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03 October 2023

Ms. Fran Pawlak, Executive Director
Dobson Ranch HOA
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Mesa, Arizona 85202

September 2023 Lake Report

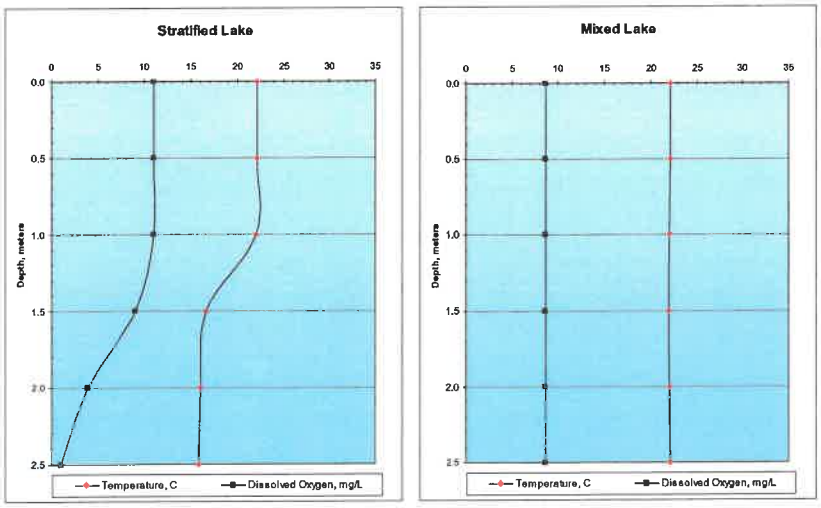
The following report presents the results of field inspections on the Dobson Ranch lakes for the month of September 2023. This report summarizes data collected under the updated program started in 2019 and expanded in 2020 that includes comprehensive testing of one-half of the lakes on a monthly basis from March through October and bi-weekly field inspections twice per month throughout the year. Comprehensive testing on Lakes 1-4 was completed during the month and laboratory reports are provided. Comparison to the last comprehensive test (July 2023) are provided for those lakes. Field sheets for the inspection weeks are also included. Additional data requested for Lake 8 are provided at the end of the narrative report.

A number of tools have been used to evaluate and quantify the water quality of each lake. These include: Arizona Department of Environmental Quality Numeric Targets for Urban Lakes, the Carlson Trophic Status Index (TSI), and a Lake Report Card based on that used by Arizona Game and Fish Department that was developed by Aquatic Consulting & Testing, Inc.

The following provides brief descriptions of some of the more important parameters.

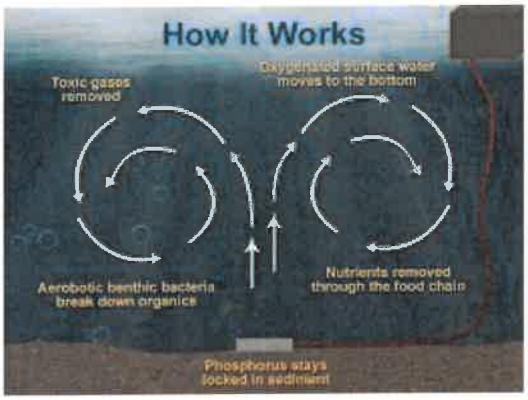
Temperature and Oxygen

Density differences in water caused by temperature produce a physical barrier to the exchange of gases and nutrients between water layers. Typically warmer (less dense) water rests above deeper, cooler (more dense) water. Deep waters can become anoxic (oxygen poor) and cause the formation and release of



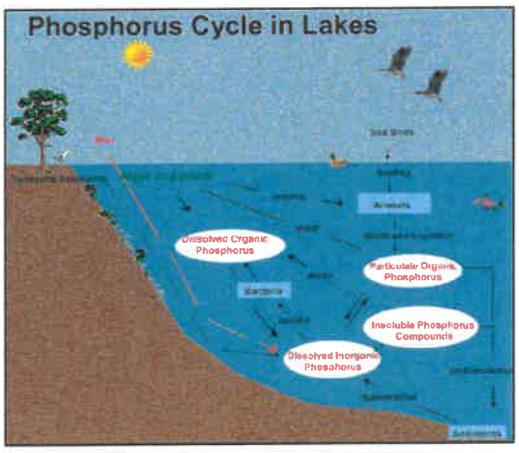
toxic gases as hydrogen sulfide and ammonia, and the release of plant nutrients as phosphates. A vertically mixed lake rarely suffers from such issues.

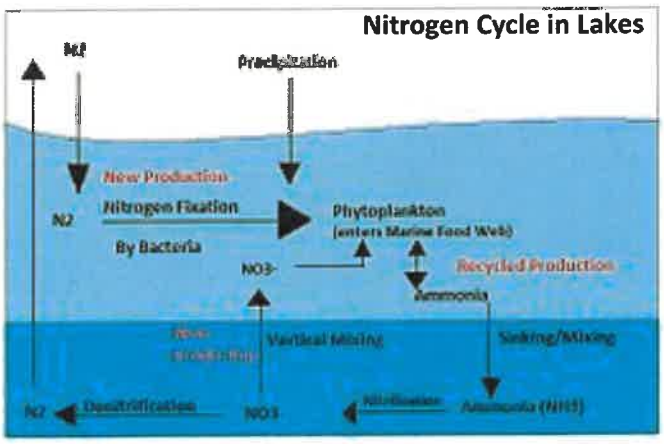
Aeration systems are designed to circulate and distribute oxygen vertically in the water column. Circulation is necessary for two primary purposes: (1) to deliver oxygen to the deeper waters for fish survival and (2) to maintain an aerobic environment throughout the lake to prevent the release and distribution of phosphates, ammonia, and sulfide from the anaerobic sediment.



Nutrients

Algae are plants and require nitrogen and phosphorus for growth. In the desert southwest, large growths of planktonic algae typically form in the summer when total phosphorus concentrations are above 0.030 mg/L. Nitrogen values usually need to be at least 10 times that of phosphorus and in a soluble, usable (nitrate or ammonia) form to stimulate algae growth. Phosphorus and nitrogen cycles in the aquatic environment are illustrated below.





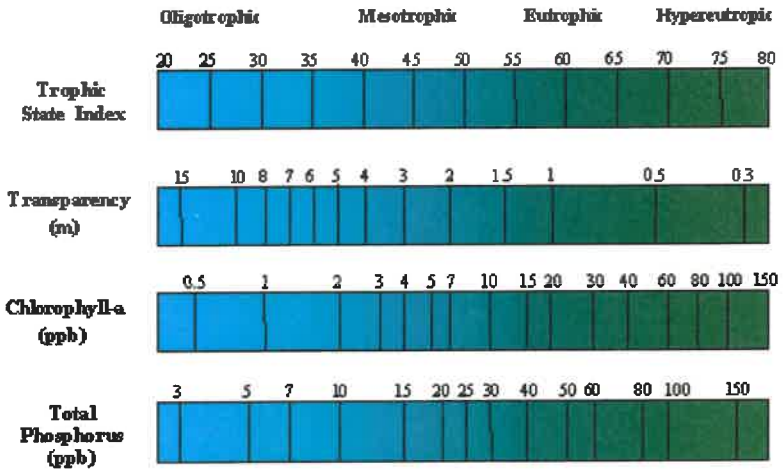
Algae and Aquatic Weeds

Algae are beneficial to a lake as they provide food for aquatic organisms and produce oxygen. However, some algae are undesirable and an overabundance of algae reduces aesthetic appeal and interferes with the ecological balance of the environment. Large die offs of algae can deplete dissolved oxygen in the water via bacterial utilization of the gas during decomposition of the plant biomass. Blue-green (Cyanophyta) algae are least desirable because some forms can form stringers (long filaments) and large colonies (masses) and are difficult to chemically manage because of their mucilaginous coatings.

Submerged weeds can be beneficial because they also produce oxygen and provide habitat and shelter for aquatic animals. However, an overabundance of weeds reduces aesthetic appeal, interferes with fishing and boating activities, interferes with the ecological balance of the environment, and can also deplete dissolved oxygen if a rapid die-off occurs.

Trophic Status Index

The Carlson Trophic Status Index (TSI) is a series of calculations that attempt to put a numerical value on water quality. The more algae and greener a lake is, the more nutrients a lake has, and the less transparent the water becomes, the higher the trophic status and the greater the TSI value. Three values are calculated using the Secchi disk depth, total phosphorus concentration, and chlorophyll measurement to obtain an average TSI. Those lakes with relatively low TSI values are unproductive and termed oligotrophic. Those lakes with very high TSI values are classified as productive (eutrophic). Those lakes with TSI values falling in between are considered mesotrophic.



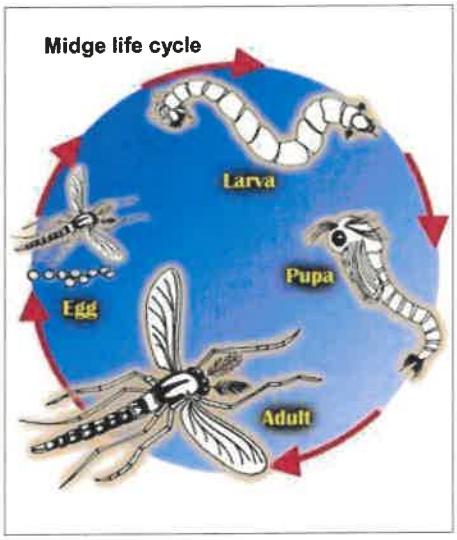
The Trophic Status report addendum provides each of these values for the sampling sites. For southern Arizona, a TSI of less than 60 is the target for reasonable aesthetic quality. Fisheries often flourish when TSI values are in the 55 to 65 range. Severe aesthetic and recreational problems occur when conditions result in TSI values of 80 or higher.

