Bio.WaterZ
...Regenerating Water Bodies

Biological Wastewater & Sludge Treatment

No Chemical
No Equipment
No Running Cost
Completely Silent
Odourless
No Footprints

www.biosoilz.de

The Green Technology from Germany

every drop counts

After COVID, the next global crisis could be the Water crisis

Waste water treatment, Recycling, Rain water harvesting and Using less water is the solution

Bio.WaterZ
...Regenerating Water Bodies

Water is an Elixir of life

"Water is the driving force of all Nature"
- Leonardo da Vinci

How bad our water is, is no secret. The drinking water in our world is becoming increasingly scarce and so is the service water. The amount of polluted water is increasing. What pollutes the water is also becoming more and more diverse.

The life on earth originated in water and water in sufficient quantity and of reasonably good quality is necessary for the well being of human beings, animals and other living organisms.

While we all know water is crucial for life, yet we don't do enough to keep it clean. Some 80% of the world's wastewater is dumped—largely untreated—back into the environment, polluting rivers, lakes, and oceans. Water pollution is the contamination of water bodies (e.g. lakes, rivers, oceans, ground water, fish-farms etc.) usually as a result of human activities. The causes of water pollution include a wide range of chemicals and pathogens.

Any water body, whether flowing or standing, is a complex life system and must be viewed as such. In addition to the precise studies of a chemical-physical stress state, one must obtain an equally detailed overview of its life-determining biological parameters. It's just like everything else in life. Everything changes, everything flows, everything wants to be at its optimum and unfortunately everything is mostly disturbed somehow.

These DISTURBANCES are the reasons why the biological systems get out of their equilibrium and often cannot find their way back on their own, because their natural regenerative capacity has been destroyed.

The Disturbances

Around 80 percent of infectious diseases are water related, killing approximately 2 million children each year

Industrial pollutants are a huge source of water pollution and are extremely harmful to our planet

The use of chemical fertilizers and pesticides is making agriculture a potential source of water pollution

Most of the disturbances in our waters are due to an excess of nutrients in them i.e. they are "overfed". It is called “Nutrient Pollution”. Nutrient pollution is the process where too many nutrients, mainly nitrogen and phosphorus, are added to bodies of water and can act like fertilizer, causing excessive growth of algae. Excessive amounts of nutrients can lead to more serious problems such as low levels of oxygen dissolved in the water. When the algae and seagrass die, they decay. In the process of decay, the oxygen in the water is used up and this leads to low levels of dissolved oxygen in the water. This, in turn, can kill fish, crabs, oysters, and other aquatic animals.

Nutrient pollution leads to an increased population of the microorganisms that break down the nutrients and at a certain level of "saturation" they cease their normal, life- affirming commitment to maintaining the balance and switch from the healthy aerobic environment (with oxygen production) to the diseased anaerobic environment (without oxygen). And we all know its consequences; The waters become cloudy, the pH value usually sinks, the anaerobic conversion of the organic loads lead to the massive death of the microorganisms, digested sludge is formed. Accompanied by foul-smelling gases and constantly multiplying germs ... Anaerobic bacteria ... Enterococci, Escherie Coli, Streptococci ... The water silts up ..

The regenerative power of water is determined by its life force and vitality. The increasing exposure to chemical substances makes the water lose its vitality and thereby loses a large part of its regenerative capacity. The consequences are nutrient- saturated lakes, sluggishly flowing streams and rivers, increasing dead wood on the banks and increased fish mortality.

Due to the anaerobic environment the organic substances get converted into sludge. It sinks to the bottom of the water and seals the originally active layer. As a result the water no longer breathes. It silts up.

Nutrient pollution can occur due to land development, chemical fertilization in agriculture, aquaculture, and atmospheric nutrient deposition. The expanding human population intensifies food production and wastewater discharge from different sources. These are the main contributors to nutrient pollution globally.

The Solution

The essential prerequisite for the regeneration of the water is Oxygen.

Bio.WaterZ addresses the root cause of the problem. It opposes the anaerobic milieu and transforms it into an aerobic milieu, thus re-activating the biological regenerative power. As a result of which the microorganisms no longer decompose the organic matter into sludge, but into living organisms, which potentiate from the smallest living bacterial protein cells to ever more highly organized forms of life and finally freeing the water of anaerobic sediments; the sludge is broken down. If the mud cover is too thick, which can happen, the water gets a second bottom (mineralized... so completely composted digested sludge) over which the life can resume its normal build-up and decomposition processes.

