

Bend Genetics, LLC
87 Scripps Drive, Ste. 301
Sacramento, CA 95825
Tel: (916) 550-1048

Date: 8/13/2018

Subject: Cyanobacteria testing results

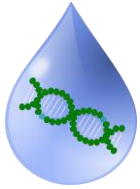
From: Tim Otten, Laboratory Director

To: Greg Hoover
Tahoe Keys Property Owners Association

Attached are the testing results for microscopy, ELISA and QPCR analyses conducted on four samples collected from the Tahoe Keys on 8/8/2018. These data have been reviewed and are considered final.

Analyses included in this report:

- Quantification of specific cyanobacterial toxins (anatoxin-a and microcystin/nodularin) using enzyme linked immunosorbent assay (ELISA).
- Quantification of toxigenic cyanobacteria (anatoxin-a and microcystin-producing cells) based on cyanobacterial gene abundances inferred by real-time quantitative polymerase chain reaction (QPCR) method.
- Microscopic identification of all potentially toxic (PTOX) cyanobacteria.

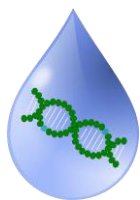


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Project: SWAMP_FHAB_2018
Analysis for Toxigenic Cyanobacteria
Project #: Tahoe Keys POA
Reported: 8/13/2018 17:15

ANALYTICAL REPORT FOR SAMPLES

Sample ID	BG_ID	Date Collected	Date Received	Matrix	Preserved
Cy-06-16	TK35	8/8/2018 14:50	8/10/2018 9:00	Water	N
Cy-06-LFAJ	TK36	8/8/2018 15:08	8/10/2018 9:00	Water	N
Cy-06-14	TK37	8/8/2018 15:39	8/10/2018 9:00	Water	N
Cy-06-06	TK38	8/8/2018 15:51	8/10/2018 9:00	Water	N



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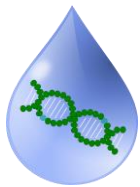
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SAMPLE RESULTS

Sample ID	Method	Target	Result	Units	Quantitation Limit	Notes
Cy-06-16	ELISA	Anatoxin-a	0.20	µg/L	0.15	
Cy-06-16	ELISA	Microcystin/Nod.	ND	µg/L	0.15	U
Cy-06-16	QPCR	Anatoxin-a	4,580	copies/mL	100	
Cy-06-16	QPCR	Microcystin	ND	copies/mL	100	U
Cy-06-LFAJ	ELISA	Anatoxin-a	ND	µg/L	0.15	U
Cy-06-LFAJ	ELISA	Microcystin/Nod.	ND	µg/L	0.15	U
Cy-06-LFAJ	QPCR	Anatoxin-a	1,423	copies/mL	100	
Cy-06-LFAJ	QPCR	Microcystin	ND	copies/mL	100	U
Cy-06-14	ELISA	Anatoxin-a	0.51	µg/L	0.15	
Cy-06-14	ELISA	Microcystin/Nod.	ND	µg/L	0.15	U
Cy-06-14	QPCR	Anatoxin-a	6,363	copies/mL	100	
Cy-06-14	QPCR	Microcystin	ND	copies/mL	100	U
Cy-06-06	ELISA	Anatoxin-a	ND	µg/L	0.15	U
Cy-06-06	ELISA	Microcystin/Nod.	ND	µg/L	0.15	U
Cy-06-06	QPCR	Anatoxin-a	902	copies/mL	100	
Cy-06-06	QPCR	Microcystin	ND	copies/mL	100	U



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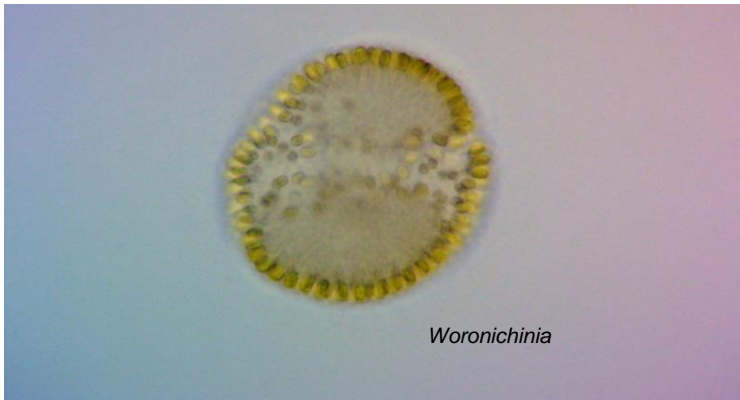
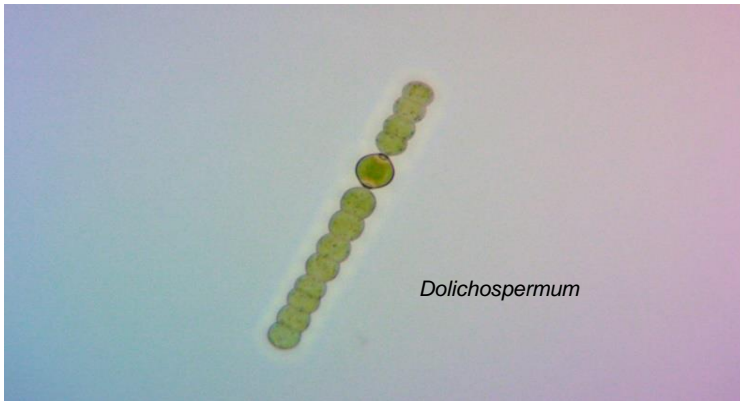
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MICROSCOPY RESULTS - Identification of CyanoHABs

