

Sipuncula



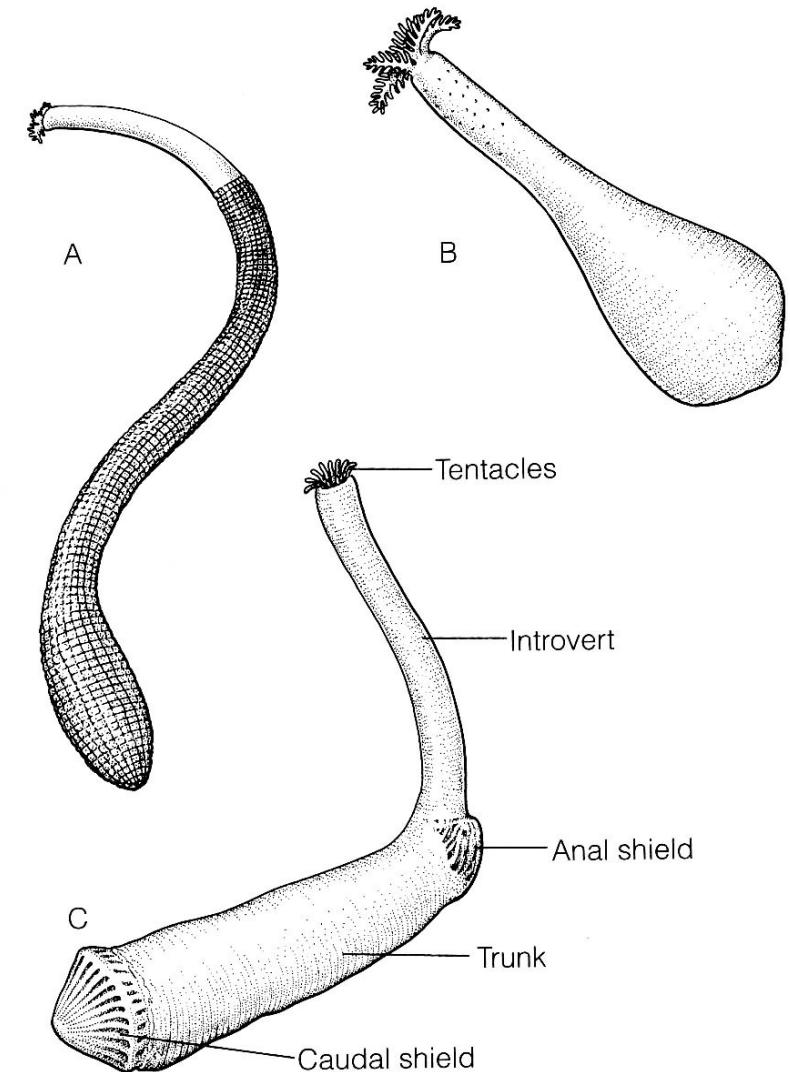
Anja Schulze

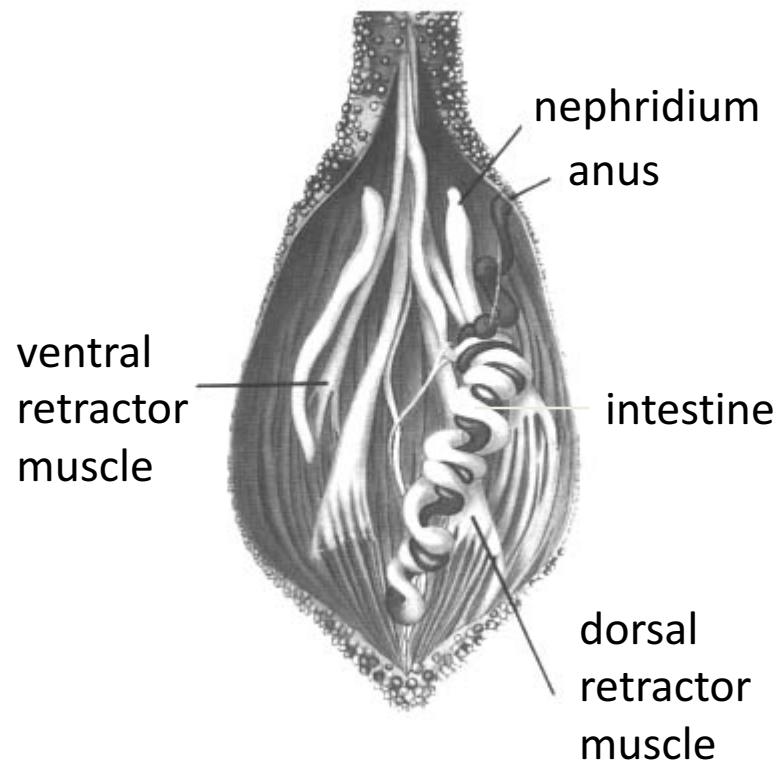
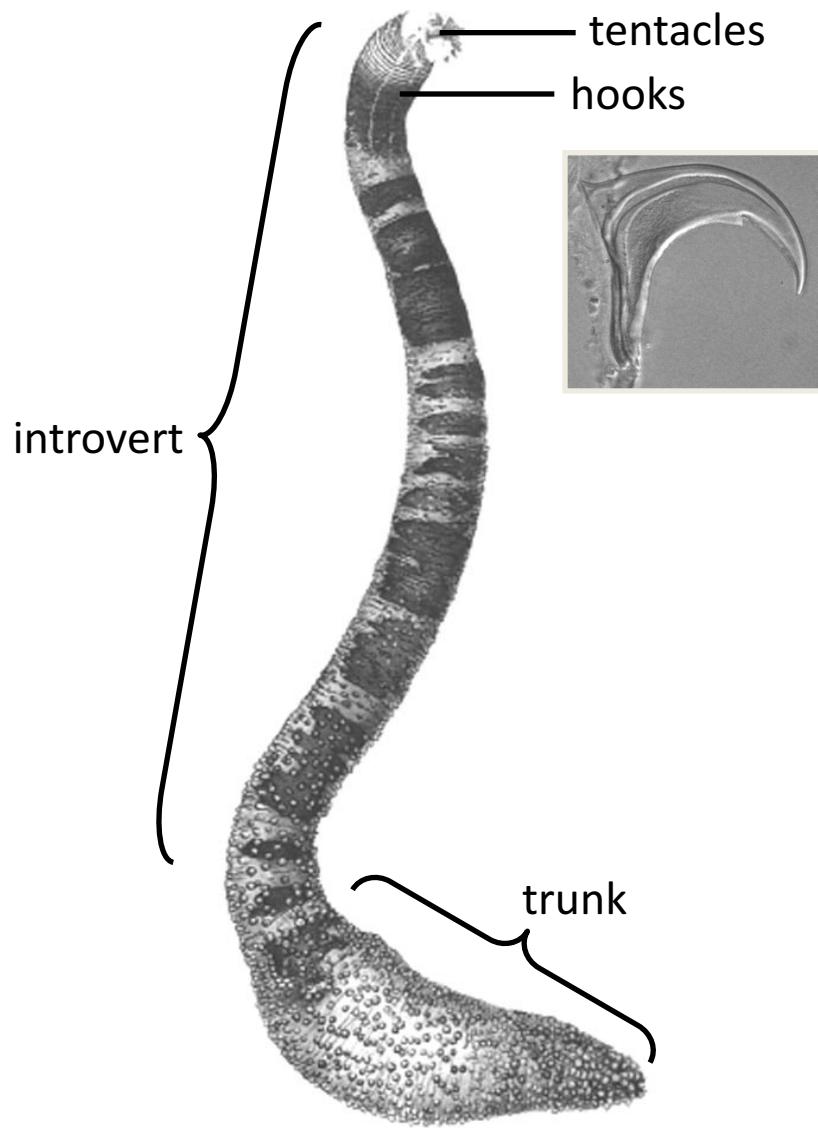
Texas A&M University – Galveston Campus



