



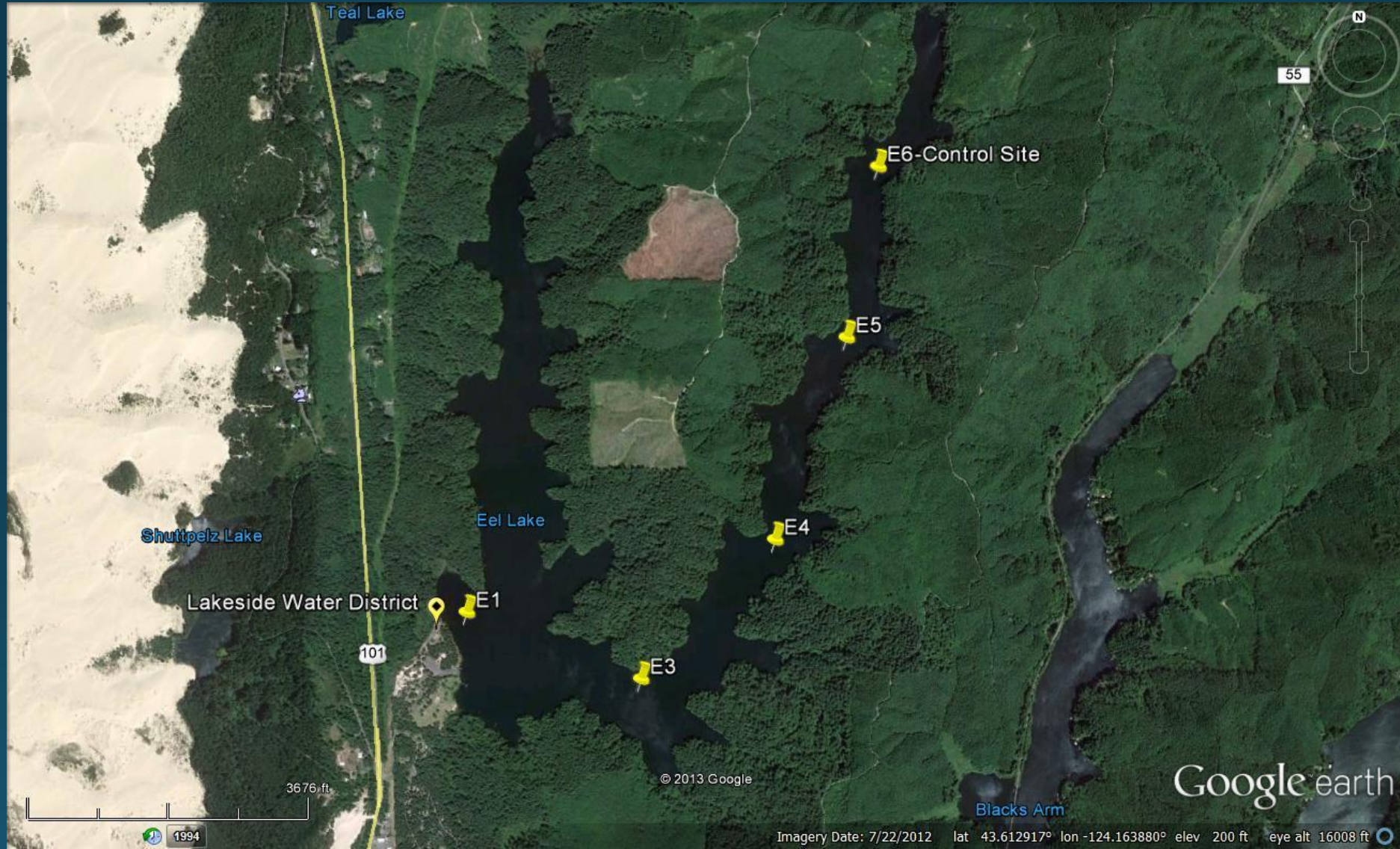
# Lakeside Water District Eel Lake Presentation

Presented by  
Richard Litts  
Tenmile Lakes Basin Partnership  
Monitoring Coordinator

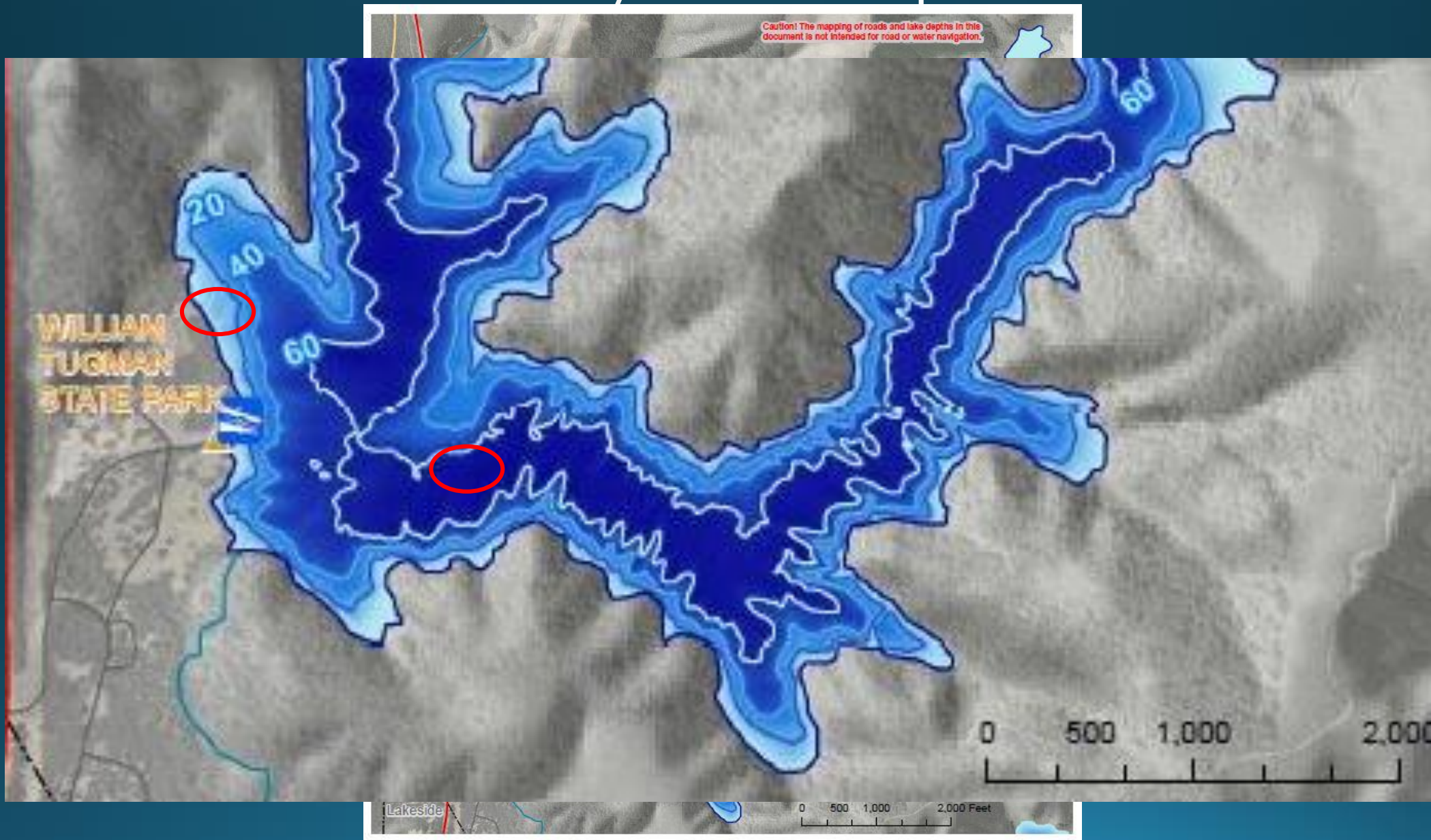
# 2014 Monitoring Efforts Included:

- Baseline Monitoring
  - Potential Timber Harvest Impact
  - Water District Data
  - General Lake Data
- 4 Depth Profiles
  - August through January
- 2 Day Sonde Deployment
  - Temperature
  - Dissolved Oxygen
  - pH
- Nutrients
- Algae