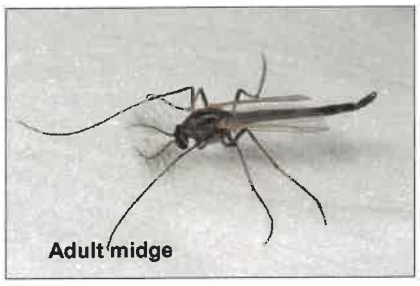
General Characteristics of Oligotrophic and Eutrophic Lakes

Condition	Oligotrophic	Eutrophic
Productivity	Low	High
Algae density	Low	High
Nutrient concentrations	Low	High
Hypolimnion oxygen content	High	Low
Sediment nutrient release	Low to none	High
Organic matter	Low	High
Light transparency	Deep	Shallow
Macrophyte (weed) density	Low	High

Midge flies

Midge flies are common inhabitants of most lakes. Adult females lay hundreds of eggs on the water surface. The eggs settle to the lake bottom and hatch in a few days. Larvae develop and grow in the superficial sediments over a three to four week period. In about 30 days the insect larvae become pupae, rise in the water column, and emerge as adult flies. The adults tend to swarm at dusk and dawn and become a nuisance. They fly into residents' eyes and mouths, congregate under eaves of houses, and leave a sticky messy residue when they die. Management techniques may include stocking of bottom-feeding fishes and application of bacterial or chemical larvicides. The primary control of midge flies has been stocking of fish that eat the larvae living in the lake sediment.





Waterfowl

The adverse impacts of excessive waterfowl include fecal matter deposition and public health issues, turf destruction, aesthetic detraction, and fish consumption. The Arizona Game and Fish Department has recently adopted the following classification for ducks counts (per acre) in urban fishing lakes: <3 (excellent), 3-4 (good), 5-6 (fair), and >6 (poor; relocate non-migratory).

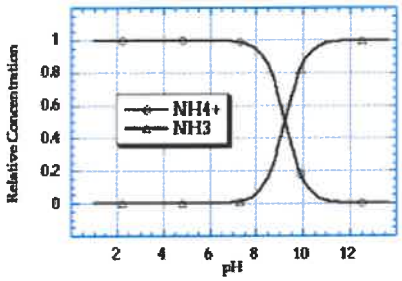
September 2023 Report Narrative Summary

The following pages provide a summary of the monthly survey results. Comprehensive analyses were conducted on Lakes 1-4 on 07 September 2023. A brief narrative description is provided for each lake. Data are additionally qualified in the Lake Report Card (See Supporting Documentation). Lakes 1-8 received visual examination and basic water quality testing on 07 and 21 September 2023.

Lakes 1-4

Lake 1

Lake 1 exhibited no thermal stratification and no significant loss of oxygen in the deep waters (see attached profiles). The surface dissolved oxygen concentrations (6.5 mg/L) were above the target 6.0 mg/L concentration desired to protect the fishery and no fish stress was observed. Water pH was moderate at 8.1 SU and indicated a low to moderate suspended algae density. Low pH is advantageous because it prevents conversion of ammonium ions (NH_4^+) to toxic (to aquatic animals) ammonia (NH_3) gas (see figure below). Transparency (Secchi disk depth) decreased to 1.37 m (4.4 ft) and turbidity correspondingly increased to 7.9-8.9 NTU.



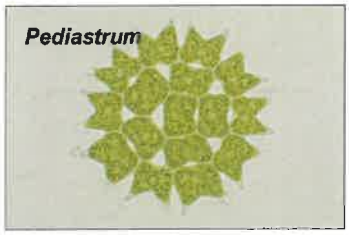
Alkalinity (186 mg/L as $CaCO_3$) and hardness (234 mg/L as $CaCO_3$) increased slightly. Values are typical and expected from most waters in central Arizona. The total dissolved solids (mineral) concentration of the lake decreased and increased, but remained reasonable at 732 mg/L. These results likely arise from extremely hot weather and high evaporation rate.

Waterfowl density was one (1) per acre or lower which is considered excellent (Arizona Game & Fish Department rating system). No cormorants were observed.

Midge fly density remained low (40/m^2) and should produce no issues to lakeside residents or visitors.

Bio-available nitrogen and total nitrogen were fairly stable at 0.29 mg/L and 1.20 mg/L, respectively. Phosphorus concentration increased significantly to 0.068 mg/L. Ammonia was minimal at 0.09 mg/L. At ambient temperature and pH, no toxicity issues would result. Chlorophyll concentration, indicative of algal biomass, increased but remained

low at 8.14 ug/L. Algae density was correspondingly low and stable (2.36 x 10^3 cells/mL). The dominant alga was *Pediastrum* (Chlorophyta colony). It is rarely problematic. The golden alga, *Prymnesium parvum*, was not observed. *P. parvum* can produce a toxin that destroys exposed cells in the gill tissue of fish, causing asphyxiation and death. No submerged weeds were observed.



The mean TSI value increased to 57 (range 51-65), with the lake moving into the slightly eutrophic category. Increased phosphorus and reduced transparency were the responsible factors for the TSI increase. The lake declined in clarity and became less aesthetically pleasing and could develop anoxia in the deep waters during the summer. It should be, otherwise, supportive of the fishery.

The *E. coli* concentration was 16 MPN/100 mL. The maximum bacteria level for full body contact (FBC=swimming) and partial body contact (PBC=fishing and boating) recreation, is 126/100 mL (30-day geometric mean). The single sample maxima are 410 and 575 for FBC and PBC recreation (ARS, Dec 2022).

The Lake Report Card value for September 2023 was 47; down three units from July, and moving the lake down to the "good" category.

Lake 2

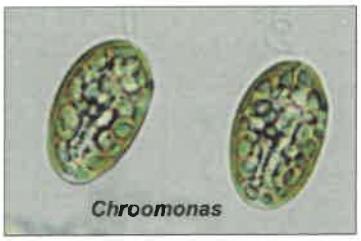
Lake 2 was vertically mixed. No substantial loss of oxygen in the deep waters occurred (see attached profiles). The surface dissolved oxygen concentrations (6.3-7.3 mg/L) were above the target 6.0 mg/L concentration desired to protect the fishery and no fish stress was observed. Water pH was 8.1 SU and indicated possible reduction in suspended (planktonic) algae density. Low pH is advantageous because it prevents conversion of ammonium ions (NH_4^+) to toxic (to aquatic animals) ammonia (NH_3) gas. Transparency (Secchi disk depth) improved to 1.37 m (4.4 ft) and turbidity ranged from 4.9 to 8.5 NTU.

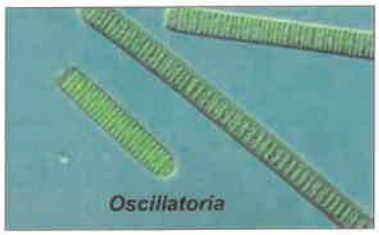
Alkalinity (163 mg/L as $CaCO_3$) and hardness (220 mg/L as $CaCO_3$) were typical and remained elevated, as would be expected from most waters in central Arizona. The total dissolved solids (mineral) concentration increased slightly to 588 mg/L.

Midge fly density increased, but remained relatively low (120/m^2) and should produce no issues to lakeside residents or visitors. Maximum waterfowl density was one (1) bird per acre which is considered in the excellent range (Arizona Game & Fish Department rating system). No cormorants were noted.

Bio-available nitrogen concentration was stable at 0.27 mg/L. Total nitrogen decreased slightly to 1.19 mg/L. Phosphorus concentration decreased to 0.012 mg/L; a very desirable concentration. Ammonia concentration was 0.08 mg/L. At ambient temperature and pH, no toxicity issues would result.

Chlorophyll concentration, indicative of algal biomass, remained very low at 1.21 ug/L. Algae density decreased to 7.62 x 10^2 cells/mL. *Chroomonas* (Cryptophyta) and *Oscillatoria* (Cyanophyta) were the dominant forms. *Oscillatoria* can cause problems, but unlikely to do so at the density measured. No potentially-toxic golden algae (*Prymnesium parvum* or related species) were found. *P. parvum* can produce a toxin that destroys exposed cells in the gill tissue of fish, causing asphyxiation and death. No submerged weeds were observed, including horned pondweed (*Zannichellia palustris*) and brittle naiad (*Najas marina*) that have been problematic in other lakes in the past.





The mean TSI value decreased substantially to 44 and placed the lake in the mesotrophic category. These lakes are more desirable for an urban lake in terms of aesthetics, and can still support a fishery. They sometimes tend to have dominance of blue-green algae, as was the case during the month.

The *E. coli* concentration was 8 MPN/100 mL and met the single-sample full body contact (swimming) and partial body contact (fishing and boating) recreation standards.

The Lake Report Card value for July 2023 was 49, up three units compared to July 2023 data. The lake remained within the "good" category.

Lake 3

Lake 3 exhibited no thermal stratification (vertically mixed) and had minimal loss of oxygen (0.1 mg/L) in the deep waters (see attached profiles). The surface dissolved oxygen concentrations (6.5-7.1 mg/L) met the minimum target of 6.0 mg/L desired to protect the fishery. No fish stress was observed. Water pH ranged from 8.0 to 8.1 SU and reflected stable conditions. Low pH is more advantageous because it prevents conversion of ammonium ions (NH_4^+) to toxic (to aquatic animals) ammonia (NH_3) gas. Transparency (Secchi disk depth) decreased to 1.50 m (4.9 ft). Turbidity was moderate (6.3-11.0 NTU) during the month.

Waterfowl density was less than two birds per acre (<2/A) which is considered excellent (Arizona Game & Fish Department rating system). No cormorants were observed.

Midge fly density was low (<40/m^2) and should produce no issues to lakeside residents or visitors.

Alkalinity (167 mg/L as $CaCO_3$) and hardness (224 mg/L as $CaCO_3$) were fairly stable and remained slightly elevated as typical and expected from most waters in central Arizona. The total dissolved solids (mineral) concentration of the lake increased to 764 mg/L.

Bio-available nitrogen concentration was stable at 0.30 mg/L, and total nitrogen decreased to 1.31 mg/L. Phosphorus concentration remained quite low at 0.016 mg/L. The ammonia concentration was 0.09 mg/L and would not create any toxicity issues at ambient temperature and pH.

Chlorophyll concentration, indicative of algal biomass, was unchanged at 1.16 ug/L. Algae density correspondingly was essentially unchanged at 1.45 x 10^3 cells/mL. The dominant alga was *Oscillatoria. At low density, n*o significant issues with the alga occurred. Golden algae were absent.

The mean TSI value (43, with a range of 32-54) maintained the lake in the mesotrophic category. Decreased clarity and presence of blue-green algae were responsible for the change in score.

The *E. coli* concentration was 6 MPN/100 mL and met partial body contact recreation limits.

The Lake Report Card value for September 2023 remained at 50 and the lake remained in the "excellent" category.

