



Lake Conroe Watershed Protection Plan Stakeholder Group Meeting

SJRA Boardroom
6/17/2014

Agenda

9:00-9:15 Introduction

- Follow up on last stakeholder meeting
- HGAC steering committee

9:15-10:00 Presentation

- Lake Conroe Water Quality Data Review

10:00-10:30 Roundtable Discussion

Lake Conroe Water Quality Data Review

Water Quality Standards/ Screening Levels

EPA: Clean Water Act 1973

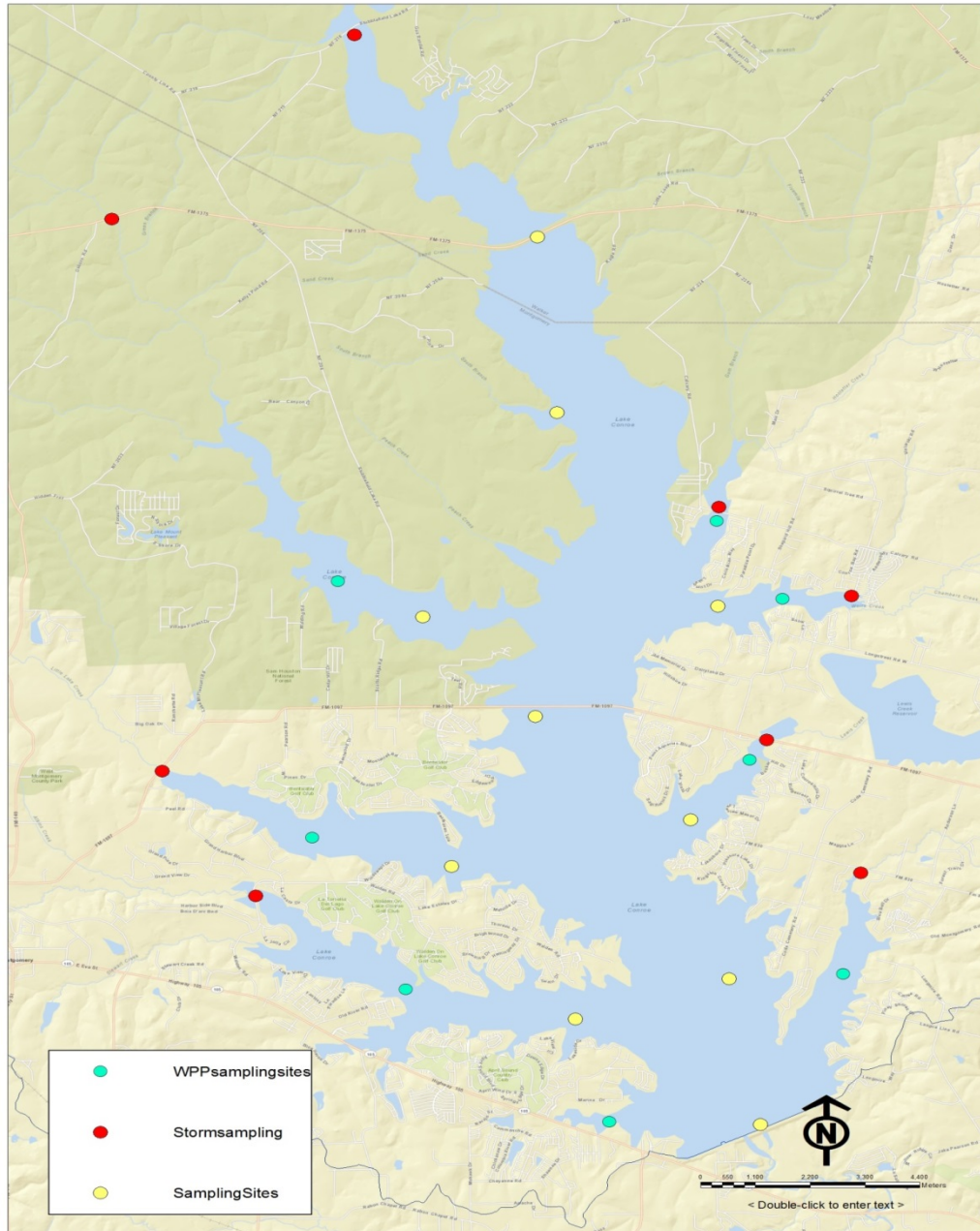
TCEQ: Texas Administrative Code

- Title 30, Ch.307 Texas Surface Water Quality Standards

Designated Uses: Water Supply, Primary Contact Recreation, Aquatic life

Parameter	Criterion Type	Standard or Screening Level
Ammonia-N	2010 TCEQ Screening Level	0.11 Mg/L
Chloride	2010 EPA Water Quality Standard	50 mg/L
Chlorophyll a	2010 TCEQ Screening Level	26.7 Micrograms/L
Dissolved Oxygen (minimum 24-hour mean)	2010 EPA Water Quality Standard	5.0 mg/L
Dissolved Oxygen (single sample minimum)	2010 EPA Water Quality Standard	3.0 mg/L
E. Coli	2010 EPA Water Quality Standard	126 MPN/100 mL
Nitrate-N	2010 TCEQ Screening Level	0.37 Mg/L
Orthophosphate-P	2010 TCEQ Screening Level	0.05 Mg/L
Sulfate	2010 EPA Water Quality Standard	50 mg/L
Temperature	2010 EPA Water Quality Standard	90 Degrees F
Total Dissolved Solids	2010 EPA Water Quality Standard	300 mg/L
Total Phosphorus	2010 TCEQ Screening Level	0.2 Mg/L

Sampling Sites



Nitrate

(Nutrient)

Impact:

