

Connecticut Fish Diversity I

June 6, 2014

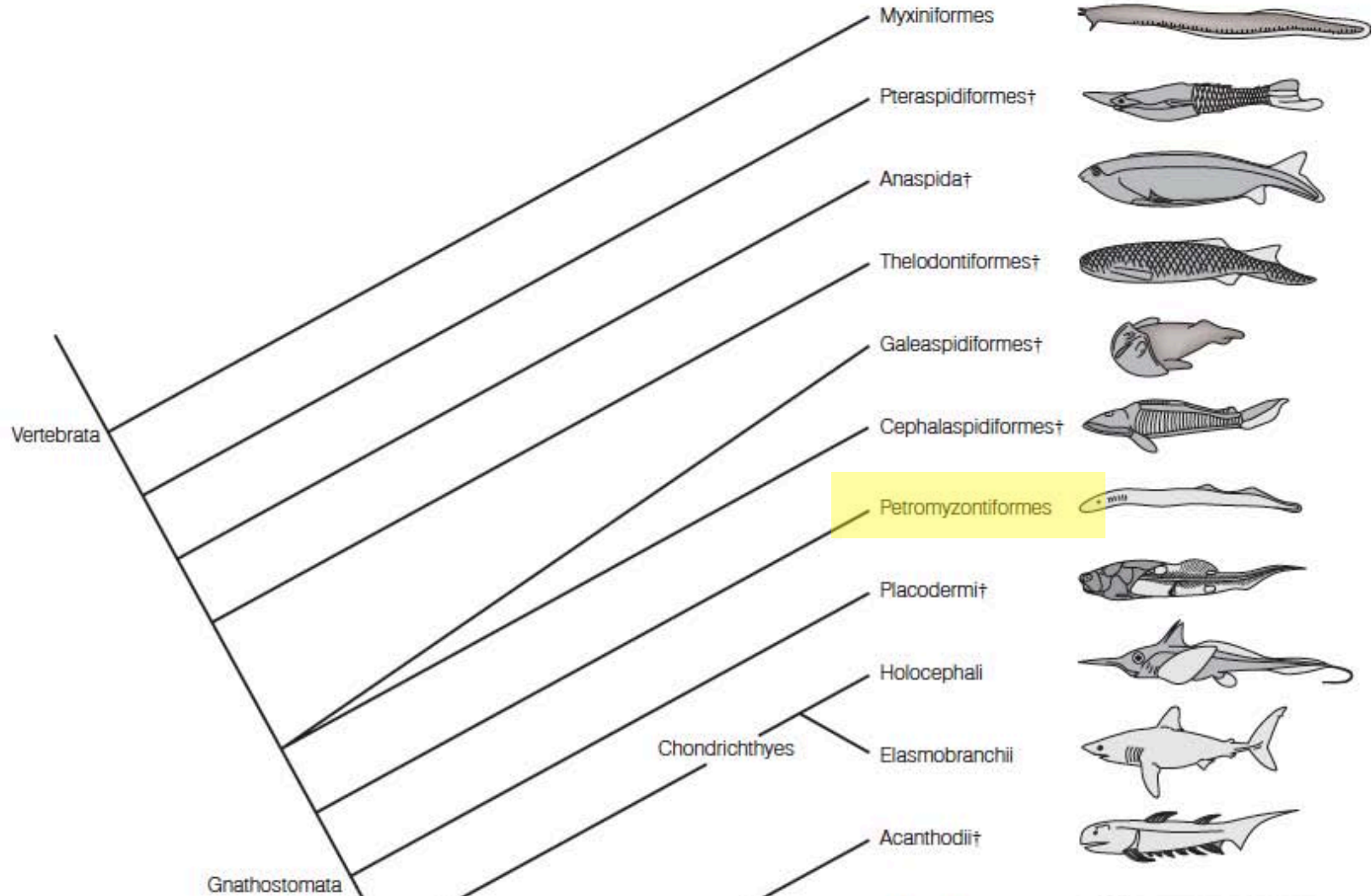
Connecticut freshwater families

- Petromyzontidae - Lamprey
- Anguillidae – Freshwater eels
- Catostomidae – suckers
- Cyprinidae – minnows and carps
- Centrarchidae – sunfishes and freshwater basses
- Percidae – perches and darters

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The lamprey are jawless – agnathostomata



