



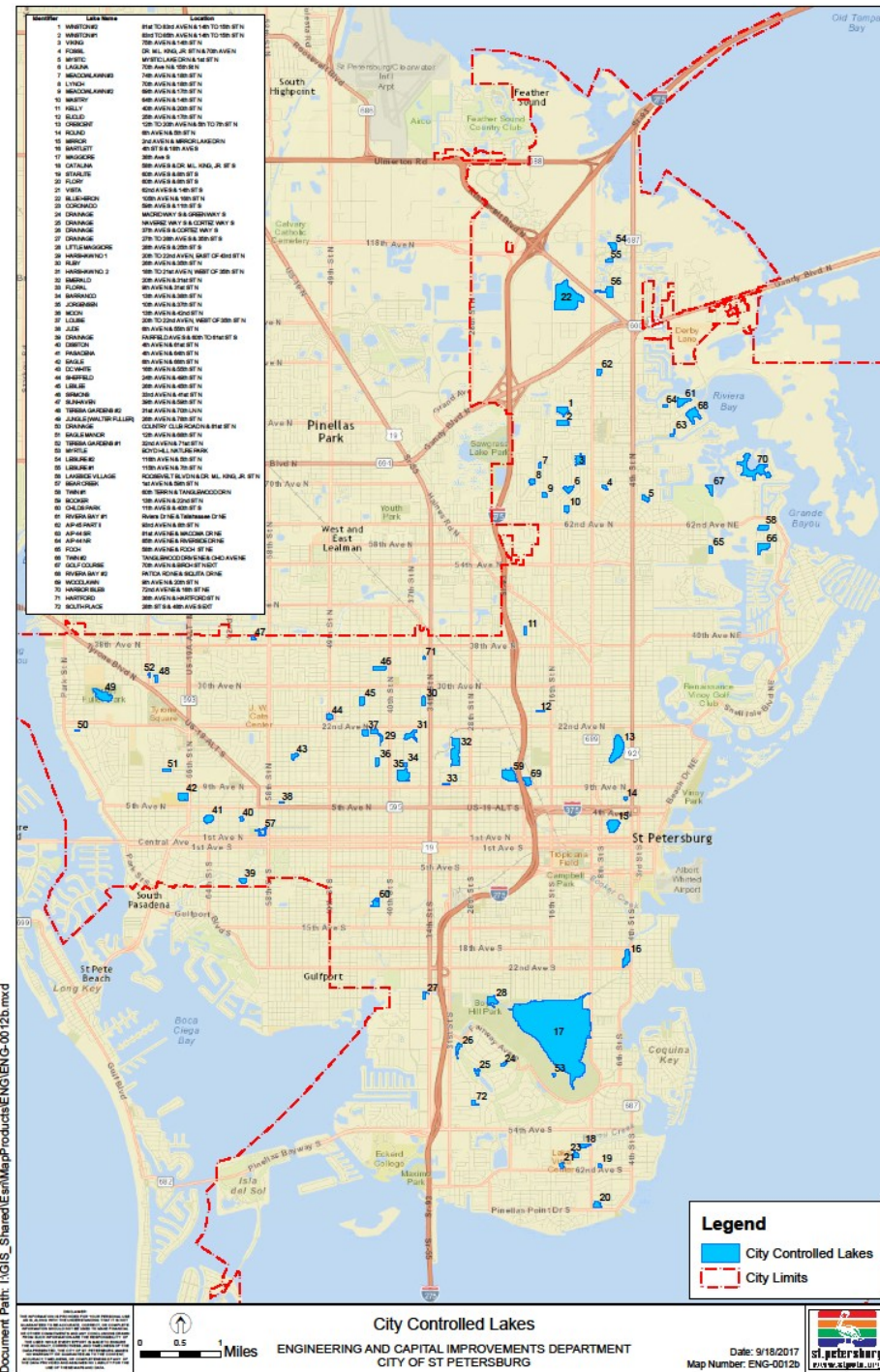
Harbor Isle Lake Maintenance - Agenda Item E.8. 4th Amendment to the Solitude Lake Management Agreement Project Number 19052-110

February 11, 2021

City Lakes

- The city currently has 80 lakes that are maintained by Stormwater, Pavement and Traffic Operations (SPTO).
- Some lakes are owned by the city (Crescent Lake, Lake Maggiore), most are not owned by the city but are dedicated by plat to the city for public use.
- Maintenance of the lakes is crucial for stormwater conveyance.
- Maintenance for stormwater conveyance may include vegetation control, addressing erosion, water quality improvements, sediment removal.

