

Phylum Chordata

Subphylum Vertebrata

Class Agnatha

**lamprey eels and
hagfish**

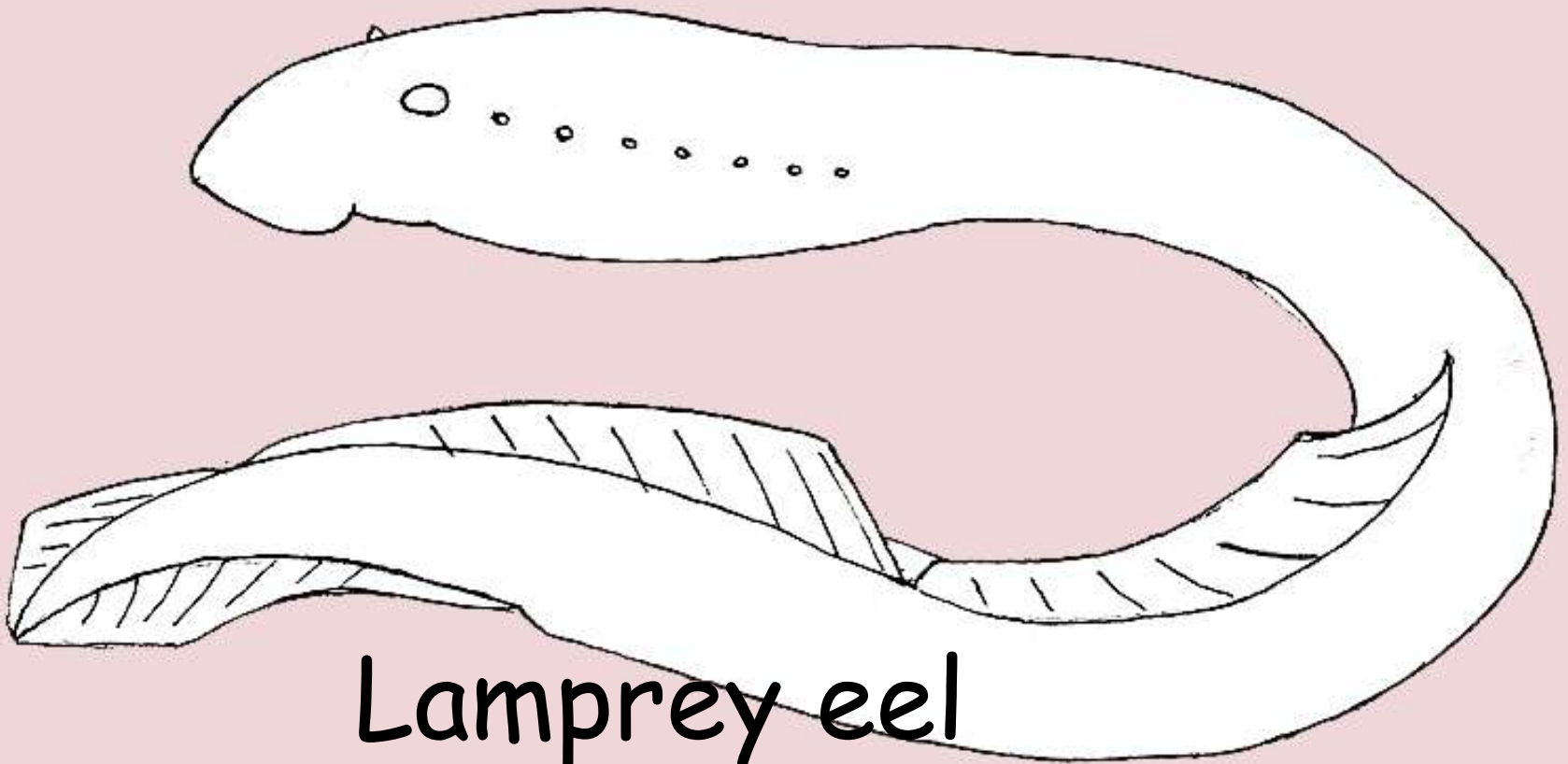
Characteristics

- a) without a jaw ("agnatha" - jawless)
- b) skeleton of cartilage with cartilage vertebra
- c) external gill pouches/ slits



