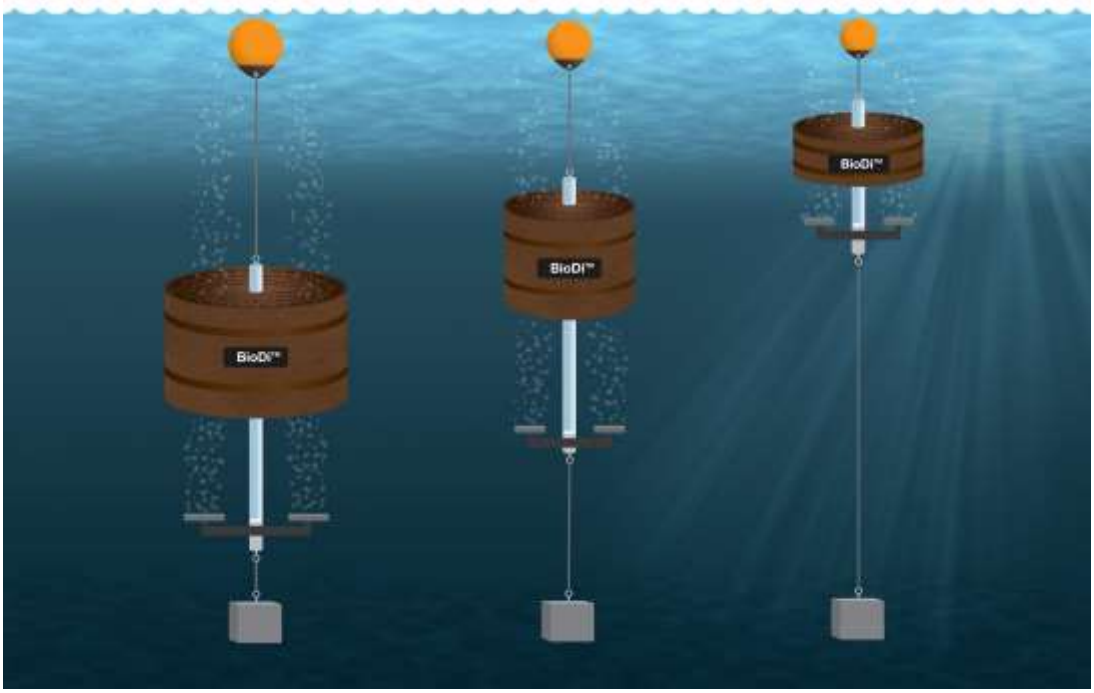
## BioDi ™ Aerobic Digester

The BioDi Aerobic Digester reduces organic material, nitrogen, and other pollutants in surface water bodies. The digester's porous, high surface area substratum provides habitat for microorganisms which break down organic matter and reduce nitrogen via nitrification and denitrification. Spiraling internal flow channels provide highly efficient mass transfer of oxygen and nutrients into the digester to support microbial metabolism, and facilitate removal of sloughed biofilm flocs and metabolites.

**Market Applications & Configuration Options**

The BioDi has direct applications for water bodies with accumulated or high input of organic matter, waste water, or aquaculture systems which have high ammonia levels from fish waste and decomposing organic solids such as uneaten food. The BioDi is offered in different sized configurations such that is can be used on various types or water bodies. The standard core is 60 inches in diameter (width), with core heights of 60 inches or 30 inches (tall) to accommodate different water depths and/or different loads.

For projects in larger and deeper water bodies such as for biodredging, we offer a more industrial version that is also larger. It has a digester core width that is 90 inches in diameter and a core height of 60 inches.




*3 Different Sizing Configurations*

Other custom sizes and configurations are available to accommodate specific projects and water body sites.

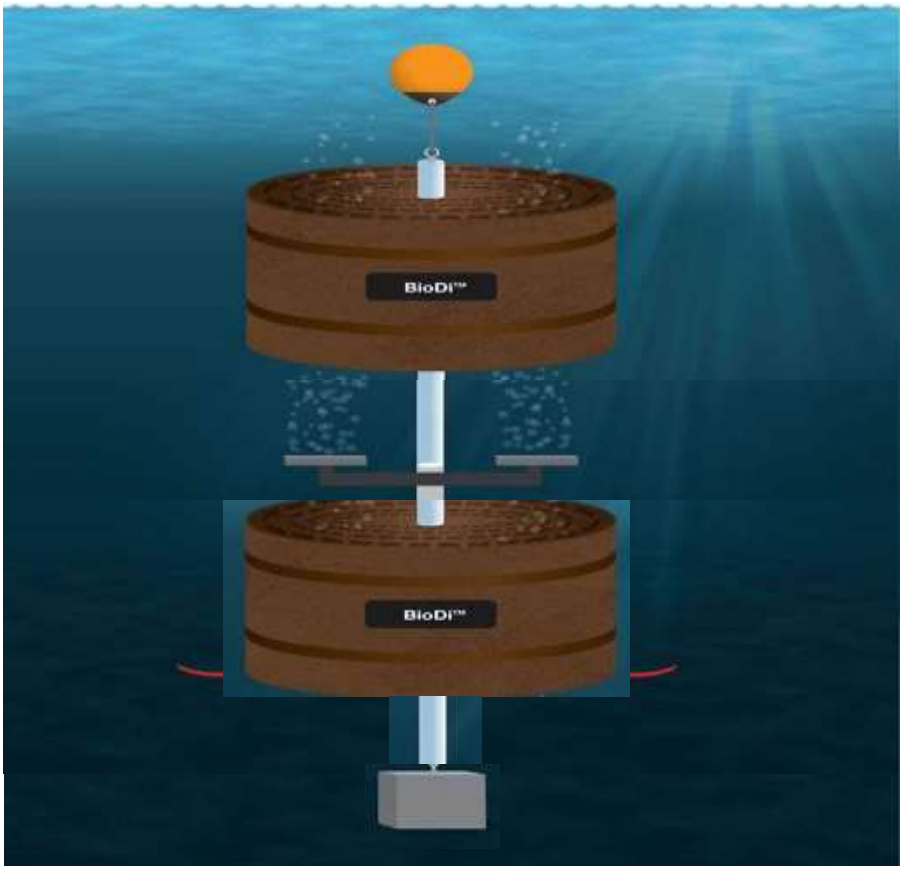
Air diffusers are incorporated at the bottom of the digester core providing oxygen to support microbial metabolism. A key feature of the BioDi is its mass transfer characteristics. While very dense materials may provide large surface area per volume for microorganism habitat, the efficiency of their biological processes is often limited by mass transfer limitations. The BioDi incorporates strategically placed, spiraling, internal flow channels to facilitate mass transfer of oxygen and nutrients into the core, facilitate removal of sloughed biofilm flocs and metabolites from the digester, and influence hydraulic conditions.

The digester core is constructed using multiple substratum materials of different density and porosity characteristics, thus enhancing the microbial habitat diversity.


*First Prototype BioDi*


*Top view showing flow channels*

The main BioDi core is designed to support aerobic biological processes such as decomposition of organic matter and reduction of ammonia (nitrification). Nitrate removal, which is an anoxic/anaerobic process, is optimized by adding a second, smaller digester core positioned under the air diffusers.




*2 stage vertical configuration promotes nitrification and denitrification*

BioDi is especially well suited for larger, deeper and/or rougher water bodies. The digester may be deployed anywhere in the water column as single units or may be deployed in synergistic arrays, such as vertical arrays to maximize oxygen utilization. The submerged digester is advantageous over devices deployed on the water surface in several ways. In climates where the water ices over, the digester can operate year around. In water bodies such as rivers that have flow velocity, large floating pieces of ice may damage a surface dwelling device. In some bodies of water, the digester may be deployed in such a way as to not impede navigation.