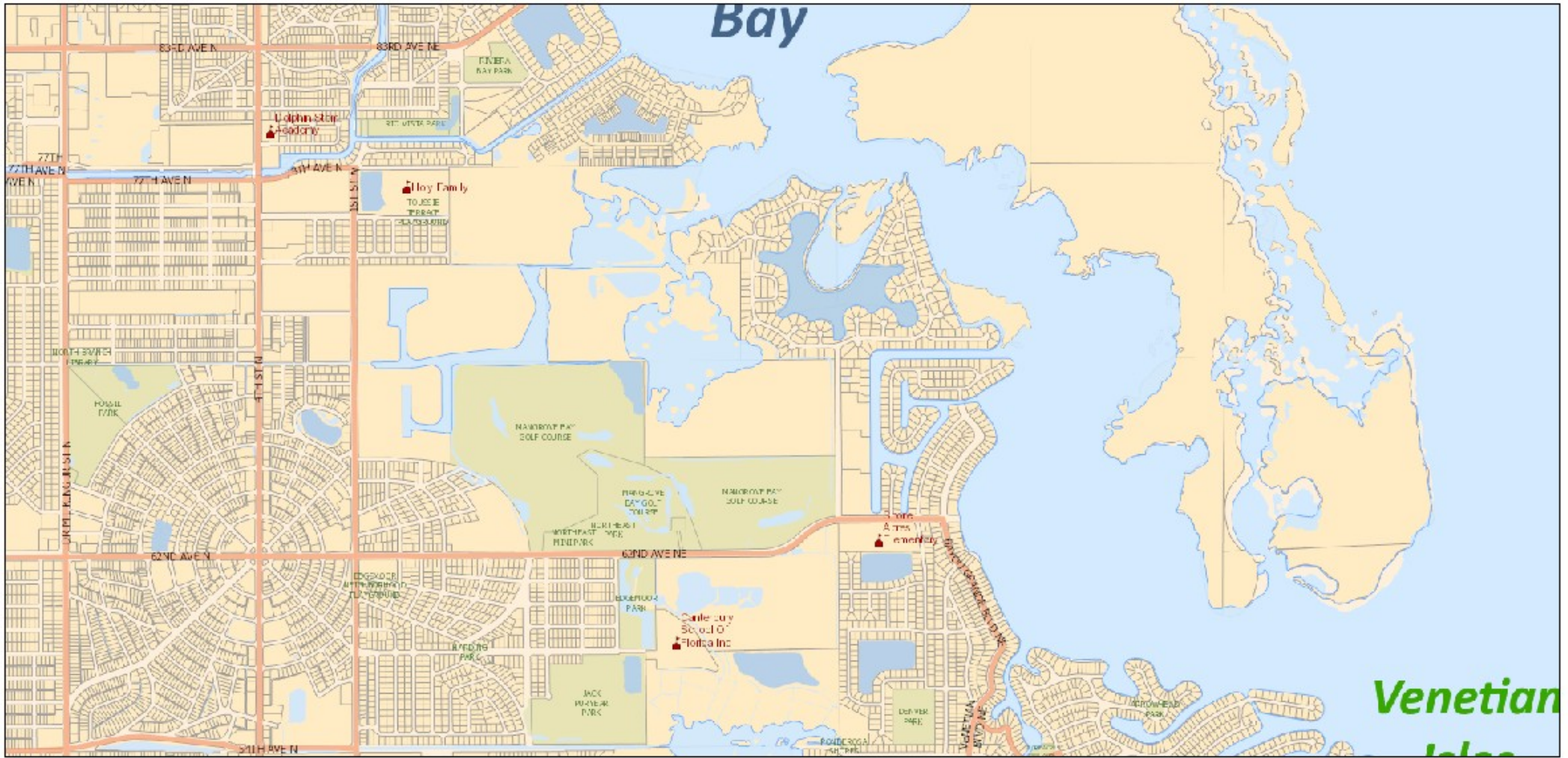
Lakes



Citywide Lake Management Plan

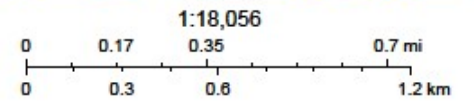
In December, 2020, the city started a citywide lake management plan designed to identify the needs, maintenance methods and the city's responsibilities and for each lake. Designed as a living document, the plan will help SPTO and ECID establish needs, budgets and schedules for lake maintenance.

