

DWQ 2019 Sampling Plan

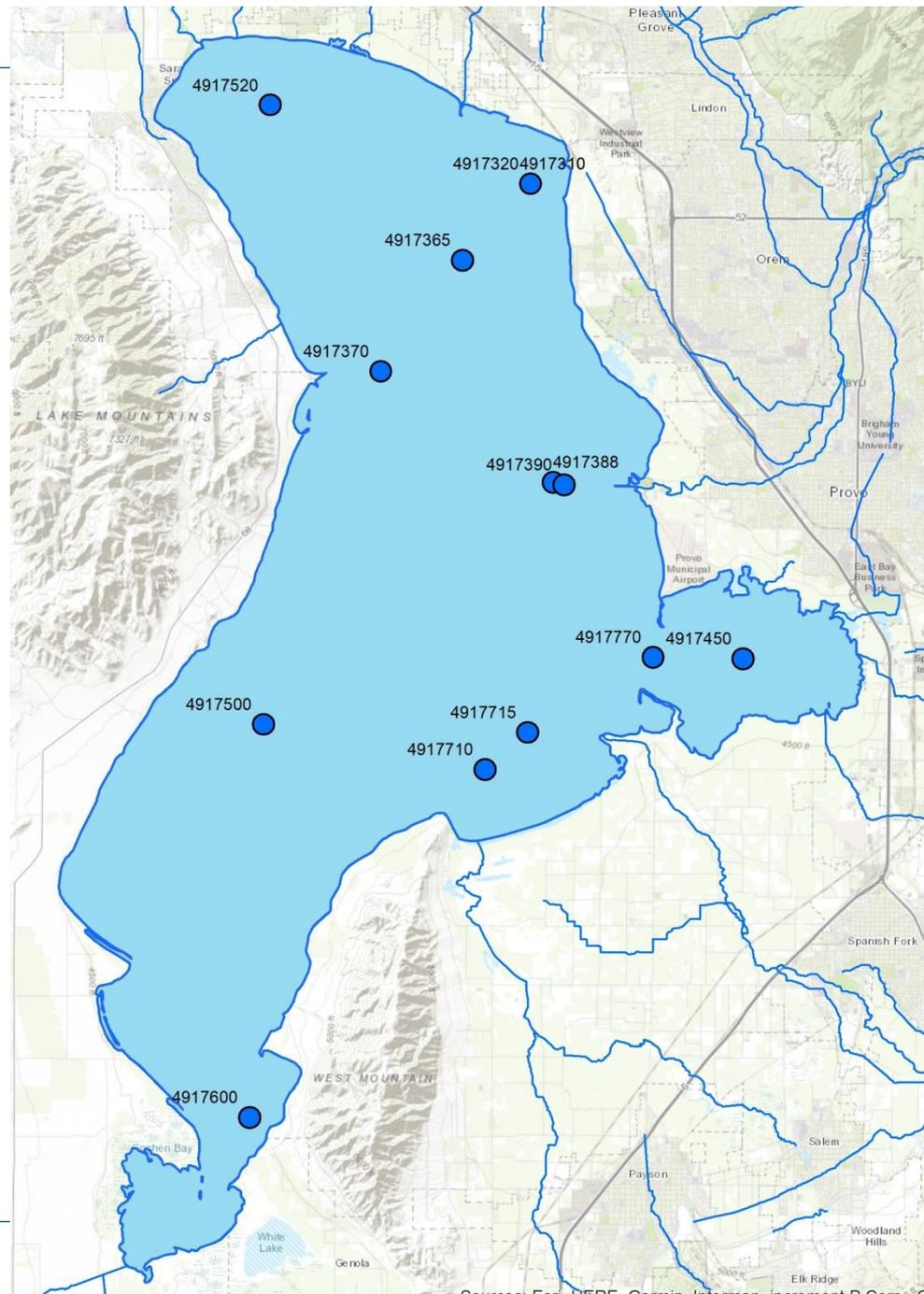


March 12, 2019

*Division of Water Quality
Utah Department of Environmental Quality*

Open Water

- Sites
 - 11 locations
 - Including one duplicate
- Frequency
 - Monthly (April thru November)
 - Winter sampling conditions permitting
- Sample types
 - Water column profiles
 - Field
 - Water chemistry



Open Water

- Water column profiles
 - pH, conductance, DO, temperature
 - PAR, chlorophyll, turbidity
 - 10 increments per profile
- Field parameters
 - pH, conductance, DO, temperature
 - Depth
 - Secchi depth
- Water chemistry
 - At two depths
 - Surface
 - Bottom
- Phytoplankton