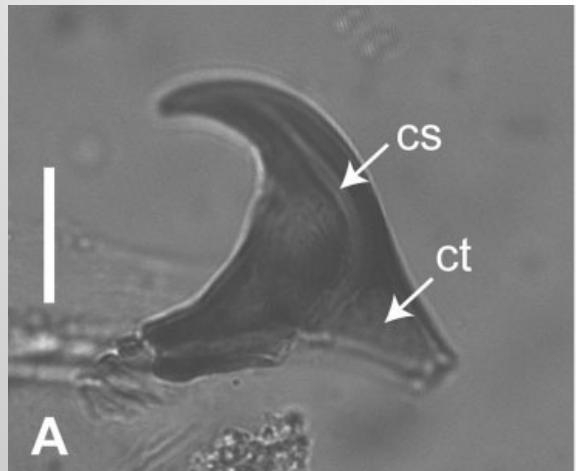
Morphology and Anatomy

- Body divided into introvert with tentacles and trunk
- Introvert can vary in length
- Introvert is fully retractable into trunk



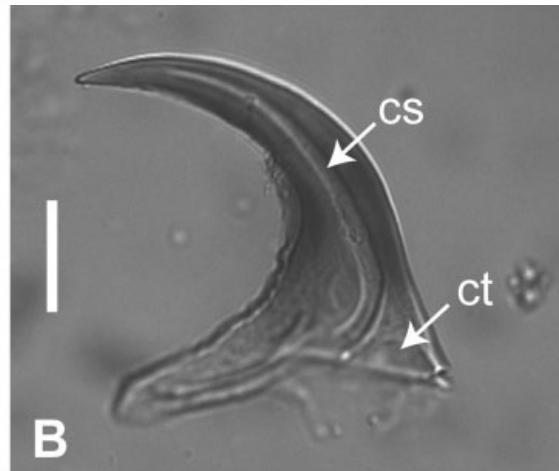


Introvert Hooks

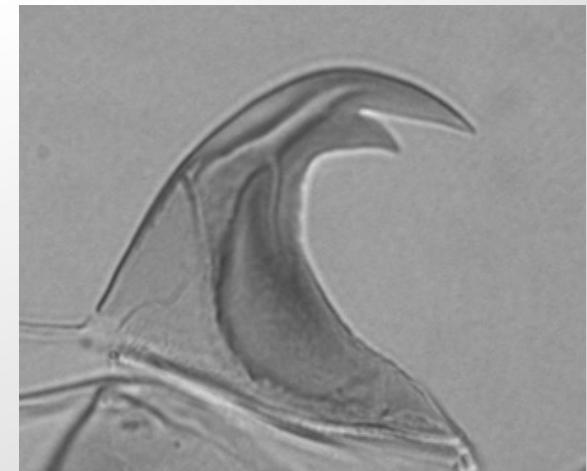


Sea of Japan

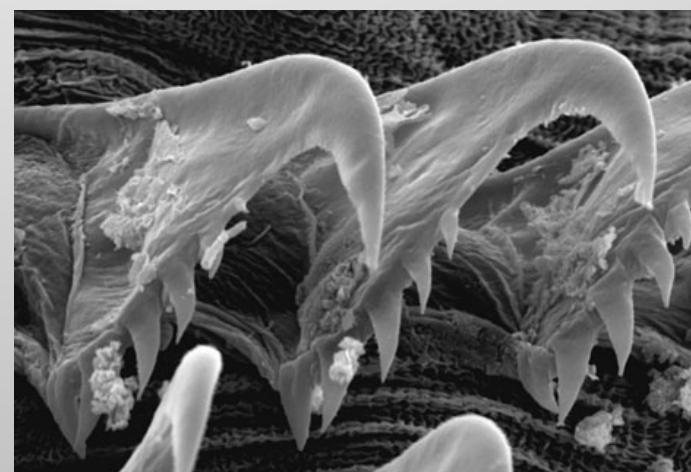
Phascolosoma agassizii



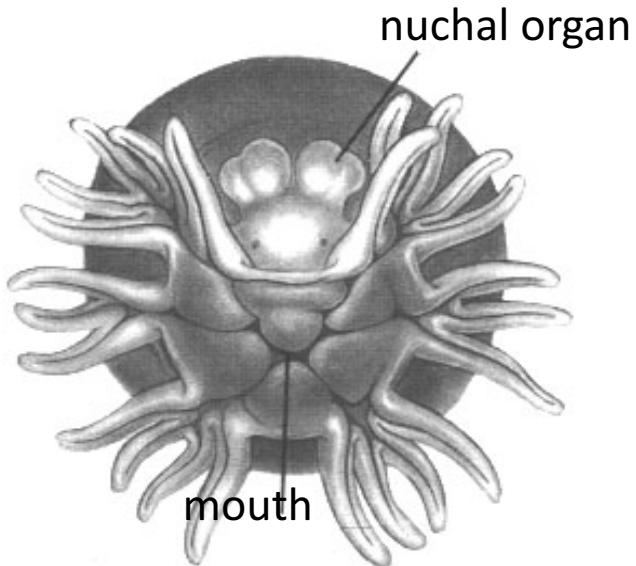