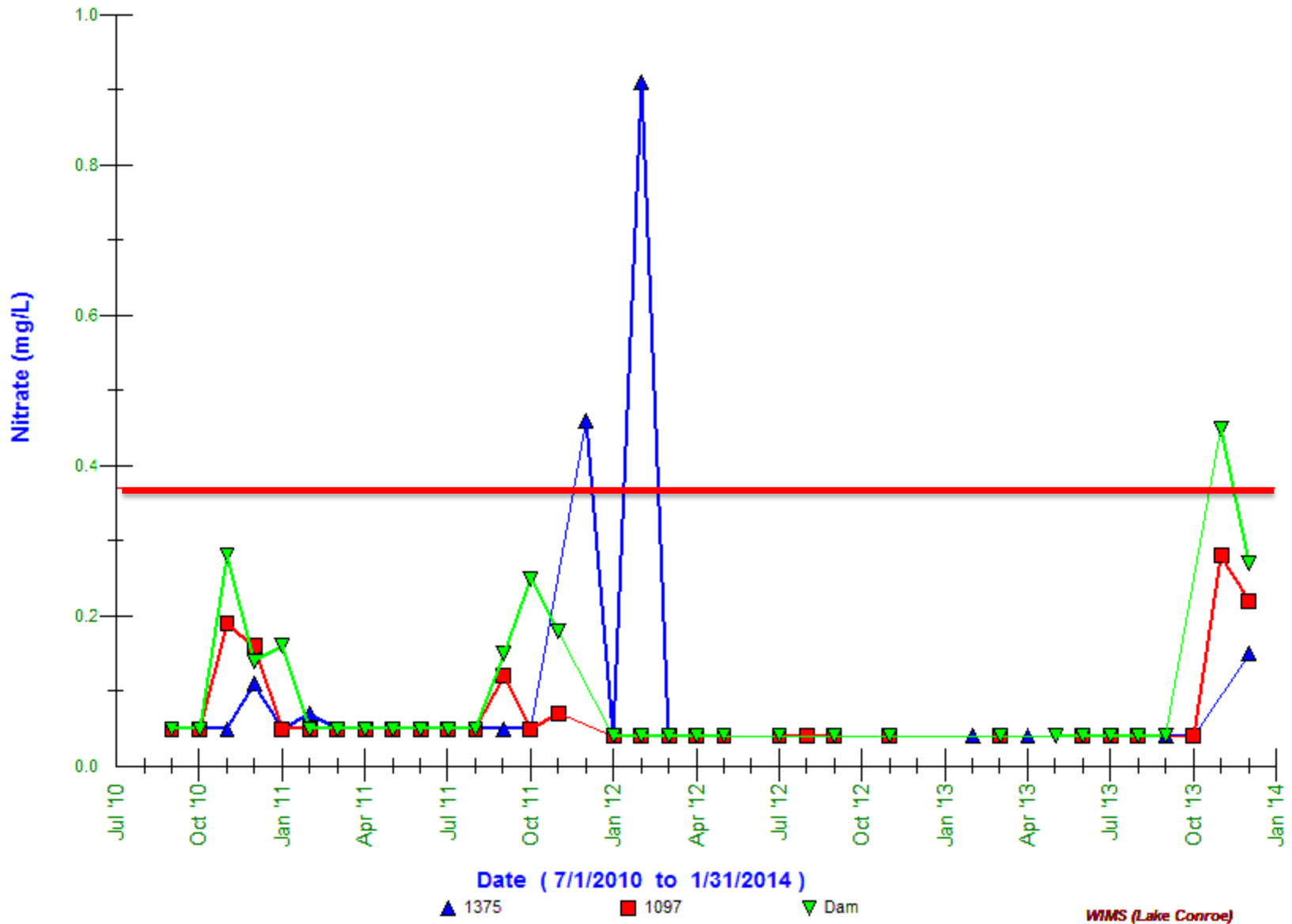
- Injure or kill aquatic life
- Damage sensitive tissues
- Hinder reproductive growth

Causes:

- Fertilizers
- Manure
- Untreated sewage



Nitrate in Lake Conroe



Screening Level: .37mg/L

Nitrate

Nitrate Standard: .37 mg/L

Lake Conroe: .05 mg/L

Lake Livingston: .59 mg/L

Lake Houston: .33 mg/L

Phosphate

Impacts:

- Excessive plant growth
- Decrease DO
- Algae blooms

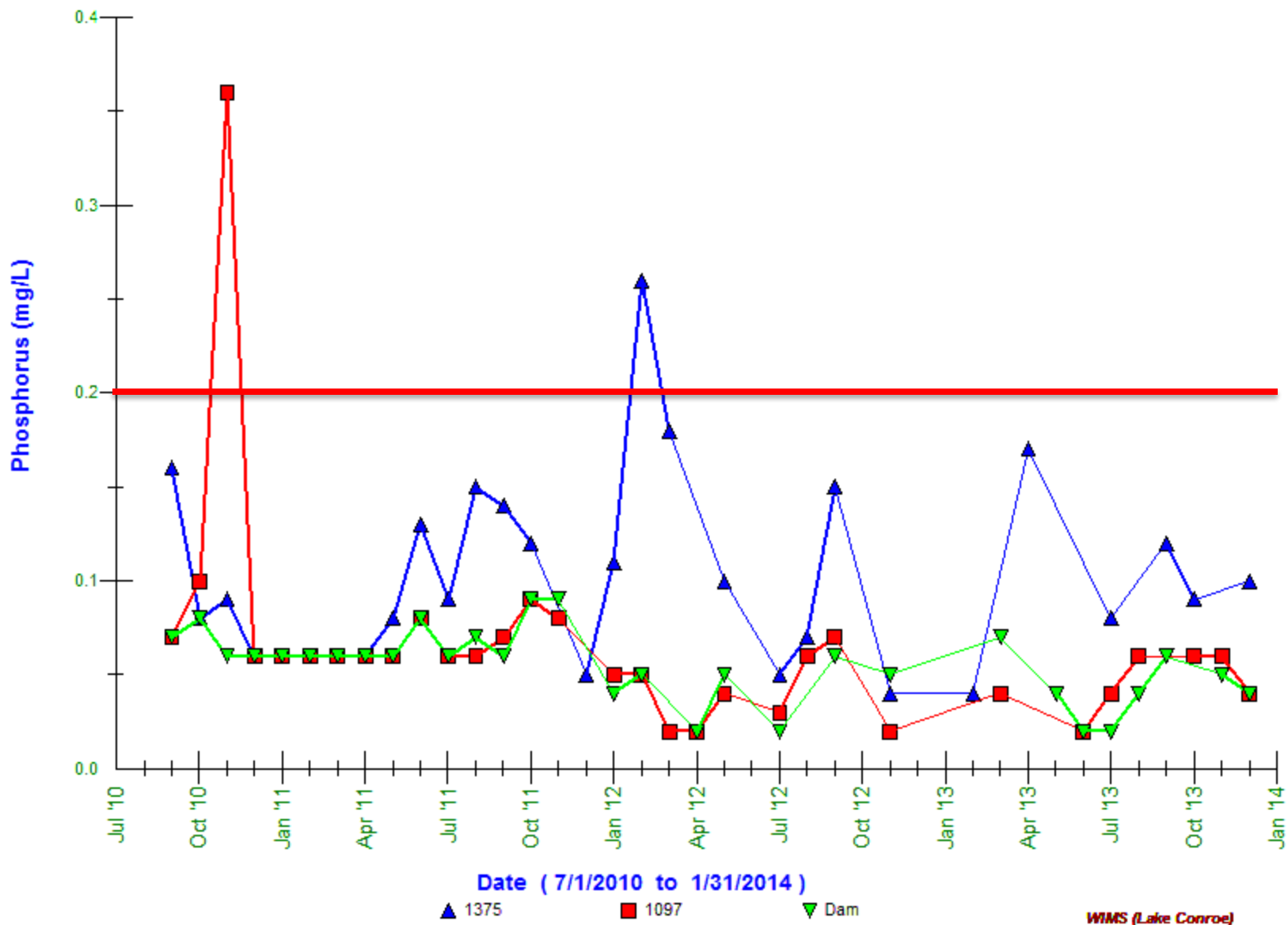


Causes:

