

IMPORTANCE OF DISSOLVE OXYGEN IN FISH FARMING

Oxygen Is Life and the key to healthy pond.

Dissolved oxygen (DO) is a critical factor in the health and productivity of ponds and aquatic ecosystems, affecting the well-being of fish, invertebrates, plants, and microorganisms.

The amount of oxygen dissolved in water is influenced by various factors, including temperature, pressure, salinity, and the presence of plants and algae.

NOTES:

- * Cold water can hold more oxygen than warm water. Water that is 90°F can only hold 7.4 mg/L DO at saturation, whereas water that is 45°F can hold 11.9 mg/L DO at saturation.
- * Plants increase oxygen through photosynthesis.
- * Decomposition of organic matter uses up oxygen.



Dissolved Oxygen meter (available on www.jakdamfarmlife.com)



Example of some common aeration machines.

OPTIMUM OXYGEN

Whats good, what's bad?

- Optimal Range: For most fish species, the optimal range of dissolved oxygen is between 5 to 9 mg/L (milligrams per liter). Levels within this range support a healthy, vibrant aquatic ecosystem.

- * Minimum Levels: Fish can start to experience stress when dissolved oxygen levels drop below 5 mg/L. Prolonged exposure to low oxygen levels (hypoxia) can lead to health issues, reduced growth, and decreased ability to fend off diseases.

- Critical Levels: Levels below 2 mg/L are critically low and can lead to fish kills, especially if these conditions persist for several hours or longer.

- * Other Impacts: Beneficial microbes and other aerobic dependent organisms are hindered in low oxygen environments.



Aeration with submerge diffuser



Aeration venturi

Managing Oxygen

Things you can do...

- * **Aeration Devices:** Adding fountains, surface aerators, or diffused aeration can help increase oxygen levels, especially during hot weather or in densely stocked ponds.
- * **Reduce Organic Load:** Regular removal of debris, uneaten feed, and dead plants can decrease the demand for oxygen by reducing decomposition.
- * **Manage Plant Growth:** While aquatic plants produce oxygen during the day, excessive growth can lead to large swings in oxygen levels and deplete oxygen at night. Managing plant growth can help stabilize oxygen levels.
- * **Monitor and Adjust Stocking Rates:**

Overstocking fish can lead to oxygen depletion. It's crucial to adjust stocking rates based on pond size and aeration capacity.

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www.jakdamfarmlife.com



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