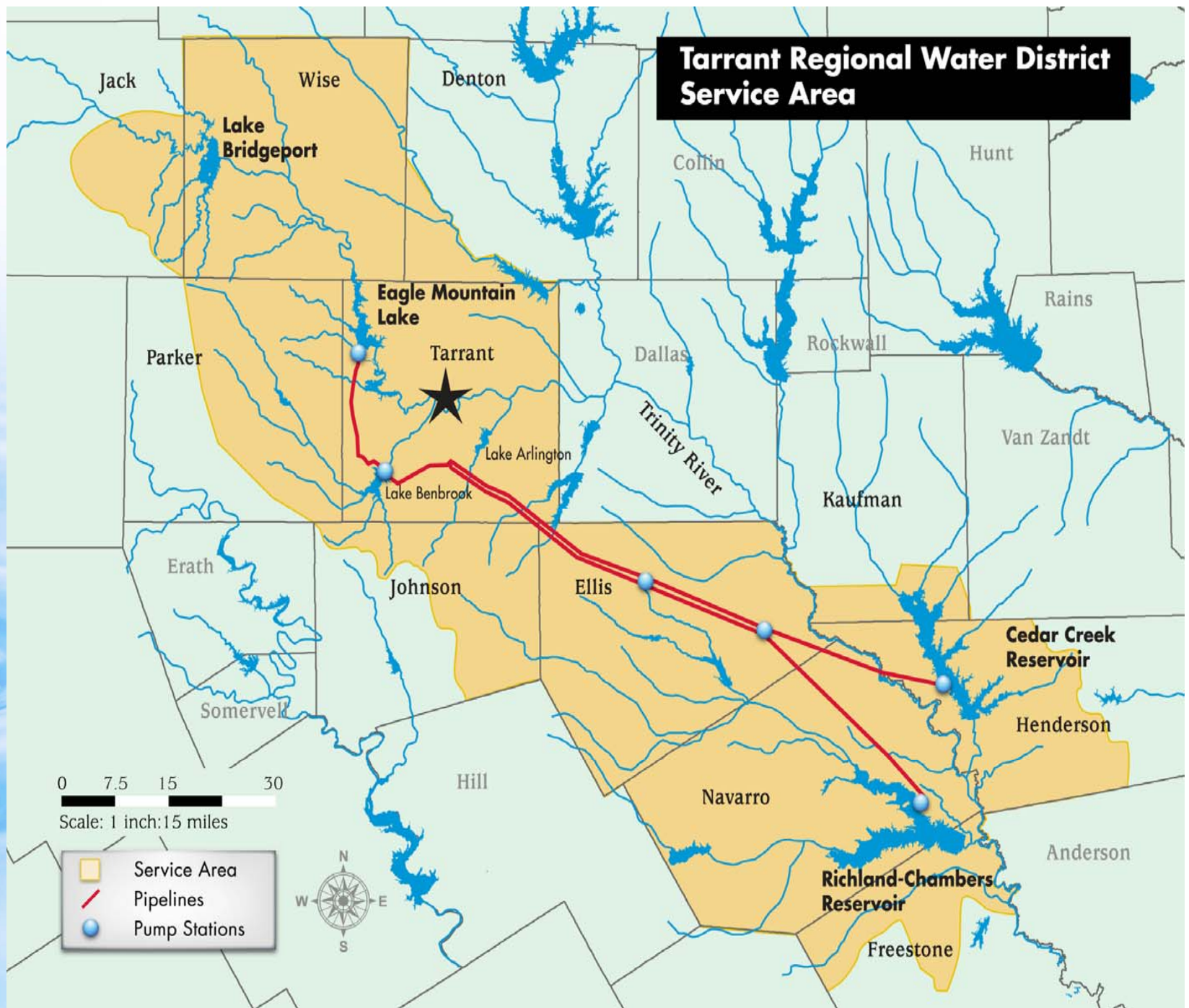


Partial Aeration of Large Water Supply Reservoirs

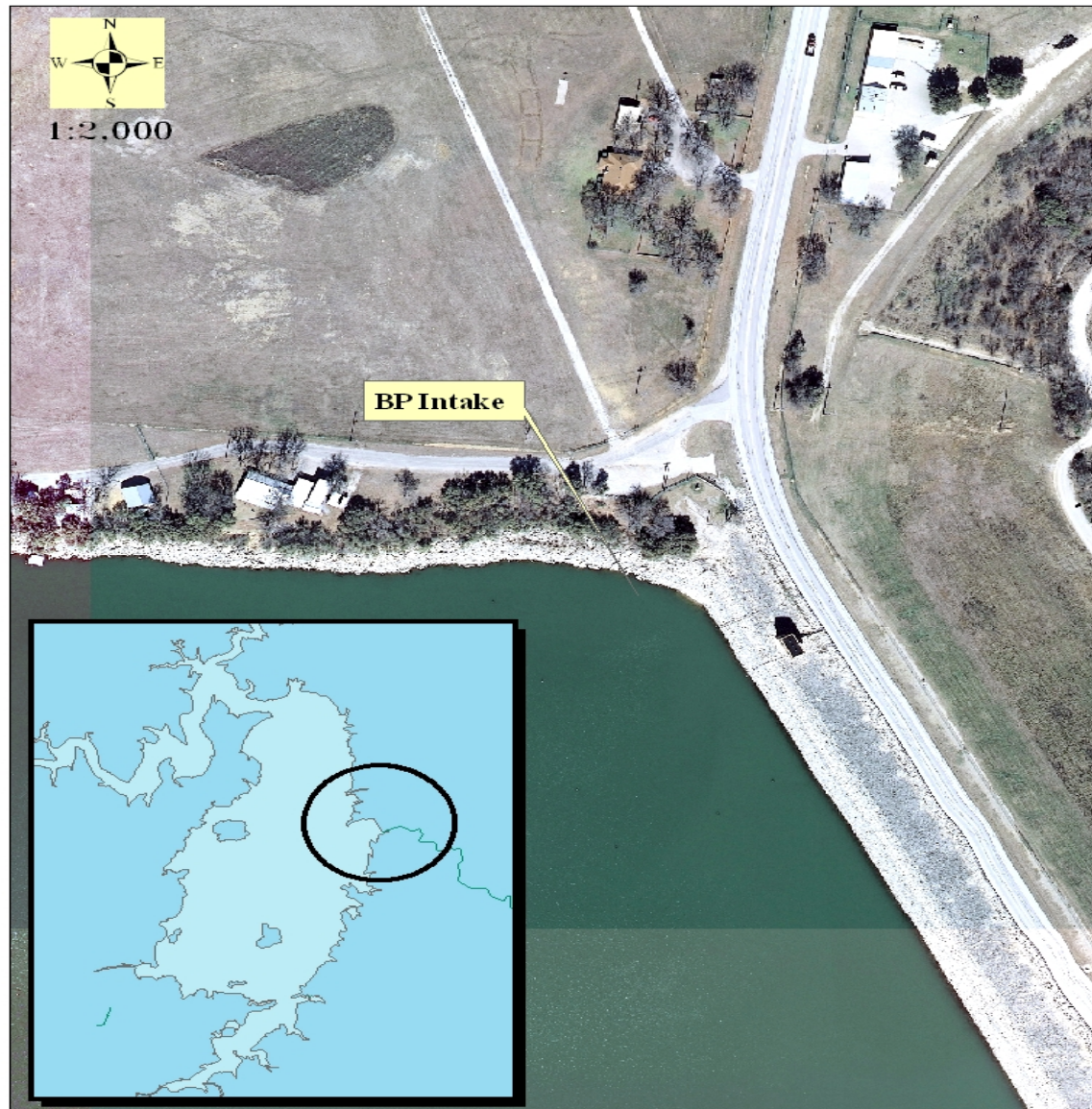
April 2, 2014

Jennifer Owens
Tarrant Regional Water District

Tarrant Regional Water District Service Area



Lake Bridgeport Intake

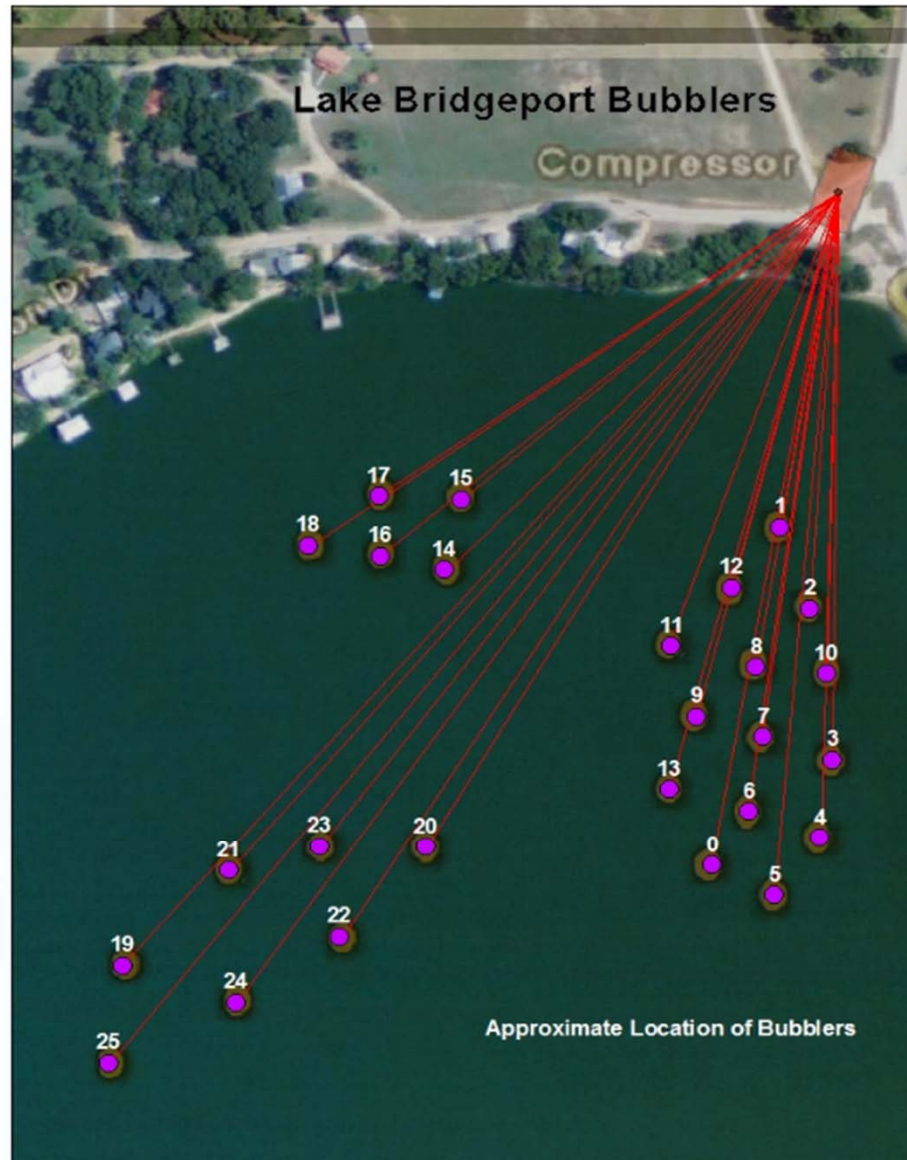


