

# St. Clair River - Lake St. Clair - Detroit River Drinking Water Protection Network

*National Water Quality Monitoring Conference  
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Atlantic City, NJ*



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# Project Goals and Objectives

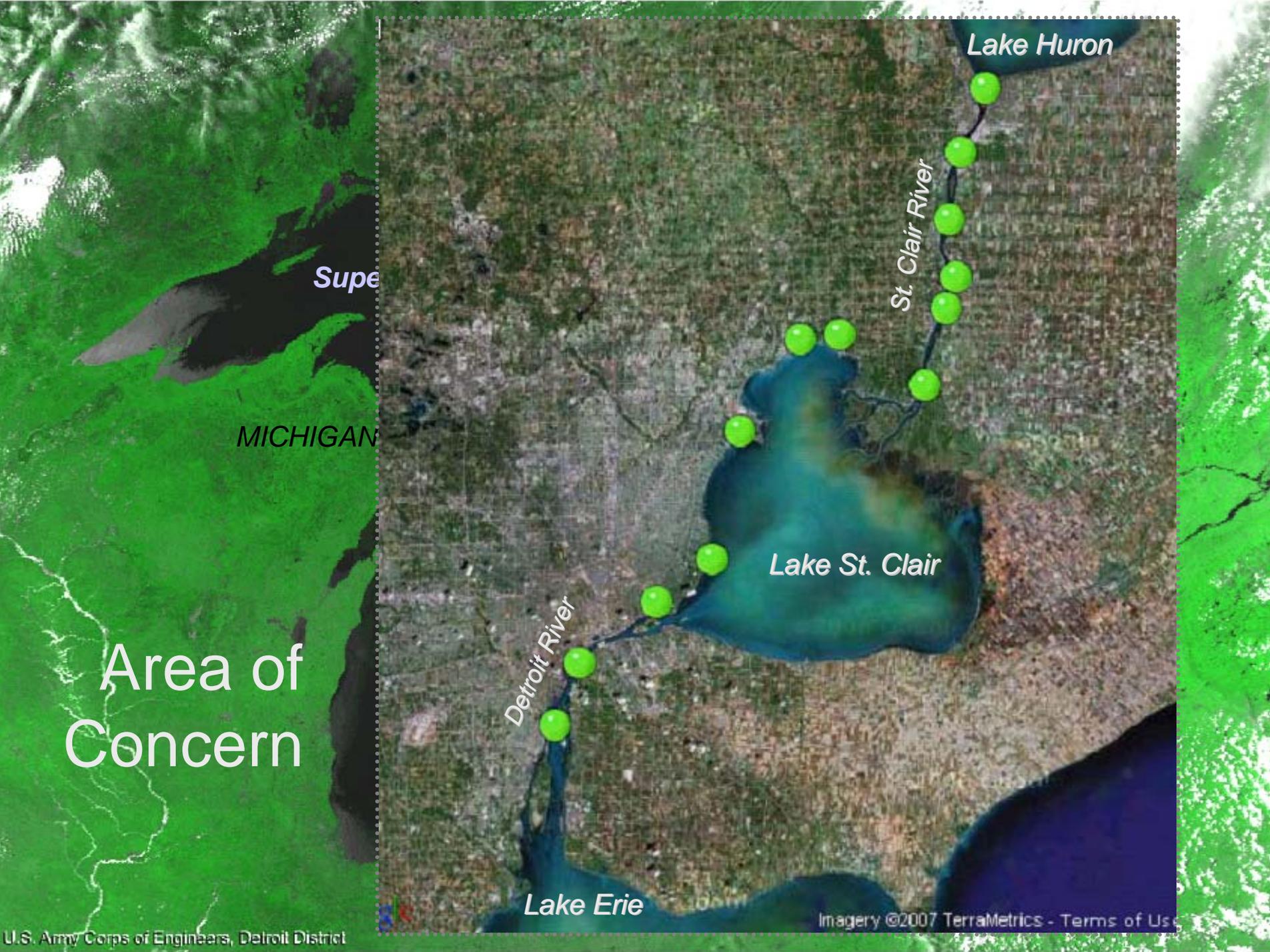
- Establish a monitoring network to protect the drinking water supply
  - Install monitoring equipment at WTP intakes
  - Analyze water quality continuously
  - Share data from the entire network with each stakeholder in a real time fashion
  - Institute a water quality alarm notification system