Connecticut lamprey

- Sea lamprey (*Petromyzon marinus*)
- American brook lamprey (*Lamprreta appendix*)
 - *Endangered in Connecticut*



Identification of lamprey

- No paired fins
- No jaws
- No scales
- 2 soft dorsal fins
- Sucking disk for mouth
- A single nostril
- Keratinized teeth – no dentine



Life history of Sea Lamprey



- **Anadromous** – born in FW, migrate to SW
- Larvae are called **ammocoetes**, they burrow in sand or mud in FW for ~ 5 years.
 - They have no eyes and no teeth
- Migratory form are **transformants** – develop eyes and teeth
- Adults parasitize other fish by rasping and sucking



Minnows and carps (**Cyprinidae**) and suckers (**Catostomidae**) are in the order **Cypriniformes**

- **Cypriniformes** are the largest order of *freshwater* fishes

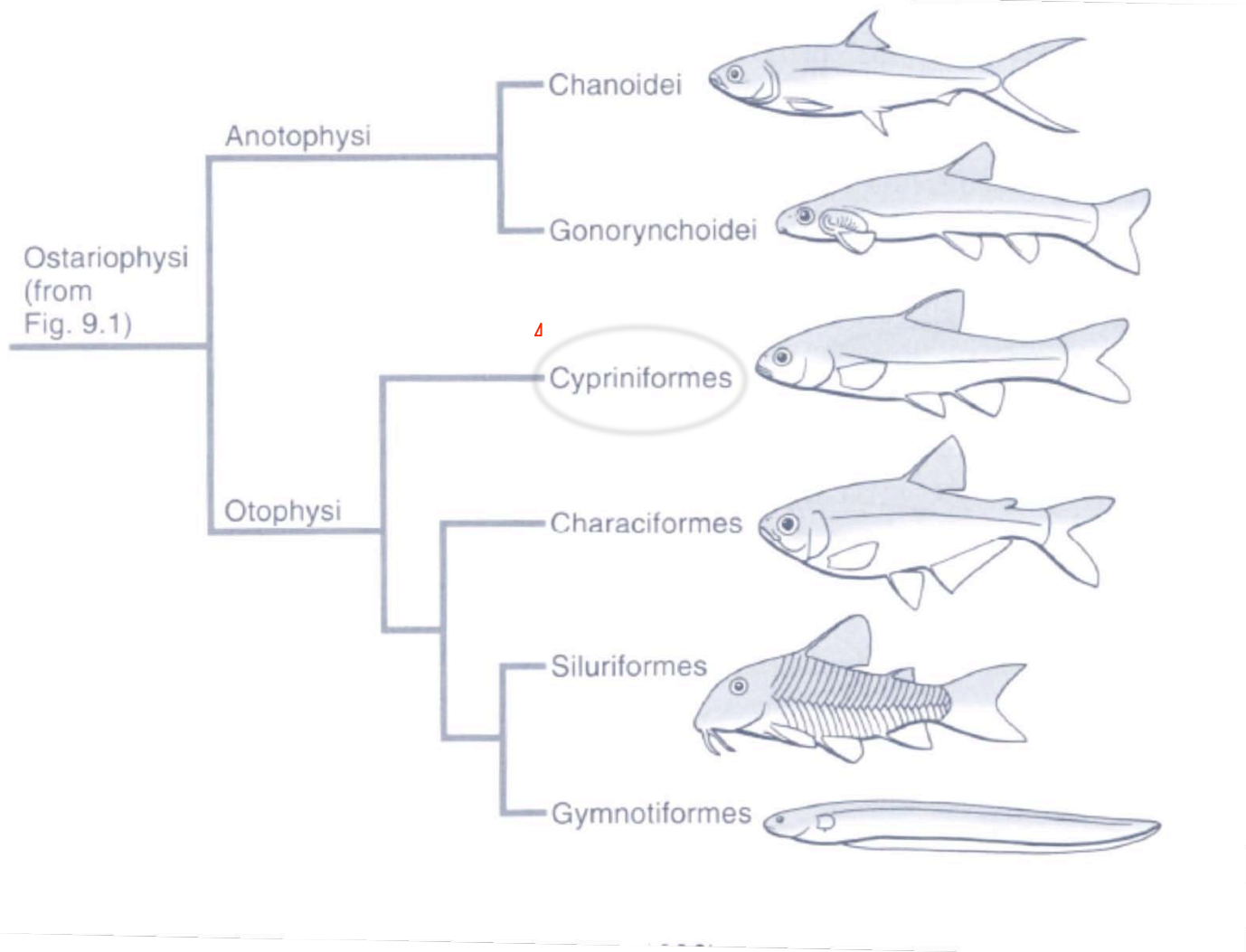


Cyprinidae



Catostomidae

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Minnows and carps (**Cyprinidae**) and suckers (**Catostomidae**) are in the order **Cypriniformes**

