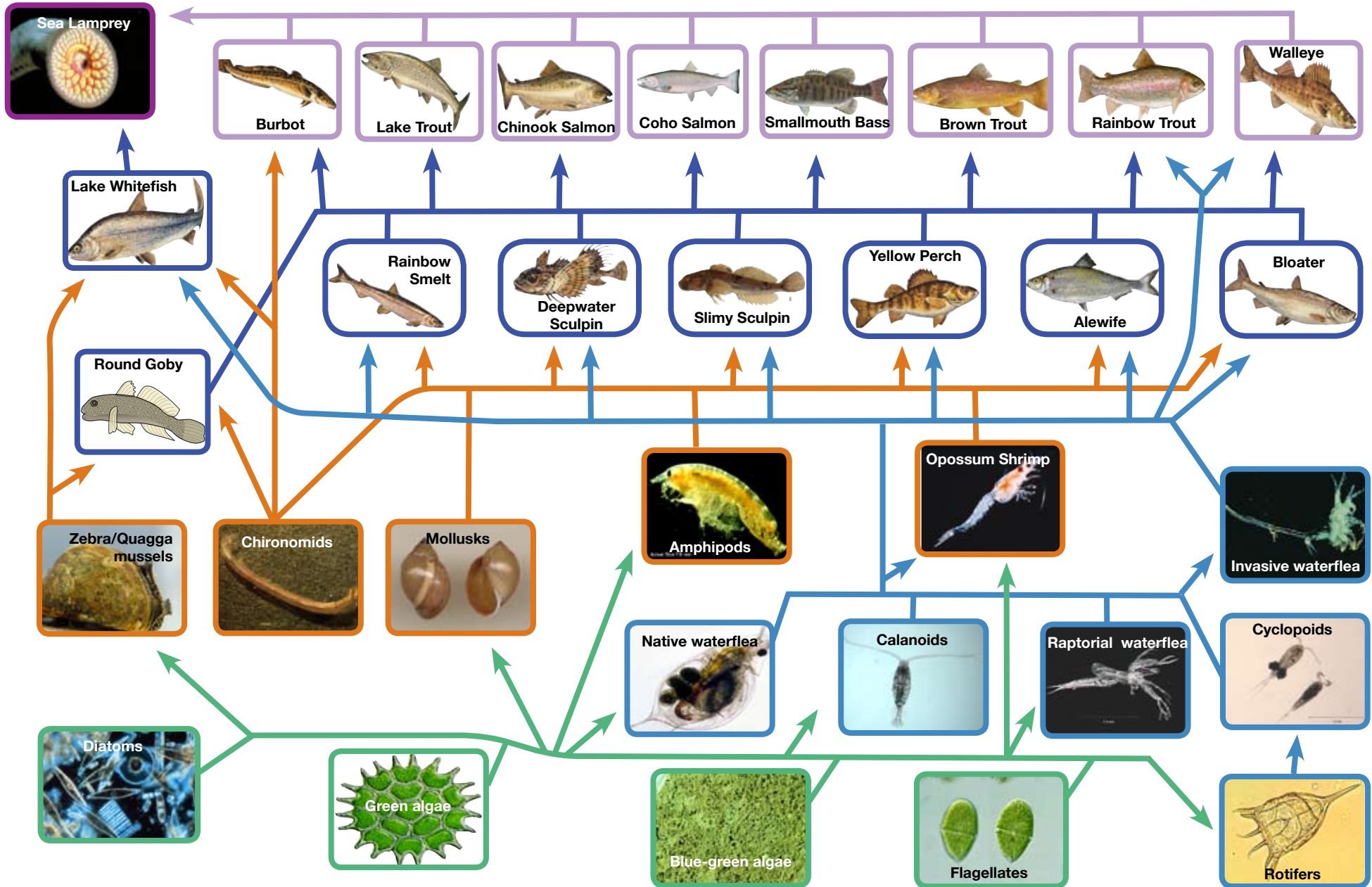




# Lake Michigan Food Web



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## Sea Lamprey



**Sea lamprey** (*Petromyzon marinus*). An aggressive, non-native parasite that fastens onto its prey and rasps out a hole with its rough tongue.

## Piscivores (Fish Eaters)



**Chinook salmon** (*Oncorhynchus tshawytscha*). Pacific salmon species stocked as a trophy fish and to control alewife.



**Coho salmon** (*Oncorhynchus kisutch*). A Pacific species imported and stocked since 1966. Reproduce in many streams, but its population sustained in hatcheries.



