

Advantages of Adding a U.S. Patented Big Bubble Circulation Pump (BBCP) to an Existing Small-Bubble Aeration System in Calm Hot Weather

Integrating a Big Bubble Circulation Pump into any existing small-bubble aeration system will help optimize lake aeration. Other benefits realized are:

- Whole lake circulation
- Stratification will be preserved
- Surface heating will be reduced
- Weed and algae growth will be limited
- Outward-flowing ripples reflect and deflect sunlight better than dyes
- Lake is kept cooler because of reduction of heat penetration by up to 30 percent
- Ensures a healthy, oxygen-rich environment for trophy bass and their food sources

1. Maintaining the Thermocline while Enhancing Oxygenation

Unlike traditional aeration systems that disrupt stratification, the BBCP allows the thermocline to remain intact. It draws cool oxygenated water from below the thermocline and delivers it to the surface without breaking the lake's natural layering. This ensures that the deeper, cooler refuge for bass is preserved while still improving overall oxygen distribution.

2. Provide a Cooling Effect with Surface Ripples and Outward Flow

The BBCP's rising bubbles create surface ripples that radiate outward toward the shore in all directions. This movement provides several benefits:

- a. Prevents excessive surface heating by mixing cool water into the upper layers.
- b. Enhances atmospheric oxygen absorption, boosting oxygen levels throughout the lake.
- c. Reduces stagnant water zones where heat and algae accumulate.

3. Sunlight Reflection and Deflection Lowers Heat Penetration Better Than Dyes

While lake dyes are commonly used to reduce sunlight penetration, they are limited in effectiveness and require frequent reapplication. The ripples generated by the BBCP lower heat penetration up to 30 percent by providing a natural continuous solution that reflects and deflects sunlight. This effect:

- a. Outperforms dyes by providing dynamic real-time heat and UV reduction.
- b. Reduces excessive surface heating that helps maintain cooler water temperatures.
- c. Slows the growth of heat-loving aquatic weeds and algae without the need for chemical additives.

4. Creates a Cooler Oxygen-Rich Refuge for Bass

By maintaining the thermocline and providing consistent oxygenation, the BBCP provides a stable cool refuge during the hottest months. This improves feeding efficiency, overall growth, and survival rates for the bass population.

5. Strengthens Forage Fish Populations

A well oxygenated temperature balanced lake supports robust populations of forage fish like bluegill and shad. By thriving in stable conditions these fish ensure a continuous high-quality food source for growing bass.

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6. Reduces Algae Blooms and Weed Overgrowth

Warm stagnant water with high sunlight exposure fuels algae and weed growth. The BBCP's surface agitation and circulation:

- a. Breaks up floating algae mats and prevents their formation.
- b. Limits the conditions necessary for submerged weed overgrowth.
- c. Creates a healthier more balanced ecosystem by improving the water clarity.

7. Minimizes Fish Kills with Custom-Engineered Low-Flow Aeration Diffusers

During calm hot conditions, oxygen depletion in deep water can lead to fish kills. The custom-engineered low-flow aeration diffusers are designed to enhance oxygen transfer without disrupting the lake's natural structure. This ensures consistent oxygen availability for both bass and forage fish by efficiently delivering oxygen directly to the deep cooler waters resulting in maintaining a healthy environment without disturbing the thermocline.