# Secondary Goals & Objectives

- Stop chemical spills from occurring
- Monitoring ambient water quality to determine necessary environmental improvements





Lake Huron

Superior

MICHIGAN

St. Clair River

Lake St. Clair

Detroit River

Lake Erie

Area of Concern

# The Concern

- Over 700 spills have been documented along the corridor since 1986. Most of these were not reported.
- Federal and State Regulations do not take the water source into consideration
  - Waterways subject to industrial spills, or
  - Purposefully contamination



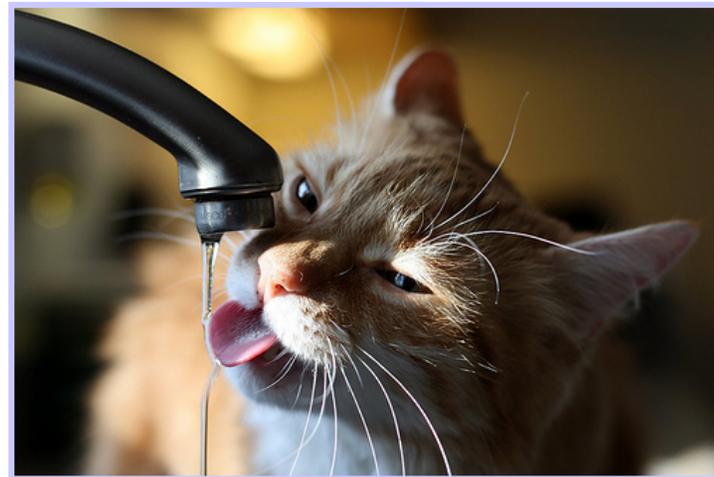
# Existing Monitoring Systems

- Ohio River Valley Water Sanitation Commission (ORSANCO) Organics Detection Program
  - The oldest and most well established system
- Sarnia Lambton Environmental Association Monitoring System
  - ★ Courtright, Ontario



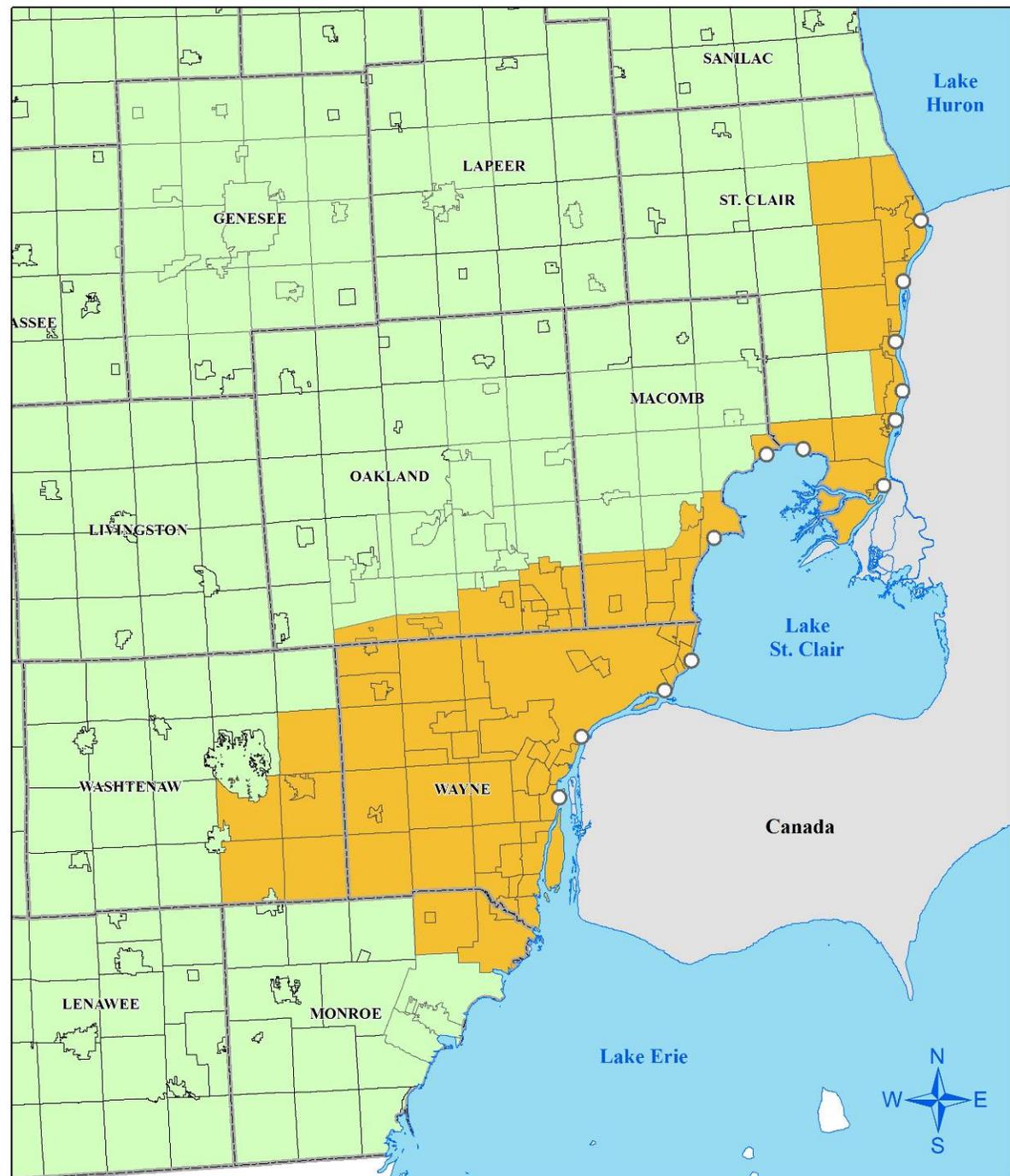
# Over the Past 18 months...

