Why New Ponds "Pop"
– Turning the Tide from Green to Clean

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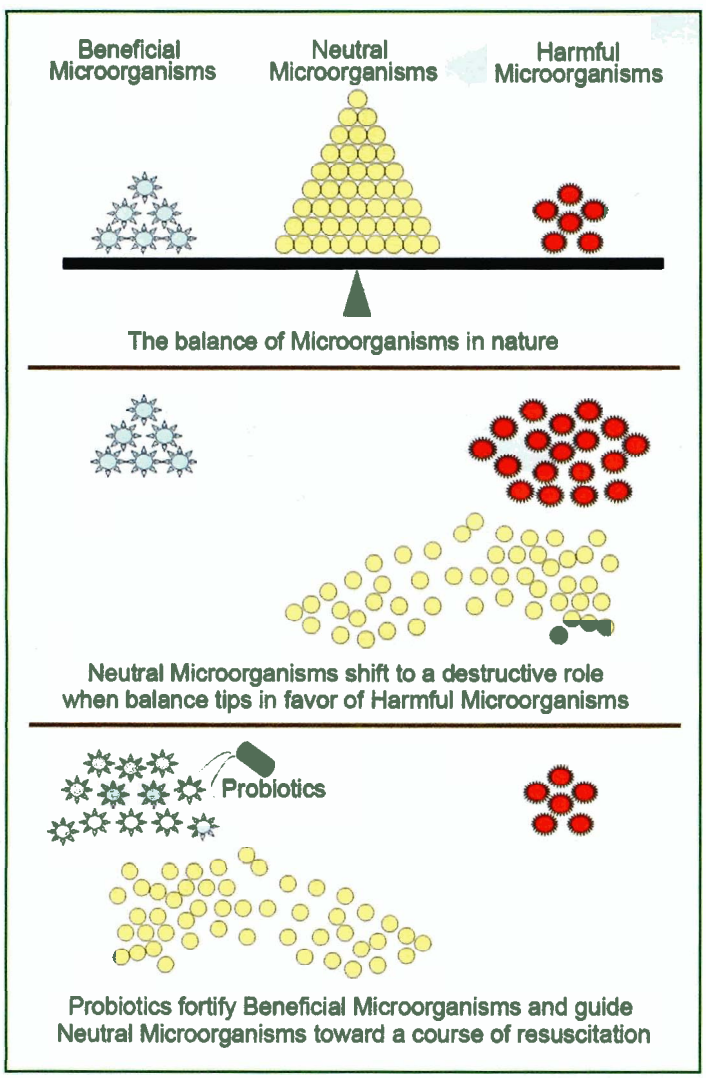
The Mechanisms behind Pond and Aquarium "Pop"

If you have ever observed the conditions in a pond or aquarium suddenly improves, where the water comes to life like a light bulb in the dark, you would remember it well. This is called the "POP." You would have also likely taken that memory with you every time you are setting up a new pond or trouble shooting an existing pond or aquarium in hopes to experience it again and again.

What you probably are a little fuzzy on is just exactly what occurred behind the scenes to make that pop happen.

In this article, we are going to de-mystify the "pop" and explain the mechanisms behind it.



To begin we need to visit the world of microorganisms, Mother Nature's foot soldiers that do her bidding.

The Balance of Microorganisms

In nature, there are three general roles microorganisms play: beneficial, harmful and neutral. A balanced ecosystem contains roughly five percent beneficial microorganisms that keep in check the harmful microorganisms that also weigh in at around five percent of the total population. The remaining microorganisms play a neutral role.

Probiotics

Beneficial microorganisms are probiotic and function to sustain and enrich life. By definition probiotic means "in support of life." They convert minerals to substances easily taken in by plants. They break down organic matter by fermentation consuming the toxic elements along the way, a process that produces life sustaining nutrients such as amino acids, vitamins, sugars, and anti-oxidants. This is a clean process that produces no odors or negative byproducts such as sludge and disease.

Antibiotics and Biocide Chemicals

The harmful microorganisms operate off the principle of putrefaction; they rot things and produce foul odors - hydrogen sulfite, methane and ammonia. These are also the disease-causing pathogens that follow the road of destruction and death. They breed amongst the destruction.

Following the example of medical science, the pond industry has long adopted the approach to attack and kill the bacteria or algae like a disease. By definition, antibiotic means "against life" and biocide means "death to life." And when these methods are used you throw the baby out with the bath water as these methods do not distinguish between good or bad, or just target the culprit, they wipe out all bacteria whether good or bad. Yet, good bacteria are critically important to sustain life and a healthy pond environment.

The Ecosystem Losing Its Balance

The balance in an ecosystem can be lost whenever excessive negative environmental conditions are introduced. Rains can introduce molds and pollution from the air. Runoff can bring in chemical pesticides and herbicides from nearby fields. Winds can spread dead leaves and bugs.

Neutral Follow-on Bacteria

Current research has revealed that bacteria appear to have a sort of chemical email system they communicate with. A command and control system if you will.

In a balanced ecosystem where the pathogens are held in check by the probiotic microorganisms the "orders of the day" for the neutral bugs are to get on with their normal tasks, not having any "senior" orders to the contrary.

When excessive pathogens are introduced to an environment, the core population of harmful bacteria increases to a level that exceeds the balance point of five percent by a few percentage points, over the beneficial bacteria. Then the harmful bacteria seemingly take over the command and control functions of the ecosystem. The harmful bacteria somehow issue an all points bulletin to all neutral bugs, telling them that they have been reassigned to the search and destroy team. As the neutral bugs follow-on the destructive band wagon, the environmental ratios are radically changed, from having only seven to ten percent harmful bugs to functionally having upwards of ninety percent harmful bugs. If you have ever had food poisoning where at first you feel a little odd then overnight all systems break down rapidly, you have an idea of how this works.

Treatment - Less is Better

The good news here is the Follow-on Bacteria are easily swayed back to the good road in life. The apparent command and control system is the key. The slightly swelled population of core harmful bugs has allowed bad bugs to take over command and control. Consequently, all that has to happen to get the ecosystem to "pop" into a better state is to introduce just enough beneficial probiotic bacteria to overrun the command and control center and take it back. A new urgent memo is then issued to the Follow-on Bacteria that they have a new constructive purpose. The Follow-on Bacteria get the memo and they join in all-hands fashion rebalancing the ecosystem with a "POP."

About Organic Environmental Technology and Effective Environmental Services:
Organic Environmental Technology, d.b.a. Effective Environmental Services, is a privately held company in Lake View Terrace, California offering probiotic aquarium and pond products including Aquarium Magician™, Pond Magician™ and Magic Sinkers™. For more information, they can be contacted at 888-524-5000 or by email to info@effens.com.