- Fertilizers
- Manure
- Organic decomposition



Phosphorus in Lake Conroe



Screening Level: .2 mg/L

Phosphorus

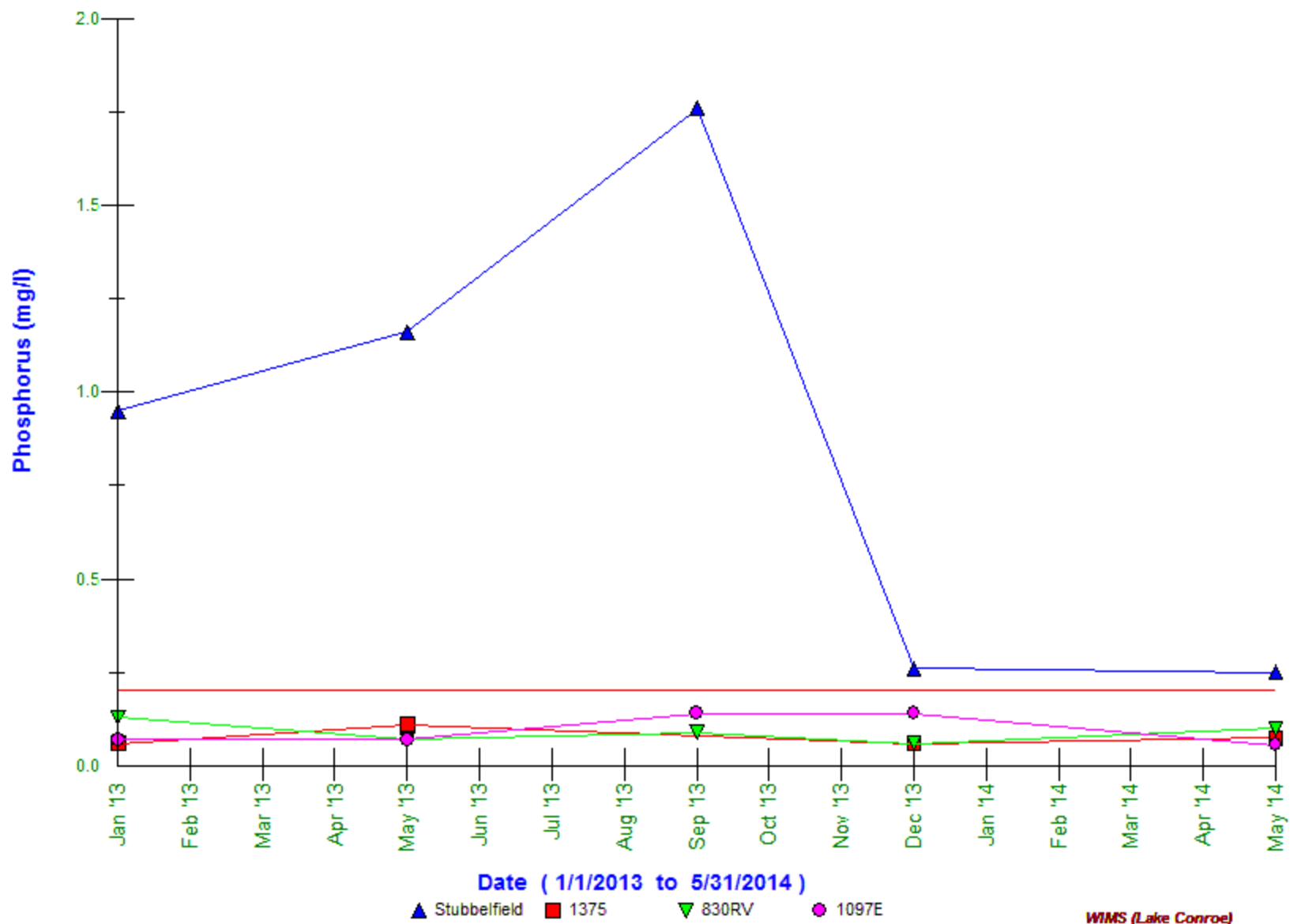
Total Phosphorus Standard: .20 mg/L

Lake Conroe: .05mg/L

Lake Livingston: .27 mg/L

Lake Houston: .29 mg/L

Phosphorus in Lake Conroe (Storm Sampling)



Screening Level: .2 mg/L

Chlorophyll-a

Impacts:

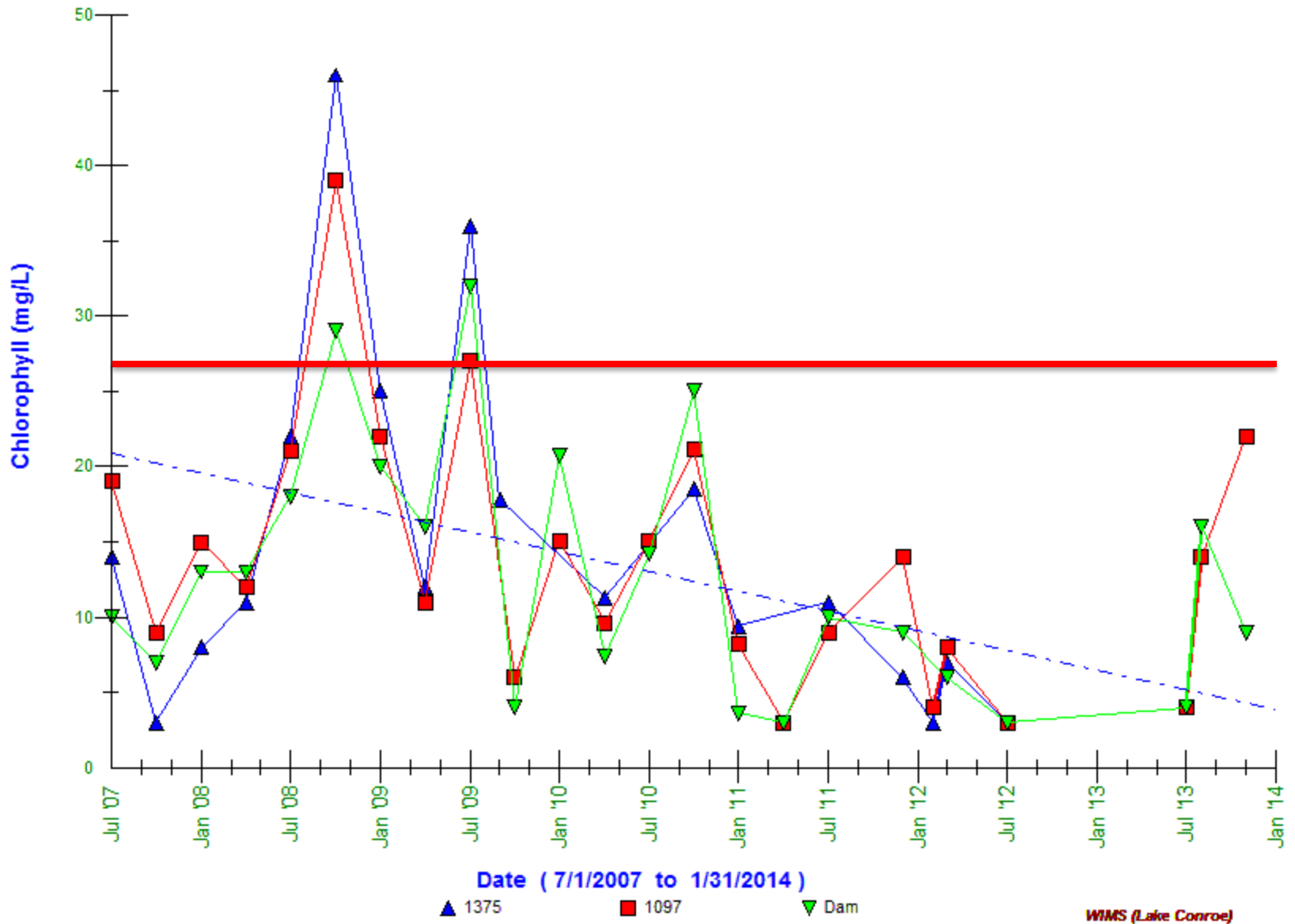
- Presence of algae in water
- Trophic status of Lakes

Causes:

- Elevated levels of nutrients from urban/ agriculture runoff
- High concentration of algal biomass