The process is environmentally friendly, technically easy to implement and can be used anywhere in the world without any special effort or precautions.

It applies to all variants in which we can deal with water. Standing water, ponds, lakes, cisterns, wells, storage tanks ... sewage, sewage treatment plants, bio-toilets, oil disasters, or other chemical accidents.

It is always the same principle. The restoration of the natural regenerative power of water.

Bio.WaterZ is a biological, natural product that does not damage the environment.

The Bio.WaterZ gets the bacteria back to producing their vital oxygen themselves. This is many times cheaper, more sustainable and less expensive. We neither need a calming zone in which suspended solids can settle, nor do we need aeration tanks, or even circulation pumps and certainly no equipment that not only damages the entire biological body of the system, but usually even destroys it.

Aquaculture

Water quality is very important in fish farming as poor quality water can effect the health and growth of the fish. If the water quality is good, survival, growth, and reproduction of the Fish will be good. Fish use the water to live, feed, reproduce, grow and excrete waste into. Fish farmers should therefore pay attention to the quality of the water and how to manage water quality factors.

The high stocking density of fish is the root cause of the problems of Aquaculture that leads to disease and pollution. The main objective of the modern day fish farming is growth of fish in a shortest possible time and to achieve this objective an intensive feed is used, often of animal origin. Only a part of the feed is consumed and the rest ends up in the water as organic waste. The biggest source of pollution is the accumulation of fish waste and uneaten food, underneath. Fish waste particles can be a major source of poor water quality as they may contain up to 70 percent of the nitrogen load in the system.

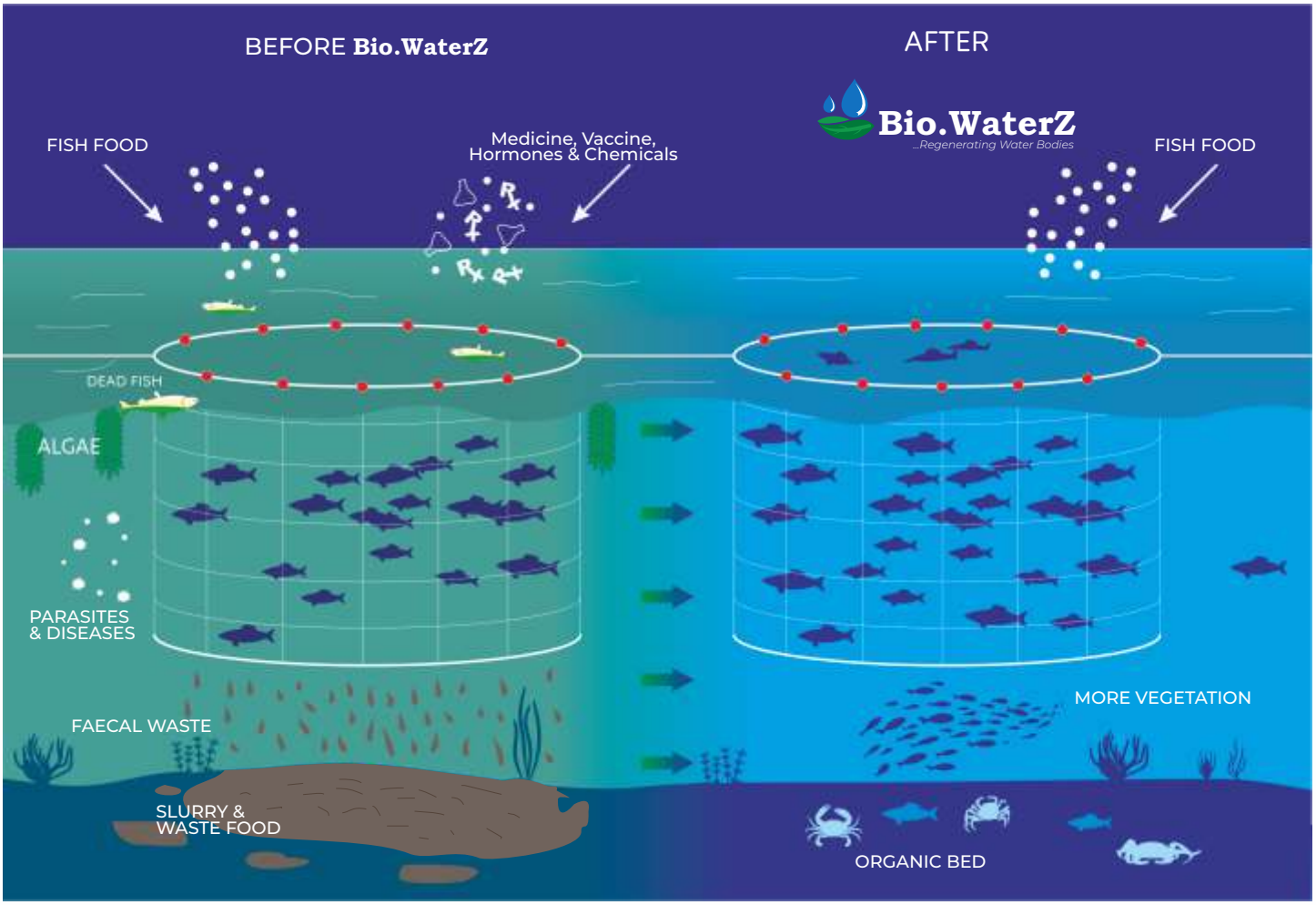
The use of antibiotics, vaccines, disinfectants, pesticides and chemicals also contributes significantly towards the pollution of surrounding aquatic ecosystem that leads to disturbances in the biological balance.