NE Pacific



Aspidosiphon sp.



Apionsoma pectinatum



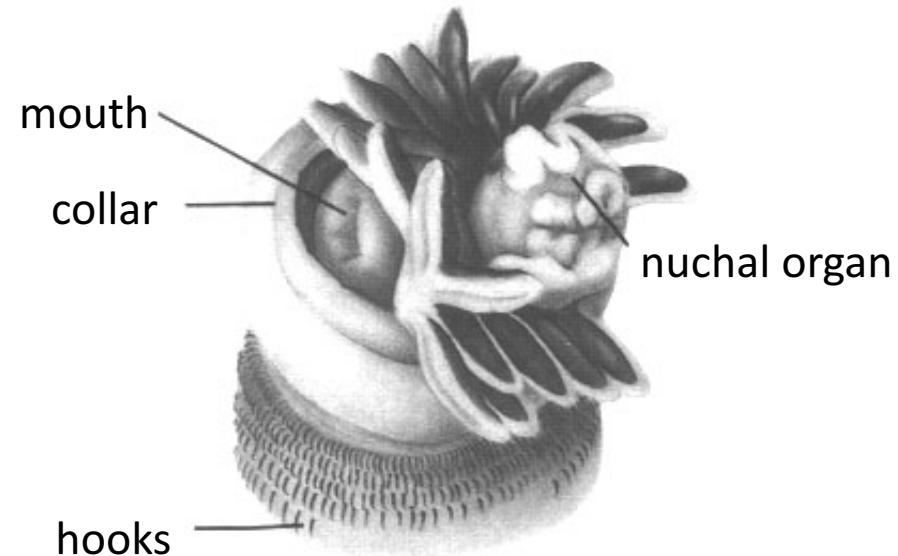
Sipunculidea:

- Tentacles surround mouth
- Nuchal organ lies outside of tentacle crown

Phascolosomatidea:

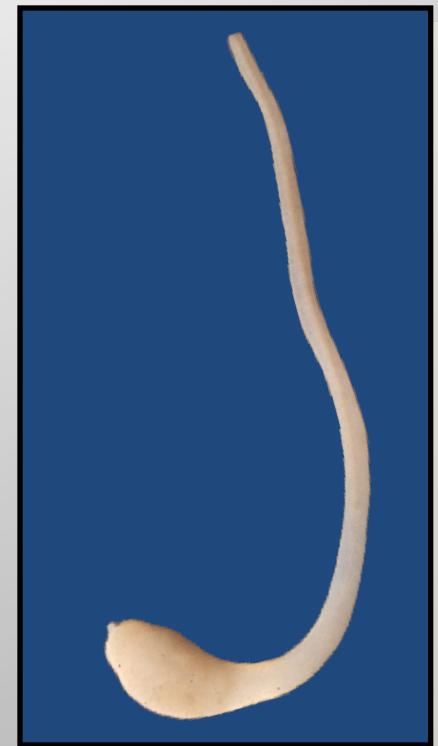
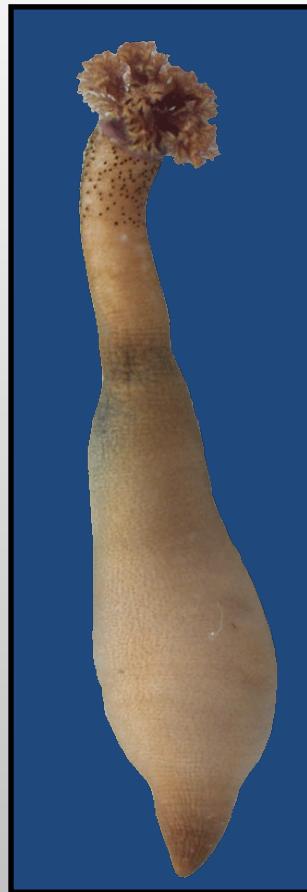
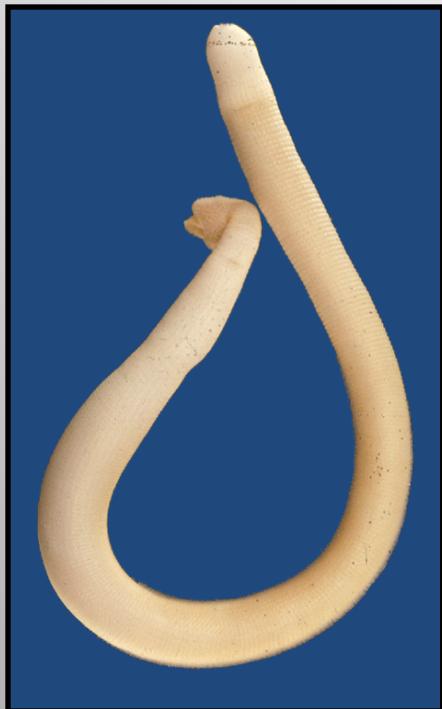
Tentacles arranged in horseshoe around the nuchal organ