ArcGIS Web Map



2/9/2021, 2:40:40 PM

- Lakes - Not City Controlled
- Lakes - City Controlled
- City Limits
- Pinellas Trail
- ROW Dimensions
- Parcels
- Parcel Popup



City of St. Petersburg, FL, City of St. Petersburg GIS



Aerial Photographs 1977

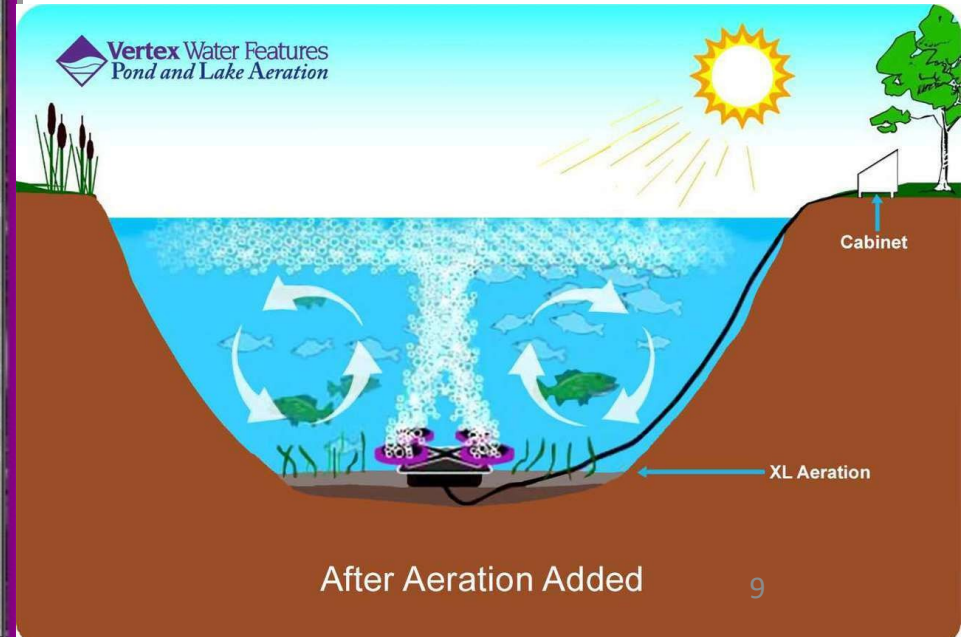
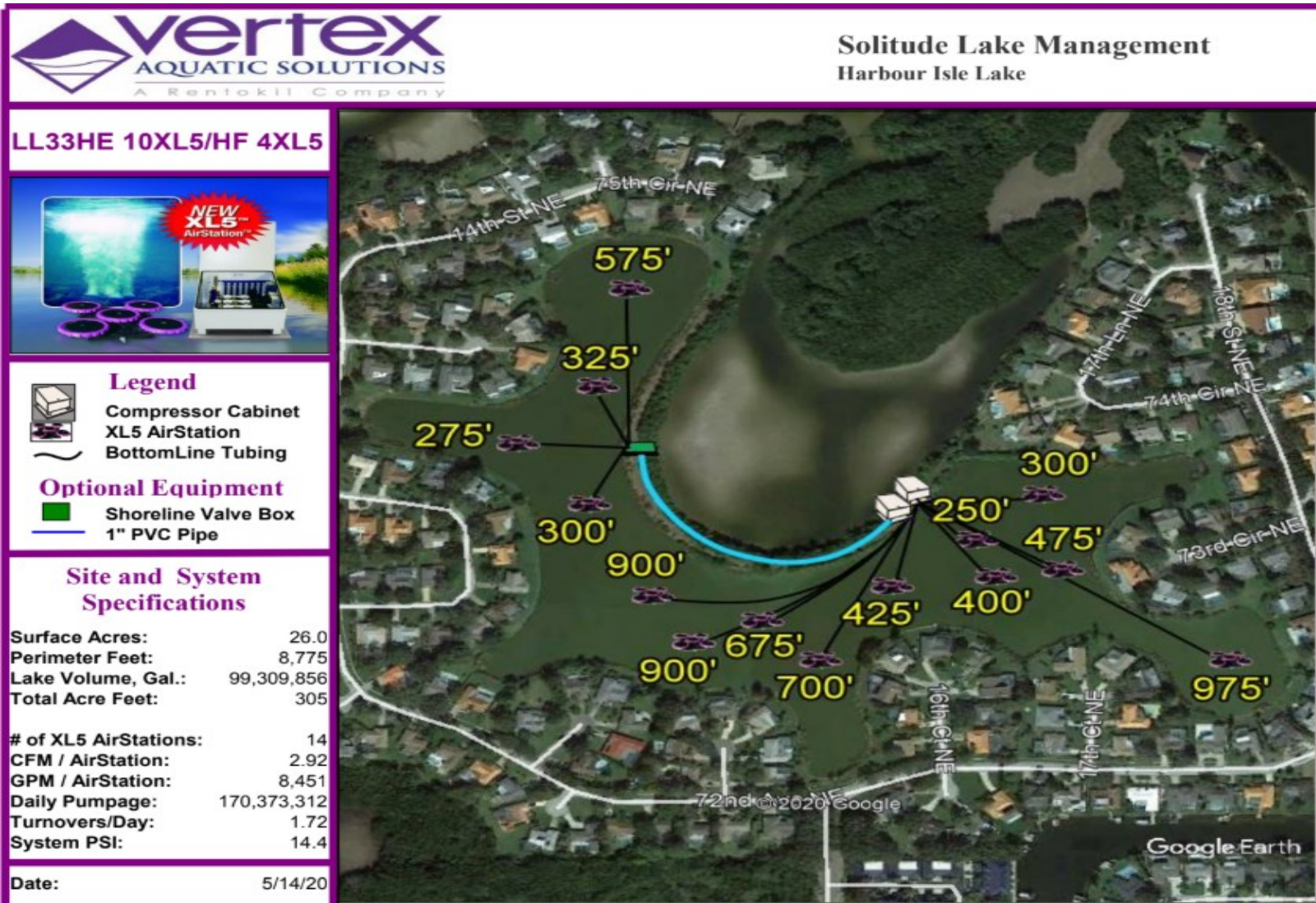


