

Multi-Parameter Instruments: Vital to Good Water Quality Data

U.S. Geological Survey
New Jersey Water Science Center
Hydrologic Data Assessment Program
West Trenton, New Jersey

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*Providing reliable, impartial, and timely data to assess the
quantity and quality of New Jersey's water resources*



Multi Parameter Instruments Are Vital To Hydrologic Techs

- ▣ Brief Description of the YSI Multi-Parameter Device
- ▣ Water Sample Collection
 - Composite Sampling
 - Determining Location
 - Determining Number of Verticals
 - Accurate Cross Section Readings
- ▣ Continuous Monitors
 - Purpose and Scope
 - Monitor Routine
 - Variables
- ▣ Data Review
 - Outliers
 - Quality Assurance
 - Making Corrections



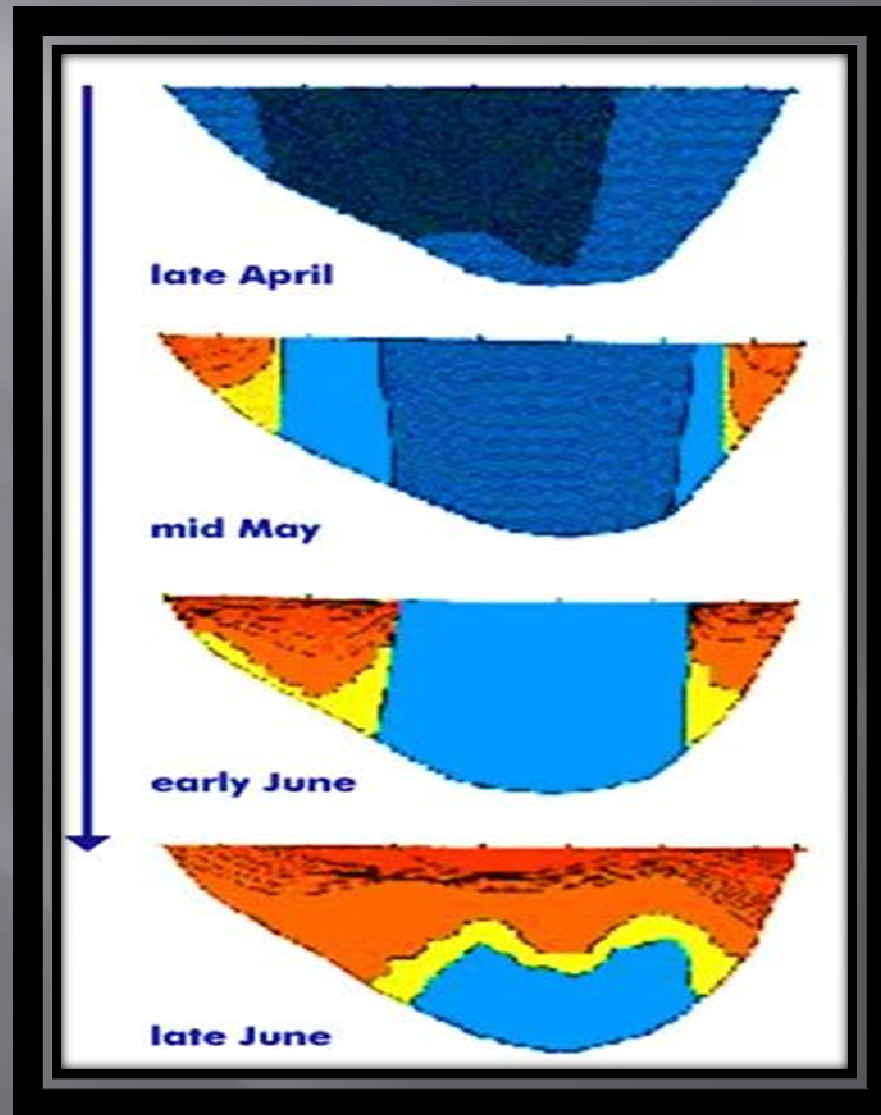
▣ “This is my sonde. There are many like it but this one is mine. My sonde is my best friend. It is my life. I must master it as I must master my life. Without me, my sonde is useless. Without my sonde I am useless. I must sample true with my sonde....”