Lake 4

Lake 4 was thermally mixed and there was minimal loss of oxygen in the deep water (see attached profiles). The dissolved oxygen concentrations were improved at 6.4-7.6 mg/L. Concentrations were above the target of 6.0 mg/L and fish activity appeared normal. Water pH ranged from 8.1-8.2 SU and indicated a low to moderate algae density and minimal change in water quality. Water transparency increased to 1.37 m (4.4 ft). However, turbidity increased to 8.0 to 11.0 NTU.

Waterfowl density ranged from less than one to two per acre (<1-2/A) which is considered excellent to fair by the Arizona Game & Fish Department rating system. No cormorants were noted. Midge fly density was quite low (<40/m^2) and should produce no issues to lakeside residents or visitors.

Bio-available and total nitrogen concentrations were slightly reduced at 0.25 and 1.18 mg/L, respectively. Phosphorus concentration fell to 0.022 mg/L. All, desirable values. The ammonia concentration remained low (0.07 mg/L). At ambient pH and temperature, acute or chronic ammonia toxicity to fish would not occur.

With low nutrient concentrations, algae density decreased to 2.99 x 10^2 cells/mL. The dominant alga was *Chlamydomonas,* a green (Chlorophyta) unicell. The chlorophyll-a concentration (biomass indicator) remained very low at 1.74 ug/L. The potentially toxic golden alga (*Prymnesium parvum*) was not present during the month.

The mean TSI value (47) decreased three units (range 36-58), maintaining the lake in the mesotrophic category. The value indicates the lake should be much more desirable in terms of aesthetics, but possibly less supportive of a robust fishery.

The *E. coli* concentration was <1 MPN/100 mL. The measurements met the bacteria maximum for partial body contact recreation (fishing and boating).

The Lake Report Card value for September 2023 was 50, showing a four-unit improvement from July. The lake moved into the "excellent" category.

Lakes 5-8

Lake 5

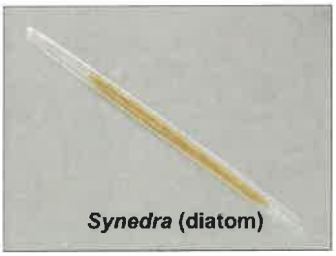
The Lake 5 temperature began to decrease and ranged from 25.9 C to 29.3 C (79-85 F). Water pH was 8.0-8.2 SU indicating low to moderate algae density. Dissolved oxygen (6.1-6.7 mg/L) improved and was above the target concentration for the fishery, Fish activity appeared normal. Transparency was greater than one meter and turbidity ranged from 4.7 to 6.2 NTU.

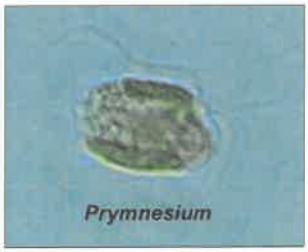
Waterfowl mean density was 3 to 5 per acre (3-5/A) which is considered good to fair (Arizona Game & Fish Department rating system shown below). No cormorants were noted. Adult midge flies did not appear to produce any nuisance issues to lakeside residents or visitors.

Waterfowl Density Ranking System (AZG&FD)

No. waterfowl per acre	Ranking
<3	Excellent
3-4	Good
5-6	Fair
>6	Poor

No abnormal algae growths or submerged weeds were observed. Diatoms (Bacillariophyta) dominated the phytoplankton. Cell density was relatively low. No golden algae (*Prymnesium parvum* or related species) were detected.

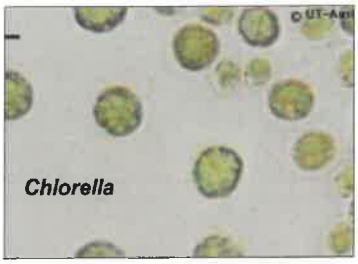




Lake 6

The water temperature of Lake 6 was 27.3-30.0 C (81-86 F). Water pH was 8.2-8,3 SU, indicating low to moderate algae density. Dissolved oxygen (7.8-8.3 mg/L) was satisfactory for the fishery and fish activity appeared normal. Transparency was approximately one meter, but turbidity increased to 13-15 NTU.

Three to six (3-6) waterfowl per acre were observed and the density is considered good to fair for an urban lake. Adult midge flies did not appear to produce any nuisance issues to lakeside residents or visitors.



No abnormal algae growth or submerged weeds were observed. The dominant alga was *Chlorella* a green (Chlorophyta) unicell. The alga is rarely problematic. No golden algae (*Prymnesium parvum* or related species) were detected.

Lake 7

Lake temperature range was 27.8 to 29.6 C (82-85 F). Water pH was 8.3 SU. Dissolved oxygen concentration ranged from 7.7 to 7.8 mg/L and remained satisfactory for the fishery. Fish activity appeared normal. Transparency was stable at just over one meter. Turbidity ranged from 5.1-5.9 NTU. The fountain was operating during the reporting period.

Waterfowl density was <1 per acre; an "excellent" rating. Minimal cormorants were observed. Decreased numbers of waterfowl was expected outside the migratory season. Adult midge flies did not appear to produce any nuisance issues to lakeside residents or visitors.

No abnormal algae growth or submerged weeds were observed. During September, *Chroomonas* (Cryptophyta) and *Oscillatoria* (Cyanophyta) were the dominant algae. The total cell density for the algae community was low to moderate. The density of blue-green algae (Cyanophyta) should be carefully monitored because it can cause highly turbid water. No golden algae (*Prymnesium parvum* or related species) were detected.

Lake 8

The temperature of Lake 8 ranged from 27.1-29.0 C (81-84 F). Water pH was moderate at 8.2 SU and indicated a low to moderate algae density. Dissolved oxygen (6.4-6.7 mg/L) was marginally satisfactory for the fishery and fish activity appeared normal. Transparency was reduced, but turbidity remained low (2.9-3.8 NTU).

Waterfowl density was four to six per acre (4-6/A) which is considered poor. No cormorant issues were reported. Adult midge flies did not appear to produce any nuisance issues to lakeside residents or visitors.

No abnormal algae growth or submerged weeds were observed. *Microcystis* and *Aphanocapsa* were the dominant forms and sometimes can become problematic. The total phytoplankton density was moderate. No golden algae (*Prymnesium parvum* or related species) were detected.

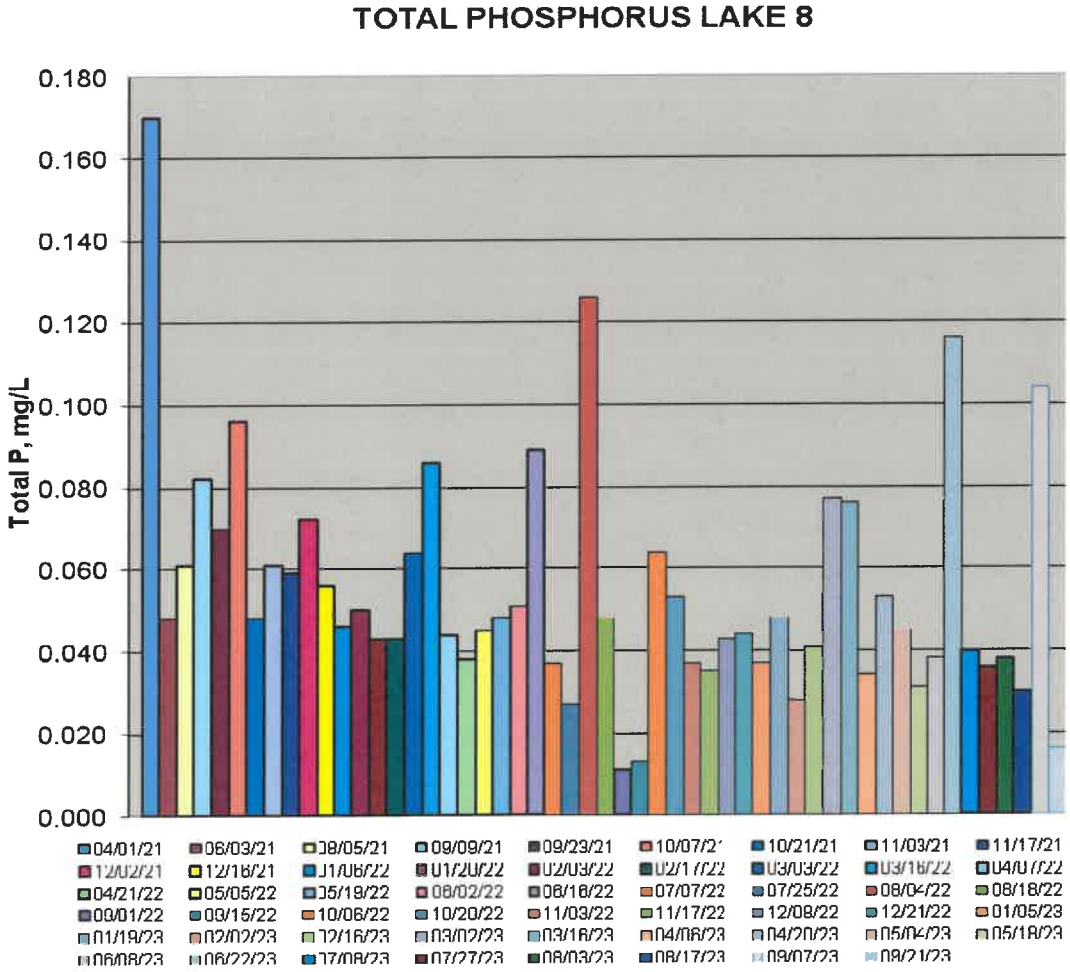
Special Testing

E. coli bacteria and total phosphorus were measured in Lake 8 on two dates during the month. Data are presented below.

Date	*E. coli*, MPN/100 mL)	Phosphorus, mg/L
09-07-23	7	0.104
09-21-23	31	0.016

The measured bacteria concentrations are below the levels established for partial and full body contact recreation by the State, based on a single-sample maximum.

The phosphorus concentrations in Lake 8 during the recent study period have been fairly stable. The discrepancy between the two measurements is unexpected and cannot be readily explained. Spikes of phosphorus have occurred previously; the most recently in June 2023. Noting the Phoslock® application occurred on 29 November



2021, no dramatic reduction in phosphorus is shown in the figure below. The impact of the application may be more long-term if it reduces recycling of phosphorus from the sediment. Data collection will be continued until directed otherwise.

