ERRATA

KLAMATH RIVER BASELINE WATER QUALITY SAMPLING – 2019 ANNUAL REPORT–

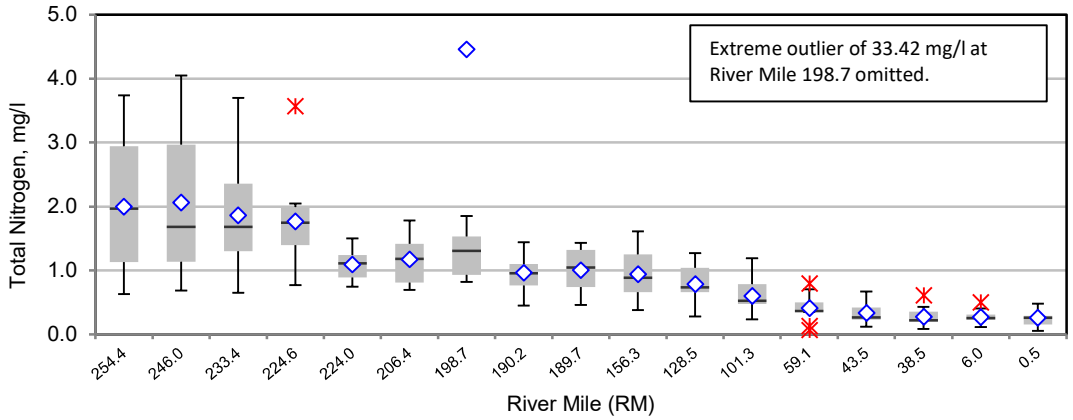
Prepared for the KHSA Water Quality Monitoring Group

Prepared by
Watercourse Engineering, Inc.
September 17, 2020

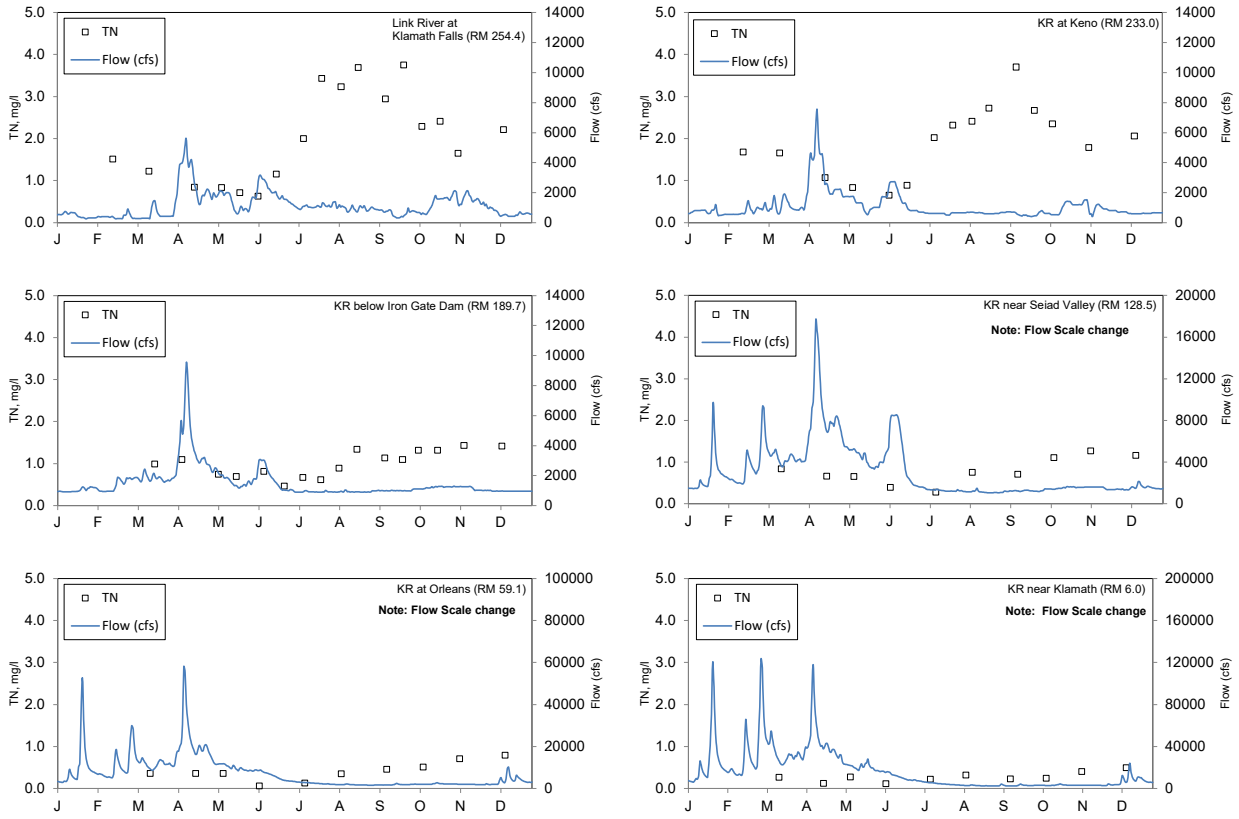
Errata

A review of the 2019 finalized dataset discovered invalid values for total nitrogen. Several corrections were made to the 2019 dataset which required the following changes be made to the Klamath River Baseline Water Quality Sampling 2019 Annual Report. Tables and figures in this errata sheet replace tables and figures with the corresponding number (e.g., Errata Figure 4 replaces report Figure 4). Completely new tables and figures are given a new number that would place them in the correct location within the original report (e.g., Errata Figure 3-a would follow report Figure 3). No changes to the report text were necessary.

1. Total nitrogen values for twenty-seven samples had been incorrectly entered into the dataset and were corrected in Figures 6 and 15.



Errata Figure 1. Total nitrogen in the Klamath River from Link River Dam to the Klamath River Estuary with median (−), mean (◊), outliers (*), and extreme outliers (○) identified (February 2019 – December 2019). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), Copco Reservoir (RM 198.74; Baseline), and Iron Gate Reservoir (RM 190.19; Baseline). River mile on x-axis not to scale. Extreme outlier of 33.42 mg/l in Copco Reservoir (RM 198.74; Baseline) omitted.



Errata Figure 2. Discrete 2019 total nitrogen (TN) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River near Seiad Valley (USGS Gage 11520500), Klamath River at Orleans (USGS Gage 11523000), and Klamath River near Klamath (USGS Gage 11530500). Note the scale change for the secondary y-axis for Klamath River at Orleans (USGS) (RM 59.1; Baseline) and Klamath River near Klamath (RM 6.0; Baseline).

2. The Appendix B 2019 KHSA baseline dataset has been revised to correct the Total Nitrogen values. The revised baseline dataset is presented in the table below in Errata Table B-1. Cells with revised data are shown in yellow.

Errata Table B-1. Klamath River Baseline Data Summary. All Non-detect values were replaced with "<" and the RL value. Sample Types include: P- Production sample; R – Regular sample associated with QA sample set; I = Depth Integrated sample.

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
2019KHSA-001	2/12/2019	10:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	1.04		122	11.22	9.45	1.42	51.86	3.37	1.32		0.39	0.38	0.22		1.51	0.01	0.04	<0.006 3	<0.006 3	15.10	19.0		
2019KHSA-007	3/12/2019	10:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	2.27	7.73	110	11.71	12.46	2.73	46.65	2.98	1.63		0.20	0.36	0.25		1.22	0.01	0.04	0.02	<0.006 3	18.80	27.9		
2019KHSA-013	4/16/2019	10:00	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	8.07	8.57	104	10.05	36.42	3.60	45.89	3.79	2.46		0.02	0.11	0.36		0.84	0.01	0.05	0.04	0.01	20.80	28.2		
2019KHSA-019	5/7/2019	9:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	15.70	7.70	107	8.27	7.90	1.88	48.22	4.35	0.93		0.03	0.10	0.15		0.83	0.02	0.06	0.02	<0.006 3	8.56	10.4		
2019KHSA-025	5/21/2019	11:00	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	12.79	8.02	108	9.45	13.65	2.33	48.14	4.44	1.23		0.06	0.14	0.17		0.71	0.04	0.10	0.02	0.01	11.60	9.1		
2019KHSA-029	6/4/2019	9:45	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	19.19	8.83	106	8.00	13.31	2.80	47.31	4.49	1.60		<0.01	0.01	0.26		0.63	0.01	0.05	0.02	0.04	13.10	12.7		
2019KHSA-035	6/18/2019	9:15	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	20.60	8.57	108	7.81	34.61	1.80	47.40	4.52	3.29		0.04	0.02	0.67		1.15		0.08	0.05	0.01	9.04	5.0		
2019KHSA-040	7/9/2019	8:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	19.60	10.44	114	10.52	129.49	0.46	48.90	6.37	8.02		0.03	<0.01	1.56		2.00	0.01	0.13	0.10	0.06	38.90	6.0		<0.15
2019KHSA-046	7/23/2019	9:45	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	22.40	9.81	110.2	8.37	222.05	0.46	45.30	7.15	13.00		0.04	<0.01	2.60		3.43	0.08	0.30	0.15	0.07	35.30	15.0		<0.15
2019KHSA-051	8/7/2019	9:00	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	23.70	9.56	106.7	6.74	219.10	0.46	54.40		11.20		0.05	0.03	2.33		3.23	0.11	0.33	0.11	0.10	57.30	6.0		0.24
2019KHSA-057	8/20/2019	9:00	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	21.50	9.52	104.6	6.51	330.29	4.12	48.20	8.21	12.60		0.07	0.01	2.55		3.69	0.11	0.33	0.15	0.11	56.20	17.0		0.21
2019KHSA-062	9/10/2019	9:45	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	17.20	9.43	104.8	7.04	148.74	0.46	50.00	7.97	8.03		0.05	<0.01	1.53		2.94	0.09	0.26	0.10	0.04	49.80	26.0		0.40
2019KHSA-068	9/24/2019	9:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	15.30	9.18	108.1	8.94	234.63	11.49	44.60	7.54	14.70		0.04	0.01	2.95		3.75	0.04	0.34	0.21	0.13	9.78	30.0		1.60
2019KHSA-073	10/8/2019	10:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	11.90	8.94	111.3	10.26	59.05	2.92	48.80	7.09	6.18		0.09	0.02	1.22		2.29	0.02	0.18	0.10	0.08	10.24	13.0		0.30
2019KHSA-079	10/22/201 9	10:35	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	9.40	8.09	114.9	8.54	29.06	1.97	52.10	6.18	4.47		0.27	0.09	0.89		2.41	0.02	0.10	0.03	0.02	9.59	5.0		0.21
2019KHSA-083	11/5/2019	9:40	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	6.50	7.60	118.7	8.63	9.82	2.93	71.50	4.92	1.96		0.54	0.20	0.34		1.65	0.01	0.07	0.02	0.03	11.28	17.0		
2019KHSA-089	12/10/201 9	9:00	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	2.40	7.59	120.8	10.78	19.70	5.55	40.60	4.51	2.77		1.07	0.24	0.42		2.21	0.03	0.10	0.03	0.01	24.56	59.0		
2019KHSA-004	2/12/2019	11:55	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	1.53		221	12.87	14.45	3.45	87.85	3.59	1.32		0.23	0.69	0.22		1.57	0.03	0.07			14.30	13.2		
2019KHSA-010	3/12/2019	11:45	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	4.66	7.42	204	10.97	15.72	2.96	80.35	5.54	2.24		0.19	0.51	0.33		1.34	0.08	0.15			29.70	34.2		
2019KHSA-016	4/16/2019	11:30	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	8.34	8.06	138	8.97	22.47	4.47	59.39	4.31	2.28		0.06	0.21	0.32		0.93	0.02	0.09			27.20	29.1		
2019KHSA-022	5/7/2019	8:45	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	16.24	7.46	115	8.06	10.46	2.33	50.31	4.49	0.97		0.09	0.13	0.15		0.88	0.05	0.08			9.65	8.0		<0.15
2019KHSA-032	6/4/2019	9:00	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	20.26	8.59	130	7.44	15.70	2.50	56.52	4.90	1.30		0.02	0.01	0.22		0.68	0.08	0.12			11.90	9.0		<0.15
2019KHSA-043	7/9/2019	11:40	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	21.10	9.88	112	5.90	39.72	2.89	30.70	6.62	5.24		0.20	0.01	1.12		1.91	0.10	0.23			28.70	5.0		<0.15

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
2019KHSA-054	8/7/2019	11:55	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	24.70	9.26	115	3.79	203.02	8.19	55.80	9.29	11.40		0.53	0.01	2.37		4.06	0.12	0.38			39.00	8.0		0.20
2019KHSA-065	9/10/2019	8:55	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	19.60	8.30	126.6	0.12	27.78	8.53	63.70	8.91	4.93		1.47	<0.01	1.10		3.59	0.13	0.38			19.00	10.0		0.27
2019KHSA-076	10/8/2019	8:20	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	11.50	7.74	158.2	6.37	145.46	3.95	69.00	6.94	8.70		0.43	0.09	1.97		3.80	0.08	0.40			6.18	21.0		<0.15
2019KHSA-086	11/5/2019	8:20	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	6.60	7.55	124.6	8.89	172.94	4.70	51.40	5.34	18.90		0.63	0.24	3.42		2.58	0.03	0.14			10.24	15.0		
2019KHSA-092	12/10/2019	10:50	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	3.00	7.52	158.3	9.79	12.30	5.77	60.30	4.12	1.58		0.79	0.40	0.25		2.08	0.04	0.10			13.07	27.0		
2019KHSA-005	2/12/2019	9:10	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	1.71		225	12.75	73.42	8.00	86.79	4.52	2.95		0.01	0.62	0.56		1.68	0.02	0.10	0.07	0.02	16.20	22.8		
2019KHSA-011	3/12/2019	9:45	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	5.16	7.16	294	9.01	33.43	11.89	114.26	6.88	2.69		0.13	0.55	0.41		1.66	0.09	0.16	0.06	0.02	23.70	28.3		
2019KHSA-017	4/16/2019	9:20	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	8.28	7.97	138	10.50	42.17	5.82	55.24	4.04	3.20		0.02	0.22	0.49		1.07	0.01	0.08	0.05	0.03	29.50	42.4		
2019KHSA-023	5/7/2019	11:00	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	15.94	7.84	134	9.33	12.14	4.06	55.11	4.65	1.62		0.04	0.11	0.27		0.83	0.05	0.09	0.05	0.01	11.00	10.6		<0.15
2019KHSA-033	6/4/2019	11:20	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	19.24	8.70	136	8.85	15.65	3.86	58.78	5.03	1.28		<0.01	0.00	0.19		0.65	0.06	0.10	0.04	0.01	13.40	13.1		<0.15
2019KHSA-038	6/18/2019	10:35	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	21.83	8.94	117	8.80			49.80				0.04	0.01			0.89		0.12			9.45			
2019KHSA-044	7/9/2019	10:45	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	20.20	9.35	174	8.91	96.97	3.86	63.80	8.39	3.36		0.23	0.02	0.74		2.02	0.16	0.29	0.08	0.08	15.50	<4		<0.15
2019KHSA-049	7/23/2019	11:30	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	22.90	9.12	135.1	7.06			52.60				0.46	<0.01			2.32	0.16	0.31			12.10			
2019KHSA-055	8/7/2019	10:40	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	23.40	8.99	125.9	6.26	112.42	37.62	58.40	9.02	5.07		0.49	0.01	1.02		2.41	0.11	0.30	0.12	0.07	11.50	6.0		<0.15
2019KHSA-060	8/20/2019	11:00	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	22.00	8.52	133.3	7.08			51.90				0.80	0.02			2.72	0.13	0.26			8.40			
2019KHSA-066	9/10/2019	11:25	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	19.20	7.64	136.3	6.52	43.55	24.55	63.20	8.71	3.63		1.78	<0.01	0.73		3.70	0.17	0.36	0.08	0.03	7.55	4.0		<0.15
2019KHSA-071	9/24/2019	11:05	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	15.30	7.97	138.7	8.50			59.10				0.65	0.06			2.67	0.11	0.22			3.96			
2019KHSA-077	10/8/2019	9:25	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	11.80	7.78	160.9	9.22	44.68	7.37	74.20	7.93	4.45		0.63	0.09	0.91		2.35	0.10	0.20	0.05	0.01	4.43	6.0		<0.15
2019KHSA-087	11/5/2019	11:05	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	6.50	7.51	126.1	10.27	9.73	4.97	64.90	5.56	1.50		0.59	0.26	0.24		1.79	0.03	0.09	0.02	<0.0063	10.12	11.0		

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
2019KHSA-093	12/10/2019	9:15	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	2.60	7.27	154.5	11.85	23.39	4.36	60.30	4.72	1.98		0.60	0.43	0.32		2.06	0.03	0.09	0.03	0.01	86.62	25.0		
KR19015	3/17/2019	9:40	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	6.862	7.666	338.569	10.76	17.34	7.21	100.2	6.7	2.25		0.11	0.546	0.295		1.57	0.1	0.155				33.6		
KR19031	4/7/2019	7:40	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	9.513	7.543	142.984	10.34	31.75	7.23	55.39	3.98	3		0.065	0.357	0.428		1.34	0.022	0.097				53.17		
KR19047	5/5/2019	7:15	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	15.27	7.559	152.946	8.81	6.90	3.56	56.93	4.72	0.886		0.054	0.138	0.13		0.87	0.068	0.108				12.75		<0.15
KR19064	6/9/2019	7:35	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	18.03	7.655	131.994	8.54	15.79	4.14	50.8	5.57	1.13		0.05	0.04	0.183		0.77	<0.005	0.118				13		<0.15
KR19082	7/9/2019	8:15	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	20.34	7.36	170.226	8.01	7.03	3.55	67.4	8.13	0.839		0.19	0.37	0.123		1.57	0.17	0.337				3		<0.15
KR19100	8/6/2019	7:15	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	23.22	7.99	98.724	7.47	8.14	7.03	55.9	8.62	1.03		0.23	0.49	0.176		1.92	0.18	0.239				5		<0.15
KR19118	9/10/2019	7:20	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	18.99	7.089	133.262	7.86	14.46	11.53	53.7	10.2	1.22		0.52	1.51	0.169		3.57	0.24	0.379				6		<0.15
KR19136	10/6/2019	7:15	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	11.16	7.459	177.058	9.75	43.97	11.17	78.3	8.98	2.19		0.11	0.45	0.376		1.95	0.09	0.185				8		<0.15
KR19153	11/10/2019	8:15	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	6.391	7.778	44.798	10.96	6.03	4.49	50.5	5.98	0.789		0.27	0.9	0.115		2.05	0.06	0.1				6		
KR19169	12/7/2019	13:55	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	2.239	7.303	140.467	11.92	8.76	4.69	43	4.82	0.971		0.4	0.79	0.142		2.01	0.04	0.103				15		
KR19032	4/7/2019	8:20	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	9.838	7.762	142.746	10.05	34.13	9.63	56.41	3.79	2.74		0.048	0.369	0.393		1.28	0.022	0.1			32.4	50.06		
KR19048	5/5/2019	8:20	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	14.87	7.89	151.618	9.09	9.70	4.53	60.23	4.08	1.25		0.039	0.143	0.176		0.74	0.067	0.097			9.57	11.69		<0.15
KR19065	6/9/2019	8:20	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	17.63	7.901	133.194	8.61	13.16	4.01	51.2	5.19	1.03		0.04	0.07	0.168		0.82	<0.005	0.116			8.3	10		<0.15
KR19083	7/9/2019	9:15	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	17.81	8.1	169.921	8.08	5.12	3.64	67.4	6.89	0.724		0.13	0.36	0.104		1.24	0.15	0.295			2.8	3		<0.15
KR19101	8/6/2019	7:50	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	17.33	7.859	132.604	8.36	5.70	4.35	62.7	4.1	0.424		0.04	0.4	<0.0789		1.17	0.11	0.129			2.66	4		<0.15
KR19119	9/10/2019	8:00	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	13.52	7.807	134.711	9.30	5.00	4.43	61.6	3.37	0.504		0.03	0.88	<0.0789		1.5	0.12	0.14			1.38	2		<0.15
KR19137	10/6/2019	8:05	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	10.33	8.145	161.732	10.10	26.00	6.79	73.2	4.88	1.24		0.03	0.34	0.209		1.05	0.08	0.118			2.24	4		<0.15
KR19154	11/10/2019	9:00	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	8.211	8.078	131.549	10.72	2.91	2.66	64.5	2.18	0.302		0.01	0.58	<0.0789		0.89	0.05	0.062			3.32	2		
KR19170	12/7/2019	14:55	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	6.676	7.902	136.572	10.81	5.10	3.60	57.8	4.21	0.578		0.08	0.61	<0.0789		1.11	0.05	0.07			8.09	5		
KR19011	3/16/2019	16:00	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	8.601	8.321	211.65	10.63	15.11	8.61	101.9	7.06	2.07		0.05	0.519	0.272		1.38	0.083	0.15	0.03969	0.01863	38.2	38.06		

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
KR19027	4/6/2019	14:30	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	10.53	7.947	161.185	10.22	29.04	8.29	62.98	3.95	2.87		0.041	0.431	0.408		1.43	0.031	0.107	0.0617	0.03054	34	50.68		
KR19043	5/4/2019	14:30	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P					8.49	4.22	58.37	4.17	1.19		<0.032	0.145	0.157		0.76	0.07	0.103	0.0146 9	<0.006 3	10.7	12.81		<0.15
KR19060	6/8/2019	14:45	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	18.93	8.265	117.157	8.93	14.68	4.89	50.9	4.85	1.08		0.02	0.07	0.165		0.93	<0.005	0.114	0.0183 3	<0.006 3	10.2	13		0.16
KR19067	6/24/2019	8:20	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	17.4	7.946	126.97	9.06							0.02	0.29			0.72	<0.005	0.108						
KR19078	7/8/2019	14:40	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	18.94	7.846	141.585	7.95	4.16	3.30	64.9	3.29	0.796		0.01	0.24	0.0903		0.69	0.09	0.182	0.0091	<0.006 3	3.25	5		<0.15
KR19085	7/22/2019	9:30	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	19.79	8.242	134.977	8.95							0.02	0.5			0.97	0.15	0.162						
KR19096	8/5/2019	13:30	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	20.31	8.56	133.179	8.38	4.65	2.84	62.9	9.14	0.789		0.02	0.39	0.12		1	0.1	0.134	0.0195 5	<0.006 3	4.46	7		<0.15
KR19103	8/19/2019	9:00	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	19.06	8.174	139.714	8.23							0.03	0.76			1.36	0.16	0.175						
KR19114	9/9/2019	14:15	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	15.92	8.543	133.965	9.64	5.20	4.55	60.7	3.19	0.688		0.01	0.81	<0.078 9		1.78	0.13	0.148	0.0091 2	<0.006 3	2.66	5		<0.15
KR19121	9/23/2019	10:00	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	14.13	8.16	198.9	9.53							0.02	0.87			1.38	0.13	0.159						
KR19132	10/5/2019	14:30	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	11.58	8.493	147.366	10.60	12.97	5.18	70.2	3.45	0.945		0.01	0.28	0.134		0.77	0.08	0.101	0.0142 6	<0.006 3	2.64	4		<0.15
KR19149	11/9/2019	14:20	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	7.908	8.572	127.812	12.08	4.35	3.43	51.7	4.96	0.535		0.01	0.94	<0.078 9		1.63	0.05	0.084	<0.006 3	<0.006 3	6.6	3		
KR19165	12/8/2019	16:00	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	5.064	8.366	139.142	12.02	8.96	5.03	50.1	3.88	0.642		0.03	0.93	0.0958		1.62	0.04	0.082	0.0096 6	<0.006 3	11.1	5		
KR19007	3/16/2019	13:40	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	8.761	8.2	303.033	10.67	4.96	2.33	97.24	4.8	0.806		0.048	0.601	0.106		1.18	0.078	0.105				10.03		
KR19008	3/16/2019	14:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					7.22	3.27																	
KR19009	3/16/2019	14:15	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	17	P	6.477	7.896	310.869	10.62	6.68	3.63	98.09	4.83	1.02		0.052	0.604	0.126		1.19	0.079	0.11				12.99		
KR19010	3/16/2019	14:30	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	27	P	5.649	7.603	359.192	9.52			102.6	5.51	1.11		0.106	0.615	0.121		1.31	0.077	0.108				12.58		
KR19023	4/6/2019	11:50	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	11.17	8.195	204.204	10.38	25.00	8.83	80.21	4.41	1.61		<0.032	0.418	0.247		1.15	0.049	0.104				20.43		
KR19024	4/6/2019	12:20	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					27.37	7.99																	
KR19025	4/6/2019	12:40	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	18	P	8.556	7.59	221.416	8.56	9.63	5.87	82.26	4.24	1.1		0.075	0.459	0.139		1.1	0.06	0.092				11.94		
KR19026	4/6/2019	12:50	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	23	P	7.507	7.362	243.356	7.54			88.42	4.71	0.936		0.116	0.5	0.116		1.24	0.07	0.101				12.43		
KR19039	5/4/2019	12:30	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	16.61	7.78	161.53	8.87	2.92	0.52	61.46	4.29	0.614		0.053	0.219	<0.078 9		0.82	0.087	0.11				2.93		<0.15
KR19040	5/4/2019	12:40	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					3.18	0.78																	<0.15
KR19041	5/4/2019	13:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	12	P	13	7.057	158.318	6.89	1.63	1.17	61.05	4.26	0.482		0.081	0.23	<0.078 9		0.8	0.093	0.111				4.41		

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
KR19042	5/4/2019	13:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	23	P	10.01	6.72	146.981	4.00			58.37	3.88	0.64		0.218	0.226	0.0836		0.99	0.101	0.129				8.66		
KR19056	6/8/2019	12:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	19.59	7.946	154.025	7.92	3.93	1.15	60.9	4.88	0.406		0.04	0.06	<0.0789		0.86	<0.005	0.098				3		<0.15
KR19057	6/8/2019	12:15	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					6.37	2.21																	<0.15
KR19058	6/8/2019	13:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	11	P	18.63	7.723	154.065	7.51	4.70	1.20	60.1	4.73	0.587		0.04	0.06	0.0815		0.75	<0.005	0.095				4		
KR19059	6/8/2019	12:45	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	27	P	10.55	6.567	236.462	0.00			59.8	4.13	0.34		0.32	0.28	<0.0789		1.16	<0.005	0.361				5		
KR19074	7/8/2019	12:30	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	21.68	9.207	131.474	11.68	51.76	2.10	55.8	4.52	2.04		0.01	<0.01	0.399		0.86	0.05	0.112				3		0.59
KR19075	7/8/2019	12:50	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					19.75	3.04																	0.41
KR19076	7/8/2019	13:20	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	17	P	16.91	6.887	133.86	1.48	1.47	1.17	58.8	4.27	0.39		0.08	0.23	<0.0789		0.77	0.12	0.187				2		
KR19077	7/8/2019	13:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	25	P	11.44	7.63	148.514	0.00			61.3	4.23	0.571		0.2	0.25	<0.0789		0.84	0.2	0.354				3		
KR19092	8/5/2019	11:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	24.09	9.487	132.988	13.50	3270.00	0.46	70.2	7.06	63.1		0.07	0.02	13		33.42	0.08	2.01				254		86
KR19093	8/5/2019	11:40	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					642.00	0.46																	13
KR19094	8/5/2019	12:05	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	20	P	14.86	7.049	146.718	0.00	14.93	0.99	65.3	4.05	0.871		0.1	0.34	0.184		0.97	0.21	0.237				3		
KR19095	8/5/2019	11:45	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	29	P	11.94	6.982	159.422	0.00			71.8	4.45	1.44		0.85	0.02	0.289		1.38	0.44	0.631				7		
KR19110	9/9/2019	12:20	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	21.5	8.898	149.854	8.10	26.90	1.81	61.9	5.21	1.23		0.06	0.48	0.227		1.47	0.14	0.161				3		0.23
KR19111	9/9/2019	12:45	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					11.72	1.74																	0.25
KR19112	9/9/2019	13:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	20	P	16.69	6.772	150.261	0.00	1.41	1.36	61.5	4.8	0.532		0.19	0.53	0.0798		1.39	0.21	0.25				3		
KR19113	9/9/2019	13:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	24	P	13.5	6.65	161.103	0.01			66.5	4.28	0.642		0.41	0.16	0.0943		1.42	0.23	0.28				4		
KR19128	10/5/2019	11:05	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	15.94	7.803	131.3	7.18	47.25	1.50	58.1	5.58	1.95		0.19	0.6	0.416		1.85	0.16	0.218				4		1.3
KR19129	10/5/2019	11:15	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					24.35	1.80																	<0.15
KR19130	10/5/2019	11:25	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	9	P	14.93	7.576	141.326	5.61	2.17	1.33	59.2	4.82	0.531		0.24	0.56	<0.0789		1.47	0.16	0.189				2		
KR19131	10/5/2019	11:35	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	22	P	13.59	7.439	152.787	5.04			66.8	5.95	0.563		0.3	0.47	<0.0789		1.5	0.17	0.232				3		
KR19145	11/9/2019	11:55	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	9.183	7.769	144.687	9.32	1.12	0.78	55.6	4.99	0.51		0.19	0.65	<0.0789		1.43	0.07	0.101				2		
KR19146	11/9/2019	12:30	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					0.99	0.84																	
KR19147	11/9/2019	12:40	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	12	P	8.227	7.678	136.902	9.21	0.87	1.14	54.8	5.37	0.326		0.17	0.69	<0.0789		1.48	0.06	0.09				2		
KR19148	11/9/2019	13:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	23	P	7.76	7.306	136.556	5.22			54.8	4.84	0.427		0.21	0.7	<0.0789		1.53	0.06	0.092				4		
KR19161	12/8/2019	13:45	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P					2.05	1.54	52.7	4.3	0.384		0.13	0.78	<0.0789		1.55	0.06	0.086				2		
KR19162	12/8/2019	14:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					2.26	1.70																	
KR19163	12/8/2019	14:35	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	17	P					1.74	1.83	55.3	4.36	0.361		0.13	0.77	<0.0789		1.51	0.05	0.091				3		

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
KR19164	12/8/2019	14:25	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	24	P							52.3	3.89	0.571		0.14	0.79	0.081		1.57	0.05	0.094				4		
KR19006	3/16/2019	12:15	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	6.497	8.002	316.151	10.90	6.15	3.19	97.88	4.91	1.1		0.053	0.599	0.131		1.2	0.081	0.11				12.23		
KR19022	4/6/2019	10:50	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	10.2	8.058	211.409	10.50	18.29	7.36	82.67	4.47	1.39		0.049	0.438	0.195		1.14	0.057	0.1				14.56		
KR19038	5/4/2019	11:30	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	14.95	7.606	161.092	8.57	2.89	1.07	60.43	4.28	0.953		0.069	0.226	0.0959		0.81	0.094	0.111				3.77		<0.15
KR19055	6/8/2019	10:45	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	18.56	7.83	155.709	7.91	4.13	1.52	60.8	4.79	0.459		0.05	0.08	<0.0789		0.77	<0.005	0.103				4		<0.15
KR19073	7/8/2019	11:30	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	22.44	8.943	130.457	10.53	19.92	5.10	59.3	4.49	1.62		0.02	0.04	0.281		0.84	0.07	0.138				4		2.5
KR19091	8/5/2019	10:00	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	24.3	9.55	141.594	10.84	240.00	9.30	65.6	5.14	13.2		0.03	0.01	2.61		1.32	0.1	0.37				32		120
KR19109	9/9/2019	11:20	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	22.13	9.405	138.736	13.18	281.42	15.45	66	5.68	11.3		0.03	0.35	2.392		4.03	0.13	0.351				31		56
KR19127	10/5/2019	10:00	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	14.8	7.505	125.672	8.47	3.71	1.64	61	5.09	0.684		0.19	0.65	0.0838		1.51	0.19	0.234				3		<0.15
KR19144	11/9/2019	10:45	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	8.497	7.753	133.709	10.18	1.19	1.43	63.5	5.49	0.475		0.15	0.7	<0.0789		1.5	0.06	0.093				2		
KR19160	12/8/2019	12:40	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	6.582	7.741	132.98	10.65	2.53	2.02	54.9	4.24	0.382		0.1	0.81	<0.0789		1.5	0.06	0.089				2		
KR19002	3/16/2019	9:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	6.615	7.582	256.336	10.94	6.26	2.25	80.82	3.88	0.86		0.07	0.521	0.119		0.99	0.056	0.085				6.2		
KR19003	3/16/2019	9:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					6.51	2.51																	
KR19004	3/16/2019	10:45	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	5	P	5.471	7.393	252.375	10.57	7.50	2.43	80.61	3.85	0.906		0.061	0.508	0.126		1.02	0.072	0.102				10.7		
KR19005	3/16/2019	11:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	44	P	4.502	7.189	259.416	9.30			82.1	3.72	1.12		0.109	0.494	0.0989		1.03	0.056	0.084				10.19		
KR19018	4/6/2019	8:20	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	9.909	7.473	195.352	9.74	4.49	2.16	81.85	4.25	0.71		0.056	0.452	0.0866		1	0.061	0.083				5.31		
KR19019	4/6/2019	9:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					5.08	2.46																	
KR19020	4/6/2019	9:40	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	6	P	9.166	7.445	207.039	9.50	5.83	3.14	80.42	4.28	0.846		0.055	0.433	0.104		1.03	0.06	0.084				8.35		
KR19021	4/6/2019	9:20	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	44	P	4.8	6.952	201.057	7.78			80.42	3.96	0.677		0.136	0.501	<0.0789		1.05	0.068	0.091				9.64		
KR19034	5/4/2019	8:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	16.18	7.045		12.03	3.06	0.82	62.49	4.16	0.507		0.044	0.243	<0.0789		0.77	0.077	0.094				2.65		<0.15
KR19035	5/4/2019	8:55	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					3.56	1.51																	<0.15
KR19036	5/4/2019	10:10	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	13	P	14.31	7.052		12.15	2.21	1.66	60.02	3.94	0.733		0.064	0.242	0.0811		0.75	0.052	0.07				6.26		
KR19037	5/4/2019	9:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	45	P	5.609	7.09		12.41			80.85	4.15	0.623		<0.032	0.678	0.0836		1.22	0.114	0.141				7.25		
KR19051	6/8/2019	8:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	17.86	7.612	157.989	8.39	5.83	1.46	60.7	4.46	0.397		0.03	0.1	<0.0789		0.73	<0.005	0.092				2		<0.15
KR19052	6/8/2019	8:20	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					6.42	1.52																	<0.15