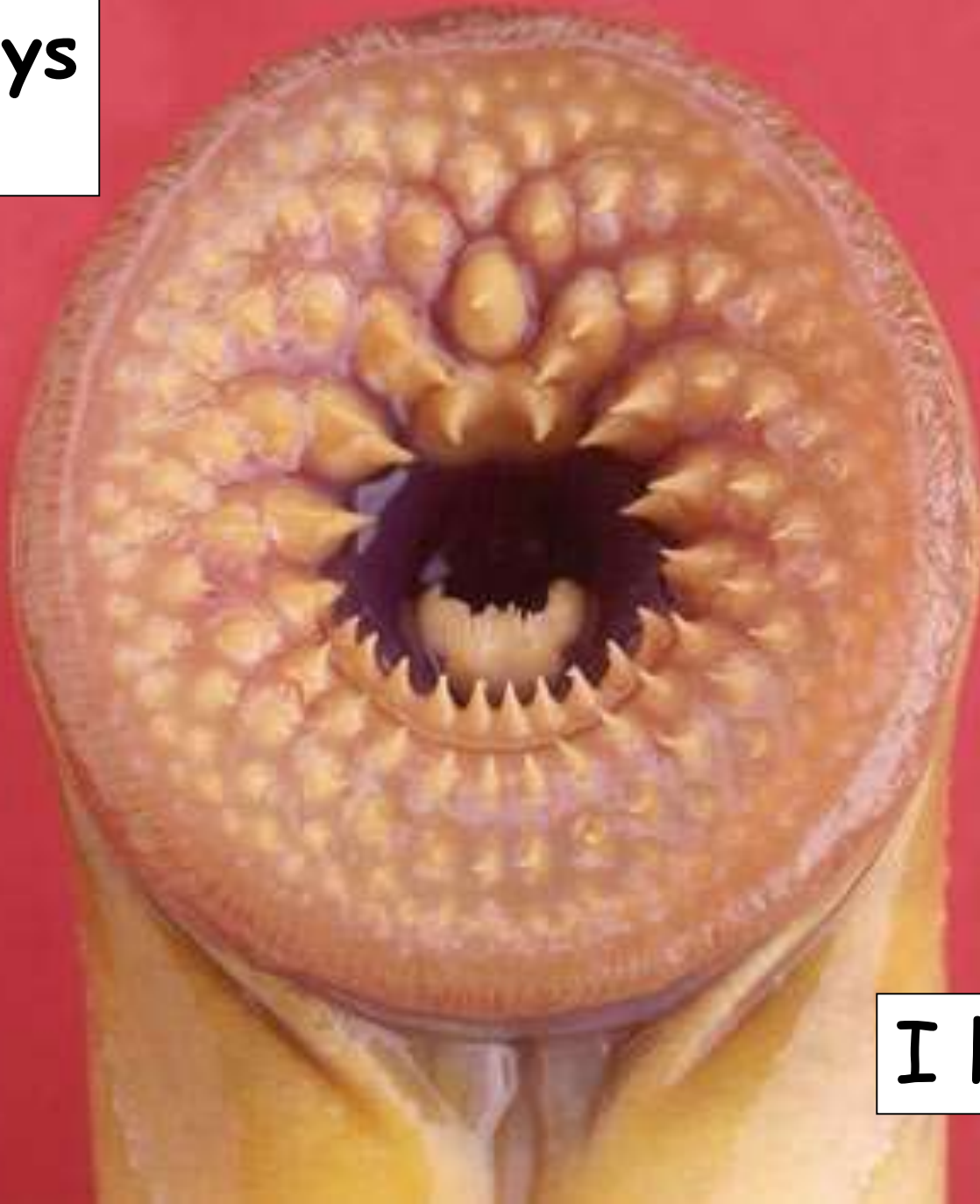
Ventral, jawless mouth

External gill pouches



Lamprey eel

Lampreys mouth



I luv you

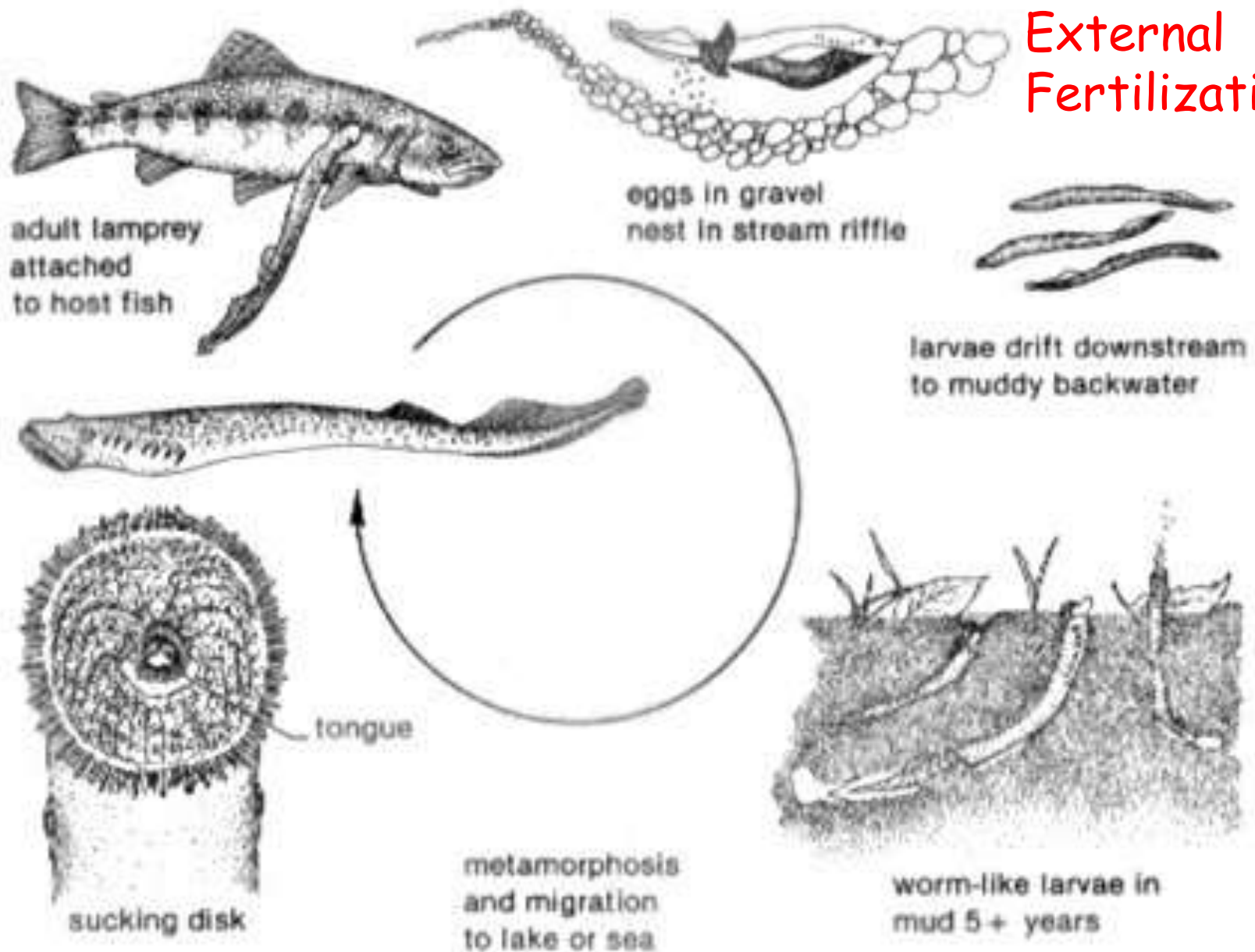
Lampreys

- a) live in lakes and the ocean
- b) larvae are filter feeders in the mud for several years

Lampreys are predators on large game fish - bass, trout



External Fertilization



Petromyzon marinus "stone sucker"