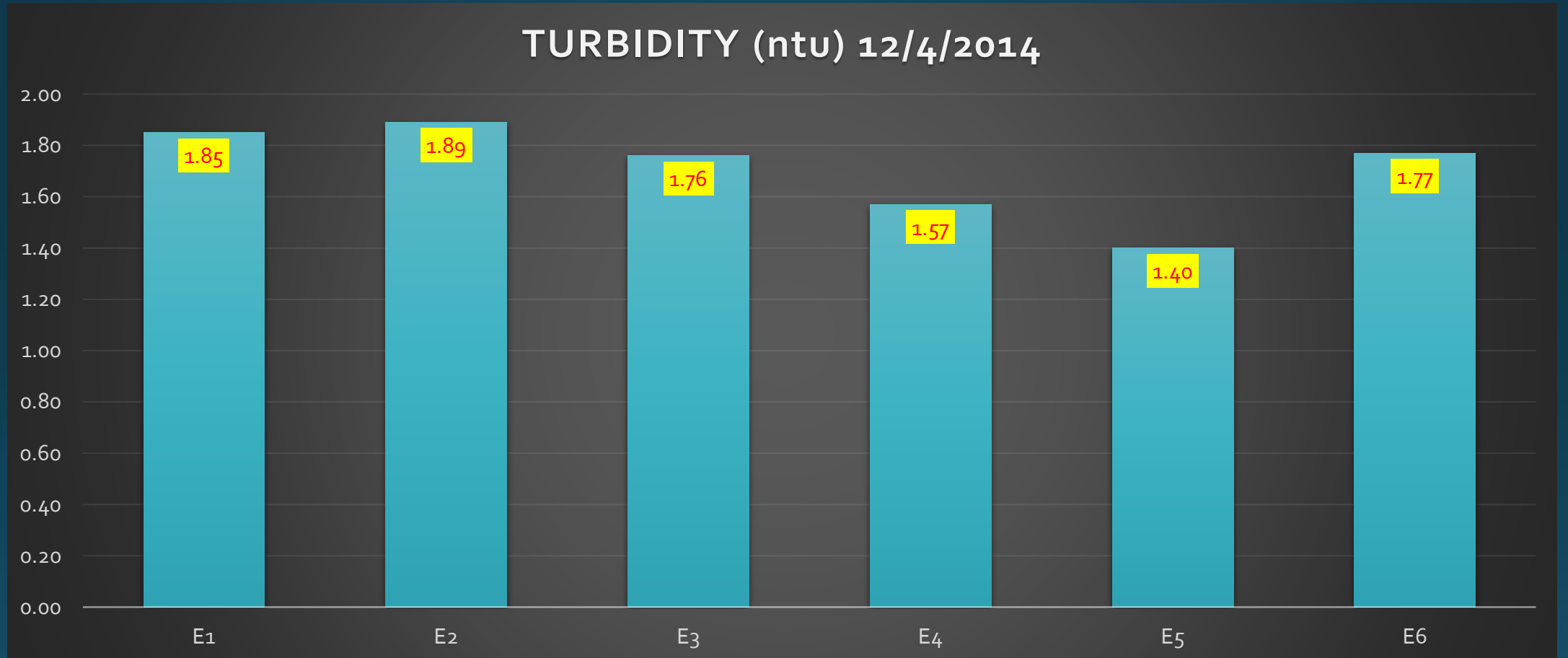
# Timber Harvest WQ Sampling Sites



# Bathymetric Map

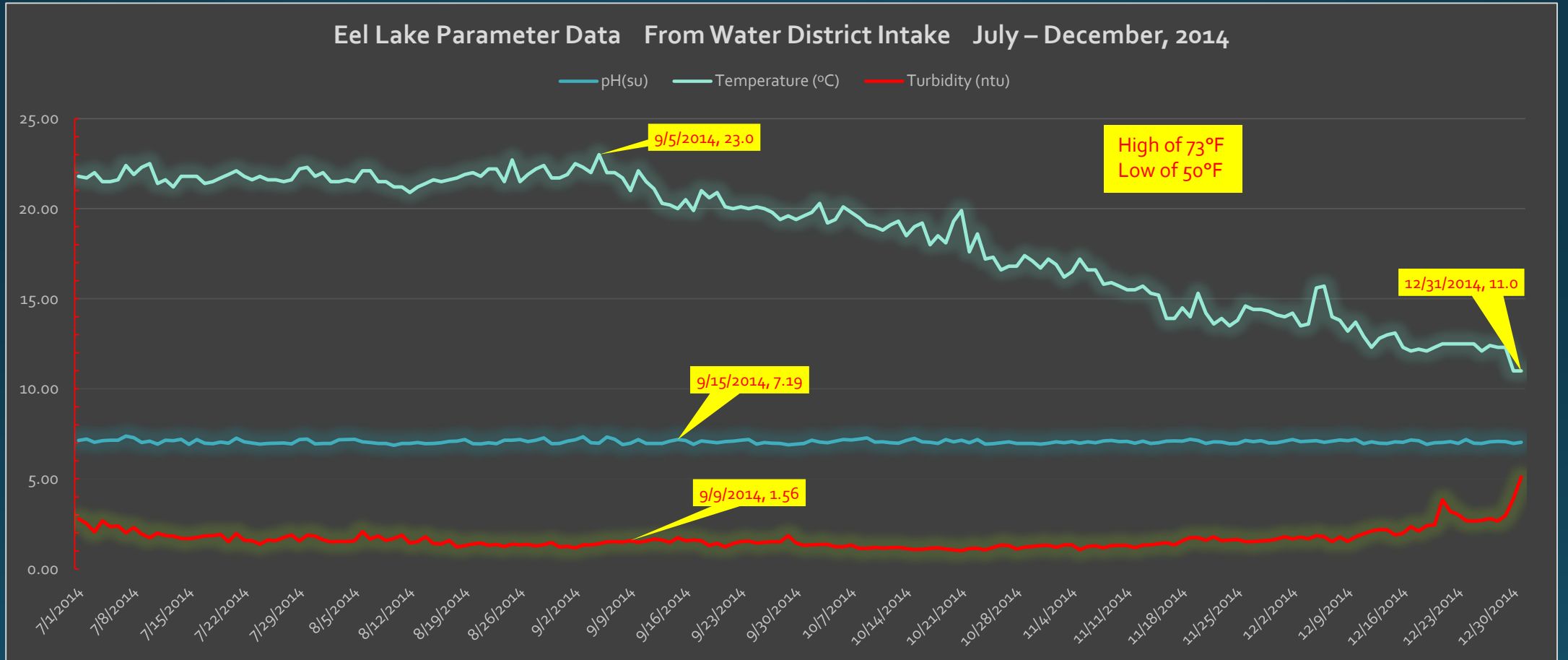


# Pre-Harvest Turbidity Levels

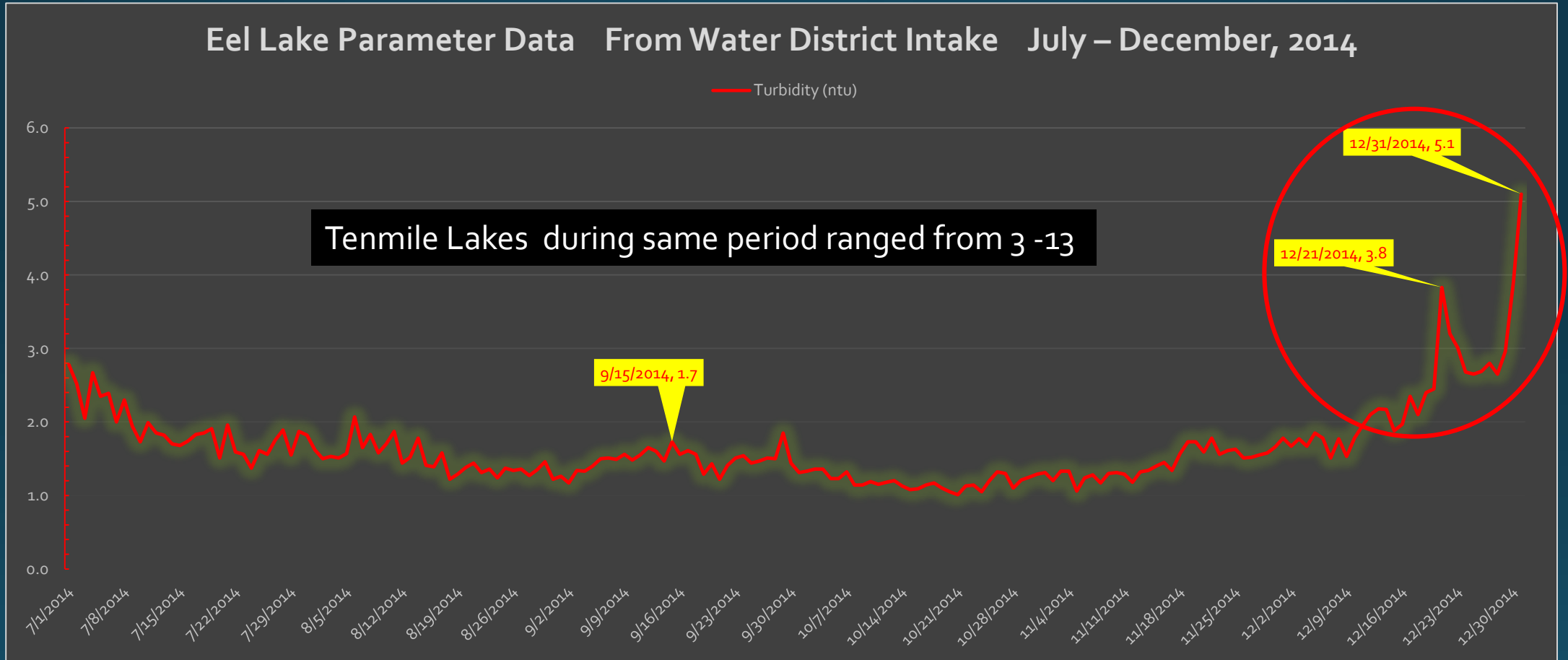