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
KR19053	6/8/2019	9:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	16	P	13.3	6.922	153.457	5.72	1.72	1.19	58.3	3.75	0.244		0.01	0.27	<0.0789		0.85	<0.005	0.104				2		
KR19054	6/8/2019	8:50	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	39	P	5.966	6.591	211.26	3.21			77.3	4.14	0.404		0.01	0.7	<0.0789		1.29	<0.005	0.132				4		
KR19069	7/8/2019	8:20	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	22.62	8.52	117.502	9.38	9.74	2.43	57.7	4.19	1.13		0.01	<0.01	0.155		0.45	0.04	0.087				<2		1.4
KR19070	7/8/2019	8:45	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					2.86	1.32																	0.2
KR19071	7/8/2019	9:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	18	P	13.55	7.549	138.615	4.00	0.85	0.85	60.3	3.83	0.242		0.01	0.23	<0.0789		0.59	0.1	0.112				<2		
KR19072	7/8/2019	9:15	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	38	P	6.686	7.027	185.531	0.55			76.5	4.15	0.462		0.01	0.61	<0.0789		0.98	0.12	0.16				3		
KR19087	8/5/2019	7:10	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	24.42	9.459	159.23	10.59	40.04	2.75	64.5	5.49	1.7		0.03	0.01	0.301		0.92	0.03	0.065				4		11
KR19088	8/5/2019	7:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					14.56	1.53																	3
KR19089	8/5/2019	8:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	19	P	13.73	6.884	141.196	2.64	0.98	0.62	59.7	3.95	0.34		0.01	0.28	<0.0789		0.64	0.13	0.131				2		
KR19090	8/5/2019	8:10	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	42	P	7.043	7.085	186.673	0.00			76.7	4.07	0.426		0.13	0.52	<0.0789		1.12	0.15	0.171				4		
KR19105	9/9/2019	8:40	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	21.82	8.58	146.989	6.48	102.39	5.03	63.9	5.38	3.32		0.1	0.2	0.684		1.4	0.09	0.138				4		15
KR19106	9/9/2019	9:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					19.20	1.64																	3.3
KR19107	9/9/2019	9:50	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	16	P	18.5	6.709	137.39	0.11	1.20	0.86	66.5	3.97	0.665		0.17	0.16	<0.0789		0.88	0.19	0.209				2		
KR19108	9/9/2019	9:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	42	P	7.731	6.743	181.929	0.00			76.9	3.9	0.569		0.39	0.26	<0.0789		1.08	0.2	0.284				6		
KR19156	12/8/2019	9:40	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	7.391	7.716	139.981	8.47	2.01	1.46	52.6	3.93	0.577		0.17	0.63	<0.0789		1.44	0.07	0.126				2		
KR19157	12/8/2019	10:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					1.81	1.39																	
KR19158	12/8/2019	10:55	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	16	P	7.161	7.203	138.196	8.33	1.28	1.42	56.5	4.69	0.45		0.17	0.63	<0.0789		1.41	0.07	0.105				2		
KR19159	12/8/2019	10:35	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	36	P	6.705	7.103	136.867	8.57			54.6	4.48	0.4		0.17	0.68	<0.0789		1.48	0.06	0.099				2		
KR19001	3/16/2019	17:10	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	5.703	7.798	253.481	11.54	6.13	3.17	81.89	3.82	0.833		0.061	0.506	0.111		0.99	0.055	0.082	0.01444	0.00745	11.4	7.24		
KR19017	4/6/2019	15:40	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	8.213	7.774	214.967	11.76	3.13	2.11	84.52	4.38	0.701		0.069	0.473	0.089		1.1	0.065	0.089	0.00987	<0.0063	11.7	8.36		
KR19033	5/4/2019	15:30	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R					6.19	1.56	62.08	4.07	0.559		0.044	0.245	0.0885		0.75	0.071	0.09	0.01292	<0.0063	6.45	3.85		
KR19049	5/18/2019	12:40	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	15.82	7.858	159.064	9.12	7.71	2.03	62.73	3.87	0.709		0.032	0.191	0.0854		0.69	0.075	0.105	0.0093	<0.0063	5.36	3.87		
KR19050	6/8/2019	15:55	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	18.16	8	154.885	9.13	8.50	2.17	60.6	4.36	0.604		0.02	0.11	0.0939		0.81	<0.005	0.094	0.00982	<0.0063	4.3	4		
KR19066	6/24/2019	9:30	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	20.1	8.058	131.894	8.92	8.05	1.94	59.1	4.27	0.611		0.02	0.05	0.0947		0.46	<0.005	0.095	0.01304	<0.0063	4.87	4		<0.15
KR19068	7/8/2019	16:00	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	20.86	8.097	133.456	8.72	9.93	4.44	58.3	4.13	1.47		0.03	0.11	0.208		0.67	0.09	0.123	0.01236	0.01018	3.88	4		<0.15
KR19084	7/22/2019	10:40	KR18973	Klamath River below Iron Gate Dam (RM 189.73;	PacifiCorp	0.5	P	21.95	8.462	137.792	8.47	4.45	1.19	60.6	4.87	0.832		0.05	0.14	0.123		0.62	0.09	0.092	<0.0063	<0.0063	1.74	<2		0.56

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
				Baseline)				°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
KR19086	8/5/2019	14:45	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	22.98	8.786	129.994	7.76	7.03	1.50	64.8	4.43	0.496		0.11	0.19	0.0833		0.89	0.1	0.131	0.01058	<0.0063	2.09	2		2.6
KR19102	8/19/2019	10:00	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	21.5	8.082	142.628	6.98	9.22	2.08	64	5.29	1.04		0.1	0.27	0.152		1.34	0.16	0.238	0.01381	0.00684	2.35	5		3.4
KR19104	9/9/2019	15:30	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	21.04	8.524	142.208	7.33	6.70	2.32	66.1	5.13	0.601		0.17	0.29	0.0871		1.13	0.14	0.157	0.01108	<0.0063	1.1	<2		1.2
KR19120	9/23/2019	11:16	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	19.09	7.889	142.767	8.02	6.15	1.18	61.6	4.99	0.661		0.16	0.35	0.106		1.1	0.16	0.204	0.00876	0.00853	1.63	<2		1.3
KR19122	10/5/2019	16:30	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	16.8	7.478	143.317	7.29	2.61	1.25	61	5.59	0.499		0.3	0.47	<0.0789		1.32	0.18	0.201	0.00828	<0.0063	1.3	<2		0.17
KR19138	10/20/2019	10:50	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	13.49	7.327	148.804	7.88	5.74	3.29	66	4.77	0.399		0.26	0.51	<0.0789		1.32	0.17	0.198	0.00727	<0.0063	1.46	<4		<0.15
KR19139	11/9/2019	15:50	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	10.19	7.578	152.962	8.93	1.23	1.06	66.5	5.14	0.351		0.23	0.63	<0.0789		1.43	0.1	0.14	0.00703	<0.0063	2.37	2		<0.15
KR19155	12/8/2019	17:55	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	7.245	7.655	139.646	10.27	2.72	1.72	52	4.53	0.378		0.13	0.67	<0.0789		1.42	0.07	0.113	0.00882	<0.0063	3.67	2		<0.15
WA031319-OC	3/13/2019	9:30	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	5.938	8.2	235.8	12.10	4.80	4.20		3.63	0.886		0.033	0.537			1.3	0.055	0.085				6.7		
WA041719-OC	4/17/2019	10:34	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	10.7	8.04	164.1	11.00	8.00	4.70		3.6	1.31		0.027	0.306			0.849	0.028	0.073				16		
WA050819-OC	5/8/2019	10:30	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	14.77	8.21	172.2	10.21	8.00	6.90		4.06	1.73		0.022	0.171			1.1	0.059	0.231				79	7.8	<0.15
WA060519-OC	6/5/2019	10:07	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	18.17	8	457	9.21	11.00	5.00		3.6	1.3		0.029	0.088			0.595	0.06	0.11				9.8	4	<0.15
WA071019-OC	7/10/2019	11:14	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	20.85	8.53	169	9.39	1.20	1.70		3.47			0.041	0.026			0.377	0.078	0.096				1.9	1	<0.15
WA080719-OC	8/7/2019	11:15	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	23.85	8.56	173	9.15	2.10	2.50	<1.0	4.01	0.741		0.23	0.261			0.873	0.099	0.142				2.2	1.8	
WA091119-OC	9/11/2019	10:33	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	19.65	8.68	178.6	9.72	3.90	3.60		4.44	0.732		0.031	0.294			0.902	0.121	0.153				2	0.8	1.1
WA100919-OC	10/9/2019	10:24	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	14.51	8.31	189.1	10.37	1.20	2.40		3.92	0.523		0.016	0.649			1.3	0.163	0.204				2.4	1.6	
WA110619-OC	11/6/2019	12:22	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	10.5	8.26	196.3	10.92	1.20	2.20		11.2	0.393		0.028	0.61			1.61	0.125	0.151				2		
WA121119-OC	12/11/2019	11:08	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	7.019	8.18	206.4	11.51	2.10	3.50		4.15	0.454		<0.01	0.291			0.472	0.003	0.01				2.3		
SV031319-OC	3/13/2019	7:31	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	6.505	8.18	227	11.99	2.10	1.60		2.36	0.698		0.014	0.558	<0.0789		0.836	0.038	0.061	0.00817	<0.0063	3.7	7		
SV041719-OC	4/17/2019	9:15	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	10.19	8.05	160.6	11.12	3.70	2.60		2.79	1.13		0.02	0.296	0.126		0.659	0.022	0.061	0.01618	0.00993	7.3	19		
SV050819-OC	5/8/2019	9:29	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	13.82	8.17	145	10.16	2.70	2.30		2.84	0.588		0.012	0.125	<0.0789		0.657	0.033	0.054	0.01178	<0.0063	2.6	8.5	1.3	<0.15
SV060519-OC	6/5/2019	8:55	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	17.55	8.1	149	9.39	10.00	5.40	70	2.87	1.34		<0.01	0.087	0.173		0.395	0.048	0.094	0.05558	0.01394	5.3	17	4	<0.15
SV071019-OC	7/10/2019	9:48	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P					1.20	1.10		2.82			0.064	0.035			0.28	0.057	0.069			0.74	2	1	<0.15
SV080719-OC	8/7/2019	9:46	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	23.8	8.5	184	9.23	4.30	4.30		3.58	0.642		<0.01	0.107			0.753	0.078	0.116	0.04012	0.0295	0.71	2	1.1	0.25

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
SV091119-OC	9/11/2019	9:05	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	18.54	8.41	186.6	9.71	4.50	4.50		4.02	0.697		0.047	0.228	0.116		0.712	0.094	0.133	0.0368 1	0.0302 6	0.78	3.8	1.6	0.7
SV100919-OC	10/9/2019	8:58	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	13.25	8.18	198	10.32	2.00	3.20		3.77	0.459		<0.01	0.561	<0.078 9		1.11	0.16	0.177			0.77	2.8	0.8	<0.15
SV110619-OC	11/6/2019	11:18	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	9.473	8.24	208.5	11.43	2.00	3.00		16.3	0.359		0.01	0.568	<0.078 9		1.27	0.118	0.137	<0.006 3	<0.006 3	0.78	1.8		
SV121119-OC	12/11/201 9	10:03	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	7.066	8.19	216.8	11.95	3.00	4.30		3.4	0.424		0.013	0.551	<0.078 9		1.16	0.07	0.097	0.0303 2	0.0293 8	1.8	2.8		
HC031319-OC	3/13/2019	7:42	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	6.184	8.12	200.1	12.31	2.40	0.60		2.35	0.636		0.018	0.4			0.507	0.029	0.04				12		
HC041719-OC	4/17/2019	8:22	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	9.873	8.01	141.7	11.52	3.70	1.30		2.35	0.921		0.01	0.239			0.467	0.018	0.054				16		
HC050819-OC	5/8/2019	8:47	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	13.39	8.05	136.1	10.38	2.00	1.50		2.41	0.531		0.025	0.096			0.496	0.024	0.04				8	1.8	<0.15
HC060519-OC	6/5/2019	8:05	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	17.1	8.02	145.4	9.57	8.30	6.90		2.4	1.02		<0.01	0.044			0.248	0.028	0.058				11	1.6	<0.15
HC071019-OC	7/10/2019	8:37	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P					1.80	1.50		2.53			0.015	0.011			0.233	0.042	0.058				4.4	1.6	<0.15
HC080719-OC	8/7/2019	8:58	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	23.36	8.35	181.3	8.57	5.20	3.30		3.07	0.618		<0.01	0.021			0.541	0.05	0.082				2.9	1.6	<0.15
HC091119-OC	9/11/2019	8:20	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	18.4	8.33	180	9.67	4.50	6.10		3.62	0.869		0.031	0.105			0.543	0.073	0.101				3.6	1	0.48
HC100919-OC	10/9/2019	8:02	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	13.38	8.1	197	10.02	3.40	5.60		3.03	0.534		<0.01	0.422			0.869	0.119	0.148				3.8	1.4	<0.15
HC110619-OC	11/6/2019	9:23	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	9.353	8.07	201.3	11.11	3.70	4.70		15.7	0.433		<0.01	0.485			0.908	0.101	0.123				2.8		
HC121119-OC	12/11/201 9	9:22	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	7.192	8.15	206.3	11.88	4.00	5.90		3.18	0.498		0.011	0.458			1.19	0.055	0.08				3		
OR031319-OC	3/13/2019	6:24	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	7.159	8.1	157.2	12.70	1.70	<0.1	75.4	1.27	0.426		<0.01	0.215			0.354	0.018	0.027			2.2	6.6		
OR041719-OC	4/17/2019	7:01	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	9.912	8.02	121.7	12.15	2.70	2.00	57.2	1.6	0.79		<0.01	0.164			0.361	0.013	0.049			7.8	22		
OR050819-OC	5/8/2019	7:23	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	13.53	8.38	103.9	10.82	3.20	0.70	49.2	1.62	0.505		<0.01	0.061			0.361	0.011	0.065			1.9	43	3.7	<0.15
OR060519-OC	6/5/2019	6:33	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	17.11	8.26	115.8	10.02	4.5	2.6	56.6	1.64	0.656		0.012	<0.01			0.062	0.015	0.032			3	6.3	1.6	<0.15
OR071019-OC	7/10/2019	6:49	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P					1.4	0.3	69.6	1.61			0.012	<0.01			0.131	0.025	0.036			0.56	1.6	0.57	<0.15
OR080719-OC	8/7/2019	7:04	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	23.27	8.28	168.1	8.07	1.6	1.9	75.6	2.25	0.336		0.013	0.028			0.351	0.03	0.05			0.52	2	1.3	<0.15
OR091119-OC	9/11/2019	6:53	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	19.4	8.46	172.5	8.85	2.5	3.5	75.2	2.61	0.739		0.033	0.018			0.461	0.049	0.074			0.52	5.2	1.8	<0.15
OR100919-OC	10/9/2019	6:35	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	14.28	8.25	184.5	9.98	2.7	3.6	81	2.48	0.39		<0.01	0.219			0.508	0.077	0.103			0.54	2.2	0.8	<0.15

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
OR110619-OC	11/6/2019	8:00	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	9.329	8.17	190.6	11.39	4.3	4	84.6	15.2	0.219		<0.01	0.319			0.703	0.064	0.083			0.59	1.8		
OR121119-OC	12/11/2019	8:04	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	7.656	8.36	171.8	12.13	3.2	4.5	75	2.33	0.577		0.017	0.294			0.792	0.032	0.051			1.3	3.3		
WE031319-OC	3/13/2019	11:08	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	7.375	8.08	148.5		2.4	0.4		1.16	0.279		<0.01	0.197	<0.0789		0.201	0.018	0.025			3.72	4.3	0.67	
WE041719-OC	4/17/2019	10:19	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	10.045	7.97	118	11.88	2.9	1		1.47	0.575		<0.01	0.15	<0.0789		0.241	0.013	0.046			11.13	23	1.3	
WE050819-OC	5/8/2019	10:17	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	13.659	7.95	103.6	10.95	1.8	0.6		1.77	0.575		<0.01	0.058	<0.0789		0.3	0.014	0.023			4.62	7.8	1.6	<0.15
WE060519-OC	6/5/2019	10:40	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	17.497	8.08	116.8	9.97	4.6	2.1	53.8	1.71	0.534		0.013	<0.01	<0.0789		0.118	0.014	0.031			4.04	6	2	<0.15
WE071019-OC	7/10/2019	10:47	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	20.326	8.28	154	9.42	1.2	0.1		1.41	0.262		<0.01	<0.01	<0.0789		0.249	0.022	0.031			0.56	11	7.1	<0.15
WE080719-OC	8/7/2019	10:45	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	23.026	8.52	169.5	9.59	2	1		1.96	0.306		<0.01	0.018	<0.0789		0.283	0.022	0.033			1.06	2.2	1.1	<0.15
WE091119-OC	9/11/2019	10:22	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	22.096	9.35	168.6	16.76	2.1	3	74.4	2.65	0.369		<0.01	0.014	<0.0789		0.227	0.042	0.063			0.58	3.1	1.1	<0.15
WE100919-OC	10/9/2019	10:18	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	13.892	8.22	183.7	10.25	3	2.3		2.34	0.458		<0.01	0.179	<0.0789		0.46	0.069	0.091			0.81	2.7	1.3	<0.15
WE110619-OC	11/6/2019	12:25	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	9.501	8.23	187.8	11.72	4.5	3.9		10.1	0.341		<0.01	0.306	<0.0789		0.595	0.069	0.095			0.81	2.5	1.2	
WE121119-OC	12/11/2019	11:23	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	7.7	8.08	169.9		3.9	4.9		2	0.389		<0.01	0.345	<0.0789		0.669	0.031	0.048			2	3.5	1.5	
TC031319-OC	3/13/2019	9:48	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	7.571	8.03	149.3		2.1	2		0.87	0.462		0.01	0.135	<0.0789		0.191	0.014	0.035			12.6	26	3.3	
TC041719-OC	4/17/2019	9:26	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	10.48	7.96	121	11.61	2.7	2.6		1.16	0.898		0.011	0.098	<0.0789		0.124	0.011	0.067			18.5	34	2	
TC050819-OC	5/8/2019	9:12	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	13.37	7.93	109.1	10.76	1.8	0.3		1.27	0.898		<0.01	0.041	<0.0789		0.219	0.01	0.021			6.52	12	1.2	<0.15
TC060519-OC	6/5/2019	9:30	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	16.525	7.99	117.5	9.88	3.4	1.5	53.8	1.19	0.426		<0.01	<0.01	<0.0789		0.084	0.01	0.026			3.45	8	1.4	<0.15
TC071019-OC	7/10/2019	9:29	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	18.883	8.12	145.2	9.37	1.6	<0.1		1	0.238		0.024	<0.01	<0.0789		0.218	0.012	0.018			1.12	2.1	0.71	<0.15
TC080719-OC	8/7/2019	9:06	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	22.407	8.23	168.7	8.42	1.6	1.4		1.51	0.345		<0.01	0.021	<0.0789		0.221	0.014	0.025			0.73	2.7	0.89	0.16
TC091119-OC	9/11/2019	9:18	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	19.346	8.27	171	9.02	1.8	2.6	74.8	1.88	0.467		<0.01	0.012	<0.0789		0.284	0.032	0.053			0.61	4	1.4	<0.15
TC100919-OC	10/9/2019	9:03	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	13.917	8.25	179.2	10.07	2	1.9		1.95	0.336		<0.01	0.13	<0.0789		0.375	0.05	0.067			0.63	1	<0.5	<0.15
TC110619-OC	11/6/2019	11:04	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	9.648	7.88	187.3	11.39	3.2	2.8		8.73	0.298		<0.01	0.239	<0.0789		0.609	0.052	0.072			0.83	1.8	1	
TC121119-OC	12/11/2019	10:18	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	8.54	7.94	165.4	11.83	2.1	1.9		2	0.394		<0.01	0.196	<0.0789		0.43	0.021	0.037			2.33	3	1.4	
TG031319-OC	3/13/2019	7:30	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	8.128	7.9	144.6		2.9	2.9		0.917	0.319		<0.01	0.152	<0.0789		0.264	0.015	0.039	0.0220648	0.022084677	16.1	27	1.3	
TG041719-OC	4/17/2019	7:16	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	10.525	7.96	119.6	11.21	1.6	0.8		1.1	0.891		0.011	0.113	<0.0789		0.121	0.011	0.067	0.037555	0.031756	22.21	40	3.3	

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
TG050719-OC	5/7/2019	10:17	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	13.95	7.85	114.6	10.38																8.02			<0.15
TG050819-OC	5/8/2019	7:02	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	14.165	7.86	113.8	10.26	1.2	1		1.18	0.891		<0.01	0.052	<0.0789		0.272	0.011	0.024	0.014592188	0.0115264	7.81	15	1.4	
TG060419-OC	6/4/2019	11:27	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	17.957	8.09	118.9	9.81																4.27			<0.15
TG060519-OC	6/5/2019	6:56	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	16.831	7.91	119.6	9.38	1.1	1.5	57	1.15	0.366		<0.01	0.017	<0.0789		0.113	0.009	0.02	0.007800794	<0.0063	3.34	6.6	1.2	
TG070919-OC	7/9/2019	10:12	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	19.016	7.95	147.2	9.53																1.19			<0.15
TG071019-OC	7/10/2019	7:02	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	18.531	7.82	148.4	8.44	1.8	0.7		0.867	0.273		0.026	0.041	<0.0789		0.22	0.008	0.016	<0.0063	<0.0063	4.65	2.1	0.71	
TG080619-OC	8/6/2019	10:44	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	21.577	8.28	166.8	9.56																1.07			<0.15
TG080719-OC	8/7/2019	7:05	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	21.121	7.93	167.1	7.76	1.6	1.9		1.21	0.242		<0.01	0.068	<0.0789		0.32	0.012	0.02	<0.0063	<0.0063	0.93	1.1	<0.5	
TG091019-OC	9/10/2019	10:25	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	20.849	8.43	166.9	9.46																0.74			<0.15
TG091119-OC	9/11/2019	6:48	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	19.728	8.05	168.9	7.79	2.5	2.9	73.4	1.57	0.515		<0.01	0.023	<0.0789		0.231	0.022	0.041	0.008101587	<0.0063	1.67	5	1.4	
TG100819-OC	10/8/2019	10:35	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	15.46	8.68	176.6	11.31																0.44			<0.15
TG100919-OC	10/9/2019	7:06	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	14.63	8.35	177.4	9.31	3.6	2.5		1.48	0.437		<0.01	0.032	<0.0789		0.244	0.032	0.048	<0.0063	<0.0063	0.66	2.2	1	
TG110619-OC	11/6/2019	08:58	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	10.725	7.39	186.4	9.19	1.2	2.9		11.1	0.193		0.012	0.185	<0.0789		0.401	0.035	0.046	<0.0063	<0.0063	1.17	1.3	0.5	
TG121119-OC	12/11/2019	08:04	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	8.786	7.62	158.8	10.46	2.3	2.8		2.01	0.401		0.016	0.265	<0.0789		0.497	0.019	0.035	0.006645238	<0.0063	4.11	4	1.2	
LES031319-OC	3/13/2019	6:40	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	8.115	8.02	141.6		2.1	1.6		0.828	0.58		<0.01	0.128	<0.0789		0.134	0.015	0.05			16.25	31	<0.5	
LES041719-OC	4/17/2019	6:43	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	10.64	8.09	118.6	11.21	1.9	1.1		1.27	0.792		<0.01	0.102	<0.0789		0.121	0.011	0.063			26.31	43	3.3	
LES050719-OC	5/7/2019	9:20	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	13.932	7.85	120	10.22																42.5			<0.15
LES050819-OC	5/8/2019	6:33	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	14.416	7.82	114.4	10.14	1.6	0.1		1.22	0.792		<0.01	0.051	<0.0789		0.257	0.012	0.027			11.3	16	1.2	
LES060419-OC	6/4/2019	10:40	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	17.327	7.94	123.9	9.52																3.21			<0.15
LES060519-OC	6/5/2019	6:23	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	16.841	7.92	119.9	9.42	2.3	0.6	55	1.13	0.414		<0.01	0.014	<0.0789		0.054	0.011	0.02			3.32	6.4	1.2	
LES070919-OC	7/9/2019	9:10	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	19.299	7.97	678	8.77																0.93			<0.15
LES071019-OC	7/10/2019	6:29	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	19.237	7.98	421	8.52	14	2		1.06	1.07		0.017	0.01	0.173		0.288	0.005	0.029			0.84	10	2.3	
LES080619-OC	8/6/2019	12:03	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	21.863	7.88	2041	8.02																0.65			<0.15
LES080719-OC	8/7/2019	6:33	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	20.998	8.03	1292	7.80	0.9	0.4		1.27	<0.1899		0.014	0.059	<0.0789		0.286	0.016	0.021			0.92	0.67	<0.5	
LES091019-OC	9/10/2019	9:00	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	20.556	8.04	174.4	8.29																0.63			<0.15
LES091119-OC	9/11/2019	6:07	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	20.402	8.37	1013	8.82	0.9	0.7	75.2	1.72	0.209		0.017	<0.01	<0.0789		0.265	0.018	0.031			0.53	0.8	<0.5	
LES100819-OC	10/8/2019	12:00	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	15.483	8.43	446.4	10.50																0.8			<0.15
LES100919-OC	10/9/2019	6:26	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	16.646	8.43	466.2	10.16	1.4	2.3		1.6	0.448		<0.01	0.018	<0.0789		0.206	0.03	0.047			0.42	1.4	0.8	

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
LES110619-OC	11/6/2019	08:23	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	10.381	7.72	646	10.95	3.2	4		11.5	0.651		0.013	0.134	0.0882		0.476	0.036	0.08			5.4	17	2.2	
LES121119-OC	12/11/2019	07:30	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	8.674	7.63	355.2	10.87	2.1	2.6		2.3	0.34		0.041	0.19	<0.0789		0.478	0.019	0.034			5.21	4.2	1.4	
SH031319-OC	3/13/2019	10:14	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	8.144	8.52	50.9	11.39	2.6	<0.1		2.59	0.914		0.014	0.595			0.951	0.139	0.163			1.9	7.8		
SH041719-OC	4/17/2019	11:23	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	12.59	8.62	494.2	10.95	3.4	1.6		3.87	0.736		<0.01	0.155			0.519	0.111	0.143			1.9	4		
SH050819-OC	5/8/2019	11:33	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	17.5	8.61	502	9.76	5	3.9		5.29	0.946		0.014	0.051			0.879	0.147	0.174			1.3	10	2.5	
SH060519-OC	6/5/2019	11:20	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	20.1	8.51	478.1	8.91	3.3	4		4.78	1.12		0.014	0.052			0.523	0.161	0.199			3.2	10	3	
SH071019-OC	7/10/2019	12:15	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	20.92	8.66	494.3	9.19	1.4	0.2		5.04			0.021	0.01			0.468	0.168	0.184			0.63	1.3	0.57	
SH080719-OC	8/7/2019	12:13	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	23.41	8.62	565	8.78	1.6	0.5		5.76	0.548		<0.01	0.024			0.7	0.182	0.217			0.79	3.8	1.8	
SH091119-OC	9/11/2019	11:19	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	16.84	8.63	569	9.78	1.1	0.8		4.98	0.403		0.017	0.013			0.412	0.134	0.156			0.46	1	0.8	
SH100919-OC	10/9/2019	11:30	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	10.95	8.47	458.2	10.92	3.3	0.3		2.28	0.389		0.013	0.079			0.447	0.142	0.168			0.85	3.6	1.3	
SH110619-OC	11/6/2019	13:06	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	9.07	8.63	441	11.78	4.6	2.5		20.2	0.365		<0.01	0.16			0.28	0.164	0.173			0.49	1.6		
SH121119-OC	12/11/2019	11:51	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	7.071	8.41	493.2	11.49	3.7	1.7		2.8	0.365		0.019	0.349			0.784	0.189	0.223			0.93	2		
SC031319-OC	3/13/2019	9:00	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	6.714	8.29	216.6	12.08	1.3	<0.1		1.49	0.317		<0.01	0.758			1.03	0.012	0.012			1.3	3.6		
SC041719-OC	4/17/2019	9:55	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	9.101	8.17	151.4	11.51	1.8	0.5		1.71	0.508		0.011	0.315			0.403	0.006	0.022			3.9	11		
SC050819-OC	5/8/2019	10:00	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	11.46	8.13	108	10.75	2.1	0.4		2.02	0.384		0.014	0.122			0.393	0.003	0.019			2.7	11	1.5	
SC060519-OC	6/5/2019	9:33	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	14.32	8.27	594	10.42	4.8	2.9		1.57	0.664		<0.01	0.135			0.221	0.001	0.032			4.6	23	2.3	
SC071019-OC	7/10/2019	10:30	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	17.85	8.53	219	9.61	1.4	0.6		0.962			0.025	0.331			0.4	0.002	0.005			0.33	2	<0.5	
SC080719-OC	8/7/2019	10:30	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	23.01	8.63	243.3	9.29	1.8	1		0.926	0.356		<0.01	0.16			0.365	0.003	0.006			0.3	2.2	1.1	
SC091119-OC	9/11/2019	9:54	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	16.92	8.5	251.2	10.08	0.7	0.8		0.779	0.324		0.013	0.019			0.137	0.002	0.005			0.13	<0.5	<0.5	
SC100919-OC	10/9/2019	9:42	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	10.58	8.37	275.6	11.25	1.8	<0.1		0.72	0.251		<0.01	0.441			0.523	<0.001	0.011			0.34	0.6	<0.5	
SC110619-OC	11/6/2019	11:52	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	7.701	8.49	283.4	12.13	2.1	0.6		14.5	0.288		<0.01	0.56			0.757	0.001	0.003			0.13	<0.5		
SC121119-OC	12/11/2019	10:38	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	6.632	8.32	234.1	12.00	1.2	2.2		1.65	0.32		0.022	0.632			1.75	0.089	0.114			2.1	2.8		
SA031319-OC	3/13/2019	6:50	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	6.302	8.09	115.8	12.55	0.9	<0.1		0.494	0.421		0.012	0.031			<0.05	0.003	0.007			0.51	4		
SA041719-OC	4/17/2019	7:22	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	8.638	7.97	85.3	12.28	0.5	<0.1		0.92	0.36		<0.01	0.096			0.128	0.003	0.008			0.71	3.3		
SA050819-OC	5/8/2019	7:46	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	10.36	7.9	57.5	11.40	1.3	<0.1		1.09	0.306		0.016	0.057			0.317	0.002	0.01			1.1	6.2	0.83	
SA060519-OC	6/5/2019	6:59	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	14.19	8.13	62.7	10.46	1.3	0.3		0.967	0.408		<0.01	<0.01			<0.05	0.004	0.006			0.78	4	0.86	
SA071019-OC	7/10/2019	7:17	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	16.85	8.02	99.7	9.48	0.7	<0.1		0.623			<0.01	<0.01			<0.05	0.003	0.004			0.16	<0.5	<0.5	
SA080719-OC	8/7/2019	7:54	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	20.84	8.11	123	8.67	0.7	1		0.454	0.318		<0.01	0.027			0.177	0.003	0.005			0.16	1.3	1.1	

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
SA091119-OC	9/11/2019	7:19	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	17.13	7.95	139.6	8.69	0.7	0.4		0.457	0.407		0.017	<0.01			0.083	0.002	0.003			<0.1	0.6	<0.5	
SA100919-OC	10/9/2019	7:00	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	11.47	8.18	134.5	10.52	2	<0.1		0.501	0.804		<0.01	<0.01			0.056	<0.001	0.009			0.25	2	1	
SA110619-OC	11/6/2019	8:23	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	7.826	8.09	136.5	11.56	2.4	0.3		10.4	0.472		<0.01	<0.01			0.079	0.005	0.015			0.23	3.4		
SA121119-OC	12/11/2019	8:27	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	6.669	8.21	110.9	12.17	0.8	<0.1		1.16	<0.1899		<0.01	0.024			0.145	0.003	0.009			0.29	<0.5		
TR031319-OC	3/13/2019	10:54	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	7.891	8.06	153.4		1.9	3		0.642	0.421		0.014	0.066	<0.0789		0.105	0.011	0.043			18.4	35	2.3	
TR041719-OC	4/17/2019	10:08	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	11.228	7.99	126.9	11.31	2.4	2.6		0.84	0.631		0.018	0.022	<0.0789		<0.05	0.007	0.061			28.25	43	4.7	
TR050819-OC	5/8/2019	10:00	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	13.154	7.94	118.6	10.74	2	<0.1		0.774	0.631		0.011	0.014	<0.0789		0.168	0.004	0.015			6.85	11	0.8	
TR060519-OC	6/5/2019	10:22	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	15.389	8.01	119	10.17	0.9	0.2	56.2	0.671	<0.1899		<0.01	<0.01	<0.0789		<0.05	0.004	0.009			3.32	4.8	0.6	
TR071019-OC	7/10/2019	10:31	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	17.735	8.15	136.1	9.79	1.2	0.1		0.739	<0.1899		<0.01	<0.01	<0.0789		0.121	0.002	0.005			1.2	2.1	1.1	
TR080719-OC	8/7/2019	10:24	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	22.497	8.29	165.1	8.88	0.7	0.2		0.654	<0.1899		<0.01	0.027	<0.0789		0.086	0.003	0.005			0.49	<0.5	<0.5	
TR091119-OC	9/11/2019	10:06	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	19.232	8.3	164	9.52	0.5	0.6	70.8	0.691	<0.1899		<0.01	<0.01	<0.0789		<0.05	<0.001	0.005			3.39	0.6	<0.5	
TR100919-OC	10/9/2019	10:01	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	13.537	8.26	167.7	10.59	0.8	<0.1		0.74	<0.1899		<0.01	<0.01	<0.0789		0.076	0.002	0.006			1.04	<0.5	<0.5	
TR110619-OC	11/6/2019	12:05	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	9.664	8.18	185	11.83	0.7	<0.1		9.53	<0.1899		<0.01	<0.01	<0.0789		0.071	0.002	0.01			8.73	<0.5	<0.5	
TR121119-OC	12/11/2019	11:02	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	8.34	8.01	166.5		1.9	<0.1		1.82	0.308		0.021	0.063	<0.0789		0.193	0.005	0.015			2.35	3.2	1	

