

Lake Michigan Ecosystem

- Lake Michigan is a freshwater lake.
- Located in mid-northern U.S.
- Lake Michigan takes up 22,300 square miles and is approximately 925ft deep.
- Used for recreation, transportation, fishing (sport and commercial), and tribal subsistence.
- Indigenous tribes including the Chippewa and Ottawa, were the first to fish Lake Michigan.
- The Federal and State government signed an agreement with indigenous tribes to preserve areas of the lake specifically for the tribes—the state—and the country.
- Cargo ships travel from the Atlantic Ocean to the Great Lakes from all over the world.
- When a ship leaves port, it takes on water from its point of departure to balance the cargo, which is dumped overseas.
- International water dumped into Lake Michigan can contain invasive species like quagga mussels or the round goby from Eurasia.

- Lake Michigan has 2 habitat zones within its waters:
 - The Open Water Zone
(Has the highest concentration of sunlight)
 - The Deep Water Zone
(Has minimal sunlight)
- Phytoplankton are found all over Lake Michigan, using sunlight to grow and produce food for mussels-zooplankton-and small fish.
- Various Aquatic plants can only grow in the Open Water Zone of the lake. (Many animals take shelter among these plants.)
- There are many different kinds of invertebrates that provide food for small fish:
 - Daphnia
 - Zooplankton
 - Native freshwater mussels
 - Crayfish
- There are many different kinds of fish that live in Lake Michigan:
 - Walleye
 - Lake Trout
 - Alewife
 - Yellow Perch
 - Salmon
 - Lake Sturgeon
 - (Walleye, Yellow Perch, Lake Trout, and Salmon are predators of Alewife and Rainbow Smelt and Bloater Fish.)

- The Great Lakes are now inhabited by over 180 invasive species.
- Invasive Sea Lampreys kill fish and have seriously impacted the ecosystem.
- Invasive Zebra and Quagga Mussels outcompete the freshwater mussels that are native to Lake Michigan.
- Invasive Mussels have attached to and destroyed the surfaces of water treatment facilities, power plants, boats, buoys, beaches, and much more.
- Maintenance and Repair due to Invasive Mussel damage costs approximately \$550 million / year.
- Birds such as White Pelicans, the Caspian Tern and the Cormorant feed off the fish in the lake.
- The ecosystem also struggles due to pollution, human activity and overfishing.
- The U.S. and Canada regulate the emptying of international water into the Great Lakes.
- No new invasive species have been introduced into the Great Lakes since 2006.
- Small Boat owners are also required to pay attention to when and where they empty their water, and keep their boats clean.