Next Month:

Lakes 5-8 are scheduled for comprehensive monitoring next month. All lakes will be visually inspected and field data collected two times during the month. Additional monitoring of Lake 8 phosphorus and *E. coli* will continue.

Respectfully:

Aquatic Consulting & Testing, Inc.

Frederick A. Amalfi, Ph.D., C.L.M.

North American Lake Management Society
NALMS
Frederick Amalfi
#91-01M
Certified Lake Manager

DOBSON RANCH REPORT CARD

DATE OF EVALUATION:		Sep-23	CONDITION	GOOD	SCORE	47	49	50	50
PREVIOUS EVALUATION:	*Last complete*	Jul-23	CONDITION	GOOD	SCORE	50	46	50	46

		4 pts	3 pts	2 pts	1 pt	SCORE	SCORE	SCORE	SCORE
CONDITION	RATIONALE	EXCELLENT	GOOD	FAIR	POOR	Lake 1	Lake 2	Lake 3	Lake 4
Transparency - SDz (m) avg.	aesthetics	1.5-2.0	1.0-1.4	0.5-0.9	<0.5	3	3	4	3
Dissolved oxygen (mg/L) @1m	aquatic life, sediment nutrient release, odors	>7.0	5.6-6.9	4.0-5.5	<4.0	3	3	3	3
Nitrogen, total (mg/L)	algae and macrophyte growth	<0.5	0.5-1.0	1.0-2.0	>2.0	2	2	2	2
Phosphorus, total (mg/L)	algae and macrophyte growth	<0.03	0.03-0.05	0.06-0.10	>0.10	2	4	4	4
Turbidity (NTU) avg.	aesthetics, State std	<5	5-10	11-20	>20	3	4	3	3
Chlorophyll-a (ug/L) avg.	aesthetics, oxygen balance	<10	11-20	21-30	>30	4	4	4	4
Algae density (no./mL)	aesthetics	$<5 \times 10^4$	$5x10^4$ - $9x10^4$	1×10^5 -$5x\ 10^5$	$>5 \times 10^5$	4	4	4	4
Midge larvae (# per sq m)	aesthetics	<200	200-400	500-800	>800	4	4	4	4
Algae form (dominant)	aesthetics, treatability	greens; no floating mats	diatoms; no floating mats	blue-greens; no floating mats	blue-greens; floating mats common	4	2	2	4
pH (SU) avg.	swimming, fishery, ammonia toxicity	6.5-8.0	8.1-8.5	8.6-9.0	>9.0	3	3	4	3
Carlson Trophic Status	eutrophication	<50	50-60	61-70	>70	3	4	4	4
Fishery	recreation, aesthetics	no fish piping; no fish kills	some fish piping, gulping; no fish kills	fish piping before dawn; occasional fish kills	fish piping common; fish kills common	4	4	4	4
Waterfowl (per acre mean)	Aesthetics, public health	<3	3-4	5-6	>6	4	4	4	4
Shoreline/banks	Minimal Filamentous Algae	no evidence of salt crusts or algal scums	some white deposits and scums	numerous patches of salt deposits and algae scums	most of lake shore covered with crusts or scums	4	4	4	4

SCORING KEY:	Excellent	Good	Fair	Poor
	50-56	41-49	30-40	<30

Definitions: Ratings

Excellent: Lake aesthetic and operational conditions above level of expectation.
Good: Lake aesthetic and operational conditions at level of expectation.
Fair: Lake aesthetic and operational conditions slightly below level of expectation.
Poor: Lake aesthetic and operational conditions considerably below level of expectation.

Definitions: Terms

Benthos: Bottom dwelling organisms
Carlson Trophic Index: A series of calculations incorporating transparency, chlorophyll and phosphorus data used to provide a quantitative estimate of the degree of eutrophication in a lake.
Chlorophyll: Pigment in green plants involved in photosynthesis used to estimate the density of algae in the water column.
Coliform bacteria: Enteric bacteria used as an indicator of the sanitary condition of the water.
Eutrophication: Process by which lakes age by increasing in nutrient (nitrogen and phosphorus) content and plant life.
Fecal bacteria: Any of the bacteria types provided by the fecal matter of warm-blooded organisms.
Macrophyte: Large plant, observable without the aid of a microscope, that may be floating, submerged or emergent.
Midge: Small, flying, non-biting "gnat-like" insect whose larval stage exists in the lake sediments (bloodworm).
N/A: not applicable; insufficient data or too early in development of lake (an arbitrary 3 rating is provided for these items).
pH: -log hydrogen ion conc.; amount of acid in the water identified on scale 1-14; 1 being most acid, 7 neutral, and 14 being most caustic.
Phytoplankton (algae): Microscopic plant fraction of the plankton community.
Piping: Act of fish coming to surface of water and capturing a bubble of air in their mouth; a sign of low oxygen concentrations.
Plankton: Organisms of relatively small size that have relatively small powers of locomotion or that drift in the water.
Sedimentation: Rate at which solids accumulate on the lake bottom.
Transparency (SDz): Depth to which a standard disk can be observed in the water column.
Turbidity: Degree to which particles and color in the water scatter light; the "cloudiness" of the water.
Zooplankton: Animal fraction of the plankton community

CLIENT: DOBSON RANCH

DATE: 07-Sep-23

PARAMETER	LAKE 1	LAKE 2	LAKE 3	LAKE 4			
Secchi Disk Depth (m)	1.37	0.97	1.50	1.14			
Phosphorus, total (ug/L)	68	12	16	20			
Chlorophyll-a (ug/L)	8.1	1.2	1.2	1.7			

TSI VALUES	LAKE 1	LAKE 2	LAKE 3	LAKE 4			
Secchi Disk Depth	55	60	54	58			
Phosphorus, total	65	40	44	47			
Chlorophyll-a	51	32	32	36			
					average		
AVERAGE	57	44	43	47	48		

SYNOPSIS OF TROPHIC STATUS RESULTS:

Carlson Trophic Status Index (TSI): The classical interpretation of various Index value ranges is provided below:

TSI<30	**Classic Oligotrophic**; clear water, oxygenated hypolimnion throughout the year; suitable for cold water fishery in deep lakes.
TSI 30-40	**Oligotrophic**; shallow lakes may exhibit anoxic hypolimnion in summer.
TSI 41-50	**Mesotrophic**; moderately clear water, increasing chance of anoxia in hypolimnion during the summer.
TSI 51-60	**Slightly Eutrophic**; decreased transparency, anoxia in hypolimnion during the summer expected, macrophyte problems possible, warm water fishery only.
TSI 61-70	**Eutrophic**; dominance of blue-green algae and algal scums probable, can have extensive macrophyte problems.
TSI 70-80	**Highly Eutrophic**; heavy algal blooms, dense macrophyte beds possible, limited light penetration.
TSI>80	**Hypereutrophic**; algal scums, summertime fish kills, limited light penetration, few macrophytes.

SUPPORTING DOCUMENTATION

- Laboratory reports
- Field Inspection Sheets
- Pesticide application documents

AQUATIC CONSULTING & TESTING, INC.

1525 W. University Drive, Suite 106
P.O. Box 1510
Tempe, Arizona 85281
Phone: (480) 921-8044 • Fax: (480) 921-0049 Lic. No. AZ0003

LABORATORY REPORT

Client: Dobson Ranch Association
2719 South Reyes Road
Mesa, AZ 85202

Date Submitted: 09/07/23
Date Reported: 10/03/23

Attn: Fran Pawlak, Executive Director

Project: Monthly Lake 1-4 Monitoring

RESULTS

Client ID: Lake 1
ACT Lab No.: CF06435

Sample Type: Surface Water
Sample Time: 09/07/23 08:10

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Algae Count	09/20/23	09/20/23	SM 10200 F	See Attached	cells/mL
Algae Identification	09/20/23	09/20/23		See Attached	
Chl/Pheo Ratio	10/02/23	10/02/23	SM10200 H	1.56	
Chlorophyll a	10/02/23	10/02/23	SM10200 H	8.14	ug/L
Golden Algae	09/07/23	09/07/23	P/C Microscopy	Absent	Pres/Abs
Midge count	09/07/23	09/07/23	SM10500 C	<40	#/sq. meter
Pheophytin a	10/02/23	10/02/23	SM10200 H	2.12	ug/L
Oxygen, Dissolved Field	09/07/23	09/07/23	SM4500 O G	6.5	mg/L as O2
pH, Field	09/07/23	09/07/23	SM4500H+ B	8.1	SU
Secchi Disk Depth	09/07/23	09/07/23	NALMS	1.37	meters
Temperature, Field	09/07/23	09/07/23	SM2550 B	29.4	C
Alkalinity, Total	09/15/23	09/15/23	SM 2320 B	186.	mg/L as CaCO3
Ammonia - N	09/12/23	09/12/23	SM4500NH3 D	0.09	mg/L as N
Nitrate + Nitrite - N	09/17/23	09/17/23	SM4500NO3 E	0.20	mg/L as N
Phosphorus, Total	09/23/23	09/27/23	365.3	0.068	mg/L as P
Total Hardness	09/15/23	09/15/23	SM2340C	234.	mg/L as CaCO3
Total Kjeldahl Nitrogen	09/12/23	09/12/23	SMNorg C,NH3 C/D	1.0	mg/L as N
E. coli, Colilert	09/07/23	09/08/23	SM 9223 B	16	MPN/100 mL
Total Dissolved Solids	09/14/23	09/17/23	SM2540 C	732.	mg/L
Turbidity	09/06/23	09/06/23	180.1	8.9	NTU