Water Sample Collection



Vertical Variability



Horizontal Variability



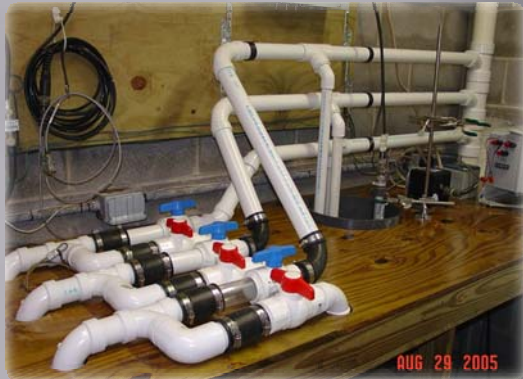
Tips

- ▣ In slow moving water, be sure to continuously move the sonde
- ▣ Avoid disturbing the bed sediment
- ▣ Calibrate as close to the over riding conditions of the stream as possible
- ▣ Ensure readings stabilize before moving on
- ▣ Completely submerge the sonde
- ▣ Consider surroundings
- ▣ Keep standards up to date

Field Readings Reject or Verify Outliers

WARM	Dissolved Oxygen, Percent		78.7	Lo
ALL	Total Residue		19	Hi
WARM	Phosphorus, Total		0.116	Hi
ALL	Carbon, Inorganic Particulate	<	0.06	Lo
WARM	Carbon, Organic Particulate		2.909	Hi
ALL	Carbon, Inorganic plus Organic		2.919	Hi
ALL	Hardness, Total		107.9	Lo
ALL	Calcium, Dissolved		26.93	Lo
ALL	Magnesium, Dissolved		9.88	Lo
WARM	Sodium, Dissolved		25.04	Lo
WARM	Chloride, Dissolved		47.191	Lo
ALL	Sulfate, Dissolved		10.453	Lo

