

UTAH HATCHERY BOOSTS EGG INCUBATION PROCESS WITH NANOBUBBLE TECHNOLOGY

Located outside of Provo, the Utah hatchery is tasked with incubating and hatching sterilized walleye for anglers during the springtime. The hatchery recently began sourcing water for its operation from a well nearly two miles away; however, over time the nitrogen concentration of the well water source had increased to a saturation of 116%, which can be toxic to fish.

With spawning season rapidly approaching, the hatchery needed a solution to purge the excess nitrogen in the source water and replace it with dissolved oxygen. Stripping towers or cascade aeration were cost and time-prohibitive given the incubation timeline. After hearing about Moleaer's innovative nanobubble generators and their ability to rapidly elevate and sustain dissolved oxygen levels in water, the hatchery deployed a 50 gpm unit with an oxygen tank in March 2019 to address their elevated nitrogen concentrations.

Moleaer's generators produce trillions of neutrally buoyant, negatively charged nanobubbles that are about 100nm in diameter. At that size, bubbles stay suspended in water for long periods of time, efficiently mixing throughout the entire body of water and transferring oxygen with greater than 90% efficiency.

Client:
Utah Hatchery

Type:
Aquaculture - Nitrogen Purge

Unit Type:
50 GPM

Installed:
March 2019

Benefits:
Increased DO by 150%
Reduced Nitrogen by 18%
Eliminated the Need for Chemical Treatments
Reduced Incubation from 14 days to 10 days

Flow Rate:
50 GPM continuous flow through the building



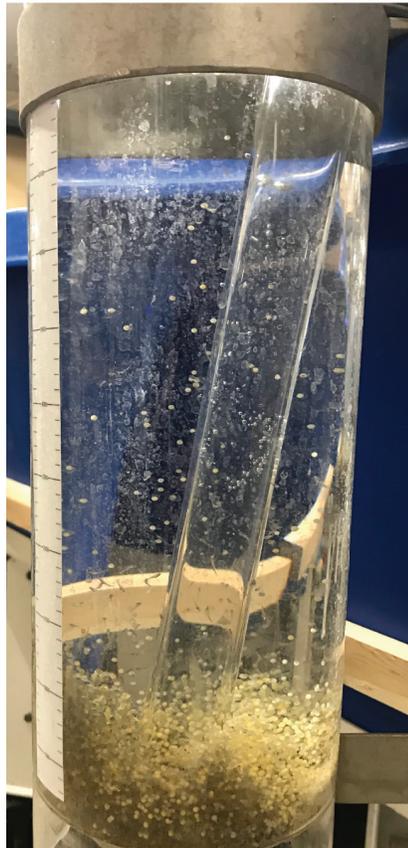
Hatchery in full production prior to the spawning season in Utah.



Elevated dissolved oxygen content in water is essential to proper egg incubation.



Moleaer's nanobubble generator is quick and easy to install and has an immediate positive impact on the hatchery.



Walleye egg incubation column.

The nanobubbles transfer oxygen at any depth and can survive in solution for months, even in warm temperatures and at elevated altitudes. The nanobubble generator is a chemical-free and environmentally friendly way to raise dissolved oxygen levels in bodies of water.

The nanobubble generator was installed in line with a slip stream of the feed water source. A fixed flow rate of approximately 50 gpm was drawn from the 500 gpm raw water source for aeration by the nanobubble generator prior to entering the walleye incubation room. Following the nanobubble aeration process, the nitrogen content of the source water was reduced from 116% to 98%, an 18% decrease. Subsequently, the dissolved oxygen in the water increased from 4 parts per million (ppm) to 10ppm, a 150% increase. In addition to successfully decreasing the nitrogen saturation point in the incubation water, the hatchery also observed a reduction in incubation period, from 14 days to 10 days.

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