

Technical Memorandum BCWA



Date: February 8, 2018
To: Bear Creek Watershed Association
From: Russell N. Clayshulte, Manager
Re: BCWA TM 2017.09 BCR Phytoplankton Summary

Figure 1	Phytoplankton Sampled at Site 40 in Center of Reservoir.....	1
Figure 2	<i>Microcystis aeruginosa</i>	3
Figure 3	<i>Diatoma vulgare</i>	4
Figure 5	Seasonal Average Biovolumes by Functional Groups.....	4
Table 1	Phytoplankton for Monitoring Season	2
Table 2	Phytoplankton Summary by Sample Set.....	2
Table 3	Species Diversity, Density and Biovolume by Functional Group	2
Table 4	Average Seasonal Phytoplankton Species	2

Phytoplankton samples are taken at the Site 40 buoy in BCR for the July, August, and September sample periods. The samples are 1-liter composites taken at -1 meter. Sample are taken for laboratory analyses. This resulted in 3 sample sets. The phytoplankton summary data provides general species composition, average biodensity and average total density. The *BCWA MSD17 Phytoplankton Master* spreadsheet maintains the full phytoplankton record and data analyses.



Figure 1 **Phytoplankton Sampled at Site 40 in Center of Reservoir**

Table 1 Phytoplankton for Monitoring Season

	Season Mid July- September 2017		
	Density Cells/ml	Biovolume um ³ /mL	Functional Group
Anabaena flos-aquae	11	21,461	bluegreen
Anabaena flos-aquae	892	1,913,019	bluegreen
Anabaena flos-aquae	661	1,417,073	bluegreen
Microcystis aeruginosa	14,925	2,268,627	bluegreen
Microcystis aeruginosa	75,154	601,230	bluegreen
Cryptomonas erosa	107	55,521	cryptophyte
Cryptomonas erosa	117	60,652	cryptophyte
Cryptomonas erosa	43	854	cryptophyte
Rhodomonas minuta	568	11,356	cryptophyte
Achnanthes minutissima	11	534	diatom
Achnanthes minutissima	39	1,944	diatom
Cocconeis placentula	203	93,318	diatom
Diatoma vulgare	961	2,071,781	diatom
Gomphoneis herculeana	21	115,313	diatom
Gomphonema angustatum	11	1,922	diatom
Gomphonema subclavatum	11	6,406	diatom
Melosira granulata	156	555,974	diatom
Navicula cryptocephala	11	1,975	diatom
Navicula cryptocephala	81	15,006	diatom
Rhoicosphenia curvata	267	31,230	diatom
Stephanodiscus hantzschii	81	9,734	diatom
Stephanodiscus niagarae	117	933,103	diatom
Synedra cyclosum	11	9,022	diatom
Ankistrodesmus falcatus	107	2,669	green
Ankistrodesmus falcatus	162	4,056	green
Chlamydomonas sp.	81	26,362	green
Chlamydomonas sp.	117	37,907	green
Schroederia sp.	32	1,441	green

Table 2 Phytoplankton Summary by Sample Set

Sample Date:	10-Jul-17	8-Aug-17	11-Sep-17
Total Density (#/mL):	1,804	16,791	76,359
Total Biovolume (um ³ /mL):	2,413,448	4,248,160	3,607,883
Trophic State Index:	56.2	60.3	59.1

Table 3 Species Diversity, Density and Biovolume by Functional Group

Functional Group	Species	Seasonal Ave Density #/ml	Seasonal Ave Biovolume, um ³ /mL
bluegreen	2	22,780	1,276,056
cryptophyte	2	328	25,183
diatom	12	159	319,794
green	3	88	12,313

Table 4 Average Seasonal Phytoplankton Species

	Density Cells/ml	Biovolume um ³ /mL	Functional Group
Anabaena flos-aquae	521	1,117,184	bluegreen
Microcystis aeruginosa	45,039	1,434,928	bluegreen

	Density Cells/ml	Biovolume um ³ /mL	Functional Group
Cryptomonas erosa	89	39,009	cryptophyte
Rhodomonas minuta	568	11,356	cryptophyte
Achnanthes minutissima	25	1,239	diatom
Cocconeis placentula	203	93,318	diatom
Diatoma vulgare	961	2,071,781	diatom
Gomphoneis herculeana	21	115,313	diatom
Gomphonema angustatum	11	1,922	diatom
Gomphonema subclavatum	11	6,406	diatom
Melosira granulata	156	555,974	diatom
Navicula cryptocephala	46	8,491	diatom
Rhoicosphenia curvata	267	31,230	diatom
Stephanodiscus hantzschii	81	9,734	diatom
Stephanodiscus niagarae	117	933,103	diatom
Synedra cyclosum	11	9,022	diatom
Ankistrodesmus falcatus	135	3,363	green
Chlamydomonas sp.	99	32,135	green
Schroederia sp.	32	1,441	green