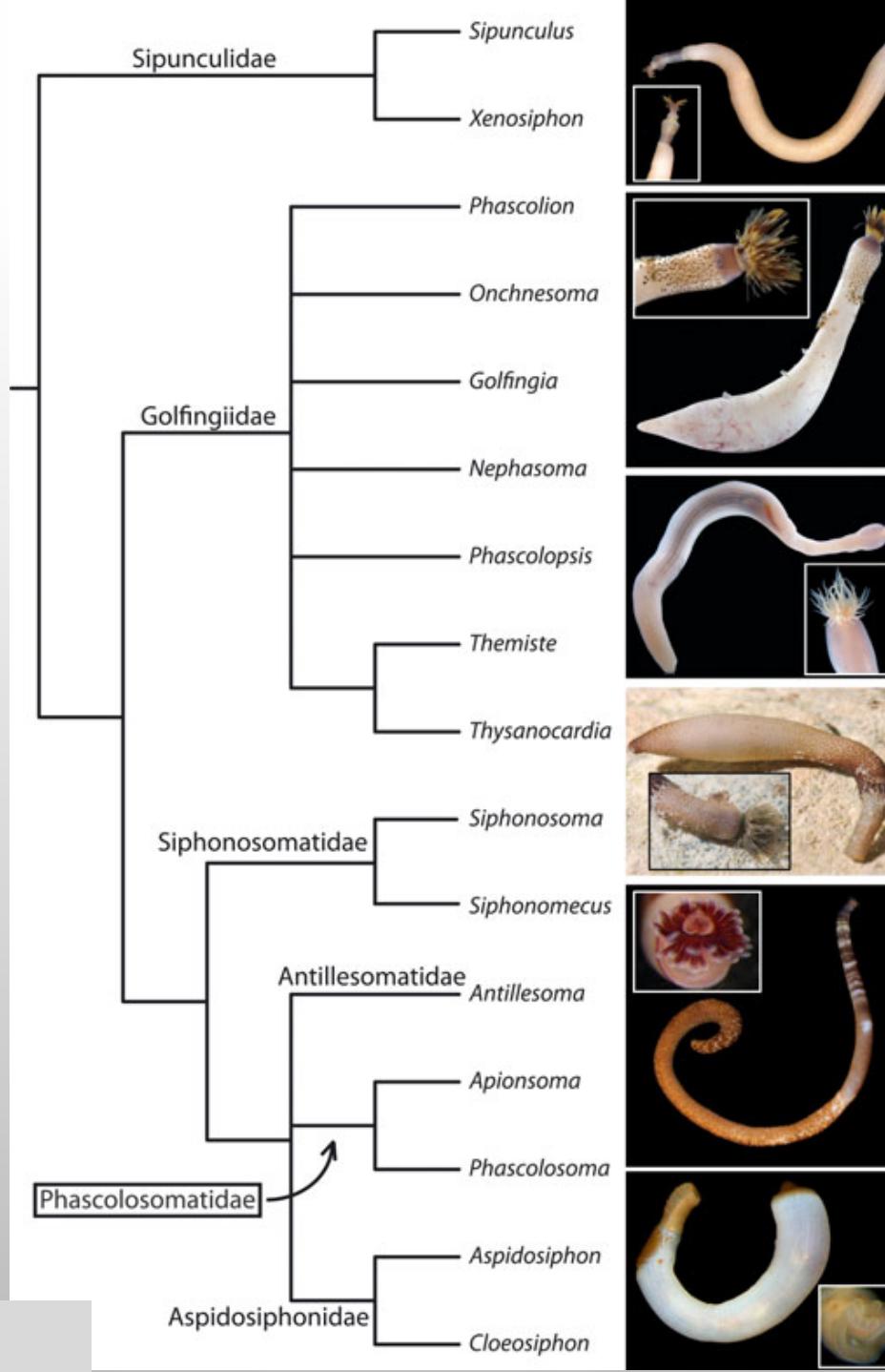
Mouth lies outside of tentacle crown



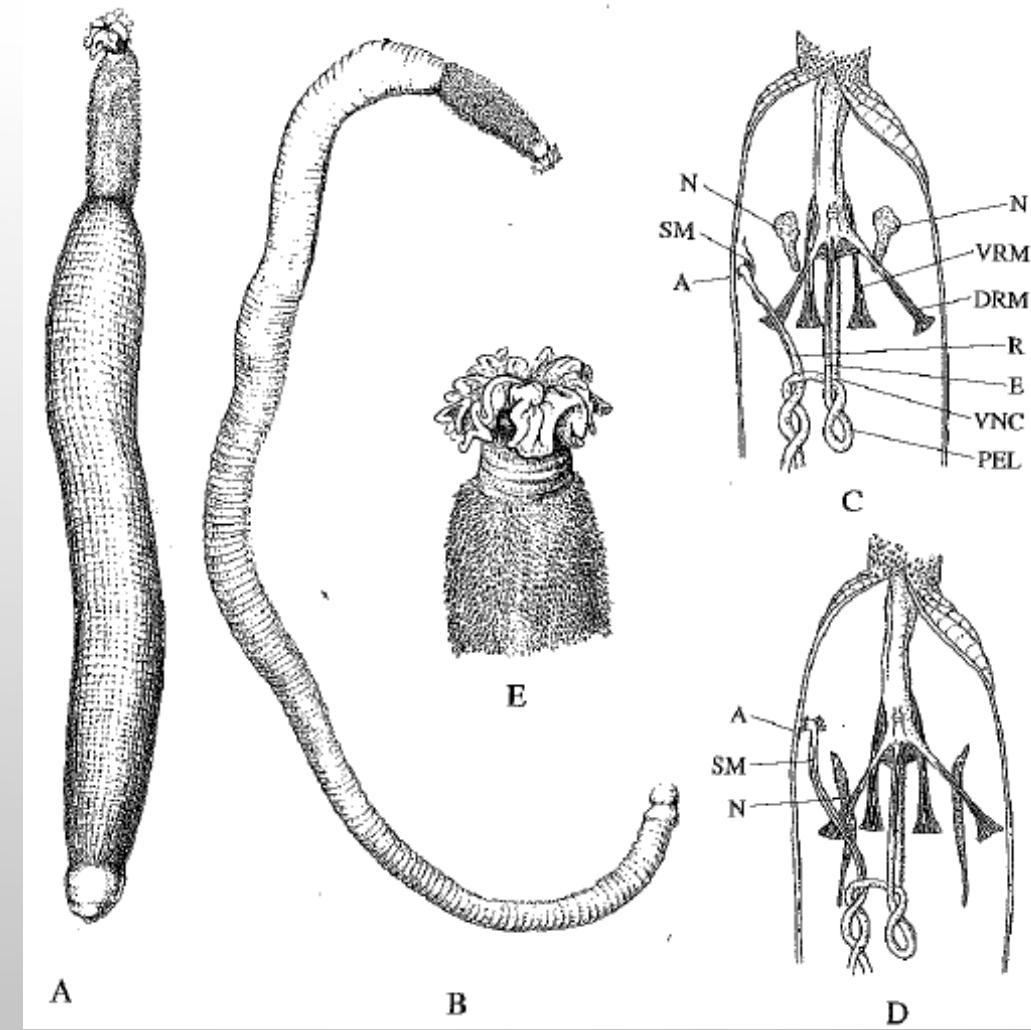
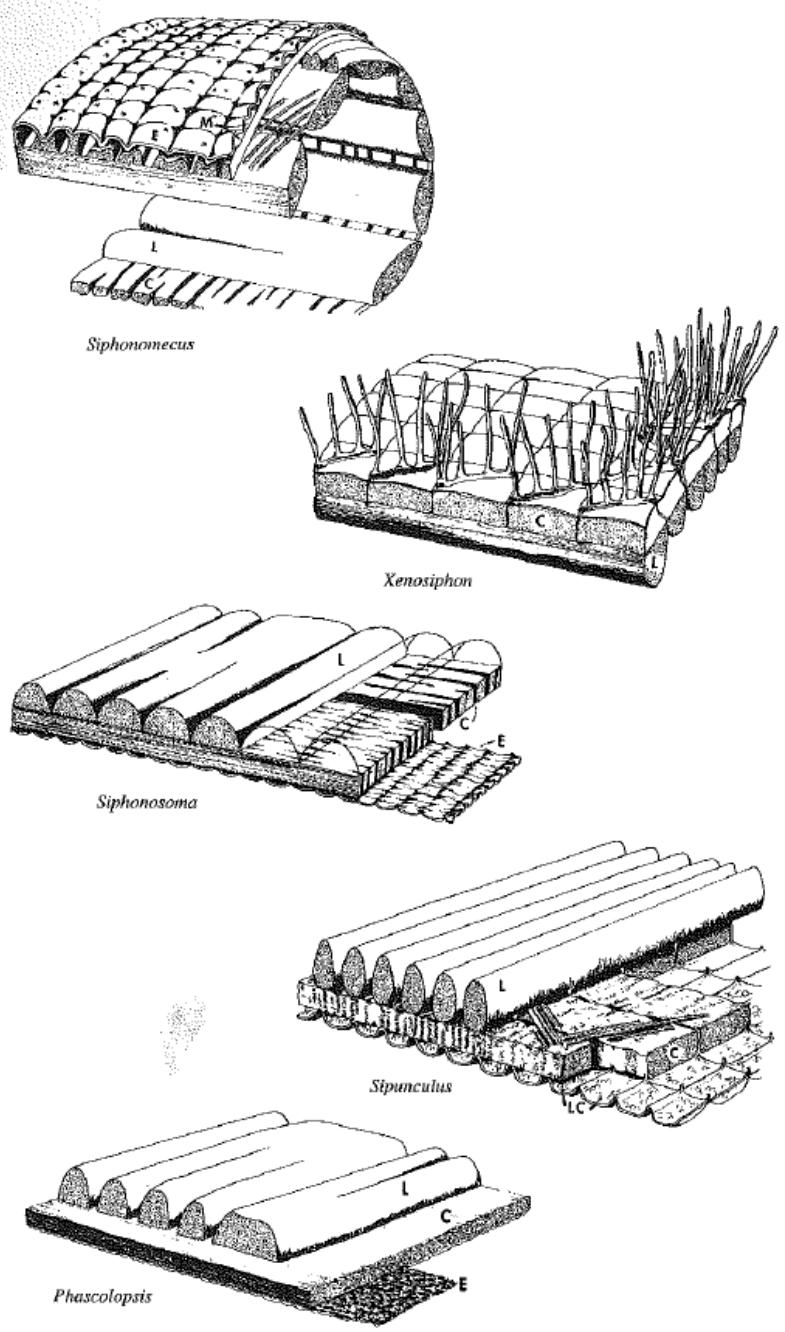
Rice (1993)

Sipunculan diversity: approximately 150 species





Sipunculidae



Sipunculidae

- *Sipunculus* and *Xenosiphon*
- Large, sediment-dwelling species
- Distinctive longitudinal and circular muscle bands
- Introvert much shorter than trunk



Sipunculus nudus



Xenosiphon branchiatus

Golfingiidae

- Most diverse clade: *Phascolion*, *Onchnesoma*, *Golfingia*, *Nephasoma*, *Phascolopsis*, *Themiste*, *Thysanocardia*
- Not many morphological characteristics common to all:
 - Smooth body wall
 - Tentacles surrounding the mouth