Hagfish - scavengers

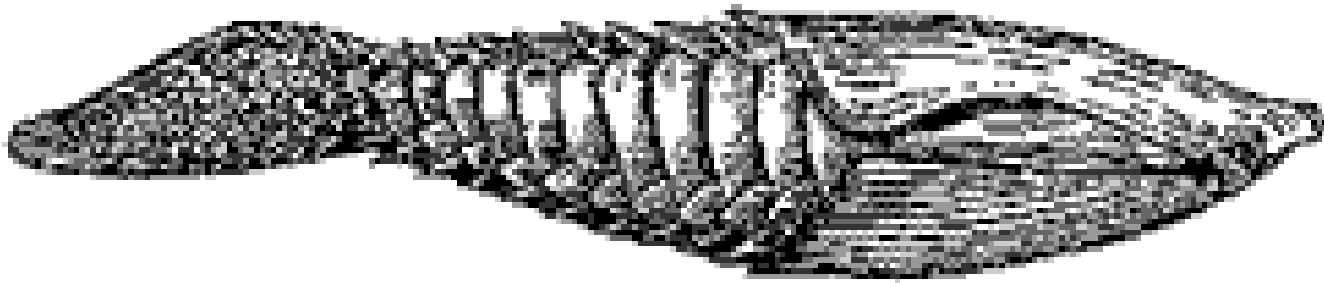


Hagfish - scavengers



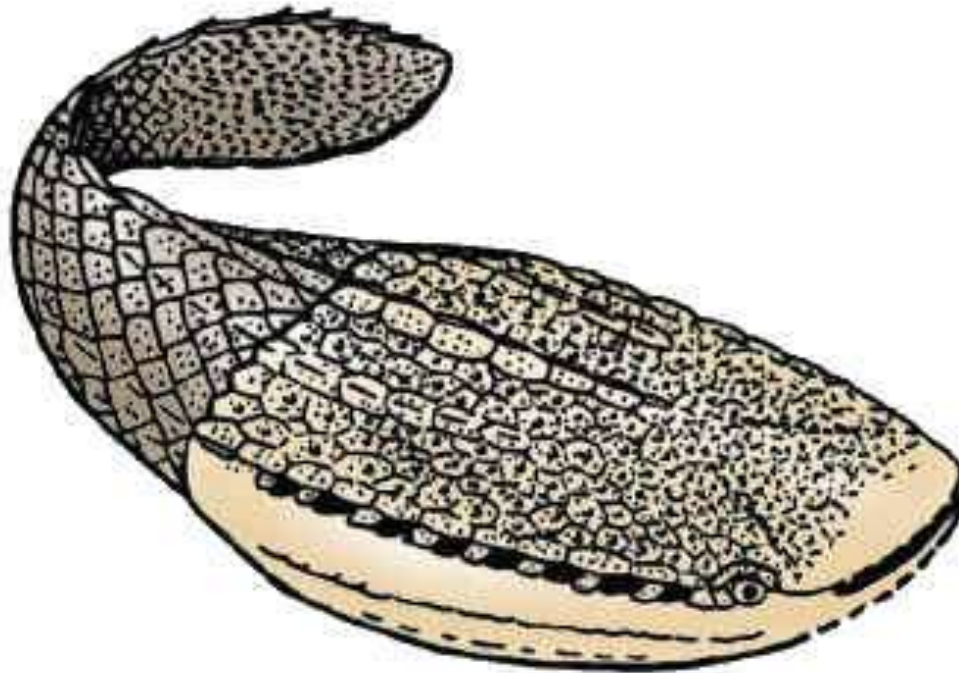
Hagfish secrete
slime when disturbed





Jawless, bony plated
Ostracoderm fish

Ordovician Period
505 mya Paleozoic



Scavengers/
filter feeders



Early ostracoderms provided the blueprint for subsequent vertebrate evolution

Silurian jawed fish with bony plates



- Sea Lamprey are found throughout the Great Lakes and clear, cold streams in the region. Construction and improvements on the Erie and Welland Canal (between Lake Ontario and Lake Erie) around 1921 allowed sea lampreys to get through the canal to the next lake.