Sample ID	Dominant	Sub-dominant	Also present	Notes
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Cy-06-16 *Dolichospermum* *Woronichinia*

There was a moderate amount of *Dolichospermum* sp. (consisting of both straight and coiled filaments) and a low amount of *Woronichinia* sp. in this sample; no other cyanobacteria were observed. The photomicrographs were taken under 400X magnification.

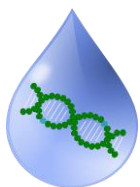


Sample ID	Dominant	Present	Present	Notes
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Cy-06-LFAJ *Dolichospermum*

There was a low amount of *Dolichospermum* sp. in this sample; no other cyanobacteria were observed. The photomicrograph was taken under 400X magnification.





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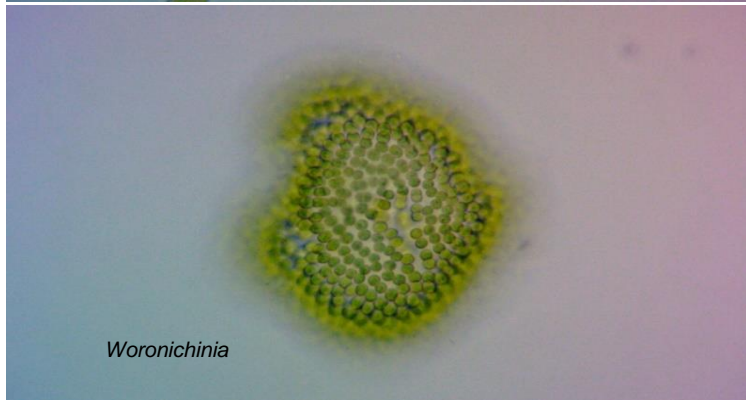
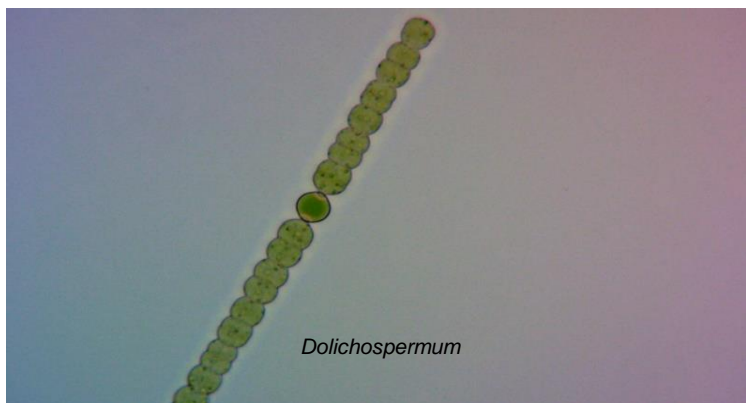
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MICROSCOPY RESULTS - Identification of CyanoHABs

Sample ID	Dominant	Sub-dominant	Also present	Notes
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Cy-06-14 *Dolichospermum* *Woronichinia*

This sample contained a moderate amount of *Dolichospermum* sp. and a low amount of *Woronichinia* sp.; no other cyanobacteria were observed. The photomicrographs were taken under 400X magnification.

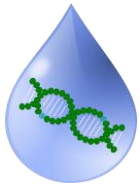


Sample ID	Dominant	Sub-dominant	Present	Notes
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Cy-06-06 *Woronichinia* *Dolichospermum*

This sample contained a moderate amount of *Woronichinia* sp. and *Dolichospermum* sp.; no other cyanobacteria were observed. The photomicrograph was taken under 400X magnification.





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QUALITY CONTROL

Method	Analyte	Result	Qualifiers / Comments	Units	Spike Level	%REC	%REC Limits
ELISA	ATX - Blank	ND	U	µg/L	0		
ELISA	ATX - Positive	0.68		µg/L	0.75	90.8	70-130
ELISA	ATX - Matrix Sp	1.23		µg/L	1.25	98.4	70-130
ELISA	MC - Blank	ND	U	µg/L	0		
ELISA	MC - Positive	0.62		µg/L	0.75	83.3	70-130
ELISA	MC - Matrix Sp	0.847		µg/L	1.00	84.7	70-130
QPCR	anaC - Blank	ND	U	copies/mL	0		
QPCR	anaC - Spike	44,272		copies/mL	50,000	88.5	70-130
QPCR	mcyE - Blank	ND	U	copies/mL	0		

QUALIFIERS/COMMENTS/NOTES

- C1 The reported concentration for this analyte is below the quantification limit.
- C2 The reported concentration for this analyte is above the calibration range of the instrument.
- J The reported result for this analyte should be considered an estimated value.
- U Undetected