

Winter The Season to Keep Ponds Open and Healthy

The right aeration technique can keep ponds and dugouts open and healthy during cool or even bitter cold winter months, extending grazing season, burning off nutrient sludge and preventing fish kills.

by Ed Sullivan



Using aeration to keep surface water from freezing during the winter is a new low-cost alternative to winter watering for livestock.

You may think ponds or dugouts hibernate during the cold or cooler months, but even when the water is frozen thick, there is very possibly trouble brewing in the depths below. Autumn through winter is the period when a lot of ponds and dugouts are most at risk of becoming unhealthy, when nutrients — fertilizers, dead leaves and other foliage — settle into the water. As cooler temperatures prevail and the water cools or freezes over, natural aeration and photosynthesis are reduced by shortened days or obstructed by ice. The result can be a toxic combination of decomposing organic matter, gases and little, if any, production of oxygen. When the spring arrives, if it has been a rough winter, there may be fish kills resulting from oxygen starvation. The high demand for oxygen from nutrients on the bottom of the water, in combination with algae growth, may make waters unhealthy for fish, livestock and wildlife. A resulting malodorous pall may hang in the air for months. All for the want of revitalizing year-round aeration.

Improved grazing and weight gain

“The progressive ranchers and farmers in Saskatchewan (Canada), the early adopters of innovative methods, realize the value of year-round aeration and also keeping a portion of a pond or dugout open during the winter months,” says Duane Hill, conservation program specialist with North American wetlands conservation organization Ducks Unlimited Canada. “This not only promotes healthier water but can extend the grazing season for your livestock.”

Hill adds that healthy water may be surprisingly beneficial to the rancher’s pocketbook as well as his cattle. A study by the Western Beef Development Centre in 2000 showed that calves that drink aerated water from dugouts tend to eat more, resulting in additional weight gains of 1/3 lb. per day.

While aeration and pumping water in the summer are not uncommon practices, using aeration to keep surface water from freezing in the winter is starting to be looked at as a low-cost alternative to winter watering for livestock.

“I have seen a dugout with a Superior windmill-aeration

system installed in it, and even though it was 25 or 30 degrees (Celsius) below freezing, the water was literally bubbling out of it in about an 8-foot (diameter) surface area,” says Hill. “That was very impressive.”

While not used for high-volume applications, Hill says this windmill technology is available in designs that can have two lines coming off the windmill, enabling one to be used for aeration and the other for pumping. Depending on the amount of lift required, a producer can water up to 30 animals via Superior’s Turbo Jet Stream model.

“There are ranchers with replacement heifers or other small herds that are kept separate from the rest,” he says. “For these situations, the pumping of water via the windmill is another way to service these herds with good clean water.”

A true fish story

For those with ponds containing fish, winter aeration in colder climates may be critical. The Spring Valley Sportsmans Club, Spring Valley, Ill., suffered an almost total fish kill in its 2-acre twin lakes last winter.

“We had a total fish kill of about 300-400 fish in both lakes,” says David Ochs, club president. “We commonly get about 8 to 15 inches of ice on our ponds. Depending on the amount of nutrients on the bottom, the water can get oxygen starved during the winter when the water is completely frozen over.”

After talking with another local man who had installed an aeration windmill, Ochs decided to pursue that as a solution for the 75-member sports club.

“I got all of the information I could and was convinced that this solution would work for us,” he says. “So I ordered a Superior windmill directly from the factory, complete with freeze controls. Those are 2-1/2 gallon plastic jugs that attach the hoses. The jugs contain RV antifreeze, which is biodegradable, so it won’t hurt the fish.”

The club’s windmill uses two air hoses attached to a single compressor with two control valves, one for each lake. Typically, the aeration and freeze controls create 6-10 ft. diameter holes in

the surface ice on both ponds throughout the winter.

“We had to do a little adjusting, since one air hose is a little longer than the other one,” he explains. “But it really did the job. I think we lost one fish in both lakes last winter.”

Ochs says the new aeration windmill has improved the overall biological condition of the two lakes. He says that due to years of nutrients that never completely decomposed, gases form in the lower water, and aeration allows those gases to expel.

“Every little bit of oxygen and circulation helps,” he says. “There is another fishing club about 10 miles from us who has installed the same windmill, and it is working great for them.”

Farmers or ranchers who have a sick pond or dugout know how frustrating and expensive it is to try to treat their way out of the problem. That is all the more reason that they are looking at windmill-based aeration to oxygenate ponds and dugouts while also inducing circulation in order to avoid thermal stratification of the water as well as prevent stagnation.

Superior Windmill, for example, produces various designs that compress air and pump it through one or more diffusers that are placed at the bottom of a dugout or pond. The action of the air pulsing through the water and bubbling to the top causes the surface waters to flow outward to the sides, thereby augmenting aeration through exposure to the atmosphere. As the water becomes more oxygenated, decomposition of potentially toxic nutrients at the bottom of the water is completed.

During warmer months, thermal stratification is reduced and the water remains healthier. The agitation of the circulation on the water’s surface inhibits the growth of algae and mosquito larvae, thereby also preventing odors and pests. With the influx of West Nile disease, this benefit may become increasingly important, especially in non-free-flowing waters. **HW**

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