Chlorophyll in Lake Conroe



Screening Level: 26.7 mg/L

Chlorophyll-a

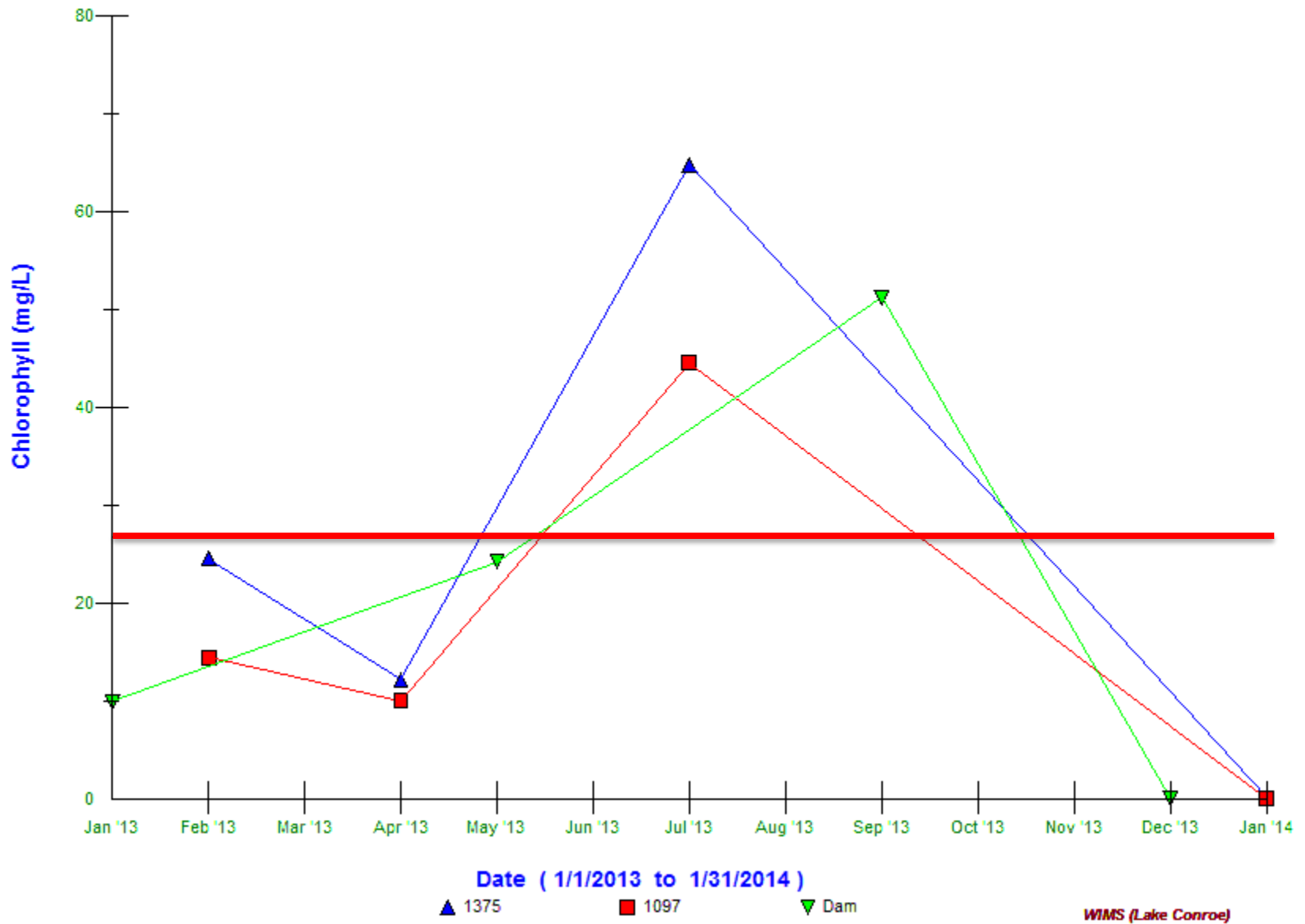
Chlorophyll-a standard= 26.7 Micrograms/L

Lake Conroe: 13 Micrograms/L

Lake Livingston: 42 Micrograms/ L

Lake Houston: 12.1 Micrograms/ L

Chlorophyll in Lake Conroe (Storm Sampling)



Screening Level: 26.7 mg/L

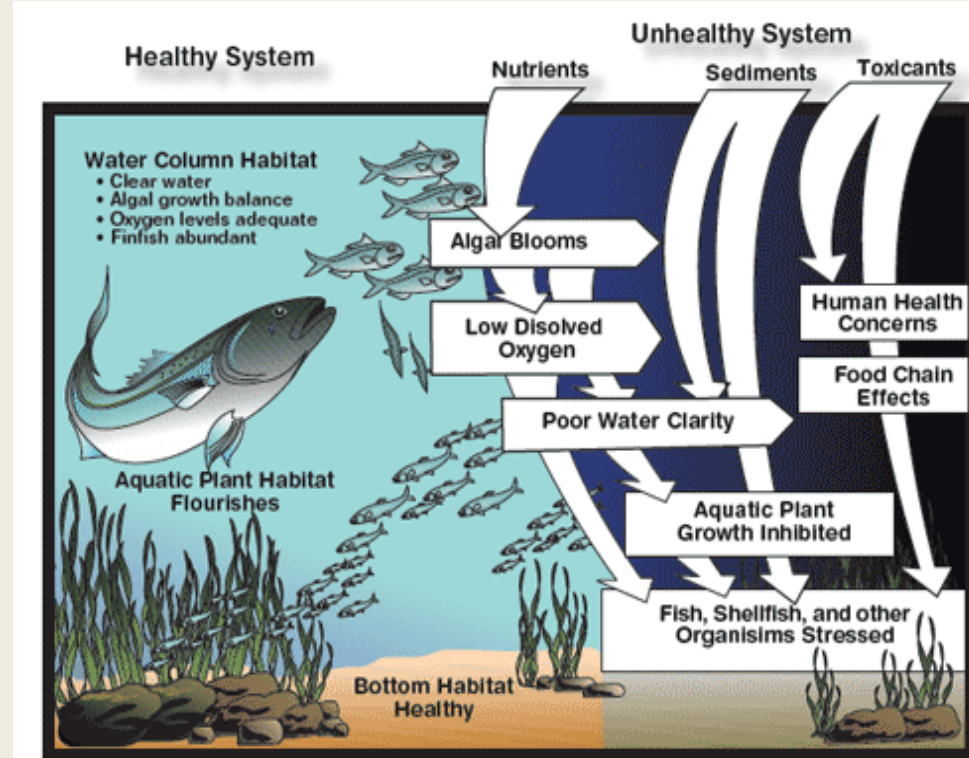
Dissolved Oxygen

Impacts:

