

# Case Study

## Installing Aerators to Improve Water Quality

**Location:** Cozumel, Mexico

**Type of property:** Semi-Private, 18-hole golf course

**Type of membership:** ACSP for Golf

**Member since:** 2005

The irrigation lake at Cozumel Country Club is an effluent water storage lake with minimal rain runoff supplement. The golf club experienced varying degrees of issues with this lake, mostly unacceptable odor and algae growth. The staff determined that the most helpful (and eco-friendly) thing to do was to install an aeration system in the lake.



Cozumel Country Club

*Lake algae buildup after 3 weeks without aerator*

### Installation and Maintenance

The first step was to measure the lake size and depth in various areas. Then, the club contacted three different companies that sold and installed lake aerators for proposals on cost. After selecting one that best suited their needs and budget, installation started. The system, once installed, requires maintenance on the submerged aerator diffusers about every 3 to 4 months. The diffusers are weighted so they sit on the bottom of the lake. In this case, 6 different diffusers were installed, strategically distributed throughout the lake. They each have a float buoy tied to them, and are pulled up and are cleaned with a muriatic acid solution, brushed, rinsed off, and placed back in the original spot. The compressor also has a filter that has to be cleaned about every 6 months depending on conditions, and 4 carbon vanes that have to be inspected and replaced as needed. The club also purchased a small row boat for this maintenance process.



Aerator Compressor

### Water Quality Improved

The goal of improving water quality, including overall health, smell and sight, was achieved. After installation of the aerators and the treatment applied to the lake, it took about 6 months to notice a marked improvement. A year after installation, there are few algae issues and golfers have noticed an improvement in the lake. There was little information provided to members about the project, but many compliments have been given on the improvement of the water quality.

### Lessons Learned: Consider Maintenance

Looking back on the project, the club would have looked more into the cost of self-cleaning diffusors as an option, due to the large amount of time spent maintaining. They would investigate other clubs' aerification projects to see the costs and benefits of this self cleaning system. Finally, informing the club members about the project would have led to good press about their efforts.

### Total Costs v. Total Benefits

The cost to install the aerators was \$10,000, plus maintenance by the crew every 3-4 months. Benefits are intangible and include the visual and ecological aspect of the irrigation pond, which is at the center of the course and very visible.