# Baseline Data

## Thanks Marty!!



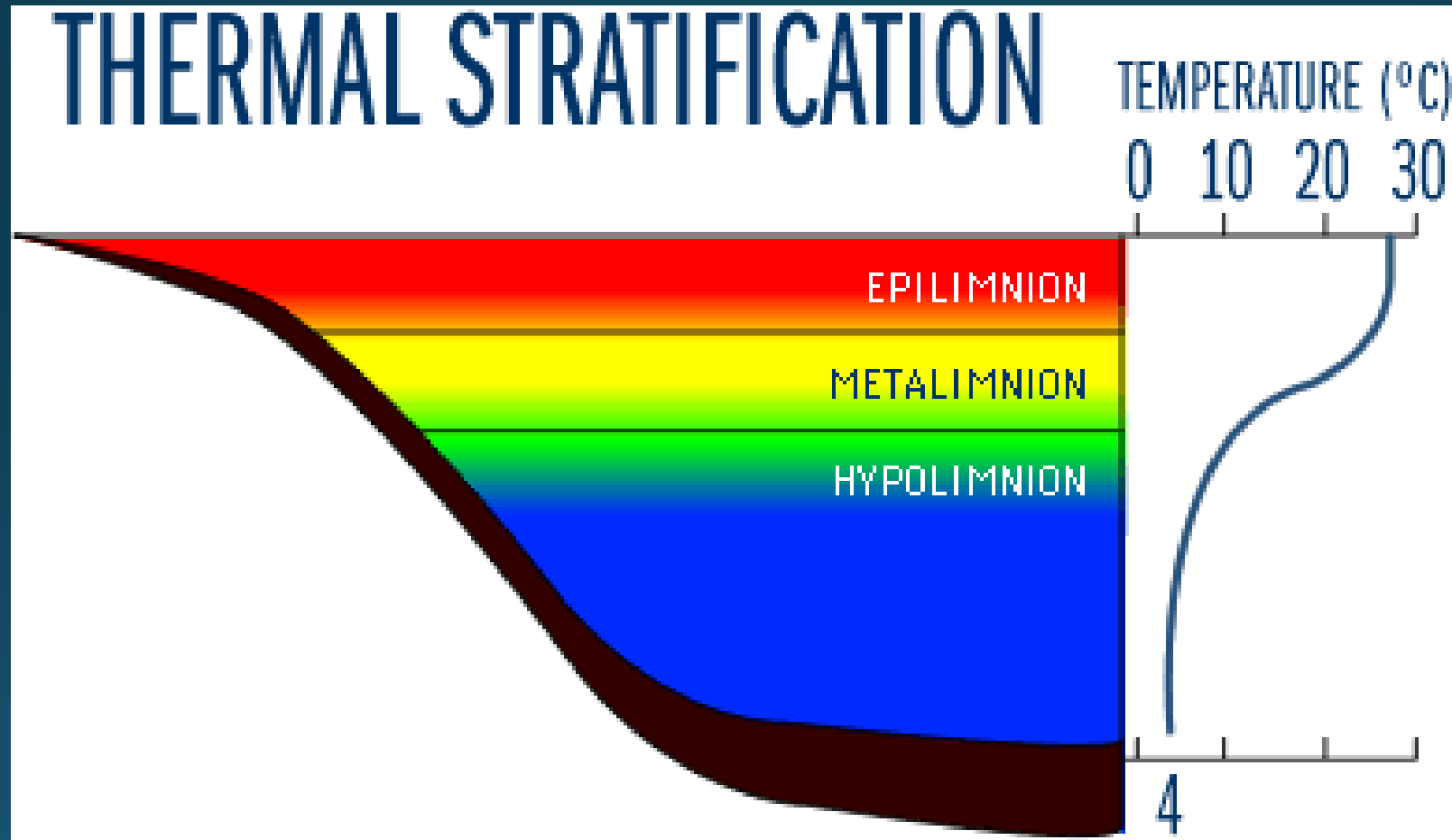
# Baseline Data







# Why does the lake flip?



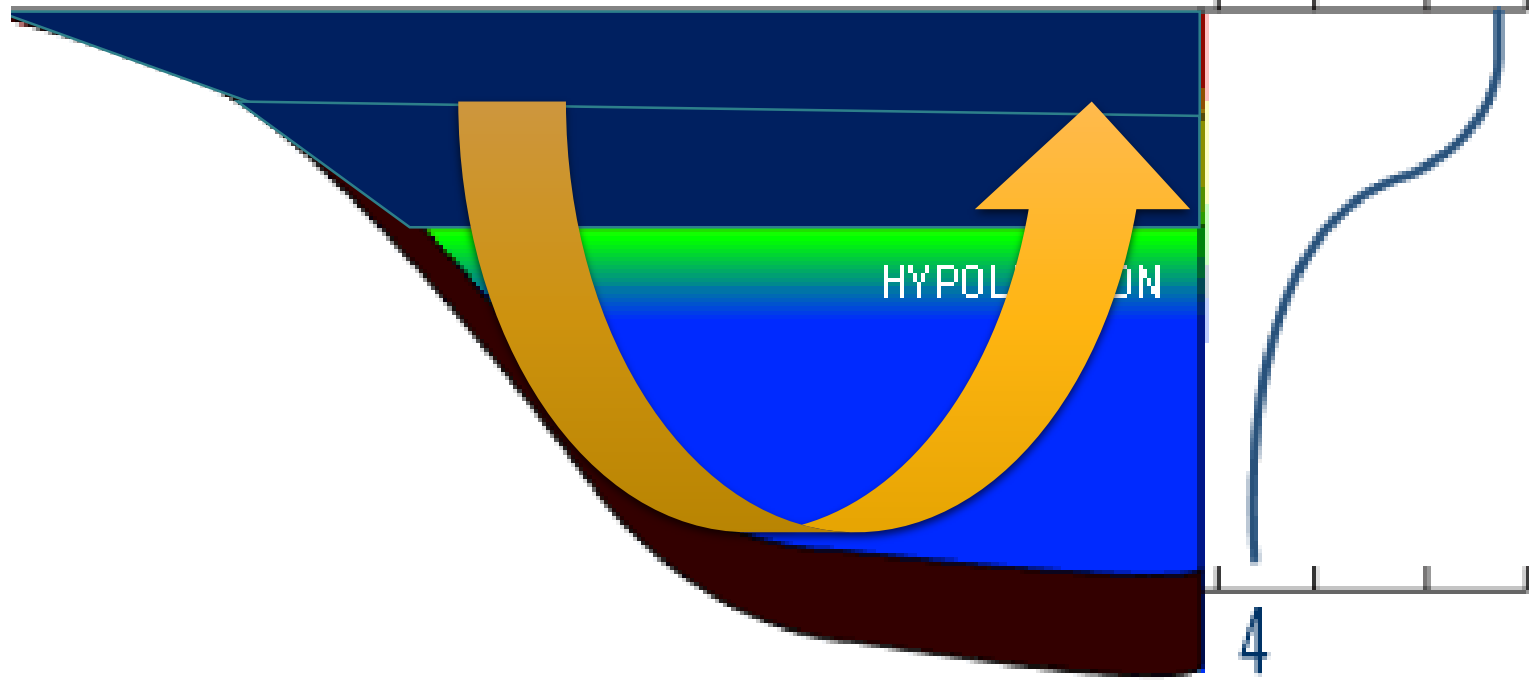
# Why does the lake flip?