Harbor Isle Lake

- Manmade lake and surrounding homes were platted in the mid 1970s.
 - Lake was dedicated to the public and is 27-acres and approximately 18' deep (at deepest).
 - During 1970s-1990s, the lake was deeper (30 +/- feet) and experienced frequent turnovers/fish kills.
 - In early 2000's, the lake was filled as part of a city project to reduce turnovers. Dredge material from a ACOE project was used. Fish kills were essentially eliminated.
 - **The lake experiences blue green algae blooms.**
 - FDEP and PCDOH are aware of the ongoing algae blooms.
 - Aeration of the lake began in December 2019 with nanobubbles aeration.
 - Micro bubble aeration was added in June 2020 to supplement the ongoing aeration
- Micro bubbles aeration is intended to be a permanent system in the lake.

Micro Bubble Aeration

Aeration systems are maintained by SOLitude Lake Management



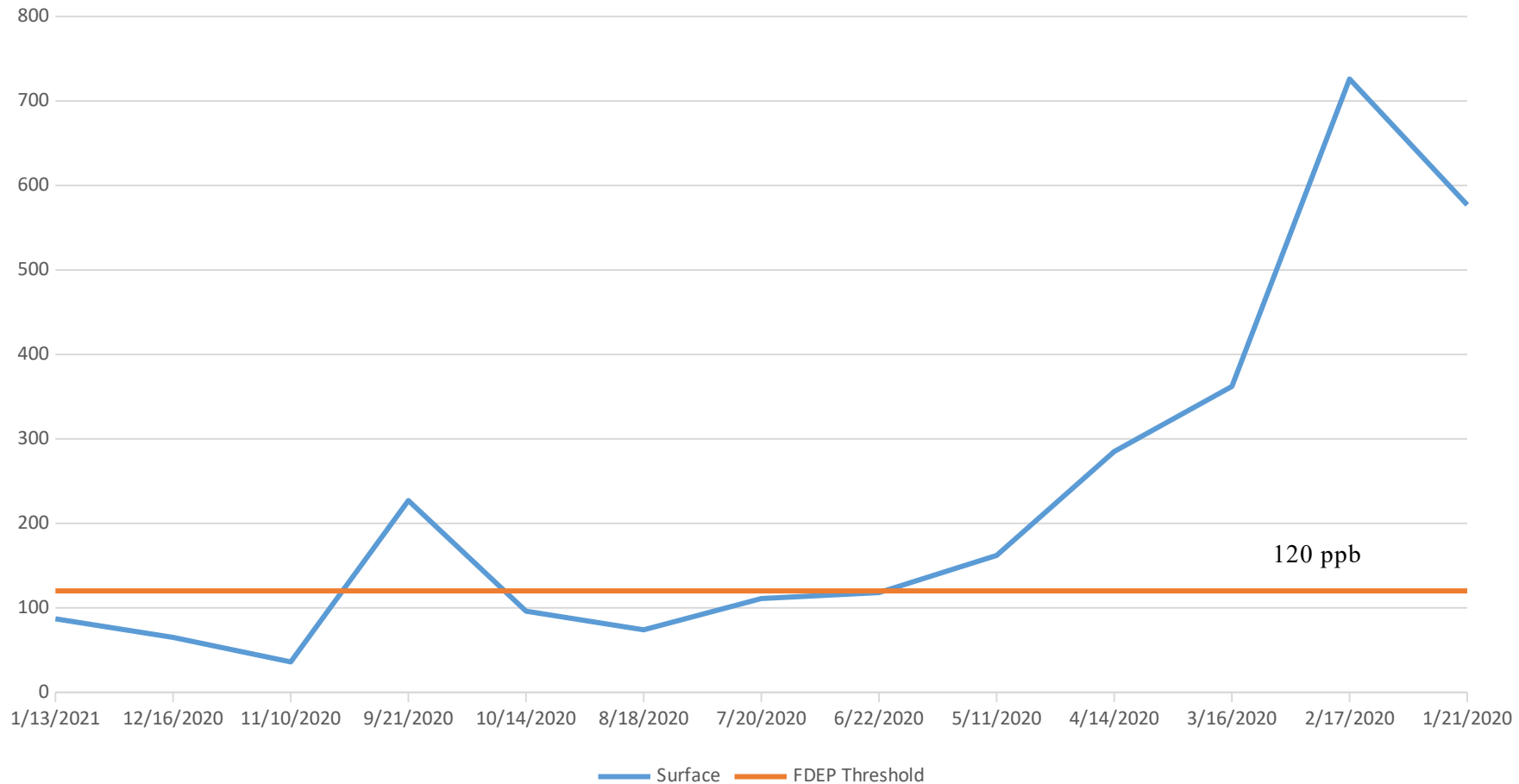
Harbor Isle Lake

Treatments that have occurred at Harbor Isle lake to control blue green algae include:

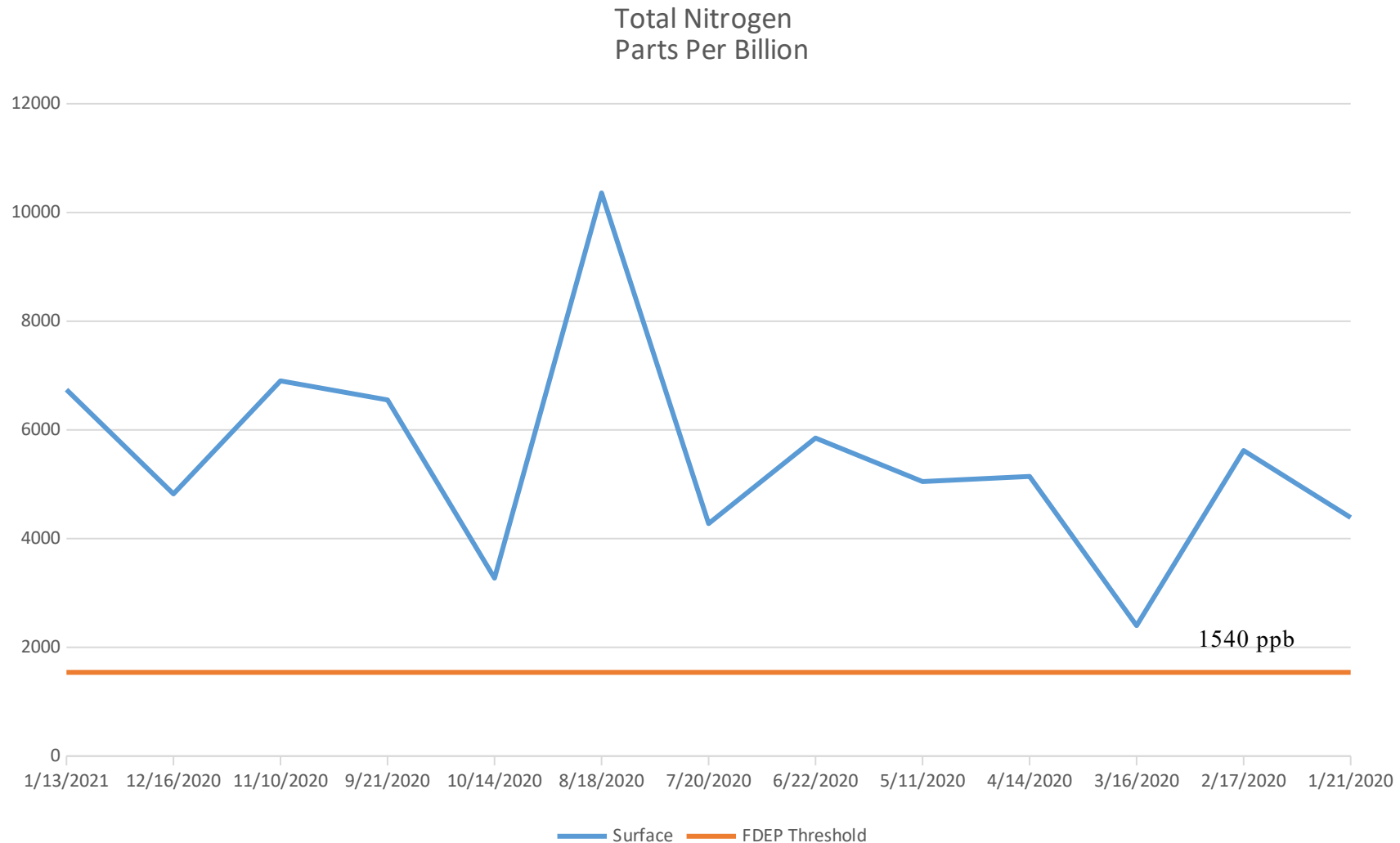
- Green Clean application in March 2020
- Alum application in May 2020
- Additional Green Clean in September 2020
- Algaecide applications by SOLitude Lake Management
- Additional Green Clean application February 2021

