

RESPONDING TO CYANOBACTERIA BLOOMS IN FLORIDA LAKES: RESULTS FROM THREE APPARENT SUCCESS STORIES

David A. Tomasko and Emily Keenan¹, Robert Burnes², Joanne Vernon and Sherri Ouimet³, Lizanne Garcia and Randy Smith⁴

¹Environmental Science Associated, Tampa, FL, USA

²Pinellas County Environmental Management, Clearwater FL USA

³Charlotte County Public Works, Punta Gorda, FL USA

⁴Southwest Florida Water Management District, Brooksville, FL USA

Cyanobacteria have a number of physiological features that make them especially difficult to control, especially in Florida's warm, sub-tropical and phosphorus-rich Peninsula. However, cyanobacteria control has been the focus of applied research from locations as disparate as Mississippi and Minnesota, as well as Scotland and the Islamic Republic of Iran. Using prior studies as a guide, a series of lakes were managed based on lake-specific paradigms, as discussed below.

In Charlotte County's Sunshine Lake, a prior cyanobacteria bloom has been mostly eliminated through a combination of dredging, whole-lake aeration, and the supplementation of dry season lake levels through the use of groundwater wells with low phosphorus concentrations, and careful management of nuisance Submerged Aquatic Vegetation (SAV).

In Pinellas County's Lake Tarpon, prior cyanobacteria blooms appeared to be related to the amount of nuisance SAV that was treated with herbicide applications, rather than the amount of stormwater runoff. Over the past 20 years, the lake level has been at a fairly constant level, which seems to have reduced the frequency of low-water level conditions that led to subsequent increases in nuisance SAV. This has in turn reduced the public's desire for a quick fix to eradicate nuisance SAV, which has reduced the need for herbicide applications, which seems to have resulted in reduced phytoplankton levels.

In Polk County's Lake Hancock, water quality has dramatically improved concurrent with a number of lake restoration activities. These activities have included raising the lake level and other actions which have increased the interaction between the lake and its surrounding wetland forests. These changes appear to be responsible for substantial improvements in water quality in what FDEP had once called "Florida's most polluted large lake."

PRESENTER BIO: Dr. Tomasko has more than 30 years of experience, and has led efforts to develop water quality management plans for more than 60 lakes. In addition, he was the primary author of the Surface Water Improvement and Management Plans for both Sarasota Bay and Charlotte Harbor.