## THERMAL STRATIFICATION

TEMPERATURE (°C)

0 10 20 30



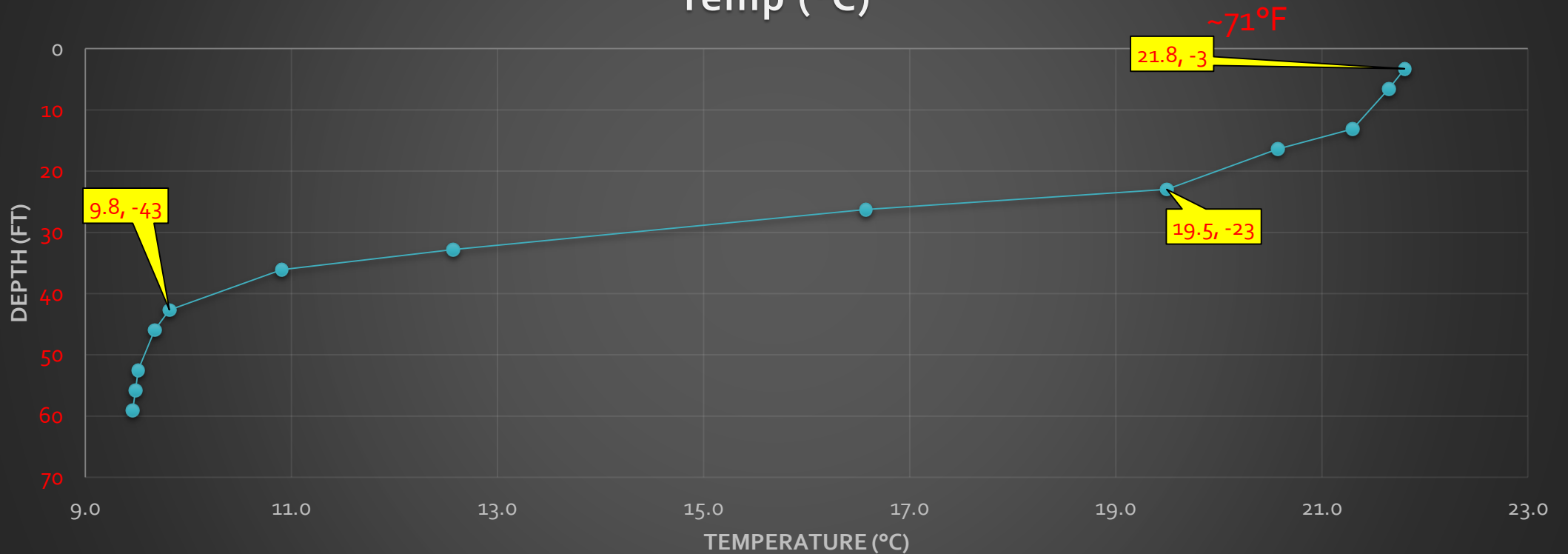
# We use a data sonde



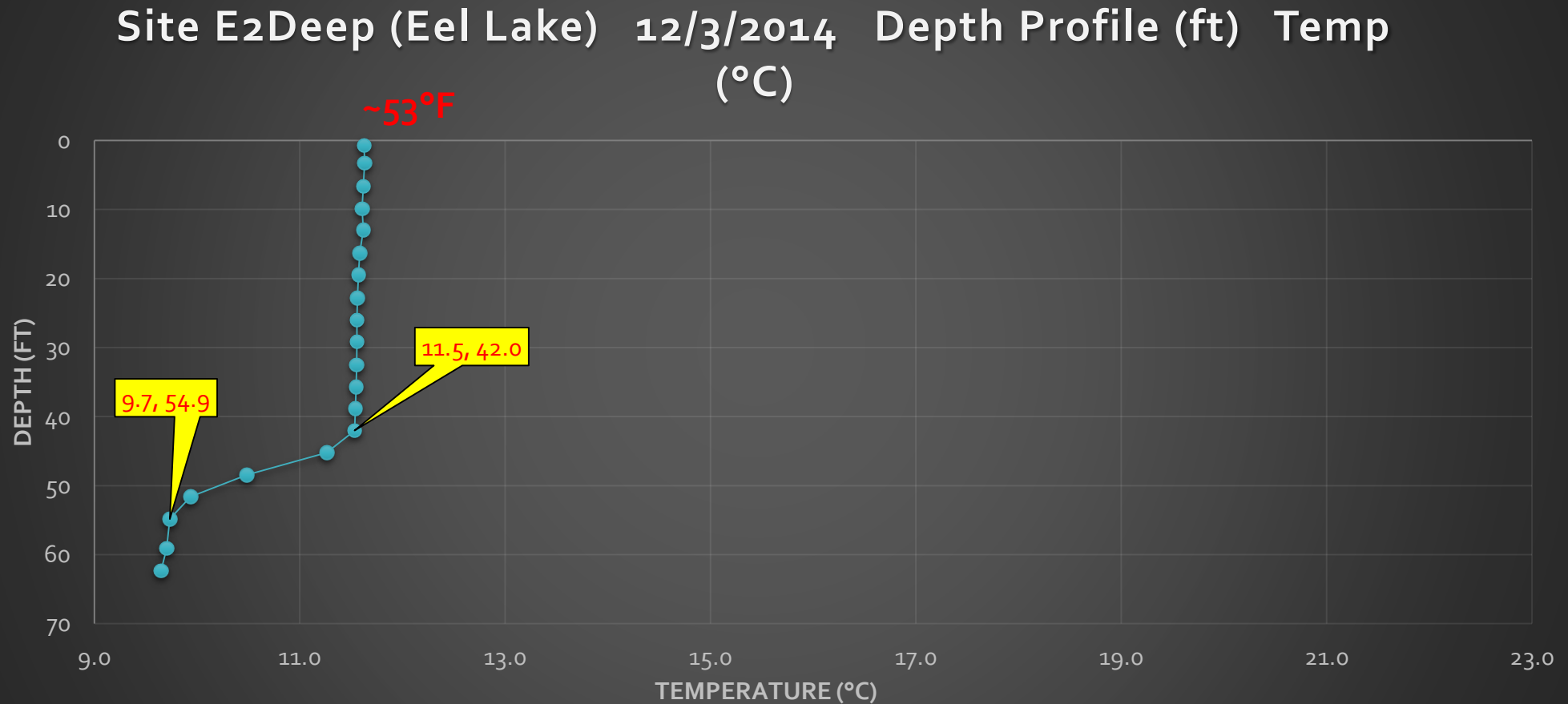
YSI 6600 Datasonde

# Eel Lake Thermal Profile - August

Site E2Deep (Eel Lake) 8/26/2014 Depth Profile (ft)  
Temp (°C)