- Installed, operated and maintained
  - 32 monitoring instruments
  - 3 dedicated sampling lines
  - A data management system
  - An alarm/notification system



# Monitoring Locations

- All U.S. water treatment plants from Lake Erie to Lake Huron
- Service Area
  - 3 million people



# Water Quality Parameters

- Multiparameter probe
  - pH, conductivity, dissolved oxygen, temperature, turbidity, oxidation reduction potential and chlorophyll
- Total organic carbon analyzer
  - Total organic carbon
- Fluorometer
  - Total aromatic hydrocarbons



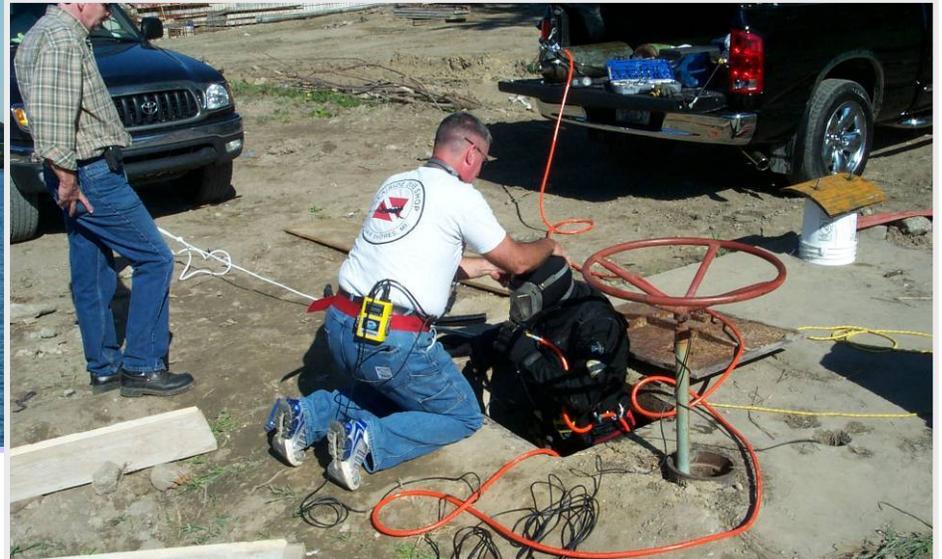
# Gas Chromatograph Mass Spectrometer



# Typical Installation



# Installation of the Sampling Lines



# The Data Network



St. Clair River - Lake St. Clair Drinking Water Protection Project

Managed by Environmental Consulting & Technology, Inc.

