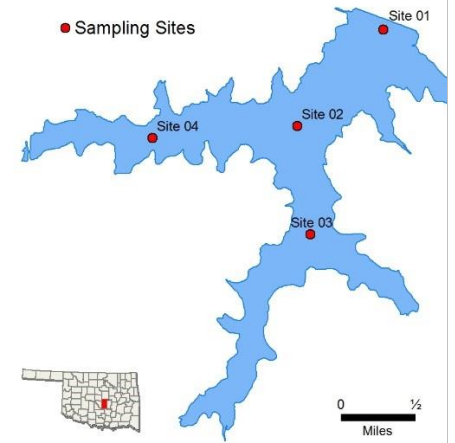


Shawnee Twin No. 1



Sample Period	Times Visited	Sampling Sites
November 2018 – September 2019	4	4

General	Location	Pottawatomie County
	Impoundment	1935
	Area	1,336 acres
	Capacity	22,600 acre-feet
	Purposes	Water Supply, Recreation

Parameters	Parameter (<i>Descriptions</i>)	Result	Notes/Comments
	In-Situ	Average Turbidity	12 NTU
Average Secchi Disk Depth		74.2 cm	
Water Clarity Rating		Good	
Chlorophyll-a		8.93 mg/m ³	
Trophic State Index		52	Previous Value = 47
Trophic Class		Eutrophic	
Profile	Salinity	0.09 – 0.13 ppt	
	Specific Conductivity	195.2 – 277.1 μS/cm	
	pH	7.10 – 8.27 pH units	Neutral to slightly alkaline
	Oxidation-Reduction Potential	45.1 to 468.0 mV	
	Dissolved Oxygen	Up to 30% of water column < 2 mg/L in September	

Nutrients	Surface Total Nitrogen	0.375 mg/L to 0.765 mg/L	
	Surface Total Phosphorus	0.012 mg/L to 0.026 mg/L	
	Nitrogen to Phosphorus Ratio	31:1	Phosphorus limited

Beneficial Uses	Click to learn more about Beneficial Uses	Turbidity	pH	Dissolved Oxygen	Metals	TSI	True Color	Sulfates	Chlorides	Total Dissolved Solids	Enterococci & E. coli	Chlor-a
	Fish & Wildlife Propagation	NS	S	NEI	S							
	Aesthetics					S	*					
	Agriculture							S	S	S		
	Primary Body Contact Recreation										S	
	Public & Private Water Supply											
<i>S = Fully Supporting</i> <i>NS = Not Supporting</i> <i>NEI = Not Enough Information</i>		Notes	*Standards revision, true color is for permitting purposes only									

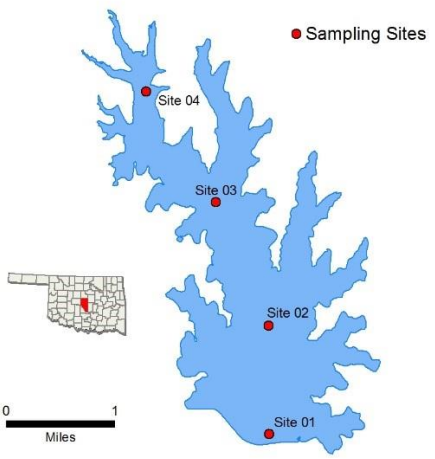
NTU = nephelometric turbidity units OWQS = Oklahoma Water Quality Standards mg/L = milligrams per liter ppt = parts per thousand μS/cm = microsiemens per centimeter
mV = millivolts μS/cm = microsiemens/cm En = Enterococci E. coli = Escherichia coli Chlor-a = Chlorophyll-a

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Bathy map available: http://www.owrb.ok.gov/maps/PMG/owrbdata_Bathy.html

Stanley Draper

	Sample Period	Times Visited	Sampling Sites
	October 2015 – August 2016	4	5
General	Location	Cleveland County	
	Impoundment	1962	
	Area	2,900 acres	