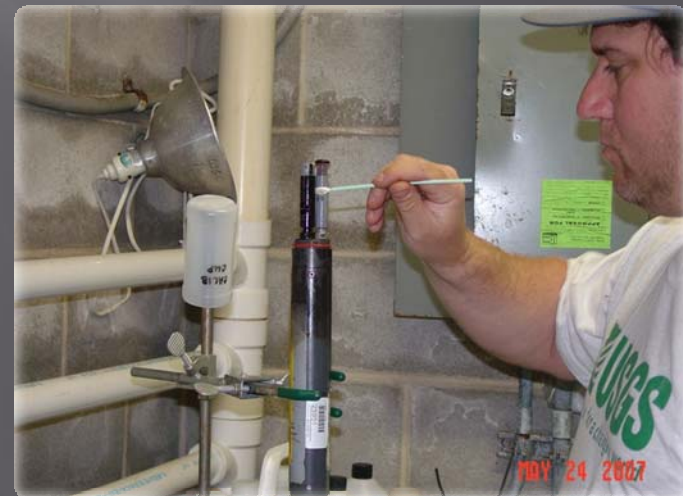
QW Monitors



Long Term Continuous QW Monitors

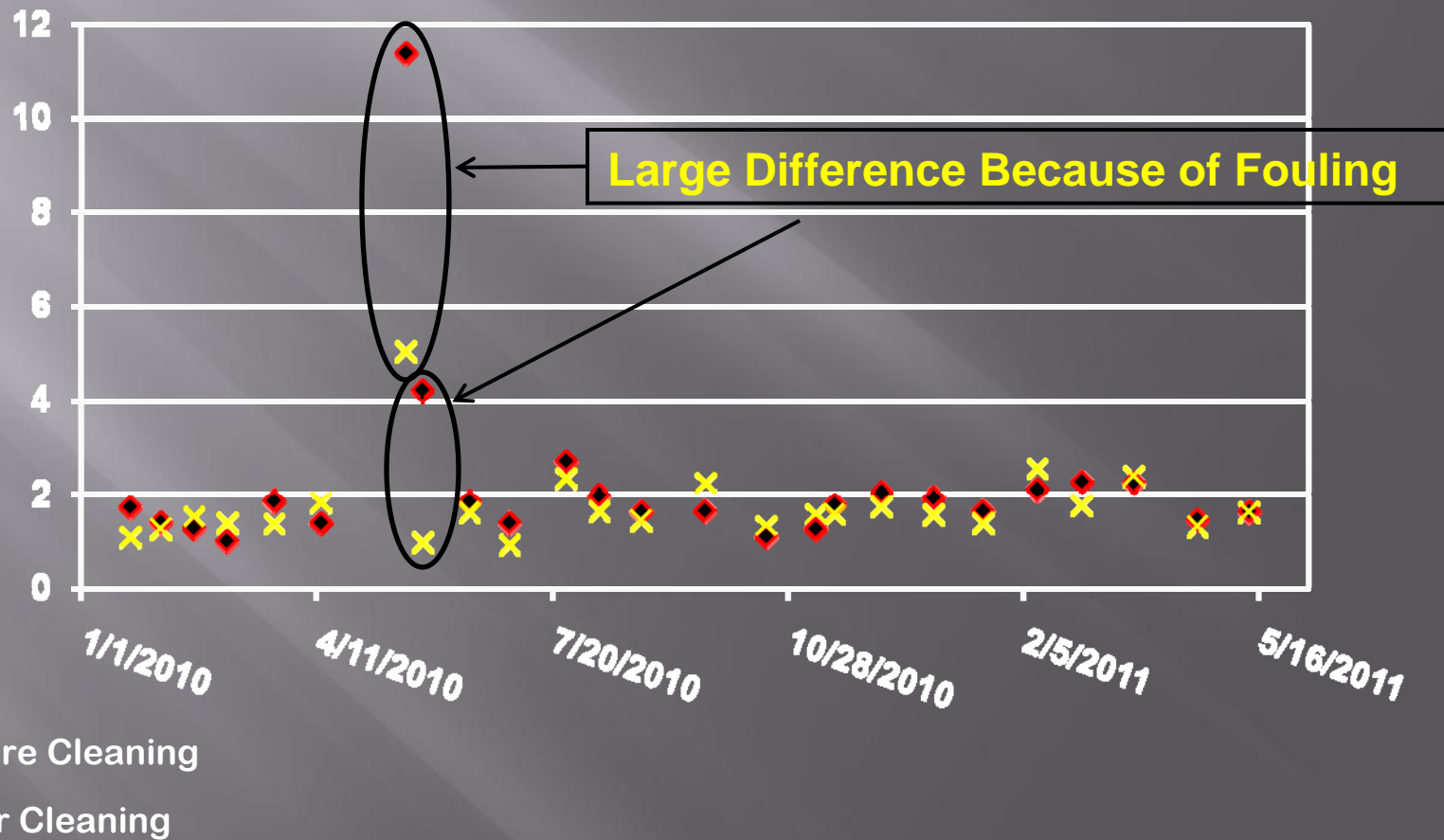


Continuous Monitor Maintenance



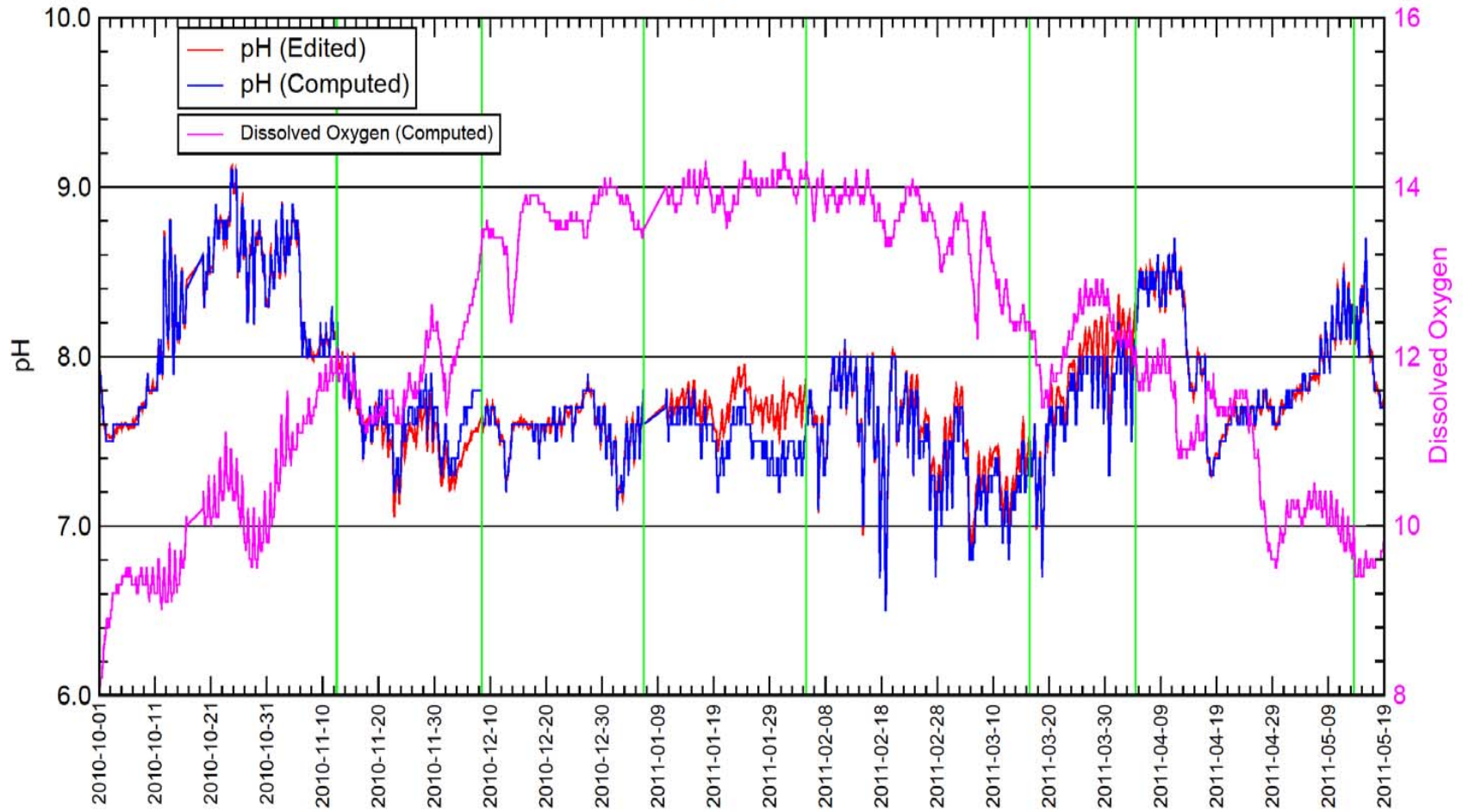
Fouling Variables

Turbidity Readings at Passaic River at Two Bridges

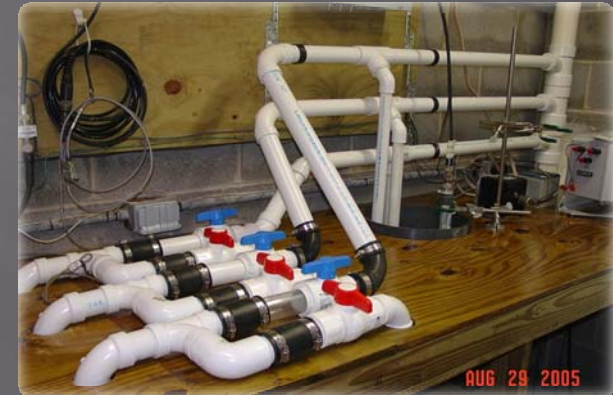