Discharges are from
A spillway to the
North of Intake

Lake SA = 12,900 Ac

Aerated Near Intake
≈ 80 Ac

Aeration System Design



Compressor Building



Airlines Connected to Diffusers

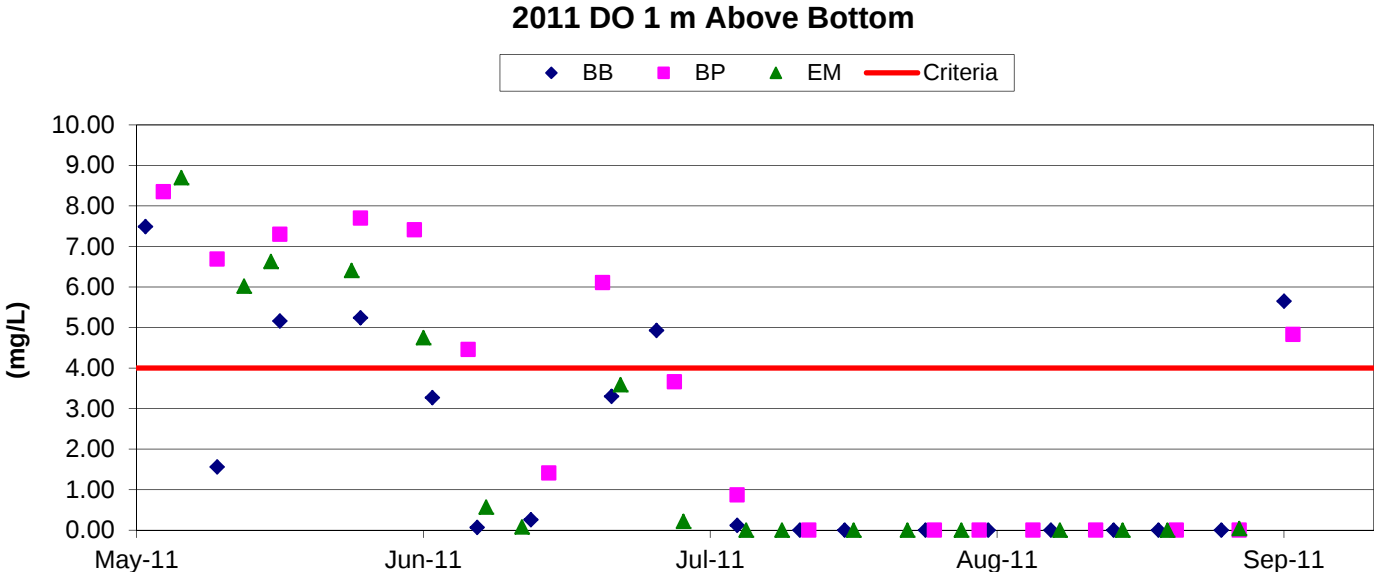
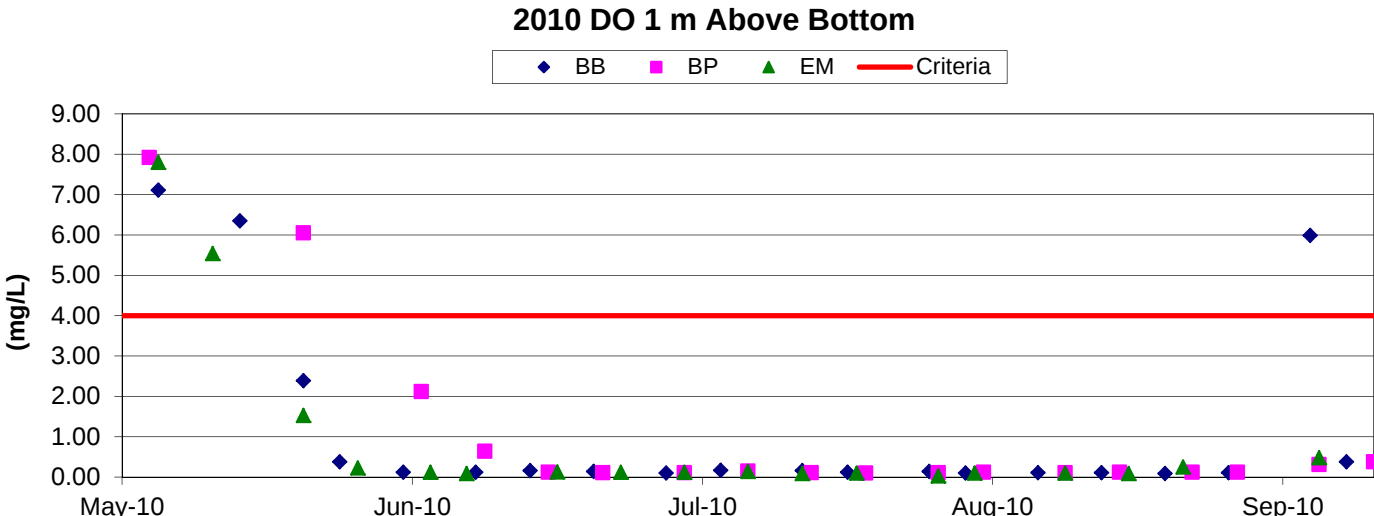


