

Information Panel example

Getting along in the lake

Lakes are complex habitats in which many animals depend on each other. The park lake supports a complex system of food chains called a food web, this can be seen in the eating relationships between the species that are part of the lake ecosystem. In a simple food chain, aquatic bugs eat the plants or algae, and small fish eat the bugs. The Big fish eat the little fish, and wetland birds consume the bigger fish.

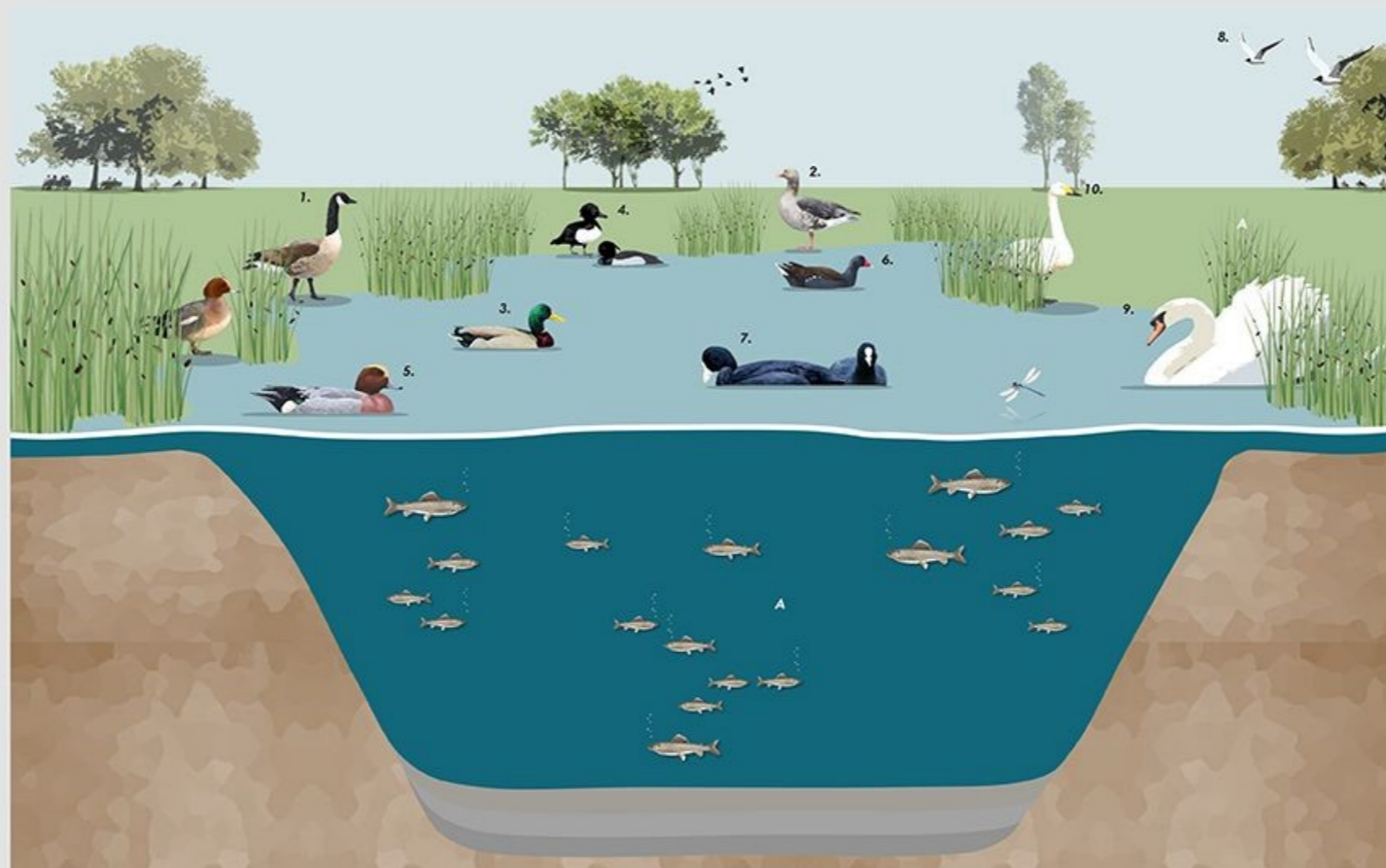
Nearly all food chains begin with green plants these are known as primary producers. They take in carbon dioxide and water and, with the sun's energy, produce their own food in the form of a sugar. They then give off oxygen, an extremely important element for all the animals in the lake.

After green plants in the chain are the primary consumers, otherwise known as herbivores. These animals, small or large, eat the primary producers. Ducks, tadpoles and mayfly nymphs, are all primary consumers.