Water Chemistry

Non-filtered Nutrients	Ammonia, Nitrate/Nitrite, Total Phosphorus, Total Nitrogen, and TOC
Dissolved (Filtered) Nutrients	Ammonia, Nitrate/Nitrite, Total Dissolved Nitrogen, DOC, Dissolved Phosphorus
General Chemistry	Sulfate, alkalinity, turbidity, specific conductance, total suspended solids, volatile suspended solids, total dissolved solids, chlorine
Non-filtered metals	Aluminum, Arsenic, Barium, Boron, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Selenium, Selenium (Hydride AA), Silver, Sodium, Zinc
Filtered metals	Aluminum, Arsenic, Barium, Boron, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Selenium, Selenium (Hydride AA), Silver, Sodium, Zinc
Other	Chlorophyll, E. coli



High Frequency Sonde Deployment

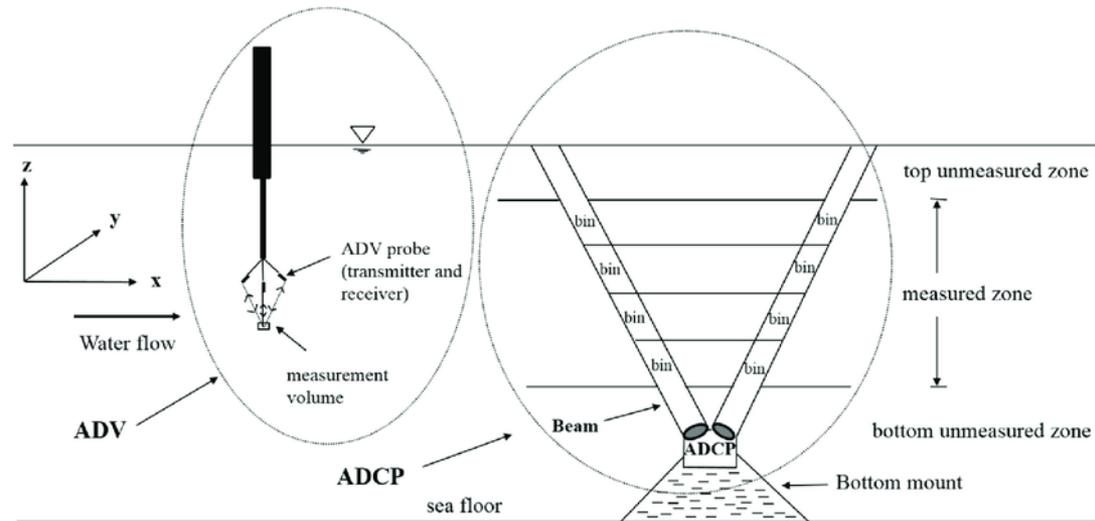
- 4 high frequency sondes
- 15 min. sample frequency
- Parameters:
 - Temperature
 - Conductance
 - pH
 - Dissolved oxygen
 - DO saturation
 - Chlorophyll
 - Blue-green algae (BGA)
 - Turbidity
 - fDOM

