

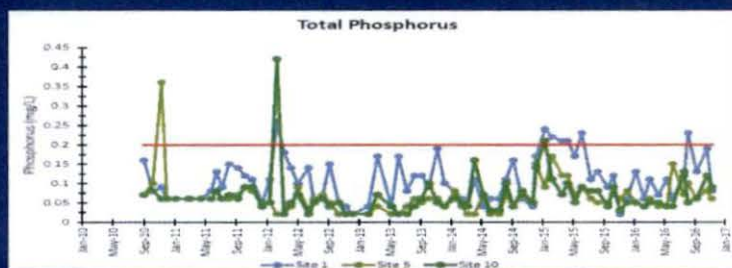


# Lake Conroe Watershed Protection Plan Program – Progress Report

By: Daniel Hilderbrant and Shane Simpson

The Lake Conroe Watershed Protection Plan (the "Plan") was developed in 2015 by the San Jacinto River Authority (SJRA) staff with input from a diverse group of stakeholders who volunteered their time in the Plan development effort. The goal of the Plan is to maintain and, when possible, improve the excellent water quality condition currently present in Lake Conroe and the surrounding Lake Conroe watershed, which encompasses approximately 450 square miles. Over the past few months, SJRA has evaluated its progress with ongoing watershed management activities and has summarized the results in a formal report. The current Plan, along with the 2017 Progress Report, can be viewed in their entirety on SJRA's Lake Conroe website (<http://www.sjra.net/lakeconroe/>). Ongoing management activities include programs for continued water quality monitoring, regulation of On-Site Sanitary Sewage Facilities (OSSF), control of invasive species, enhancement of native aquatic vegetation, Stormwater Inlet Marking (SwIM), and other public outreach activities. More information related to each of these activities can be found in the Plan and recent Progress Report.

Monitoring water quality is one of the foremost ongoing management activities in any watershed protection program. SJRA participates in and contributes to the Texas Commission on Environmental Quality's (TCEQ's) Clean Rivers Program (CRP) by sampling Lake Conroe and its tributaries at various designated sites on a monthly basis. The United States Geological Survey (USGS) also samples Lake Conroe on a quarterly basis for similar parameters, but includes



**Total Phosphorus Concentrations in Lake Conroe**

some additional constituents like silica, iron, manganese, etc. In general, both of these program's sampling results show water quality averages within the TCEQ standards and recommended levels for each tested constituent. Occasional variations in water quality do occur, which show some parameters to fall outside the desired level, but these spikes are temporary and typically follow periods of heavy rainfall. An example of the water quality data from the report is shown above.

### Inspecting OSSF Systems

One of the primary sources of bacterial pollutants that was identified during the development of the Plan was from malfunctioning OSSFs, or septic systems. TCEQ has designated SJRA as the authorized agent to implement and enforce TCEQ's OSSF Order for the area immediately surrounding Lake Conroe, also known as the Lake



**Randy Acreman inspects an Aerator on an OSSF System**

Conroe Water Quality Zone (Zone). The Zone is currently defined as 2,075 feet in all directions horizontally from the lake shoreline defined at elevation 201 feet above mean sea level. SJRA has identified and mapped almost 2,200 OSSF private systems (1,639 Aerobic Treatment Units (ATUs), and 561 conventional systems) within the Zone. Since increased enforcement activities began in June 2016, SJRA inspects approximately 8-10 newly-constructed OSSF units and approximately 100 existing OSSF units each month. This SJRA

Sample Location in Water Column	Nitrate (NO <sub>3</sub> ) (mg/L)	Ammonia (NH <sub>3</sub> ) (mg/L)	Chloride (Cl) (mg/L)	Sulfate (SO <sub>4</sub> ) (mg/L)
<b>FM 1375 Bridge</b>				
Top	1	0	0	0
Middle	0	1	0	0
Bottom	0	7	0	0
<b>FM 1097 Bridge</b>				
Top	0	1	0	0
Middle	0	1	0	0
Bottom	0	14	0	0
<b>Lake Conroe Dam</b>				
Top	0	1	0	0
Middle	0	6	0	0
Bottom	0	26	0	0

### USGS Quarterly Sampling Data Screening Level Excedances (Over last seven years)

(Site A) FM 1375 Bridge USGS Data (Average over Last 7 Years)					
	Units	Standard	Top	Middle	Bottom
Total Nitrogen	mg/L	N/A	1.09	0.94	1.01
Organic Nitrogen	mg/L	N/A	0.66	0.62	0.57
Nitrite	mg/L	N/A	0.00	0.00	0.00
Nitrate	mg/L	<0.37	0.27	0.07	0.20
Ammonia	mg/L	<0.11	0.60	0.62	0.64
Orthophosphate	mg/L	<0.05	0.03	0.04	0.05
Magnesium	mg/L	N/A	2.49	1.79	2.55
Chloride	mg/L	N/A	25.42	N/A	26.50
Sulfate	mg/L	<50.00	7.33	N/A	7.50
Fluoride	mg/L	N/A	0.15	N/A	0.15
Silica	mg/L	N/A	11.72	N/A	12.35
Iron	mg/L	N/A	93.15	84.01	115.64
Manganese	mg/L	N/A	10.39	58.29	141.43

### USGS Water Quality Data (Average over last seven years)

Continued on page 52 →

program of permitting, inspecting, and conducting complaint investigations and enforcement actions when necessary, should contribute greatly to maintaining future water quality in the Lake Conroe and the shoreline area of the watershed.

### **SwIM Program**

Another source of potential pollution in the Lake Conroe watershed was identified as stormwater runoff from the surrounding urbanized development around Lake Conroe. To increase public awareness of this potential pollution source, SJRA has implemented a SwIM program for select neighborhoods around Lake Conroe and will continue this activity with the intent to include all residential subdivisions around the lake. The SwIM program is an important educational tool and effective outreach to reduce illicit wastewater discharges and harmful activities by property owners resulting in polluted stormwater entering into the lake. The program gives local communities and volunteer service organizations a chance to become more involved in protecting Lake Conroe water quality by installing metal educational markers on stormwater inlets within neighborhoods that are located in the Lake Conroe watershed. To date, SJRA employees, local utilities, and volunteer service groups have installed a total of 1,761 inlet markers within the Lake Conroe watershed. Thousands of inlets still remain to be marked in the wa-



tershed, and SJRA hopes to engage the public further by allowing volunteer groups like Boy Scouts, Girl Scouts, school or civic groups, and others to assist in this effort.

### **Public Education**

SJRA's in-house GIS department has provided significant assistance in many of the ongoing programs to be able to capture locations, develop datasets, and create maps for items like OSSFs, stormwater inlets and outfalls, water quality monitoring stations, aquatic plant program, and other relevant watershed protection information. SJRA's public relations department has produced pamphlets, rack cards, door hangers, magazine articles, website features, and other material to assist in communicating the importance of watershed protection and management to the local community.

### **Other Watersheds**

Improving water quality is not just a Lake Conroe issue. SJRA also participates in another ongoing local watershed activity that is facilitated by The West Fork Watersheds Partnership. The Partnership is currently engaged in developing a watershed protection plan for the West Fork San Jacinto River and Lake Creek watersheds. Additional information and the most recent updates regarding this project can be found at [www.westforkwpp.com](http://www.westforkwpp.com). SJRA will continue to implement and further develop the Lake Conroe Watershed Protection Plan in 2018 and expand the activities to other parts of the San Jacinto River Basin as funding allows.

For more information on the Lake Conroe Watershed Protection Plan Progress Report or SJRA, please visit our website at [www.sjra.net](http://www.sjra.net). ♦