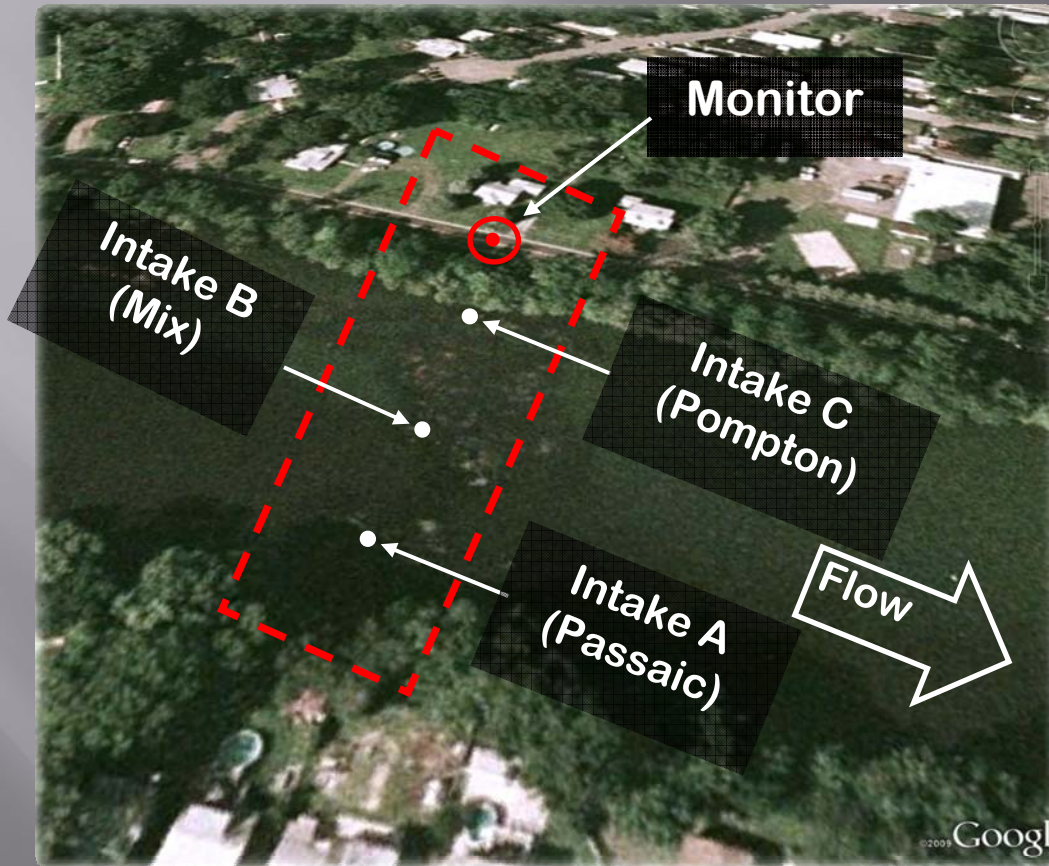


Pompton Lakes

pH v. DO



Long Term Continuous QW Monitors



Passaic River Below Pompton
River, Near Two Bridges

Long Term Continuous QW Monitors



Raritan River at Manville

Resources

▣ New Jersey Water Science Center

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