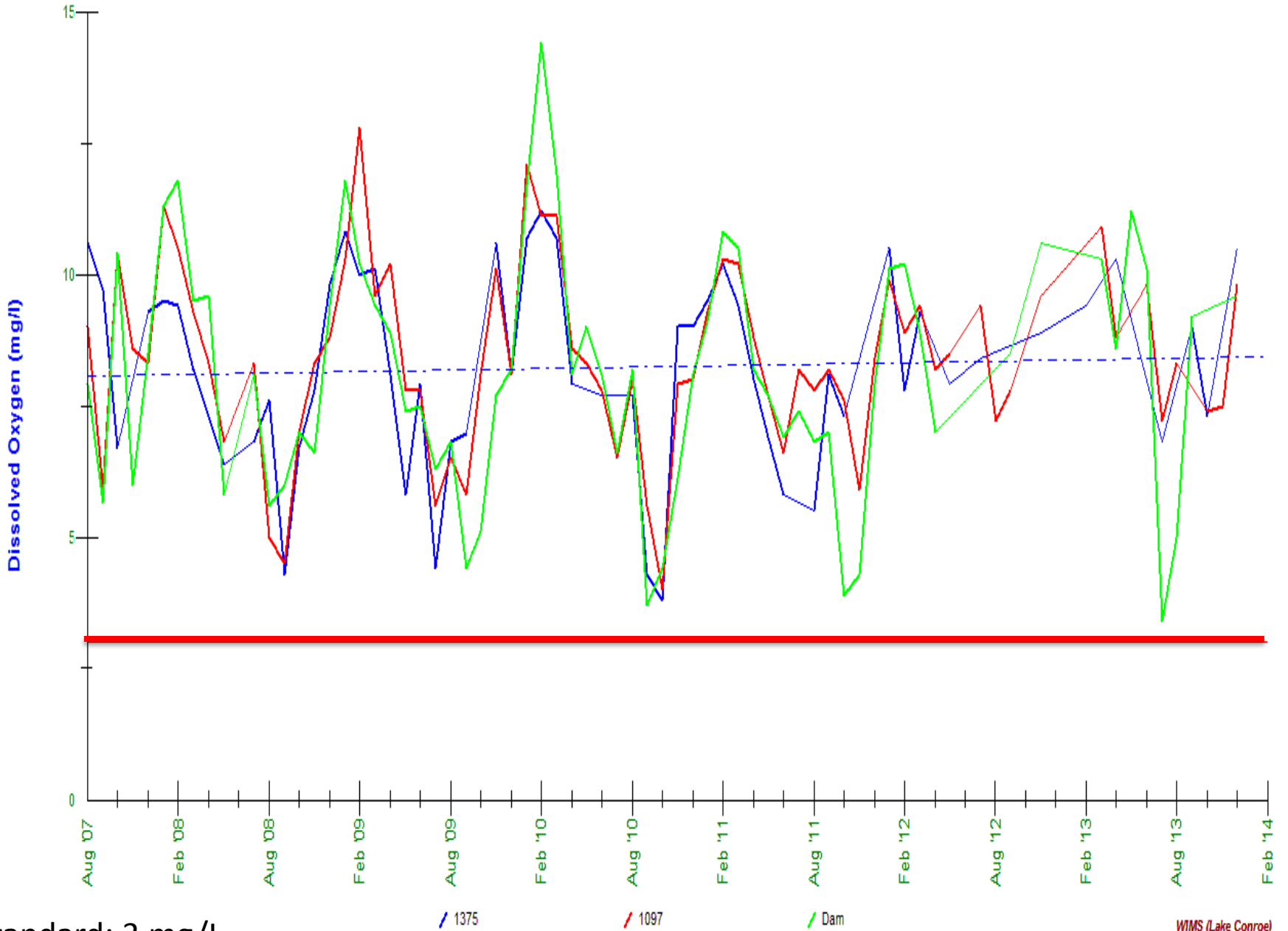
- Essential to aquatic life
- Low levels can impair reproduction and survival of many aquatic species

Causes:

- Nutrients: phosphorus/ Ammonia increase algae
- Excess organic material (high turbidity and algae)
- High temperature



Dissolved Oxygen in Lake Conroe



Standard: 3 mg/L

1375 1097 Dam

WMS (Lake Conroe)

DO Data

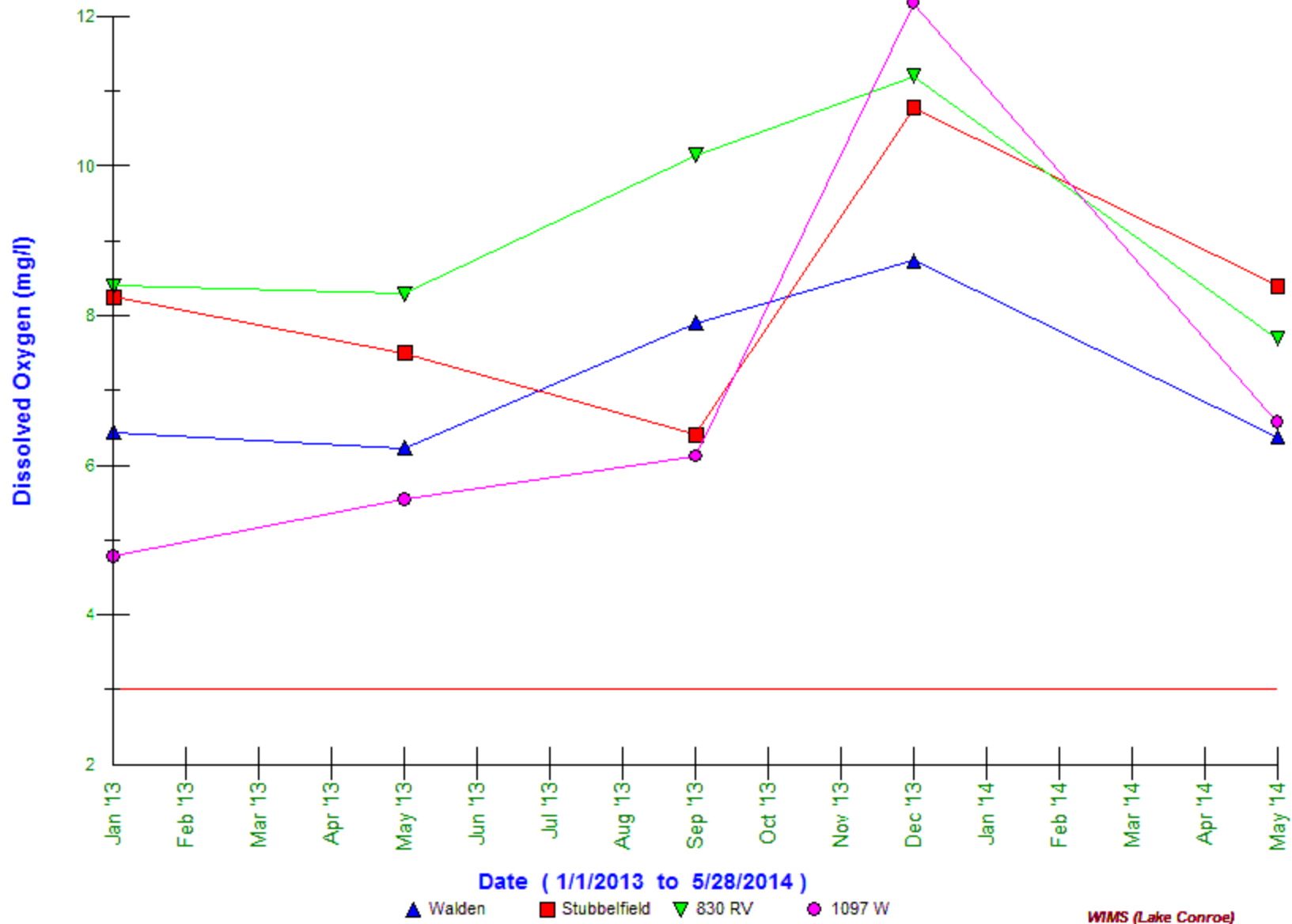
DO minimum standard: 3.0 mg/L

Lake Conroe : 8.7 mg/L

Lake Livingston: 10 mg/L

Lake Houston: 8.0 mg/L

Dissolved Oxygen in Lake Conroe (Storm Sampling)



