

A BETTER UNDERSTANDING OF CYANOBACTERIA GROWTH DURING TRIATHLON SEASON



Blue green algae is a photosynthetic bacteria which grows in both fresh and marine water. Most typically, blue green algae grows in lakes, ponds and slow-moving streams where the water is warm and nutrient-rich. Most species are buoyant so float to the water's surface forming layers of scum known as algal blooms.

Blooms are very noticeable because of the smelly scum that can form on the surface of the water, however there are not always visible signs of its presence in water. Monitoring the algal growth and other parameters such as dissolved oxygen can highlight and track its lifecycle, helping to assess any dangers there might be to both the ecosystem and to people.

Blooms can have a devastating effect on a body of water. It causes discoloured water, reduced light penetration, dissolved oxygen penetrations during die-off, and toxin production. A reduction in light penetration affects other aquatic organisms in the habitat, such as phytoplankton and aquatic plants that need light for photosynthesis.

This has a knock-on effect on the organisms that rely on the plants for food. When blue green algae dies off, the cells sink into the water to be broken down by microbes, a process that requires oxygen. This results in a biological oxygen demand, which decreases the concentration of oxygen in the water, adversely affecting fish and other aquatic life. This has serious ramifications for the ecosystem as a whole.

Rhine and IJssel Water of the Netherlands, are currently testing a new measuring system for blue-green algae in order to increase their understanding and to make sure waters are safe to swim in during the popular triathlon season in Holland.

The AP-7000 Aquaprobe from Aquaread is being used to monitor dissolved oxygen, temperature conductivity and blue green algae. The system is deployed by Eijkelpark Soil & Water, based in Giesbeek Netherlands, and is connected to their Global Data Transmitter system to provide online data every 15 minutes. The probe was chosen because of



the built in self-cleaning system, the central wiper system keeps all of the sensors clean during a long deployment.

Annemarie Kramer, a specialist from Rhine and IJssel Water explains "Blue green algae are cyanobacteria, many species produce toxins that are dangerous to people with extreme growth." She is planning to use the data collected from the AP-7000 Aquaprobe over the course of the season to help to predict the growth pattern. It is important to monitor the water during the triathlon season to ensure people do

not become sick as a result of hidden toxins in the water from the cyanobacteria.

Bob van IJzendoorn, a colleague of Annemarie says "I have to clean and maintain the sensors less often thanks to the built in cleaning system and I also have the impression that the readings remain stable, so I do not often need to re-calibrate the probe." This reduces the number of site visits that Bob needs to make, saving them time and money during this busy period.



Eijkelpamp Soil & Water makes a difference worldwide by developing, producing and delivering solutions for soil and water research. Eijkelpamp Soil & Water is involved in soil and water projects worldwide within the themes Land Degradation, Food Safety, Urbanisation, Pollution, Land Development and Natural Resources. Eijkelpamp Soil & Water is represented in over 70 countries by specially selected partners.

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Eijkelpamp continue to deploy various iterations of the monitoring stations that include the AP-7000 fitted with a blue green algae sensor and their telemetric system, Leon van Hamersveld from Eijkelpamp says "Last month I installed our measuring buoy at a triathlon race. There we monitored the oxygen level to check whether influence of bacteria could be visible." This particular deployment offers added flexibility by use of a small portable buoy for shorter term studies. Once the study is complete the system can be easily moved to other locations. ". We checked the blue green algae level, but found nothing because the temperatures in the Netherlands are currently too low at the moment for algal growth." (show the buoy deployment image)

Aquaread is an award-winning British manufacturer of precise, scientific water quality testing equipment. Our specialism is multiparameter water testing equipment and highly precise water level and temperature loggers. All Aquaread equipment is designed to be used in the field and is constructed from rugged materials that can withstand harsh conditions and all types of water.



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