End of Errata

KLAMATH RIVER WATER QUALITY SAMPLING
FINAL 2019 ANNUAL REPORT

Prepared for the
KHSA Water Quality Monitoring Group

Prepared by
Watercourse Engineering, Inc.
August 24, 2020

Photo: Grant Johnson

Table of Contents

1. Introduction 1
2. Program Elements 2
3. Baseline Program Water Quality Sampling 3
4. Public Health Sampling 8
5. Water Sample Collection 10
   5.1. Analytical Samples 10
   5.2. Field Measurements 11
   5.3. Quality Assurance of Samples 11
   5.4. Water Quality Analytical Methods 11
   5.5. Algae Sample Analytical Methods 11
6. Baseline Program Water Quality Data 14
   6.1. Data Summary 14
      6.1.1. Major Tributaries (Boxplot) 17
      6.1.2. Mainstem Klamath River (Boxplot) 18
      6.1.3. Major Tributaries (Time Series) 21
      6.1.4. Mainstem Klamath River (Time Series) 22
7. Public Health Water Quality Data 30
   7.1. Public Health Advisories 30
   7.2. Data Summary 32
8. Summary 44
9. References 45

Appendix A. Baseline Water Quality Sampling Site Locations A-1
Appendix B. 2019 Baseline Data Summary B-1
Appendix C. Selected Results of 2019 Baseline Phytoplankton Analysis C-1
Appendix D. 2019 Public Health Data D-1

List of Figures

Figure 1. 2019 KHSA Klamath River baseline monitoring and public health sampling sites..... 5
Figure 2. Phytoplankton species percent biovolume for eight locations in the Klamath River: September 2019. 16
Figure 3. Baseline data for discrete dissolved oxygen, dissolved organic carbon, total nitrogen, and total phosphorus for the Shasta, Scott, Salmon, and Trinity rivers with median (−), mean (◊), outliers (*), and extreme outliers (○) identified (February 2019 – December 2019). 17
Figure 4. Discrete dissolved oxygen concentration in the Klamath River from Link Dam to the Klamath River Estuary with median (−), mean (◊), outliers (*), and extreme outliers (○) identified (February 2019 – December 2019). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), Copco Reservoir (RM 198.74; Baseline), and Iron Gate Reservoir (RM 190.19; Baseline). River mile on x-axis not to scale. 18
Figure 5. Dissolved organic carbon in the Klamath River from Link Dam to the Klamath River Estuary with median (−), mean (◊), outliers (*), and extreme outliers (○) identified (February 2019 – December 2019). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), Copco Reservoir (RM 198.74; Baseline), and Iron Gate Reservoir (RM 190.19; Baseline). River mile on x-axis not to scale. 18
Figure 6. Total nitrogen in the Klamath River from Link Dam to the Klamath River Estuary with median (−), mean (◊), outliers (*), and extreme outliers (○) identified (February 2019 – December 2019). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), Copco Reservoir (RM 198.74; Baseline), and Iron Gate Reservoir (RM 190.19; Baseline). River mile on x-axis not to scale. Extreme outlier of 33.42 mg/l in Copco Reservoir (RM 198.74; Baseline) omitted. 19
Figure 7. Total phosphorus in the Klamath River from Link Dam to the Klamath River Estuary with median (−), mean (◊), outliers (*), and extreme outliers (○) identified (February 2019 – December 2019). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), Copco Reservoir (RM 198.74; Baseline), and Iron Gate Reservoir (RM 190.19; Baseline). River mile on x-axis not to scale. Extreme outlier of 2.01 mg/l in Copco Reservoir (RM 198.74; Baseline) omitted. 19
Figure 8. Microcystin in the Klamath River from Link Dam to the Klamath River Estuary with median (−), mean (◊), outliers (*), and extreme outliers (○) identified (February 2019 – December 2019). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), Copco Reservoir (RM 198.74; Baseline), and Iron Gate Reservoir (RM 190.19; Baseline). River mile on x-axis not to scale. Extreme outliers of 86.0 µg/l and 14.74 µg/l in Copco Reservoir (RM 198.74; Baseline) omitted. No microcystin boxplots are included for River Mile 190.19 and 156.26 because there were fewer than six microcystin data points at each of these sites. 20
Figure 9. Continuous water temperature, dissolved oxygen, pH, and specific conductance data (2019) for the Shasta River, Scott River, Salmon River, and Trinity River. 21
Figure 10. Continuous water temperature, dissolved oxygen, pH, and specific conductance data (2019) for the Klamath River (KR) at Link Dam (RM 254.44; Baseline) and Klamath River above Keno Dam (surface) (RM 234.9). 22
Figure 11. Continuous water temperature, dissolved oxygen, pH, and specific conductance data (2019) for the Klamath River below Iron Gate Dam (RM 189.73; Baseline), Klamath River below Seiad (RM 128.5; Baseline), Klamath River at Weitchpec (RM 43.5; Baseline), and Klamath River above Turwar (RM 8.0). 23
Figure 12. Discrete 2019 water temperature (T_w) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River near Seiad Valley (USGS Gage 11520500), Klamath River at Orleans (USGS Gage 11523000), and Klamath River near Klamath (USGS Gage 11530500). Note the scale change for the secondary y-axis for Klamath River at Orleans (USGS) (RM 59.1; Baseline) and Klamath River near Klamath (RM 6.0; Baseline). 24

Figure 13. Discrete 2019 dissolved oxygen (DO) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River near Seiad Valley (USGS Gage 11520500), Klamath River at Orleans (USGS Gage 11523000), and Klamath River near Klamath (USGS Gage 11530500). Note the scale change for the secondary y-axis for Klamath River at Orleans (USGS) (RM 59.1; Baseline) and Klamath River near Klamath (RM 6.0; Baseline).....25
Figure 14. Discrete 2019 dissolved organic carbon (DOC) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River near Seiad Valley (USGS Gage 11520500), Klamath River at Orleans (USGS Gage 11523000), and Klamath River near Klamath (USGS Gage 11530500). Note the scale change for the secondary y-axis for Klamath River at Orleans (USGS) (RM 59.1; Baseline) and Klamath River near Klamath (RM 6.0; Baseline).....26
Figure 15. Discrete 2019 total nitrogen (TN) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River near Seiad Valley (USGS Gage 11520500), Klamath River at Orleans (USGS Gage 11523000), and Klamath River near Klamath (USGS Gage 11530500). Note the scale change for the secondary y-axis for Klamath River at Orleans (USGS) (RM 59.1; Baseline) and Klamath River near Klamath (RM 6.0; Baseline).....27
Figure 16. Discrete 2019 total phosphorus (TP) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River near Seiad Valley (USGS Gage 11520500), Klamath River at Orleans (USGS Gage 11523000), and Klamath River near Klamath (USGS Gage 11530500). Note the scale change for the secondary y-axis for Klamath River at Orleans (USGS) (RM 59.1; Baseline) and Klamath River near Klamath (RM 6.0; Baseline).....28
Figure 17. Discrete 2019 microcystin (MCYN) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River near Seiad Valley (USGS Gage 11520500), Klamath River at Orleans (USGS Gage 11523000), and Klamath River near Klamath (USGS Gage 11530500). Note the scale change for the secondary y-axis for Klamath River at Orleans (USGS) (RM 59.1; Baseline) and Klamath River near Klamath (RM 6.0; Baseline). Only surface samples are presented. Non-detect values are presented as zeros. 29
Figure 18. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected in Upper Klamath Lake at Eagle Ridge County Park (Public Health) and Upper Klamath Lake at Howard's Bay Park (Public Health) (ND indicates non-detect results). Other potentially toxic cyanobacteria present at Upper Klamath Lake at Howard's Bay Park included *Gloeotrichia echinulate*.....33
Figure 19. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected in Upper Klamath Lake at Moore Park (Public Health) (ND indicates non-detect results). 34
Figure 20. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected in Keno Reservoir at Keno Park (Public Health) and J.C. Boyle Reservoir at Topsy Campground (Public Health) (ND indicates non-detect results). Other potentially toxic cyanobacteria present at Keno Reservoir at Keno Park (Public Health) included *Planktothrix limosa* and *Limnothrix sp.* Other potentially toxic cyanobacteria present at J.C. Boyle Reservoir at Topsy Campground (Public Health) included *Planktothrix limosa* and *Limnothrix sp*.....35
Figure 21. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected in Copco Reservoir at Copco Cove (Public Health) and Mallard Cove (Public Health) (ND indicates non-detect results). Other potentially toxic cyanobacteria present at Copco Reservoir at Mallard Cove (Public Health) included *Planktothrix limosa* and *Planktolyngbya sp.*.....36

Figure 22. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected in Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health) and Iron Gate Reservoir at Camp Creek (Public Health) (ND indicates non-detect results). Other potentially toxic cyanobacteria present at Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health) included *Limnothrix sp.* Other potentially toxic cyanobacteria present at Iron Gate Reservoir at Camp Creek (Public Health) included *Limnothrix sp.* 37
Figure 23. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected at Klamath River below Iron Gate Dam (RM 189.73; Public Health) and Klamath River at I-5 Rest Area (RM 179.20; Public Health) (ND indicates non-detect results). 38
Figure 24. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected at Klamath River at Brown Bear River Access (RM 150.00; Public Health) and Klamath River below Seiad (RM 128.5; Public Health) (ND indicates non-detect results). Other potentially toxic cyanobacteria present at Klamath River at Brown Bear River Access (RM 150.00; Public Health) included *Dolichospermum variabilis*. 39
Figure 25. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected at Klamath River below Happy Camp (RM 101.3; Public Health) and Klamath River at Orleans (USGS) (RM 59.1; Public Health) (ND indicates non-detect results). Other potentially toxic cyanobacteria present at Klamath River below Happy Camp (RM 101.3; Public Health) included *Dolichospermum variabilis.* 40
Figure 26. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected at Klamath River at Weitchpec (RM 43.5; Public Health) and Klamath River near Klamath (RM 6.0; Public Health) (ND indicates non-detect results). Other potentially toxic cyanobacteria present at Klamath River at Weitchpec (RM 43.5; Public Health) included *Dolichospermum variabilis.* 41
Figure 27. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected at Klamath River at South Slough (RM 0.1; Public Health) (ND indicates non-detect results. Other potentially toxic cyanobacteria present at Klamath River at South Slough (RM 0.1; Public Health) included *Dolichospermum sp.* and *Planktothrix limosa*. 42
Figure 28. 2019 microcystin (MCYN) concentrations from public health program: at all public health sampling sites (top left), Oregon sites (top right), California reservoir sites (bottom let), and California Klamath River sites from Iron Gate Dam downstream (bottom right). ND (○) indicates non-detect results. Sites in Upper Klamath Lake and reservoirs were given approximate river miles to locate them appropriately on the graph. 43

List of Tables

Table 1. 2019 Baseline monitoring locations, sampling frequency, and sampling entities. 6
Table 2. 2019 Klamath River public health monitoring locations, constituents, method, and sampling frequency. 9
Table 3. 2019 Analyzing laboratory method references, method detection limits (MDLs), and method reporting limits (RLs) for water quality constituents. Units presented in milligrams per liter (mg/L) or parts per million (ppm) unless otherwise noted. All unique MDLs and RLs are shown. 13
Table 4. United States Geological Survey (USGS) flow gage locations for time series data. 15
Table 6. Oregon Health Authority health advisories actions in 2019. 30
Table 7. California State Water Resources Control Board (SWRCB) health advisories actions in 2019. 31

1. Introduction

On November 13, 2008, the United States, the states of California and Oregon, and PacifiCorp executed an Agreement in Principle (AIP) describing a framework for possible removal of four of PacifiCorp's dams on the Klamath River. Interim Measure 12 of the AIP stipulated a water quality monitoring program, including on-going monitoring of cyanobacteria (blue-green algae) and associated toxins. The Klamath Hydroelectric Settlement Agreement (KHSA), signed on February 18, 2010 (subsequently amended on April 6, 2016), superseded the AIP. Interim Measure 15 (IM 15) - Water Quality Monitoring states that PacifiCorp shall fund ($500,000 per year) long-term baseline water quality monitoring to support water quality improvement activities, dam removal studies, permitting studies, and form a long-term record to assess trends and other potential changes in the basin. This includes funding for cyanobacteria and cyanobacteria-generated toxin monitoring to protect public health. The monitoring is performed by an entity or entities agreed upon by the parties to the KHSA and in consultation with the appropriate water quality agencies. The 2019 water quality monitoring program conducted under IM 15 represents the eleventh year of water quality monitoring under the AIP and the KHSA.

The monitoring program is a cooperative effort of the KHSA Monitoring Group[1]. This group developed the KHSA IM 15 monitoring study plan that is located on PacifiCorp's Klamath website[2], as well as the Klamath Basin Monitoring Program (KBMP) website[3]. Actual monitoring is completed by a sub-set of the Monitoring Group that includes the Yurok Tribe, Karuk Tribe, PacifiCorp, the Oregon Department of Environmental Quality, and the U.S. Bureau of Reclamation (USBR). The program continues to collect data from sites along 254 miles of river and reservoirs from Link River Dam near Klamath Falls in Oregon to the Klamath River Estuary in California. Annual planning and coordination meetings include the IM 15 Monitoring Group and interested stakeholders. The IM 15 Monitoring Group ensures that the intent of IM 15 is met, appropriate quality assurance protocols and standard operating procedures are in place, water quality conditions and sampling matters are tracked in a timely fashion, and the process is transparent.

This report summarizes the results from the 2019 baseline data collection, as well as the 2019 public health data collection. Four appendices accompany this report: the baseline sampling locations (Appendix A); the 2019 baseline grab sample results and field measurements (Appendix B); the phytoplankton species charts and biovolume graphs (Appendix C); and the 2019 public health data (Appendix D).

[1] The KHSA Monitoring Group consists of representatives from the North Coast Regional Water Quality Control Board; Oregon Department of Environmental Quality; U.S. Environmental Protection Agency, Region IX; Karuk Tribe; Yurok Tribe; PacifiCorp; and U.S. Bureau of Reclamation.

[2] https://www.pacificorp.com/energy/hydro/klamath-river.html

[3] http://kbmp.net/collaboration/klamath-hydroelectric-settlement-agreement-monitoring

2. Program Elements

The primary elements of the 2019 IM 15 monitoring program included baseline and public health monitoring. The baseline water quality monitoring element included water quality grab samples, physical observations associated with these grab samples, water quality probe measurements, and algae species data. The grab samples were collected for analytical determination of a suite of water quality constituents (Section 5.1). The water quality probes recorded observations at hourly or sub-hourly intervals. Parameters sampled by probes included water temperature, dissolved oxygen, specific conductivity, and pH at specific locations in the Klamath River (Table 1). The algae data in the baseline monitoring element included algae species identification and quantification from samples collected at each sampling location. The grab sample and water quality probe data and algae species quantification are presented in this report and are available in electronic form. Monitoring was carried out from February through December 2019.

The public health monitoring program consisted of sampling of algae species at specific sites within reservoirs and river reaches and was focused on toxin-producing algae species and algal toxin sampling. These results were presented in public health memoranda produced by the sampling entities throughout the season[4]. These memoranda were used to track phytoplankton and toxin conditions and supported management decisions to post and de-post reservoir and river reaches with public health advisory information. A summary of the 2019 public health monitoring program data is presented herein.

The KBMP hosts reports from previous years, associated program documents, and other materials and features that provide transparency to the KBMP process that are directly transferable to the IM 15 monitoring program. There are other Klamath River monitoring efforts outside of the IM 15 program that are sponsored by individual entities, including those that participate in the IM 15 program. However, only data collected under the IM 15 are included in this report.

[4] PacifiCorp public health memoranda are available online at https://www.pacificorp.com/energy/hydro/klamath-river.html. All memoranda (including those from the Karuk and Yurok tribes) are available online at: http://www.kbmp.net/bga

3. Baseline Program Water Quality Sampling

In 2019, baseline sampling was conducted at 22 sites along the Klamath River and its tributaries, from Link Dam to the Klamath River Estuary (Figure 1), by the four sampling entities: USBR, PacifiCorp, Karuk Tribe, and Yurok Tribe. Fifteen of those sites were located on the mainstem of the Klamath River, three sites were located in the reservoirs on the Klamath River, and four sites were located on the major tributaries of the Klamath River (Shasta, Scott, Salmon, and Trinity rivers). Sampling locations, sampling frequency, and sampling entity vary across the study area (Table 1).

Discrete physical parameters (water temperature, dissolved oxygen, specific conductivity, and pH) were collected at all sites when grab samples were collected during the sampling year. Continuous physical parameters were collected at six sites, four of which are baseline program sites and two of which are near baseline program sites. Sondes were deployed to collect continuous water physical parameters at the following baseline program sites: Link Dam (RM 254.44; Baseline) (maintained by USBR), Klamath River below Iron Gate Dam (RM 189.73; Baseline) (maintained by PacifiCorp), Klamath River below Seiad (RM 128.5; Baseline) (maintained by the Karuk Tribe), and Klamath River at Weitchpec (RM 43.5; Baseline) (maintained by the Yurok Tribe).

One of the two non-baseline program locations for sonde deployment was Klamath River above Keno Dam, at River Mile 234.9, which is just upstream of Klamath River below Keno Dam near a U.S. Geological Survey (USGS) gage (RM 233.4; Baseline). This sonde was maintained by USGS, with USBR providing funding and oversight for its maintenance and deployment. While data collected upstream of Keno Dam is not a proxy for water quality conditions downstream of the dam, as conditions can differ in Keno Reservoir and in the Klamath River downstream of Keno Dam, the sonde provided data to illustrate conditions at the downstream end of the reservoir prior to water being released to Klamath River. The other non-baseline program location for sonde deployment was Klamath River above Turwar, at River Mile 8.0, which is upstream of the baseline sampling site Klamath River near Klamath (RM 6.0; Baseline). This sonde was maintained by the Yurok Tribe and provided the physical conditions of the mouth of the Klamath River upstream of the estuary.

Except for four sites, grab samples of all other baseline water quality constituents were collected monthly (Table 1). At Link Dam (RM 254.44; Baseline) and Klamath River below Iron Gate Dam (RM 189.73; Baseline) samples were collected bi-monthly from May through October and monthly for the remainder of the sampling season. At the Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline) and Klamath River above Shovel Creek (RM 206.42; Baseline) sites samples were collected bi-monthly from June through September and monthly for the remainder of the sampling season.

The following constituents were analyzed in 2019: inorganic nitrogen (total nitrogen, nitrate+nitrite, and ammonia), particulate nitrogen, particulate phosphorus, particulate inorganic phosphorus, inorganic phosphorus (total phosphorus and orthophosphate),

particulate carbon, dissolved organic carbon, total suspended solids, turbidity, chlorophyll-*a*, pheophytin, and microcystin. Phytoplankton species samples were also collected. Not all parameters were analyzed for samples from every site (Table 1). Data results from the 2019 baseline grab samples are presented in Appendix B.

The baseline program has gone through several revisions throughout its implementation. In 2016, the IM 15 sampling program substantially exceeded the available budget, and therefore changes were made after 2016 to control costs. There were no changes made to the 2019 baseline sampling program compared to the 2017 and 2018 baseline program.

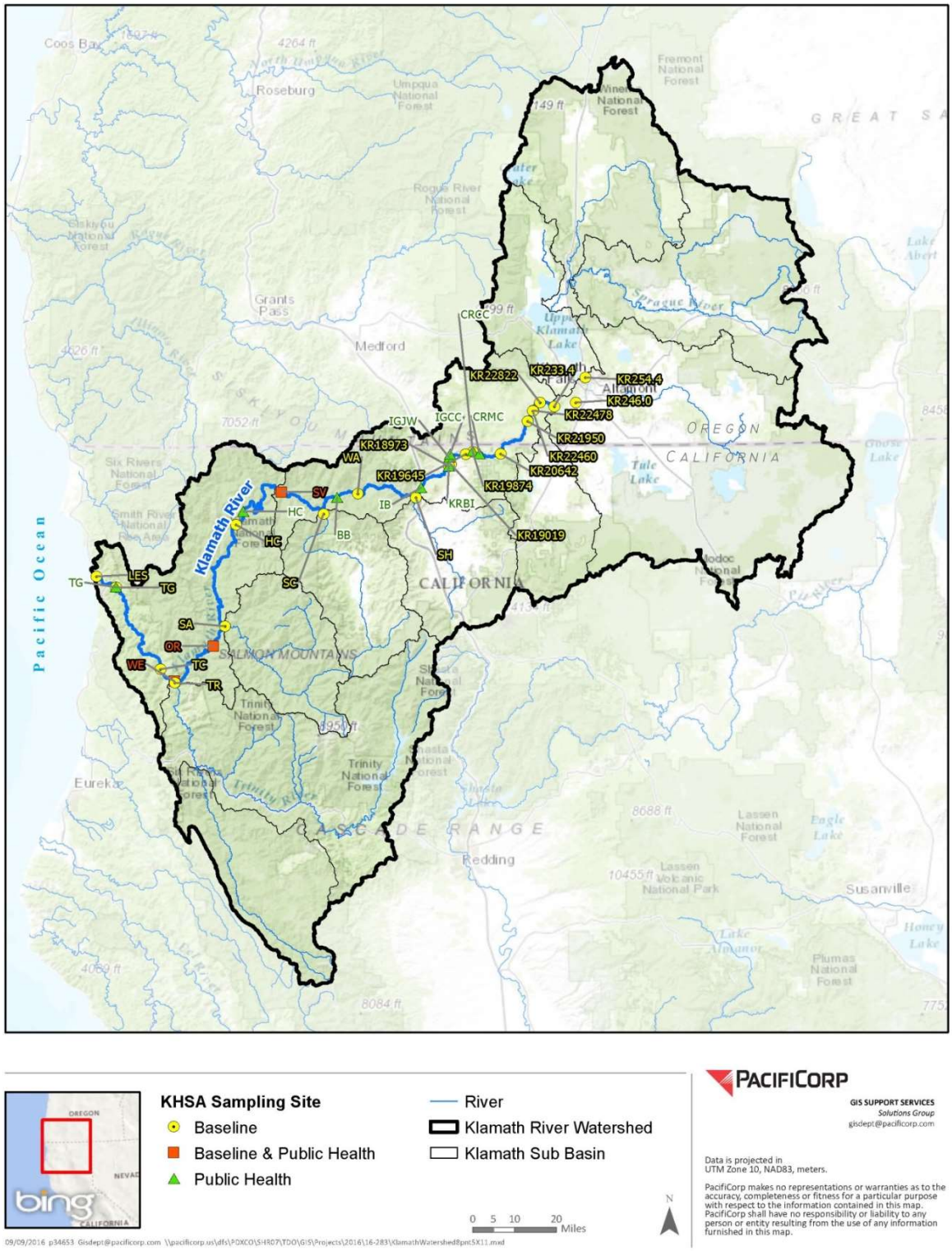


Figure 1. 2019 KHSA Klamath River baseline monitoring and public health sampling sites

Table 1. 2019 Baseline monitoring locations, sampling frequency, and sampling entities.

Site ID	Monitoring Location	Water Temperature (°C)	Dissolved Oxygen (mg/l)	pH (log(H+))	Conductance (µS/cm)	Total N (mg/l)	Ammonia N (mg/l)	Nitrite + Nitrate (mg/l)	Total P (mg/L)	Ortho P (mg/L)	Particulate P & Particulate Inorganic P (mg/l)	Dissolved Organic N & P (mg/l)	Particulate and Dissolved C (mg/l)	Particulate N (mg/l)	TSS (mg/l)	Alkalinity (mg/l)	Water Column chl_a/Pheo (µg/l)	Phytoplankton species	Microcystin (µg/l)	LCMS confirmation	Turbidity (NTU)	Sampling Entity
	Sampling Method:	*T, P*	*P*	*P*	*P*	*G*	*G*	*G*	*G*	*G*	*G*	*G*	*G*	*G*	*G*	*G*	*G*	*G*	*G*	*G*	*G*	
KR25444	Link Dam (RM 254.44; Baseline)	H	H	H	H	M/BM	M/BM	M/BM	M/BM	M/BM	M/BM	M/BM	M/BM	M/BM	M/BM	M/BM	M/BM	M/BM	BM/S		M2/BM2	USBR
KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	H	H	H	H	M2	M2	M2	M2	M2			M2		M2	M2	M2	M/S	M/S		M2	USBR
KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	D	D	D	D	M2/BM2	M2/BM2	M2/BM2	M2/BM2	M2/BM2	M		M	M	M	M2/BM2**	M	M/S	M/S		M2/BM2	USBR
~~KR23822~~	~~Klamath River above J.C. Boyle Reservoir (RM 228.22; Baseline)~~																					Dropped
~~KR22478~~	~~J.C. Boyle Reservoir (RM 224.78; Baseline)~~[a]																					Dropped
KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	D	D	D	D	M	M	M	M	M			M		M	M	M	M/S	M/S			PacifiCorp
KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	D	D	D	D	M	M	M	M	M			M		M	M	M	M/S	M/S		M	PacifiCorp
KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	D	D	D	D	M3/BM2	M3/BM2	M3/BM2	M3/BM2	M3/BM2	M		M	M	M	M	M	M/S	M/S		M	PacifiCorp
KR19874	Copco Reservoir (RM 198.74; Baseline)[b]	VP	VP	VP	VP	M	M	M	M	M			M		M	M	M	M/S	M/S			PacifiCorp
KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	D	D	D	D	M	M	M	M	M			M		M	M	M	M-/S	M/S			PacifiCorp
KR19019	Iron Gate Reservoir (RM 190.19; Baseline)[c]	VP	VP	VP	VP	M	M	M	M	M			M		M	M	M	M/S	M/S			PacifiCorp
KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	H	H	H	H	M2/BM	M2/BM	M2/BM	M2/BM	M2/BM	M2/BM		M2/BM	M2/BM	M2/BM	M2/BM	M2/BM	M2/BM	BM/S		M2/BM	PacifiCorp
KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	D	D	D	D	M	M	M	M	M			M		M	*	M	M/S	M/S	S2		Karuk
KR12850	Klamath River below Seiad (RM 128.5; Baseline)	H	H	H	H	M	M	M	M	M	M		M	M	M	*	M	M/S	M/S		M	Karuk
KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	D	D	D	D	M	M	M	M	M			M		M	*	M	M/S	M/S			Karuk
KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	H	H	H	H	M	M	M	M	M			M		M	M	M	M/S	M/S		M	Karuk
KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	H	H	H	H	M	M	M	M	M			M		M	*	M	M/S	M/S	S2		Yurok
KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	H	H	H	H	M	M	M	M	M			M		M	*	M	M/S	M/S			Yurok
KR00600	Klamath River near Klamath (RM 6.0; Baseline)[d]	H	H	H	H	M	M	M	M	M	M		M	M	M	*	M	M/S	M/S		M	Yurok
KR00050	Klamath River Estuary (RM 0.5; Baseline)[e]	HP	D	D	D	M	M	M	M	M			M		M	*	M	M/S	M/S			Yurok
SH00000	Shasta River near mouth (Baseline)	H	H	H	H	M	M	M	M	M			M		M	*	M	*			M	Karuk
SC00000	Scott River near mouth (Baseline)	H	H	H	H	M	M	M	M	M			M		M	*	M	*			M	Karuk
SA00000	Salmon River near mouth (Baseline)	H	H	H	H	M	M	M	M	M			M		M	*	M	*			M	Karuk
TR00000	Trinity River near mouth (Baseline)	H	H	H	H	M	M	M	M	M			M		M	*	M	*			M	Yurok

Notes:
[a] Sampling at one depth in J.C. Boyle reservoir (0.5 m depth = surface)
[b] Sampling at three depths in Copco Reservoir (0.5 m below surface, thermocline, and 0.5 m above bottom)
[c] Sampling at three depths in Iron Gate Reservoir (0.5 m below surface, thermocline, and 0.5 m above bottom)
[d] Continuously deployed sonde is located 2 miles upstream of this site at Klamath above Turwar (RM8.0)
[e] Hourly measurements at four locations (two in lower estuary, one in mid-estuary, and one in upper estuary) at two depths (0.5 m below surface and 0.5 m above bottom)
Key:
Sampling Method
T – Thermistor
P – Probe or data sonde
G – Grab sample
Sampling Frequency Codes
VP – vertical profile at stated sampling frequency
H – hourly measurements by sondes (in some instances sub-hourly data may be collected)
D – Discrete sample
HP - Hourly measurements in a profile
M – monthly sampling, excluding January and February
M2 – monthly sampling, excluding January
M/S – monthly sampling, seasonally from May through October
M/BM – Bi-monthly sampling May - October and monthly sampling the remainder of the year, excluding January
M2/BM – Bi-monthly sampling May - October and monthly sampling the remainder of the year, excluding January and February
M2/BM2 – Bi-monthly sampling June-September and monthly the remainder of the year, excluding January
M3/BM2– Bi-monthly sampling June-September and monthly the remainder of the year, excluding January and February
M- = Monthly Sampling with exception of December, January, and February
BM/S –Bimonthly sampling July-Oct
S2 – monthly sampling July – Oct
***** - Not sampled This parameter is covered at a M/S frequency by Tribal Water Quality Workgroup

4. Public Health Sampling

To determine the potential risks to public health resulting from exposure to cyanobacteria and the toxins they produce in the Klamath River, public health monitoring included water column and shoreline water sampling within Upper Klamath Lake, the Klamath River, and reservoirs. Several species of cyanobacteria have been documented in the Klamath River, including but not limited to *Aphanizomenon flos aquae* (AFA)*, Microcystis aeruginosa* (MSAE)*, Dolichospermum flos aquae* (formerly *Anabaena flos aquae*), and *Planktothrix* sp. *(formerly Oscillatoria* sp.). Since 2004, Klamath River public health sampling has documented elevated levels of toxin-producing cyanobacteria, primarily MSAE and the associated toxin microcystin. Microcystins are a class of toxic chemical that is produced by some strains of cyanobacteria, including MSAE, and are released into the water when cyanobacterial cells die or cell membranes degrade. Microcystins at elevated levels can present risks to human health and to terrestrial and aquatic species, and result in impairments to a number of beneficial uses for the Klamath River system. Microcystin toxins can induce skin rashes, sore throat, oral blistering, nausea, gastroenteritis, fever, liver toxicity, and general tumor promotion (WHO 2003; OEHHA 2012).

There were no changes to the 2019 public health sampling program compared to the 2018 program.

Table 2. 2019 Klamath River public health monitoring locations, constituents, and sampling frequency.

Location	Site ID	River Mile	Phytoplankton Species	Microcystin	LC/MS/MS water for cyanotoxins	Sampling Entity
Upper Klamath Lake at Eagle Ridge County Park (Public Health)	UKEP	-	PPLK-1	BM7-mod	-	ODEQ
Upper Klamath Lake at Howard's Bay Park (Public Health)	UKHP	-	PPLK-1	BM7-mod	-	ODEQ
Upper Klamath Lake at Moore Park (Public Health)	UKMP	-	PPLK-1	BM7-mod	-	ODEQ
Keno Reservoir at Keno Park (Public Health)	KEKP	234.0	PPLK-1	BM7-mod	-	ODEQ
J.C. Boyle Reservoir at Topsy Campground (Public Health)	BRTC	225.0	PPLK-1	BM7-mod	-	ODEQ
Copco Reservoir at Mallard Cove (Public Health)	CRMC	200.8	PPLK-1	BM7-mod	S	PacifiCorp
Copco Reservoir at Copco Cove (Public Health)	CRCC	198.5	PPLK-1	BM7-mod	S	PacifiCorp
Iron Gate Reservoir at Camp Creek (Public Health	IRCC	192.8	PPLK-1	BM7-mod	S	PacifiCorp
Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	IRJW	192.4	PPLK-1	BM7-mod	S	PacifiCorp
Klamath River below Iron Gate Dam (RM 189.73; Public Health)	KRBI	189.7	PPLK-1	BM7-mod	-	PacifiCorp
Klamath River at I-5 Rest Area (RM 179.20; Public Health)	KRIB	179.2	PPLK-2	BM/W	BM5	Karuk
Klamath River at Brown Bear River Access (RM 150.00; Public Health)	KRBB	150.0	PPLK-2	BM/W	-	Karuk
Klamath River below Seiad (RM 128.5; Public Health)	KRSV	128.5	PPLK-2	BM/W	-	Karuk
Klamath River below Happy Camp (RM 101.3; Public Health)	KRHC	101.3	PPLK-2	BM/W	-	Karuk
Klamath River at Orleans (USGS) (RM 59.1; Public Health)	KROR	59.1	PPLK-2	BM/W	-	Karuk
Klamath River at Weitchpec (RM 43.5; Public Health)	KRWE	43.5	PPLK-2	BM/W	-	Yurok
Klamath River near Klamath (RM 6.0; Public Health)	KRTG	6.0	PPLK-2	BM/W	-	Yurok
Klamath River at South Slough (RM 0.1; Public Health)	KRSS	0.1	PPLK-2	BM/W	-	Yurok

Key:

Frequency	# of sample events	Sampling frequency description
BM7-mod	13	1x month in May and at least 2x month June through November
BM/W	16	Timing of public health monitoring will be at the discretion of the sampling entity; however, weekly sampling usually occurs from July through September during peak algae bloom season.
BM5	10	2x month June-October
S	6	Analysis for anatoxin-a will be tied to results of anatoxin-a screening tests run on each public health sample; however, six test analysis are budgeted.
PPLK-1	5	One sample in May, two in June and two in July, all rushed for toxic species identification only.
PPLK -2	4	Two samples each in June and July, all rushed for toxic species identification only.

5. Water Sample Collection

Water samples included both water quality data collected with probes (temperature, dissolved oxygen, specific conductivity, and pH) and grab samples. Grab samples (i.e., samples analyzed for the physical and chemical constituents listed in Table 1 and Table 2) were sent to respective laboratories for analysis. For turbidity, USBR used a HACH 2100P Turbidimeter (February 12, 2019 through September 10, 2019) and a YSI ProDSS (September 24, 2019 through December 10, 2019), while PacifiCorp used a HACH 2100Q Turbidimeter for measurements, rather than collecting grab samples.