Standard: 3 mg/L

Chloride

Impacts:

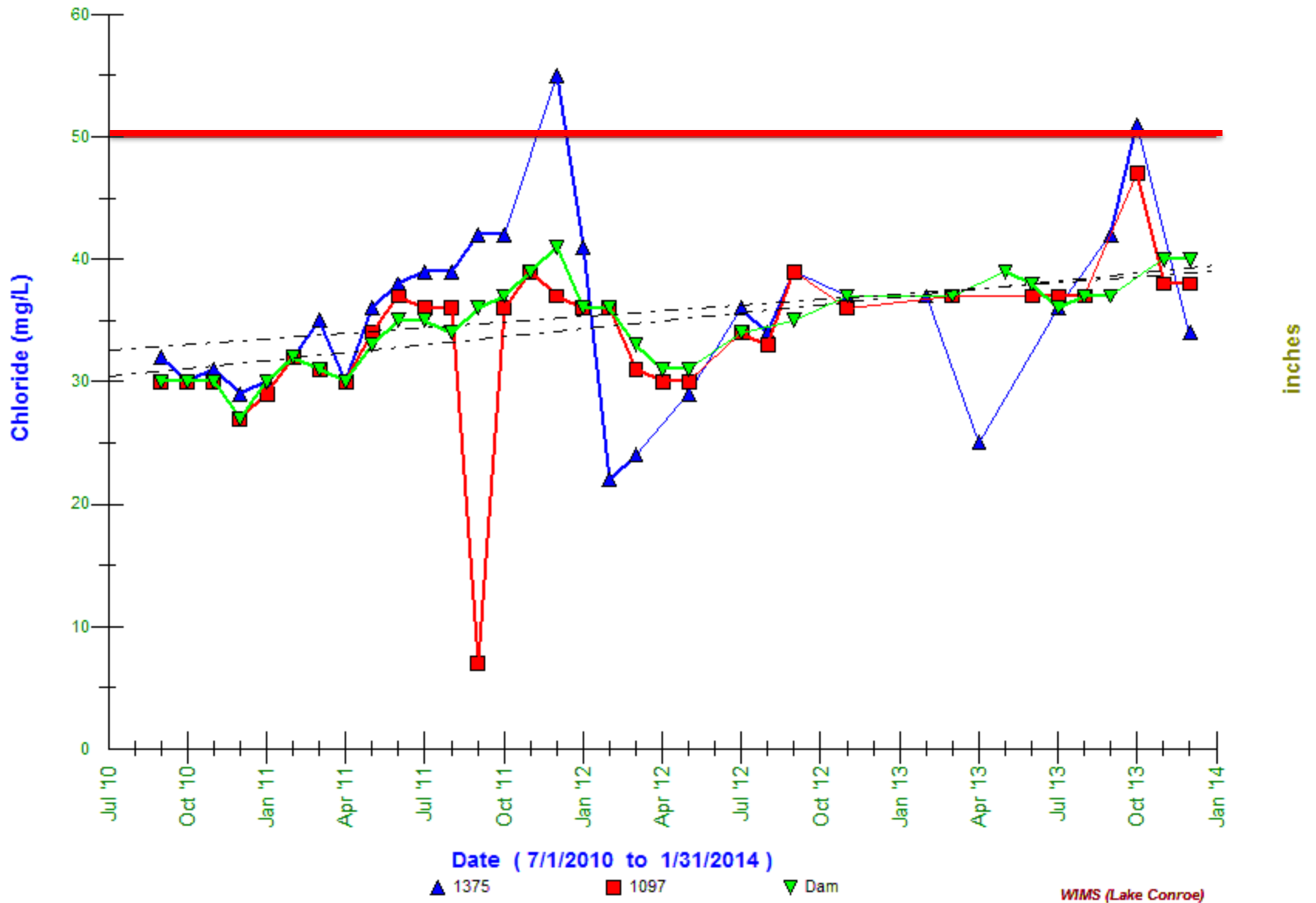
- Aquatic organism reproduction
- Taste in drinking water

Causes:

- Groundwater
- Evaporation
- Fertilizers
- WWTP effluent

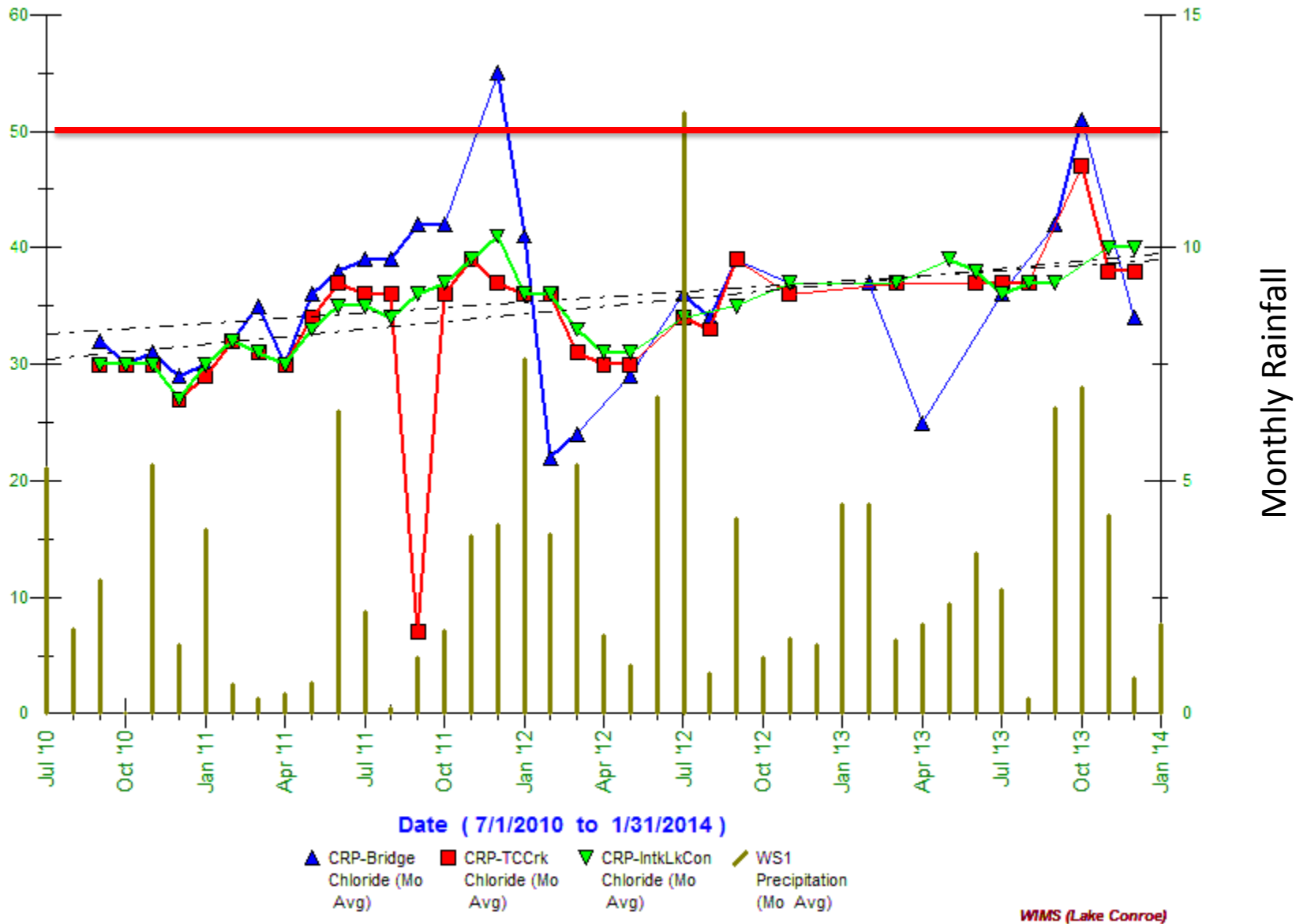


Chloride in Lake Conroe



Standard: 50 mg/L

Chloride in Lake Conroe



WIMS (Lake Conroe)