Capacity	100,000 acre-feet
Purposes	Water Supply, Recreation



Parameters	Parameter (<i>Descriptions</i>)		Result	Notes/Comments	
	In Situ	Average Turbidity		8 NTU	100% of values < OWQS of 25 NTU
		Average Secchi Disk Depth		104 cm	
		Water Clarity Rating		Excellent	
		Chlorophyll-a		2.7 mg/m ³	
		Trophic State Index		40	Previous value = 36
		Trophic Class		Oligotrophic	
Profile	Salinity		0.05 – 0.06 ppt		
	Specific Conductivity		108.7 – 132.7 μ S/cm		
	pH		6.81 – 8.34 pH units		
	Oxidation-Reduction Potential		176.1 – 463.7 mV		
	Dissolved Oxygen		Up to 62% of water column < 2 mg/L in August		
	Surface Total Nitrogen		0.26 mg/L to 0.55 mg/L		

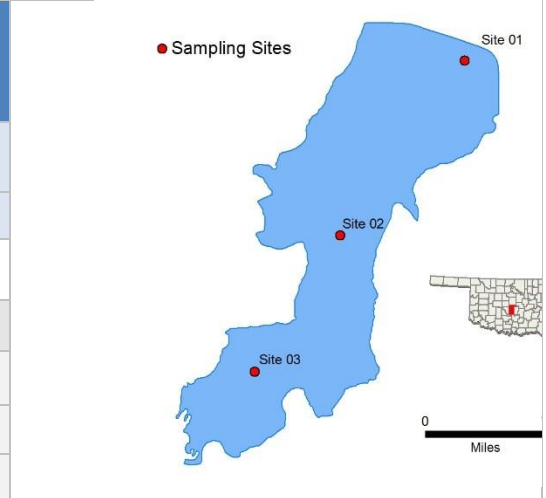
Nutrients	Surface Total Phosphorus	0.010 mg/L to 0.015 mg/L	
	Nitrogen to Phosphorus Ratio	31:1	Phosphorus limited

Beneficial Uses	Click to learn more about Beneficial Uses					Turbidity	pH	Dissolved Oxygen	Metals	TSI	True Color	Sulfates	Chlorides	Total Dissolved Solids	Enterro. & E. coli	Chlor-a
	Fish & Wildlife Propagation	NS	S	S	S											
	Aesthetics					S	*									
	Agriculture											S	S	S		
	Primary Body Contact Recreation														S	
	Public & Private Water Supply															
	<i>S = Fully Supporting</i> <i>NS = Not Supporting</i> <i>NEI = Not Enough Information</i>					Notes	*Standards revision, true color is for permitting purposes only									

NTU = nephelometric turbidity units OWQS = Oklahoma Water Quality Standards mg/L = milligrams per liter ppt = parts per thousand μS/cm = microsiemens per centimeter
mV = millivolts μS/cm = microsiemens/cm En = Enterococci E. coli = Escherichia coli Chlor-a = Chlorophyll-a

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Tecumseh			
	Sample Period	Times Visited	Sampling Sites
	October 2007 – July 2008	4	5
General	Location	Pottawatomie County	
	Impoundment	1934	
	Area	127 acres	
	Capacity	1,118 acre feet	



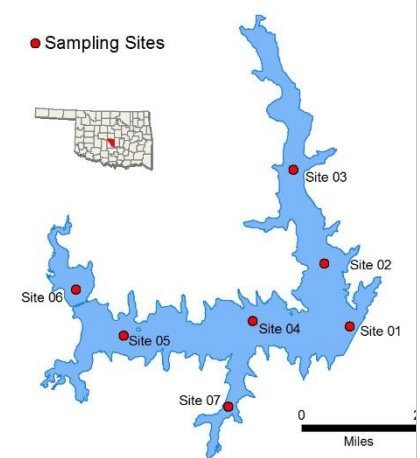
Purposes		Waters Supply, and Recreation											
Parameters	Parameter (<i>Descriptions</i>)	Result										Notes/Comments	
	In Situ	Average Turbidity	132 NTU										All values > 25 NTU
		Average Secchi Disk Depth	11 cm										All values > OWQS of 70
		Water Clarity Rating	poor										
		Chlorophyll-a	6.52 mg/m3										
		Trophic State Index	49										Previous value = 57
		Trophic Class	mesotrophic										
	Profile	Salinity	0.00 – 0.10 ppt										
		Specific Conductivity	105.6 – 141 µS/cm										
		pH	7.08 – 7.60 pH units										Neutral
		Oxidation-Reduction Potential	337 to 537 mV										
		Dissolved Oxygen											D.O. always > 5.0 mg/L
	Nutrients	Surface Total Nitrogen	1.01 mg/L to 1.55 mg/L										
		Surface Total Phosphorus	0.066 mg/L to 0.131 mg/L										
		Nitrogen to Phosphorus Ratio	12:1										Phosphorus limited
	Beneficial Uses	Click to learn more about Beneficial Uses		Turbidity	pH	Dissolved Oxygen	Metals	TSI	True Color	Sulfates	Chlorides	Total Dissolved Solids	Enterococci & E. coli
Fish & Wildlife Propagation		NS	S	S	S								
Aesthetics						S	*						

