Lampreys and Hagfishes
Hagfishes

- Subphylum Vertebrata
- Class Pteraspidomorphi
  - Family: Myxinidae (Hagfishes, slime eels, or slime hags)
    - Common Species
      - Atlantic Hagfish (*Myxine glutinosa*)
Hagfish Feeding Habits

- Remarkable due to their lack of external features
- Feed on benthic invertebrates and **scavenge on dead and dying fish**
- Ventral mouth has tongue and 4 rows of keratin teeth
One Word: Mucus

- Have large numerous mucus pores
- Have 70 – 200 pairs of slime glands
- Mucus function is not completely understood
- The hagfish ties itself in an overhand knot to rid itself of the slime
- Leather made of “eel skin” are sometimes made from hagfish
That Looks Painful!
Structure

- 3 pairs of barbels around the nostril and mouth used as tactile organs
- Sides of body have 1–14 gill openings
- Rudimentary eyes on the top of the head
Hagfish Reproduction

- Both ovaries and testes are present but only one is functional
- Female lays large sausage shaped (2-3cm.) eggs, numbering 20-30
Lampreys

- Subphylum Vertebrata
  - Class: Cephalspidomorphi
    - Family: Petromyzontidae
    - Common Species
      - Sea Lamprey
        (Petromyzon marinus)
Sea Lamprey Habits

- Latches on sides of fish sucking blood and body juices (lymph)
- Some species are more predatory than others
  - Remove bones and organs!
Sea Lamprey Structure

- 2 separate dorsal fins with a maximum size of 47”
- Distinct oral disc with tooth-like plates of keratin on eversible tongue
- **Seven** pairs of gill openings on each side of the head
- Lacks paired fins
- Unlike hagfish, they have well-developed eyes
Sea Lamprey Structure

[Image of a sea lamprey and a close-up view of its mouth]

Hagfish & Lampreys
Lamprey Reproduction

- Anadromous
- Have both reproductive organs but only one is functional
- Male creates nest with stones
- Female spawns up to 124,000-260,000 eggs
Ammocoete

- Larval lamprey = ammocoete
  - Lives secretive life buried where it filter feeds on algae and detritus
Sea Lamprey Lifecycle

- Adult lamprey attached to host fish.
- Eggs in gravel nest in stream riffle.
- Larvae drift downstream to muddy backwater.
- Sucking disk.
- Metamorphosis and migration to lake or sea.
- Worm-like larvae in mud 5+ years.
Lampreys as Predators

- Great Lakes invasion by Sea Lamprey
  - 1890 Lamprey moves into Lake Ontario and Erie via Welland canal (mistake)
  - By 1946 lampreys are established in all the Great Lakes
  - Following the invasion large fish – lake trout and whitefish collapse with their associated fishery
  - Recover of fishery is impossible due to the low fecundity and long maturity rates of trout and whitefish

- A poison is specific for ammocoetes