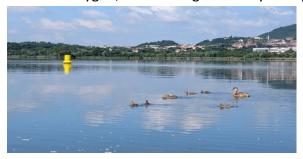# Environmental monitoring and automatic oxygenation of the Lake Annone with GW525



Lake Annone, in the province of Lecco, has been the subject of an important environmental intervention to counteract the lack of oxygen in deep waters, a typical problem of eutrophic lakes. This lake is rich in nutrients and organic matter which, in the warmer months, decompose and consume oxygen, threatening the ecosystem present.



**The role of GW525 between measurement, transmission and automation**

To address the problem, an innovative system was installed using a floating buoy placed in the lake. The buoy is equipped with **a multi-parameter probe** connected to an **FAE GW525 gateway**, which communicates via LoRa or SMS with a powerful compressor (Aerzen VM15) positioned 700m away. A pipe ends in a 50m long perforated section from the compressor and brings air into the depths of the lake, helping to restore the oxygen levels necessary for the balance of the ecosystem. The gateway, installed directly on the buoy, is connected to the probe which is placed at a depth of 7m and collects the following parameters: Dissolved Oxygen (DO), Temperature, Electrical Conductivity, Total Dissolved Solids (TDS) and Salinity. GW525 ensures operation even at night or in low light conditions because it is powered by a **solar panel** with a backup battery. In addition to controlling the switching on and off of the compressor when the pre-established DO thresholds are reached, GW525 transmits the collected data to a **remote cloud** where they are analyzed with the aim of developing **predictive algorithms** and archived for historical consultation.



**FAE and Egeolab: a synergy of excellence**

The entire system was developed in collaboration with **Egeolab**, which supplied the probe and took care of the integration between the FAE device and the end customer. The intervention at Lake Annone demonstrates how modern, sustainable and predictive environmental management is possible through a flexible, automatic and reliable system.