Golfingia and *Nephasoma*



Golfingia elongata

Four introvert retractor
muscles

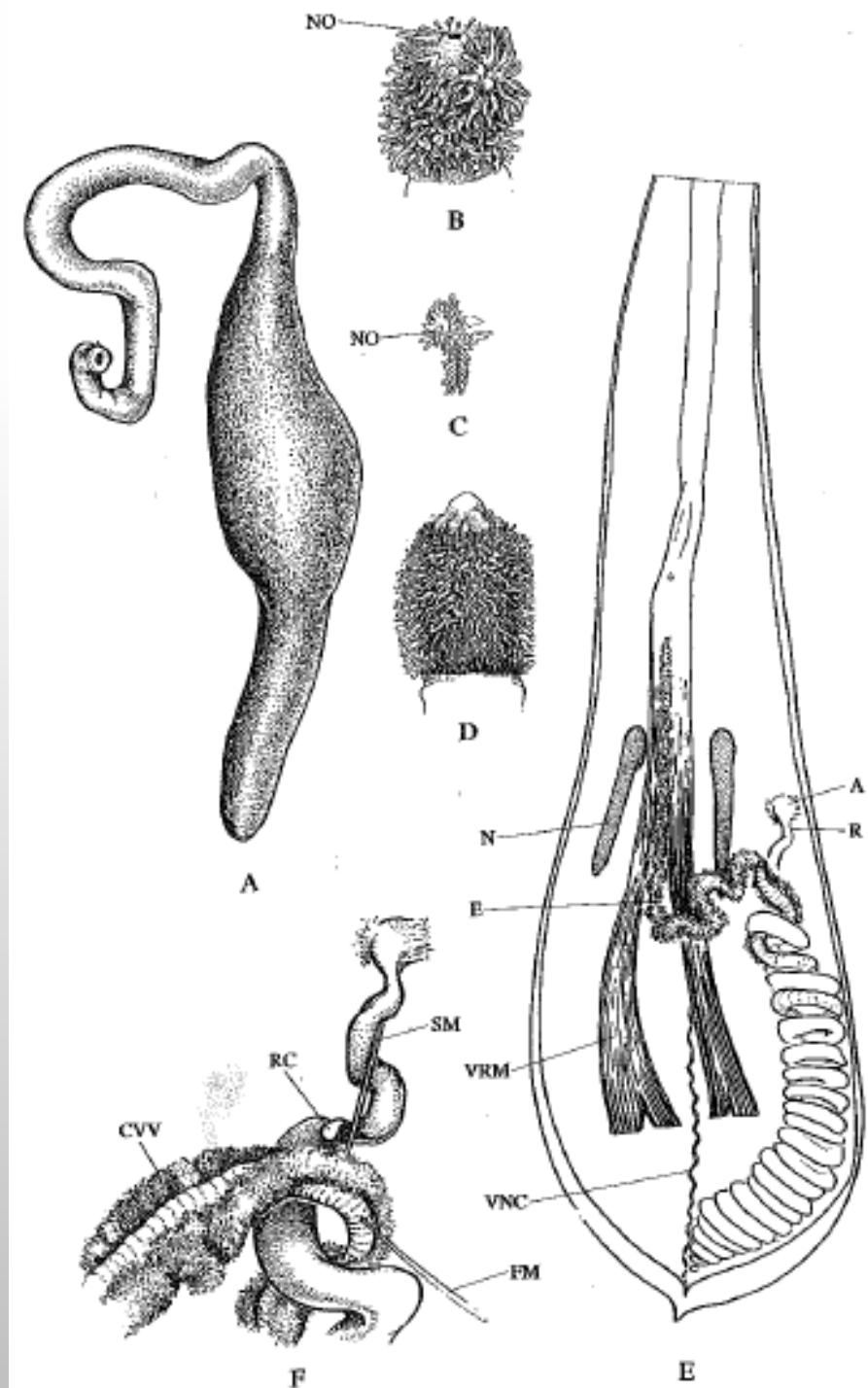


Nephasoma pellucidum

Two introvert retractor
muscles

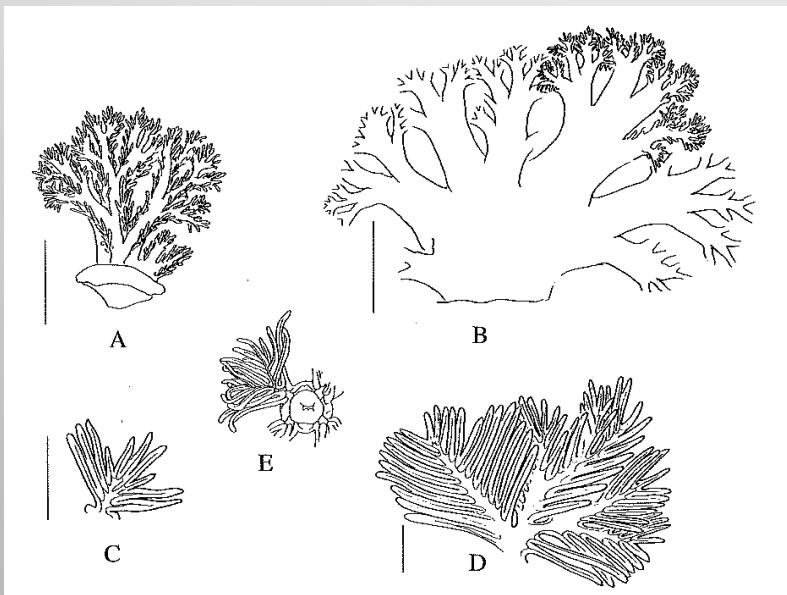
Thysanocardia

- Abundant contractile vessel villi
- Unique arrangement of tentacles

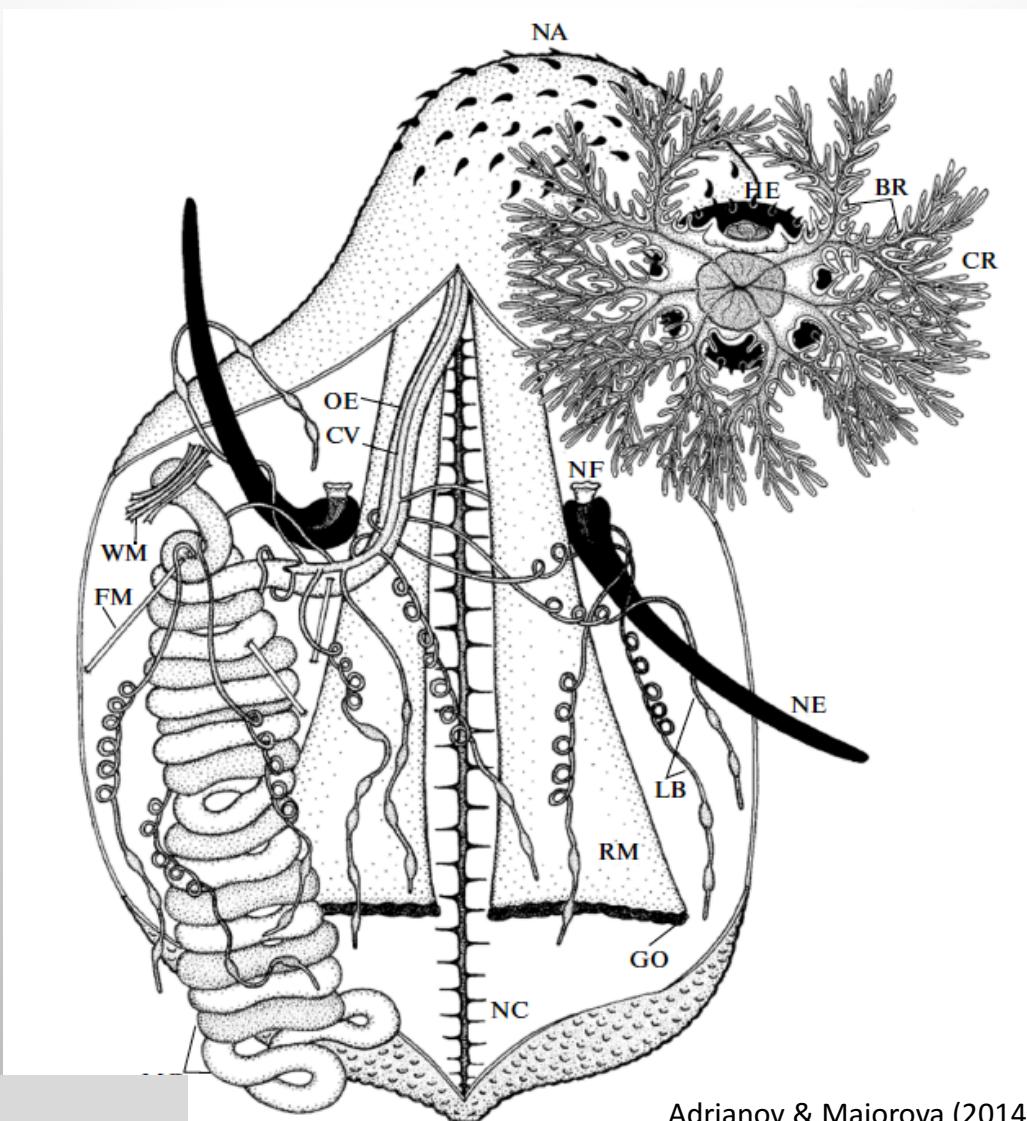


Themiste

- Branched tentacles