When stressed, the fish gets sick. Fish is under more stressed in aquaculture system than in natural habitat. Low levels of oxygen is one of the factors that can cause stress.

Aquaculture

Low dissolved oxygen level is the major limiting water quality parameter in aquaculture systems. A critically low dissolved oxygen level occurs in ponds particularly when algal blooms die-off and subsequent decomposition of algal blooms can cause stress or mortality of fish in ponds. Excessive amounts of algae leads to increased rates of respiration during the night, causing algae to consume more oxygen. Excessive phytoplankton buildups or "blooms" which subsequently die will also consume extra oxygen. Any wide swings between day and night oxygen levels can lead to dangerously low oxygen concentrations.

All this leads to reduction in the quality and high mortality in fish.



Bio.WaterZ brings an oxygen-forming component into the process, which restores the biological balance and thus improves the water quality. As a result the stress is reduced significantly, which leads to better animal health, lower mortality rate, better water quality and better growth, as well helps in sludge degradation.

Benefits

The increased oxygen production by aerobic microorganisms leads to the following results:

- ✔ Degradation of anaerobic microbial load, thereby regaining self-healing powers and natural regenerative capacity.
- ✔ Increased sludge decomposition, no new sludge formation, thus no slimy or greasy deposits
- ✔ High water transparency (visibility)
- ✔ No unpleasant odours
- ✔ Visible increase in biodiversity (both plants and animals)
- ✔ No more algae formation in the water, thus better "exposure to light" and thus better growth conditions for animals (fish, frogs, etc.) and plants.
- ✔ Healthier animals, mainly fish, due to healthier water...More growth, more health, better quality of fish.
- ✔ No more environmental pollution because of Ideal water nutrient balance.
- ✔ Higher recreational value for bathing lakes
- ✔ Health islands for humans, animals and plants

Usage:

The usage will depend upon the size of the water bodies (pond, lake, river etc.) and the nature and degree of contamination as well as sludge formation.

Testimony

A Pilot project was carried out by “Wasser- und Bodenverband” (WBV), Prignitz, Germany to test Mr.Roland Kästner’s technology to rehabilitate the village pond in Steffenshagen through Biological Treatment Processes from June 24, 2020 to November 30, 2020. The main objective of this project was the removal of sludge from this pond.

After completion of the tests, it can be concluded that Mr. Kästner’s Biotechnological processes delivered results that matched our expectations completely and even exceeded on some of the parameters. The main task of removing the sludge in the Steffenshagen village pond was successfully realized. The water quality also improved far beyond our expectations & almost reached equivalent to drinking water quality.

In conclusion; it can be stated that the pilot project provided initial evidence of the effectiveness of Mr. Kästner’s biotechnological processes in the state of Brandenburg. With this method, pollution in water bodies can be reduced cost-effectively and sustainably so that they can activate their self-cleaning and regeneration power.

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Project undertaken in co-operation with
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