Lake Bridgeport Aeration System

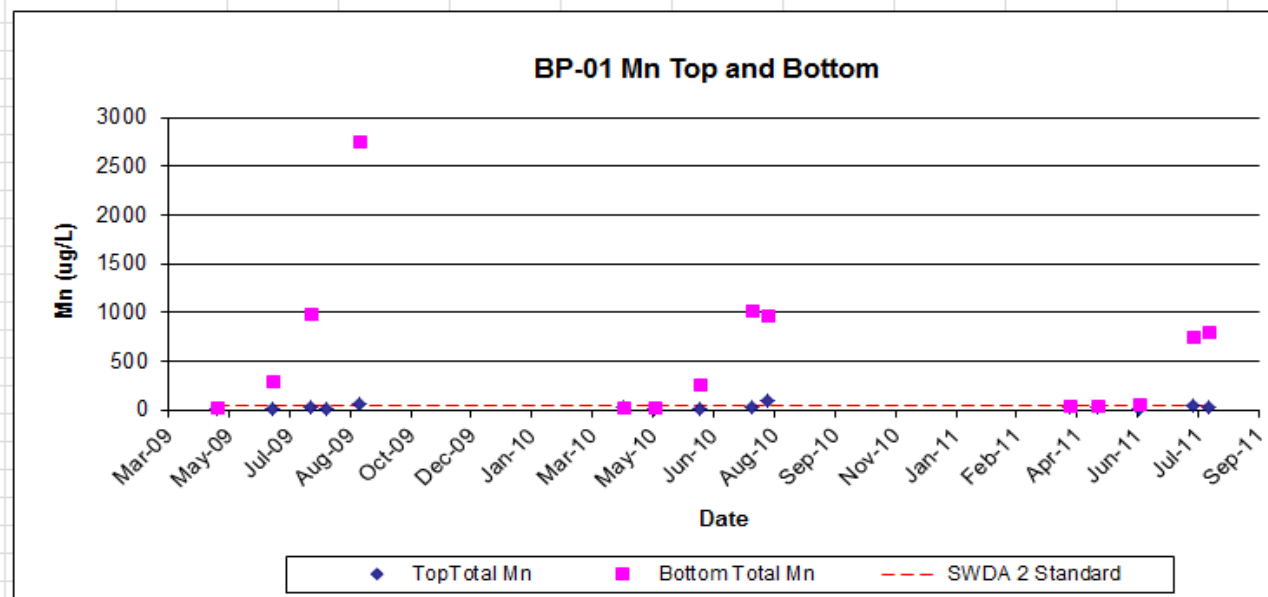
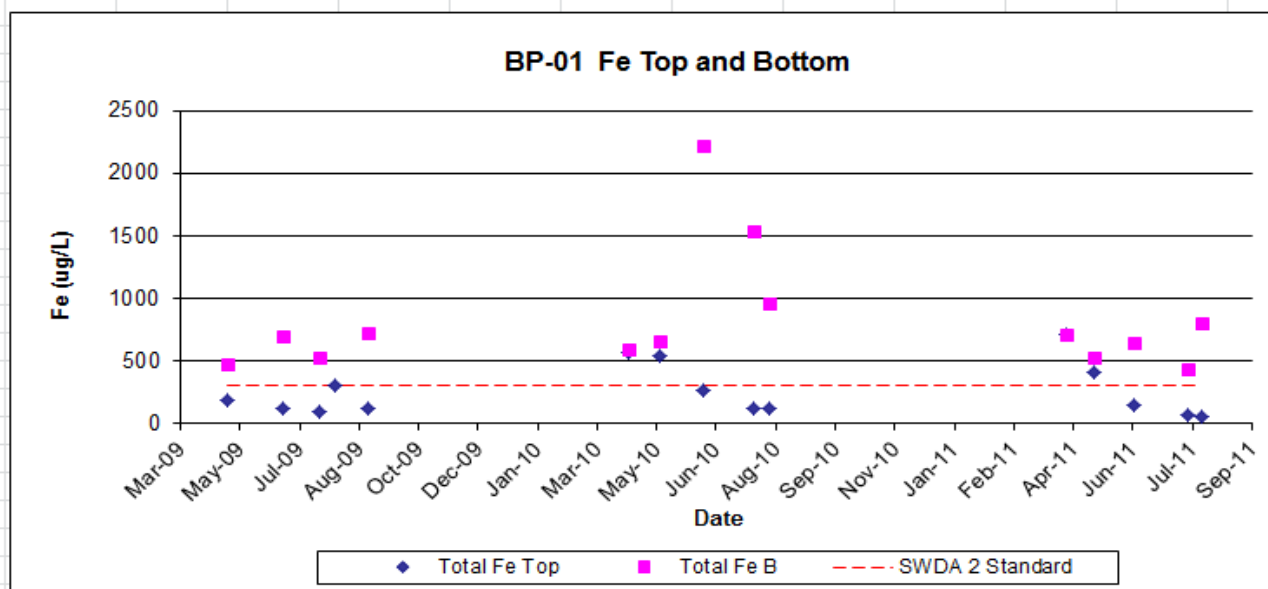