- Some with scattered introvert hooks
- Some with contractile vessel villi

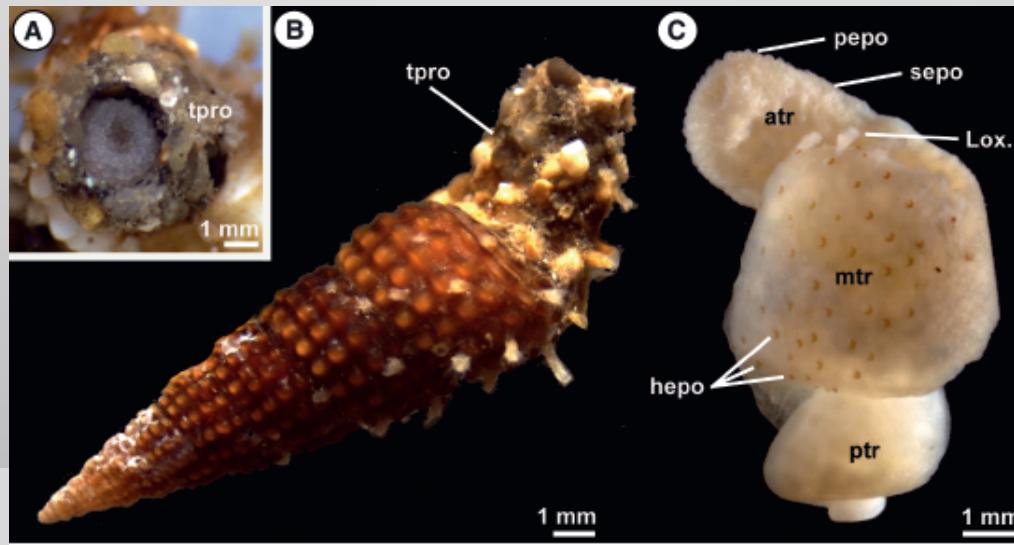


Themiste



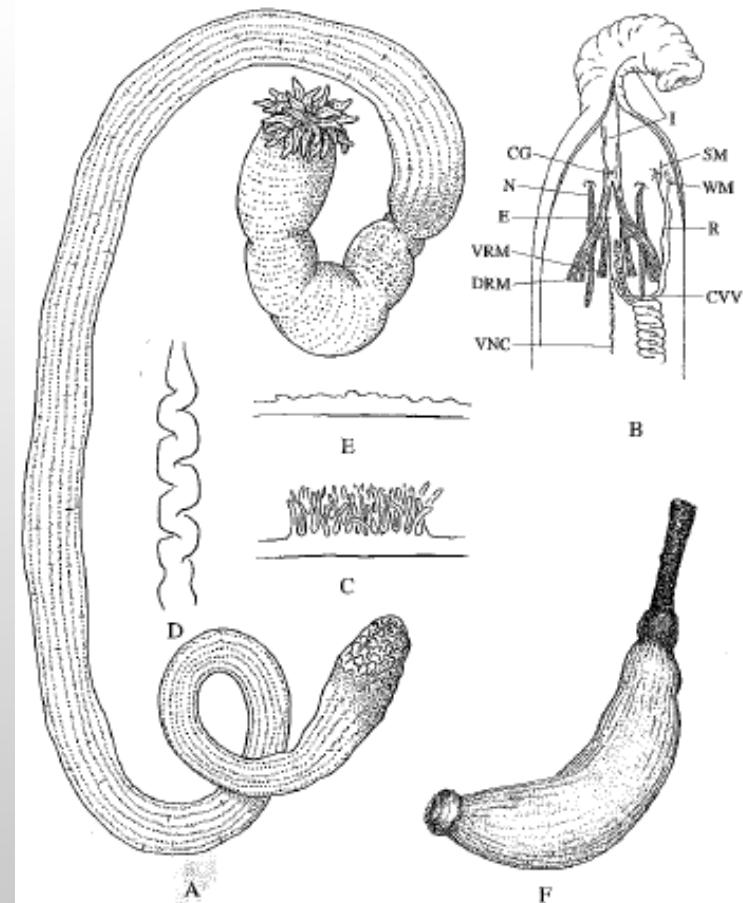
Phascolion

- Often inhabit gastropod shells
- Body covered in holdfast papillae
- Some with introvert hooks
- Single nephridium (usually right)
- Retractor muscles fused to various degrees