5.1. Analytical Samples

Grab water samples were collected for analytical determination of:

- Nitrogen: ammonia (NH4), nitrate+nitrite (NO3+NO2), total nitrogen (TN), particulate nitrogen (PN)
- Phosphorus: orthophosphate (OPO4), total phosphorus (TP), particulate phosphorus (PP), and particulate inorganic phosphorus (PIP)
- Carbon: dissolved organic carbon (DOC) and particulate carbon (PC)
- Solids: total suspended solids (TSS)
- Alkalinity (ALKT)
- Turbidity (TURB)
- Phytoplankton (algae): chlorophyll-*a* (CHL-A) and pheophytin (PHEO)
- Microcystin (MCYN) and anatoxin-a (if warranted)
- Algae species

Seven laboratories completed the analytical work during the field season:

- Oregon State University Cooperative Chemical Analytical Laboratory (CCAL) in Corvallis, Oregon. [5]
    - http://ccal.oregonstate.edu/
- Edge Analytical Laboratories (Edge) in Wilsonville, Oregon and Burlington, Washington.
    - https://www.edgeanalytical.com/
- IEH Aquatic Research (IEH) in Seattle, Washington.
    - http://www.iehinc.com/ieh-locations/
- Chesapeake Biological Laboratories (CBL) in Solomons, Maryland
    - http://www.umces.edu/cbl
- Environmental Protection Agency Region 9 (EPA) laboratory in Richmond, California
    - http://www.epa.gov/region9/lab/

[5] Because of an unacceptably long turn-around time for CCAL analysis, laboratory analysis for general water quality constituent analysis was changed to Edge in June of 2019.

- GreenWater Laboratories in Palatka, Florida
    - https:// http://greenwaterlab.com/
- Aquatic Analysts in Friday Harbor, Washington

5.2. Field Measurements

Water temperature, pH, specific conductivity, and dissolved oxygen were measured at all sampling sites. In some cases, sampling entities collected additional information (e.g., turbidity) during field visits. Field measurements were recorded at some sites using water quality probes that were maintained and calibrated by each sampling entity. In addition to the vertical profiles in reservoirs and continuous time series monitoring (Table 1), physical water quality parameters were measured when grab samples were collected. Field measurements that were collected during grab sampling are included in the field data (Appendix B) while time series monitoring data are maintained by (and available from) each sampling entity.

5.3. Quality Assurance of Samples

Baseline monitoring samples were collected under individual entity Quality Assurance Project Plans, Standard Operating Procedures, and/or Sampling Analysis Plans (Karuk 2009; PacifiCorp 2008; USBR 2009; Yurok 2008). These methods have been compared and reviewed by the KHSA Working Group to ensure consistent sampling techniques are applied (KHSA-WG 2010).

Public health samples were collected according to the Standard Operating Procedure developed by the Klamath Blue Green Algae Working Group (www.kbmp.net/collaboration/klamath-hydroelectric-settlement-agreement-monitoring). Because of the risk to public health from toxins produced by cyanobacteria, initial public health samples are analyzed under a 'rush' order with Aquatic Analysts in Friday Harbor, Washington. During analysis, only potentially toxic cyanobacteria are identified and enumerated.

5.4. Water Quality Analytical Methods

CCAL, Edge, IEH, and CBL used either Standard Methods, EPA or USGS analytical methods for analysis of nutrients, dissolved and particulate carbon, alkalinity, total suspended solids and turbidity (Table 3). Each laboratory used its own internal water quality control and assurance samples during analysis of the KHSA 2019 samples. Method detection limits (MDL) and reporting limits (RL) varied among the laboratories.

5.5. Algae Sample Analytical Methods

Analysis of chlorophyll-*a* and pheophytin was performed by CBL for samples collected by USBR and PacifiCorp, and by IEH for samples collected by the Karuk and Yurok tribes (Table 3). Algae species samples collected by USBR, PacifiCorp, Karuk Tribe, and Yurok Tribe were analyzed by Aquatic Analysts. Microcystin analysis was performed using the Enzyme-Linked ImmunoSorbent Assay (ELISA) method at the EPA laboratory. Additional microcystin analysis, as well as anatoxin-a analysis was completed by the GreenWater

Laboratories using liquid chromatography-tandem mass spectrometry (LCMS/MS) for selected locations. GreenWater microcystin MDLs and RLs varied[6] and are presented in Table D-2 in Appendix D. Algae species analysis method information for Aquatic Analysts is not presented because this analysis does not include MDLs or RLs.

[6] Laboratories may complete internal quality assurance, update equipment, refine analyses, or complete MDL and/or RL internal testing the MDL and RL, and other activities that can result in slight changes to the MDL and/or RL values. These activities can occur at any time during the year and can occur more than once during the year.

Table 3. 2019 Analyzing laboratory method references, method detection limits (MDLs), and method reporting limits (RLs) for water quality constituents. Units presented in milligrams per liter (mg/L) or parts per million (ppm) unless otherwise noted. All unique MDLs and RLs are shown.

		CCAL			Edge			IEH			CBL			EPA			GreenWater		
Constituent Name	**Constituent ID**	**Method**	**MDL**	**RL**	**Method**	**MDL**	**RL**	**Method**	**MDL**	**RL**	**Method**	**MDL**	**RL**	**Method**	**MDL**	**RL**	**Method**	**MDL**	**RL**
Alkalinity	ALKT	SM2320	0.2	0.6	SM2320B	0.1	0.1	SM18 2320B	0.70	1.0	-	-	-	-	-	-	-	-	-
Ammonia	NH4	EPA 350.1	0.01	0.032	EPA 350.1	0.0012	0.01	SM18 4500NH3H	0.005	0.01	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	DOC	SM5310B	0.05	0.16	SM5310B	0.08	0.5	SM20 5310B	0.10	0.25	-	-	-	-	-	-	-	-	-
Nitrate + Nitrite	NO3+NO2	EPA 353.3	0.001	0.003	SM4500-NO3 F	0.0026	0.01	SM18 4500N03F	0.006	0.01	-	-	-	-	-	-	-	-	-
Total Nitrogen[2]	TN	SM4500-NO3 F / SM 4500-P-J	0.01	0.03	Calculated	0.0047	0.2	SM204500NC	0.03	0.05	-	-	-	-	-	-	-	-	-
Ortho-phosphate	OPO4	EPA 365.1	0.001	0.003	SM45000-P F	0.005	0.01	SM18 4500PF	0.001	0.001	-	-	-	-	-	-	-	-	-
Total Phosphorus	TP	EPA 365.4	0.002	0.006	SM4500-P F / SM4500-P B(5)	0.0026	0.01	SM18 4500PF	0.001	0.002	-	-	-	-	-	-	-	-	-
Total Suspended Solids	TSS	SM2540B	2	2	USGS I-3765-85	4	4	SM20 2540D	0.25	0.5	-	-	-	-	-	-	-	-	-
Turbidity	TURB	-	-	-	-	-	-	SM20 2130B	0.10	0.10	-	-	-	-	-	-	-	-	-
Chlorophyll-*a*[1]	CHLOR-A	-	-	-	-	-	-	SM1810200H-2b	0.1	0.1	EPA 445.0	0.68	0.68	-	-	-	-	-	-
Pheophytin[1]	PHEO	-	-	-	-	-	-	SM1810200H-2b	0.1	0.1	EPA 445.0	0.38	0.38	-	-	-	-	-	-
Particulate Carbon	PC	-	-	-	-	-	-	-	-	-	EPA 440.0	0.0633	0.1899	-	-	-	-	-	-
Particulate Inorganic Phosphorus	PIP	-	-	-	-	-	-	-	-	-	EPA 365.1	0.0021	0.0063	-	-	-	-	-	-
Particulate Phosphorus	PP	-	-	-	-	-	-	-	-	-	EPA 365.1, ASPILA	0.0021	0.0063	-	-	-	-	-	-
Particulate Nitrogen	PN	-	-	-	-	-	-	-	-	-	EPA 440.0	0.0263	0.0789	-	-	-	-	-	-
Microcystin[1]	MCYN	-	-	-	-	-	-	-	-	-	-	-	-	ELISA	0.10	0.15	-	-	-
Anatoxin-a[1]	ANTX-A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LCMS/MS	0.05	n/a

MDL – method detection limit RL – method reporting limit

[1] Units for chlorophyll-*a*, pheophytin, microcystin, and anatoxin-a are in µg/L (or ppb).

2 Edge analyzes samples for Total Kjeldahl Nitrogen (TKN) using EPA 351.2. TKN includes ammonia and organic nitrogen. Total Nitrogen is calculated as TN = TKN + NO3+NO2. MDL and RL for TN is based on the levels for TKN.

6. Baseline Program Water Quality Data

Water quality samples for the 2019 IM 15 baseline water quality monitoring program were collected from February through December. Sampling crews from the various entities typically collected samples within a few days of each other. Sampling on the same day throughout the basin was infeasible because of other obligations, shipping constraints, travel considerations, and other factors. In most cases, all 22 sites (Figure 1) were sampled each month. There were periods when one or more sites were omitted, or one or more constituents were not sampled. Data was reviewed by sampling entities before being compiled for presentation in this report. Compiled data from all baseline program sampling is presented in the appendices (Appendix B) and summarized below, except for time series data, which can be obtained from the individual sampling entities (Table 1). Selected results of algae species identification are presented below and in Appendix C.

6.1. Data Summary

Field measurements collected included water temperature, pH, specific conductivity, and dissolved oxygen. Chemical and biological water quality measurements include two types of algae related estimates (chlorophyll-*a* and pheophytin), alkalinity, two forms of carbon (dissolved organic and particulate), four forms of nitrogen (ammonia, nitrate+nitrite, total nitrogen, and particulate nitrogen), four forms of phosphorus (orthophosphate, total phosphorus, particulate phosphorus, and particulate inorganic phosphorus), total suspended solids, turbidity, and microcystin. Density and biovolume for algal species were also measured.

Data are summarized in this report to illustrate general spatial and temporal patterns during the 2019 sampling period. The data summary constituents presented include dissolved oxygen, dissolved organic carbon, total nitrogen, total phosphorus, and microcystin. The mainstem sites and major tributaries (Shasta, Scott, Salmon, and Trinity rivers) are presented separately.

In addition to the dataset (Appendix B), data also are summarized in three formats:

(1) Longitudinal boxplots[7] based on seasonal grab sample data

(2) Physical water quality sonde data (hourly) at specific locations

(3) Charts and graphs representing the groups of algae and respective biovolumes at the sampling locations for March, June, September, and November.

The box plots and hourly sonde data are presented in the main report; however, because of the small sample size at each site during 2019, the boxplots presented in the annual report are not statistically robust and are included for illustration purposes only. No boxplots were generated

[7] A box-and-whisker plot is a graphical way of presenting statistical parameters including median, mean, lower and upper quartiles, and outliers. The median value is represented by a horizontal line; a box (gray) is formed by the 25th quartile and 75th quartile and represents the inter-quartile range (IQR); the whiskers extend beyond the 1.5*IQR above and below the quartiles; and points beyond the whiskers are termed outliers. Outliers are values between 1.5 to 3 times the IQR. Extreme outliers are values greater than 3 times the IQR.

for sites with less than six points of data for a specific parameter in 2019; the captions of the boxplot figures indicate the locations that were omitted due to lack of sufficient data.

Time series data are presented for summary constituents at locations on the Klamath River for which there are USGS flow gages (Table 4). While algae data are available for the May to October period, September percent biovolume are presented for illustration at eight locations (Figure 2). These locations are: (1) Link Dam (RM 254.44; Baseline), (2) Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline), (3) Copco Reservoir (RM 198.74; Baseline), (4) Klamath River below Iron Gate Dam (RM 189.73; Baseline), (5) Klamath River below Seiad (RM 128.5; Baseline), (6) Klamath River at Orleans (USGS) (RM 59.1; Baseline), (7) Klamath River at Weitchpec (RM 43.5; Baseline), and (8) Klamath River Estuary (RM 0.5; Baseline). Plots representing algae species for other months are presented in Appendix C.

Table 4. United States Geological Survey (USGS) flow gage locations for time series data.

USGS Location Name	River Mile (RM) (*approximate*)	USGS Gage Number
Link River at Klamath Falls, OR	254	11507500
Klamath River at Keno, OR	232	11509500
Klamath River below Iron Gate Dam, CA	190	11516530
Klamath River near Seiad Valley, CA	129	11520500
Klamath River at Orleans, CA	59	11523000
Klamath River near Klamath, CA	8	11530500

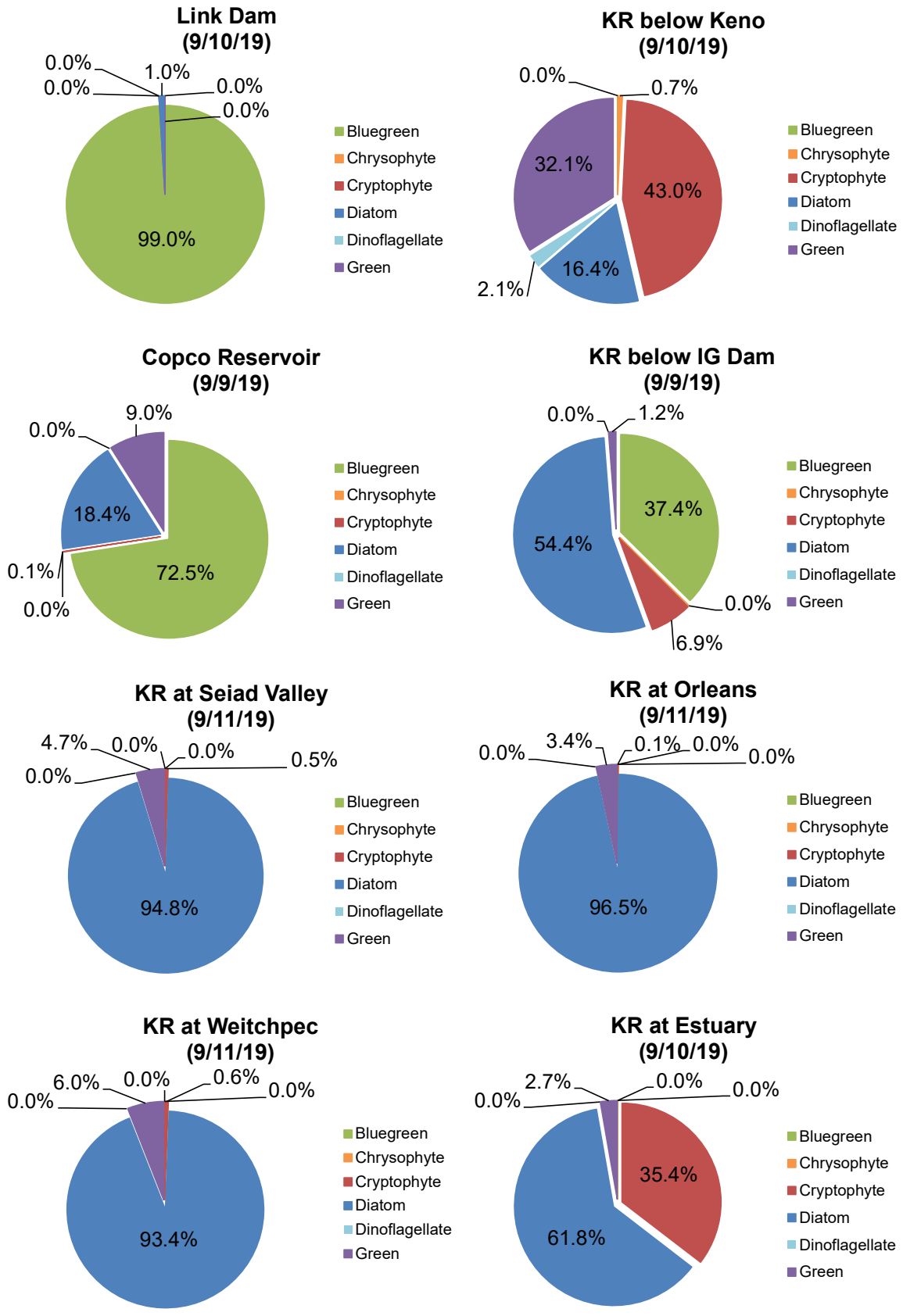


Figure 2. Phytoplankton species percent biovolume for eight locations in the Klamath River: September 2019.

6.1.1. Major Tributaries (Boxplot)

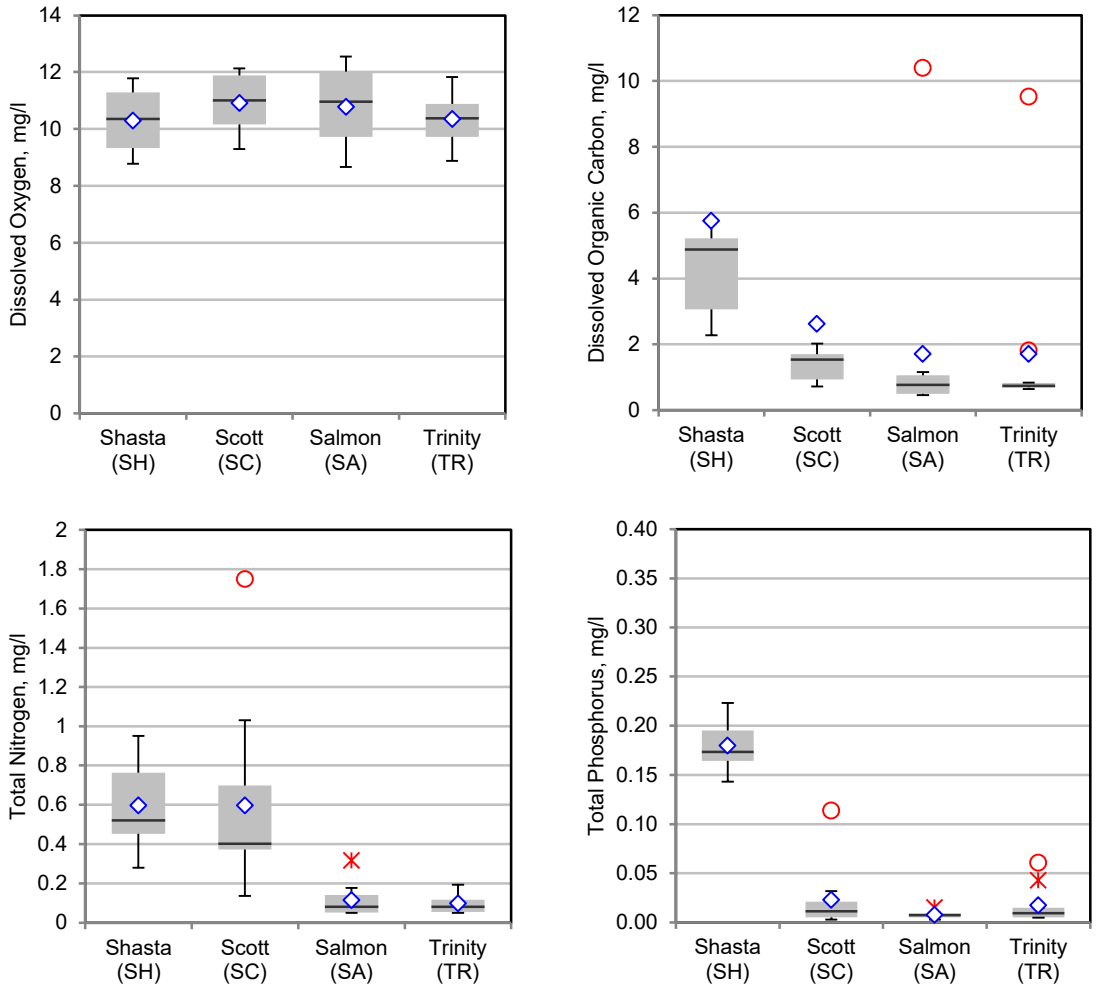


Figure 3. Baseline data for discrete dissolved oxygen, dissolved organic carbon, total nitrogen, and total phosphorus for the Shasta, Scott, Salmon, and Trinity rivers with median (−), mean (◊), outliers (*), and extreme outliers (○) identified (February 2019 – December 2019).

6.1.2. Mainstem Klamath River (Boxplot)

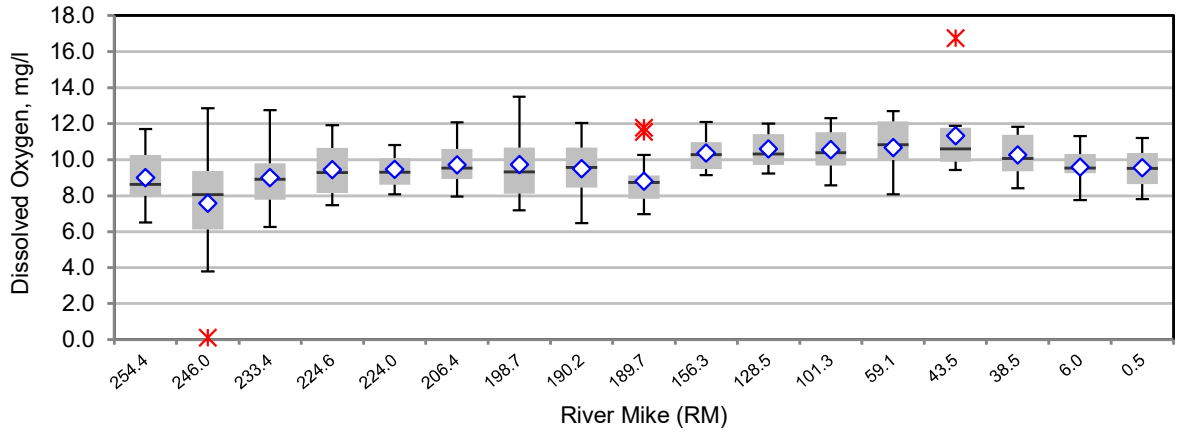


Figure 4. Discrete dissolved oxygen concentration in the Klamath River from Link River Dam to the Klamath River Estuary with median (−), mean (◊), outliers (*), and extreme outliers (○) identified (February 2019 – December 2019). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), Copco Reservoir (RM 198.74; Baseline), and Iron Gate Reservoir (RM 190.19; Baseline). River mile on x-axis not to scale.

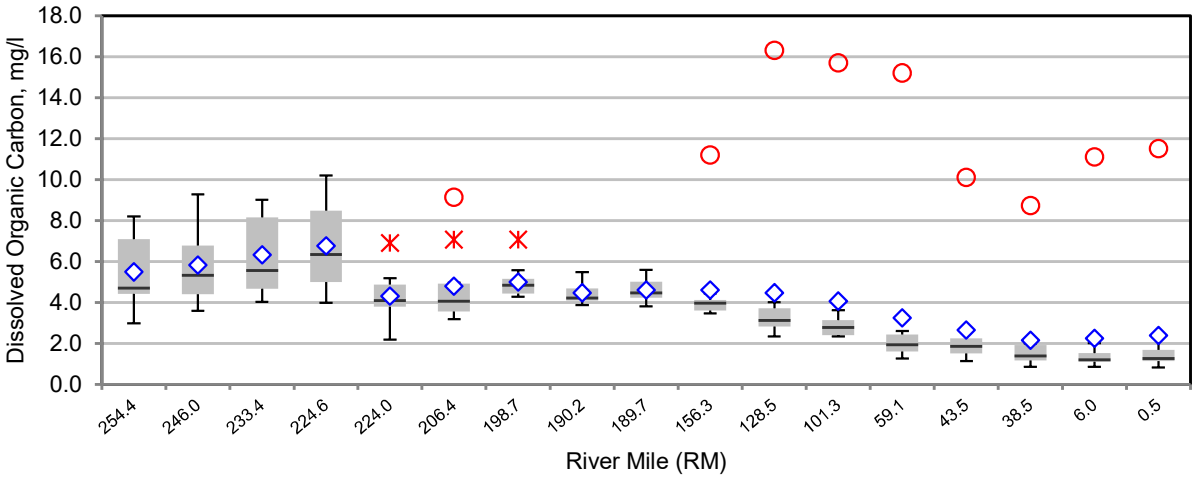


Figure 5. Dissolved organic carbon in the Klamath River from Link River Dam to the Klamath River Estuary with median (−), mean (◊), outliers (*), and extreme outliers (○) identified (February 2019 – December 2019). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), Copco Reservoir (RM 198.74; Baseline), and Iron Gate Reservoir (RM 190.19; Baseline). River mile on x-axis not to scale.

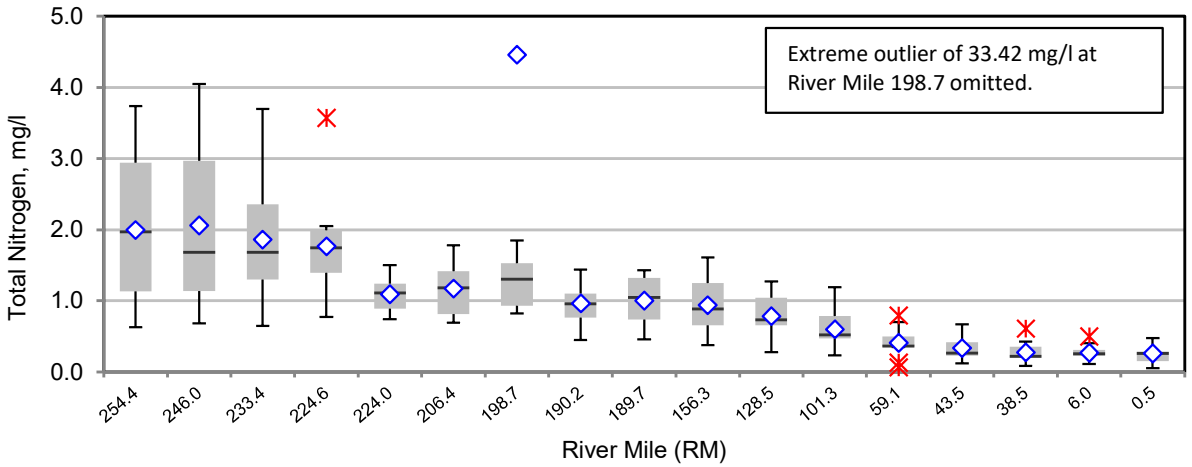


Figure 6. Total nitrogen in the Klamath River from Link River Dam to the Klamath River Estuary with median (−), mean (◊), outliers (*), and extreme outliers (○) identified (February 2019 – December 2019). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), Copco Reservoir (RM 198.74; Baseline), and Iron Gate Reservoir (RM 190.19; Baseline). River mile on x-axis not to scale. Extreme outlier of 33.42 mg/l in Copco Reservoir (RM 198.74; Baseline) omitted.

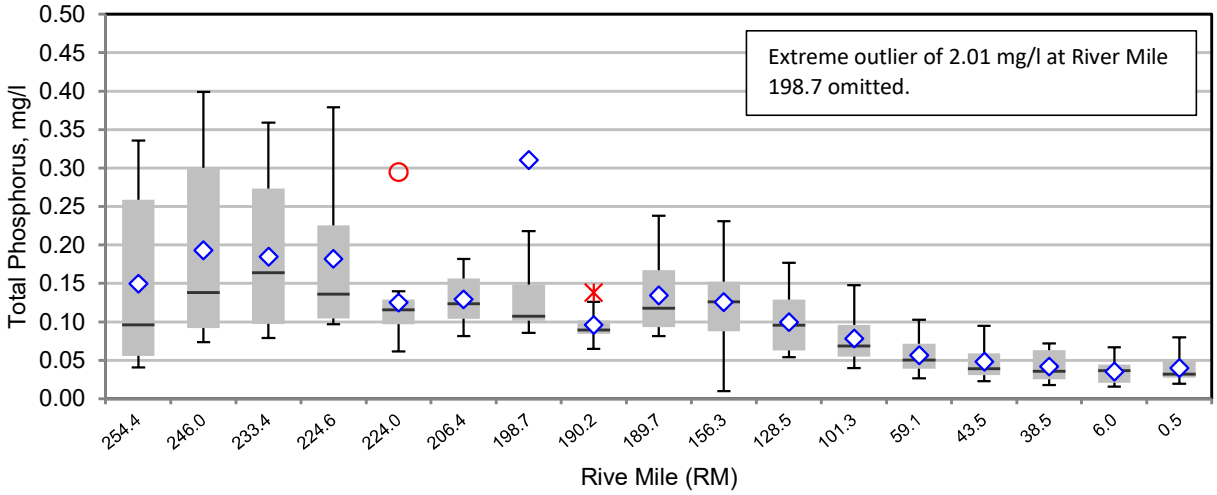


Figure 7. Total phosphorus in the Klamath River from Link River Dam to the Klamath River Estuary with median (−), mean (◊), outliers (*), and extreme outliers (○) identified (February 2019 – December 2019). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), Copco Reservoir (RM 198.74; Baseline), and Iron Gate Reservoir (RM 190.19; Baseline). River mile on x-axis not to scale. Extreme outlier of 2.01 mg/l in Copco Reservoir (RM 198.74; Baseline) omitted.

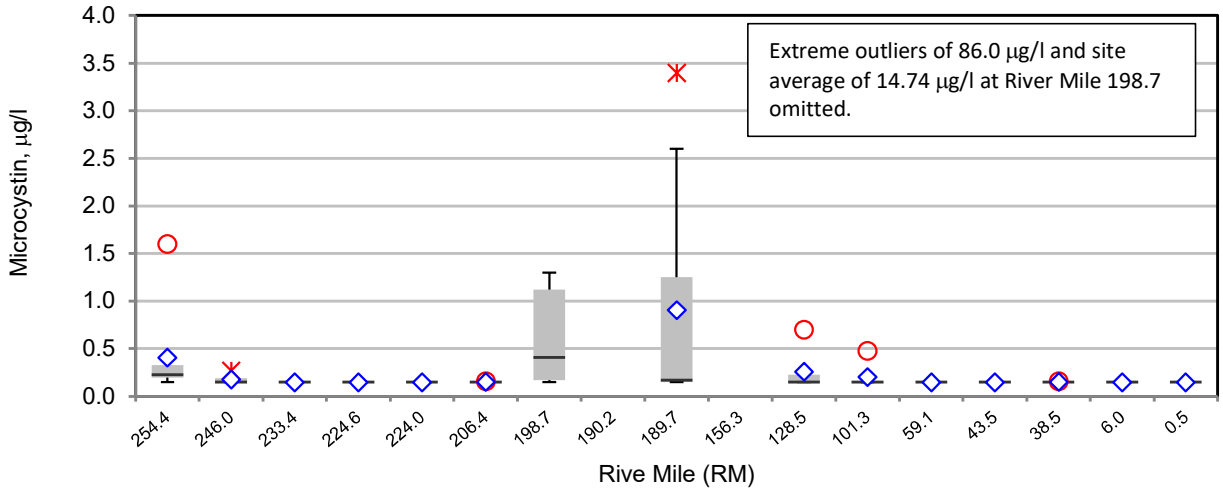


Figure 8. Microcystin in the Klamath River from Link River Dam to the Klamath River Estuary with median (−), mean (◊), outliers (*), and extreme outliers (○) identified (February 2019 – December 2019). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), Copco Reservoir (RM 198.74; Baseline), and Iron Gate Reservoir (RM 190.19; Baseline). River mile on x-axis not to scale. Extreme outliers of 86.0 µg/l and site average of 14.74 µg/l in Copco Reservoir (RM 198.74; Baseline) omitted. No microcystin boxplots are included for River Mile 190.19 and 156.26 because there were fewer than six microcystin data points at each of these sites.

6.1.3. Major Tributaries (Time Series)

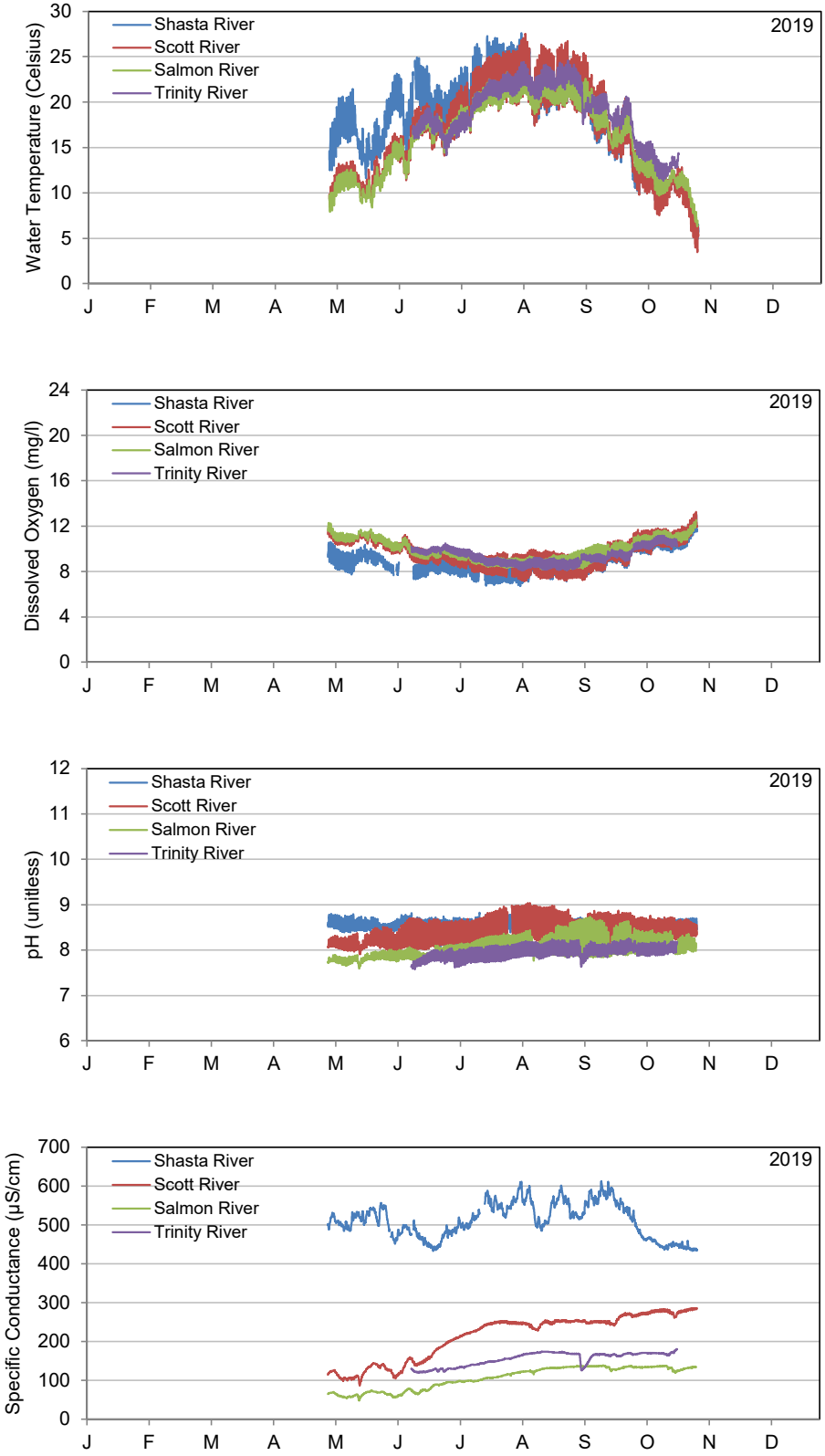


Figure 9. Continuous water temperature, dissolved oxygen, pH, and specific conductance data (2019) for the Shasta River, Scott River, Salmon River, and Trinity River.

