

Fight against the fish mortality

The oxygen is indispensable for every living species.

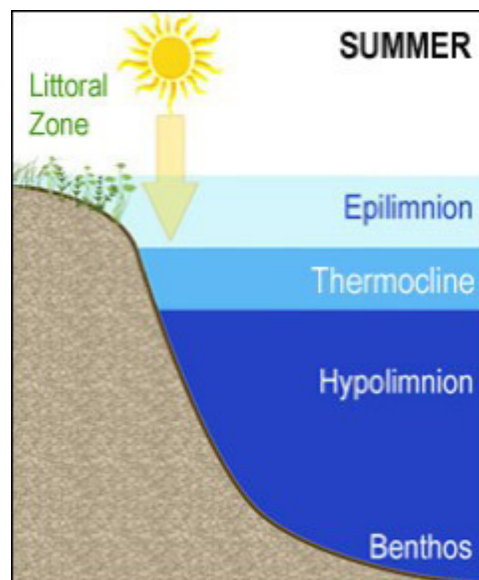
Every water plan needs to be aerated and oxygenated to avoid sanitary issues which are responsible for negative impacts on the aquatic fauna like fish mortality.

Fight against fish mortality in summer

In spring, water begins to get hotter. The difference of density between the surface and the depth of a lake leads to the brewing of water. Associated with a windy weather, the surface water of a basin is disturbed in the whole pond.

In summer, the oxygen level in water decreases because of the increase of the outside temperatures. Thus, the aquatic fauna needs more oxygen during summer. Moreover, in summer the lake stratifies in two distinct layers: the epilimnion and the hypolimnion. The atmospheric oxygen is distributed into the epilimnion (the surface of the water plan) but deprives the hypolimnion of oxygen (the depth of the water plan).

The decomposition of the organic load by bacteria into the hypolimnion associated to the breath of the benthos can lead to an important oxygen decrease. This phenomenon can lead to fish mortality in summer.



It is simple to notice the lack of oxygen into a basin. Indeed, different signs can be perceived:

- An amount of weeds in the depth of the water plans
- An apparition of many algae when the temperatures rise
- The apparition of bad smells
- The fishes come to the surface to have oxygen
- Fish mortality

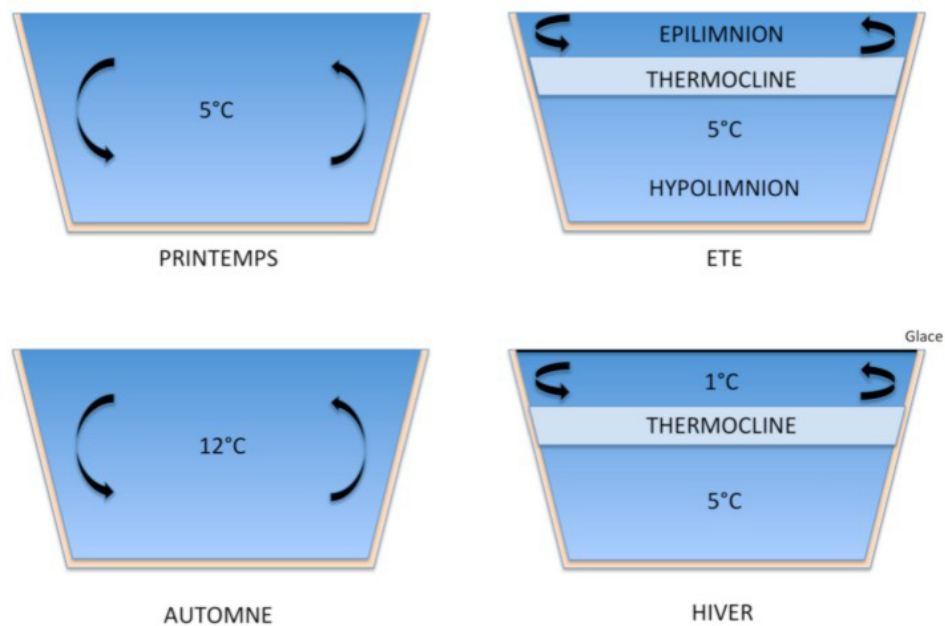
It is important to react to this issue to preserve the fish life.

Fight against fish mortality in winter

In autumn, the solar energy and the temperature of the lakes decrease. Thus, the oxygen reappears in the depth of the lake because water does not stagnate anymore. However, the temperatures decrease in winter and the ice covers the water plans. This process stops the exchange between water and the atmosphere.

Many causes can be responsible for fish mortality in winter:

- The ice covering the water plan does not enable the exchanges with the atmosphere and so the transfer of oxygen does not happen.
- Lakes, ponds and any other basin have a high algae production during summer. The high amount of dead weeds leads to a decrease of the photosynthesis activity as well as an over-consumption of oxygen due to the degradation of the organic composites via the microbiological community.



The aeration of water plans: the solution to resolve the fish mortality's issue.

In summer, the installation of an aerator into a water plan improves the continuous oxygen supply. This process enables the oxygenation of the basins and contributes to the water brewing. That way, the water plan is in healthy state.

The aeration appears to be the solution to maintain the oxygen level into the lake. Its purpose is not to aerate the whole water plan during winter but to keep a part of the basin without ice to still have enough oxygen all along the season and to assure the fish's survival.

Our hydro-ejectors AQUASUB enables the oxygen injection into the water plan. During summer, this hydro-ejector destratifies water thanks to its powerful turbine. It also allows the oxygenation of the depth of the lake to prevent the fish mortality in summer. In winter, AQUASUB injects the oxygen into the basins and breaks the ice at the surface of the lake to enable a fast oxygenation of the aquatic environment.



Representation of AQUASUB