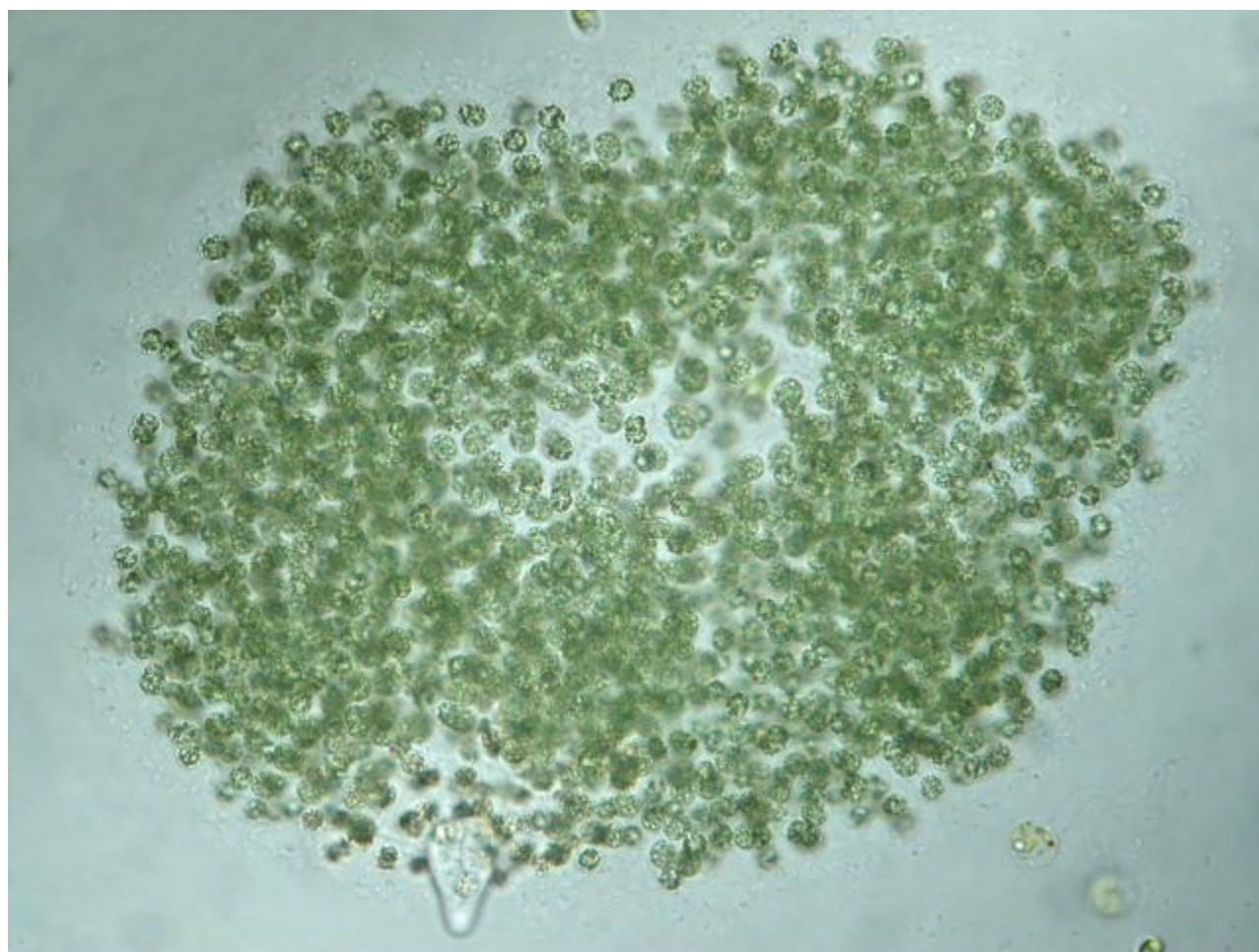


Figure 2 *Microcystis aeruginosa*

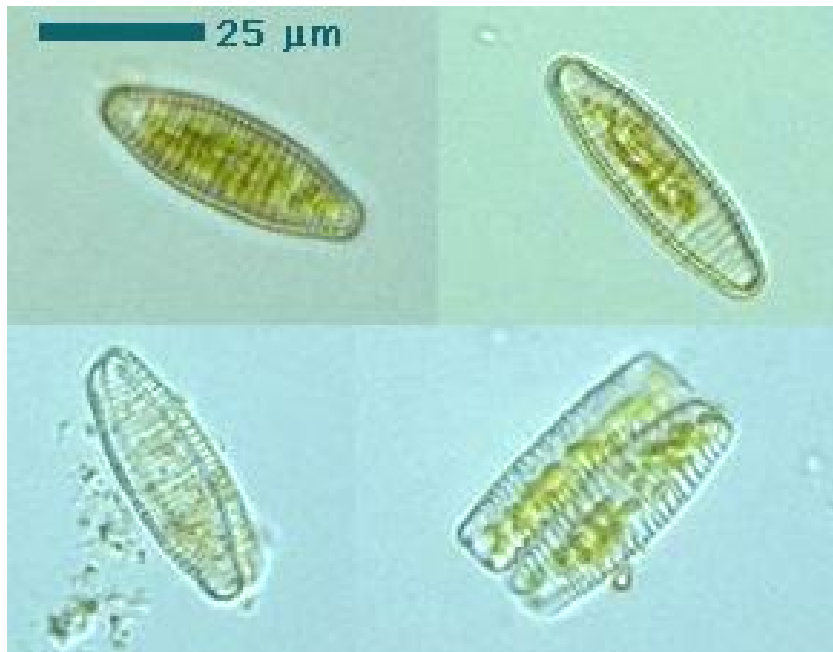