6.1.4. Mainstem Klamath River (Time Series)

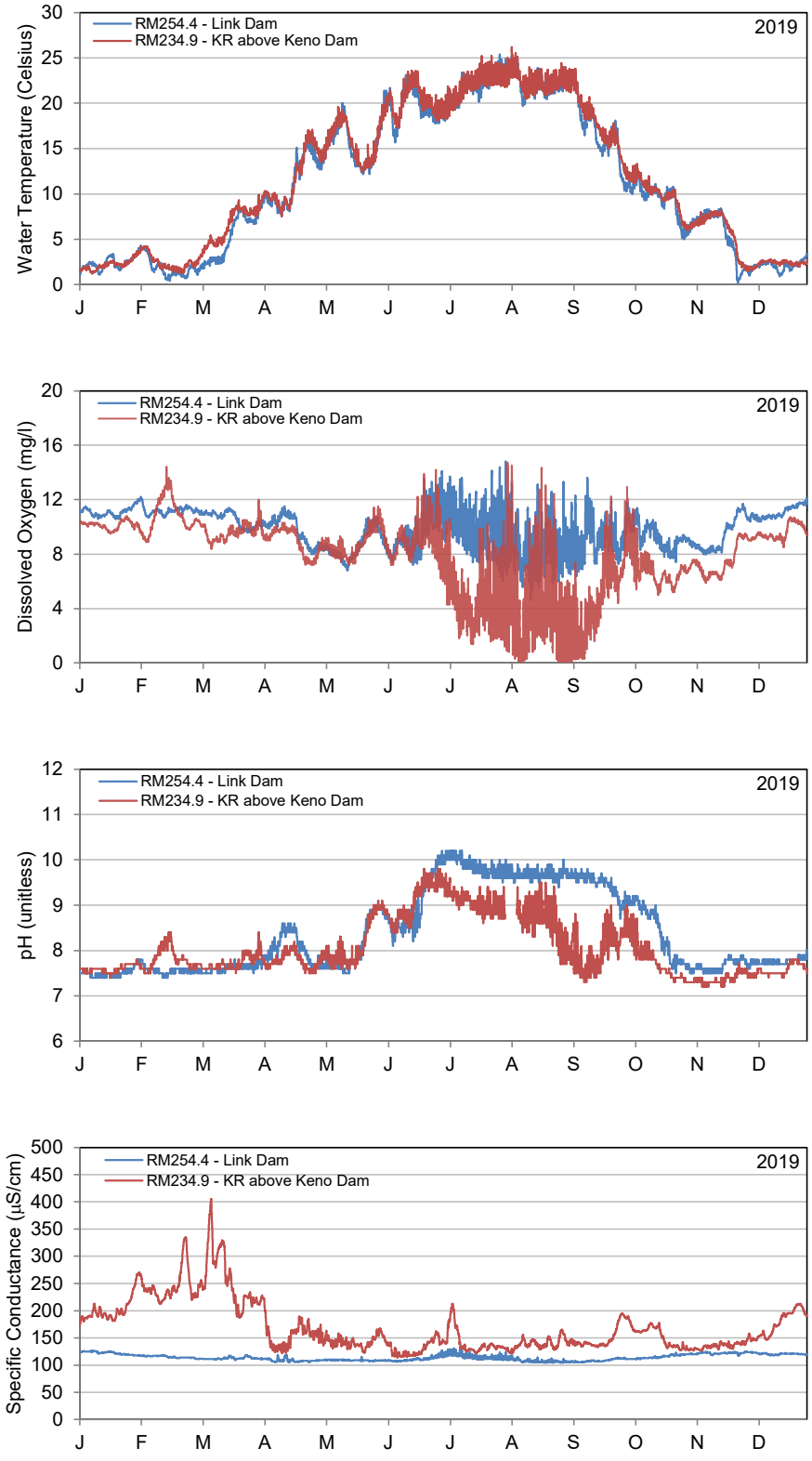


Figure 10. Continuous water temperature, dissolved oxygen, pH, and specific conductance data (2019) for the Klamath River (KR) at Link Dam (RM 254.44; Baseline) and Klamath River above Keno Dam (surface) (RM 234.9).

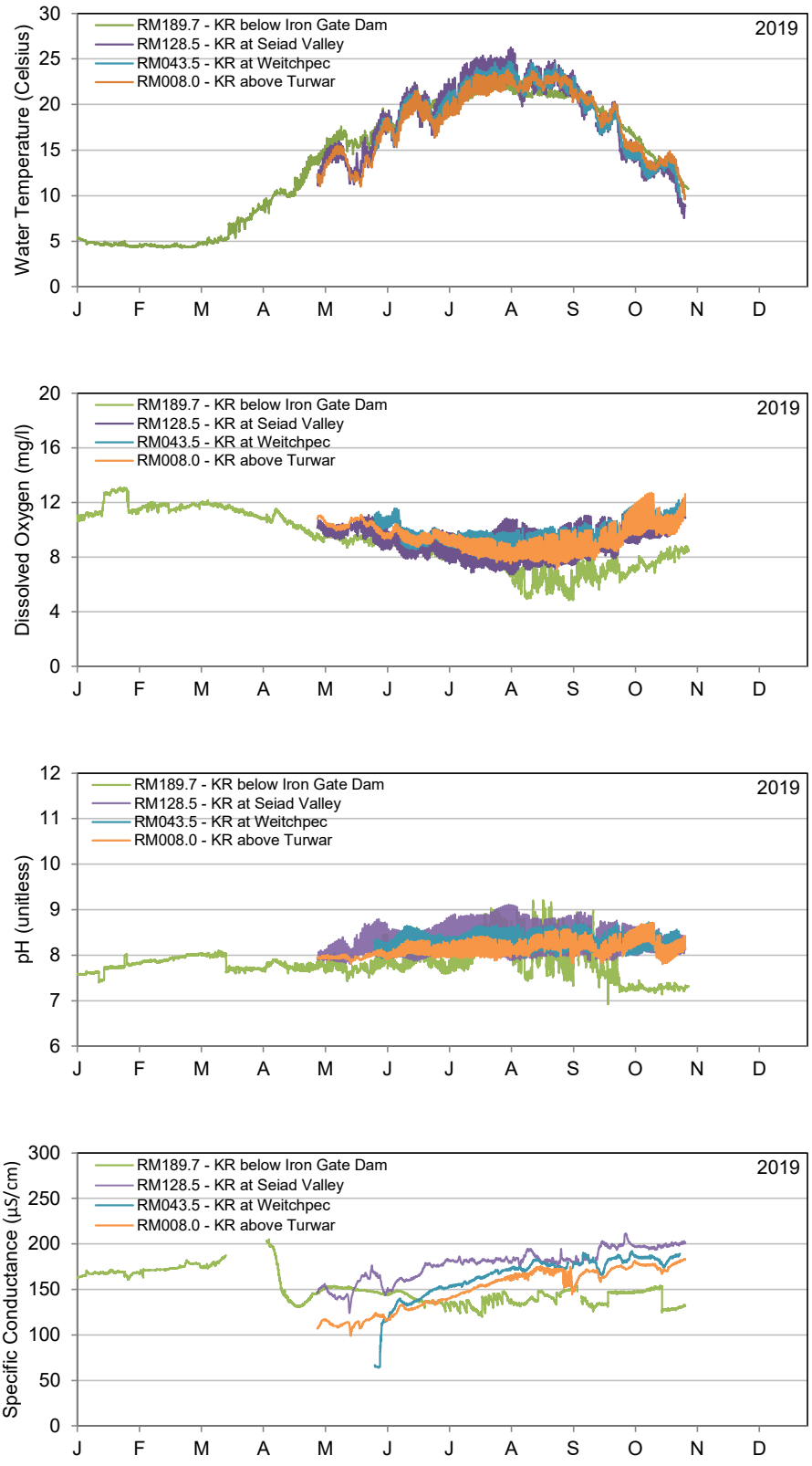


Figure 11. Continuous water temperature, dissolved oxygen, pH, and specific conductance data (2019) for the Klamath River below Iron Gate Dam (RM 189.73; Baseline), Klamath River below Seiad (RM 128.5; Baseline), Klamath River at Weitchpec (RM 43.5; Baseline), and Klamath River above Turwar (RM 8.0).

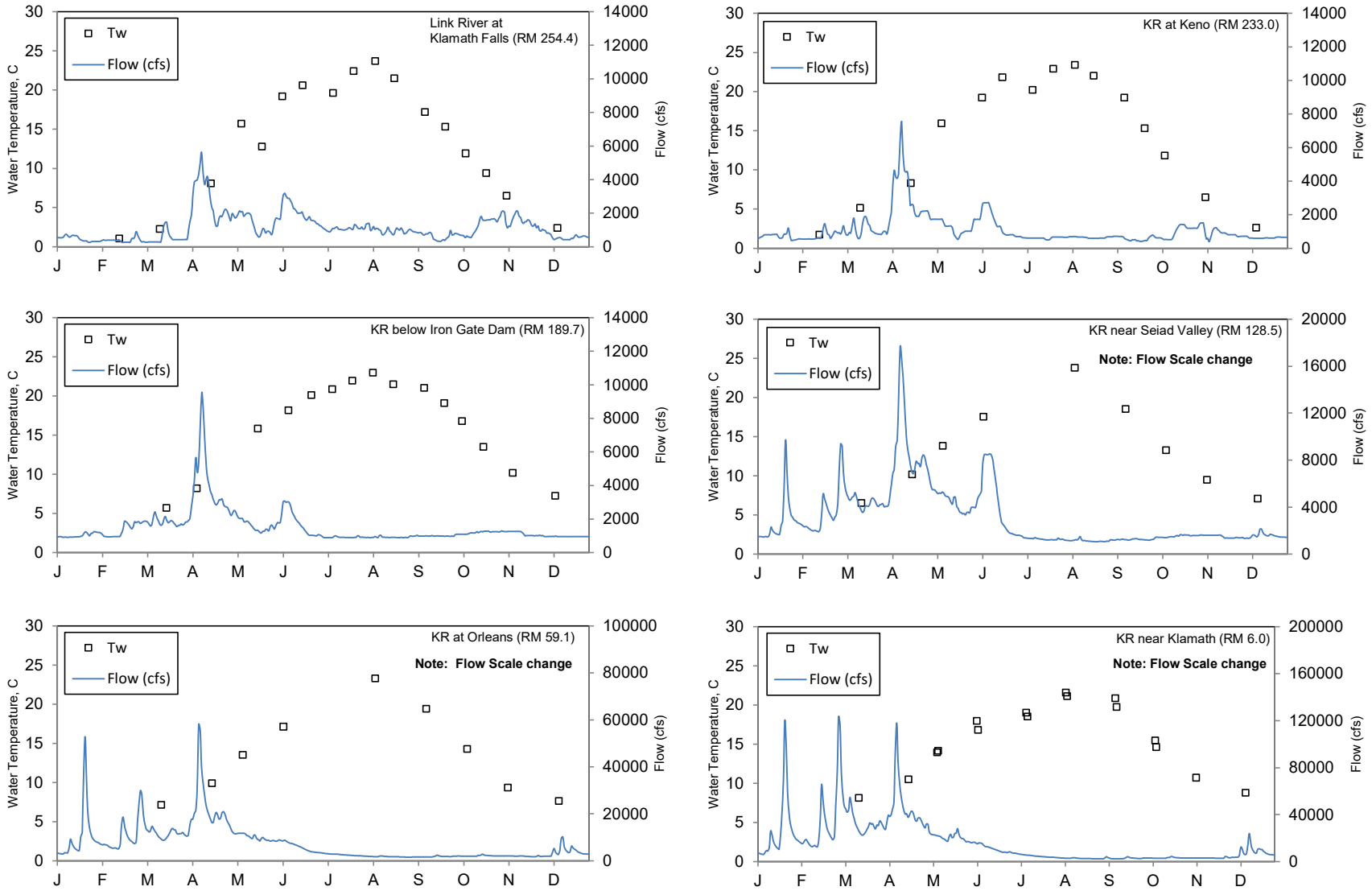


Figure 12. Discrete 2019 water temperature (T_w) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River near Seiad Valley (USGS Gage 11520500), Klamath River at Orleans (USGS Gage 11523000), and Klamath River near Klamath (USGS Gage 11530500). Note the scale change for the secondary y-axis for Klamath River at Orleans (USGS) (RM 59.1; Baseline) and Klamath River near Klamath (RM 6.0; Baseline).

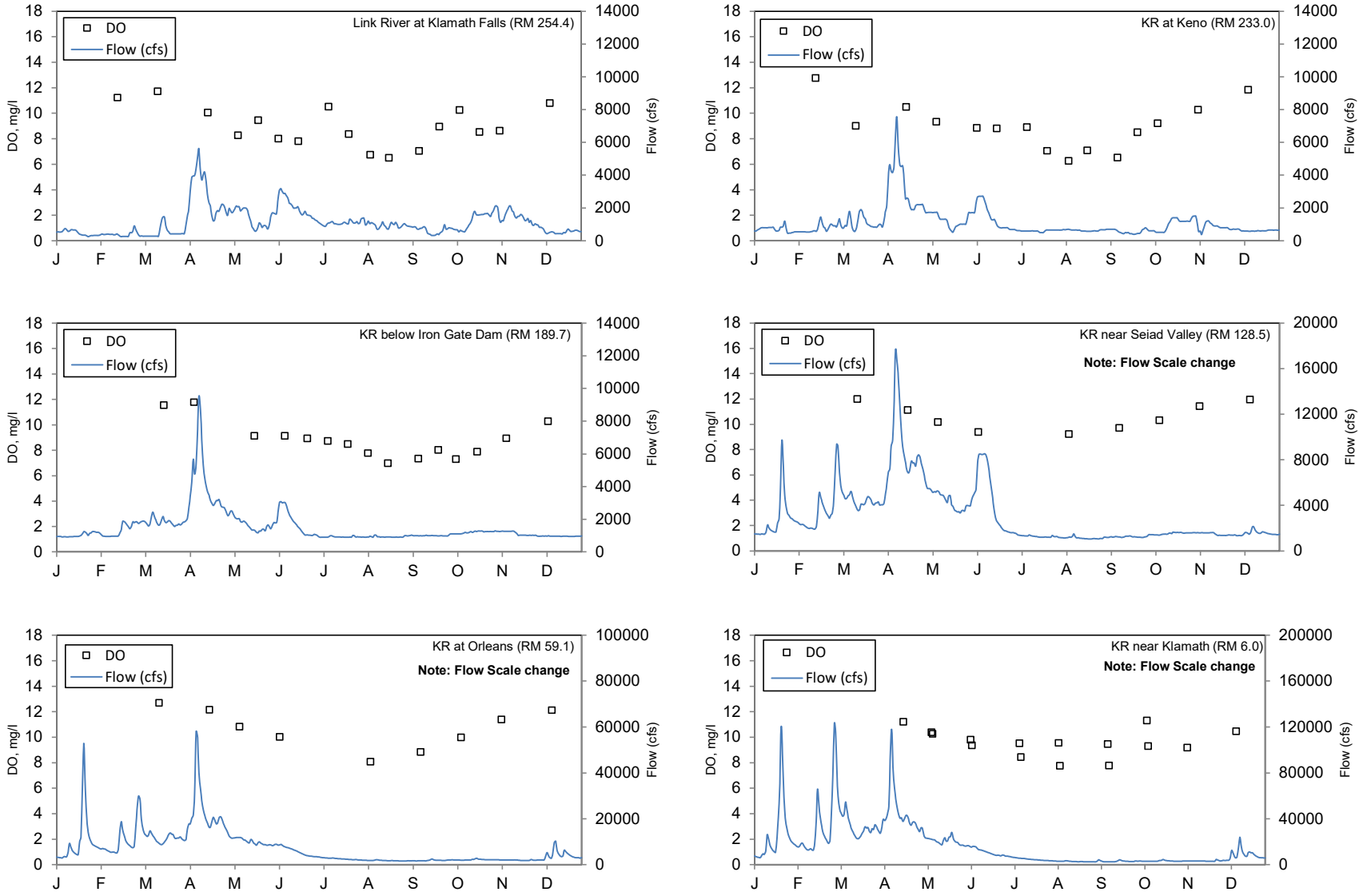


Figure 13. Discrete 2019 dissolved oxygen (DO) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River near Seiad Valley (USGS Gage 11520500), Klamath River at Orleans (USGS Gage 11523000), and Klamath River near Klamath (USGS Gage 11530500). Note the scale change for the secondary y-axis for Klamath River at Orleans (USGS) (RM 59.1; Baseline) and Klamath River near Klamath (RM 6.0; Baseline).

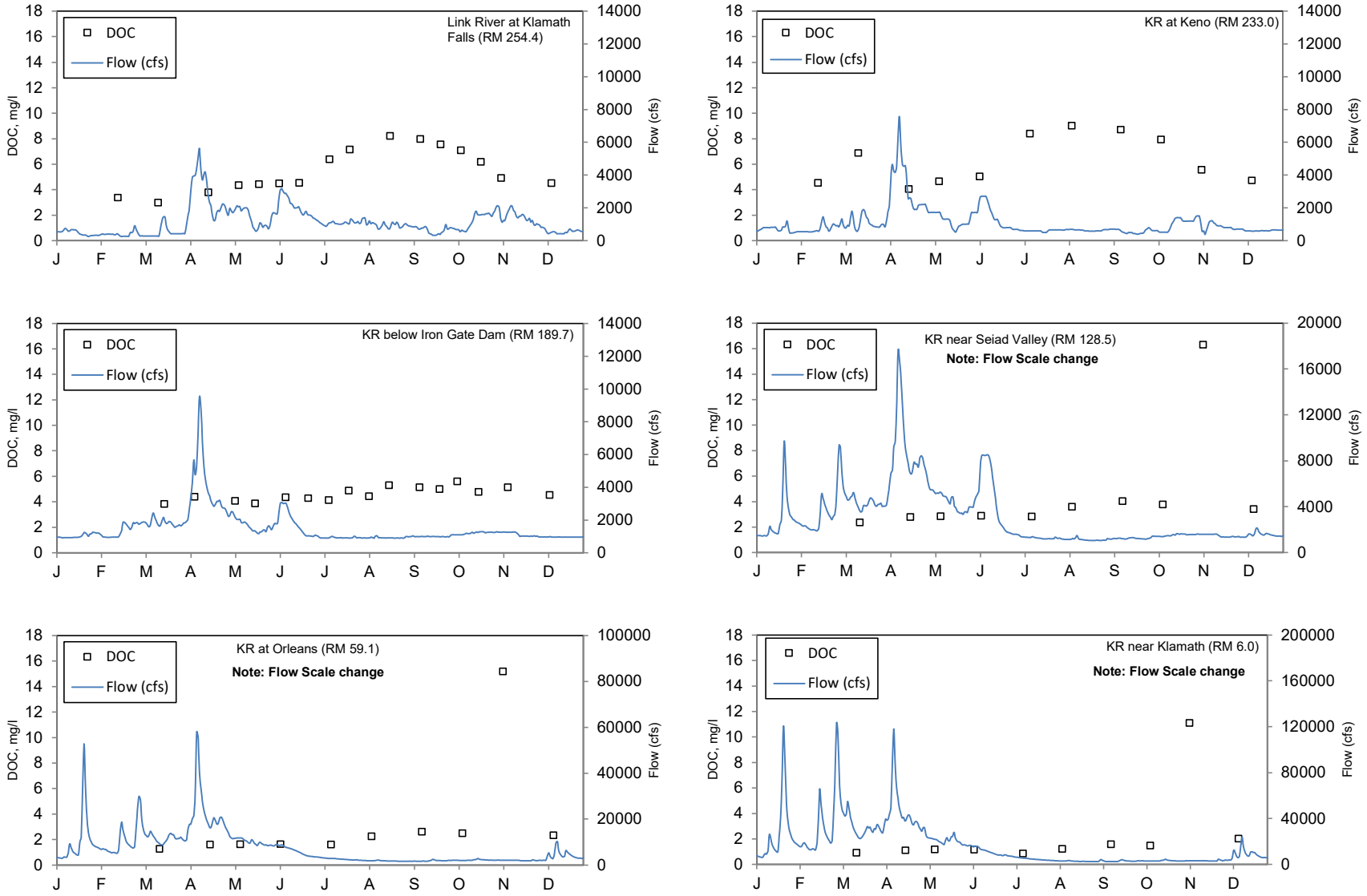


Figure 14. Discrete 2019 dissolved organic carbon (DOC) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River near Seiad Valley (USGS Gage 11520500), Klamath River at Orleans (USGS Gage 11523000), and Klamath River near Klamath (USGS Gage 11530500). Note the scale change for the secondary y-axis for Klamath River at Orleans (USGS) (RM 59.1; Baseline) and Klamath River near Klamath (RM 6.0; Baseline).

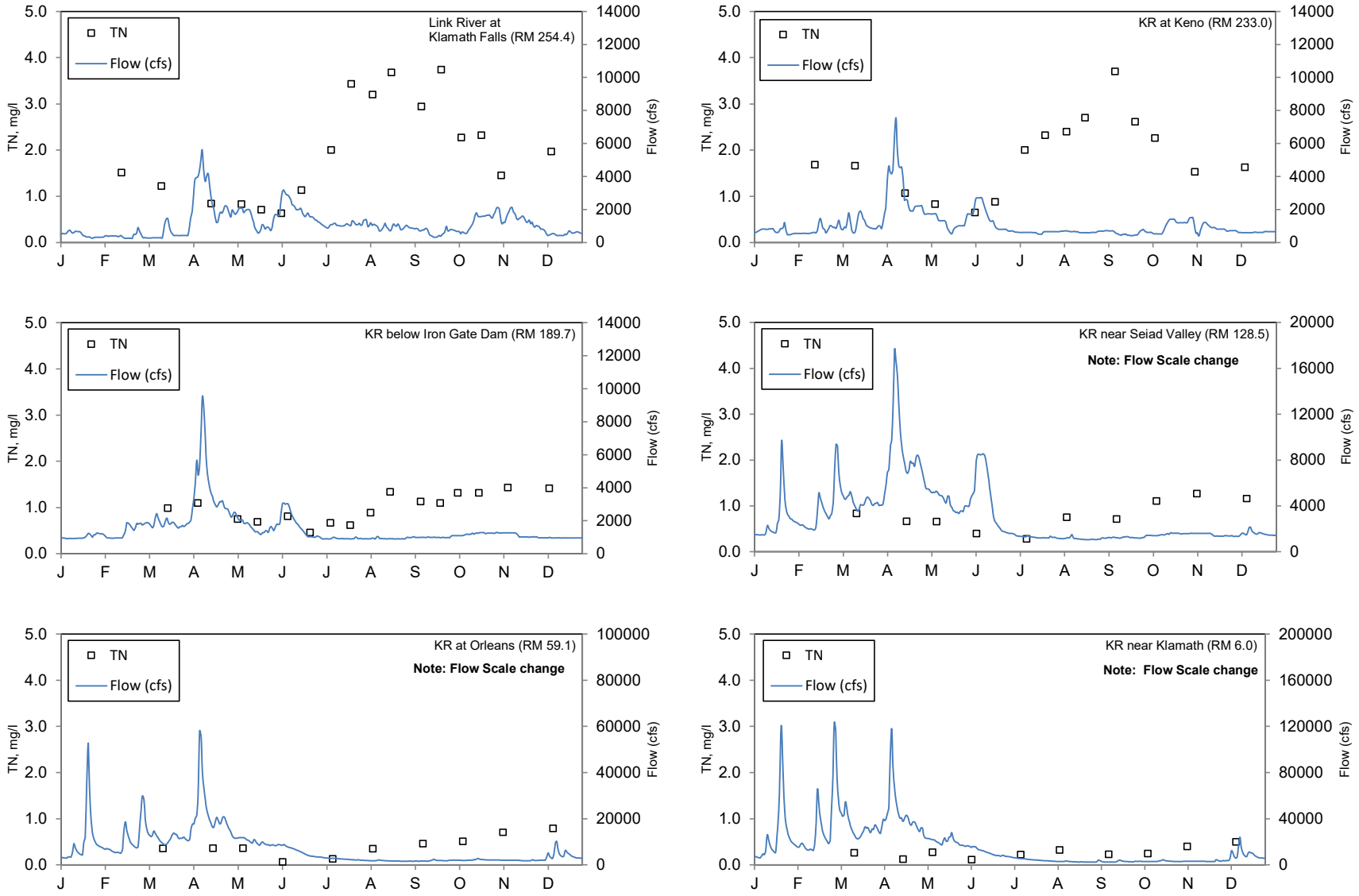


Figure 15. Discrete 2019 total nitrogen (TN) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River near Seiad Valley (USGS Gage 11520500), Klamath River at Orleans (USGS Gage 11523000), and Klamath River near Klamath (USGS Gage 11530500). Note the scale change for the secondary y-axis for Klamath River at Orleans (USGS) (RM 59.1; Baseline) and Klamath River near Klamath (RM 6.0; Baseline).

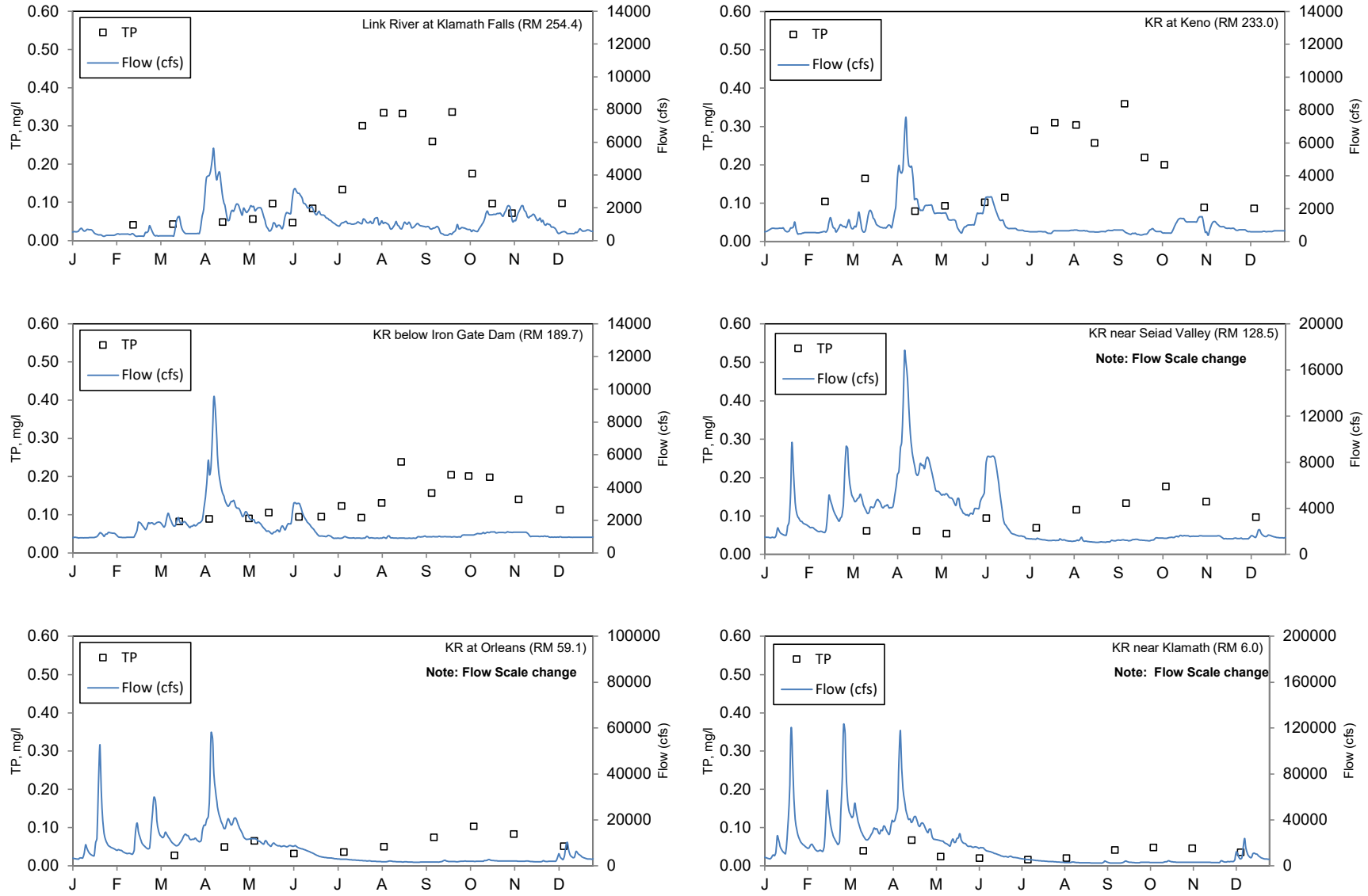


Figure 16. Discrete 2019 total phosphorus (TP) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River near Seiad Valley (USGS Gage 11520500), Klamath River at Orleans (USGS Gage 11523000), and Klamath River near Klamath (USGS Gage 11530500). Note the scale change for the secondary y-axis for Klamath River at Orleans (USGS) (RM 59.1; Baseline) and Klamath River near Klamath (RM 6.0; Baseline).

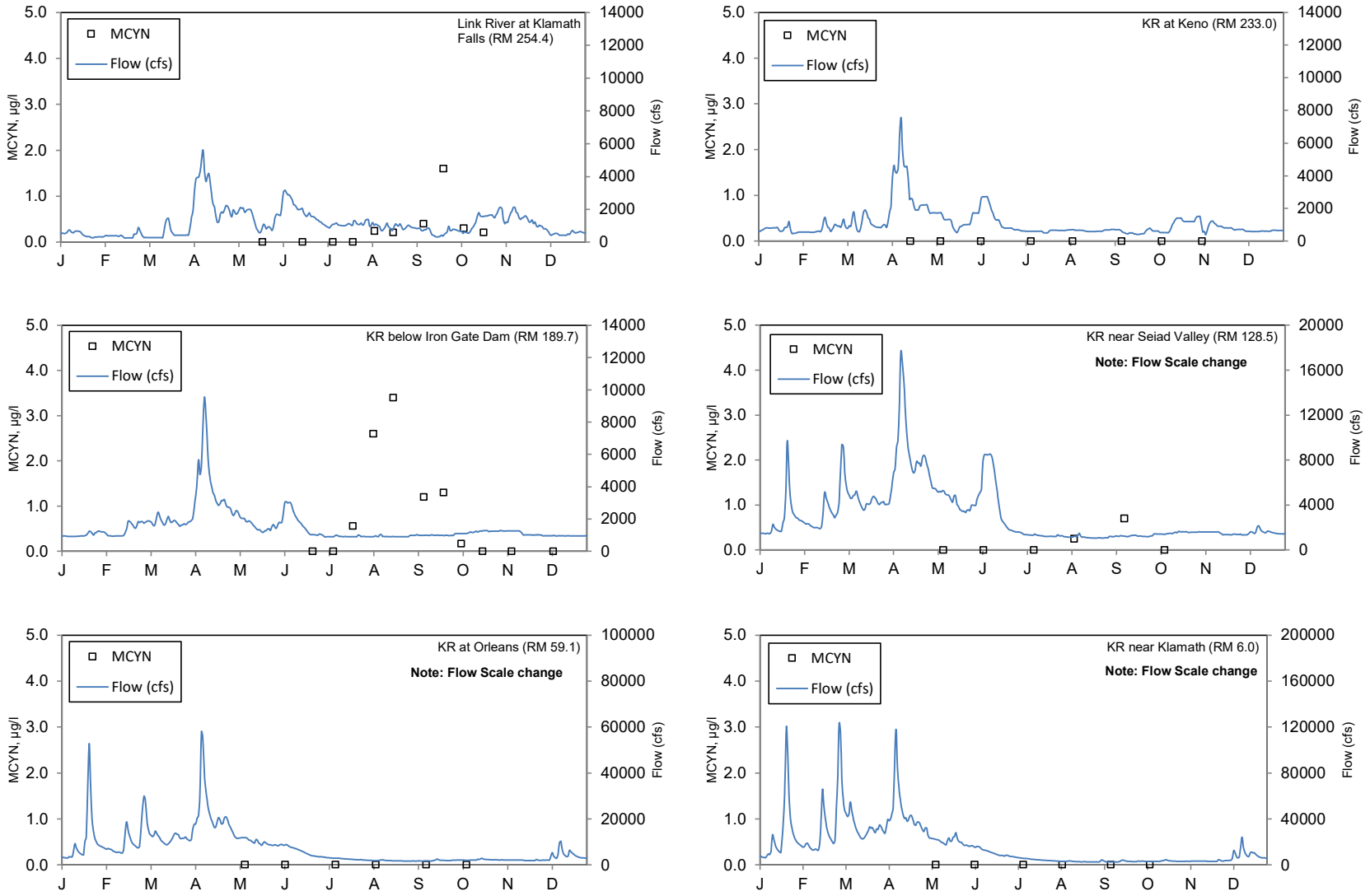


Figure 17. Discrete 2019 microcystin (MCYN) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River near Seiad Valley (USGS Gage 11520500), Klamath River at Orleans (USGS Gage 11523000), and Klamath River near Klamath (USGS Gage 11530500). Note the scale change for the secondary y-axis for Klamath River at Orleans (USGS) (RM 59.1; Baseline) and Klamath River near Klamath (RM 6.0; Baseline). Only surface samples are presented. Non-detect values are presented as zeros.

7. Public Health Water Quality Data

Water quality samples for the 2019 IM 15 public health monitoring program were collected from May through November. Sampling crews from the various entities generally collected samples within a few days of each other. Sampling on the same day throughout the basin was infeasible because of other obligations, shipping constraints, travel considerations, and other factors. In most cases, all 18 sites were sampled each month. There were periods when one or more sites were omitted, or one or more constituents were not sampled. The full public health dataset is presented in Appendix D.