RESULTS

Client ID: Lake 2
ACT Lab No.: CF06436

Sample Type: Surface Water
Sample Time: 09/07/23 08:40

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Algae Count	09/20/23	09/20/23	SM 10200 F	See Attached	cells/mL
Algae Identification	09/20/23	09/20/23		See Attached	
Chl/Pheo Ratio	10/02/23	10/02/23	SM10200 H	1.60	
Chlorophyll a	10/02/23	10/02/23	SM10200 H	1.21	ug/L
Golden Algae	09/07/23	09/07/23	P/C Microscopy	Absent	Pres/Abs
Midge count	09/07/23	09/07/23	SM10500 C	120	#/sq. meter
Pheophytin a	10/02/23	10/02/23	SM10200 H	0.20	ug/L
Oxygen, Dissolved Field	09/07/23	09/07/23	SM4500 O G	6.3	mg/L as O2
pH, Field	09/07/23	09/07/23	SM4500H+ B	8.1	SU
Secchi Disk Depth	09/07/23	09/07/23	NALMS	0.97	meters
Temperature, Field	09/07/23	09/07/23	SM2550 B	29.2	C
Alkalinity, Total	09/15/23	09/15/23	SM 2320 B	163.	mg/L as CaCO3
Ammonia - N	09/12/23	09/12/23	SM4500NH3 D	0.08	mg/L as N
Nitrate + Nitrite - N	09/17/23	09/17/23	SM4500NO3 E	0.19	mg/L as N
Phosphorus, Total	09/23/23	09/27/23	365.3	0.012	mg/L as P
Total Hardness	09/15/23	09/15/23	SM2340C	220.	mg/L as CaCO3
Total Kjeldahl Nitrogen	09/12/23	09/12/23	SMNorg C,NH3 C/D	1.0	mg/L as N
E. coli, Colilert	09/07/23	09/08/23	SM 9223 B	8	MPN/100 mL
Total Dissolved Solids	09/14/23	09/17/23	SM2540 C	588.	mg/L
Turbidity	09/06/23	09/06/23	180.1	4.9	NTU

RESULTS

Client ID: Lake 3
ACT Lab No.: CF06437

Sample Type: Surface Water
Sample Time: 09/07/23 09:20

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Algae Count	09/20/23	09/20/23	SM 10200 F	See Attached	cells/mL
Algae Identification	09/20/23	09/20/23		See Attached	
Chl/Pheo Ratio	10/02/23	10/02/23	SM10200 H	1.50	
Chlorophyll a	10/02/23	10/02/23	SM10200 H	1.16	ug/L
Golden Algae	09/07/23	09/07/23	P/C Microscopy	Absent	Pres/Abs
Midge count	09/07/23	09/07/23	SM10500 C	<40	#/sq. meter
Pheophytin a	10/02/23	10/02/23	SM10200 H	0.46	ug/L
Oxygen, Dissolved Field	09/07/23	09/07/23	SM4500 O G	6.3	mg/L as O2
pH, Field	09/07/23	09/07/23	SM4500H+ B	8.0	SU
Secchi Disk Depth	09/07/23	09/07/23	NALMS	1.50	meters
Temperature, Field	09/07/23	09/07/23	SM2550 B	29.7	C
Alkalinity, Total	09/15/23	09/15/23	SM 2320 B	167.	mg/L as CaCO3
Ammonia - N	09/12/23	09/12/23	SM4500NH3 D	0.09	mg/L as N
Nitrate + Nitrite - N	09/17/23	09/17/23	SM4500NO3 E	0.21	mg/L as N
Phosphorus, Total	09/23/23	09/27/23	365.3	0.016	mg/L as P
Total Hardness	09/15/23	09/15/23	SM2340C	224.	mg/L as CaCO3
Total Kjeldahl Nitrogen	09/12/23	09/12/23	SMNorg C,NH3 C/D	1.1	mg/L as N
E. coli, Colilert	09/07/23	09/08/23	SM 9223 B	6	MPN/100 mL
Total Dissolved Solids	09/14/23	09/17/23	SM2540 C	764.	mg/L
Turbidity	09/06/23	09/06/23	180.1	6.3	NTU

RESULTS

Client ID: Lake 4
ACT Lab No.: CF06438

Sample Type: Surface Water
Sample Time: 09/07/23 09:50

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Algae Count	09/20/23	09/20/23	SM 10200 F	See Attached	cells/mL
Algae Identification	09/20/23	09/20/23		See Attached	
Chl/Pheo Ratio	10/02/23	10/02/23	SM10200 H	1.60	
Chlorophyll a	10/02/23	10/02/23	SM10200 H	1.74	ug/L
Golden Algae	09/07/23	09/07/23	P/C Microscopy	Absent	Pres/Abs
Midge count	09/07/23	09/07/23	SM10500 C	<40	#/sq. meter
Pheophytin a	10/02/23	10/02/23	SM10200 H	0.29	ug/L
Oxygen, Dissolved Field	09/07/23	09/07/23	SM4500 O G	6.4	mg/L as O2
pH, Field	09/07/23	09/07/23	SM4500H+ B	8.1	SU
Secchi Disk Depth	09/07/23	09/07/23	NALMS	1.14	meters
Temperature, Field	09/07/23	09/07/23	SM2550 B	29.6	C
Alkalinity, Total	09/15/23	09/15/23	SM 2320 B	163.	mg/L as CaCO3
Ammonia - N	09/12/23	09/12/23	SM4500NH3 D	0.07	mg/L as N
Nitrate + Nitrite - N	09/17/23	09/17/23	SM4500NO3 E	0.18	mg/L as N
Phosphorus, Total	09/23/23	09/27/23	365.3	0.020	mg/L as P
Total Hardness	09/15/23	09/15/23	SM2340C	238.	mg/L as CaCO3
Total Kjeldahl Nitrogen	09/12/23	09/12/23	SMNorg C,NH3 C/D	1.0	mg/L as N
E. coli, Colilert	09/07/23	09/08/23	SM 9223 B	<1	MPN/100 mL
Total Dissolved Solids	09/14/23	09/17/23	SM2540 C	612.	mg/L
Turbidity	09/06/23	09/06/23	180.1	8.0	NTU

Client ID: Lake 5
ACT Lab No.: CF06439

Sample Type: Surface Water
Sample Time: 09/07/23 10:00

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Golden Algae	09/07/23	09/07/23	P/C Microscopy	Absent	Pres/Abs
Oxygen, Dissolved Field	09/07/23	09/07/23	SM4500 O G	6.1	mg/L as O2
pH, Field	09/07/23	09/07/23	SM4500H+ B	8.0	SU
Temperature, Field	09/07/23	09/07/23	SM2550 B	29.3	C
Turbidity	09/06/23	09/06/23	180.1	6.3	NTU

RESULTS

Client ID: Lake 6
ACT Lab No.: CF06440

Sample Type: Surface Water
Sample Time: 09/07/23 10:10

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Golden Algae	09/07/23	09/07/23	P/C Microscopy	Absent	Pres/Abs
Oxygen, Dissolved Field	09/07/23	09/07/23	SM4500 O G	7.8	mg/L as O2
pH, Field	09/07/23	09/07/23	SM4500H+ B	8.2	SU
Temperature, Field	09/07/23	09/07/23	SM2550 B	30.0	C
Turbidity	09/06/23	09/06/23	180.1	13.	NTU

Client ID: Lake 7
ACT Lab No.: CF06441

Sample Type: Surface Water
Sample Time: 09/07/23 10:20

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Golden Algae	09/07/23	09/07/23	P/C Microscopy	Absent	Pres/Abs
Oxygen, Dissolved Field	09/07/23	09/07/23	SM4500 O G	7.8	mg/L as O2
pH, Field	09/07/23	09/07/23	SM4500H+ B	8.3	SU
Temperature, Field	09/07/23	09/07/23	SM2550 B	29.6	C
Turbidity	09/06/23	09/06/23	180.1	5.1	NTU

Client ID: Lake 8
ACT Lab No.: CF06442

Sample Type: Surface Water
Sample Time: 09/07/23 10:25

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Golden Algae	09/07/23	09/07/23	P/C Microscopy	Absent	Pres/Abs
Oxygen, Dissolved Field	09/07/23	09/07/23	SM4500 O G	6.4	mg/L as O2
pH, Field	09/07/23	09/07/23	SM4500H+ B	8.2	SU
Temperature, Field	09/07/23	09/07/23	SM2550 B	29.0	C
Phosphorus, Total	09/23/23	09/27/23	365.3	0.104	mg/L as P
E. coli, Colilert	09/07/23	09/08/23	SM 9223 B	7	MPN/100 mL
Turbidity	09/06/23	09/06/23	180.1	2.9	NTU

Reviewed by: 

Frederick A. Amalfi, Ph.D.
Laboratory Director

ALGAE IDENTIFICATION

AC&T Lab No.	CF-06435	Date Collected	09/07/23
Client I.D.	Lake 1	Collected By	AC&T

Divisions: bac=Bacillariophyta; chl=Chlorophyta; cry=Chrysophyta; cyn=Cyanophyta; eug=Euglenophyta; hap=Haptophyta; pyr=Pyrrhophyta Forms: u=unicell; c=colony; f=filament; g= flagellate

Genus	Div.-Form	Rel. Count	Total per mL	Comp.	Genus	Div.-Form	Rel. Count	Total per mL.	Comp
Achnanthes	bac-u				*Microcystis*	cyn-c			
Anabaena	cyn-f				*Microspora*	chl-f			
Ankistrodesmus	chl-u				*Nanochloris*	chl-u			
Aphanothece	cyn-c				*Navicula*	bac-u			
Asterionella	bac-c				*Nitzschia*	bac-u			
Botryococcus	chl-c				*Oocystis*	chl-c			
Carteria	chl-ug				*Oscillatoria*	cyn-f			
Cephalomonas	chl-ug				*Pandorina*	chl-cg			
Ceratium	pyr-ug				***Pediastrum***	chl-c	48	1472	62.34%
Chlamydomonas	chl-ug	7	215	9.09%	*Peridinium*	pyr-ug			
Chlorella	chl-u	20	614	25.97%	*Phacotus*	chl-ug			
Chlorogonium	chl-ug				*Phacus*	chl-ug			
Chroococcus	cyn-c				*Pinnularia*	bac-u			
Chroomonas	crp-ug				*Pithophora*	chl-f			
Closterium	chl-u				*Planktosphaeria*	chl-c			
Cocconeis	bac-u				*Rhizoclonium*	chl-f			
Coelastrum	chl-c				*Rhoicosphenia*	bac-u			
Cosmarium	chl-u				*Rhopalodia*	bac-u			
Cosmocladium	chl-c				*Scenedesmus*	chl-c			
Crucigenia	chl-c				*Schroederia*	chl-u			
Cryptomonas	crp-ug				***Selanastrum***	chl-u	1	31	1.30%
Cyclotella	bac-u				*Sphaerocystis*	chl-c			
Cymbella	bac-u				*Spondylumorum*	chl-c			
Denticula	bac-u				*Spirulina*	cyn-f			
Dinobryon	bac-c				*Staurastrum*	chl-u			
Dysmorphococcus	chl-ug				*Stephanodiscus*	bac-u			
Eremosphaeria	chl-u				*Stigeoclonium*	chl-f			
Euglena	eug-ug				*Surirella*	bac-u			
Fragilaria	bac-u				*Synechococcus*	cyn-u			
Frustulia	bac-u				*Synechocystis*	cyn-c			
Glenodinium	pyr-ug				*Synedra*	bac-u			
Golenkinia	chl-c				*Synura*	cry-cg			
Gomphonema	bac-u				*Tetraedron*	chl-u			
Gonium	chl-cg				*Thoracomonas*	chl-u			
Gonyaulax	pyr-ug				*Trachelomonas*	eug-ug			
Gymnodinium	bac-u	1	31	1.30%	*Vaucheria*	chl-f			
Holopedium	cyn-u				*Volvox*	chl-cg			
Lyngbya	cyn-f				*Zygnema*	chl-f			
Mastogloia	bac-u								
Meridion	bac-u								
Merismopedia	cyn-c								

check 100.00%

Aquatic Consulting & Testing, Inc.
1525 W. University Dr., Suite 106
Tempe, Arizona 85281

