

Summarized Case Study (LK)

Key Words: cooling lake, blue-green algae, aquatic weeds, treatment savings



Photos: First photo is an aerial shot of part of the lake showing the marina and where the SolarBee is installed; the second photo shows the SolarBee in the lake with the power plant in the background.

Reservoir or Lake Use: The lake is used for cooling as part of the operation of a nearby 760 MW coal-fired generating station. The lake is also used for recreation, and has a beach area and a marina in a small bay at one end of the lake.

System Overview and Reservoir: The cooling pond is about 1,300 acres in total surface area with a maximum depth of about 60 feet. The marina is 4.1 surface acres, with a maximum depth of about 13 feet and an average depth of 6-7 feet. Approximately 33% of the lake water is cycled through the plant each year.

Reported Problem Before SolarBee Installation: Both the marina, swimming area and the main body of the lake had a history of persistent blue-green algae blooms and infestations of the submerged aquatic plant, curly-leaf pondweed (*Potamogeton crispus*).

SolarBee Installation: Date: May 2004, installed one (1) SB10000 solar only in the center of marina bay. Primary objective was to control blue-green algae blooms, and the secondary objective was to control curly-leaf pondweed. June 2005, replaced existing unit with a SB10000v12 unit.

Results: Blue-green algae blooms have been consistently prevented in the marina since the SolarBee was installed. Meanwhile, algal blooms continue to persist outside of the marina. When fall, seasonal winds push these blooms into the marina, the SolarBee dissipates the blooms and good water quality is restored in the marina within 1-2 days. As for curly-leaf pondweed, when the weeds started their 2004 fall/winter growth (with biomass peaking in late spring), divers reported that the plants appeared stunted and not very healthy. By summer 2005, customer reported a 50-60% reduction in coverage from the year before. In 2006, customer reported that weeds were not there as they used to be for the last 12 years, and it has been better each year since the SolarBee was installed. In addition to seeing fewer weeds, he reported that remaining plants were not as tall or green, and appeared sickly in a constant state of dying. They used to need 3 weeks and lots of manpower for multiple weed harvests in the spring and summer. In 2005, they harvested only one day in the spring, and not at all during the summer, saving considerable manpower and expenses. In 2006, the harvester broke, but was no longer needed. In contrast, the rest of the lake has had persistent blue-green blooms and a substantial weed invasion. The customer is very pleased with the consistent water quality and aquatic weed control benefits SolarBee circulation has provided in the marina.

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