Standard: 50 mg/L

Conductivity

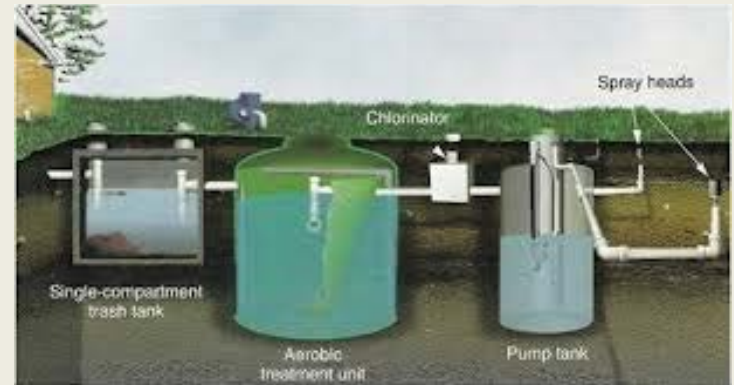
(TDS)

Impacts:

- Taste in drinking water
- Salinity indicator

Causes:

- Leaking OSSF's
- Groundwater
- Soils/ Rocks



Specific Conductance in Lake Conroe



Conductivity Data

Lake Conroe: 265 Microsiemens

Lake Livingston: 405 Microsiemens

Lake Houston: 261 Microsiemens

E-Coli

Impact:

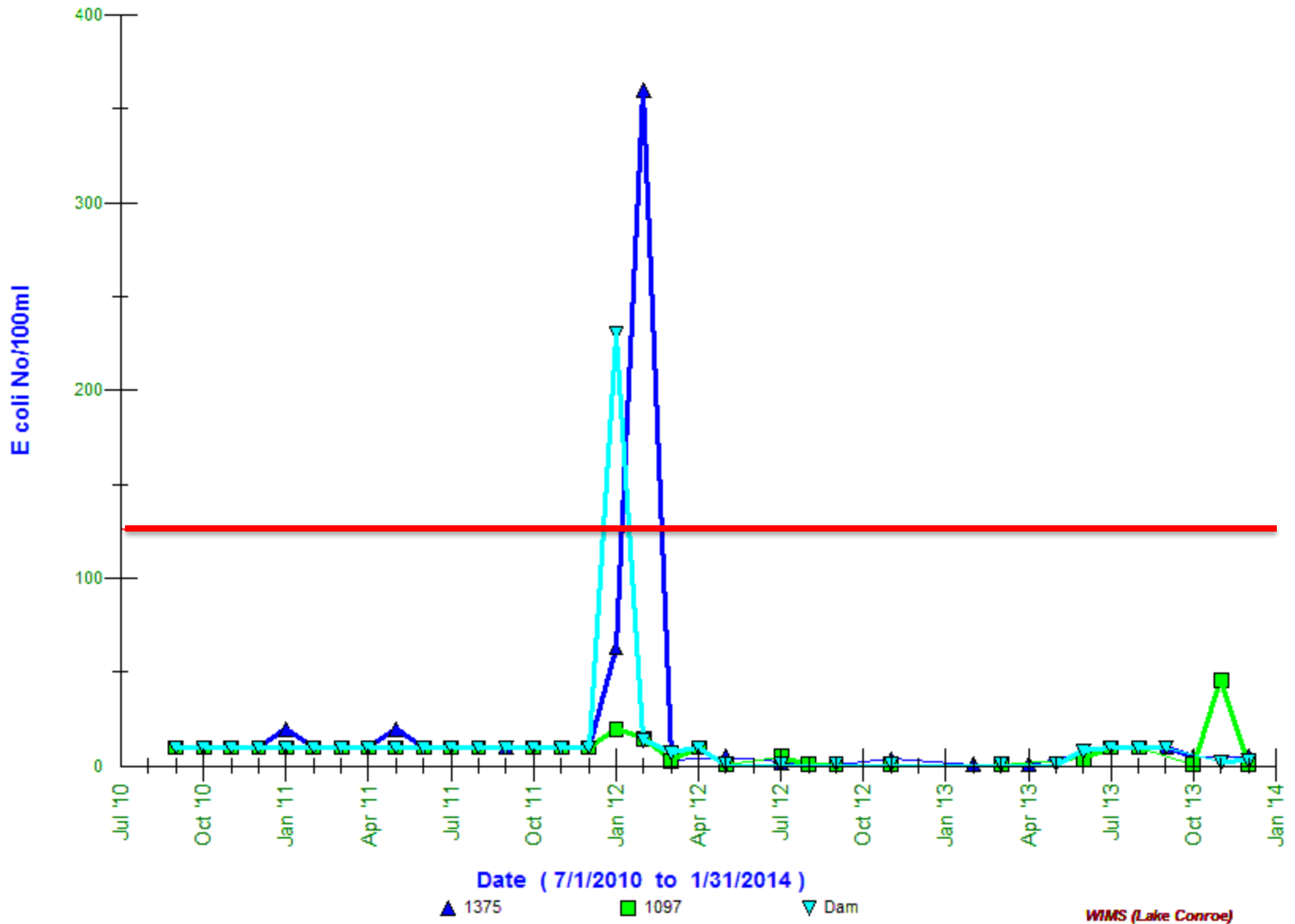
- Indicator for the presence of fecal matter
- Pathogenic bacteria
- Viruses

Causes:

- Failing OSSF's
- Untreated sewage
- Agriculture runoff
- Pet/wildlife waste



E Coli in Lake Conroe



WIMS (Lake Conroe)