7.1. Public Health Advisories

In 2019, the Oregon Health Authority, working under the updated 2018 Oregon guideline values (OHA 2019) issued a health advisory for Eagle Ridge County Park on July 19, 2019[8], with a second advisory issued for Howard's Bay County Park on August 8, 2019. An advisory for the entire Upper Klamath Lake was issued on August 13, 2019. The advisory was lifted December 18, 2019.

Table 5. Oregon Health Authority health advisories actions in 2019.

Waterbody	Sub-area	Date	Action
Upper Klamath Lake	Eagle Ridge County Park	7/19/2019	Advisory
	Howard's Bay County Park	8/8/2019	Advisory
	Entire Lake	8/13/2019	Advisory
		12/18/2019	Lifted Advisory

In 2019, the North Coast Regional Water Quality Control Board (NCRWQCB), working under the updated posting guidelines defined in 2016[9], issued a health advisory at the Danger level for Copco Reservoir on July 26, 2019[10]. The advisory level remained in place until the reservoir was de-posted on December 18, 2019. Similar postings occurred in Iron Gate Reservoir where a health advisory at the Warning level was issued on July 18, 2019 and the level was raised to Danger on August 16, 2019. The advisory remained in place until the reservoir was de-posted on December 18, 2019.

The 2019 posting of public health advisories on the Klamath River downstream of Iron Gate Dam started in mid-August with the initial postings; the final postings were removed in December (Table 6). The Klamath River downstream of Iron Gate Dam to the I-5 Bridge was posted at the Caution level on August 15, 2019 and the advisory

[8] Note that the dates in the posting discussion reference the date that the Oregon Health issued an advisory for a waterbody. They do not refer to the dates that water samples were actually collected.
[9] http://www.mywaterquality.ca.gov/habs/
[10] Note that the dates in the posting discussion reference the date that the North Coast Regional Water Quality Control Board issued direction to post or de-post a waterbody. They do not refer to the dates that water samples were actually collected.

remained in place until this section of river was de-posted on December 18, 2019. The Klamath River between the I-5 Bridge and Walker Road Bridge was also posted at the Caution level on August 15, 2019; this section of the river was de-posted on October 21, 2019.

Three sections of the Klamath River were posted at the Caution level on August 21, 2019 and de-posted on October 21, 2019: (1) Walker Road Bridge to Brown Bear, (2) Brown Bear to below Seiad, and (3) Seiad Valley to Happy Camp. The section of river between Happy Camp and Orleans was posted on August 28, 2019 and de-posted on October 21, 2019. Between Orleans and Weitchpec, the Klamath River was posted at the Caution level on September 9, 2019 and was de-posted on December 18, 2019.

The two Klamath River sections between Weitchpec and the mouth were posted at Yurok Level 1 on August 20, 2019. Both the Weitchpec to below Trinity River and the below Trinity River to Estuary section advisories were raised to Yurok Level 2 on September 4, 2019. Both sections were de-posted on December 18, 2019.

Table 6. California State Water Resources Control Board (SWRCB) health advisories actions in 2019.

Waterbody	Sub-area	Date	Posting Level/Action
Copco Reservoir	-	7/26/2019	Danger
		12/18/2019	De-posted
Iron Gate Reservoir	-	7/18/2019	Warning
		8/16/2019	Danger
		12/18/2019	De-posted
Klamath River	Iron Gate to I-5 Bridge	8/15/2019	Caution
	Iron Gate to I-5 Bridge	12/18/2019	De-Posted
	I-5 Bridge to Walker Rd Bridge	8/15/2019	Caution
	I-5 Bridge to Walker Rd Bridge	10/21/2019	De-Posted
	Walker Rd Bridge to Brown Bear	8/21/2019	Caution
	Walker Rd Bridge to Brown Bear	10/21/2019	De-Posted
	Brown Bear to below Seiad	8/21/2019	Caution
	Brown Bear to below Seiad	10/21/2019	De-Posted
	Seiad to below Happy Camp	8/21/2019	Caution
	Seiad to below Happy Camp	10/21/2019	De-Posted
	Happy Camp to Orleans	8/28/2019	Caution
	Happy Camp to Orleans	10/21/2019	De-Posted
	Orleans to Weitchpec	9/9/2019	Caution
	Orleans to Weitchpec	12/18/2019	De-posted
	Weitchpec to below Trinity River	8/20/2019	Yurok Level 1
	Weitchpec to below Trinity River	9/4/2019	Yurok Level 2
	Weitchpec to below Trinity River	12/18/2019	De-posted
	Below Trinity River to Estuary	8/20/2019	Yurok Level 1
	Below Trinity River to Estuary	9/4/2019	Yurok Level 2
	Below Trinity River to Estuary	12/18/2019	De-posted

7.2. Data Summary

The public health data is summarized below to illustrate general spatial and temporal patterns during the 2019 sampling period (the full public health dataset is in Appendix D). Data also are summarized in (1) bar graphs representing the microcystin concentration for the different sampling events at a specific location, (2) bar graphs representing the toxic algae cell counts for the different sampling events at a specific location, and (3) longitudinal graphs of river mile versus corresponding lab results for microcystin.

Anatoxin-a data was collected in accordance with the public health sampling SOP for the public health monitoring program. GreenWater analyzed all anatoxin-a samples using LC/MS-MS (Table D-3). The GreenWater method had an MDL of 0.05 μg/l and no anatoxin-a was detected in any of the samples collected at any location in 2019.

All microcystin data included below was collected in accordance with the public health sampling SOP for the public health monitoring program. The MDL for microcystin was 0.10 μg/l and the RL was 0.15 μg/l. There were many samples where microcystin was not detected above the MDL. To clearly indicate when a sample was collected but microcystin was not detected, all non-detect values were graphed as a clearly identified, separate series on the figures below. If a sample was not collected at a location on a specific date, a note was added to the graph for that site.

There were also instances when an algae sample was collected, but no toxic algae were detected. In such cases, a value of zero for the toxic algae cell count indicated that a sample was collected and no toxic algae were detected. The toxic algae cell count graphs present values for *Dolichospermum flos-aquae* (DKFA) (formerly *Anabaena flos-aquae*) and *Microcystis aeruginosa* (MSAE). Also presented on the graphs is a summation of other potentially toxic cyanobacteria, including *Gloeotrichia echinulata*, *Planktothrix limosa* (formerly *Oscillatoria limosa.*)*, Planktothrix* sp. (formerly *Oscillatoria sp.*) and *Limnothrix* sp., which were present in 2019 Klamath River samples. When present, the 'Other' potentially toxic cyanobacteria are identified in the figure captions. While *Aphanizomenon flos-aquae* cell counts were reported for the public health samples, in the Klamath River system this species of cyanobacteria has not been found to produce toxins (Carmichael et al. 2000; Li et al. 2000; Pereira 2004). Therefore, *Aphanizomenon flos-aquae* values were omitted from the public health summary graphs.

Because of the higher cell counts and microcystin concentrations at the reservoir sites, the graphs for the reservoir locations have a different scale than the graphs for the river locations.

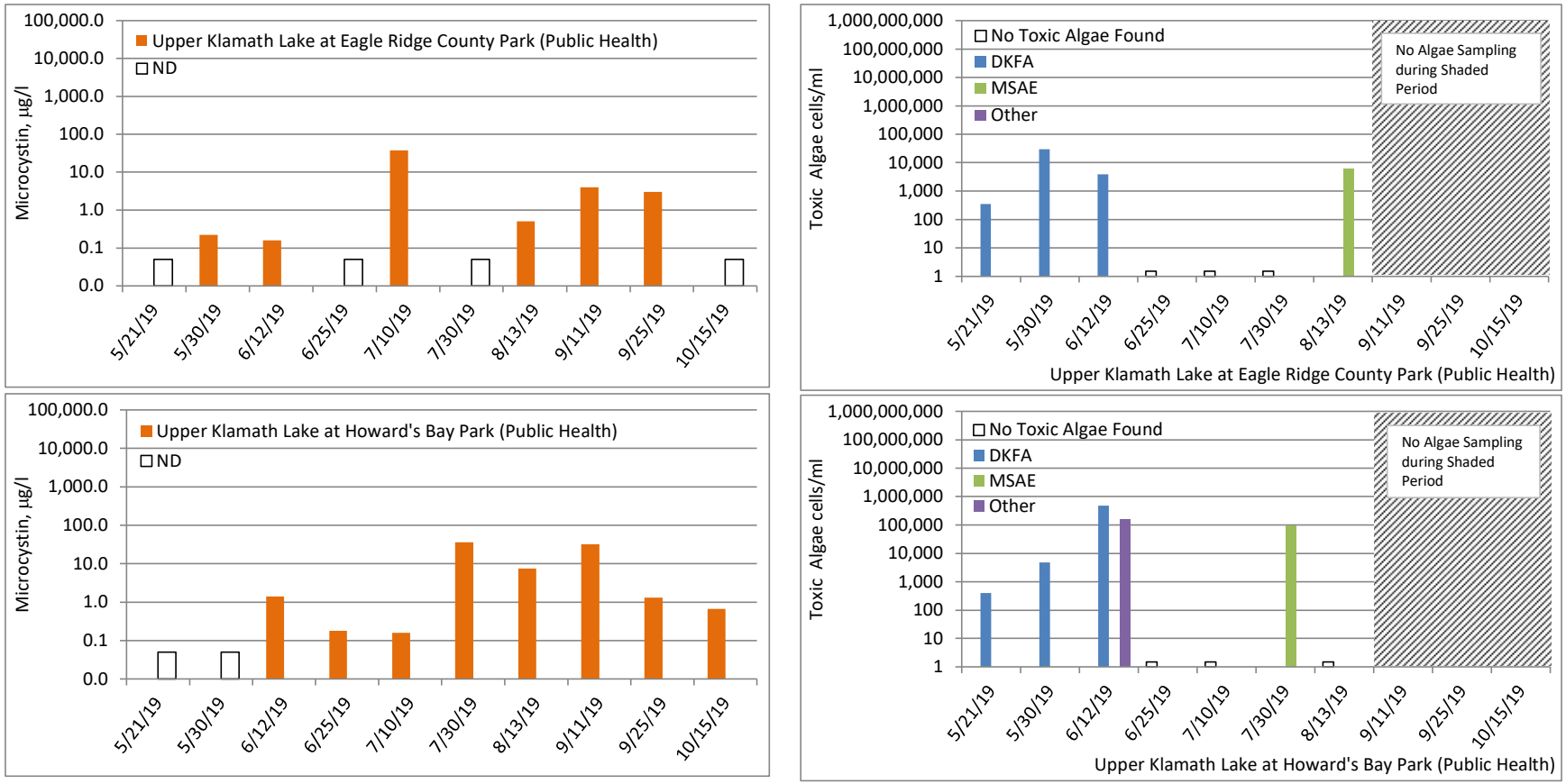
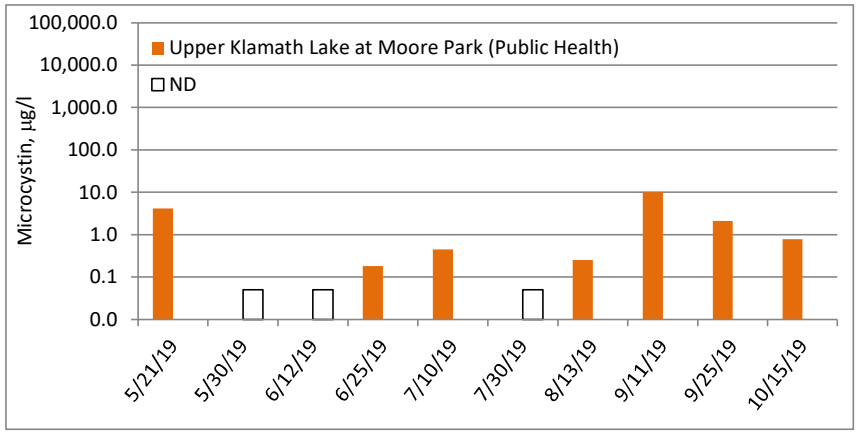


Figure 18. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected in Upper Klamath Lake at Eagle Ridge County Park (Public Health) and Upper Klamath Lake at Howard's Bay Park (Public Health) (ND indicates non-detect results). Other potentially toxic cyanobacteria present at Upper Klamath Lake at Howard's Bay Park was *Gloeotrichia echinulate*.



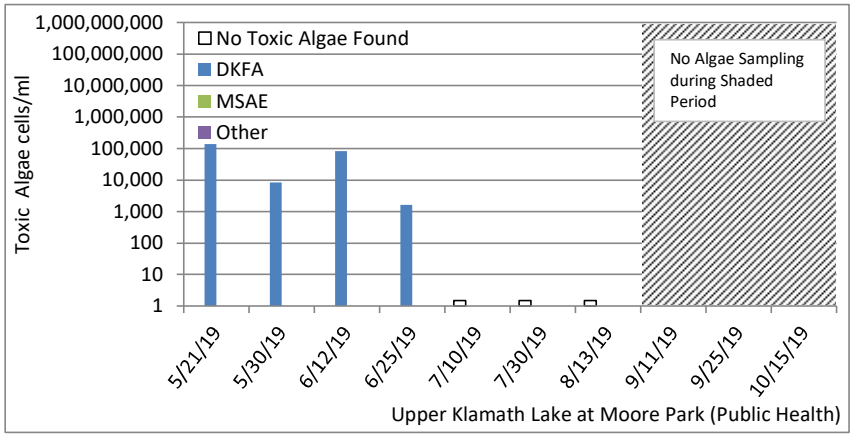


Figure 19. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected in Upper Klamath Lake at Moore Park (Public Health) (ND indicates non-detect results).

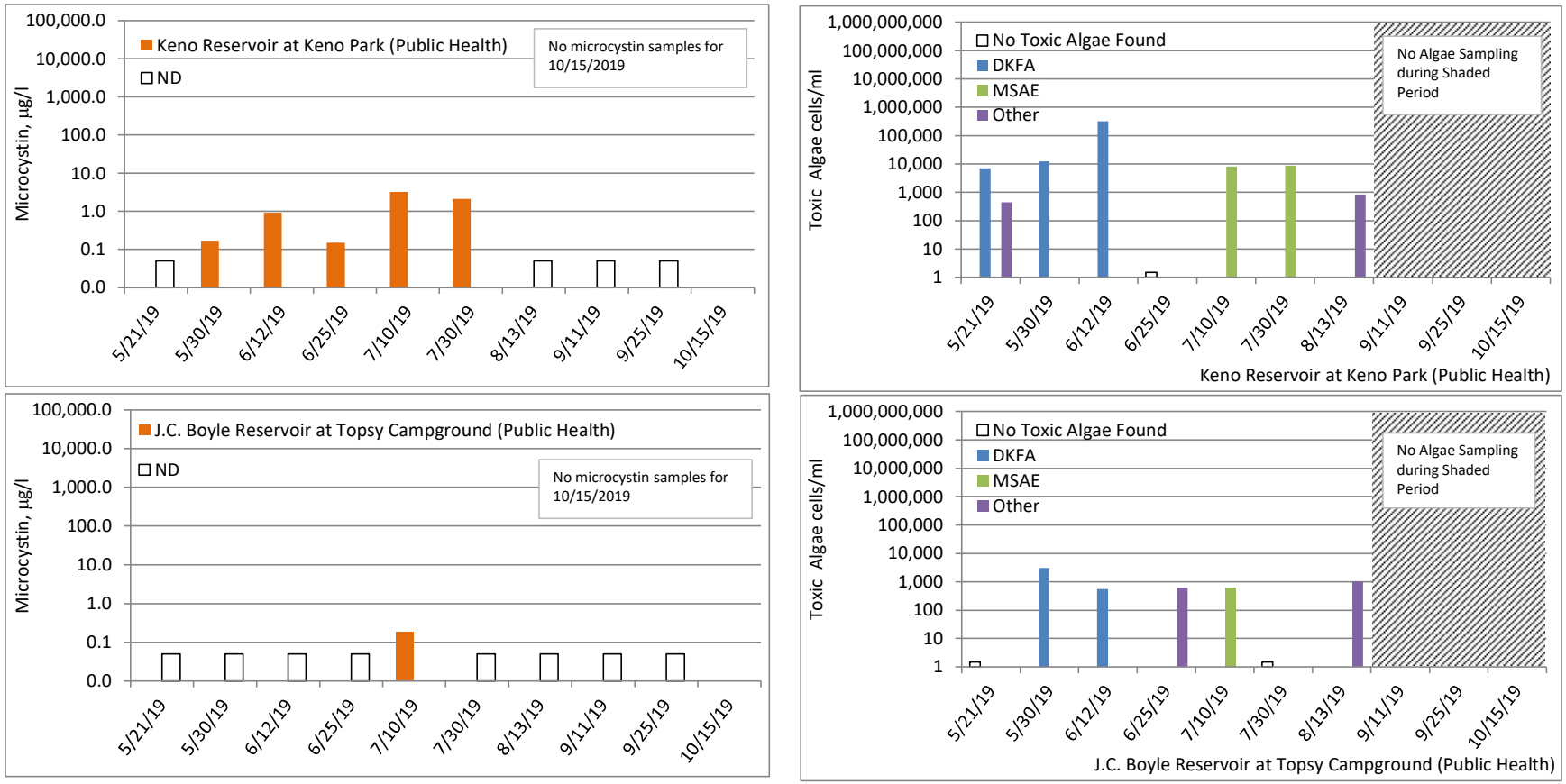


Figure 20. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected in Keno Reservoir at Keno Park (Public Health) and J.C. Boyle Reservoir at Topsy Campground (Public Health) (ND indicates non-detect results). Other potentially toxic cyanobacteria present at Keno Reservoir at Keno Park (Public Health) included *Planktothrix limosa* and *Limnothrix sp.* Other potentially toxic cyanobacteria present at J.C. Boyle Reservoir at Topsy Campground (Public Health) included *Planktothrix limosa* and *Limnothrix sp.*

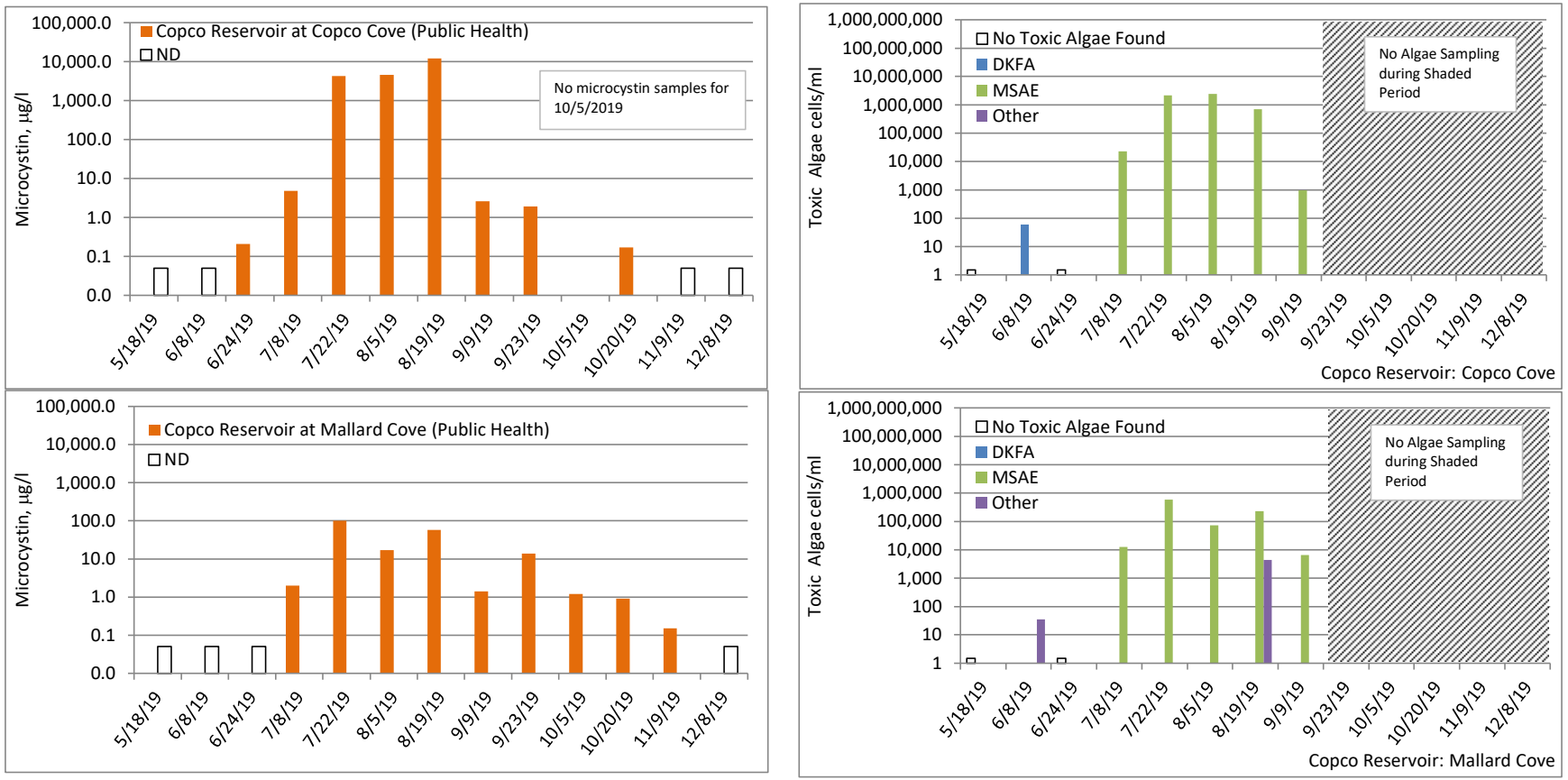


Figure 21. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected in Copco Reservoir at Copco Cove (Public Health) and Mallard Cove (Public Health) (ND indicates non-detect results). Other potentially toxic cyanobacteria present at Copco Reservoir at Mallard Cove (Public Health) included *Planktothrix limosa* and *Planktolyngbya sp.*

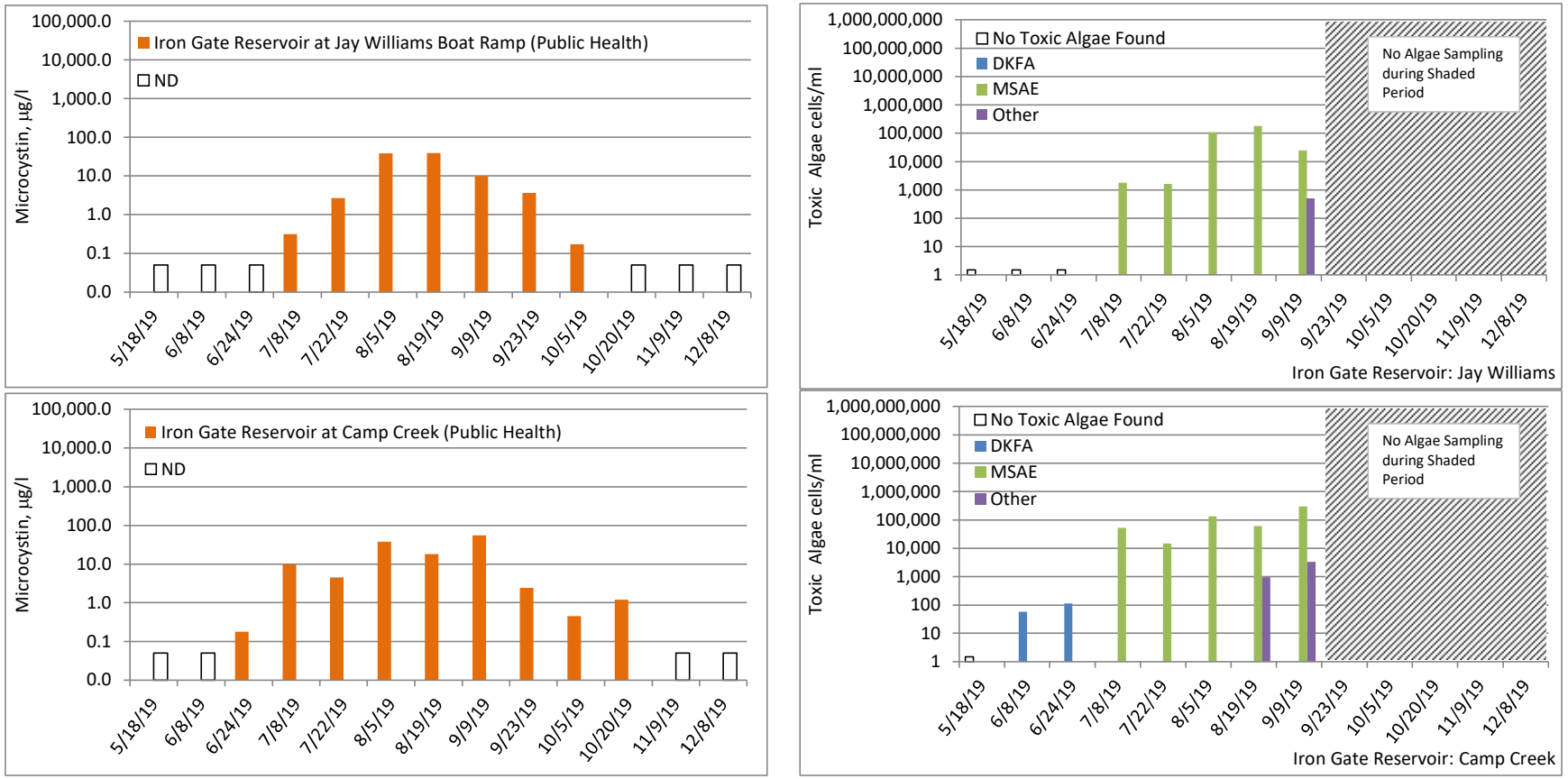


Figure 22. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected in Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health) and Iron Gate Reservoir at Camp Creek (Public Health) (ND indicates non-detect results). The other potentially toxic cyanobacteria present at Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health) and Iron Gate Reservoir at Camp Creek (Public Health) was *Limnothrix sp.*

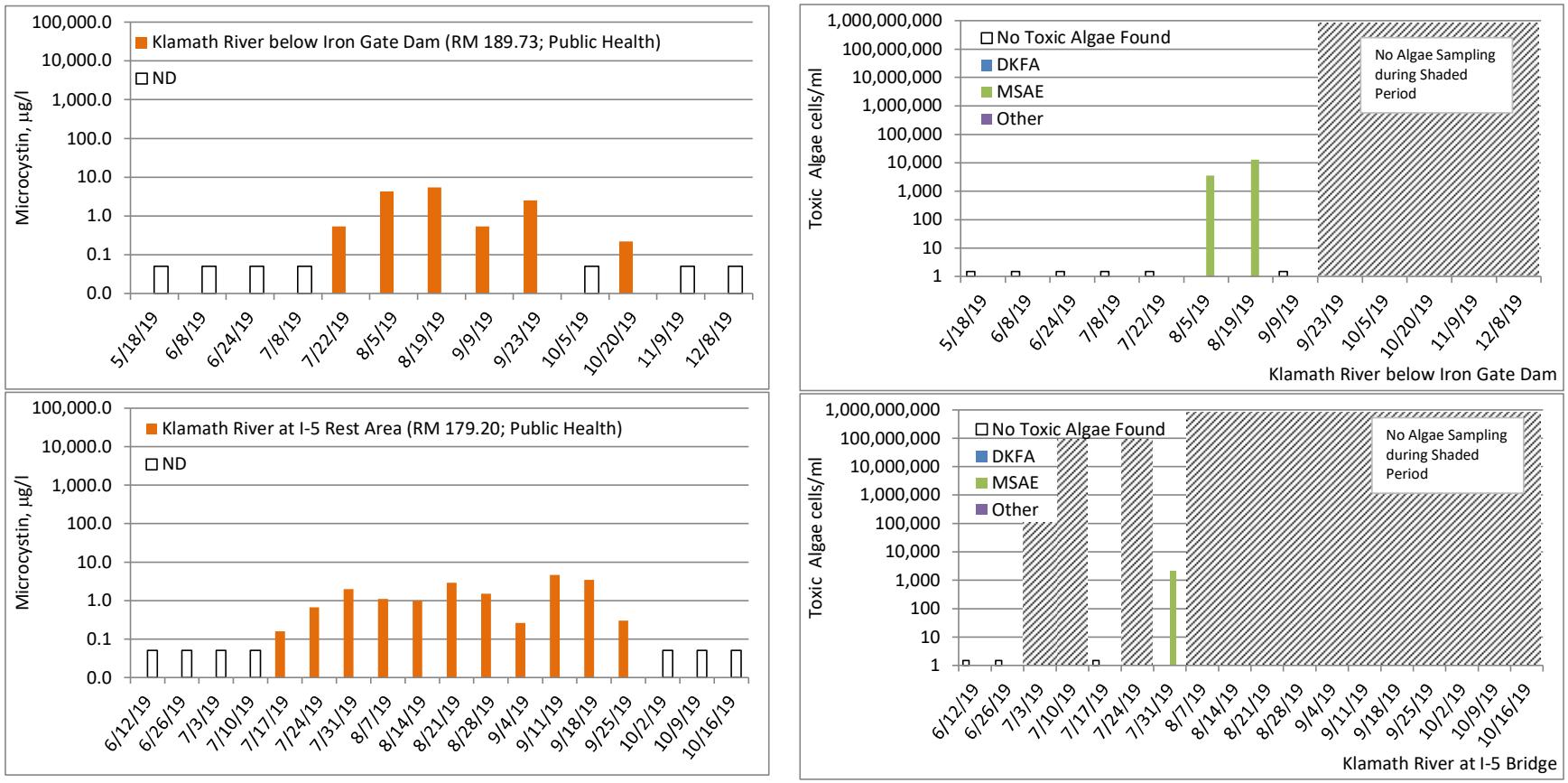


Figure 23. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected at Klamath River below Iron Gate Dam (RM 189.73; Public Health) and Klamath River at I-5 Rest Area (RM 179.20; Public Health) (ND indicates non-detect results).

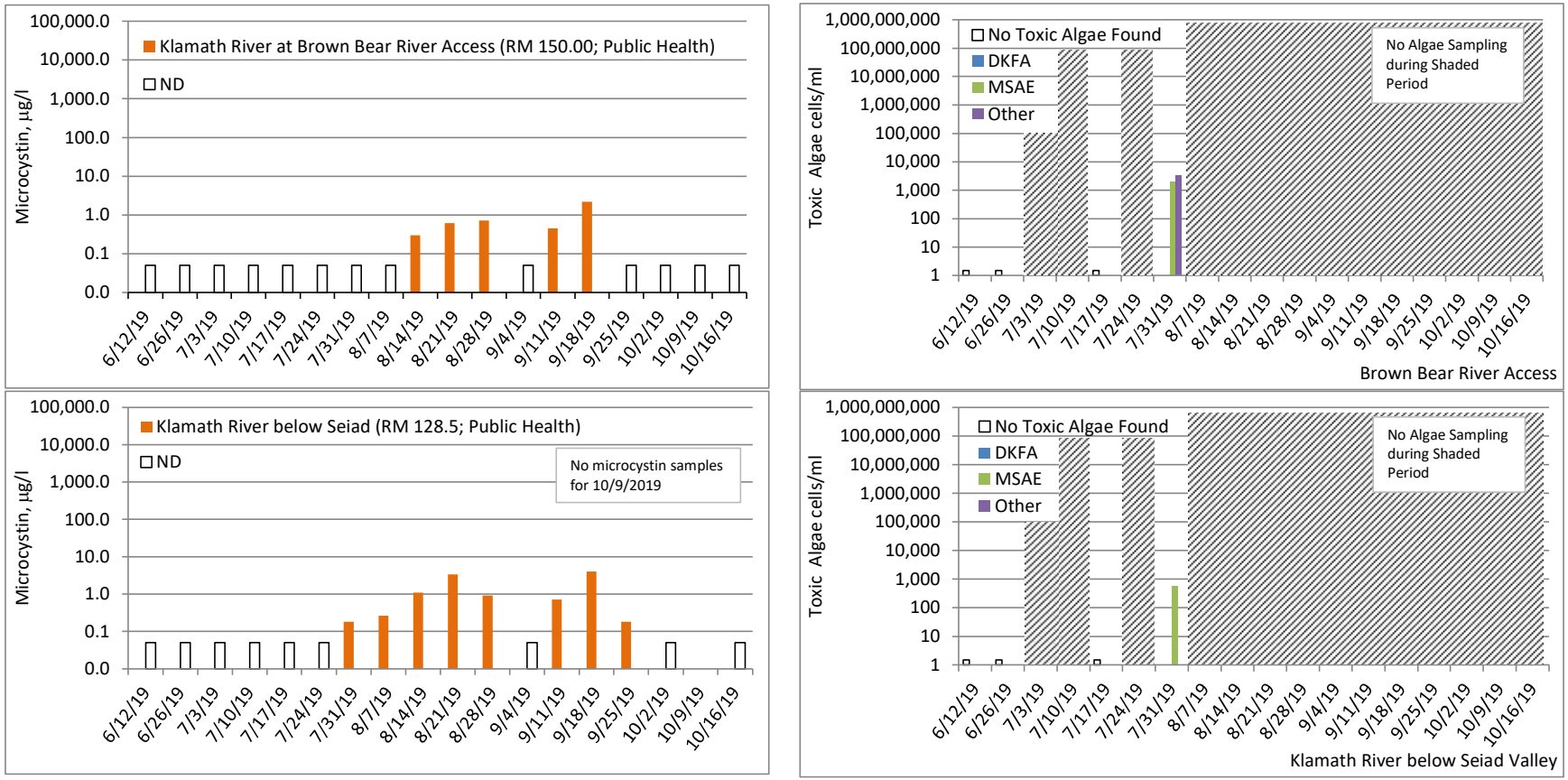


Figure 24. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected at Klamath River at Brown Bear River Access (RM 150.00; Public Health) and Klamath River below Seiad (RM 128.5; Public Health) (ND indicates non-detect results). The other potentially toxic cyanobacteria present at Klamath River at Brown Bear River Access (RM 150.00; Public Health) was *Dolichospermum variabilis*.