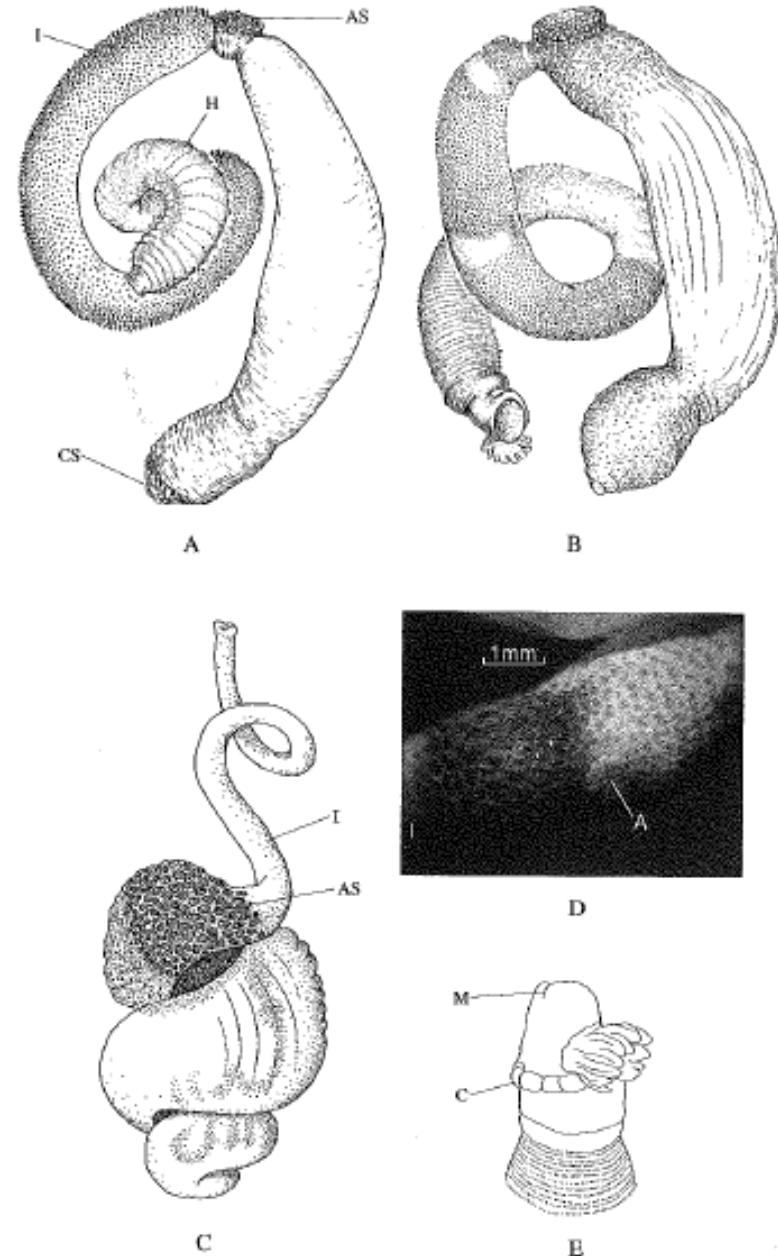
Siphonosomatidae

- Monogeneric clade (*Siphonosoma*)
- Relatively large species
- Introvert much shorter than trunk
- Circular and longitudinal muscles in anastomosing bands



Aspidosiphonidae

- Horny or calcareous anal shield
- Sometimes with caudal shield
- Two retractor muscles
- Introvert hooks scattered or in rings
- Longitudinal musculature smooth (subgenus *Aspidosiphon*) or in bands (subgenus *Paraspidosiphon*)
- Includes *Aspidosiphon*, *Lithacrosiphon* and *Cloeosiphon*



Aspidosiphonidae



A. elegans



A. fischeri



A. laevis



Aspidosiphonidae



A. parvulus



A. steenstrupii



Lithacrosiphon cristatus



Antillesomatidae

- Monogeneric and monospecific taxon (*Antillesoma antillarum*)
- Body covered with dark papillae
- Relatively long, often colorful tentacles
- Distinctive collar region



Antillesoma antillarum



Phascolosomatidae

- Hooks recurved, usually with internal structures
- Body often covered with rough papillae
- *Phascolosoma*: longitudinal body wall musculature in bands (with 1 exception)
- *Apionsoma*: body wall musculature smooth

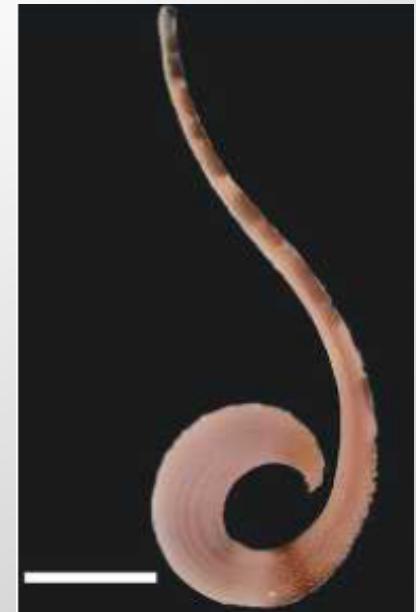
Phascolosomatidae



Apionsoma misakianum



Phascolosoma nigrescens



P. perlucens