**Rainbow trout or Steelhead** (*Oncorhynchus mykiss*). A lake strain of non-native rainbow trout, rarely found deeper than 35 feet. Supplemented by stocking.



**Smallmouth bass** (*Micropterus dolomieu*). Native coolwater species. Intolerant of pollution so is a good indicator of a healthy environment.



**Brown trout** (*Salmo trutta*). A European species introduced in the late 1880's. Mostly does well in slightly degraded habitats.



**Lake trout** (*Salvelinus namaycush*). Nearly eliminated by sea lampreys during the 1950s and 1960s. Stocking and lamprey control are resulting in its resurgence.



**Walleye** (*Stizostedion vitreum*). Carnivorous night feeders, eating fishes such as yellow perch and freshwater drum, insects, crayfish, snails, and mudpuppies.



**Burbot** (*Lota lota*). Elongated, cylindrical, freshwater codfish.

## Forage Fish



**Lake whitefish** (*Coregonus clupeaformis*). Native found in cold waters. Bottom feeder—diets have shifted to include zebra and quagga mussels.



**Yellow perch** (*Perca flavescens*). Native that schools near shore, usually at depths less than 30 feet.



**Bloater** (*Coregonus hoyi*). Native deepwater chub feeding on zooplankton and other organisms near the lake bottom. Harvested commercially for smoked fish.



**Deepwater sculpin** (*Myoxocephalus quadricornis thompsonii*). A native glacial relic that lives at the bottom of cold, deep water feeding on aquatic invertebrates.



**Slimy sculpin** (*Cottus cognatus*). Native, nocturnal inhabitant of nearshore areas where it primarily eats invertebrates.



**Rainbow Smelt** (*Osmerus mordax*). Found in both coastal and offshore habitats. Light-sensitive, so prefer deeper, cooler waters during the warmer seasons.



**Alewife** (*Alosa pseudoharengus*). Atlantic species that invaded Lake Michigan in 1949 via the Welland canal.



**Round goby** (*Neogobius melanostomus*). Invasive, introduced into the Great Lakes via freighter ballast. Feeds on bivalves, including zebra mussels, crustaceans, insects, and small fishes.

## Macroinvertebrates



**Chironomids/Oligochaetes**. Larval insects and worms that live on the lake bottom. Feed on detritus. Species present are a good indicator of water quality.



**Amphipods** (*Diporeia*). The most common species of amphipod found in fish diets that began declining in the late 1990's.



**Opossum shrimp** (*Mysis relicta*). An omnivore that feeds on algae and small cladocerans. Migrates into the water column at night.



**Mollusks**. A mixture of native and non-native species of snails and clams are eaten by lake whitefish and other bottom feeding fish.



**Zebra and quagga mussels** (*Dreissena polymorpha* and *Dreissena bugensis*). Established in Lake Michigan in 1989 (zebra); 1997 (quagga). Filter-feeders that remove huge quantities of plankton.

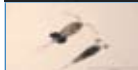
## Zooplankton (Microscopic animals found in the water column)



**Invasive Spiny waterfleas** (*Bythotrephes longimanus*). Visual raptorial predator that can depress native waterflea populations.



**Native Raptorial waterfleas** (*Leptodora kindtii*). Slow moving and patchy distribution of small swarms at relatively low numbers.



**Cyclopoid copepods** (e.g., *Cyclops bicuspidatus*). Carnivorous copepods that feed on rotifers and other microzooplankton.



**Native waterfleas** (e.g., *Daphnia galeata*). Filter-feeding waterfleas that can be important for controlling phytoplankton.



**Calanoid copepods** (e.g., *Diaptomus* spp.). Omnivores that feed on both phytoplankton and microzooplankton.



**Rotifers**. A diverse group of microzooplankton that, depending on species, feed on phytoplankton, detritus, or other microzooplankton.

## Phytoplankton (Algae found in the water column)



**Blue-green algae** (aka Cyanobacteria). Often inedible and frequently toxic; blooms in late summer and can look like spilled paint on the water surface.



**Green algae**. Microscopic (single-celled) plants that form the main support of the summer food web. Also includes large nuisance species such as *Cladophora*.



**Diatoms**. Cold-loving microscopic (single celled) plants encased in silica shells that support the first wave of production in the spring.



**Flagellates**. Motile, single-celled plants or animals frequently found in high numbers. Most eat bacteria and so may help funnel bacterial products back into the food chain.

134 species of fish, including 17 non-natives, make their homes in the waters of Lake Michigan. Eight species of native fish have been extirpated from Lake Michigan. This food web includes only the dominant species.