Diffuser Turbidity Plume in 2011



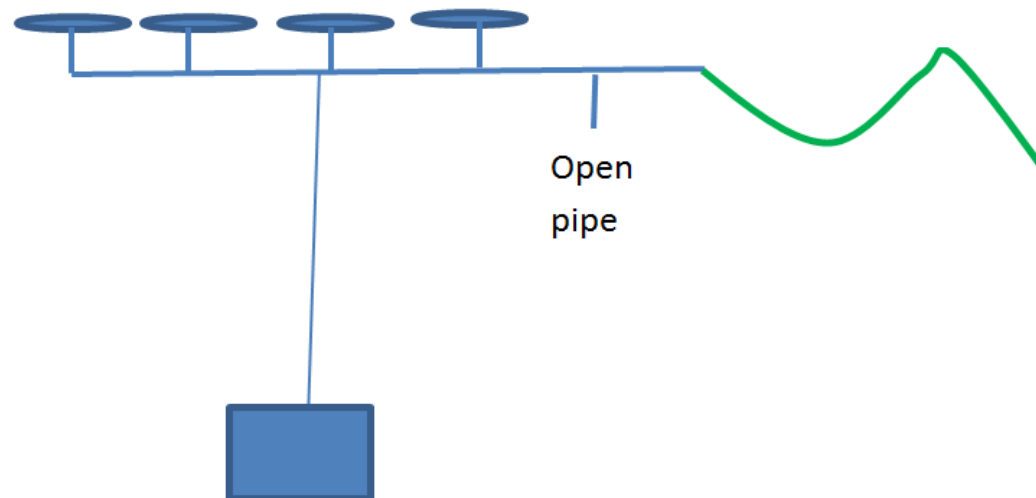
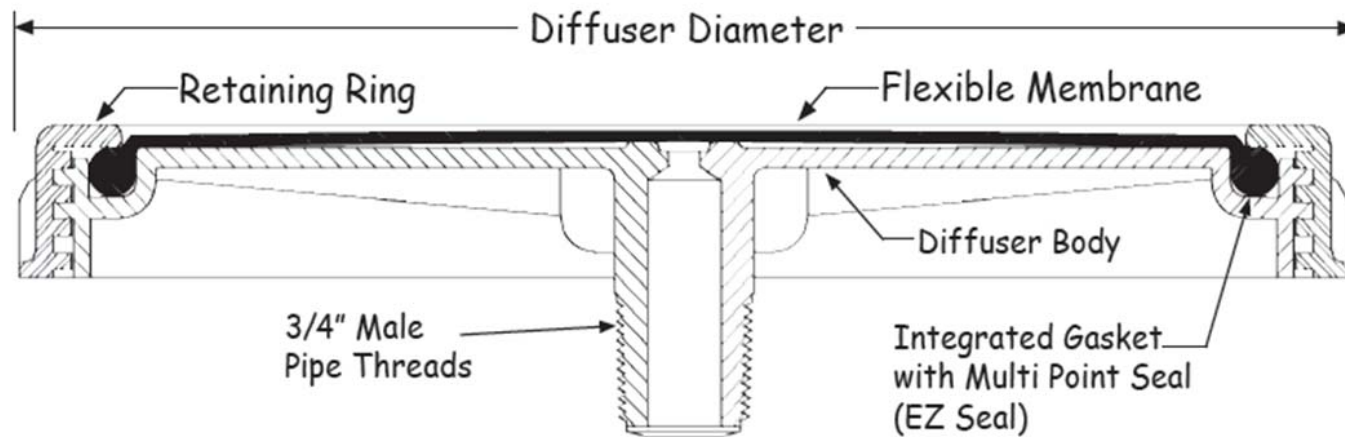
Iron and Manganese Results