Water Quality

Total Phosphorous
Parts per Billion

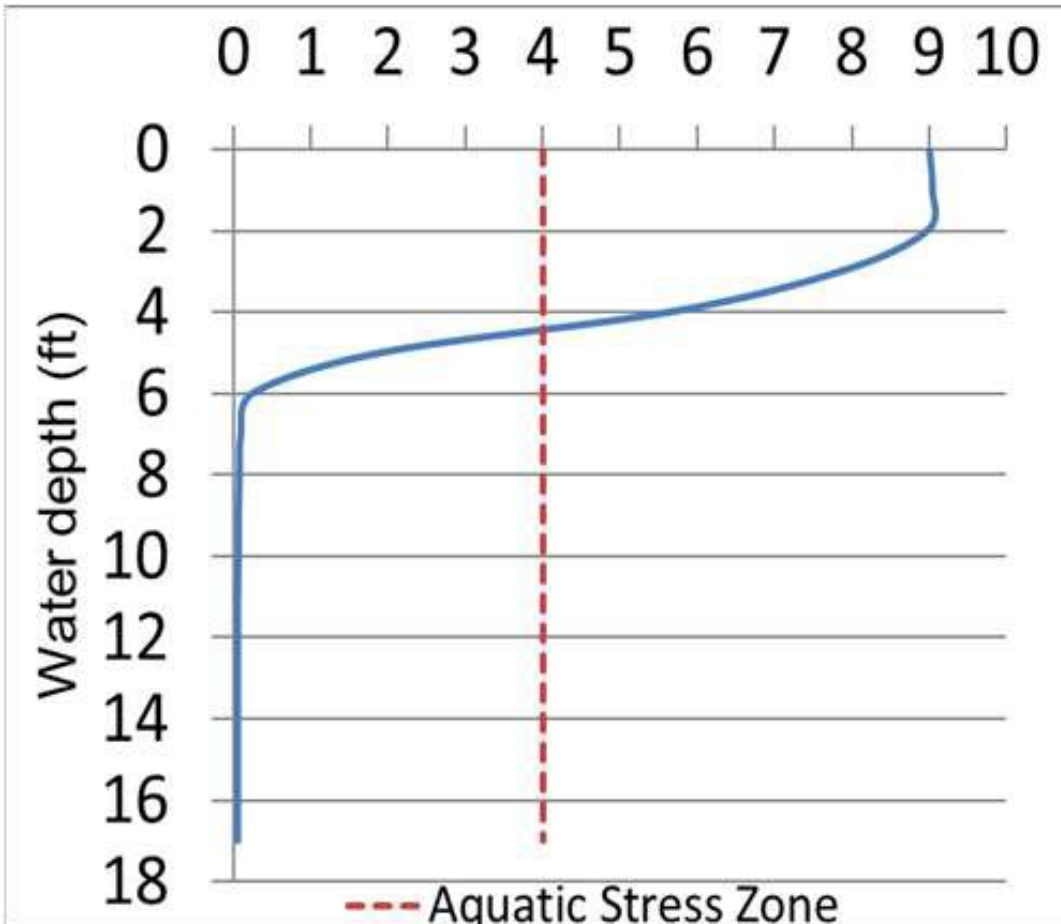


Water Quality

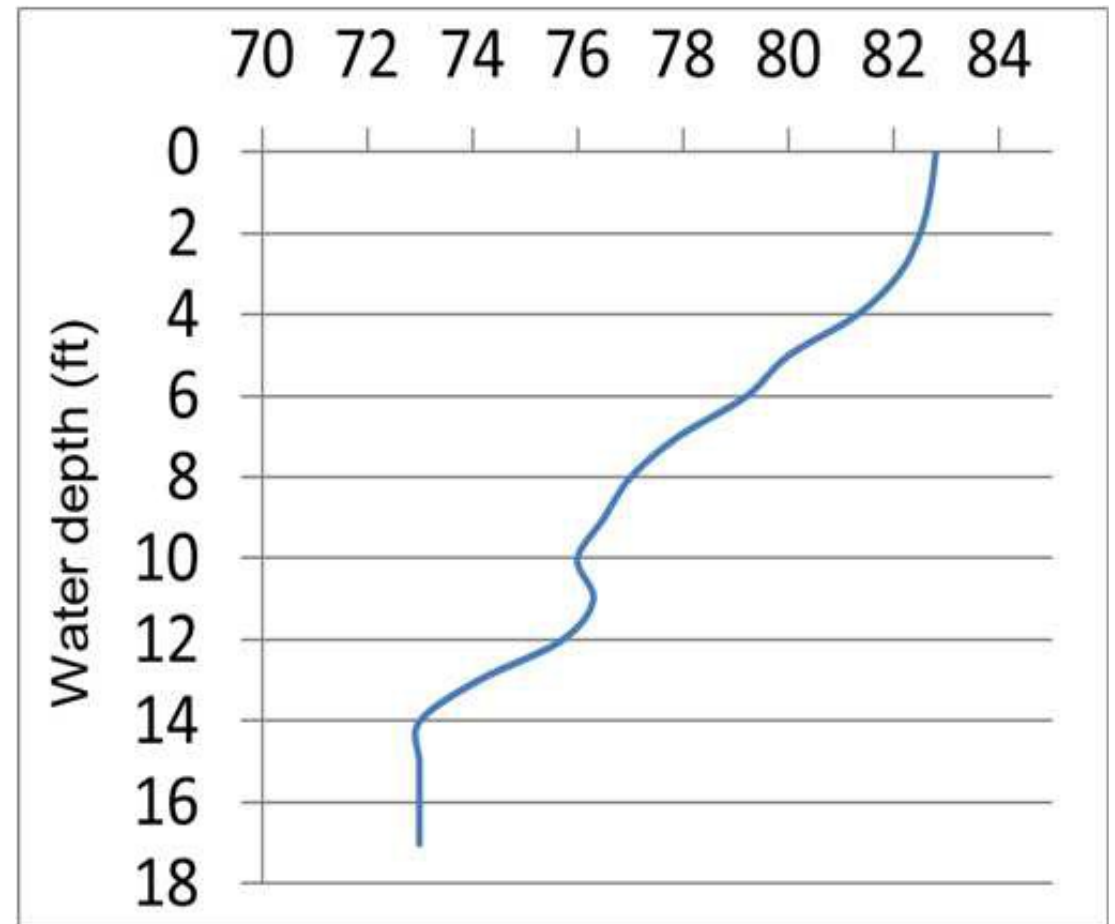


Water Quality

Dissolved Oxygen (PPM), April 2020

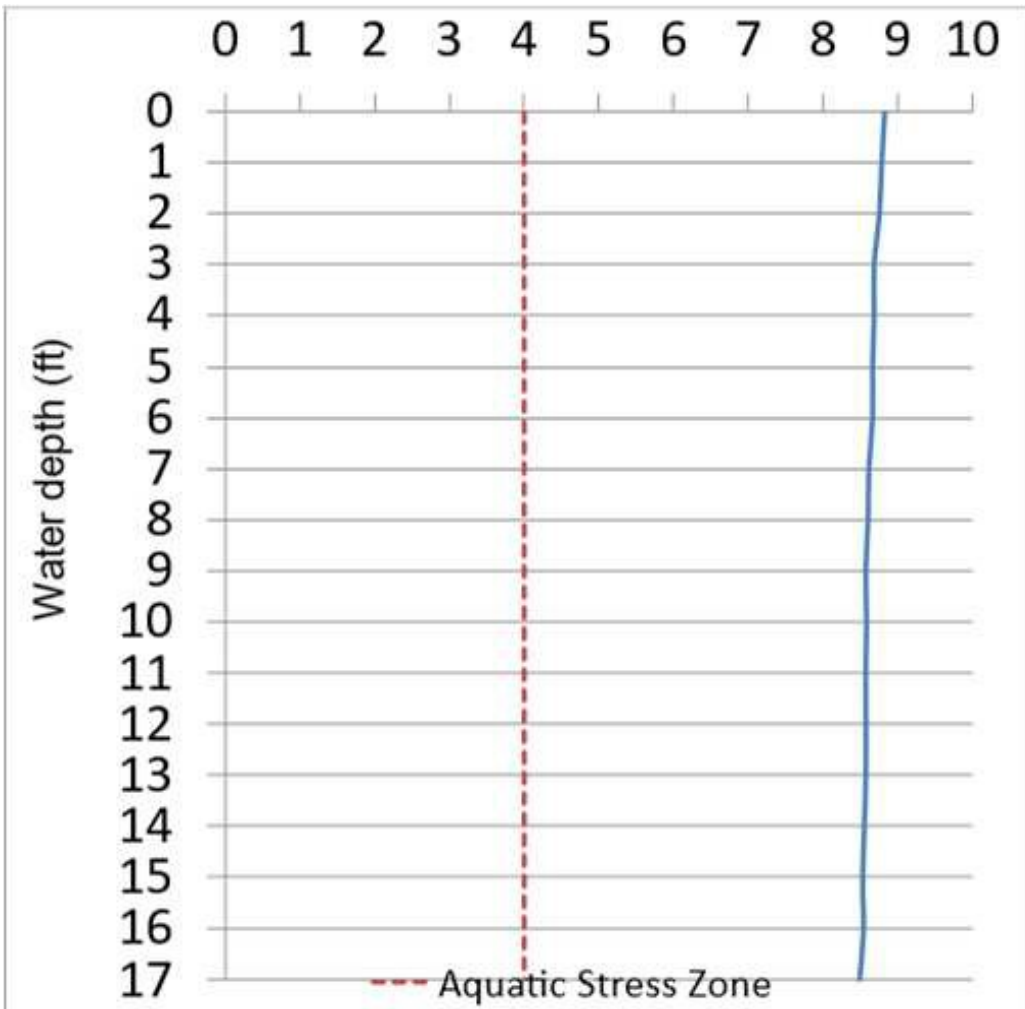


Temperature (°F) April 2020

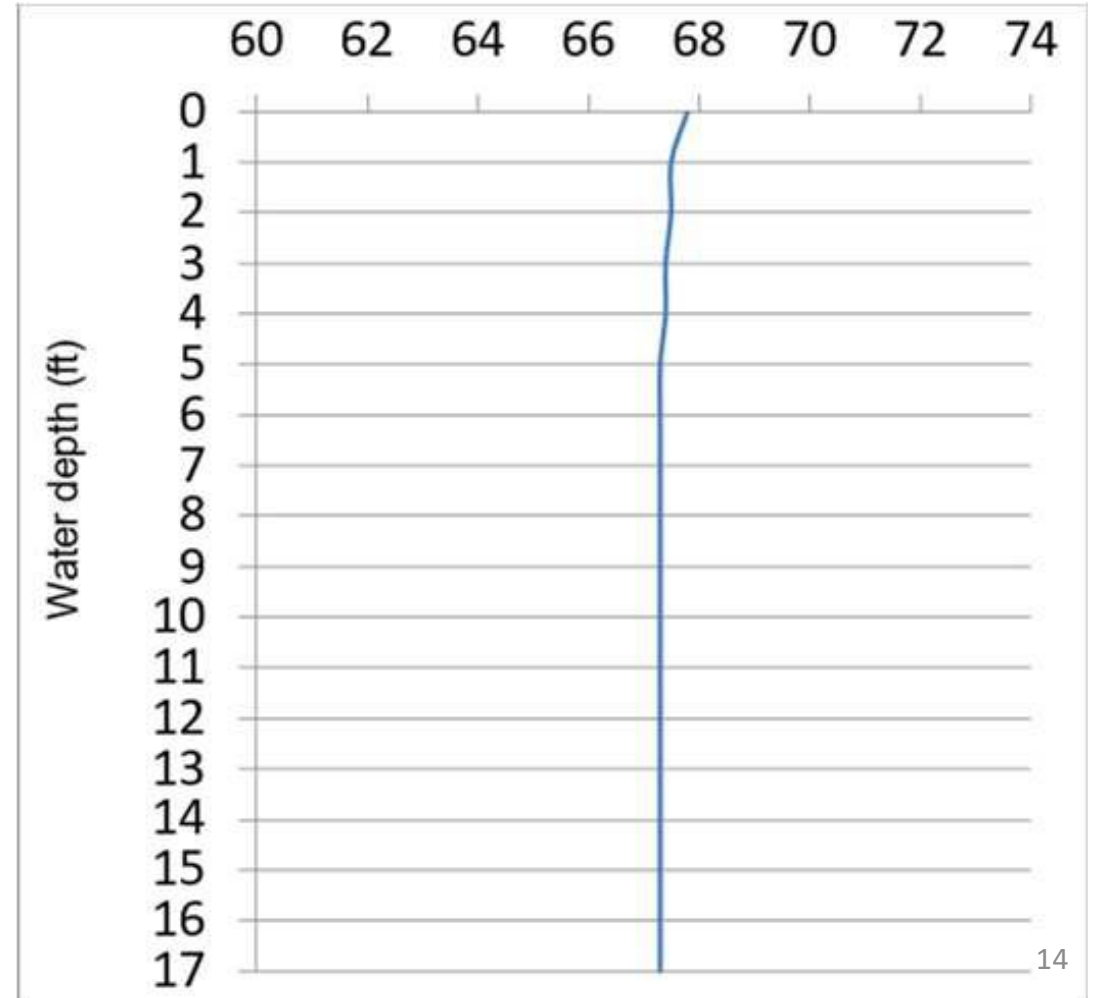


Water Quality

Dissolved Oxygen (ppm), December 2020



Temperature (°F), December 2020



Goals and Ongoing Work

Goal

- Reduce then eliminate the blue green algae blooms
 - Establish a more aggressive maintenance program
 - Continue, on as needed basis, Green Clean and alum treatments

Ongoing

- Sample sediments to determine potential to release nutrients into water column
 - GPI will be engaged as lead consultant using Janicki Environmental and Environmental Research & Design



- **Continue to work with HIHA and residents to promote best management practices for landscape practices. They have a very engaged lake committee and board and have had lake events, education events, speakers at meetings, etc.**