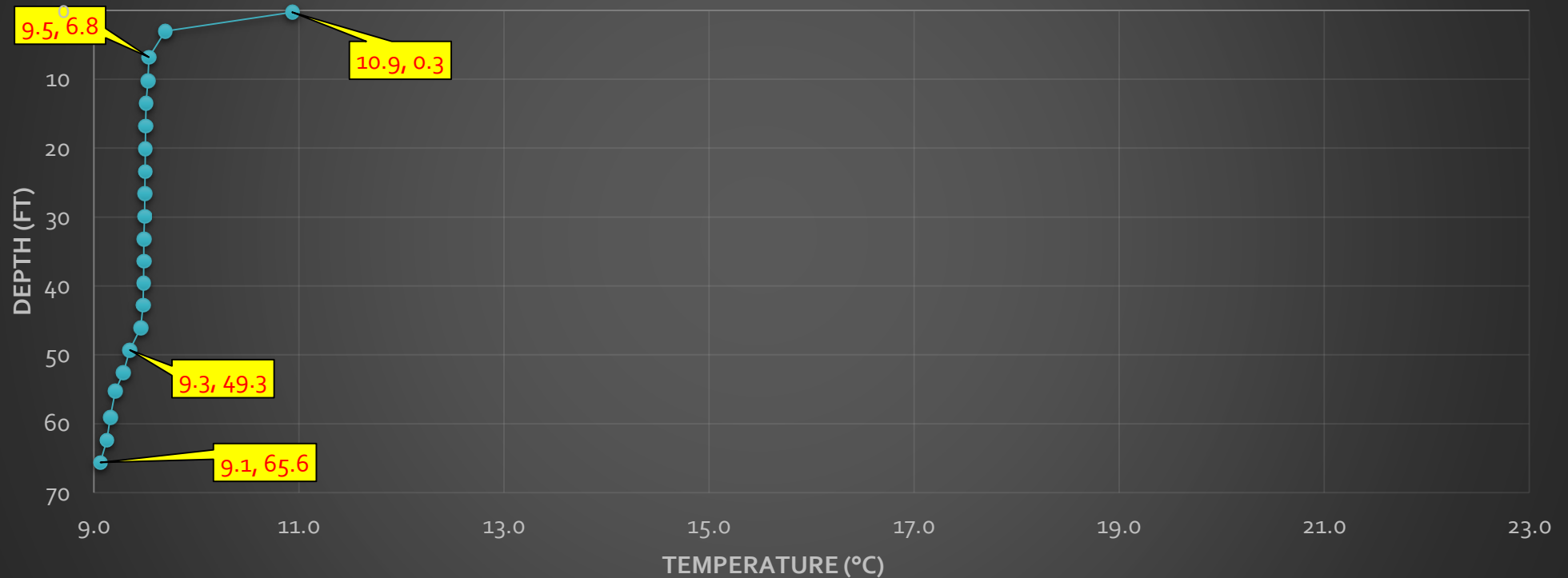


# Eel Lake Thermal Profile - December



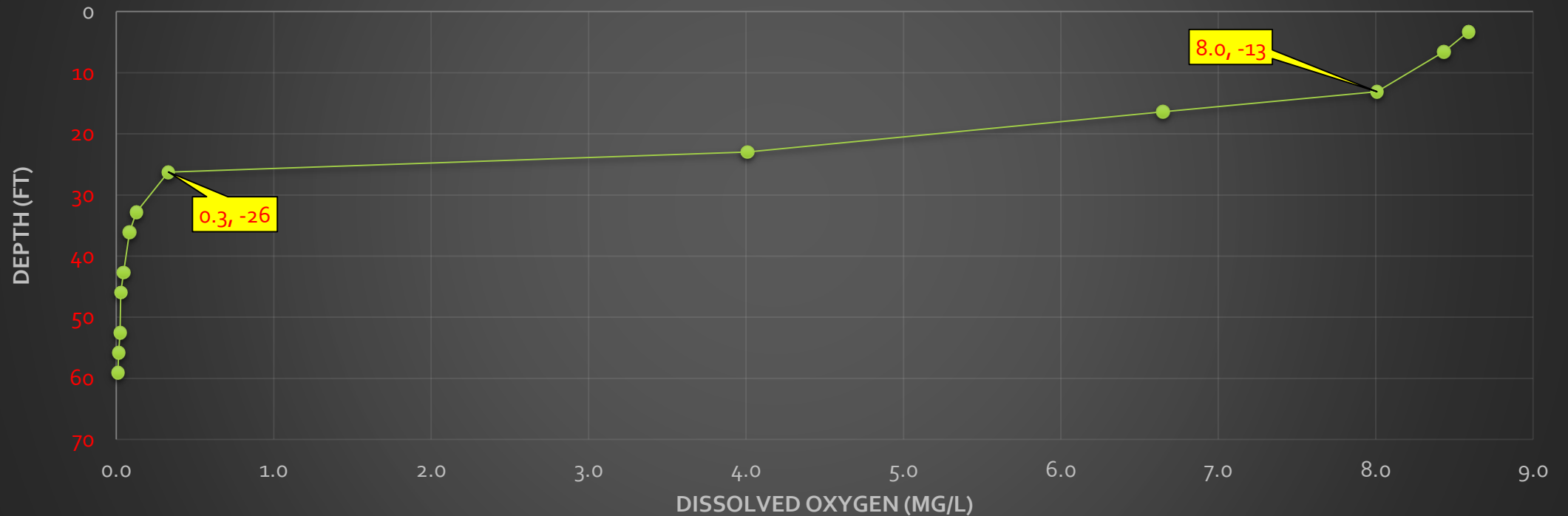
# Eel Lake Thermal Profile – January Lake Turned Over

Site E2Deep (Eel Lake) 1/7/2015 Depth Profile (ft) Temp (°C)