Figure 3 *Diatoma vulgare*

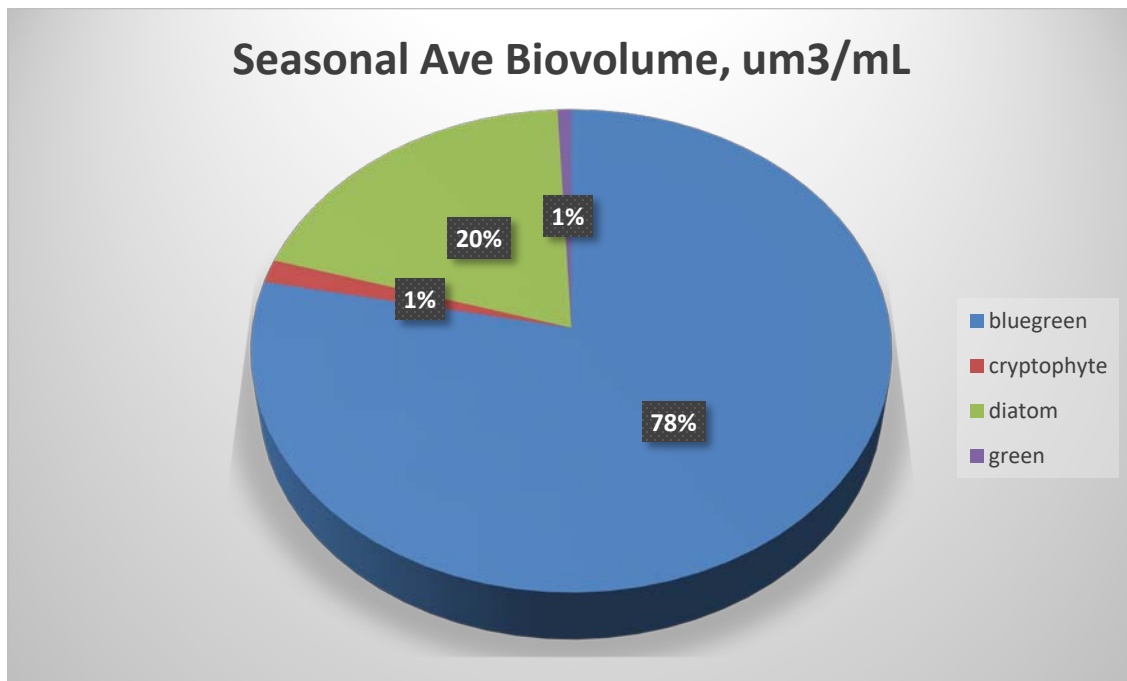


Figure 4 Seasonal Average Biovolumes by Functional Groups