Count (cells/mL) 2.36E+03

ALGAE IDENTIFICATION

AC&T Lab No.	CF-06436	Date Collected	09/07/23
Client I.D.	Lake 2	Collected By	AC&T

Divisions: bac=Bacillariophyta; chl=Chlorophyta; cry=Chrysophyta; cyn=Cyanophyta; eug=Euglenophyta; hap=Haptophyta; pyr=Pyrrhophyta Forms: u=unicell; c=colony; f=filament; g= flagellate

Genus	Div.-Form	Rel. Count	Total per mL	Comp.	Genus	Div.-Form	Rel. Count	Total per mL.	Comp
Achnanthes	bac-u				*Microcystis*	cyn-c			
Anabaena	cyn-f				*Microspora*	chl-f			
Ankistrodesmus	chl-u				*Nanochloris*	chl-u			
Aphanothece	cyn-c				***Navicula***	bac-u	1	26	3.45%
Asterionella	bac-c				*Nitzschia*	bac-u			
Botryococcus	chl-c				*Oocystis*	chl-c			
Carteria	chl-ug				***Oscillatoria***	cyn-f	8	210	27.59%
Cephalomonas	chl-ug				***Palmellococcus***	chl-u	1	26	3.45%
Ceratium	pyr-ug				*Pediastrum*	chl-c			
Chlamydomonas	chl-ug	1	26	3.45%	*Peridinium*	pyr-ug			
Chlorella	chl-u	7	184	24.14%	*Phacotus*	chl-ug			
Chlorogonium	chl-ug				*Phacus*	chl-ug			
Chroococcus	cyn-c				*Pinnularia*	bac-u			
Chroomonas	crp-ug	8	210	27.59%	*Pithophora*	chl-f			
Closterium	chl-u				*Planktosphaeria*	chl-c			
Cocconeis	bac-u	1	26	3.45%	*Rhizoclonium*	chl-f			
Coelastrum	chl-c				*Rhoicosphenia*	bac-u			
Cosmarium	chl-u				*Rhopalodia*	bac-u			
Cosmocladium	chl-c				*Scenedesmus*	chl-c			
Crucigenia	chl-c				*Schroederia*	chl-u			
Cryptomonas	crp-ug				*Selanastrum*	chl-u			
Cyclotella	bac-u				*Sphaerocystis*	chl-c			
Cymbella	bac-u				*Spondylumorum*	chl-c			
Denticula	bac-u				*Spirulina*	cyn-f			
Dinobryon	bac-c				*Staurastrum*	chl-u			
Dysmorphococcus	chl-ug				*Stephanodiscus*	bac-u			
Eremosphaeria	chl-u				*Stigeoclonium*	chl-f			
Euglena	eug-ug				*Surirella*	bac-u			
Fragilaria	bac-u				*Synechococcus*	cyn-u			
Frustulia	bac-u				*Synechocystis*	cyn-c			
Glenodinium	pyr-ug				*Synedra*	bac-u			
Golenkinia	chl-c				*Synura*	cry-cg			
Gomphonema	bac-u				*Tetraedron*	chl-u			
Gonium	chl-cg				*Thoracomonas*	chl-u			
Gonyaulax	pyr-ug				*Trachelomonas*	eug-ug			
Gymnodinium	bac-u	2	53	6.90%	*Vaucheria*	chl-f			
Holopedium	cyn-u				*Volvox*	chl-cg			
Lyngbya	cyn-f				*Zygnema*	chl-f			
Mastogloia	bac-u								
Meridion	bac-u								
Merismopedia	cyn-c								

check 100.00%

Aquatic Consulting & Testing, Inc.
1525 W. University Dr., Suite 106
Tempe, Arizona 85281

Count (cells/mL) 7.62E+02

ALGAE IDENTIFICATION

AC&T Lab No.	CF-06437	Date Collected	09/07/23
Client I.D.	Lake 3	Collected By	AC&T

Divisions: bac=Bacillariophyta; chl=Chlorophyta; cry=Chrysophyta; cyn=Cyanophyta; eug=Euglenophyta; hap=Haptophyta; pyr=Pyrrhophyta Forms: u=unicell; c=colony; f=filament; g= flagellate

Genus	Div.-Form	Rel. Count	Total per mL	Comp.	Genus	Div.-Form	Rel. Count	Total per mL.	Comp
Achnanthes	bac-u				*Microcystis*	cyn-c			
Anabaena	cyn-f				*Microspora*	chl-f			
Ankistrodesmus	chl-u				*Nanochloris*	chl-u			
Aphanothece	cyn-c				*Navicula*	bac-u			
Asterionella	bac-c				*Nitzschia*	bac-u			
Botryococcus	chl-c				*Oocystis*	chl-c			
Carteria	chl-ug				***Oscillatoria***	cyn-f	30	789	54.55%
Cephalomonas	chl-ug				*Palmellococcus*	chl-u			
Ceratium	pyr-ug				***Pediastrum***	chl-c	16	421	29.09%
Chlamydomonas	chl-ug				*Peridinium*	pyr-ug			
Chlorella	chl-u	9	237	16.36%	*Phacotus*	chl-ug			
Chlorogonium	chl-ug				*Phacus*	chl-ug			
Chroococcus	cyn-c				*Pinnularia*	bac-u			
Chroomonas	crp-ug				*Pithophora*	chl-f			
Closterium	chl-u				*Planktosphaeria*	chl-c			
Cocconeis	bac-u				*Rhizoclonium*	chl-f			
Coelastrum	chl-c				*Rhoicosphenia*	bac-u			
Cosmarium	chl-u				*Rhopalodia*	bac-u			
Cosmocladium	chl-c				*Scenedesmus*	chl-c			
Crucigenia	chl-c				*Schroederia*	chl-u			
Cryptomonas	crp-ug				*Selanastrum*	chl-u			
Cyclotella	bac-u				*Sphaerocystis*	chl-c			
Cymbella	bac-u				*Spondylumorum*	chl-c			
Denticula	bac-u				*Spirulina*	cyn-f			
Dinobryon	bac-c				*Staurastrum*	chl-u			
Dysmorphococcus	chl-ug				*Stephanodiscus*	bac-u			
Eremosphaeria	chl-u				*Stigeoclonium*	chl-f			
Euglena	eug-ug				*Surirella*	bac-u			
Fragilaria	bac-u				*Synechococcus*	cyn-u			
Frustulia	bac-u				*Synechocystis*	cyn-c			
Glenodinium	pyr-ug				*Synedra*	bac-u			
Golenkinia	chl-c				*Synura*	cry-cg			
Gomphonema	bac-u				*Tetraedron*	chl-u			
Gonium	chl-cg				*Thoracomonas*	chl-u			
Gonyaulax	pyr-ug				*Trachelomonas*	eug-ug			
Gymnodinium	bac-u				*Vaucheria*	chl-f			
Holopedium	cyn-u				*Volvox*	chl-cg			
Lyngbya	cyn-f				*Zygnema*	chl-f			
Mastogloia	bac-u								
Meridion	bac-u								
Merismopedia	cyn-c								

check 100.00%

Aquatic Consulting & Testing, Inc.
1525 W. University Dr., Suite 106
Tempe, Arizona 85281

Count (cells/mL) 1.45E+03

ALGAE IDENTIFICATION

AC&T Lab No.	CF-06438	Date Collected	09/07/23
Client I.D.	Lake 4	Collected By	AC&T

Divisions: bac=Bacillariophyta; chl=Chlorophyta; cry=Chrysophyta; cyn=Cyanophyta; eug=Euglenophyta; hap=Haptophyta; pyr=Pyrrhophyta Forms: u=unicell; c=colony; f=filament; g= flagellate

Genus	Div.-Form	Rel. Count	Total per mL	Comp.	Genus	Div.-Form	Rel. Count	Total per mL.	Comp
Achnanthes	bac-u				*Microcystis*	cyn-c			
Anabaena	cyn-f				*Microspora*	chl-f			
Ankistrodesmus	chl-u				*Nanochloris*	chl-u			
Aphanothece	cyn-c				***Navicula***	bac-u	1	23	7.69%
Asterionella	bac-c				*Nitzschia*	bac-u			
Botryococcus	chl-c				*Oocystis*	chl-c			
Carteria	chl-ug				*Oscillatoria*	cyn-f			
Cephalomonas	chl-ug				*Palmellococcus*	chl-u			
Ceratium	pyr-ug				*Pediastrum*	chl-c			
Chlamydomonas	chl-ug	7	161	53.85%	*Peridinium*	pyr-ug			
Chlorella	chl-u	3	69	23.08%	*Phacotus*	chl-ug			
Chlorogonium	chl-ug				*Phacus*	chl-ug			
Chroococcus	cyn-c				*Pinnularia*	bac-u			
Chroomonas	crp-ug	1	23	7.69%	*Pithophora*	chl-f			
Closterium	chl-u				*Planktosphaeria*	chl-c			
Cocconeis	bac-u				*Rhizoclonium*	chl-f			
Coelastrum	chl-c				*Rhoicosphenia*	bac-u			
Cosmarium	chl-u				*Rhopalodia*	bac-u			
Cosmocladium	chl-c				*Scenedesmus*	chl-c			
Crucigenia	chl-c				*Schroederia*	chl-u			
Cryptomonas	crp-ug				*Selanastrum*	chl-u			
Cyclotella	bac-u				*Sphaerocystis*	chl-c			
Cymbella	bac-u				*Spondylumorum*	chl-c			
Denticula	bac-u				*Spirulina*	cyn-f			
Dinobryon	bac-c				*Staurastrum*	chl-u			
Dysmorphococcus	chl-ug				*Stephanodiscus*	bac-u			
Eremosphaeria	chl-u				*Stigeoclonium*	chl-f			
Euglena	eug-ug	1	23	7.69%	*Surirella*	bac-u			
Fragilaria	bac-u				*Synechococcus*	cyn-u			
Frustulia	bac-u				*Synechocystis*	cyn-c			
Glenodinium	pyr-ug				*Synedra*	bac-u			
Golenkinia	chl-c				*Synura*	cry-cg			
Gomphonema	bac-u				*Tetraedron*	chl-u			
Gonium	chl-cg				*Thoracomonas*	chl-u			
Gonyaulax	pyr-ug				*Trachelomonas*	eug-ug			
Gymnodinium	bac-u				*Vaucheria*	chl-f			
Holopedium	cyn-u				*Volvox*	chl-cg			
Lyngbya	cyn-f				*Zygnema*	chl-f			
Mastogloia	bac-u								
Meridion	bac-u								
Merismopedia	cyn-c								