MAP DATA GRAPH STATS PANEL INFO FORUM

Port Huron

- Temp
- Sp Cond
- pH
- ORP
- Turb+
- Chlorophyll
- ODOsat
- ODO

Marysville

- Temp
- Sp Cond
- pH
- ORP
- Turb+

SELECT ALL GO

DAY WEEK MONTH YEAR

FROM/TO

03/25/2006 03/26/2007

ADMIN LOGIN

Parameter	Samples	Average	Max	Min	St Dev
<b>East China</b>					
Temp (C)	1142	3.70	4.70	2.26	0.58
Sp Cond (uS/cm)	1142	251	262	1	10
pH (pH)	1142	8.18	8.24	7.82	0.03
ORP (mV)	1142	256	520	160	71
Turb+ (NTU+)	1142	6.80	29.90	1.80	4.74
Chlorophyll (ug/L)	1142	4.0	8.6	2.3	0.7
ODO (mg/L)	1142	12.51	12.92	12.13	0.22
<b>Ira Township</b>					
Temp (C)	4689	1.92	12.89	1.16	1.21
Sp Cond (uS/cm)	4689	241	270	221	9
pH (pH)	4689	8.29	8.45	7.77	0.05
ORP (mV)	4689	112	650	-12	63
Turb+ (NTU+)	4689	20.46	930.50	5.00	52.54
Chlorophyll (ug/L)	4689	4.2	29.1	2.6	0.9
ODO (mg/L)	4689	14.16	14.79	1.44	0.35

POWERED BY NEXSENS TECHNOLOGY

# Public Website for the Data

www.RWQIMS.com

RWQIMS Home - Windows Internet Explorer

Google

blocked Check AutoLink AutoFill Send to Settings

Site Path: Home

RWQIMS

4/18/2008

HOME

DATA

PROJECTS

FAQs

LINKS

Regional Water Quality Information Management System

RWQIMS

Overview

The RWQIMS is designed to be a user-friendly web site through which users can access water quality data for the Southeast Michigan region. The purpose of the RWQIMS is to create a central repository for water quality data from any regional project, past, present or future, that can be accessed through a single site.

The data found at the RWQIMS website were produced by partner organizations in accordance with their stated Quality Assurance/Quality Control procedures, and were provided to the website by those organizations. Neither the website fiduciary nor any other party warrants the completeness or accuracy of the data other than that the data which has been posted is the data which was provided.

New Records since Yesterday: 0  
New Records in the Last 30-days: 119088  
Total Record Count within RWQIMS: 1634240