- **Cypriniformes** are the largest order of ***freshwater*** fishes
- The **Cyprinidae** are the largest family of ***freshwater*** fishes and the second largest family of all fishes.
 - There are 2,200 cyprinid species

Identification of Cyprinids

- *Usually* no spines
- Single dorsal fin – *usually* 8 rays
- Forked tail
- Pelvic fins beneath dorsal
- Scales absent from cheeks
- Many difficult to ID in the field, especially shiners



Some characteristics of Cyprinids

- Cyprinids have toothless jaws and eat invertebrates or vegetation
- Often found in schools



Connecticut Cyprinids

- Common carp (*Cyprinus carpio*)
- Common shiner (*Luxilus cornutus*)
- Golden shiner (*Notemigonus crysoleucas*)
- Fallfish (*Semotilus corporalis*)
- Blacknose dace (*Rhinichthys atratulus*)
- Spottail shiner (*Notropis hudsonius*)

16 species in total
9 native



Spottail shiner (*Notropis hudsonius*)

- Very abundant in large rivers
- Occur in some lakes with significant tributary streams....e.g., Mansfield Hollow
- Prefer sandy, slow flowing areas
- Extremely important forage fish in Connecticut



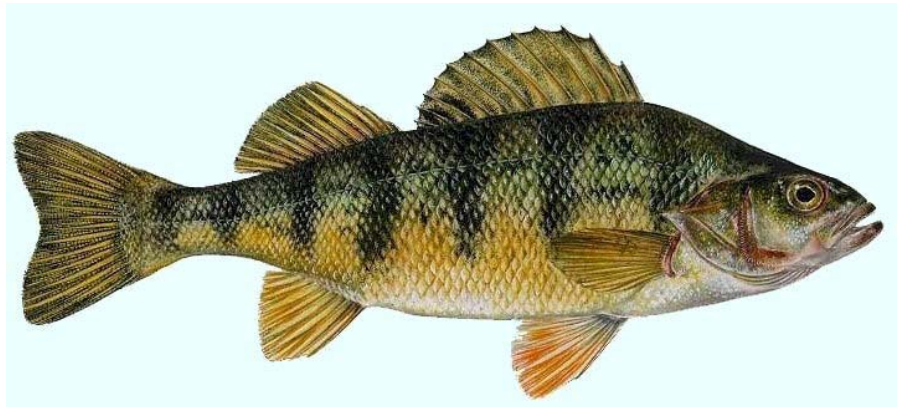
Centrarchidae and **Percidae** are in the order **Perciformes** and are in the group ***Acanthomorpha*** (***spiny rayed fishes***)

- **Perciformes** is the largest order of fishes with over 10,000 species.



Centrarchidae are
sunfishes and FW basses

Percidae are the
perches



Centrarchidae are the sunfishes and freshwater basses

- Deep bodied
- 1 **spiny**, 1 soft dorsal fin attached or not widely separated
- Anal **spines**
- Lack opercular serrations or spines



Pumpkinseed

Centrarchidae are the sunfishes and freshwater basses

- Dominant freshwater carnivores in USA and southern Canada
 - Eat invertebrates and smaller fishes
- Males build and guard circular nests in the sand



A cluster of sunfish nests

Connecticut Centrarchids

- Freshwater basses are largemouth (*Micropterus salmoides*) and smallmouth (*Micropterus dolomieu*) bass, both introduced for sport.



