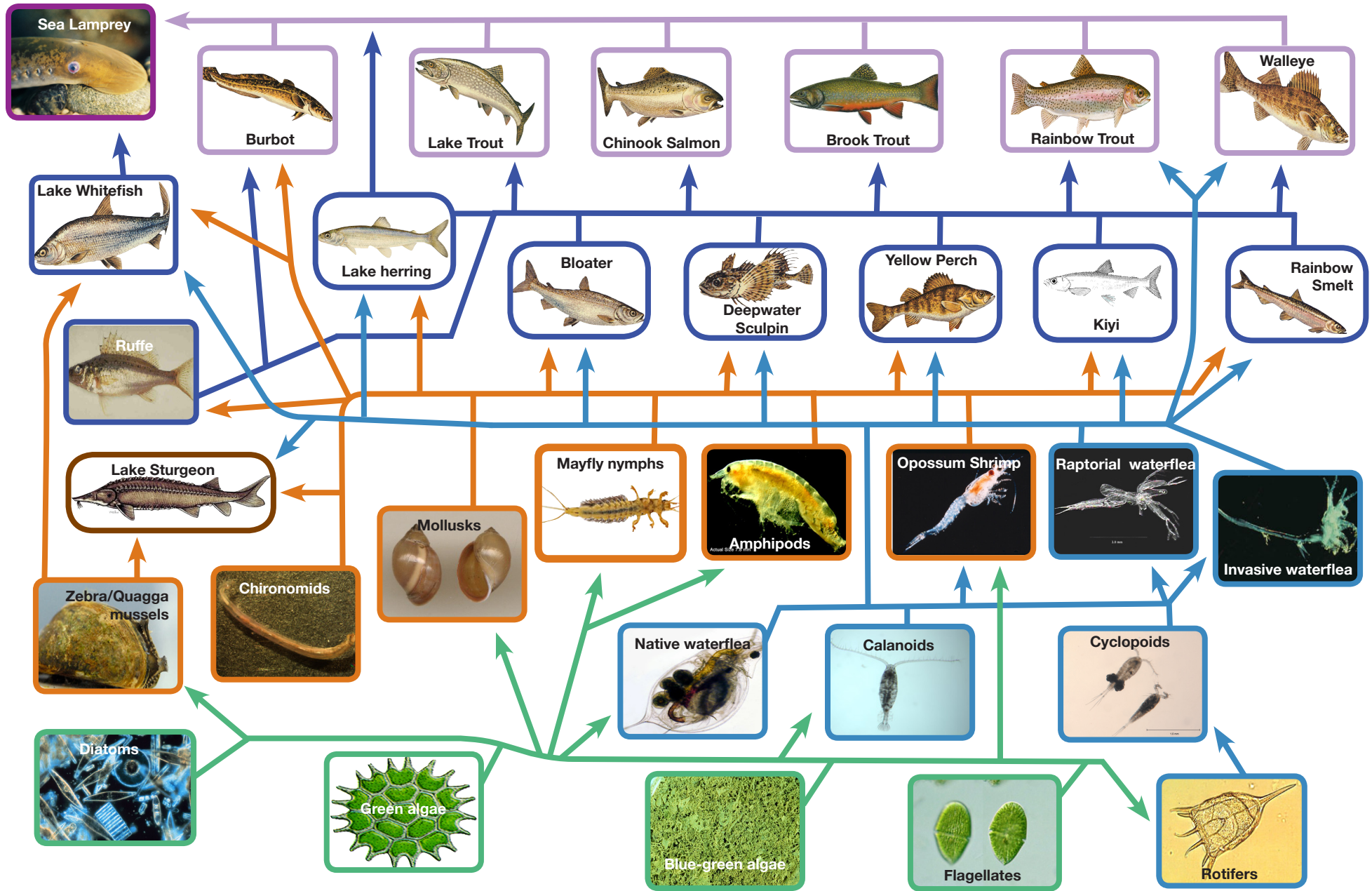




Lake Superior Food Web



Foodweb based on "Impact of exotic invertebrate invaders on food web structure and function in the Great Lakes: A network analysis approach" by Mason, Krause, and Ulanowicz, 2002 - Modifications for Lake Superior, 2009.

Lake Superior Food Web

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.



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



Brook Trout (*Salvelinus fontinalis*). Native, and is Michigan's state fish. Found in the Great Lakes and throughout the state in many creeks, streams, rivers, and lakes. They require cool, clear, spring-fed streams and pools. Eat zooplankton, crustaceans, worms, fish, terrestrial insects, and aquatic insects.



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.



Lake herring or Cisco (*Coregonus artedii*). A schooling fish, that prefer deep water. They primarily eat plankton, but also eat insects and small minnows.



Kiyi (*Coregonus kiyi*). A deepwater cisco or chub endemic to the Great Lakes. It is reportedly most abundant at depths greater than 200 feet.



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



Ruffe (*Gymnocephalus cernuus*). Native to Eurasia, was introduced to Lake Superior via ballast water. First collected in Lake Superior fish surveys in 1986.

Planktivores/Benthivores



Lake Sturgeon (*Acipenser fulvescens*). Endangered. Eats small clams, snails, crayfish, sideswimmers, and aquatic insect larvae.

82 species of fish, including at least 13 non-natives, make their homes in the waters of Lake Superior. This food web includes only the dominant species.

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.



Mayfly nymphs (*Hexagenia* spp.). A burrowing insect larvae found in warm, shallow water bays and basins, usually in soft sediments. The presence of this sensitive organism indicates good water quality conditions.

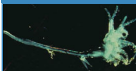


Mollusks. A mixture of native and non-native species of snails and clams are eaten by lake whitefish and other bottom feeding fish.

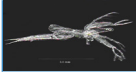


Zebra and quagga mussels (*Dreissena polymorpha* and *Dreissena bugensis*). Established in Lake Superior in 1989 (zebra); 2005 (quagga). Filter-feeders that remove huge quantities of plankton.

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.

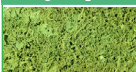


Calanoid copepods (e.g., *Diaptomus* spp.). Omnivores that feed on both phytoplankton and microzooplankton.



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.