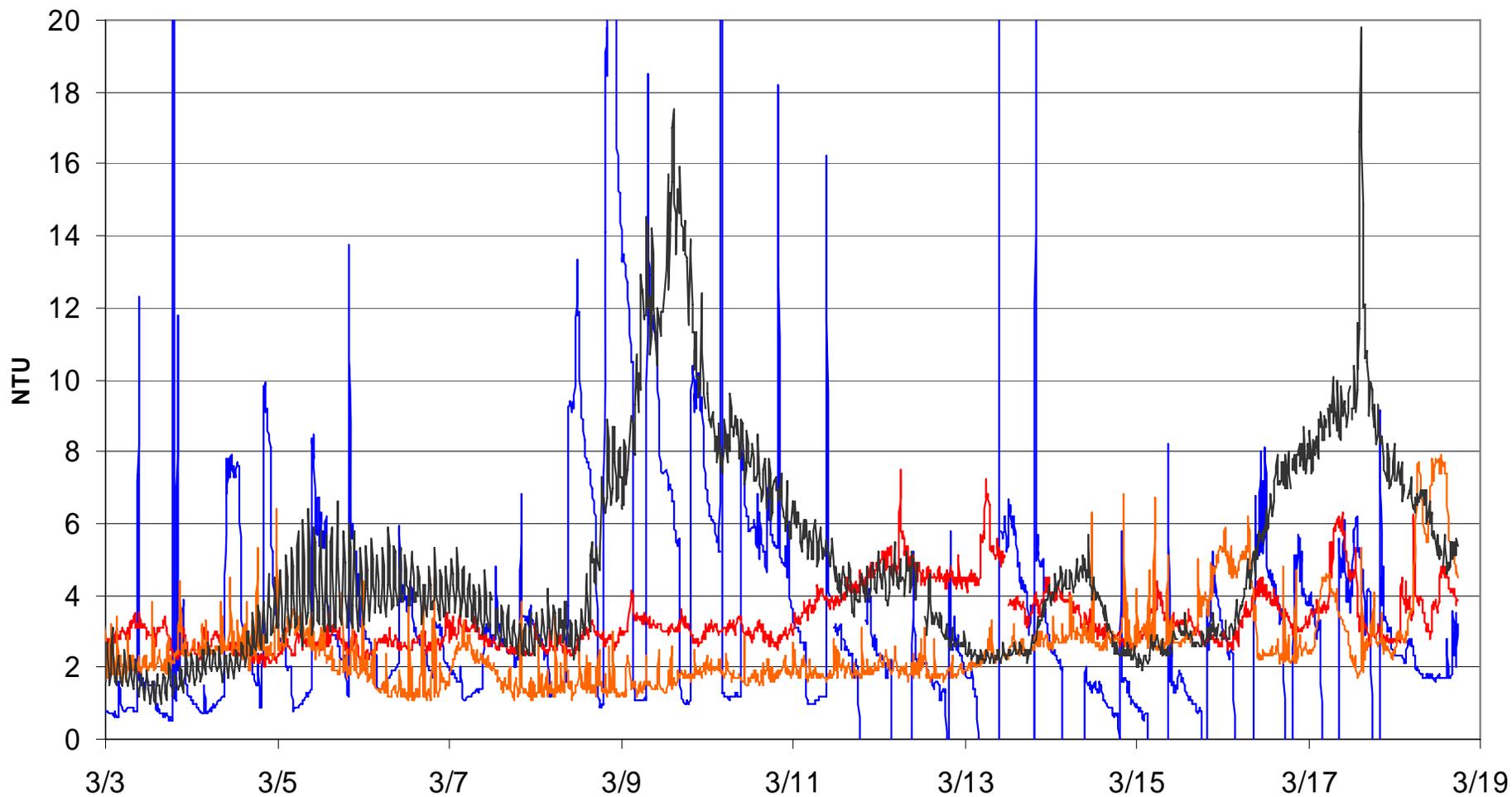
RWQIMS News

Done

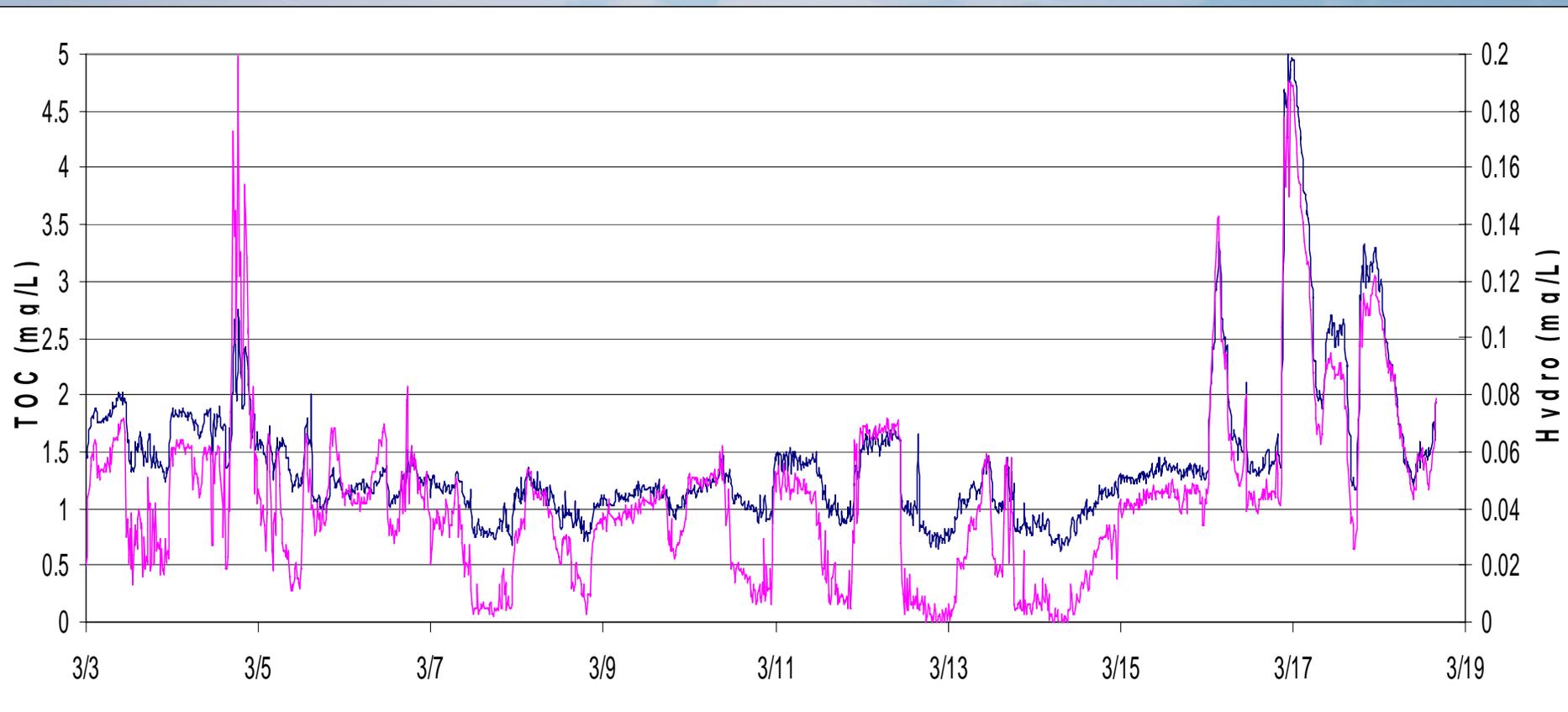
Internet 100%

start Comcast.net Home - ... RWQIMS Home - Win... PKBACK# 001 (G:) Microsoft Word 4:10 PM

# Turbidity – March 2008



# TOC and Hydrocarbons – March '08



# Total organic carbon (TOC)



# Alarm Conditions – VOCs

- Anomaly: > 10% of Allowable Level\*
- Potential Spill: > 50% of Allowable Level\*