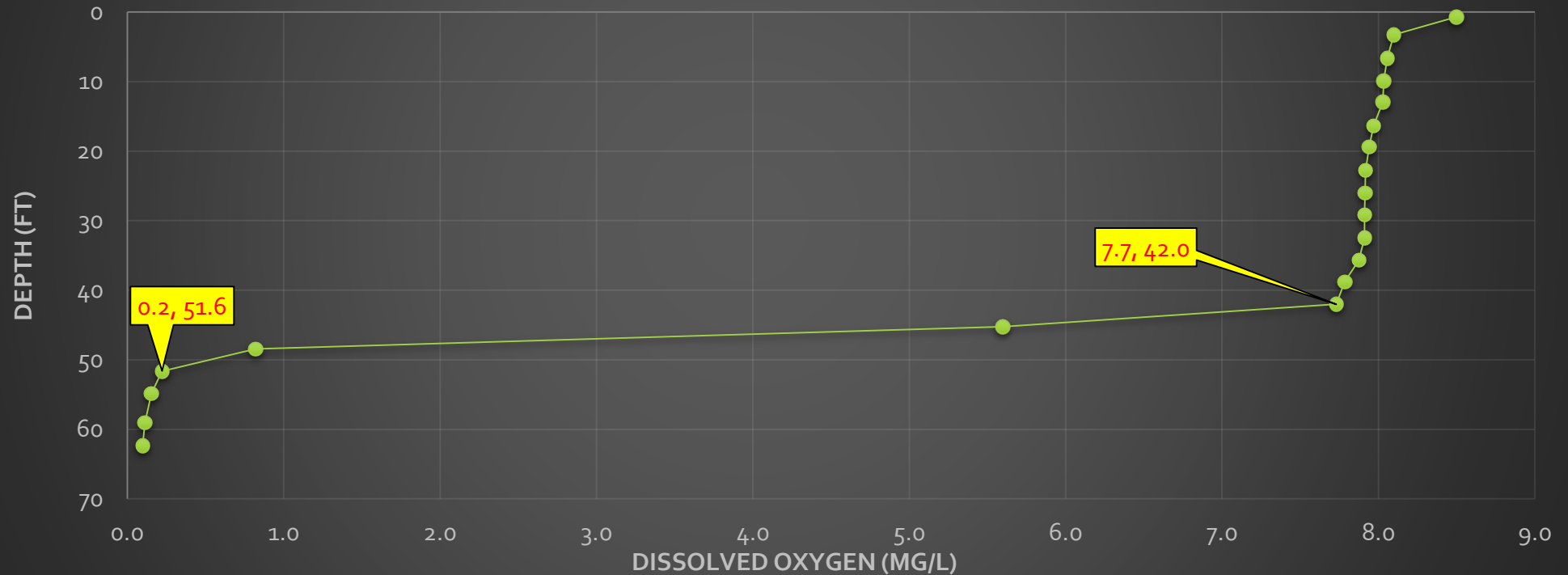
# Dissolved Oxygen Profile - August

Site E2Deep (Eel Lake) 8/26/2014 Depth Profile  
DO (mg/L) Depth in feet



# Dissolved Oxygen Profile - December

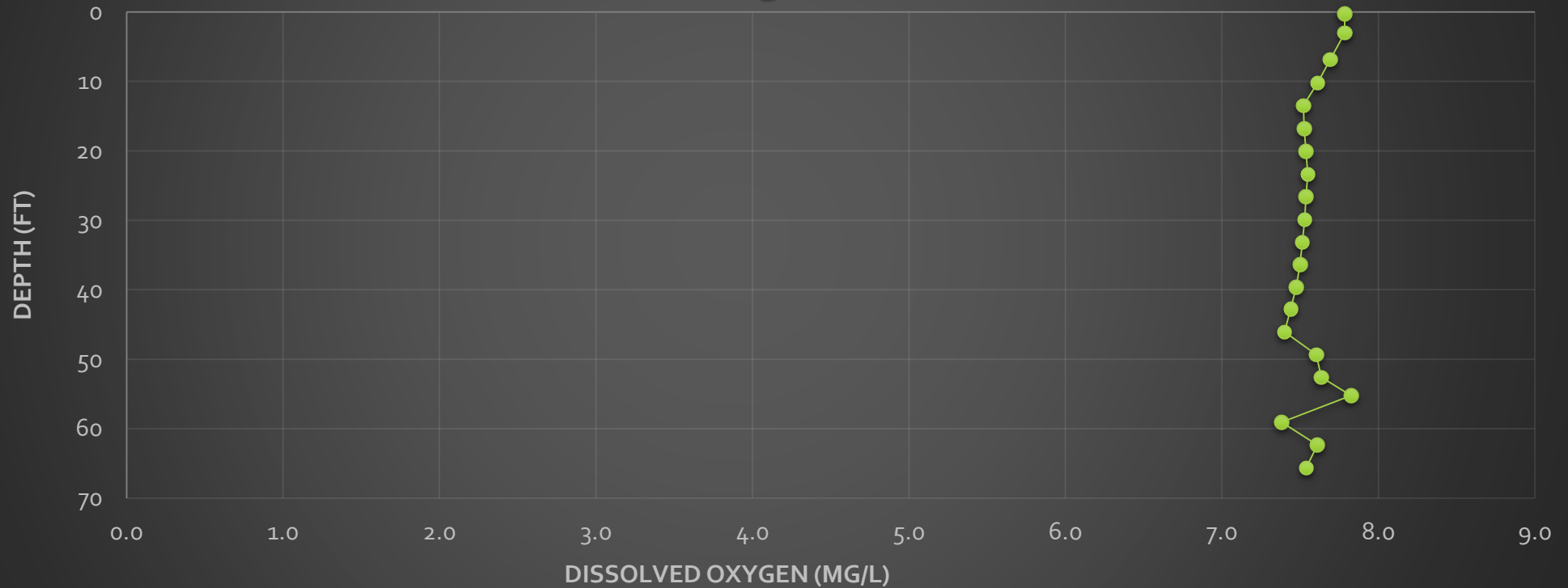
Site E2Deep (Eel Lake) 12/3/2014 Depth Profile  
DO (mg/L)





# Dissolved Oxygen Profile - January

Site E2Deep (Eel Lake) 1/7/2015 Depth Profile  
DO (mg/L)



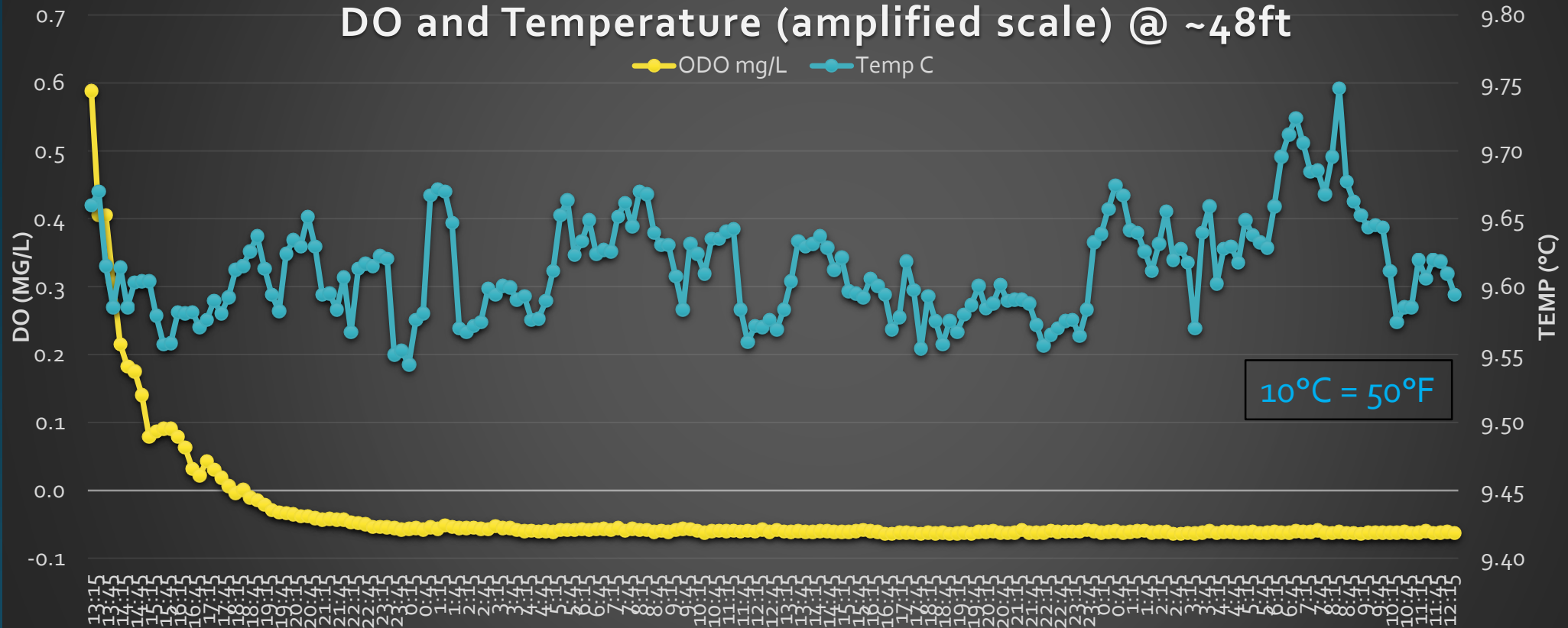
Sonde deployment and retrieval can be challenging...  
Luckily I had help...

