

Feeding





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Feeding

- Prey capture in amphibians and reptiles has long been of interest to researchers
 - Differences in how you catch your food can have impacts on almost every aspect of your biology



Feeding Types

- Two main types of feeding
 - **Jaw Prehension**
 - **Lingual Prehension**



Jaw Prehension

- Food is captured using the jaws to grab
 - Crocodiles
 - Turtles
 - Some lizards
 - Snakes
- **Suction feeding** is a type of jaw prehension
 - Aquatic salamanders



Jaw Prehension: Movement



[Video](#)

- Jaw grabs can be accompanied by rapid body movement for prey capture (crocodiles, turtles, snakes)
- Example: Snapping turtles are ambush predators



[Video](#)

- They use rapid jaw movements to surprise prey items

Jaw Prehension: Snakes

- All snakes use jaw prehension, the tongue is only used for chemoreception
- Unlike crocs or turtles, biting alone cannot dispatch the prey in snakes
- Prey items are swallowed alive, but may be **constricted** or **envenomated** prior to consumption



Jaw Prehension: Constricting Snakes



[Video](#)

- Constriction works by increasing the internal pressure until the heart stops
- Much quicker than asphyxiation
- Some snakes can detect the prey's heartbeat, so they know when to stop

Jaw Prehension: Envenomating Snakes

- Copperhead venom is **hemolytic**
 - Destroys the red blood cells and releases the hemoglobin
- Timber rattlesnake venom can either be hemolytic or **neurotoxic**, depending on the population
 - Neurotoxins destroy nervous tissue, rendering prey immobile
 - CT ones are neurotoxic, congratulations!



Jaw Prehension: Suction Feeding

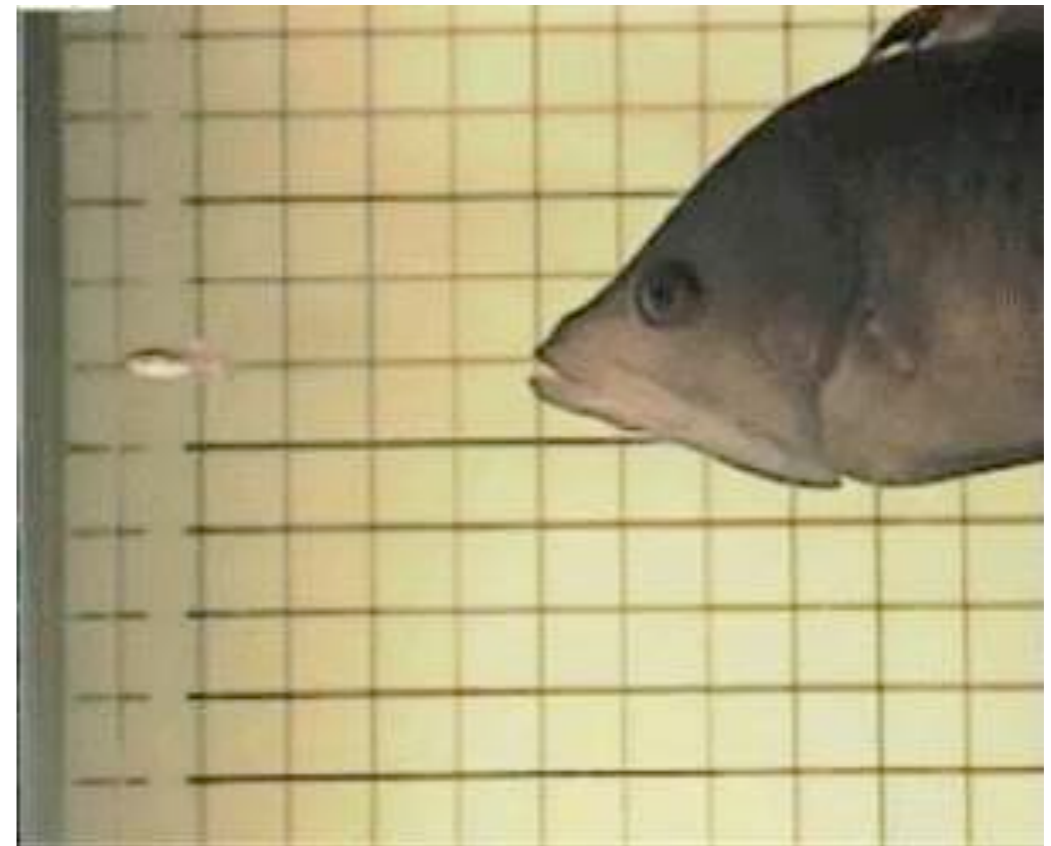
- Used by aquatic salamanders in CT.
- Many larval salamanders use suction feeding before metamorphosing into adults



[Video](#)

Jaw Prehension: Suction Feeding

- Rapid jaw opening and hyoid depression
- Negative pressure generated pulls water and food into the mouth
- Common in fish



Lingual Feeding



- Lingual feeding is using the tongue to capture prey items
- Frogs & toads
- Salamanders
- Some lizards

Lingual Feeding: Frogs and toads

- Not as spectacular as some of the salamanders and lizards, but still extremely [fast](#).



Lingual Feeding: Chameleons

- Launch the tongue at extremely high speeds
- You can see the effects of temperature in the tongue retraction



[Tongue Launch](#)

[Cold Tongue Retraction](#)

Lingual Feeding: Salamanders

- Plethodontid salamanders
 - Extreme lingual feeding adaptations
 - No lungs = more space for coiled tongues
 - Tongue launch is like a bow and arrow... only retraction is affected by temperature
 - Examples:
 - [*Eurycea*](#)
 - [*Hydromantes*](#)
- Other terrestrial salamanders with lungs:
much shorter tongue
 - [*Ambystoma*](#)