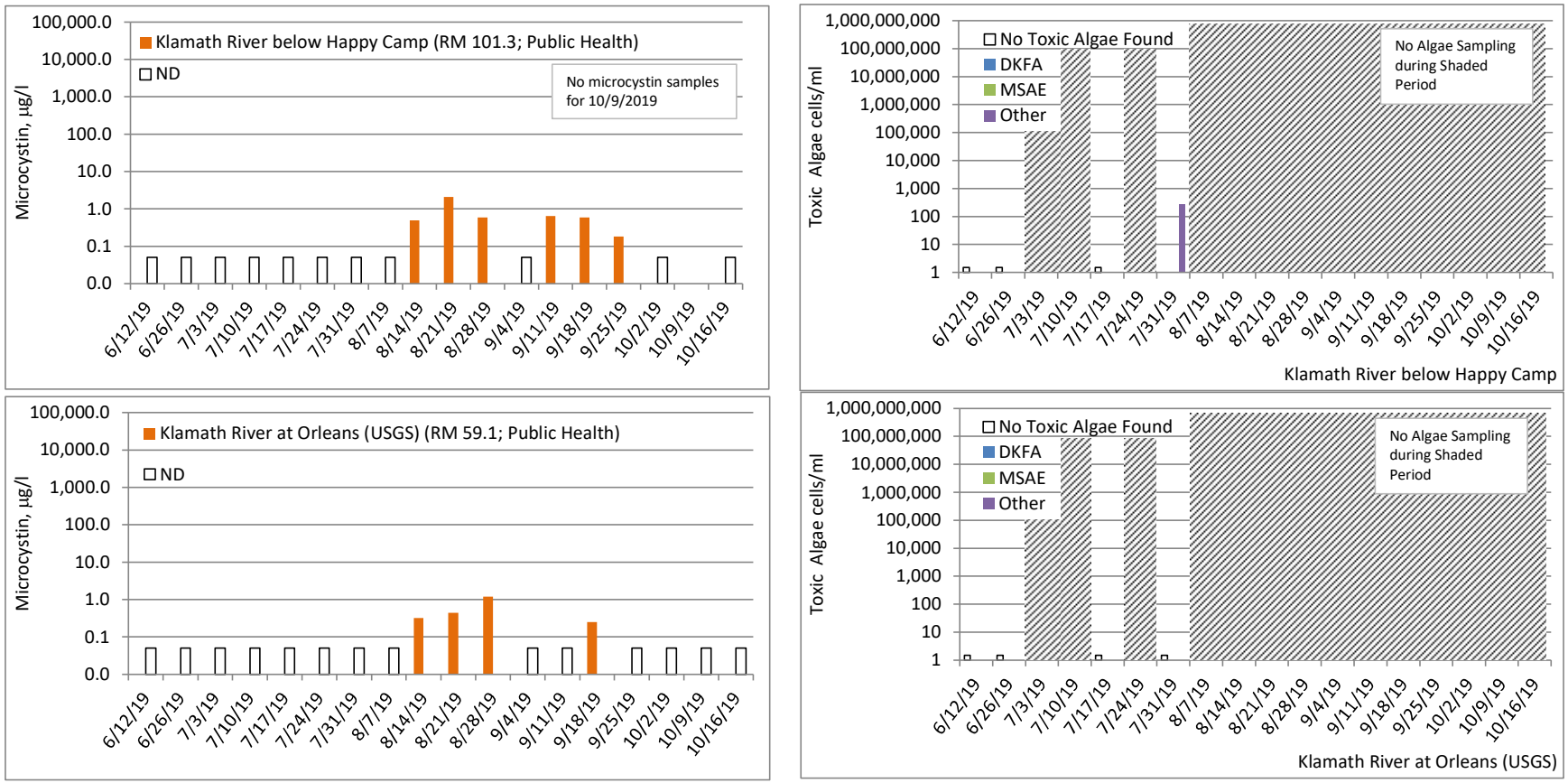


Figure 25. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected at Klamath River below Happy Camp (RM 101.3; Public Health) and Klamath River at Orleans (USGS) (RM 59.1; Public Health) (ND indicates non-detect results). The other potentially toxic cyanobacteria present at Klamath River below Happy Camp (RM 101.3; Public Health) was *Dolichospermum variabilis*.

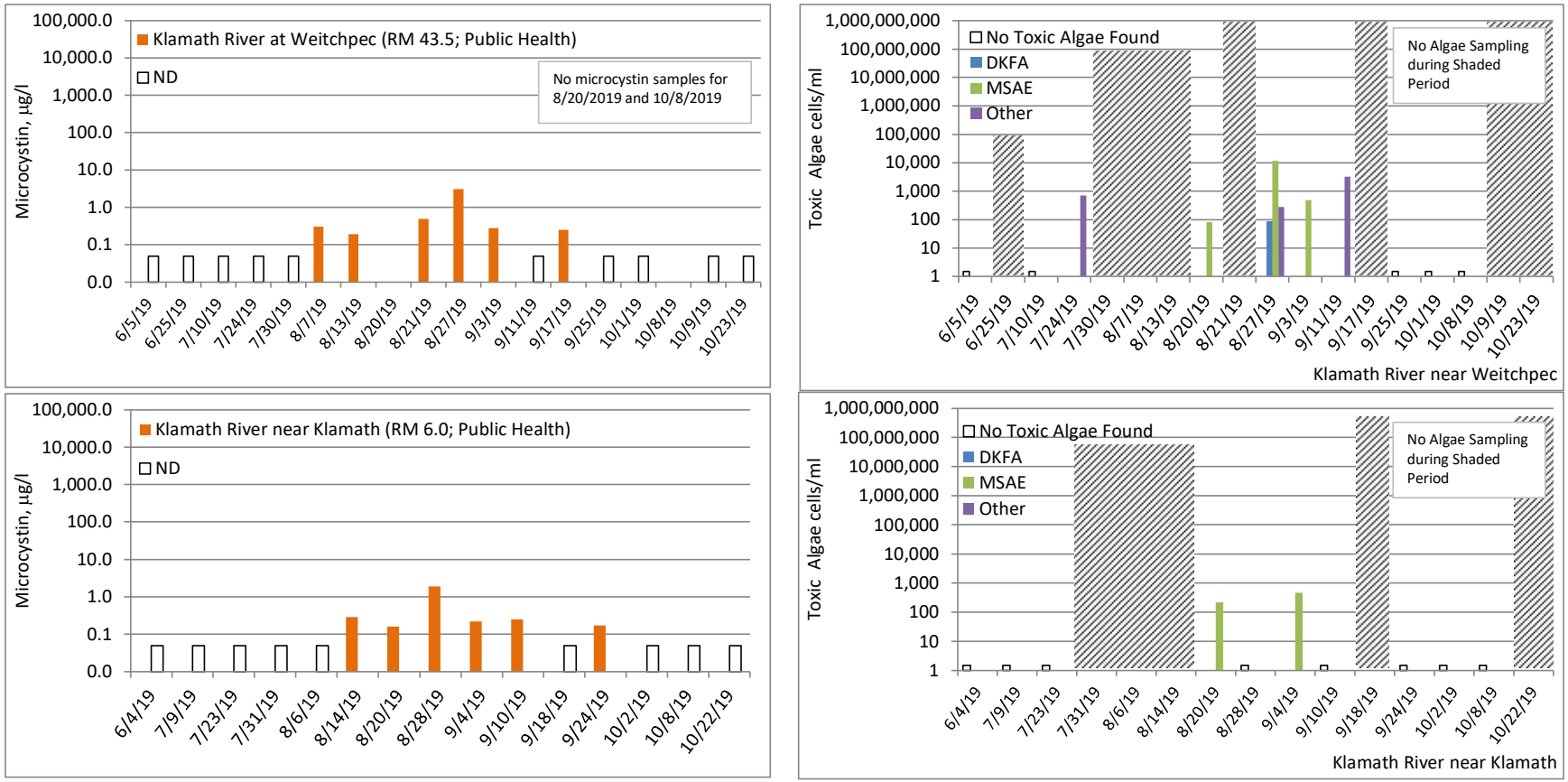


Figure 26. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected at Klamath River at Weitchpec (RM 43.5; Public Health) and Klamath River near Klamath (RM 6.0; Public Health) (ND indicates non-detect results). The other potentially toxic cyanobacteria present at Klamath River at Weitchpec (RM 43.5; Public Health) was *Dolichospermum variabilis.*

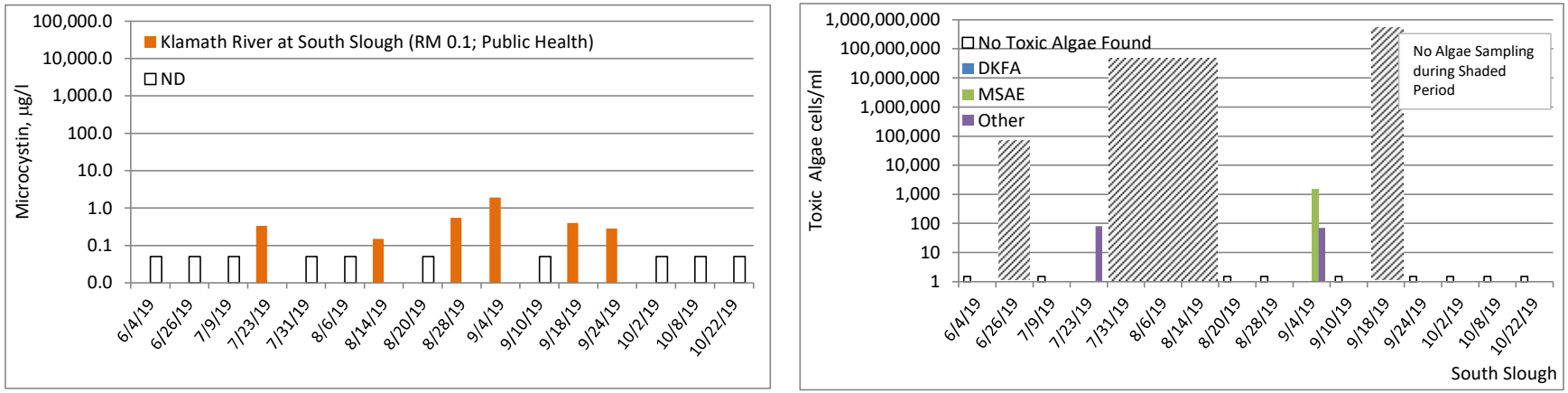


Figure 27. Microcystin concentrations and toxic algae cell counts from 2019 public health samples collected at Klamath River at South Slough (RM 0.1; Public Health) (ND indicates non-detect results. The other potentially toxic cyanobacteria present at Klamath River at South Slough (RM 0.1; Public Health) were *Dolichospermum sp.* and *Planktothrix limosa*.

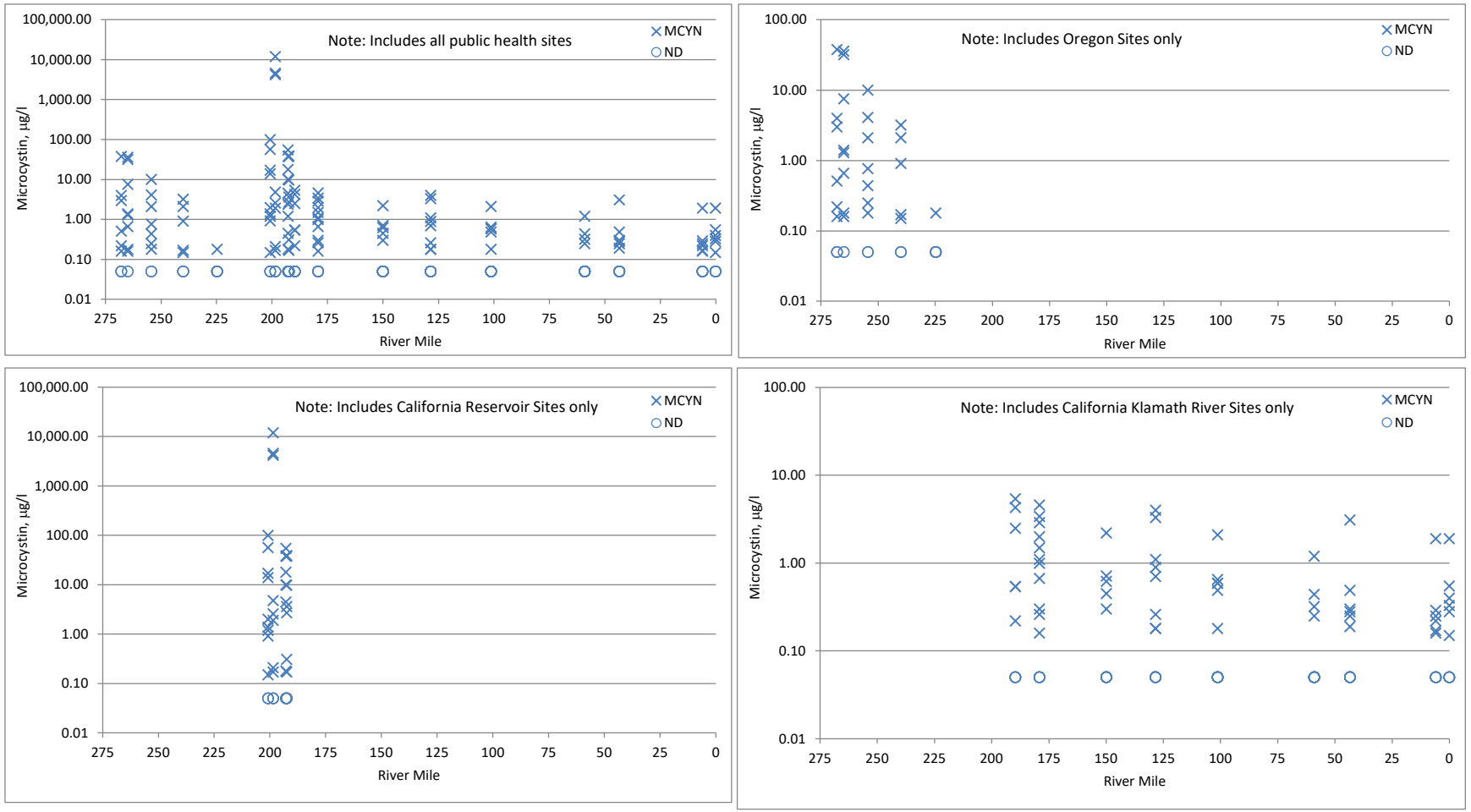


Figure 28. 2019 microcystin (MCYN) concentrations from public health program: at all public health sampling sites (top left), Oregon sites (top right), California reservoir sites (bottom let), and California Klamath River sites from Iron Gate Dam downstream (bottom right). ND (○) indicates non-detect results. Sites in Upper Klamath Lake and reservoirs were given approximate river miles to locate them appropriately on the graph.

8. Summary

The KHSA IM 15 baseline water quality sampling program and public health monitoring program are an interagency cooperative effort to characterize water quality conditions in the Klamath Basin in support of ongoing and future measures pertaining to restoration, dam removal studies, public health, and other factors. The programs were originally implemented in 2009 under the AIP and have been on-going in a consistent manner ever since. Quality assurance measures have been incorporated into the process and final data sets are available to all interested parties. This planning and monitoring effort has laid the groundwork for continued cooperation and quality data collection in the Klamath River basin.

9. References

Carmichael, W., C. Drapeau, D. Anderson. 2000. Harvesting of *Aphanizomenon flos-aquae* (Cyanobacteria) from Klamath Lake for human dietary use. Journal of Applied Phycology 12: 585-595.

Karuk Tribe (Karuk). 2009. Mid-Klamath River Nutrient, Periphyton, Phytoplankton and Algal Toxin Sampling Analysis Plan (SAP). February.

KHSA Working Group (KHSA-WG). 2010. Klamath River Baseline Sampling Program QA Comparison. Prepared for the KHSA Water Quality Program Working Group by M. Deas, Watercourse Engineering, Inc., and K. Fetcho, Yurok Tribe Environmental Program. May 4.

Li, R., W. Carmichael, Y. Liu and M. Watanabe. 2000. Taxonomic re-evaluation of *Aphanizomenon flos-aquae* NH-5 based on morphology and 16S rRNA gene sequences. Hydrobiologia 438: 99-105.

Office of Environmental Health Hazard Assessment (OEHHA). 2012. Toxicological Summary and Suggested Action Levels to Reduce Potential Adverse Effects of Six Cyanotoxins. Final Report-May 2012. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency, Sacramento, California 95812-4010

Oregon Health Authority (OHA). 2019. Oregon Harmful Algal Bloom Surveillance (HABS) Program – Public Health Advisory Guidelines, Harmful Algae Blooms in Freshwater Bodies. 27 pp. https://public.health.oregon.gov/HealthyEnvironments/Recreation/HarmfulAlgaeBlooms/Pages/resources_for_samplers.aspx

PacifiCorp. 2008. Quality Assurance Project Plan. 2009 Baseline Water Quality Monitoring by PacifiCorp, Interim Measure 12, Part 2.

Paulo, P., R. Li , W. Carmichael , E. Dias, and S. Franca (2004) Taxonomy and production of paralytic shellfish toxins by the freshwater cyanobacterium *Aphanizomenon gracile* LMECYA40, European Journal of Phycology, 39:4, 361-368, DOI: 10.1080/09670260410001714723

State Water Resources Control Board (SWRCB). 2016. California SWRCB 2016. Draft Statewide Voluntary Guidance on CyanoHABs in Recreational Waters. Available online at: http://www.mywaterquality.ca.gov/monitoring_council/cyanohab_network/docs/triggers.pdf

United States Bureau of Reclamation (USBR). 2009. Standard Operating Procedures for Quality Assurance. Revision 2009-05. Prepared by Environmental Monitoring Branch. May.

World Health Organization (WHO). 2003. Cyanobacterial Toxins: Microcystin-LR in Drinking Water. Background document for the development of WHO Guidelines for Drinking-Water Quality. World Health Organization. Geneva.

Yurok Tribe (Yurok). 2008. Lower Klamath River Nutrient, Periphyton, Phytoplankton and Algal Toxin Sampling Analysis Plan (SAP). June.

Appendix A. Baseline Water Quality Sampling Site Locations

Table A-1. 2019 baseline water quality sampling locations in the Klamath River mainstem and major tributaries.

Site ID	Location	Site Type	River Mile	Sampling Entity
KR25444	Link Dam (RM 254.44; Baseline)	Mainstem	254.44	USBR
KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	Mainstem	246.00	USBR
KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	Mainstem	233.40	USBR
KR22822	Klamath River above J.C. Boyle Reservoir (RM 228.22; Baseline)	Mainstem	228.22	PacifiCorp
KR22478	J.C. Boyle Reservoir (RM 224.78; Baseline)	Reservoir	224.78	PacifiCorp
KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	Mainstem	224.60	PacifiCorp
KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	Mainstem	219.50	PacifiCorp
KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	Mainstem	206.42	PacifiCorp
KR19874	Copco Reservoir (RM 198.74; Baseline)(0.5 m, thermocline, 0.5 m from bottom, and 0-8m integrated)	Reservoir	198.74	PacifiCorp
KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	Mainstem	196.45	PacifiCorp
KR19019	Iron Gate Reservoir (RM 190.19; Baseline)(0.5 m, thermocline, 0.5 m from bottom, and 0-8m integrated)	Reservoir	190.19	PacifiCorp
KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	Mainstem	189.73	PacifiCorp
KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Mainstem	156.26	Karuk
KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Mainstem	128.50	Karuk
KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Mainstem	101.30	Karuk
KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Mainstem	59.10	Karuk
KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Mainstem	43.50	Yurok
KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Mainstem	38.50	Yurok
KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Mainstem	6.00	Yurok
KR00050	Klamath River Estuary (RM 0.5; Baseline)	Mainstem	0.50	Yurok
SH00000	Shasta River near mouth (Baseline)	Tributary	-	Karuk
SC00000	Scott River near mouth (Baseline)	Tributary	-	Karuk
SA00000	Salmon River near mouth (Baseline)	Tributary	-	Karuk
TR00000	Trinity River near mouth (Baseline)	Tributary	-	Yurok

Appendix B. 2019 Baseline Data Summary

This appendix presents the complete general water quality and nutrient data set for the 2019 KHSA baseline sampling (Table B-1). The four sampling entities are United States Bureau of Reclamation (USBR), PacifiCorp, the Karuk Tribe, and the Yurok Tribe. CBOD, TKN and VSS were not sampled in 2019 but columns are in the table to preserve data formatting with historic datasets. While VSS was removed from the KHSA program it was not removed from the Karuk Tribe or Yurok Tribe water quality monitoring programs and because VSS was still collected by those two entities the results are presented here.

Table B-1. 2019 Klamath River Baseline Data Summary. All Non-detect values were replaced with "<" and the RL value. Sample Types include: P- Production sample; R – Regular sample associated with QA sample set; I = Depth Integrated sample.

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
2019KHSA-001	2/12/2019	10:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	1.04		122	11.22	9.45	1.42	51.86	3.37	1.32		0.39	0.38	0.22		1.51	0.01	0.04	<0.0063	<0.0063	15.10	19.0		
2019KHSA-007	3/12/2019	10:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	2.27	7.73	110	11.71	12.46	2.73	46.65	2.98	1.63		0.20	0.36	0.25		1.22	0.01	0.04	0.02	<0.0063	18.80	27.9		
2019KHSA-013	4/16/2019	10:00	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	8.07	8.57	104	10.05	36.42	3.60	45.89	3.79	2.46		0.02	0.11	0.36		0.84	0.01	0.05	0.04	0.01	20.80	28.2		
2019KHSA-019	5/7/2019	9:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	15.70	7.70	107	8.27	7.90	1.88	48.22	4.35	0.93		0.03	0.10	0.15		0.83	0.02	0.06	0.02	<0.0063	8.56	10.4		
2019KHSA-025	5/21/2019	11:00	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	12.79	8.02	108	9.45	13.65	2.33	48.14	4.44	1.23		0.06	0.14	0.17		0.71	0.04	0.10	0.02	0.01	11.60	9.1		
2019KHSA-029	6/4/2019	9:45	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	19.19	8.83	106	8.00	13.31	2.80	47.31	4.49	1.60		<0.01	0.01	0.26		0.63	0.01	0.05	0.02	0.04	13.10	12.7		
2019KHSA-035	6/18/2019	9:15	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	20.60	8.57	108	7.81	34.61	1.80	47.40	4.52	3.29		0.04	0.02	0.67		1.13		0.08	0.05	0.01	9.04	5.0		
2019KHSA-040	7/9/2019	8:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	19.60	10.44	114	10.52	129.49	0.46	48.90	6.37	8.02		0.03	<0.01	1.56		2.00	0.01	0.13	0.10	0.06	38.90	6.0		<0.15
2019KHSA-046	7/23/2019	9:45	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	22.40	9.81	110.2	8.37	222.05	0.46	45.30	7.15	13.00		0.04	<0.01	2.60		3.43	0.08	0.30	0.15	0.07	35.30	15.0		<0.15
2019KHSA-051	8/7/2019	9:00	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	23.70	9.56	106.7	6.74	219.10	0.46	54.40		11.20		0.05	0.03	2.33		3.20	0.11	0.33	0.11	0.10	57.30	6.0		0.24
2019KHSA-057	8/20/2019	9:00	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	21.50	9.52	104.6	6.51	330.29	4.12	48.20	8.21	12.60		0.07	0.01	2.55		3.68	0.11	0.33	0.15	0.11	56.20	17.0		0.21
2019KHSA-062	9/10/2019	9:45	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	17.20	9.43	104.8	7.04	148.74	0.46	50.00	7.97	8.03		0.05	<0.01	1.53		2.94	0.09	0.26	0.10	0.04	49.80	26.0		0.40
2019KHSA-068	9/24/2019	9:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	15.30	9.18	108.1	8.94	234.63	11.49	44.60	7.54	14.70		0.04	0.01	2.95		3.74	0.04	0.34	0.21	0.13	9.78	30.0		1.60
2019KHSA-073	10/8/2019	10:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	11.90	8.94	111.3	10.26	59.05	2.92	48.80	7.09	6.18		0.09	0.02	1.22		2.27	0.02	0.18	0.10	0.08	10.24	13.0		0.30
2019KHSA-079	10/22/2019	10:35	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	9.40	8.09	114.9	8.54	29.06	1.97	52.10	6.18	4.47		0.27	0.09	0.89		2.32	0.02	0.10	0.03	0.02	9.59	5.0		0.21
2019KHSA-083	11/5/2019	9:40	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	6.50	7.60	118.7	8.63	9.82	2.93	71.50	4.92	1.96		0.54	0.20	0.34		1.45	0.01	0.07	0.02	0.03	11.28	17.0		
2019KHSA-089	12/10/2019	9:00	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	2.40	7.59	120.8	10.78	19.70	5.55	40.60	4.51	2.77		1.07	0.24	0.42		1.97	0.03	0.10	0.03	0.01	24.56	59.0		
2019KHSA-004	2/12/2019	11:55	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	1.53		221	12.87	14.45	3.45	87.85	3.59	1.32		0.23	0.69	0.22		1.57	0.03	0.07			14.30	13.2		

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
2019KHSA-010	3/12/2019	11:45	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	4.66	7.42	204	10.97	15.72	2.96	80.35	5.54	2.24		0.19	0.51	0.33		1.34	0.08	0.15			29.70	34.2		
2019KHSA-016	4/16/2019	11:30	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	8.34	8.06	138	8.97	22.47	4.47	59.39	4.31	2.28		0.06	0.21	0.32		0.93	0.02	0.09			27.20	29.1		
2019KHSA-022	5/7/2019	8:45	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	16.24	7.46	115	8.06	10.46	2.33	50.31	4.49	0.97		0.09	0.13	0.15		0.88	0.05	0.08			9.65	8.0		<0.15
2019KHSA-032	6/4/2019	9:00	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	20.26	8.59	130	7.44	15.70	2.50	56.52	4.90	1.30		0.02	0.01	0.22		0.68	0.08	0.12			11.90	9.0		<0.15
2019KHSA-043	7/9/2019	11:40	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	21.10	9.88	112	5.90	39.72	2.89	30.70	6.62	5.24		0.20	0.01	1.12		1.90	0.10	0.23			28.70	5.0		<0.15
2019KHSA-054	8/7/2019	11:55	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	24.70	9.26	115	3.79	203.02	8.19	55.80	9.29	11.40		0.53	0.01	2.37		4.05	0.12	0.38			39.00	8.0		0.20
2019KHSA-065	9/10/2019	8:55	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	19.60	8.30	126.6	0.12	27.78	8.53	63.70	8.91	4.93		1.47	<0.01	1.10		3.59	0.13	0.38			19.00	10.0		0.27
2019KHSA-076	10/8/2019	8:20	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	11.50	7.74	158.2	6.37	145.46	3.95	69.00	6.94	8.70		0.43	0.09	1.97		3.71	0.08	0.40			6.18	21.0		<0.15
2019KHSA-086	11/5/2019	8:20	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	6.60	7.55	124.6	8.89	172.94	4.70	51.40	5.34	18.90		0.63	0.24	3.42		2.34	0.03	0.14			10.24	15.0		
2019KHSA-092	12/10/2019	10:50	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	3.00	7.52	158.3	9.79	12.30	5.77	60.30	4.12	1.58		0.79	0.40	0.25		1.68	0.04	0.10			13.07	27.0		
2019KHSA-005	2/12/2019	9:10	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	1.71		225	12.75	73.42	8.00	86.79	4.52	2.95		0.01	0.62	0.56		1.68	0.02	0.10	0.07	0.02	16.20	22.8		
2019KHSA-011	3/12/2019	9:45	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	5.16	7.16	294	9.01	33.43	11.89	114.26	6.88	2.69		0.13	0.55	0.41		1.66	0.09	0.16	0.06	0.02	23.70	28.3		
2019KHSA-017	4/16/2019	9:20	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	8.28	7.97	138	10.50	42.17	5.82	55.24	4.04	3.20		0.02	0.22	0.49		1.07	0.01	0.08	0.05	0.03	29.50	42.4		
2019KHSA-023	5/7/2019	11:00	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	15.94	7.84	134	9.33	12.14	4.06	55.11	4.65	1.62		0.04	0.11	0.27		0.83	0.05	0.09	0.05	0.01	11.00	10.6		<0.15
2019KHSA-033	6/4/2019	11:20	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	19.24	8.70	136	8.85	15.65	3.86	58.78	5.03	1.28		<0.01	0.00	0.19		0.65	0.06	0.10	0.04	0.01	13.40	13.1		<0.15
2019KHSA-038	6/18/2019	10:35	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	21.83	8.94	117	8.80			49.80				0.04	0.01			0.88		0.12			9.45			
2019KHSA-044	7/9/2019	10:45	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	20.20	9.35	174	8.91	96.97	3.86	63.80	8.39	3.36		0.23	0.02	0.74		2.00	0.16	0.29	0.08	0.08	15.50	<4		<0.15
2019KHSA-049	7/23/2019	11:30	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	22.90	9.12	135.1	7.06			52.60				0.46	<0.01			2.32	0.16	0.31			12.10			
2019KHSA-055	8/7/2019	10:40	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	23.40	8.99	125.9	6.26	112.42	37.62	58.40	9.02	5.07		0.49	0.01	1.02		2.40	0.11	0.30	0.12	0.07	11.50	6.0		<0.15
2019KHSA-060	8/20/2019	11:00	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	22.00	8.52	133.3	7.08			51.90				0.80	0.02			2.70	0.13	0.26			8.40			

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
2019KHSA-066	9/10/2019	11:25	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	19.20	7.64	136.3	6.52	43.55	24.55	63.20	8.71	3.63		1.78	<0.01	0.73		3.70	0.17	0.36	0.08	0.03	7.55	4.0		<0.15
2019KHSA-071	9/24/2019	11:05	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	15.30	7.97	138.7	8.50			59.10				0.65	0.06			2.61	0.11	0.22			3.96			
2019KHSA-077	10/8/2019	9:25	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	11.80	7.78	160.9	9.22	44.68	7.37	74.20	7.93	4.45		0.63	0.09	0.91		2.26	0.10	0.20	0.05	0.01	4.43	6.0		<0.15
2019KHSA-087	11/5/2019	11:05	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	6.50	7.51	126.1	10.27	9.73	4.97	64.90	5.56	1.50		0.59	0.26	0.24		1.53	0.03	0.09	0.02	<0.0063	10.12	11.0		
2019KHSA-093	12/10/2019	9:15	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	2.60	7.27	154.5	11.85	23.39	4.36	60.30	4.72	1.98		0.60	0.43	0.32		1.63	0.03	0.09	0.03	0.01	86.62	25.0		
KR19015	3/17/2019	9:40	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	6.862	7.666	338.569	10.76	17.34	7.21	100.2	6.7	2.25		0.11	0.546	0.295		1.57	0.1	0.155				33.6		
KR19031	4/7/2019	7:40	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	9.513	7.543	142.984	10.34	31.75	7.23	55.39	3.98	3		0.065	0.357	0.428		1.34	0.022	0.097				53.17		
KR19047	5/5/2019	7:15	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	15.27	7.559	152.946	8.81	6.90	3.56	56.93	4.72	0.886		0.054	0.138	0.13		0.87	0.068	0.108				12.75		<0.15
KR19064	6/9/2019	7:35	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	18.03	7.655	131.994	8.54	15.79	4.14	50.8	5.57	1.13		0.05	0.04	0.183		0.77	<0.005	0.118				13		<0.15
KR19082	7/9/2019	8:15	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	20.34	7.36	170.226	8.01	7.03	3.55	67.4	8.13	0.839		0.19	0.37	0.123		1.57	0.17	0.337				3		<0.15
KR19100	8/6/2019	7:15	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	23.22	7.99	98.7246	7.47	8.14	7.03	55.9	8.62	1.03		0.23	0.49	0.176		1.92	0.18	0.239				5		<0.15
KR19118	9/10/2019	7:20	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	18.99	7.089	133.262	7.86	14.46	11.53	53.7	10.2	1.22		0.52	1.51	0.169		3.57	0.24	0.379				6		<0.15
KR19136	10/6/2019	7:15	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	11.16	7.459	177.058	9.75	43.97	11.17	78.3	8.98	2.19		0.11	0.45	0.376		1.95	0.09	0.185				8		<0.15
KR19153	11/10/2019	8:15	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	6.391	7.778	44.799	10.96	6.03	4.49	50.5	5.98	0.789		0.27	0.9	0.115		2.05	0.06	0.1				6		
KR19169	12/7/2019	13:55	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	2.239	7.303	140.467	11.92	8.76	4.69	43	4.82	0.971		0.4	0.79	0.142		2.01	0.04	0.103				15		
KR19032	4/7/2019	8:20	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	9.838	7.762	142.746	10.05	34.13	9.63	56.41	3.79	2.74		0.048	0.369	0.393		1.28	0.022	0.1			32.4	50.06		
KR19048	5/5/2019	8:20	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	14.87	7.89	151.618	9.09	9.70	4.53	60.23	4.08	1.25		0.039	0.143	0.176		0.74	0.067	0.097			9.57	11.69		<0.15
KR19065	6/9/2019	8:20	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	17.63	7.901	133.194	8.61	13.16	4.01	51.2	5.19	1.03		0.04	0.07	0.168		0.82	<0.005	0.116			8.3	10		<0.15
KR19083	7/9/2019	9:15	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	17.81	8.1	169.921	8.08	5.12	3.64	67.4	6.89	0.724		0.13	0.36	0.104		1.24	0.15	0.295			2.8	3		<0.15

