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The Promising Role of Oxygen in the Serious Problems of Water Pollution in Mexico and Around the World

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The growing pollution of both freshwater and saltwater in rivers, streams, lakes, lagoons, oceans, and seas throughout Mexico and the world is manifested in various ways. In human populations, these include increases in the incidence and prevalence of epidemiologically important diseases such as kidney failure, cancer, leukemia, and infectious diseases, including outbreaks of measles, hepatitis, dengue, chikungunya, and others. In plant life, we see the growing problem of sargassum on the beaches of Quintana Roo, which is spreading as far as Florida and the Virgin Islands, as well as the case of the Endhó Dam, where water hyacinth has proliferated in its waters. We also see the emergence and continued expansion of dead zones in seas around the planet, not only in Mexico (including the Seven Colors Lagoon) but also in the Baltic Sea, the mouth of the Mississippi River, the Gulf of Aden in the Arabian Sea, and elsewhere.

All the cases mentioned, including the serious and recent problem in the city of Guadalajara, Jalisco, Mexico, have one important factor in common: low or nonexistent levels of dissolved oxygen in the bodies of water concerned. For several decades, it has been observed that higher levels of dissolved oxygen in different bodies of wáter whether fresh, salt, grey, black, or wastewater are associated with better water quality. Nevertheless, the authorities and organizations responsible for water management do not seem to pay attention to this parameter. This is true not only in Mexico, but throughout the world.

Perhaps they continue to believe that reducing the level of pollutants in wáter through treatment plants, filters, or the application of chemicals such as precipitating agents, flocculants, antifoaming agents, pH regulators, and so on will somehow cause dissolved oxygen levels in treated water to rise, as if by magic. But this has not happened in Mexico or anywhere else in the world.

Moreover, there had been no cost-effective procedure for introducing oxygen into bodies of water, because the oxygen must be supplied continuously, day and night. Any oxygen introduced into the water tends to be lost within a short time, hence the need to maintain a continuous supply of this gas in order to keep dissolved oxygen levels in the water concerned at no less than 6.5 mg/L.

The air injection used in fish farming is notably ineffective, since it actually introduces more nitrogen than oxygen. In addition, energy consumption is enormous because the pumps that introduce air into the water must operate continuously, day and night.

However, the commercial launch of QBLOCK®, an innovative material developed on the basis of the biology of the human eye, represents a light at the end of the tunnel. It replicates a mechanism normally found in human tissues, making it possible to maintain the repeatedly mentioned dissolved-oxygen levels consistently above 6.5 mg/L in freshwater, saltwater, drinking water, greywater, wastewater, and other types of wáter without using electricity or requiring chemical agents. It also reduces the formation of toxic sludge, and QBLOCK® has a minimum service life of 25 years.

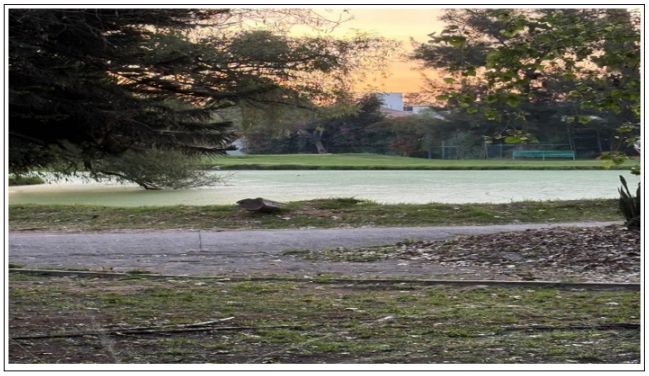


Figure 1: Photograph of an artificial lake at a Golf Club, where Dissolved Oxygen Levels are so Close to zero that the Color and Viscosity of the Water Resemble Guacamole.

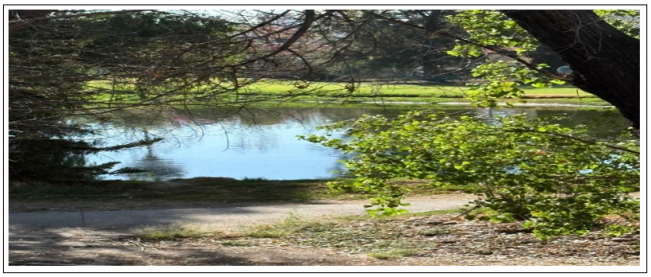


Figure 2: Four weeks after 15 QBLOCK® Units, Each weighing 4.5 kg, were Installed. The Result is Striking, with no Electricity Consumption, no Added Chemical Agents, and no Special Handling or Construction Required. The Units Simply need to

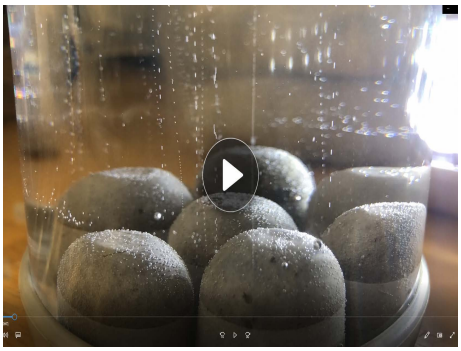
be Placed in the Lake in a more or Less Symmetrical Arrangement, as Shown in the following Photograph.



Figure 3: People Simply stand at the Edge of the Lake and Throw in the Disc-Shaped QBLOCK®. In the Water on the Left Side of the Image, Concentric Circles can be Seen forming Around the Point where the QBLOCK® Landed



Figure 4: The QBLOCK® Used in this Case is Circular and Weighs 4.5 kg.



The notable effect of QBLOCK® on water is due to its ability to raise dissolved-oxygen levels continuously, usually to above 6.5 mg/L. The constant presence of oxygen molecules has numerous effects which, taken together, ultimately result in water that is clearer and of better quality and may eventually even be suitable for human use.

The notable results shown in this case could be replicated while maintaining the appropriate ratio between the number of QBLOCK® units and the surface area of the body of water being treated—at the Endhó Dam, in the Chapultepec lakes, in Lake Texcoco, in the Sonora River, on the beaches of Quintana Roo, and in many other locations in Mexico and around the world affected by the gradual and increasing loss of dissolved oxygen.

Oxygenating polluted bodies of water, along with treating wastewater, is the future of water management. There would be no need to build new treatment plants; it would be sufficient to place an appropriate number of QBLOCK® units according to the size of the body of water and the degree of contamination.

The electricity savings offered by our new method mean that obsolete, costly, and inefficient water-treatment plants could reduce their operating costs by around 70%. Today, operating a wastewater-treatment plant is so expensive that it is common for 60% of such plants to be abandoned. This is why the phrase “The treatment plants will be rehabilitated” is so often encountered: quite simply, most of them had been abandoned.

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