Connecticut Centrarchids

- Other introduced centrarchids:
 - Black crappie (*Pomoxis nigromaculatus*)
 - Rock bass (*Ambloplites rupestris*)
 - Bluegill (*Lepomis macrochirus*)
 - Green sunfish (*Lepomis cyanellus*)
- Native centrarchids:
 - Pumpkinseed (*Lepomis gibbosus*)
 - Redbreast sunfish (*Lepomis auritus*)

Lepomis frequently hybridize

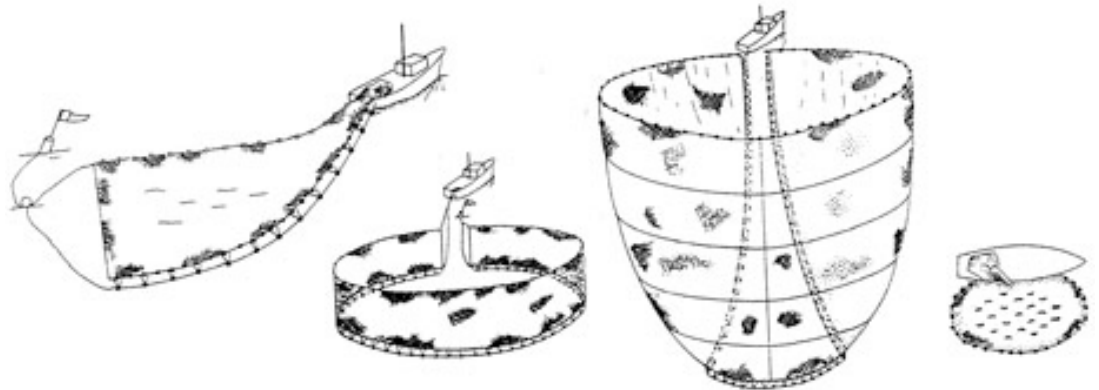
Active Capture Devices

- Gears require human or mechanical energy to move the device
- **Seine** – a mesh panel hung between two brails (poles or rods) that is dragged through the water by two people (or boats)



Seines are active capture devices

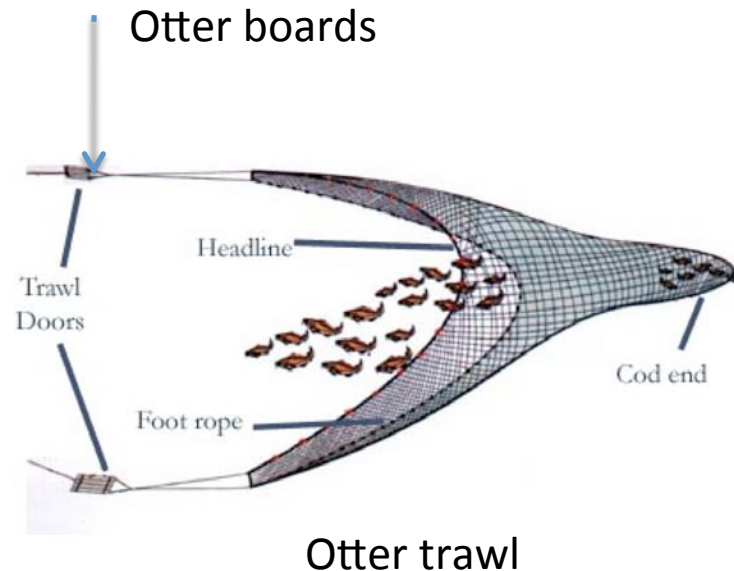
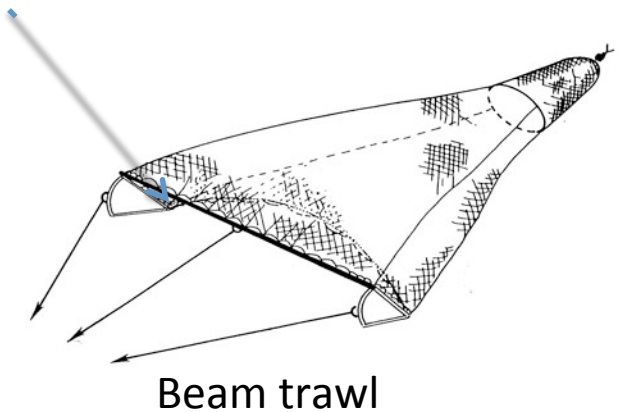
- **Beach seine** – shallow water
- **Purse seine** – used in deeper open water



Trawls

- Bag or funnel shaped nets that are pulled through the water by motorized boats
 - Trawls can skim the surface, hug the bottom or be pulled mid-water

Rigid beam



Electrofishing

- Electrofishing is the use of electricity to capture fish
- An energy source (battery or generator) is needed
- Electrical field is generated by electrified metal electrodes
- Ions in water carry the electrical energy