Defective diffusers that were replaced almost a week earlier

New Design for Diffusers



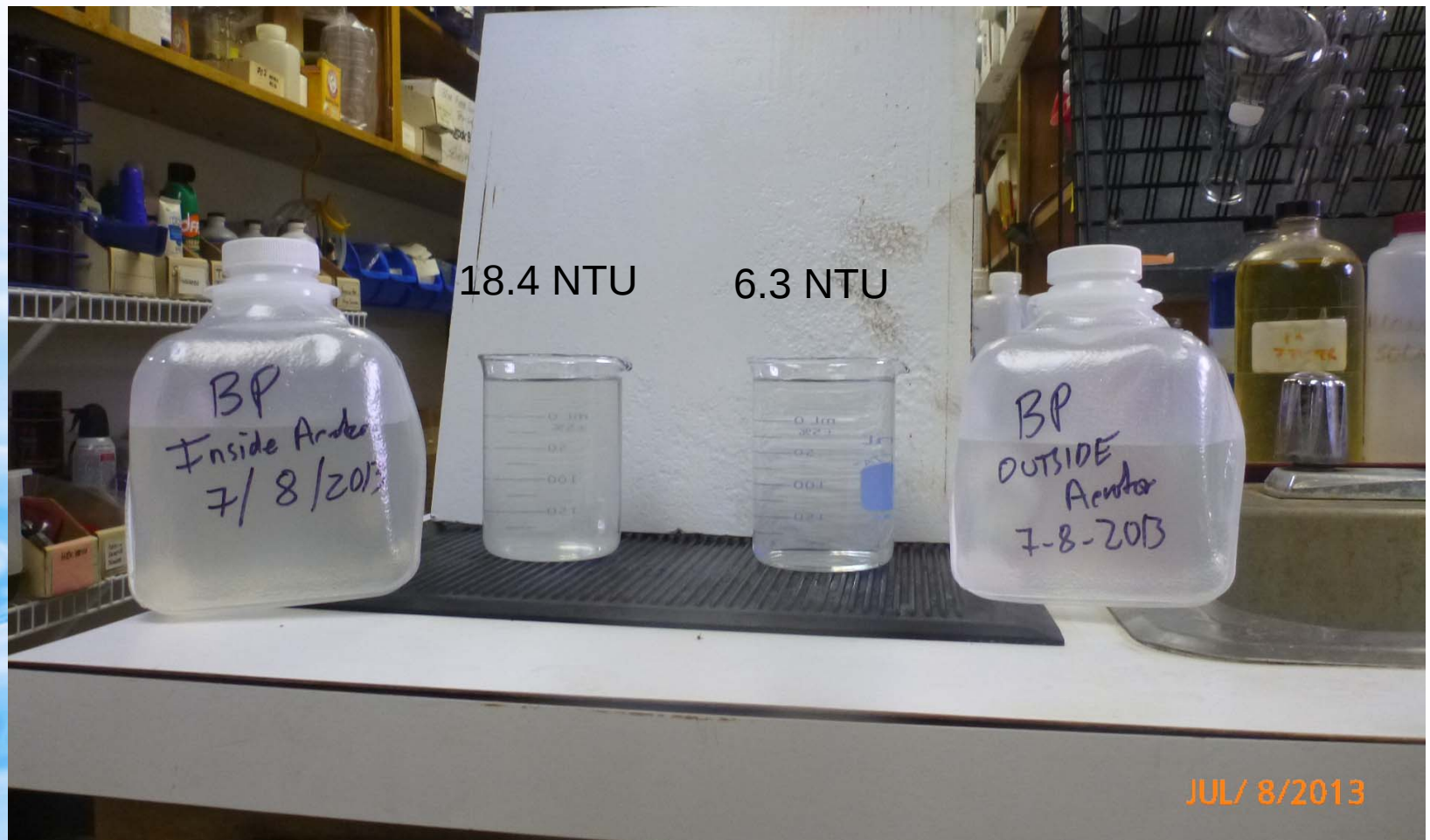
Assembled Diffuser



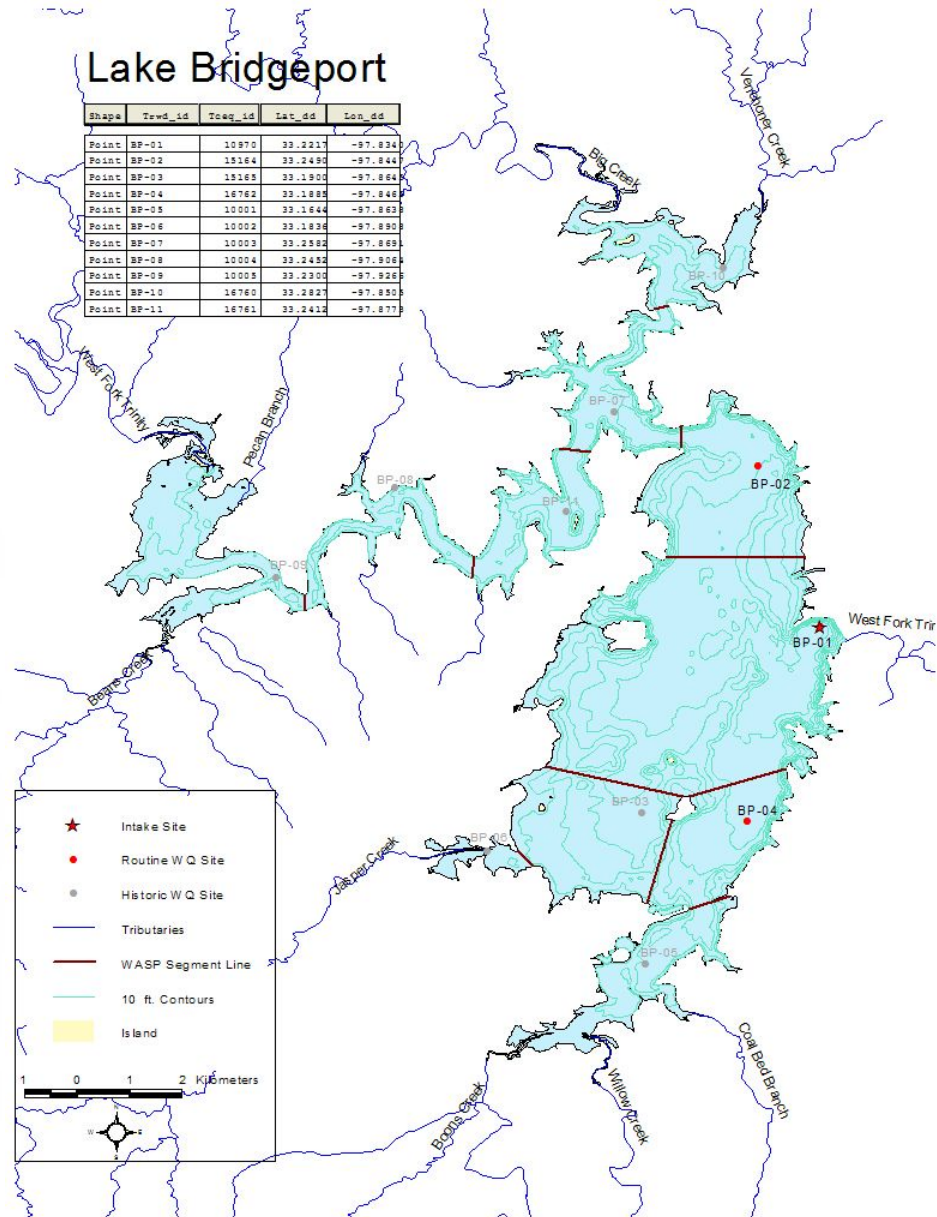