**SARGE to the rescue!**

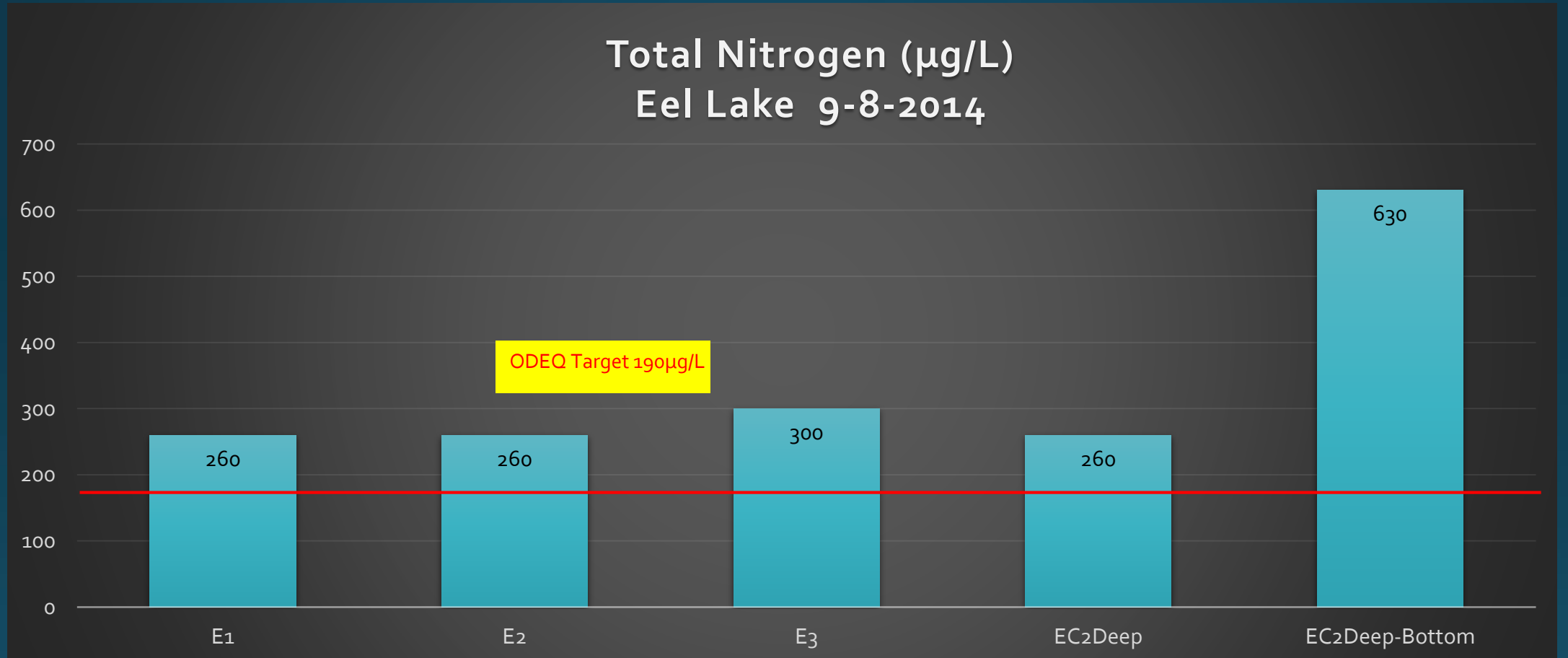


# 2 Day Sonde Deployment

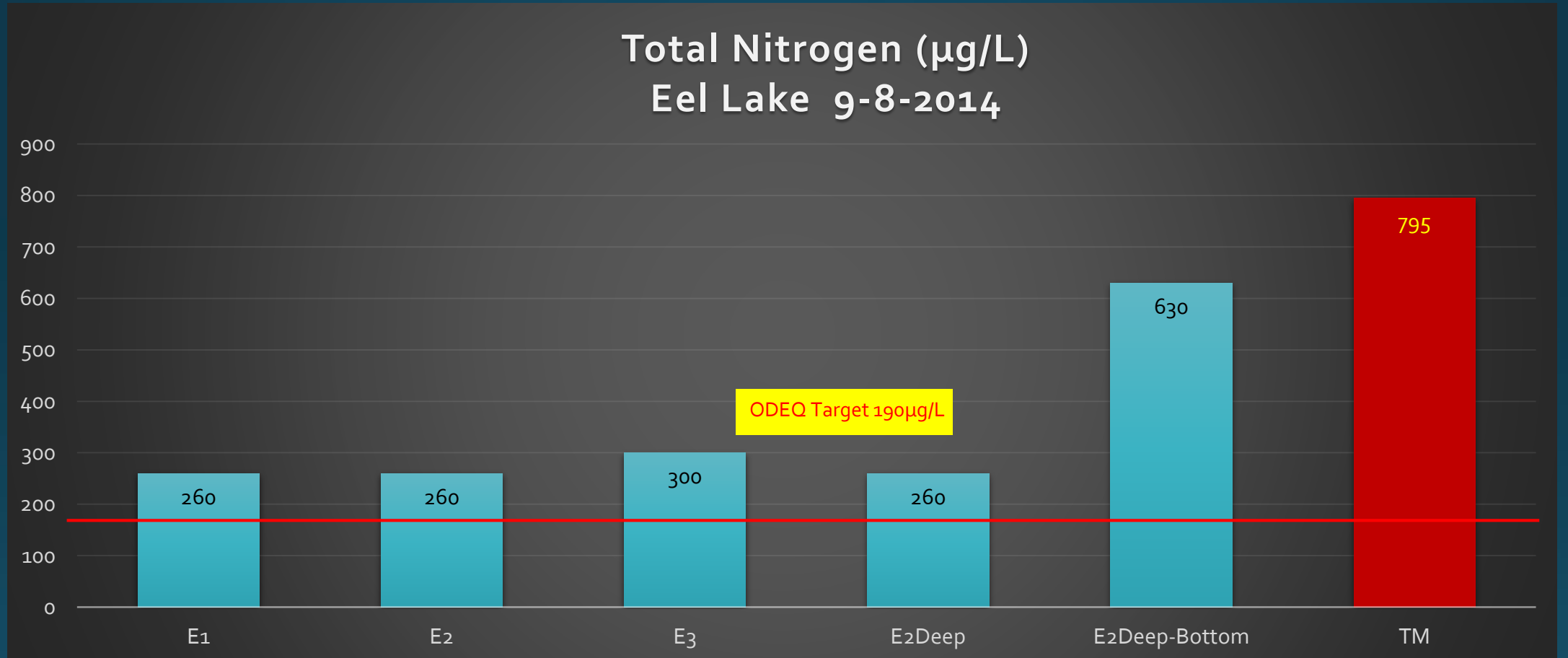
Eel Lake Site E2Deep Data Sonde 8/26 - 8/28/2014  
DO and Temperature (amplified scale) @ ~48ft