- Likely Spill: > 90% of Allowable Level\*

– Currently testing the standards

\*U.S. EPA maximum contaminant level (MCL)



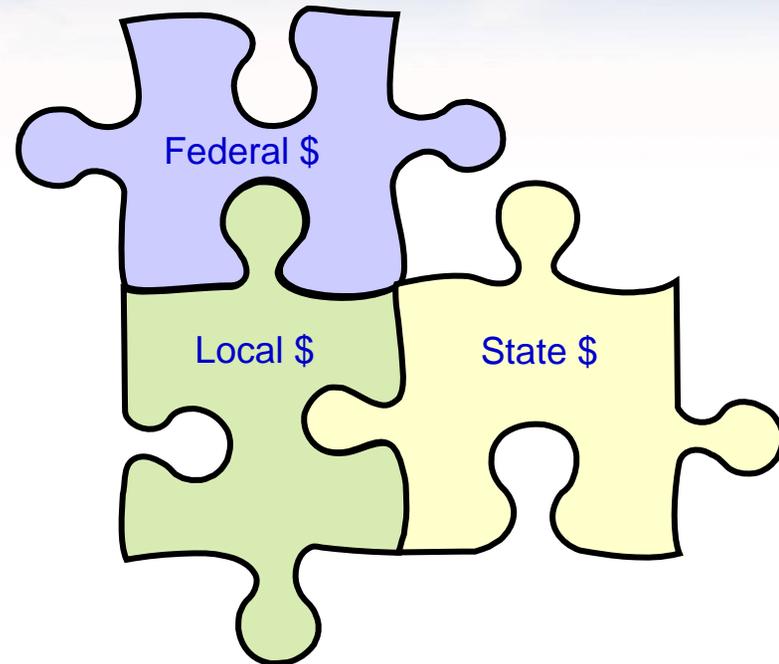
# Upcoming Challenges

## Technical:

- Understanding background levels
- GC/MS operation

## Admin/Organizational:

- Funding
- Regional control of the project



# Questions

Drinking Water Protection Network

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