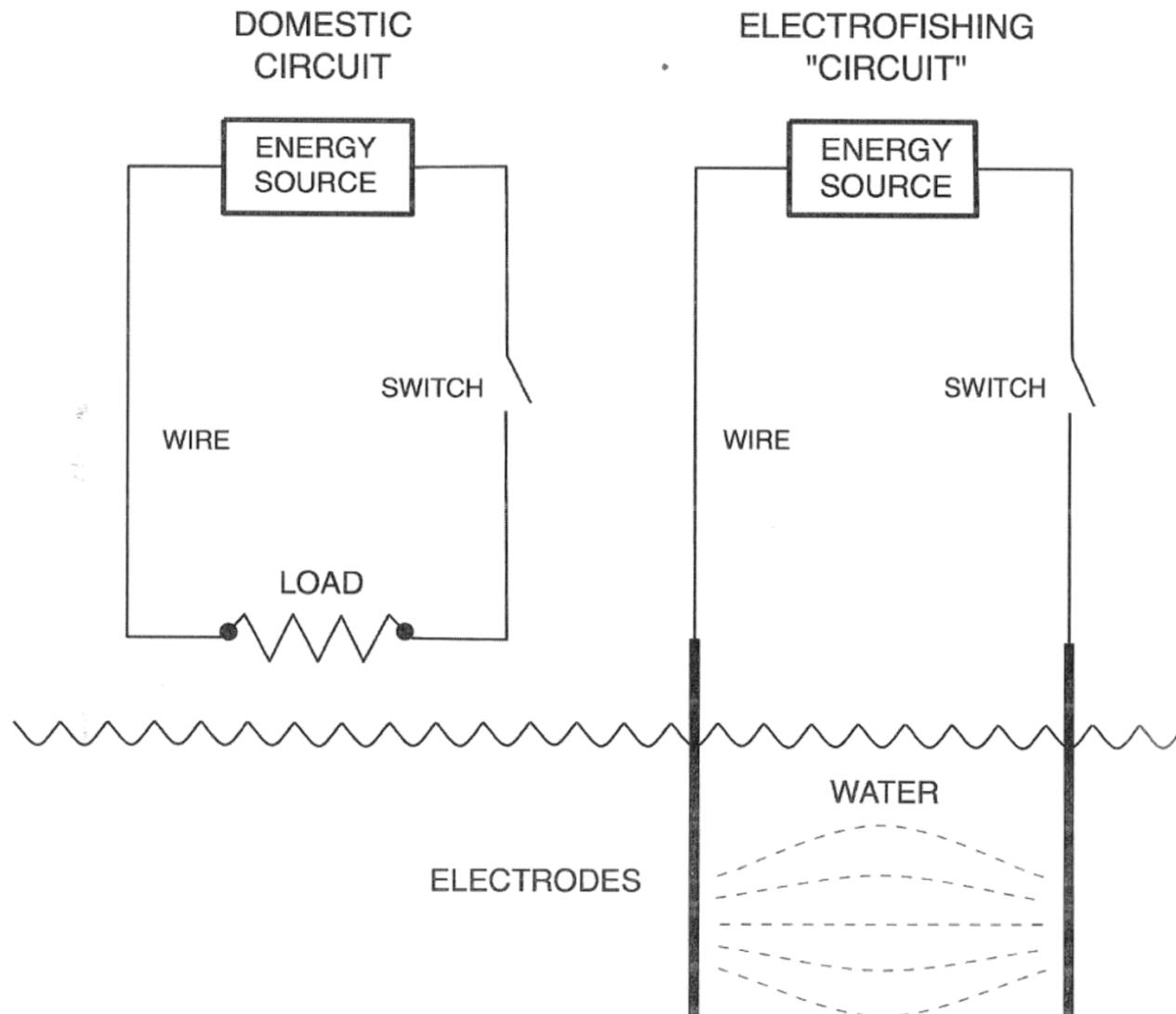


Figure 8.1 Comparison of domestic and electrofishing circuits. The domestic circuit is completely insulated whereas water (an un-insulated pathway) is required to complete the electrofishing circuit; water and fish are the electric loads.

Electrofishing

- Fish are stunned by electricity and immobilized, allowing for capture.
 - Electric field stimulates nerves and causes muscles to contract involuntarily.



Electrofishing