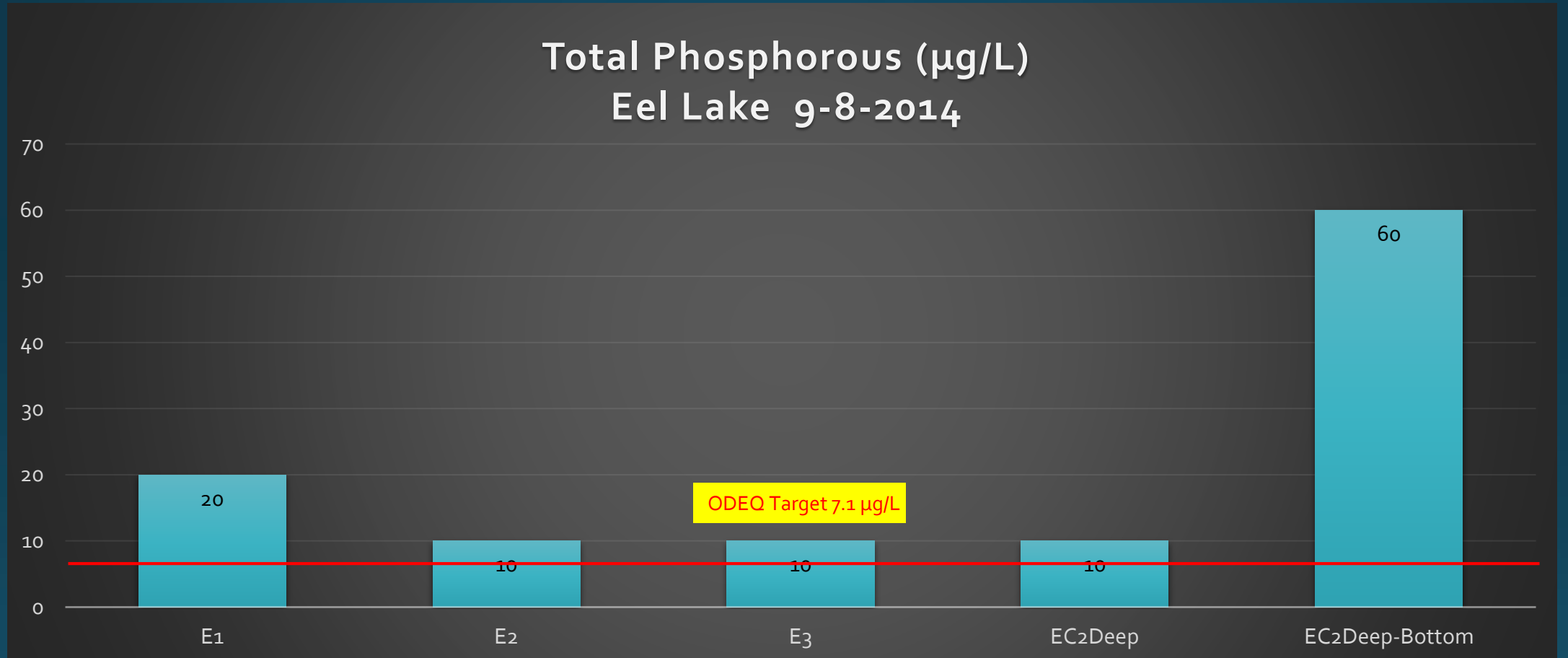
# Nutrient Data



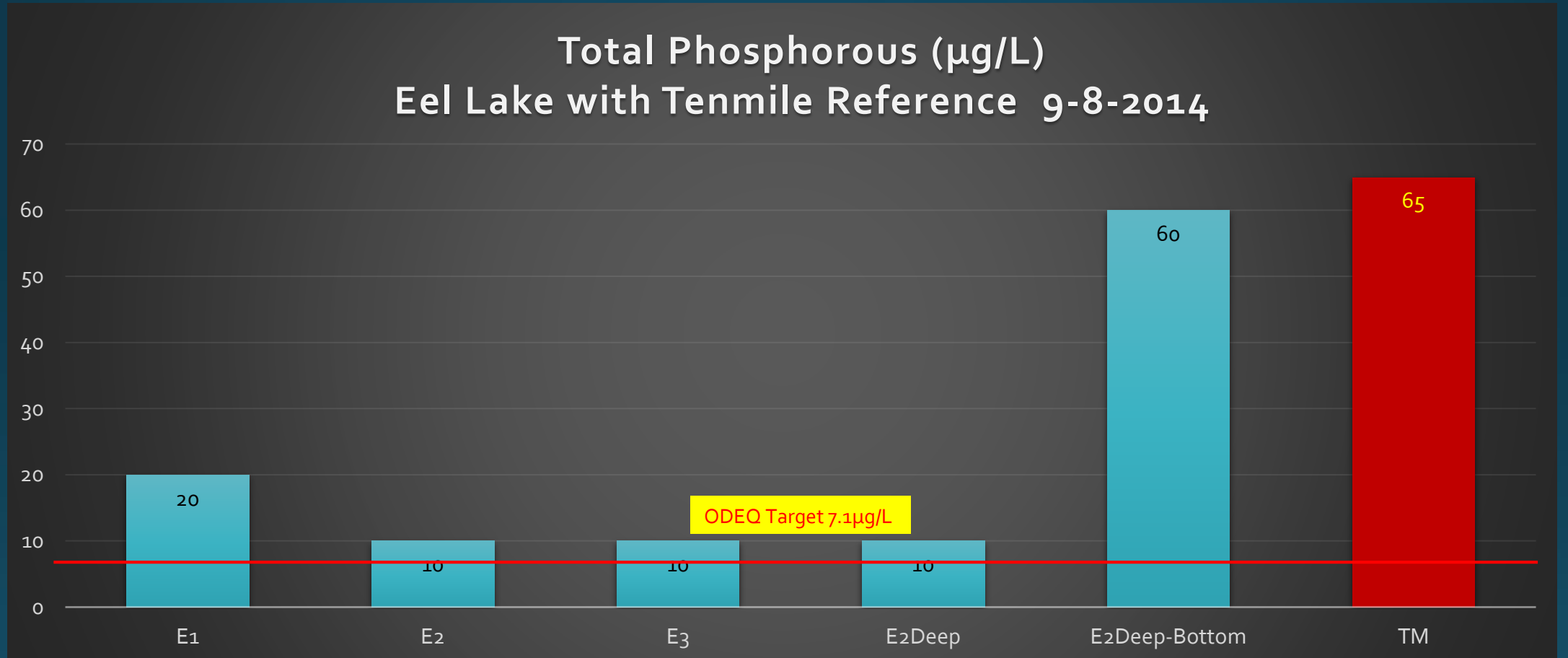
# Nutrient Data



# Nutrient Data



# Nutrient Data



# Eel Lake Algae 8/26/2014

		Analysis Date: Oct 30, 2014		Final Report	
		L61242-10		Eel Lake	
<b>Taxon</b>	<b>Total Cell Density cells/ml</b>				<b>1,274</b>
<b>Cyanophyta:</b>	%Cyanophyta				52.59
	%Bacillariophyta				26.61
	%Chlorophyta				6.44
<b>Bacillariophy</b>	%Cryptophyta				0.57
	%Chrysophyta				13.81
<b>Chlorophyt:</b>					
	<i>Selenastrum</i>	53	53		
	<i>Tetraedron</i>	2	2	<b>Total Cell Density cells/ml</b>	<b>1,274</b>
	<i>Actinastrum</i>	15	15	%Cyanophyta	52.59
	<i>Scenedesmus</i>	7	2	%Bacillariophyta	26.61
				%Chlorophyta	6.44
<b>Cryptophyta</b>	<i>Cryptomonas</i>	7	7	%Cryptophyta	0.57
				%Chrysophyta	13.81
<b>Chrysophyta</b>	<i>Dinobryon</i>	109	36		
	<i>Synura</i>	65	2		
	<i>Rhizochrysis</i>	2	2		




# Eel Lake Algae 10/7/2014

		Analysis Date: Oct 30, 2014		Final Report	
		L61242-11		Eel Lake	
	<b>Total Cell Density cells/ml</b>				<b>10,612</b>
Cya	%Cyanophyta				96.8
	%Bacillariophyta				2.17
	%Chlorophyta				0.78
Bacill	%Cryptophyta				0.14
	%Chrysophyta				0.09
	%Undetermined				0.02
Chlc					
	<i>Ankistrodesmus</i>	35	35		
	<i>Scenedesmus</i>	15	4		
	<i>Dictyosphaeria</i>	29	2	<b>Total Cell Density cells/ml</b>	<b>10,612</b>
				%Cyanophyta	96.8
Cryptophyta	<i>Cryptomonas</i>	15	15	%Bacillariophyta	2.17
				%Chlorophyta	0.78
Chrysophyta	<i>Mallomonas</i>	5	5	%Cryptophyta	0.14
	<i>Ceratium</i>	5	5	%Chrysophyta	0.09
				%Undetermined	0.02
Undetermined	<i>Undetermined filament</i>	2	2		

# Summary

- Pre-harvest turbidity levels are ~1.5 to ~2
  - Waiting for good storm to create conditions that would cause potential sediment runoff...Please let me know if you see anything.
- Summer Temperatures peak at over 70°F in the upper layer
- Good surface readings on both pH and Turbidity
- Summertime shows a strong Thermocline at ~25ft.
- Bottom 35ft of water are extremely low in Oxygen. No fish/plants
- Bottom waters are much higher in Nitrogen and Phosphorous
- Algae dominated by blue/green (cyanobacteria)
  - Some toxin testing might be advisable in late summer

A wide-angle photograph of a calm lake, Eel Lake, surrounded by a dense forest of evergreen trees. The water is a deep blue, and the sky is a clear, light blue. The text "Thanks for your interest in Eel Lake!" is overlaid in the lower center of the image.

Thanks for your interest in  
Eel Lake!