

Key words: recreational lake, blue-green algae, water clarity, dissolved oxygen, impaired fishery, muck reduction



Photos: First photo shows the SolarBee in the lake; second photo is an aerial shot of the lake showing SolarBee placement and the surrounding community of homes.

Reservoir or Lake Use: This is a freshwater lake utilized primarily for recreational purposes (swimming, boating, and fishing), and managed by a homeowners association with approximately 46 homeowners.

System Overview and Reservoir Data: This lake is approximately 45 acres with a maximum depth of 17-20 ft and a mean depth of 10-12 ft. The main inflow to the lake is from a 12-mile diversion from a nearby river that also receives agricultural and stormwater runoff. The lake also receives the stormwater runoff from the surrounding subdivision. Some of the lake water is permitted for irrigation and it is also used to water a nearby city park and cemetery.

Reported Problem Before SolarBee Installation: Homeowners reported summertime blue-green algae blooms increasing intensity since mid-1990s. The lake had experienced fish kills associated with fall turnover events, most notably one in September 1997, reflecting anoxic bottom waters during summer stratification.

SolarBee Installation: Date: June 2003. Installed one SB10000 solar powered only; hose depth initially set at 15 ft. In August 2005, the original SB10000 and the SB10000R were replaced with the SB10000v12.

Results: Following the installation the lake cleared up greatly, with Secchi depths sometimes reaching 14-17 ft. The organic muck on the lake bottom has been reduced an estimated 6-12 inches in deeper waters, while the near-shore sediments are firmer and easier to walk on. There has also been observed increases in fish spawning in near-shore waters, with an associated increase in shore birds (e.g., pelicans) feeding on young fish. There have been a few instances where blue-green algae thriving in the diversion were apparently washed into the lake during summer storm events. Nevertheless, local residents are very happy with the overall improved water quality and lake ecology.

97-USCOLK-LOC51.001, Last updated: 8-30-10