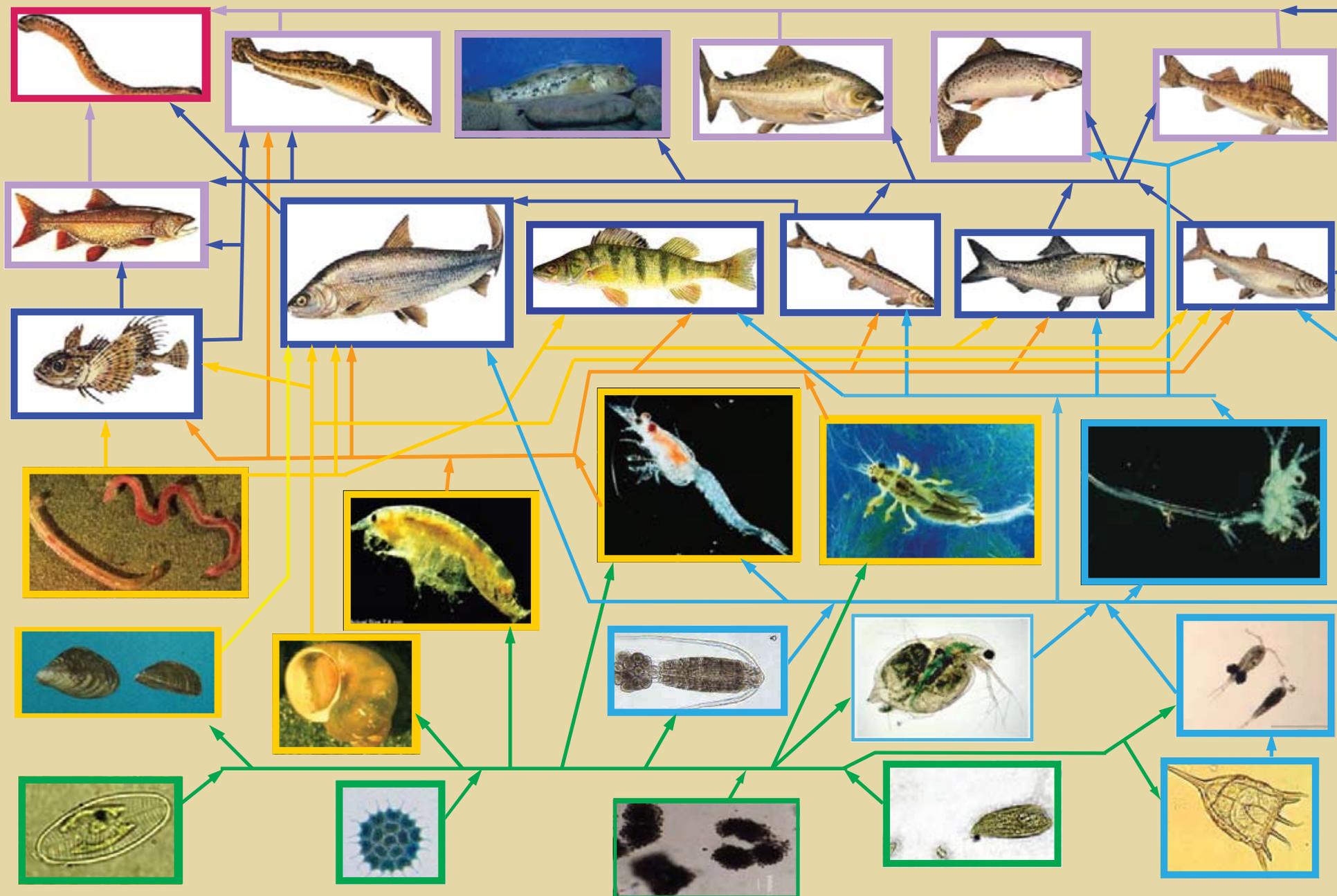




Lake Erie Food Web



Food Web based on model constructed for "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 Erie—2008

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. Natural reproduction may currently account for 85% of the stock.



Steelhead trout (*Oncorhynchus mykiss*) - A lake strain of rainbow trout, rarely found deeper than 35 feet along the coast. Natural reproduction supplemented by stocking.



White bass (*Morone chrysops*) - Prefers clear open water in lakes and large rivers. Visual feeders, uses sight instead of smell to find prey.



Lake trout (*Salvelinus namaycush*) - Once the most valuable commercial fish in the Upper Great Lakes. Stocking and lamprey control are resulting in its resurgence.



Round Goby (*Apollonia melonastumus*) - Exotic, found in deep water of the Great Lakes and tributary streams. Feed on bivalves, crustaceans, insects, and small fishes.



Walleye (*Stizostedion vitreum*) - Native coolwater species found in nearshore areas.



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 as native *Diporeia* have declined.



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



Freshwater drum (*Aplodinotus grunniens*) - Gets its scientific name from its odd grunting noises, produced by muscles vibrating against the swim bladder. Tolerates both clear and murky water.



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



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



Gizzard shad (*Dorosoma cepedianum*) Commonly grows from 9 to 14 inches. Found in large schools. Has no commercial value. Found in freshwater habitats.

130 species of fish, including at least 15 non-natives, make their homes in the waters of Lake Erie. 10 species of native fish have been extirpated from Lake Erie. This food web includes only the dominant species.

MacroInvertebrates



Chironomids/Oligochaetes - Larval insects and worms living on the lake bottom. Species present are a good indicator of water quality.



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.



Amphipods (*Gammarus*) - A common amphipod found in warm, shallow regions.



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*) - Invaded Lake Michigan in 1980's/90's, filter-feeders that remove huge quantities of plankton.



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

Zooplankton (Microscopic animals found in the water column)



Invasive Spiny waterfleas (*Bythotrephes longimanus*) - Raptorial predator when found at high densities. Can depress mature water-flea populations.



Cyclopoid copepods (*Cyclops bicuspidatus*) - One of 11 carnivorous cyclopoid copepod species in Lake Erie.



Native waterfleas (*Daphnia galeata*) - More than 50 species of native filter-feeding waterfleas live in Lake Erie. Photo Credit : Dr. James F. Haney, 1999

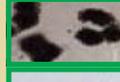


Calanoid copepods (*Diaptomus spp.*) - Eleven species of native calanoid copepods live in Lake Erie. Calanoid copepods are omnivores but prefer active prey.



Rotifers - Omnivorous microscopic animals that package the smallest particles, including small phytoplankton and detritus into a form that can be eaten by larger zooplankton.

Phytoplankton (Algae found in the water column)



Blue-green algae - Largely inedible and frequently toxic; blooms in late summer 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.