Agriculture										S	S	S			
Primary Body Contact Recreation													S		
Public & Private Water Supply															
<i>S = Fully Supporting</i> <i>NS = Not Supporting</i> <i>NEI = Not Enough Information</i>															
														Notes	
														*Standards revision, true color is for permitting purposes only	
<i>NTU = nephelometric turbidity units</i> <i>OWQS = Oklahoma Water Quality Standards</i> <i>mg/L = milligrams per liter</i> <i>ppt = parts per thousand</i> <i>µS/cm = microsiemens per centimeter</i> <i>mV = millivolts</i> <i>µS/cm = microsiemens/cm</i> <i>En = Enterococci</i> <i>E. coli = Escherichia coli</i> <i>Chlor-a = Chlorophyll-a</i>															

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Modified for "Clear as Phytoplankton: A Tale of Two Lakes." Calculated Chlorophyll-a from Trophic State Index and formula from report's parameter descriptions. Replaced "True Color value."

Thunderbird				
Sample Period		Times Visited	Sampling Sites	
October 2014 – July 2015		4	7	
General	Location	Cleveland County		
	Impoundment	1965		
	Area	6,070 acres		
	Capacity	119,600 acre-feet		
	Purposes	Flood Control, Water Supply, Recreation, Fish & Wildlife		
Parameters	Parameter (<i>Descriptions</i>)		Result	
	In Situ	Average Turbidity	14 NTU	4% of values > OWQS of 25 NTU
		Average Secchi Disk Depth	59 cm	
		Water Clarity Rating	Average	
Chlorophyll-a		21 mg/m3		



	Trophic State Index	61	Previous value = 56
	Trophic Class	Hypereutrophic	
Profile	Salinity	0.13 – 0.26 ppt	
	Specific Conductivity	281.5 – 530 µS/cm	
	pH	7.14 – 8.68 pH units	Neutral to slightly alkaline
	Oxidation-Reduction Potential	90.2 to 454 mV	
	Dissolved Oxygen	Up to 67% of water column < 2 mg/L in July	Occurred at sites 1, the dam
Nutrients	Surface Total Nitrogen	0.80 mg/L to 1.27 mg/L	
	Surface Total Phosphorus	0.018 mg/L to 0.064 mg/L	
	Nitrogen to Phosphorus Ratio	23:1	Phosphorus limited

Beneficial Uses	Click to learn more about Beneficial Uses <u>http://www.owrb.ok.gov/quality/monitoring/bump/pdf_bump/BENEFICIAL_USES-COMPREHENSIVE.pdf</u>	Turbidity	pH	Dissolved Oxygen	Metals	TSI	True Color	Sulfates	Chlorides	Total Dissolved Solids	Enterococci & E. coli	Chlorophyll a
	Fish & Wildlife Propagation	NS	S	NS	S							
	Aesthetics					NEI*	S					
	Agriculture							S	S	S		
	Primary Body Contact Recreation										S	
	Public & Private Water Supply											NS

S = Fully Supporting
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Notes
 *The lake is listed in the Oklahoma Water Quality Standards (WQS) as a Nutrient Limited watershed (NLW). This listing means that the lake is considered threatened from nutrients until a more intensive study can confirm the Aesthetics beneficial use non-support status.

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