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Solar solution for reservoir

SolarBee will stir up Harper Lake, cut down algae

By **Kim Castleberry, Camera Staff Writer**
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LOUISVILLE — Motorboats are a rare sight at Harper Lake. It's the kind of place where people go to run on the trail around the lake, walk the dog or maybe even try to catch a couple of fish.

For those planning trips out to the lake today, someone on a motorboat likely will be tooling around to install a new solar-powered technology designed to ease the city's water treatment process, improve water quality and cut down on costs.

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The system has been used in Louisville Reservoir for the past year, and it has worked so well the city no longer spends money on manpower or chemicals to treat the water there, said Sid Copeland, superintendent of the city's water treatment.

"It keeps the lake more or less stirred up, or mixed, so that the water temperature is more even and there's enough oxygen to keep algae away," Copeland said. "Our water quality is much better."

SolarBee is a self-contained floating device that can draw up to 10,000 gallons of water per minute from the bottom of a reservoir and spread it out across the top. The process constantly renews the water's surface and accelerates the cleanup process, said Harvey Hibl, of Pump Systems Inc., which created it.

Steady movement of the water means increased oxygen flow throughout the lake and a reduction in blue-green algae, which can be poisonous to fish and other organisms. This kind of algae possesses toxins that make it inedible, and the result is a pile-up of it at the water's surface that can become toxic for the entire ecosystem, said Chris Knud-Hansen, a scientist for Pump Systems Inc. with a doctorate in limnology, the study of freshwater bodies.

"They favor quiet, calm water," Knud-Hansen said. "This kind of circulation pattern disrupts that and they become unable to compete with the edible algae."

In some cases, Knud-Hansen said the disappearance of the algae has rejuvenated fish populations that were dying off, because the nutrients formerly taken up by the toxic algae are now available to other organisms. The technology also eradicates the use of chemicals such as copper sulfate, which are used to treat lakes and reservoirs. The increased oxygen levels also help to remove iron and manganese from the water, easing problems in water treatment plants.

The bulk of the device is anchored at the deepest level of the lake, while the solar-powered motor and panels drift over the top using stationary floats to power the unit below the water.

On gray days, the technology doesn't shut down, but it does work at a slower pace, said Hibl, the company representative who works in Colorado.

Lafayette, Longmont and Fort Collins are among 40 places in the state that use SolarBee. Nationally, it's in about 700 locations. The addition of Harper Lake will cost Louisville about \$30,000 to install. Copeland, the city official, estimated that it saves at least \$5,000 a year, and that's without including all of the chemicals used to treat the water.

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