check 100.00%

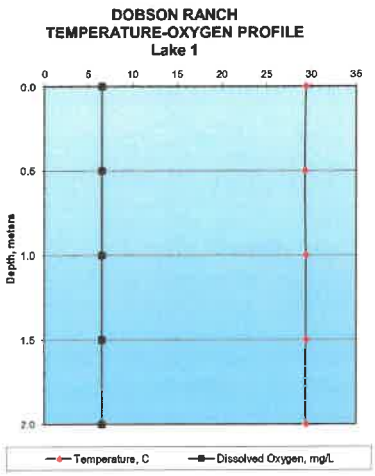
Aquatic Consulting & Testing, Inc.
1525 W. University Dr., Suite 106
Tempe, Arizona 85281

Count (cells/mL) 2.99E+02

Field Data for 09-07-23 Sampling Event
Aquatic Consulting & Testing, Inc.

DOBSON RANCH LAKE 1

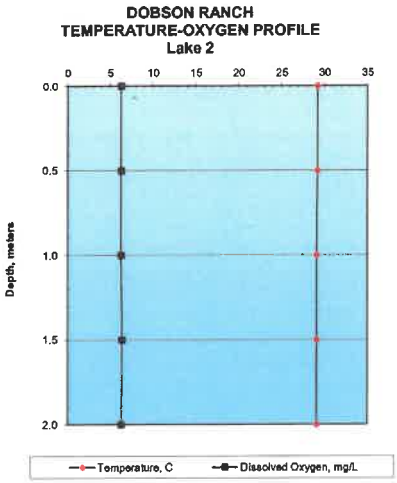
Depth, m	Temp, C	Oxygen, mg/L
0.0	29.4	6.5
0.5	29.3	6.5
1.0	29.4	6.5
1.5	29.4	6.5
2.0	29.4	6.5



Field Data for 09-07-23 Sampling Event
Aquatic Consulting & Testing, Inc.

DOBSON RANCH LAKE 2

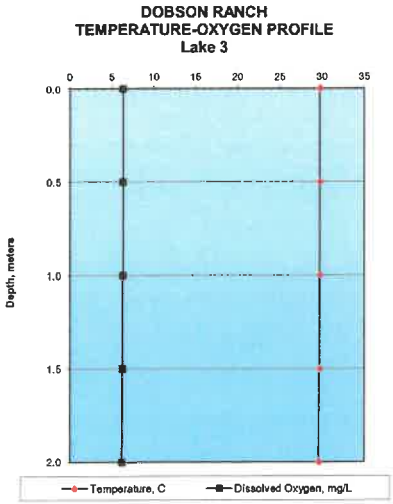
Depth, m	Temp, C	Oxygen, mg/L
0.0	29.2	6.3
0.5	29.2	6.3
1.0	29.1	6.3
1.5	29.1	6.4
2.0	29.1	6.3



Field Data for 09-07-23 Sampling Event
Aquatic Consulting & Testing, Inc.

DOBSON RANCH LAKE 3

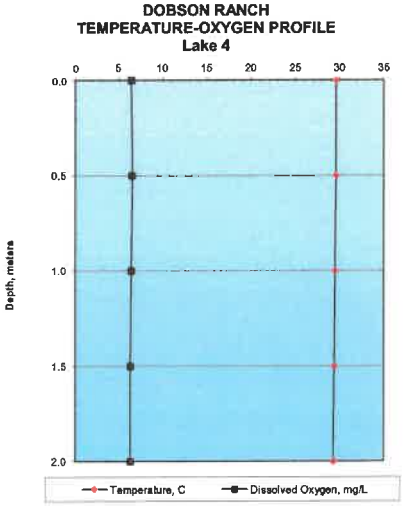
Depth, m	Temp, C	Oxygen, mg/L
0.0	29.7	6.3
0.5	29.7	6.3
1.0	29.7	6.3
1.5	29.7	6.3
2.0	29.6	6.2



Field Data for 09-07-23 Sampling Event
Aquatic Consulting & Testing, Inc.

DOBSON RANCH LAKE 4

Depth, m	Temp, C	Oxygen, mg/L
0.0	29.6	6.4
0.5	29.6	6.5
1.0	29.5	6.4
1.5	29.4	6.3
2.0	29.3	6.3



Aquatic Consulting & Testing, Inc.
1525 W. University Drive, Suite 106
Tempe, AZ 85281
480-921-8044 fax: 480-921-0049
lab@aquaticconsulting.com

Chain of Custody

Client Project Info:

Lake 1-4 Monthly Monitoring
Dobson Ranch Association

AC&T Client Reporting Information:

Dobson Ranch Association
2719 South Reyes
Mesa, AZ 85202

Attn: Fran Pawlak, Community Manager
P: 4/80-831-8314
E:

AC&T Sampler: Ann

Sample Location ID:	Date:	Time:	Matrix:	P-T	NO3+NO2	TKN-Elec	Ammonia (NH3)	Hardness	Alkalinity	TDS	E. Coli	#Chl/Pheo	Alage - ID + #	Golden algae	Turb	Field Measurements: pH, Temp, O2	Sample Containers # / Preservation: None Preserved	Na2S2O3 (Sterile)	HNO3 (Nitric)	H2SO4 (Sulfuric)	Lugols	Other:	AC&T Laboratory Sample Identification
Lake 1	9/7/23	810	SW	X	X	X	X	X	X	X	X	X	X	X	X	X	14	1		1	1		CF06435
Lake 2		840	SW	X	X	X	X	X	X	X	X	X	X	X	X	X	14	1		1	1		436
Lake 3		920	SW	X	X	X	X	X	X	X	X	X	X	X	X	X	14	1		1	1		437
Lake 4		950	SW	X	X	X	X	X	X	X	X	X	X	X	X	X	14	1		1	1		438
Lake 5		1000	SW											X	X	X	2						439
Lake 6		1010	SW											X	X	X	2						440
Lake 7		1020	SW											X	X	X	2						441
Lake 8		1025	SW	X							X			X	X	X	2	1		1			442

Page1 of 1

Project Location:	A C & T Sample Receipt:				1. RELINQUISHED BY:	3. RELINQUISHED BY:
Dobson Ranch	Total # Containers:	38			Signature: Andrew Mauvet	Signature:
PO#:	Received Intact:	(YES)	NO		Print Name: Andrew Mauvet	Print Name:
Lakes Contract	# Bottles Preserved: 14	# Non:	24		Date: 9/7/23 Time: 1300	Date: Time:
Notes:	Samples On Ice:	YES	(NO)		2. RECEIVED BY:	4. RECEIVED BY:
	Ice Type:	WET	BLUE		Signature: MJ	Signature:
	Sample Receipt Temperature:	26°C			Print Name: MJ	Print Name:
					Date: 9-7-23 Time: 1300	Date: Time:

AQUATIC CONSULTING & TESTING, INC.

1525 W. University Drive, Suite 106
P.O. Box 1510
Tempe, Arizona 85281
Phone: (480) 921-8044 • Fax: (480) 921-0049

Lic. No. AZ0003

LABORATORY REPORT

Client: Dobson Ranch Association
2719 South Reyes Road
Mesa, AZ 85202

Date Submitted: 09/21/23
Date Reported: 10/03/23

Attn: Fran Pawlak, Executive Director

Project: Monthly Lake 1-8 Monitoring

RESULTS

Client ID: Lake 1
ACT Lab No.: CF06760

Sample Type: Surface Water
Sample Time: 09/21/23 09:40

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Golden Algae	09/21/23	09/21/23	P/C Microscopy	Absent	Pres/Abs
Oxygen, Dissolved Field	09/21/23	09/21/23	SM4500 O G	7.5	mg/L as O2
pH, Field	09/21/23	09/21/23	SM4500H+ B	8.1	SU
Temperature, Field	09/21/23	09/21/23	SM2550 B	26.7	C
Turbidity	09/21/23	09/21/23	180.1	7.9	NTU

Client ID: Lake 2
ACT Lab No.: CF06761

Sample Type: Surface Water
Sample Time: 09/21/23 09:50

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Golden Algae	09/21/23	09/21/23	P/C Microscopy	Absent	Pres/Abs
Oxygen, Dissolved Field	09/21/23	09/21/23	SM4500 O G	7.3	mg/L as O2
pH, Field	09/21/23	09/21/23	SM4500H+ B	8.1	SU
Temperature, Field	09/21/23	09/21/23	SM2550 B	26.3	C
Turbidity	09/21/23	09/21/23	180.1	3.5	NTU

RESULTS

Client ID: Lake 3
ACT Lab No.: CF06762

Sample Type: Surface Water
Sample Time: 09/21/23 10:00

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Golden Algae	09/21/23	09/21/23	P/C Microscopy	Absent	Pres/Abs
Oxygen, Dissolved Field	09/21/23	09/21/23	SM4500 O G	7.1	mg/L as O2
pH, Field	09/21/23	09/21/23	SM4500H+ B	8.1	SU
Temperature, Field	09/21/23	09/21/23	SM2550 B	26.7	C
Turbidity	09/21/23	09/21/23	180.1	11.	NTU