Standard: 126 MPN/ 100mL

E-Coli Data

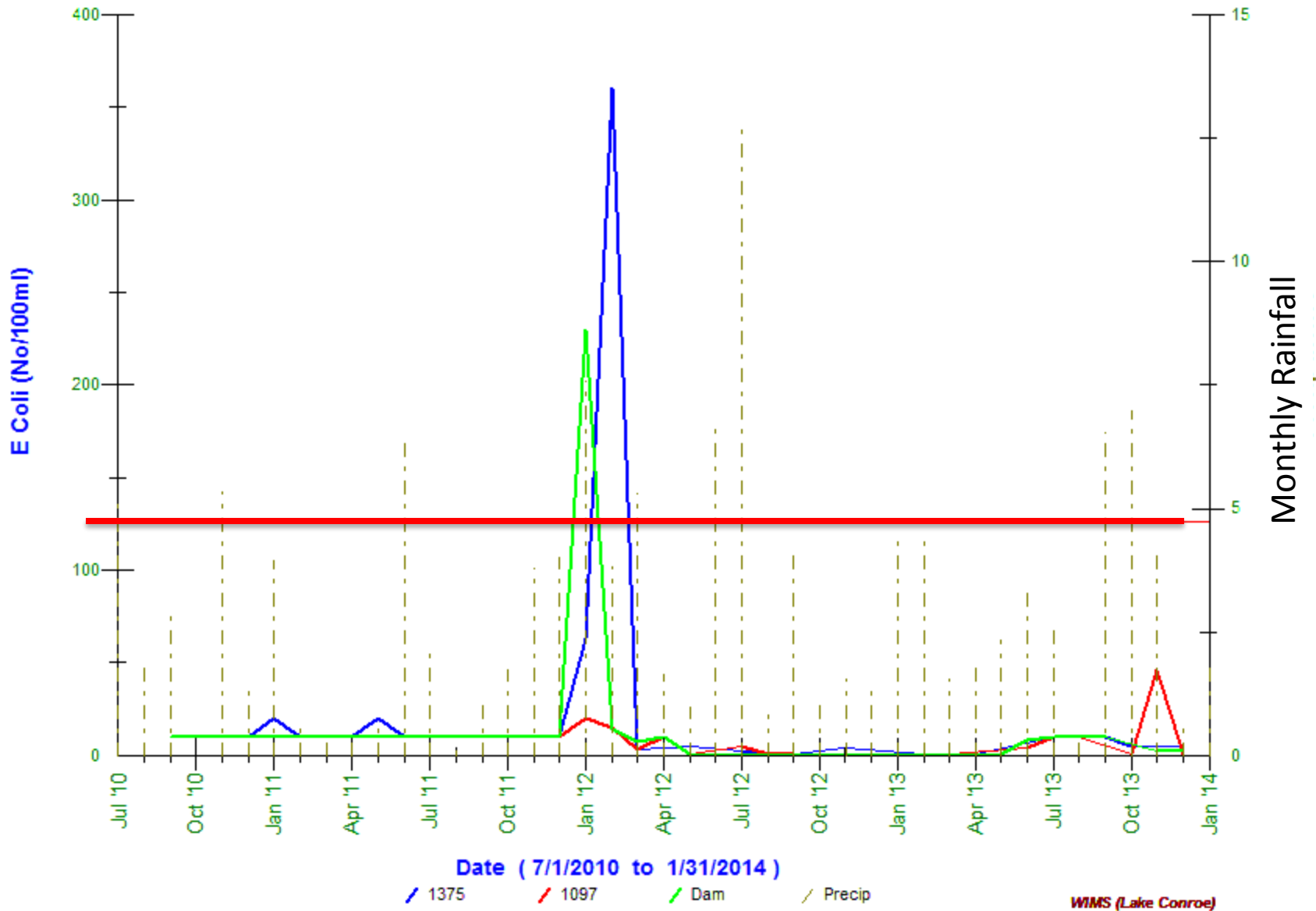
E-Coli standard: 126 MPN/100mL

Lake Conroe: 6 MPN/100mL

Lake Livingston: 10 MPN/100mL

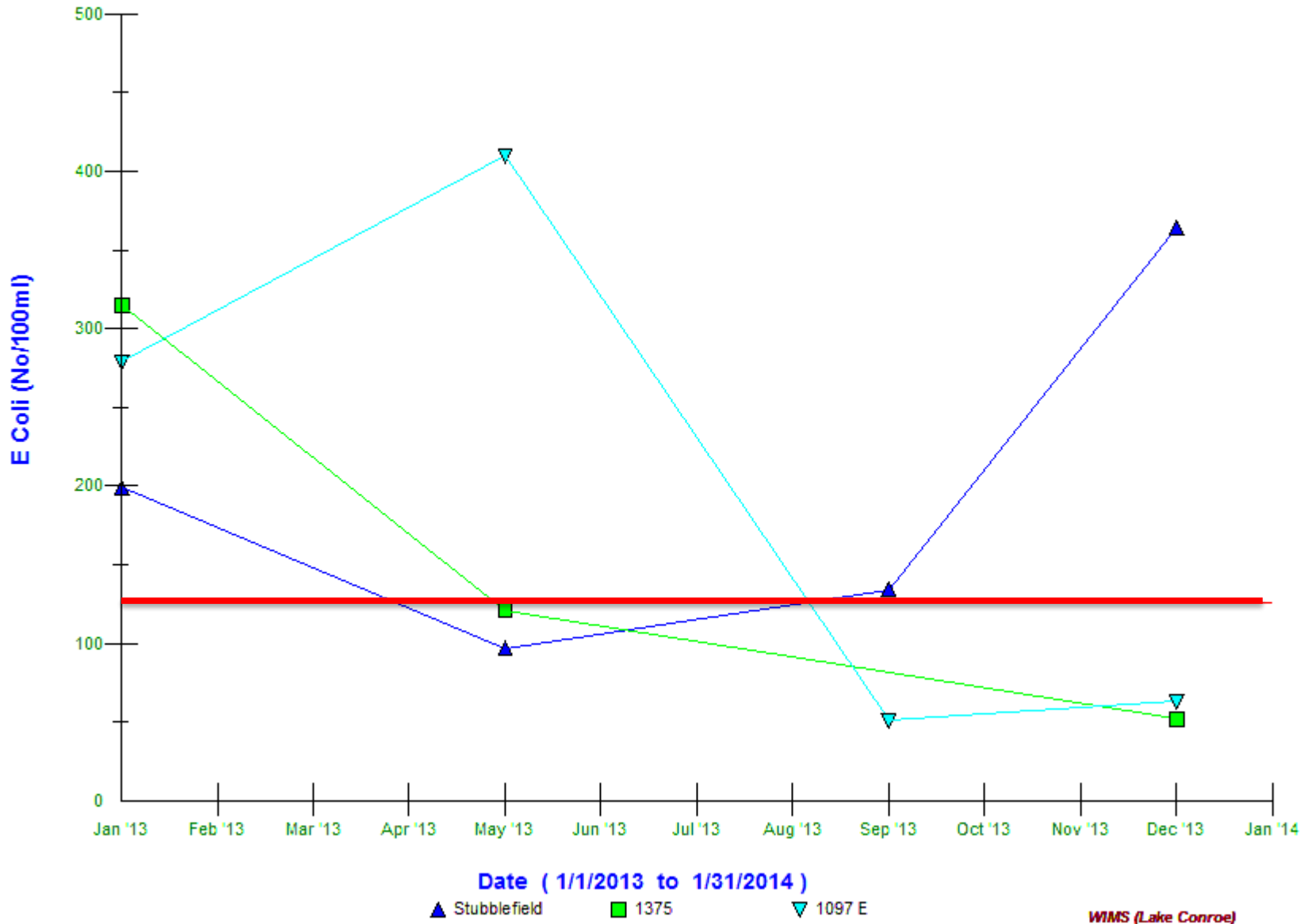
Lake Houston: 59 MPN/100mL

E Coli in Lake Conroe



Standard: 126 MPN/ 100mL

E Coli in Lake Conroe (Storm Sampling)



Standard: 126 MPN/ 100mL

Sediment/ Turbidity

Impacts:

- Water clarity
- Plant photosynthesis
- Reservoir capacity
- Nutrient enrichment
- Metals



Causes:

- Erosion
- Poor shoreline management
- Loss of shoreline vegetation



Turbidity in Lake Conroe