<https://wqdatalive.com/public/669>



EFDC Model Support

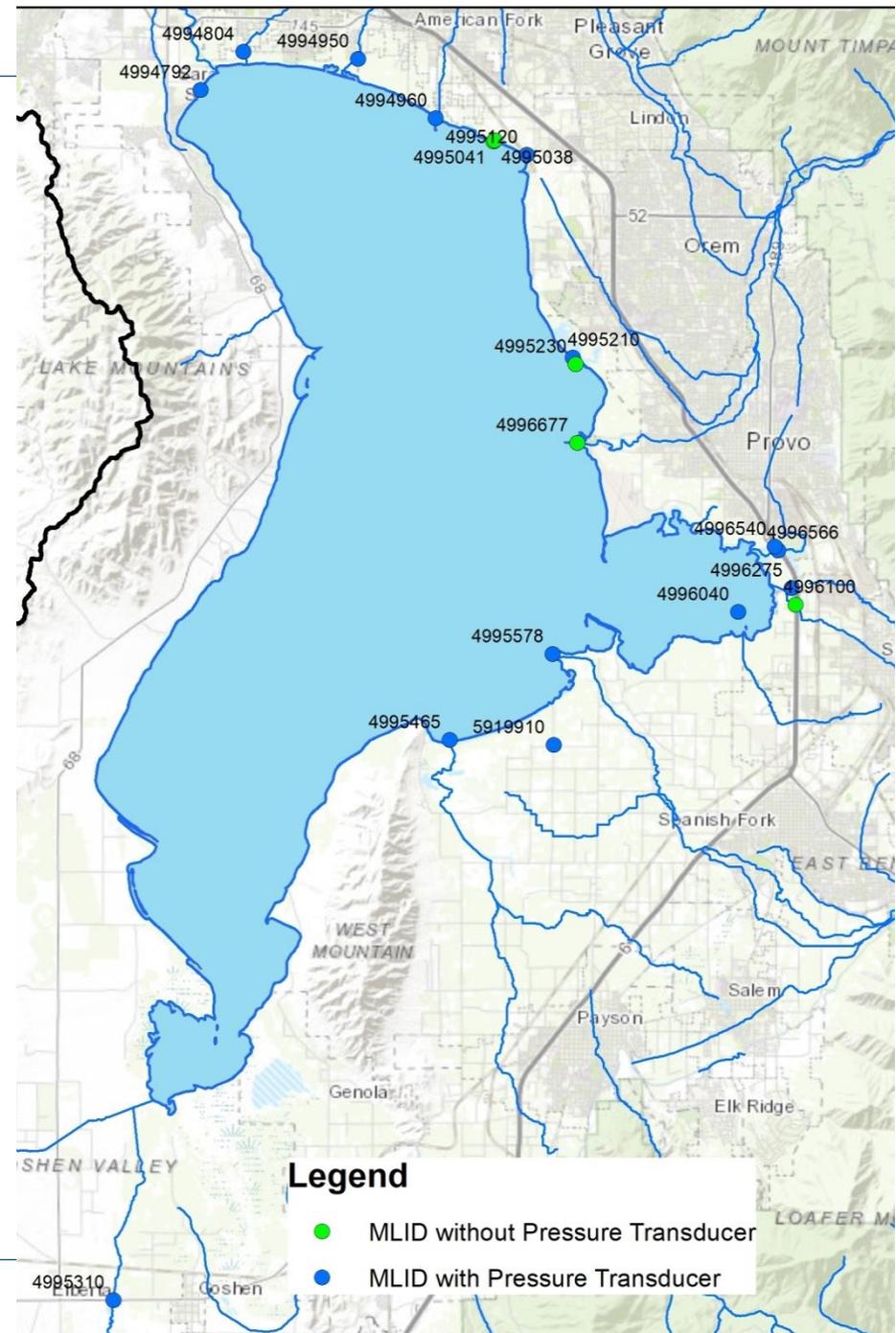
- Velocity and Wave Height
 - Six sites
 - Rotated monthly
 - Acoustic Doppler Current Profiler (ADCP)
 - Acoustic Doppler Velocity (ADV)
 - Water quality sonde
 - Two depths
 - Water chemistry
 - Two depths
 - Sediment trap
 - Sediment characterization
 - Shear vane
 - Superficial core for physical properties



- Flow at mouth of Prove Bay
- PAR

Tributaries

- Sites
 - 19 inflow locations
 - Jordan River below UT Lake
- Frequency
 - Monthly (year round)
- Sample types
 - Field
 - Sonde
 - Flow
 - Water chemistry
 - Pressure transducer flow



Stormwater

- 3 Locations
 - Monumented
 - Automated or remote trigger
 - Telemetered
- Equipment
 - Auto sampler
 - Data logger
 - Flo-dar
 - Rain bucket
- Status
 - Equipment requisition
 - Coordination w/ Utah County Stormwater Coalition
 - Infrastructure data request
 - Site selection



Phosphorus Methods



Phosphorus Methods

Date	Method	Method Name	Detection Limit (mg/L)
1976 – 1999	Generic method		0.005 – 0.05
2000 – 2018	365.1/365.2	Phosphorus by colorimetry	0.003 – 0.02
2018	4500-P-E	Phosphorus by colorimetry	0.01



Phosphorus Fractions

Desired P	Phosphate-Phos (all methods) as P	
	Fraction (Total)	Fraction (Dissolved)
Particulate organic	X	
Particulate inorganic		
Dissolved organic		
Dissolved inorganic (Ortho P)		X



Discussion

utahlake.deq.utah.gov



Scott Daly
Division of Water Quality
801-536-4333
sdaly@utah.gov