Bridgeport Operation with New Diffusers



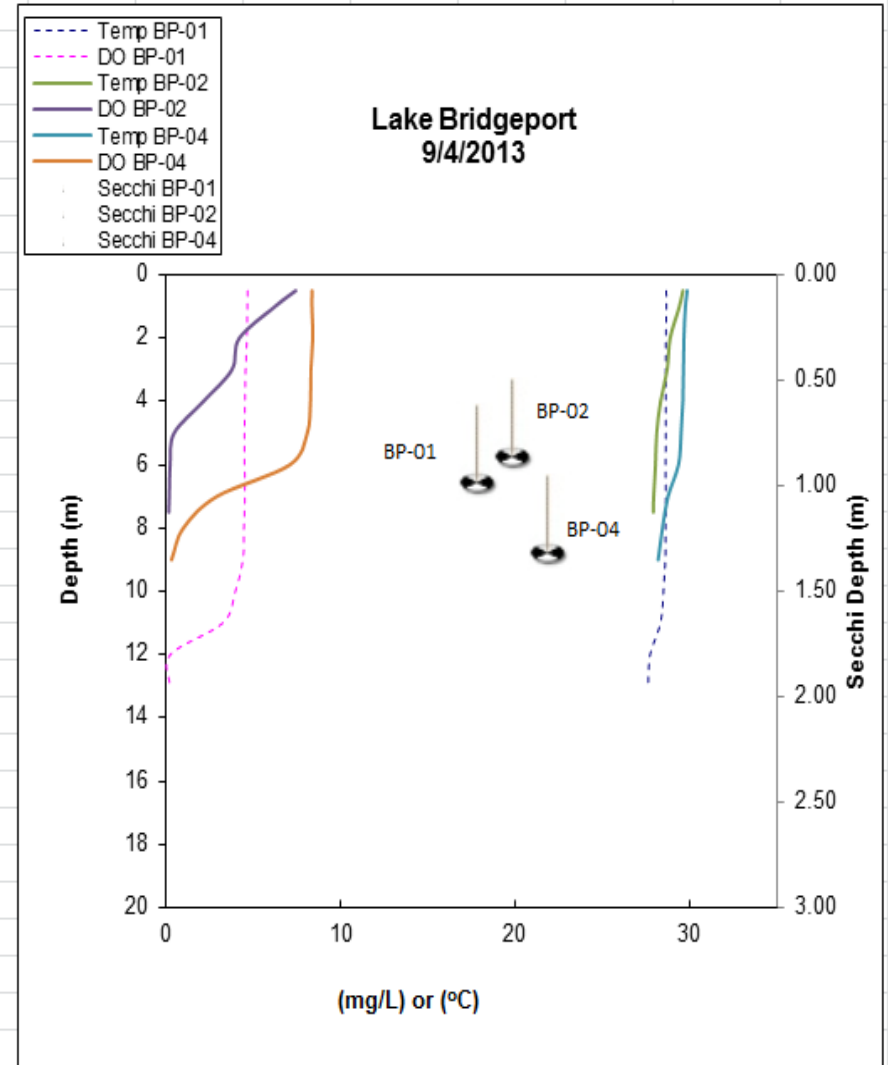
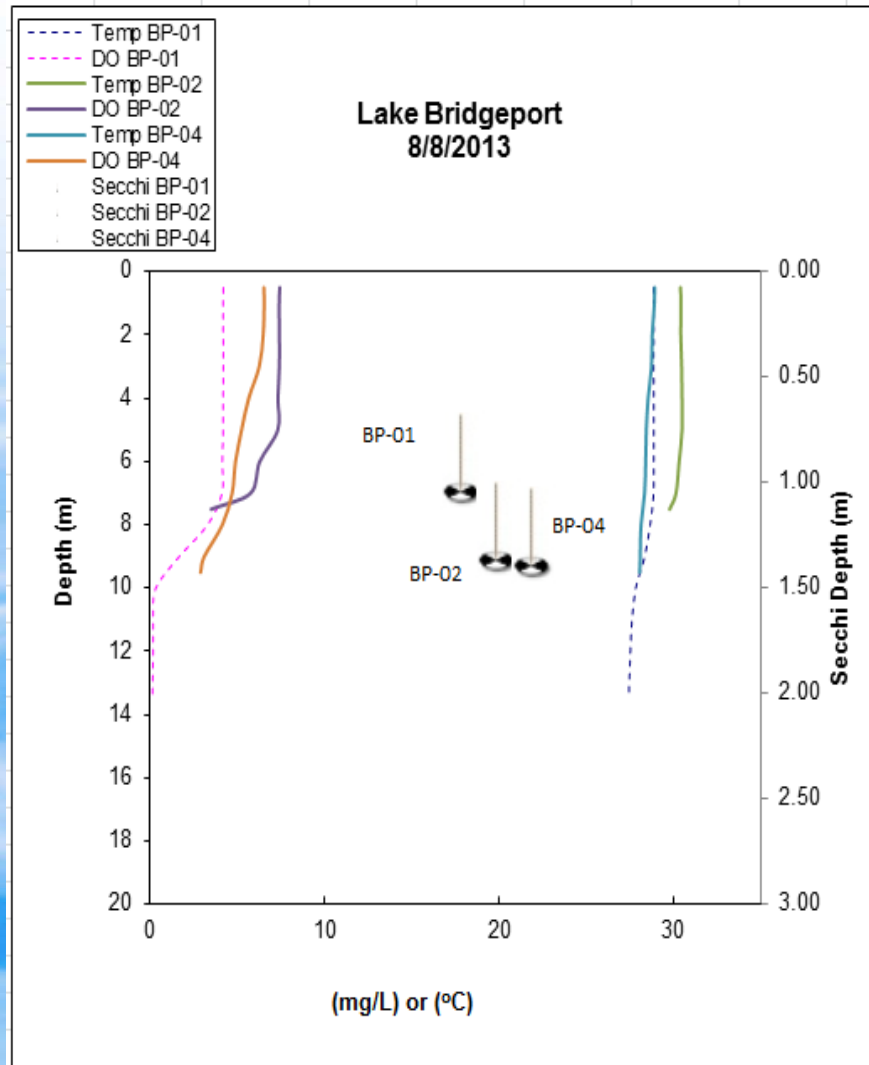
Significant Increase in Turbidity



