7/16/2021

Matt Logan

Public Works Department

410 Taylor Street, Unit 104

Punta Gorda, Florida 33950

Re: Technical Memorandum for Third Quarterly Sampling Event at Sunshine Lake

Mr. Logan,

On May 17, 2021, GPI and ESA personnel mobilized to Sunshine Lake in Port Charlotte, Florida to perform surface water sampling. Water quality data was recorded, and water samples were collected for laboratory analysis at eight locations along the lake. Sample locations were recorded as Waterway-1 (abbreviated as WW-1), WW-2, and WW-3 - locations south of Gertrude Ave bridge; and Lake-1, Lake-2, Lake-3, Lake-4, and Lake-5 – locations north of Gertrude Ave bridge. At each location, water level and total water level depth were recorded using a Secchi disk. Water quality data including pH, temperature, conductivity, DO%, and DO concentration (mg/L) was recorded at various depths prior to collecting water samples. Water samples were collected in accordance with F.A.C. Chapter 62-160 FS 2100 Surface Water Sampling standard operating procedure. Following collection, samples were placed on ice and taken to Benchmark EnviroAnalytical, Inc. for analysis.

Emily Keenan, from ESA, reviewed the data results. The relevant portion is below:

*Overall, chlorophyll-a concentrations were below the 20 µg/L criteria indicating that the phytoplankton production is not a concern during this quarterly sampling event. The average chlorophyll-a concentrations in Sunrise Waterway was 17.6 ug/L compared to 6.4 ug/L in Sunshine Lake. TN concentrations in the lake (0.76 mg/L) and waterway (0.92 mg/L) were below the appropriate criteria (1.91 mg/L). Similarly, TP concentrations were 0.056 and 0.049 mg/L in the lake and waterway, respectively which was well below the 0.09 mg/L criteria. These findings indicate that water quality is currently meeting the numeric nutrient criteria established for low-color, alkaline lakes. However, it is important to note that this sampling event was performed during the dry season when water quality has typically been “good” within the Sunshine Lake and Sunrise Waterway system. Increased phytoplankton production and nutrient loading has occurred during the wet season sampling efforts (i.e., July).*

*In addition to nutrients, E.coli bacteria concentrations were quantified to evaluate the potential for human-health risks. Based upon the sampling frequency, the applicable criterion for Class-III freshwater systems is the “10th percentile” value of 410 /100 ml. Concentrations remained below the criteria in both the lake (27 CFU/100mL) and waterway (67 CFU/100mL).*

Please feel free to contact with questions or concerns. The second quarterly sampling at Sunshine Lake will take place in mid-August 2021.

Regards,

Rick Hagberg, PG

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Senior Project Manager