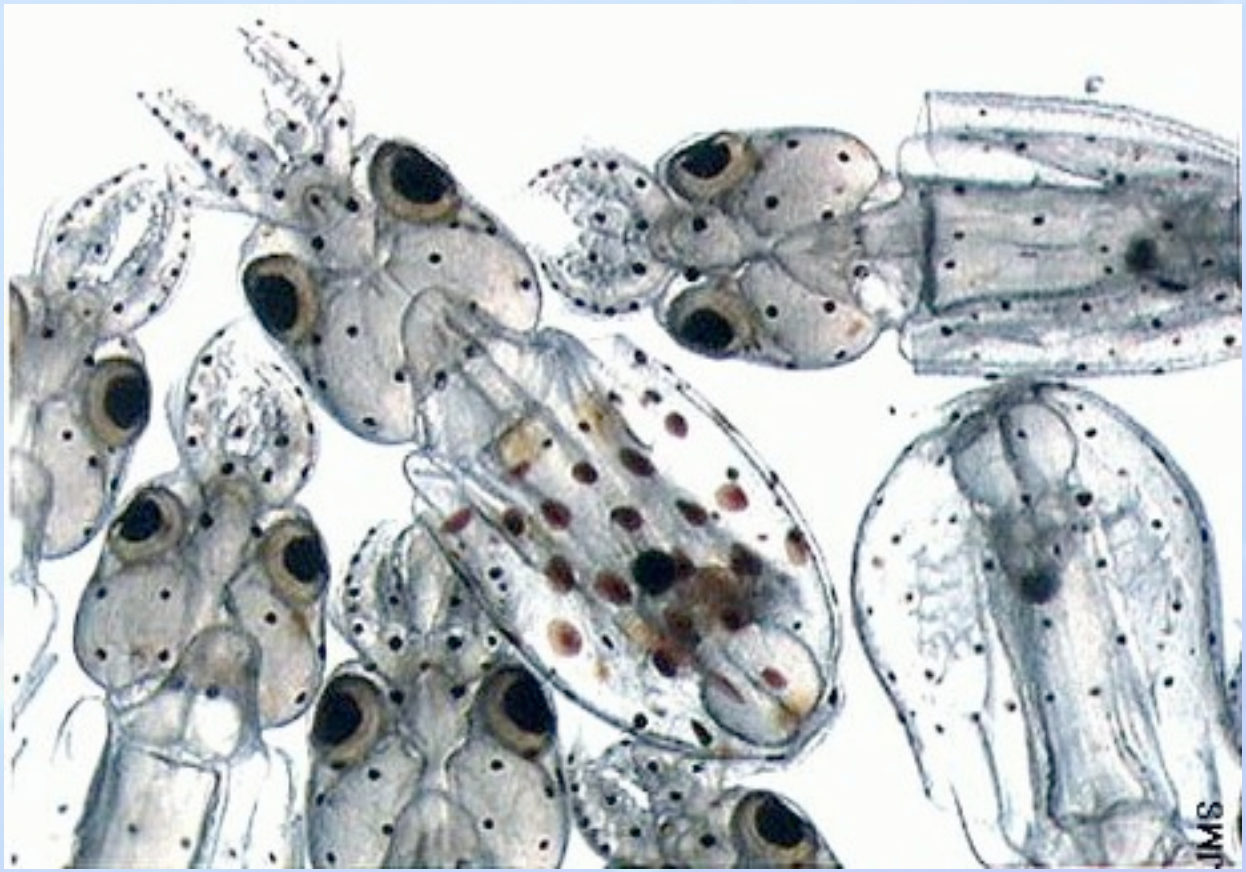
Live giant squid

Giant Squid Tentacle

special grooved arm of male transfers sperm into female siphons

Reproduction

Chromatophores



Chromatophores

- pigment in elastic pigment sac controlled by muscles and nerves
- Muscles contract, sac is stretched and pigment spreads out
- Muscles relax, pigment is condensed into small spot

- baby

Cuttle fish

- http://www.youtube.com/watch?v=QDm4pwOtQ9Y&feature=player_embedded

- How they time their skin cells to mime the movement of sunrays through water, angle changes, passing clouds, how they can split their displays in two, broadcasting one message to the right, a different message to the left, I have no idea. But they can. Watch.