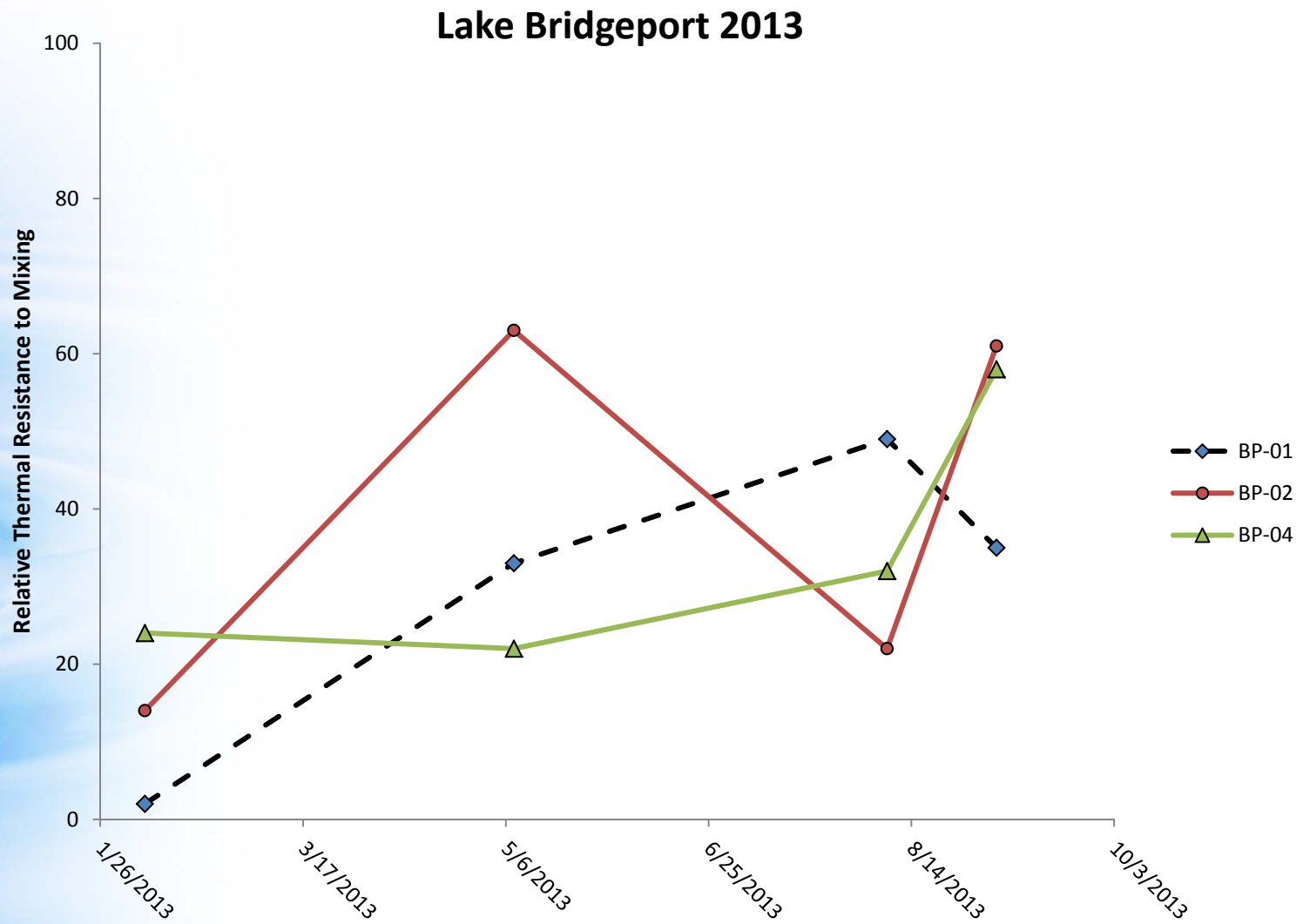
Lake Bridgeport System



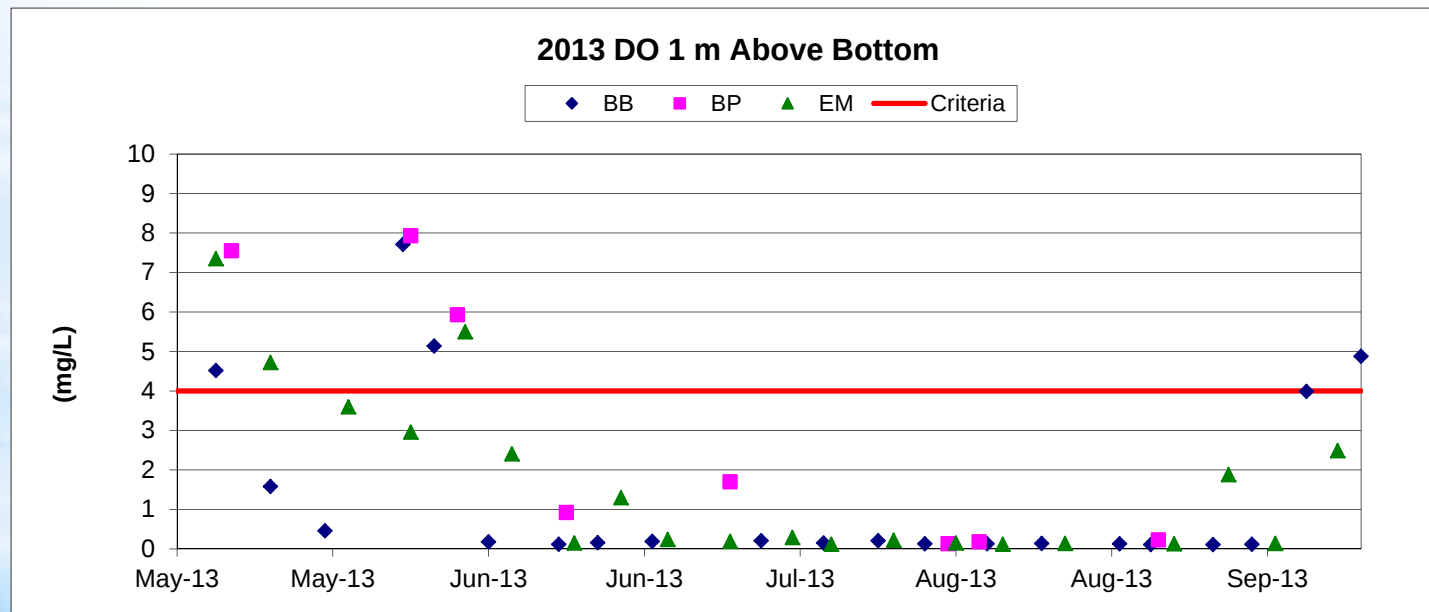
Lakewide Bridgeport Results



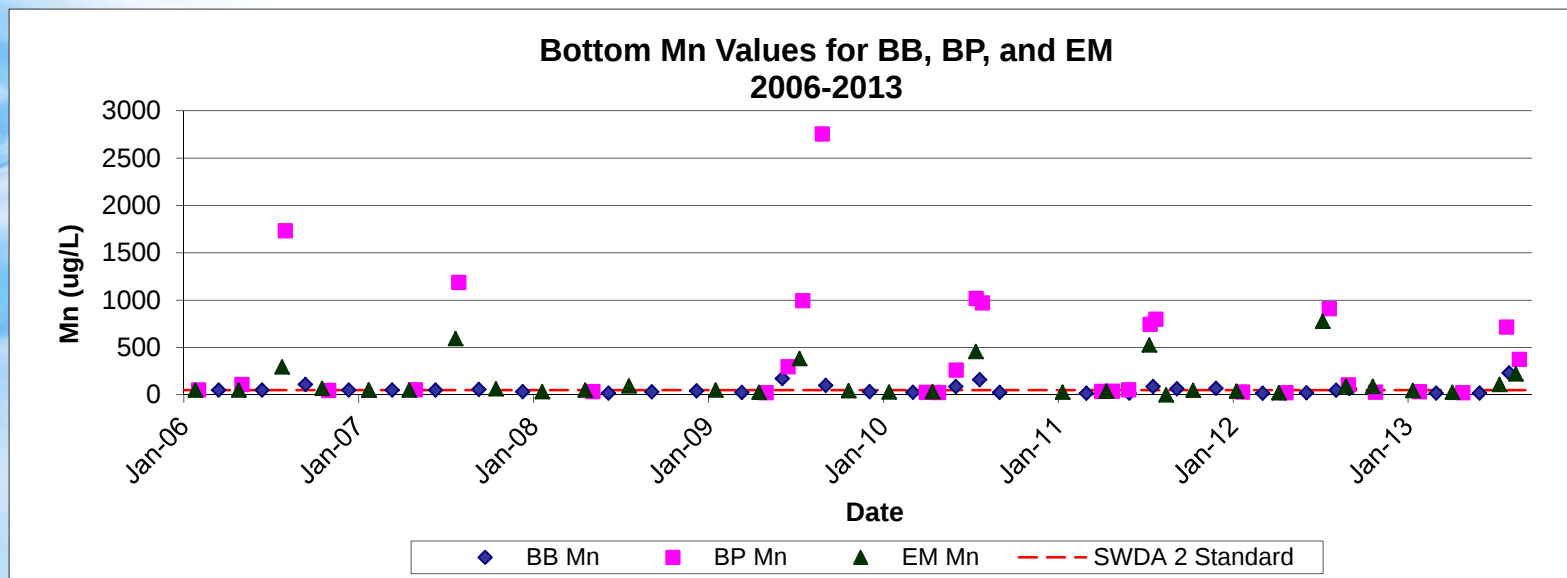
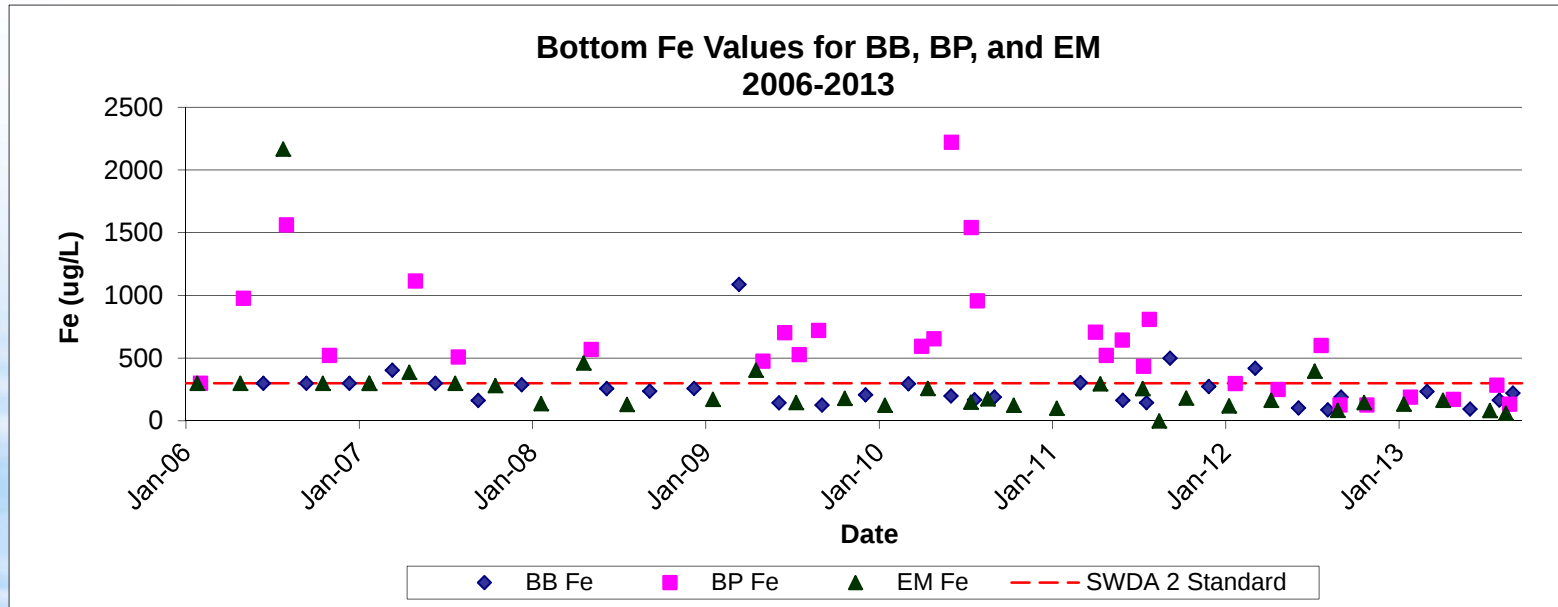
Thermal Stability Results