Client ID: Lake 4
ACT Lab No.: CF06763

Sample Type: Surface Water
Sample Time: 09/21/23 10:10

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Golden Algae	09/21/23	09/21/23	P/C Microscopy	Absent	Pres/Abs
Oxygen, Dissolved Field	09/21/23	09/21/23	SM4500 O G	7.6	mg/L as O2
pH, Field	09/21/23	09/21/23	SM4500H+ B	8.2	SU
Temperature, Field	09/21/23	09/21/23	SM2550 B	26.6	C
Turbidity	09/21/23	09/21/23	180.1	11.	NTU

Client ID: Lake 5
ACT Lab No.: CF06764

Sample Type: Surface Water
Sample Time: 09/21/23 10:15

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Golden Algae	09/21/23	09/21/23	P/C Microscopy	Absent	Pres/Abs
Oxygen, Dissolved Field	09/21/23	09/21/23	SM4500 O G	6.7	mg/L as O2
pH, Field	09/21/23	09/21/23	SM4500H+ B	8.2	SU
Temperature, Field	09/21/23	09/21/23	SM2550 B	25.9	C
Turbidity	09/21/23	09/21/23	180.1	4.7	NTU

RESULTS

Client ID: Lake 6
ACT Lab No.: CF06765

Sample Type: Surface Water
Sample Time: 09/21/23 10:25

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Golden Algae	09/21/23	09/21/23	P/C Microscopy	Absent	Pres/Abs
Oxygen, Dissolved Field	09/21/23	09/21/23	SM4500 O G	8.3	mg/L as O2
pH, Field	09/21/23	09/21/23	SM4500H+ B	8.3	SU
Temperature, Field	09/21/23	09/21/23	SM2550 B	27.3	C
Turbidity	09/21/23	09/21/23	180.1	15.	NTU

Client ID: Lake 7
ACT Lab No.: CF06766

Sample Type: Surface Water
Sample Time: 09/21/23 10:35

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Golden Algae	09/21/23	09/21/23	P/C Microscopy	Absent	Pres/Abs
Oxygen, Dissolved Field	09/21/23	09/21/23	SM4500 O G	7.7	mg/L as O2
pH, Field	09/21/23	09/21/23	SM4500H+ B	8.3	SU
Temperature, Field	09/21/23	09/21/23	SM2550 B	27.8	C
Turbidity	09/21/23	09/21/23	180.1	5.9	NTU

Client ID: Lake 8
ACT Lab No.: CF06767

Sample Type: Surface Water
Sample Time: 09/21/23 10:45

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Golden Algae	09/21/23	09/21/23	P/C Microscopy	Absent	Pres/Abs
Oxygen, Dissolved Field	09/21/23	09/21/23	SM4500 O G	6.7	mg/L as O2
pH, Field	09/21/23	09/21/23	SM4500H+ B	8.2	SU
Temperature, Field	09/21/23	09/21/23	SM2550 B	27.1	C
Phosphorus, Total	09/23/23	09/27/23	365.3	0.016	mg/L as P
E. coli, Colilert	09/21/23	09/22/23	SM 9223 B	31	MPN/100 mL
Turbidity	09/21/23	09/21/23	180.1	3.8	NTU

Reviewed by: Frederick A. Amalfi

Frederick A. Amalfi, Ph.D.
Laboratory Director

Aquatic Consulting & Testing, Inc.
1525 W. University Drive, Suite 106
Tempe, AZ 85281
480-921-8044 fax: 480-921-0049
lab@aquaticconsulting.com

Chain of Custody

Client Project Info:

Lake 1-8 Monthly Monitoring
Dobson Ranch Association

AC&T Client Reporting Information:

Dobson Ranch Association
2719 South Reyes
Mesa, AZ 85202

Attn: Fran Paqwlak, Community Manager
P: 4/80-831-8314
E:

AC&T Sampler: Andrew

Sample Location ID:	Date:	Time:	Matrix:	P-T	NO3+NO2	TKN-Elec	Ammonia (NH3)	E. Coli	#Chl/Pheo	Golden algae	Turb	Field Measurements: pH, Temp, O2	Sample Containers # / Preservation: None Preserved	Na2S2O3 (Sterile)	HNO3 (Nitric)	H2SO4 (Sulfuric)	Lugols	Other:	AC&T Laboratory Sample Identification
Lake 1	9/21/23	940	SW							X	X	X	2						CF06760
Lake 2		950	SW							X	X	X	2						761
Lake 3		1000	SW							X	X	X	2						762
Lake 4		1010	SW							X	X	X	2						763
Lake 5		1015	SW							X	X	X	2						764
Lake 6		1025	SW							X	X	X	2						765
Lake 7		1035	SW							X	X	X	2						766
Lake 8	↓	1045	SW	X				X		X	X	X	2	1		1			767
																		—	

Page1 of 1

Project Location:	A C & T Sample Receipt:			1. RELINQUISHED BY:	3. RELINQUISHED BY:
Dobson Ranch	Total # Containers:	18		Signature: Andrew Murphy	Signature:
PO#:	Received Intact:	YES	NO	Print Name: Andrew Murphy	Print Name:
Lakes Contract	# Bottles Preserved: 2	# Non:	16	Date: 9/21/23 Time: 1340	Date: Time:
Notes:	Samples On Ice:	YES	NO	2. RECEIVED BY:	4. RECEIVED BY:
	Ice Type:	WET	BLUE	Signature: MS	Signature:
	Sample Receipt Temperature:	26°C		Print Name: MJ	Print Name:
				Date: 9121123 Time: 1340	Date: Time:

DOBSON RANCH LAKES
Bi-Monthly Lake Inspection

Date: 9/7/23

By: Am

Lake	Temp	Dis. oxygen	pH	Clarity	Algae	Submerged weeds	Fish behavior	Waterfowl density	Insect activity	Mechanical issues
1	29.4 C	6.5 mg/L	8.1 SU	54" SDz 8.97 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☑ Absent	☑ Normal ☐ Distress ☐ Dead ___	No. 13 No/A 1	☑ Normal ☐ Infestation	Fountain ☑ Operating ☐ No service
2	29.7 C	6.3 mg/L	8.1 SU	38" SDz 4.93 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☑ Absent	☑ Normal ☐ Distress ☐ Dead ___	No. 7 No/A 1	☑ Normal ☐ Infestation	Fountain ☑ Operating ☐ No service
3	29.7 C	6.3 mg/L	8.0 SU	91" SDz 6.31 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☑ Absent	☑ Normal ☐ Distress ☐ Dead ___	No. 5 No/A 1	☑ Normal ☐ Infestation	Fountain ☑ Operating ☐ No service
4	29.6 C	6.4 mg/L	8.1 SU	45" SDz 7.95 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☑ Absent	☑ Normal ☐ Distress ☐ Dead ___	No. 5 No/A 2	☑ Normal ☐ Infestation	Fountain ☑ Operating ☐ No service
5	29.3 C	6.1 mg/L	8.0 SU	SDz 6.27 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☑ Absent	☑ Normal ☐ Distress ☐ Dead ___	No. 12 No/A 3	☑ Normal ☐ Infestation	
6	30.0 C	7.8 mg/L	8.2 SU	SDz 12.8 NTU	☐ Suspended ☑ Floating ☐ Bottom ☐ Attached	☐ Present ☑ Absent	☑ Normal ☐ Distress ☐ Dead ___	No. 17 No/A 3	☑ Normal ☐ Infestation	
7	29.6 C	7.8 mg/L	8.3 SU	SDz 5.12 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☑ Absent	☑ Normal ☐ Distress ☐ Dead ___	No. 16 No/A 2	☑ Normal ☐ Infestation	Fountain ☑ Operating ☐ No service
8	29.0 C	6.4 mg/L	8.2 SU	SDz 2.86 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☑ Absent	☑ Normal ☐ Distress ☐ Dead ___	No. 11 No/A 4	☑ Normal ☐ Infestation	Aerators ☑ Operating ☐ No service

Notes and recommendations for treatment/operation:

DOBSON RANCH LAKES
Bi-Monthly Lake Inspection

Date: 9/21/23
By: AM

Lake	Temp	Dis. oxygen	pH	Clarity	Algae	Submerged weeds	Fish behavior	Waterfowl density	Insect activity	Mechanical issues
1	26.7 C	7.5 mg/L	8.1 SU	SDz 2.9 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☒ Absent	☒ Normal ☐ Distress ☐ Dead ___	No. 14 No/A <1	☒ Normal ☐ Infestation	Fountain ☒ Operating ☐ No service
2	26.3 C	7.3 mg/L	8.1 SU	SDz 8.52 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☒ Absent	☒ Normal ☐ Distress ☐ Dead ___	No. 8 No/A 1	☒ Normal ☐ Infestation	Fountain ☒ Operating ☐ No service
3	26.7 C	7.1 mg/L	8.1 SU	SDz 11.0 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☒ Absent	☒ Normal ☐ Distress ☐ Dead ___	No. 6 No/A 1.5	☒ Normal ☐ Infestation	Fountain ☒ Operating ☐ No service
4	26.8 C	7.6 mg/L	8.2 SU	SDz 10.9 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☒ Absent	☒ Normal ☐ Distress ☐ Dead ___	No. 2 No/A <1	☒ Normal ☐ Infestation	Fountain ☒ Operating ☐ No service
5	25.9 C	6.7 mg/L	8.2 SU	SDz 4.70 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☒ Absent	☒ Normal ☐ Distress ☐ Dead ___	No. 19 No/A 5	☒ Normal ☐ Infestation	
6	27.3 C	8.3 mg/L	8.3 SU	SDz 15.4 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☒ Absent	☒ Normal ☐ Distress ☐ Dead ___	No. 36 No/A 6	☒ Normal ☐ Infestation	
7	27.8 C	7.7 mg/L	8.3 SU	SDz 5.87 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☒ Absent	☒ Normal ☐ Distress ☐ Dead ___	No. 18 No/A <1	☒ Normal ☐ Infestation	Fountain ☒ Operating ☐ No service
8	27.1 C	6.7 mg/L	8.2 SU	SDz 3.79 NTU	☐ Suspended ☐ Floating ☐ Bottom ☐ Attached	☐ Present ☒ Absent	☒ Normal ☐ Distress ☐ Dead ___	No. 14 No/A 6	☒ Normal ☐ Infestation	Aerators ☒ Operating ☐ No service

Notes and recommendations for treatment/operation: