



## Electro-Mechanical Aeration

### “Clearing the Water”

Air-O-Lator Corporation believes there is some misinformed thinking within various environmental factions regarding the use of aeration as an **“environmentally incorrect”** solution to water quality issues within a pond or lake while using an electro-mechanical aeration device otherwise recognized as an aerator or floating aerator. The intention of these factions while forthright are clearly incorrect on the assumption that any electrically operated aerating device by virtue of using electricity is contrary to the concept of environmental propriety.

The following information is an attempt to explain the advantages to aeration as compared to the perceived negative use of electrical energy. Water is understood by all to be necessary for the human body and all life for certain. The quality of water and how it is maintained or in some cases achieved while using electricity is the object of this article.

How electricity is generated should be the real issue of environmental concern. Not the consumption of electricity.

Granted; the wasteful use of electricity should be of paramount concern.

The use of fluorescent light bulbs to consume less electricity as an example is a good thing but even that has environmental issues particularly when a spent fluorescent must be disposed of. Proper disposal is requisite due to the little known mercury content within the fluorescent bulbs. Electricity does not pollute anything...the generation of electricity may.

In some situations aeration is needed in our ponds and lakes to provide oxygen to water basins that are naturally polluted via decaying leaves, aqua life, runoff, man made processes as well as a myriad of other issues that nature can not correct on its own.

However, in all situations an aeration device, if properly selected, will improve the overall water quality.

Consider aeration as an investment in the longevity of a pond or a lake and its over-all stability.

Yes, electricity will be used; however the return on investment of an aerator will far exceed the capital cost, the cost of electricity and even the environmental concerns of generating the needed electricity to operate the aerator.

Not using electricity isn't an option in our world today. Electricity is here to stay and the generation of electricity will become more and more environmentally correct if the focus is on the generating systems and not only the consumption of electricity although that to is important.



Aeration is a process which involves two primary functions. Those functions are “Pumpage as expressed in Gallons per Minute (G P M) and a method of oxygen measurement that is termed “Standard Oxygen Transfer Rate” or (S O T R) that should be shown as a number of lbs of oxygen developed per hour (#’s of O<sup>2</sup> per Hour).” As a guide, if the pumpage rate of an aerator is between 800 to 1000 G P M is adequate for a one (1) acre lake. Consequently the S O T R will be of sufficient quantity to satisfy the same one (1) acre lake and therefore will be aerated sufficiently barring any unusual and unknown circumstances.

Thus the reason that G P M and S O T R are so closely aligned.

It is not necessary to be concerned with a minimal amount of difference between one manufacturer and another. As an example in one propeller pump device an S O T R test of 3.03 # O<sup>2</sup>/HR as opposed to 3.26 # O<sup>2</sup>/HR is insignificant due to the use of an average number.

Be certain to verify that the information pertaining to S O T R is supported and “certified” by an independent certification agency or individual Professional Engineer (P E) functioning under the auspices of the American Society of Civil Engineers (A S C E) testing criteria.

It is also important to not be misled in the selection of an aerator. There are some manufacturers that state that their device is an aerator which would be misleading when the volume (G P M) is very low. Granted, the water that is propelled into the atmosphere by these devices may be aerated but the amount of water expressed in (G P M) is negligible since the pumpage is not present for a reasonable S O T R.

Determine that the aerator that is being evaluated for purchase is in fact an aerator and not, as in example above, a “display fountain” which commonly will move very little water in Gallons Per Minute” (G P M) therefore would be poor in oxygen transfer as compared to an aerating fountain and certainly a “workhorse” type aerator.

These display devices may express their capabilities in Gallons per Hour (G P H) to appear to be a greater number to the unsuspecting purchaser since the important number (G P M) created by these devices is minimal.

Air-O-Lator states in its promotional material what equipment should be considered an aerator, fountain aerator, or display fountain and what should or should not be considered for aeration purposes.

As an example any of Air-O-Lator’s centrifugal pump fountains should only be considered as a display device as opposed to Air-O-Lator’s propeller pump systems. As an example a 1 horsepower centrifugal pump fountain pumps 108 gallons per minute (G P M) as opposed to a 1 horsepower propeller pump fountain at 1000 gallons per minute (G P M)