The secondary consumers are those that eat other animals. These are called carnivores, whilst those that eat both plants and animals are called omnivores. Some examples include : small fish like minnows and the young of larger species. These animals consume zooplankton and insects as their source of energy.

Tertiary consumers eat the secondary consumers. They may include the pike along with carnivorous predators like otters.

Lastly, an essential part of the lakes food web is that of the decomposers. Decomposers grow as they break down dead and decaying organisms into nutrients, which are the essential elements of life. These nutrients, such as nitrogen and phosphorus, are then accessible to many forms of life in the lake.



Birds

1. Canada goose (*Branta Canadensis*)
2. Greylag goose (*Anser anser*)
3. Mallard (*Anas platyrhynchos*)
4. Tufted duck (*Aythya fuligula*)
5. Wigeon (*Anas Penelope*)
6. Moorhen (*Gallinula chloropus*)
7. Coot (*fulica atra*)
8. Black-headed gull (*Chroicocephalus ridibundus*)
9. Mute swan (*Cygnus olor*)
10. Whooper swan (*Cygnus cygnus*)

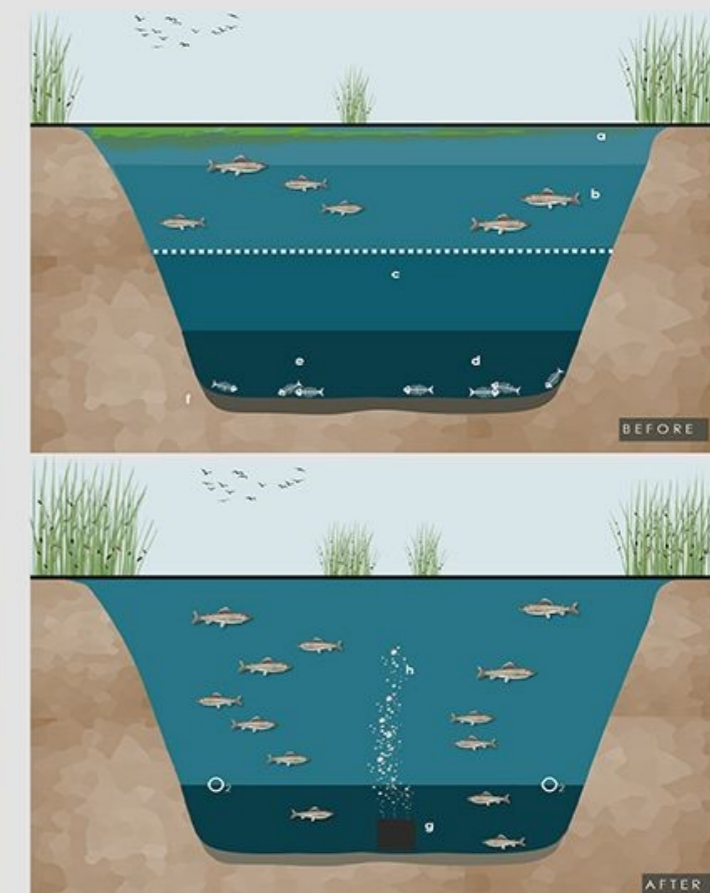
Fish

- Bream (*Abramis brama*)
- Carp (*Cyprinus carpio*)
- Perch (*Perca fluviatilis*)
- Pike (*Esox lucius*)
- Tench (*Tinca tinca*)



Restoring the lake

Simply put, aeration will provide many different benefits to the lake ecosystem. Besides enhancing fish habitats, Improving water quality, reducing algae, and removing phosphorus, aeration will also break down unwanted bacteria, help with mosquito problems, and reduce horrible smells from the lake - all by circulating the water and adding dissolved oxygen.



BEFORE

Excessive nutrients in the water and sediment, insufficient total dissolved oxygen levels and thermoclines that cut off surface oxygen, all cause imbalances in the health of the lake.

- a. Algal blooms shut out sunlight and expel toxins
- b. Thin layer of water with oxygen suitable for fish life
- c. Water with no living fish or animal life
- d. Diseased water. No oxygen, loaded with toxic gases from decaying animal matter
- e. Dead algae, fish, insects and food settle to the bottom
- f. Dark Anaerobic sludge

AFTER

- g. The Aeration unit creates bubbles that increase the surface area of air in contact with water
- h. Lots of bubbles moving upwards move volumes of water up from the bottom, oxygen-poor water rushes upwards eliminating thermal layers, shedding toxic gases and picking up oxygen
- i. Oxygen-rich water circulates down to the bottom of the lake, promoting bacteria that digest organic sludge and remove excessive nutrients. This enables fish and other organisms to live in the bottom layers of the lake.