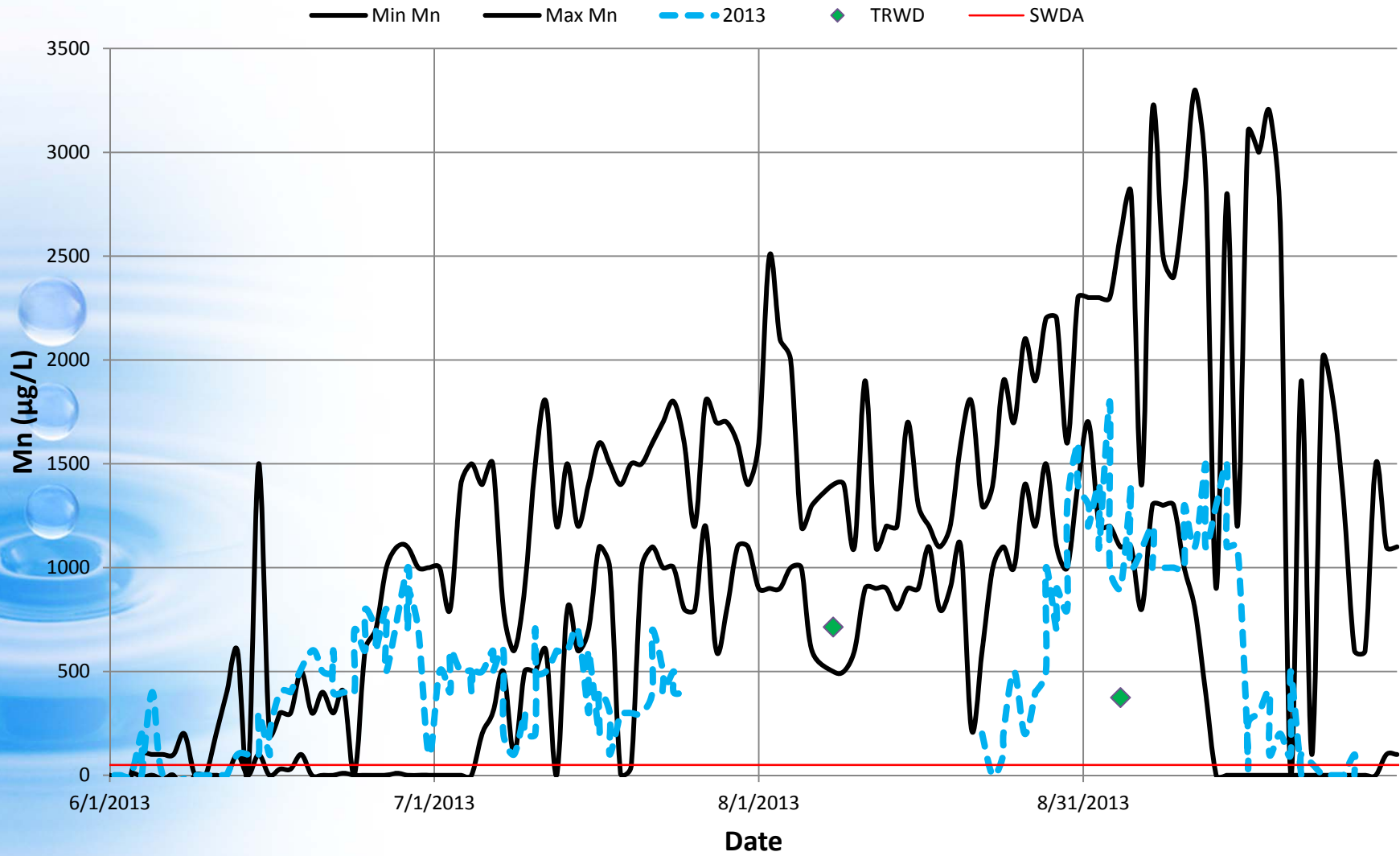
Dissolved Oxygen Results



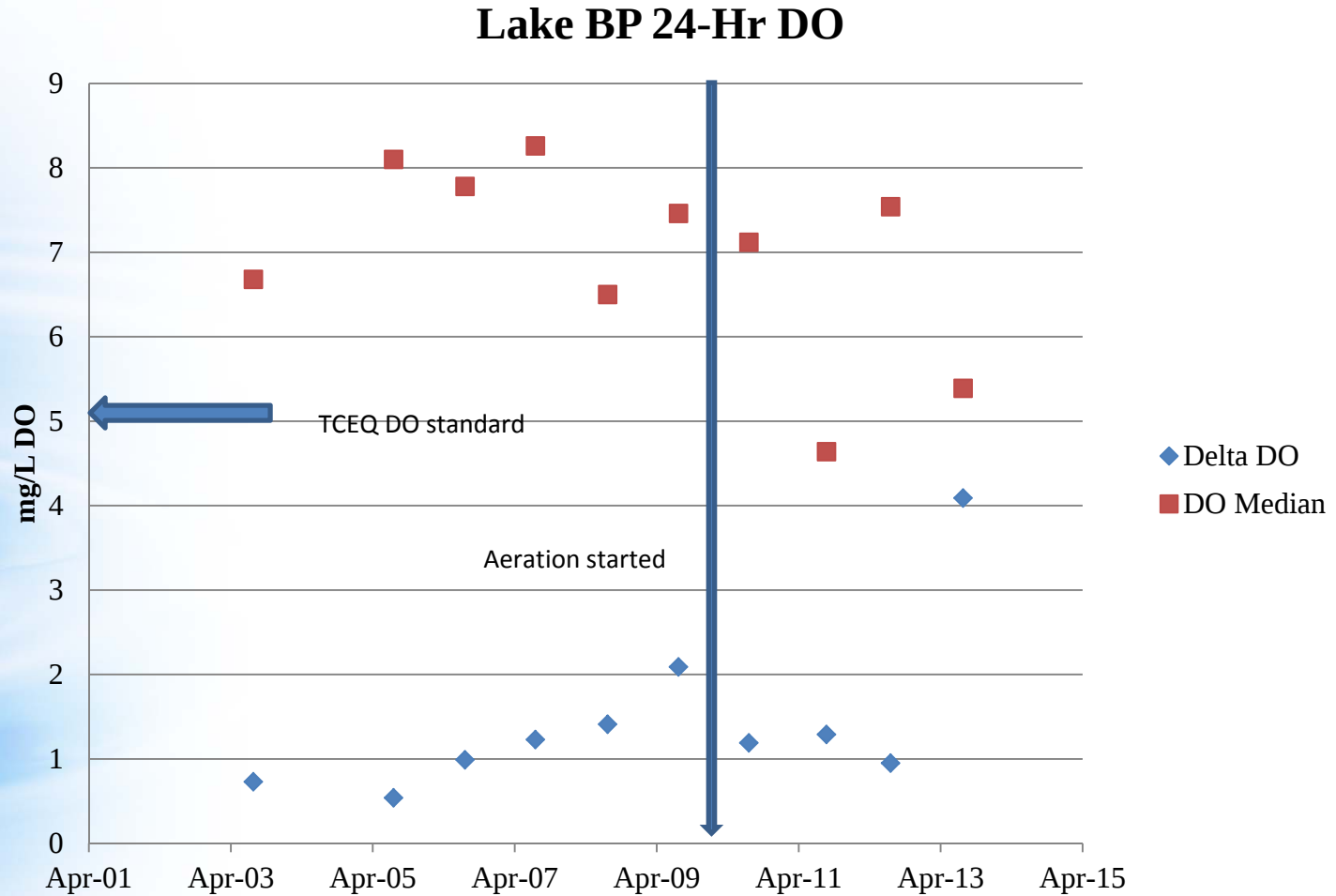
Fe and Mn Results



Suez Historic (2007-2012) Mn



Diurnal DO and DO Standards



Projected Aeration Zone



Measured Aeration Zone



Conclusions on BP Aerators

- Diffusers creating more turbidity
- Temperature profiles not as strongly stratified
- Still going anaerobic on the bottom
- Fe and Mn improved
- Dissolved oxygen standard in jeopardy

Conclusions on BP Aerators

- Diffusers creating more turbidity
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