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
KR19101	8/6/2019	7:50	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	17.33	7.859	132.604	8.36	5.70	4.35	62.7	4.1	0.424		0.04	0.4	<0.0789		1.17	0.11	0.129			2.66	4		<0.15
KR19119	9/10/2019	8:00	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	13.52	7.807	134.711	9.30	5.00	4.43	61.6	3.37	0.504		0.03	0.88	<0.0789		1.5	0.12	0.14			1.38	2		<0.15
KR19137	10/6/2019	8:05	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	10.33	8.145	161.732	10.10	26.00	6.79	73.2	4.88	1.24		0.03	0.34	0.209		1.05	0.08	0.118			2.24	4		<0.15
KR19154	11/10/2019	9:00	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	8.211	8.078	131.549	10.72	2.91	2.66	64.5	2.18	0.302		0.01	0.58	<0.0789		0.89	0.05	0.062			3.32	2		
KR19170	12/7/2019	14:55	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	6.676	7.902	136.572	10.81	5.10	3.60	57.8	4.21	0.578		0.08	0.61	<0.0789		1.11	0.05	0.07			8.09	5		
KR19011	3/16/2019	16:00	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	8.601	8.321	211.65	10.63	15.11	8.61	101.9	7.06	2.07		0.05	0.519	0.272		1.38	0.083	0.15	0.03969	0.01863	38.2	38.06		
KR19027	4/6/2019	14:30	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	10.53	7.947	161.185	10.22	29.04	8.29	62.98	3.95	2.87		0.041	0.431	0.408		1.43	0.031	0.107	0.06176	0.03054	34	50.68		
KR19043	5/4/2019	14:30	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P					8.49	4.22	58.37	4.17	1.19		<0.032	0.145	0.157		0.76	0.07	0.103	0.01469	<0.0063	10.7	12.81		<0.15
KR19060	6/8/2019	14:45	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	18.93	8.265	117.157	8.93	14.68	4.89	50.9	4.85	1.08		0.02	0.07	0.165		0.93	<0.005	0.114	0.01833	<0.0063	10.2	13		0.16
KR19067	6/24/2019	8:20	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	17.4	7.946	126.97	9.06							0.02	0.29			0.72	<0.005	0.108						
KR19078	7/8/2019	14:40	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	18.94	7.846	141.585	7.95	4.16	3.30	64.9	3.29	0.796		0.01	0.24	0.0903		0.69	0.09	0.182	0.0091	<0.0063	3.25	5		<0.15
KR19085	7/22/2019	9:30	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	19.79	8.242	134.977	8.95							0.02	0.5			0.97	0.15	0.162						
KR19096	8/5/2019	13:30	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	20.31	8.56	133.179	8.38	4.65	2.84	62.9	9.14	0.789		0.02	0.39	0.12		1	0.1	0.134	0.01955	<0.0063	4.46	7		<0.15
KR19103	8/19/2019	9:00	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	19.06	8.174	139.714	8.23							0.03	0.76			1.36	0.16	0.175						
KR19114	9/9/2019	14:15	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	15.92	8.543	133.965	9.64	5.20	4.55	60.7	3.19	0.688		0.01	0.81	<0.0789		1.78	0.13	0.148	0.00912	<0.0063	2.66	5		<0.15
KR19121	9/23/2019	10:00	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	14.13	8.16	198.9	9.53							0.02	0.87			1.38	0.13	0.159						
KR19132	10/5/2019	14:30	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	11.58	8.493	147.366	10.60	12.97	5.18	70.2	3.45	0.945		0.01	0.28	0.134		0.77	0.08	0.101	0.01426	<0.0063	2.64	4		<0.15
KR19149	11/9/2019	14:20	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	7.908	8.572	127.812	12.08	4.35	3.43	51.7	4.96	0.535		0.01	0.94	<0.0789		1.63	0.05	0.084	<0.0063	<0.0063	6.6	3		
KR19165	12/8/2019	16:00	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	5.064	8.366	139.142	12.02	8.96	5.03	50.1	3.88	0.642		0.03	0.93	0.0958		1.62	0.04	0.082	0.00966	<0.0063	11.1	5		
KR19007	3/16/2019	13:40	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	8.761	8.2	303.033	10.67	4.96	2.33	97.24	4.8	0.806		0.048	0.601	0.106		1.18	0.078	0.105				10.03		
KR19008	3/16/2019	14:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					7.22	3.27																	

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
KR19009	3/16/2019	14:15	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	17	P	6.477	7.896	310.869	10.62	6.68	3.63	98.09	4.83	1.02		0.052	0.604	0.126		1.19	0.079	0.11				12.99		
KR19010	3/16/2019	14:30	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	27	P	5.649	7.603	359.192	9.52			102.6	5.51	1.11		0.106	0.615	0.121		1.31	0.077	0.108				12.58		
KR19023	4/6/2019	11:50	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	11.17	8.195	204.204	10.38	25.00	8.83	80.21	4.41	1.61		<0.032	0.418	0.247		1.15	0.049	0.104				20.43		
KR19024	4/6/2019	12:20	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					27.37	7.99																	
KR19025	4/6/2019	12:40	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	18	P	8.556	7.59	221.416	8.56	9.63	5.87	82.26	4.24	1.1		0.075	0.459	0.139		1.1	0.06	0.092				11.94		
KR19026	4/6/2019	12:50	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	23	P	7.507	7.362	243.356	7.54			88.42	4.71	0.936		0.116	0.5	0.116		1.24	0.07	0.101				12.43		
KR19039	5/4/2019	12:30	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	16.61	7.78	161.53	8.87	2.92	0.52	61.46	4.29	0.614		0.053	0.219	<0.0789		0.82	0.087	0.11				2.93		<0.15
KR19040	5/4/2019	12:40	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					3.18	0.78																	<0.15
KR19041	5/4/2019	13:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	12	P	13	7.057	158.318	6.89	1.63	1.17	61.05	4.26	0.482		0.081	0.23	<0.0789		0.8	0.093	0.111				4.41		
KR19042	5/4/2019	13:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	23	P	10.01	6.72	146.981	4.00			58.37	3.88	0.64		0.218	0.226	0.0836		0.99	0.101	0.129				8.66		
KR19056	6/8/2019	12:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	19.59	7.946	154.025	7.92	3.93	1.15	60.9	4.88	0.406		0.04	0.06	<0.0789		0.86	<0.005	0.098				3		<0.15
KR19057	6/8/2019	12:15	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					6.37	2.21																	<0.15
KR19058	6/8/2019	13:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	11	P	18.63	7.723	154.065	7.51	4.70	1.20	60.1	4.73	0.587		0.04	0.06	0.0815		0.75	<0.005	0.095				4		
KR19059	6/8/2019	12:45	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	27	P	10.55	6.567	236.462	0.00			59.8	4.13	0.34		0.32	0.28	<0.0789		1.16	<0.005	0.361				5		
KR19074	7/8/2019	12:30	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	21.68	9.207	131.474	11.68	51.76	2.10	55.8	4.52	2.04		0.01	<0.01	0.399		0.86	0.05	0.112				3		0.59
KR19075	7/8/2019	12:50	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					19.75	3.04																	0.41
KR19076	7/8/2019	13:20	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	17	P	16.91	6.887	133.86	1.48	1.47	1.17	58.8	4.27	0.39		0.08	0.23	<0.0789		0.77	0.12	0.187				2		
KR19077	7/8/2019	13:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	25	P	11.44	7.63	148.514	0.00			61.3	4.23	0.571		0.2	0.25	<0.0789		0.84	0.2	0.354				3		
KR19092	8/5/2019	11:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	24.09	9.487	132.988	13.50	3270.00	0.46	70.2	7.06	63.1		0.07	0.02	13		33.42	0.08	2.01				254		86
KR19093	8/5/2019	11:40	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					642.00	0.46																	13
KR19094	8/5/2019	12:05	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	20	P	14.86	7.049	146.718	0.00	14.93	0.99	65.3	4.05	0.871		0.1	0.34	0.184		0.97	0.21	0.237				3		
KR19095	8/5/2019	11:45	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	29	P	11.94	6.982	159.422	0.00			71.8	4.45	1.44		0.85	0.02	0.289		1.38	0.44	0.631				7		
KR19110	9/9/2019	12:20	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	21.5	8.898	149.854	8.10	26.90	1.81	61.9	5.21	1.23		0.06	0.48	0.227		1.47	0.14	0.161				3		0.23
KR19111	9/9/2019	12:45	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					11.72	1.74																	0.25
KR19112	9/9/2019	13:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	20	P	16.69	6.772	150.261	0.00	1.41	1.36	61.5	4.8	0.532		0.19	0.53	0.0798		1.39	0.21	0.25				3		
KR19113	9/9/2019	13:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	24	P	13.5	6.65	161.103	0.01			66.5	4.28	0.642		0.41	0.16	0.0943		1.42	0.23	0.28				4		

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate-Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
KR19128	10/5/2019	11:05	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	15.94	7.803	131.3	7.18	47.25	1.50	58.1	5.58	1.95		0.19	0.6	0.416		1.85	0.16	0.218				4		1.3
KR19129	10/5/2019	11:15	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					24.35	1.80																	<0.15
KR19130	10/5/2019	11:25	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	9	P	14.93	7.576	141.326	5.61	2.17	1.33	59.2	4.82	0.531		0.24	0.56	<0.0789		1.47	0.16	0.189				2		
KR19131	10/5/2019	11:35	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	22	P	13.59	7.439	152.787	5.04			66.8	5.95	0.563		0.3	0.47	<0.0789		1.5	0.17	0.232				3		
KR19145	11/9/2019	11:55	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	9.183	7.769	144.687	9.32	1.12	0.78	55.6	4.99	0.51		0.19	0.65	<0.0789		1.43	0.07	0.101				2		
KR19146	11/9/2019	12:30	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					0.99	0.84																	
KR19147	11/9/2019	12:40	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	12	P	8.227	7.678	136.902	9.21	0.87	1.14	54.8	5.37	0.326		0.17	0.69	<0.0789		1.48	0.06	0.09				2		
KR19148	11/9/2019	13:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	23	P	7.76	7.306	136.556	5.22			54.8	4.84	0.427		0.21	0.7	<0.0789		1.53	0.06	0.092				4		
KR19161	12/8/2019	13:45	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P					2.05	1.54	52.7	4.3	0.384		0.13	0.78	<0.0789		1.55	0.06	0.086				2		
KR19162	12/8/2019	14:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					2.26	1.70																	
KR19163	12/8/2019	14:35	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	17	P					1.74	1.83	55.3	4.36	0.361		0.13	0.77	<0.0789		1.51	0.05	0.091				3		
KR19164	12/8/2019	14:25	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	24	P							52.3	3.89	0.571		0.14	0.79	0.081		1.57	0.05	0.094				4		
KR19006	3/16/2019	12:15	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	6.497	8.002	316.151	10.90	6.15	3.19	97.88	4.91	1.1		0.053	0.599	0.131		1.2	0.081	0.11				12.23		
KR19022	4/6/2019	10:50	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	10.2	8.058	211.409	10.50	18.29	7.36	82.67	4.47	1.39		0.049	0.438	0.195		1.14	0.057	0.1				14.56		
KR19038	5/4/2019	11:30	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	14.95	7.606	161.092	8.57	2.89	1.07	60.43	4.28	0.953		0.069	0.226	0.0959		0.81	0.094	0.111				3.77		<0.15
KR19055	6/8/2019	10:45	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	18.56	7.83	155.709	7.91	4.13	1.52	60.8	4.79	0.459		0.05	0.08	<0.0789		0.77	<0.005	0.103				4		<0.15
KR19073	7/8/2019	11:30	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	22.44	8.943	130.457	10.53	19.92	5.10	59.3	4.49	1.62		0.02	0.04	0.281		0.84	0.07	0.138				4		2.5
KR19091	8/5/2019	10:00	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	24.3	9.55	141.594	10.84	240.00	9.30	65.6	5.14	13.2		0.03	0.01	2.61		1.32	0.1	0.37				32		120
KR19109	9/9/2019	11:20	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	22.13	9.405	138.736	13.18	281.42	15.45	66	5.68	11.3		0.03	0.35	2.392		4.03	0.13	0.351				31		56
KR19127	10/5/2019	10:00	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	14.8	7.505	125.672	8.47	3.71	1.64	61	5.09	0.684		0.19	0.65	0.0838		1.51	0.19	0.234				3		<0.15
KR19144	11/9/2019	10:45	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	8.497	7.753	133.709	10.18	1.19	1.43	63.5	5.49	0.475		0.15	0.7	<0.0789		1.5	0.06	0.093				2		
KR19160	12/8/2019	12:40	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	6.582	7.741	132.98	10.65	2.53	2.02	54.9	4.24	0.382		0.1	0.81	<0.0789		1.5	0.06	0.089				2		
KR19002	3/16/2019	9:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	6.615	7.582	256.336	10.94	6.26	2.25	80.82	3.88	0.86		0.07	0.521	0.119		0.99	0.056	0.085				6.2		

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
KR19003	3/16/2019	9:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					6.51	2.51																	
KR19004	3/16/2019	10:45	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	5	P	5.471	7.393	252.375	10.57	7.50	2.43	80.61	3.85	0.906		0.061	0.508	0.126		1.02	0.072	0.102				10.7		
KR19005	3/16/2019	11:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	44	P	4.502	7.189	259.416	9.30			82.1	3.72	1.12		0.109	0.494	0.0989		1.03	0.056	0.084				10.19		
KR19018	4/6/2019	8:20	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	9.909	7.473	195.352	9.74	4.49	2.16	81.85	4.25	0.71		0.056	0.452	0.0866		1	0.061	0.083				5.31		
KR19019	4/6/2019	9:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					5.08	2.46																	
KR19020	4/6/2019	9:40	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	6	P	9.166	7.445	207.039	9.50	5.83	3.14	80.42	4.28	0.846		0.055	0.433	0.104		1.03	0.06	0.084				8.35		
KR19021	4/6/2019	9:20	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	44	P	4.8	6.952	201.057	7.78			80.42	3.96	0.677		0.136	0.501	<0.0789		1.05	0.068	0.091				9.64		
KR19034	5/4/2019	8:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	16.18	7.045		12.03	3.06	0.82	62.49	4.16	0.507		0.044	0.243	<0.0789		0.77	0.077	0.094				2.65		<0.15
KR19035	5/4/2019	8:55	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					3.56	1.51																	<0.15
KR19036	5/4/2019	10:10	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	13	P	14.31	7.052		12.15	2.21	1.66	60.02	3.94	0.733		0.064	0.242	0.0811		0.75	0.052	0.07				6.26		
KR19037	5/4/2019	9:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	45	P	5.609	7.09		12.41			80.85	4.15	0.623		<0.032	0.678	0.0836		1.22	0.114	0.141				7.25		
KR19051	6/8/2019	8:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	17.86	7.612	157.989	8.39	5.83	1.46	60.7	4.46	0.397		0.03	0.1	<0.0789		0.73	<0.005	0.092				2		<0.15
KR19052	6/8/2019	8:20	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					6.42	1.52																	<0.15
KR19053	6/8/2019	9:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	16	P	13.3	6.922	153.457	5.72	1.72	1.19	58.3	3.75	0.244		0.01	0.27	<0.0789		0.85	<0.005	0.104				2		
KR19054	6/8/2019	8:50	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	39	P	5.966	6.591	211.26	3.21			77.3	4.14	0.404		0.01	0.7	<0.0789		1.29	<0.005	0.132				4		
KR19069	7/8/2019	8:20	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	22.62	8.52	117.502	9.38	9.74	2.43	57.7	4.19	1.13		0.01	<0.01	0.155		0.45	0.04	0.087				<2		1.4
KR19070	7/8/2019	8:45	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					2.86	1.32																	0.2
KR19071	7/8/2019	9:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	18	P	13.55	7.549	138.615	4.00	0.85	0.85	60.3	3.83	0.242		0.01	0.23	<0.0789		0.59	0.1	0.112				<2		
KR19072	7/8/2019	9:15	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	38	P	6.686	7.027	185.531	0.55			76.5	4.15	0.462		0.01	0.61	<0.0789		0.98	0.12	0.16				3		
KR19087	8/5/2019	7:10	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	24.42	9.459	159.23	10.59	40.04	2.75	64.5	5.49	1.7		0.03	0.01	0.301		0.92	0.03	0.065				4		11
KR19088	8/5/2019	7:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					14.56	1.53																	3
KR19089	8/5/2019	8:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	19	P	13.73	6.884	141.196	2.64	0.98	0.62	59.7	3.95	0.34		0.01	0.28	<0.0789		0.64	0.13	0.131				2		
KR19090	8/5/2019	8:10	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	42	P	7.043	7.085	186.673	0.00			76.7	4.07	0.426		0.13	0.52	<0.0789		1.12	0.15	0.171				4		
KR19105	9/9/2019	8:40	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	21.82	8.58	146.989	6.48	102.39	5.03	63.9	5.38	3.32		0.1	0.2	0.684		1.4	0.09	0.138				4		15
KR19106	9/9/2019	9:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					19.20	1.64																	3.3
KR19107	9/9/2019	9:50	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	16	P	18.5	6.709	137.39	0.11	1.20	0.86	66.5	3.97	0.665		0.17	0.16	<0.0789		0.88	0.19	0.209				2		

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
KR19108	9/9/2019	9:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	42	P	7.731	6.743	181.929	0.00			76.9	3.9	0.569		0.39	0.26	<0.0789		1.08	0.2	0.284				6		
KR19156	12/8/2019	9:40	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	7.391	7.716	139.981	8.47	2.01	1.46	52.6	3.93	0.577		0.17	0.63	<0.0789		1.44	0.07	0.126				2		
KR19157	12/8/2019	10:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					1.81	1.39																	
KR19158	12/8/2019	10:55	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	16	P	7.161	7.203	138.196	8.33	1.28	1.42	56.5	4.69	0.45		0.17	0.63	<0.0789		1.41	0.07	0.105				2		
KR19159	12/8/2019	10:35	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	36	P	6.705	7.103	136.867	8.57			54.6	4.48	0.4		0.17	0.68	<0.0789		1.48	0.06	0.099				2		
KR19001	3/16/2019	17:10	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	5.703	7.798	253.481	11.54	6.13	3.17	81.89	3.82	0.833		0.061	0.506	0.111		0.99	0.055	0.082	0.01444	0.00745	11.4	7.24		
KR19017	4/6/2019	15:40	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	8.213	7.774	214.967	11.76	3.13	2.11	84.52	4.38	0.701		0.069	0.473	0.089		1.1	0.065	0.089	0.00987	<0.0063	11.7	8.36		
KR19033	5/4/2019	15:30	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R					6.19	1.56	62.08	4.07	0.559		0.044	0.245	0.0885		0.75	0.071	0.09	0.01292	<0.0063	6.45	3.85		
KR19049	5/18/2019	12:40	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	15.82	7.858	159.064	9.12	7.71	2.03	62.73	3.87	0.709		0.032	0.191	0.0854		0.69	0.075	0.105	0.0093	<0.0063	5.36	3.87		
KR19050	6/8/2019	15:55	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	18.16	8	154.885	9.13	8.50	2.17	60.6	4.36	0.604		0.02	0.11	0.0939		0.81	<0.005	0.094	0.00982	<0.0063	4.3	4		
KR19066	6/24/2019	9:30	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	20.1	8.058	131.894	8.92	8.05	1.94	59.1	4.27	0.611		0.02	0.05	0.0947		0.46	<0.005	0.095	0.01304	<0.0063	4.87	4		<0.15
KR19068	7/8/2019	16:00	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	20.86	8.097	133.456	8.72	9.93	4.44	58.3	4.13	1.47		0.03	0.11	0.208		0.67	0.09	0.123	0.01236	0.01018	3.88	4		<0.15
KR19084	7/22/2019	10:40	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	21.95	8.462	137.792	8.47	4.45	1.19	60.6	4.87	0.832		0.05	0.14	0.123		0.62	0.09	0.092	<0.0063	<0.0063	1.74	<2		0.56
KR19086	8/5/2019	14:45	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	22.98	8.786	129.994	7.76	7.03	1.50	64.8	4.43	0.496		0.11	0.19	0.0833		0.89	0.1	0.131	0.01058	<0.0063	2.09	2		2.6
KR19102	8/19/2019	10:00	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	21.5	8.082	142.628	6.98	9.22	2.08	64	5.29	1.04		0.1	0.27	0.152		1.34	0.16	0.238	0.01381	0.00684	2.35	5		3.4
KR19104	9/9/2019	15:30	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	21.04	8.524	142.208	7.33	6.70	2.32	66.1	5.13	0.601		0.17	0.29	0.0871		1.13	0.14	0.157	0.01108	<0.0063	1.1	<2		1.2
KR19120	9/23/2019	11:16	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	19.09	7.889	142.767	8.02	6.15	1.18	61.6	4.99	0.661		0.16	0.35	0.106		1.1	0.16	0.204	0.00876	0.00853	1.63	<2		1.3
KR19122	10/5/2019	16:30	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	16.8	7.478	143.317	7.29	2.61	1.25	61	5.59	0.499		0.3	0.47	<0.0789		1.32	0.18	0.201	0.00828	<0.0063	1.3	<2		0.17
KR19138	10/20/2019	10:50	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	13.49	7.327	148.804	7.88	5.74	3.29	66	4.77	0.399		0.26	0.51	<0.0789		1.32	0.17	0.198	0.00727	<0.0063	1.46	<4		<0.15
KR19139	11/9/2019	15:50	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	10.19	7.578	152.962	8.93	1.23	1.06	66.5	5.14	0.351		0.23	0.63	<0.0789		1.43	0.1	0.14	0.00703	<0.0063	2.37	2		<0.15
KR19155	12/8/2019	17:55	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	7.245	7.655	139.646	10.27	2.72	1.72	52	4.53	0.378		0.13	0.67	<0.0789		1.42	0.07	0.113	0.00882	<0.0063	3.67	2		<0.15
WA031319-OC	3/13/2019	9:30	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	5.938	8.2	235.8	12.10	4.80	4.20		3.63	0.886		0.033	0.537			1.3	0.055	0.085				6.7		

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
WA041719-OC	4/17/2019	10:34	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	10.7	8.04	164.1	11.00	8.00	4.70		3.6	1.31		0.027	0.306			0.849	0.028	0.073				16		
WA050819-OC	5/8/2019	10:30	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	14.77	8.21	172.2	10.21	8.00	6.90		4.06	1.73		0.022	0.171			1.1	0.059	0.231				79	7.8	<0.15
WA060519-OC	6/5/2019	10:07	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	18.17	8	457	9.21	11.00	5.00		3.6	1.3		0.029	0.088			0.595	0.06	0.11				9.8	4	<0.15
WA071019-OC	7/10/2019	11:14	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	20.85	8.53	169	9.39	1.20	1.70		3.47			0.041	0.026			0.377	0.078	0.096				1.9	1	<0.15
WA080719-OC	8/7/2019	11:15	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	23.85	8.56	173	9.15	2.10	2.50	<1.0	4.01	0.741		0.23	0.261			0.873	0.099	0.142				2.2	1.8	
WA091119-OC	9/11/2019	10:33	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	19.65	8.68	178.6	9.72	3.90	3.60		4.44	0.732		0.031	0.294			0.902	0.121	0.153				2	0.8	1.1
WA100919-OC	10/9/2019	10:24	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	14.51	8.31	189.1	10.37	1.20	2.40		3.92	0.523		0.016	0.649			1.3	0.163	0.204				2.4	1.6	
WA110619-OC	11/6/2019	12:22	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	10.5	8.26	196.3	10.92	1.20	2.20		11.2	0.393		0.028	0.61			1.61	0.125	0.151				2		
WA121119-OC	12/11/2019	11:08	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	7.019	8.18	206.4	11.51	2.10	3.50		4.15	0.454		<0.01	0.291			0.472	0.003	0.01				2.3		
SV031319-OC	3/13/2019	7:31	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	6.505	8.18	227	11.99	2.10	1.60		2.36	0.698		0.014	0.558	<0.0789		0.836	0.038	0.061	0.00817	<0.0063	3.7	7		
SV041719-OC	4/17/2019	9:15	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	10.19	8.05	160.6	11.12	3.70	2.60		2.79	1.13		0.02	0.296	0.126		0.659	0.022	0.061	0.01618	0.00993	7.3	19		
SV050819-OC	5/8/2019	9:29	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	13.82	8.17	145	10.16	2.70	2.30		2.84	0.588		0.012	0.125	<0.0789		0.657	0.033	0.054	0.01178	<0.0063	2.6	8.5	1.3	<0.15
SV060519-OC	6/5/2019	8:55	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	17.55	8.1	149	9.39	10.00	5.40	70	2.87	1.34		<0.01	0.087	0.173		0.395	0.048	0.094	0.05558	0.01394	5.3	17	4	<0.15
SV071019-OC	7/10/2019	9:48	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P					1.20	1.10		2.82			0.064	0.035			0.28	0.057	0.069			0.74	2	1	<0.15
SV080719-OC	8/7/2019	9:46	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	23.8	8.5	184	9.23	4.30	4.30		3.58	0.642		<0.01	0.107			0.753	0.078	0.116	0.04012	0.0295	0.71	2	1.1	0.25
SV091119-OC	9/11/2019	9:05	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	18.54	8.41	186.6	9.71	4.50	4.50		4.02	0.697		0.047	0.228	0.116		0.712	0.094	0.133	0.03681	0.03026	0.78	3.8	1.6	0.7
SV100919-OC	10/9/2019	8:58	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	13.25	8.18	198	10.32	2.00	3.20		3.77	0.459		<0.01	0.561	<0.0789		1.11	0.16	0.177			0.77	2.8	0.8	<0.15
SV110619-OC	11/6/2019	11:18	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	9.473	8.24	208.5	11.43	2.00	3.00		16.3	0.359		0.01	0.568	<0.0789		1.27	0.118	0.137	<0.0063	<0.0063	0.78	1.8		
SV121119-OC	12/11/2019	10:03	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	7.066	8.19	216.8	11.95	3.00	4.30		3.4	0.424		0.013	0.551	<0.0789		1.16	0.07	0.097	0.03032	0.02938	1.8	2.8		
HC031319-OC	3/13/2019	7:42	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	6.184	8.12	200.1	12.31	2.40	0.60		2.35	0.636		0.018	0.4			0.507	0.029	0.04				12		
HC041719-OC	4/17/2019	8:22	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	9.873	8.01	141.7	11.52	3.70	1.30		2.35	0.921		0.01	0.239			0.467	0.018	0.054				16		
HC050819-OC	5/8/2019	8:47	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	13.39	8.05	136.1	10.38	2.00	1.50		2.41	0.531		0.025	0.096			0.496	0.024	0.04				8	1.8	<0.15
HC060519-OC	6/5/2019	8:05	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	17.1	8.02	145.4	9.57	8.30	6.90		2.4	1.02		<0.01	0.044			0.248	0.028	0.058				11	1.6	<0.15
HC071019-OC	7/10/2019	8:37	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P					1.80	1.50		2.53			0.015	0.011			0.233	0.042	0.058				4.4	1.6	<0.15
HC080719-OC	8/7/2019	8:58	KR10130	Klamath River below Happy Camp	Karuk	0.5	P	23.36	8.35	181.3	8.57	5.20	3.30		3.07	0.618		<0.01	0.021			0.541	0.05	0.082				2.9	1.6	<0.15

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
				(RM 101.3; Baseline)																											
HC091119-OC	9/11/2019	8:20	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	18.4	8.33	180	9.67	4.50	6.10		3.62	0.869		0.031	0.105			0.543	0.073	0.101				3.6	1	0.48
HC100919-OC	10/9/2019	8:02	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	13.38	8.1	197	10.02	3.40	5.60		3.03	0.534		<0.01	0.422			0.869	0.119	0.148				3.8	1.4	<0.15
HC110619-OC	11/6/2019	9:23	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	9.353	8.07	201.3	11.11	3.70	4.70		15.7	0.433		<0.01	0.485			0.908	0.101	0.123				2.8		
HC121119-OC	12/11/2019	9:22	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	7.192	8.15	206.3	11.88	4.00	5.90		3.18	0.498		0.011	0.458			1.19	0.055	0.08				3		
OR031319-OC	3/13/2019	6:24	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	7.159	8.1	157.2	12.70	1.70	<0.1	75.4	1.27	0.426		<0.01	0.215			0.354	0.018	0.027			2.2	6.6		
OR041719-OC	4/17/2019	7:01	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	9.912	8.02	121.7	12.15	2.70	2.00	57.2	1.6	0.79		<0.01	0.164			0.361	0.013	0.049			7.8	22		
OR050819-OC	5/8/2019	7:23	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	13.53	8.38	103.9	10.82	3.20	0.70	49.2	1.62	0.505		<0.01	0.061			0.361	0.011	0.065			1.9	43	3.7	<0.15
OR060519-OC	6/5/2019	6:33	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	17.11	8.26	115.8	10.02	4.5	2.6	56.6	1.64	0.656		0.012	<0.01			0.062	0.015	0.032			3	6.3	1.6	<0.15
OR071019-OC	7/10/2019	6:49	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P					1.4	0.3	69.6	1.61			0.012	<0.01			0.131	0.025	0.036			0.56	1.6	0.57	<0.15
OR080719-OC	8/7/2019	7:04	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	23.27	8.28	168.1	8.07	1.6	1.9	75.6	2.25	0.336		0.013	0.028			0.351	0.03	0.05			0.52	2	1.3	<0.15
OR091119-OC	9/11/2019	6:53	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	19.4	8.46	172.5	8.85	2.5	3.5	75.2	2.61	0.739		0.033	0.018			0.461	0.049	0.074			0.52	5.2	1.8	<0.15
OR100919-OC	10/9/2019	6:35	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	14.28	8.25	184.5	9.98	2.7	3.6	81	2.48	0.39		<0.01	0.219			0.508	0.077	0.103			0.54	2.2	0.8	<0.15
OR110619-OC	11/6/2019	8:00	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	9.329	8.17	190.6	11.39	4.3	4	84.6	15.2	0.219		<0.01	0.319			0.703	0.064	0.083			0.59	1.8		
OR121119-OC	12/11/2019	8:04	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	7.656	8.36	171.8	12.13	3.2	4.5	75	2.33	0.577		0.017	0.294			0.792	0.032	0.051			1.3	3.3		
WE031319-OC	3/13/2019	11:08	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	7.375	8.08	148.5		2.4	0.4		1.16	0.279		<0.01	0.197	<0.0789		0.201	0.018	0.025			3.72	4.3	0.67	
WE041719-OC	4/17/2019	10:19	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	10.045	7.97	118	11.88	2.9	1		1.47	0.575		<0.01	0.15	<0.0789		0.241	0.013	0.046			11.13	23	1.3	
WE050819-OC	5/8/2019	10:17	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	13.659	7.95	103.6	10.95	1.8	0.6		1.77	0.575		<0.01	0.058	<0.0789		0.3	0.014	0.023			4.62	7.8	1.6	<0.15
WE060519-OC	6/5/2019	10:40	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	17.497	8.08	116.8	9.97	4.6	2.1	53.8	1.71	0.534		0.013	<0.01	<0.0789		0.118	0.014	0.031			4.04	6	2	<0.15
WE071019-OC	7/10/2019	10:47	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	20.326	8.28	154	9.42	1.2	0.1		1.41	0.262		<0.01	<0.01	<0.0789		0.249	0.022	0.031			0.56	11	7.1	<0.15
WE080719-OC	8/7/2019	10:45	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	23.026	8.52	169.5	9.59	2	1		1.96	0.306		<0.01	0.018	<0.0789		0.283	0.022	0.033			1.06	2.2	1.1	<0.15
WE091119-OC	9/11/2019	10:22	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	22.096	9.35	168.6	16.76	2.1	3	74.4	2.65	0.369		<0.01	0.014	<0.0789		0.227	0.042	0.063			0.58	3.1	1.1	<0.15
WE100919-OC	10/9/2019	10:18	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	13.892	8.22	183.7	10.25	3	2.3		2.34	0.458		<0.01	0.179	<0.0789		0.46	0.069	0.091			0.81	2.7	1.3	<0.15
WE110619-OC	11/6/2019	12:25	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	9.501	8.23	187.8	11.72	4.5	3.9		10.1	0.341		<0.01	0.306	<0.0789		0.595	0.069	0.095			0.81	2.5	1.2	
WE121119-OC	12/11/2019	11:23	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	7.7	8.08	169.9		3.9	4.9		2	0.389		<0.01	0.345	<0.0789		0.669	0.031	0.048			2	3.5	1.5	

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile-Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
TC031319-OC	3/13/2019	9:48	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	7.571	8.03	149.3		2.1	2		0.87	0.462		0.01	0.135	<0.0789		0.191	0.014	0.035			12.6	26	3.3	
TC041719-OC	4/17/2019	9:26	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	10.48	7.96	121	11.61	2.7	2.6		1.16	0.898		0.011	0.098	<0.0789		0.124	0.011	0.067			18.5	34	2	
TC050819-OC	5/8/2019	9:12	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	13.37	7.93	109.1	10.76	1.8	0.3		1.27	0.898		<0.01	0.041	<0.0789		0.219	0.01	0.021			6.52	12	1.2	<0.15
TC060519-OC	6/5/2019	9:30	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	16.525	7.99	117.5	9.88	3.4	1.5	53.8	1.19	0.426		<0.01	<0.01	<0.0789		0.084	0.01	0.026			3.45	8	1.4	<0.15
TC071019-OC	7/10/2019	9:29	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	18.883	8.12	145.2	9.37	1.6	<0.1		1	0.238		0.024	<0.01	<0.0789		0.218	0.012	0.018			1.12	2.1	0.71	<0.15
TC080719-OC	8/7/2019	9:06	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	22.407	8.23	168.7	8.42	1.6	1.4		1.51	0.345		<0.01	0.021	<0.0789		0.221	0.014	0.025			0.73	2.7	0.89	0.16
TC091119-OC	9/11/2019	9:18	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	19.346	8.27	171	9.02	1.8	2.6	74.8	1.88	0.467		<0.01	0.012	<0.0789		0.284	0.032	0.053			0.61	4	1.4	<0.15
TC100919-OC	10/9/2019	9:03	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	13.917	8.25	179.2	10.07	2	1.9		1.95	0.336		<0.01	0.13	<0.0789		0.375	0.05	0.067			0.63	1	<0.5	<0.15
TC110619-OC	11/6/2019	11:04	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	9.648	7.88	187.3	11.39	3.2	2.8		8.73	0.298		<0.01	0.239	<0.0789		0.609	0.052	0.072			0.83	1.8	1	
TC121119-OC	12/11/2019	10:18	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	8.54	7.94	165.4	11.83	2.1	1.9		2	0.394		<0.01	0.196	<0.0789		0.43	0.021	0.037			2.33	3	1.4	
TG031319-OC	3/13/2019	7:30	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	8.128	7.9	144.6		2.9	2.9		0.917	0.319		<0.01	0.152	<0.0789		0.264	0.015	0.039	0.022064 8	0.022084 677	16.1	27	1.3	
TG041719-OC	4/17/2019	7:16	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	10.525	7.96	119.6	11.21	1.6	0.8		1.1	0.891		0.011	0.113	<0.0789		0.121	0.011	0.067	0.037555	0.031756	22.21	40	3.3	
TG050719-OC	5/7/2019	10:17	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	13.95	7.85	114.6	10.38																8.02			<0.15
TG050819-OC	5/8/2019	7:02	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	14.165	7.86	113.8	10.26	1.2	1		1.18	0.891		<0.01	0.052	<0.0789		0.272	0.011	0.024	0.014592188	0.011526 4	7.81	15	1.4	
TG060419-OC	6/4/2019	11:27	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	17.957	8.09	118.9	9.81																4.27			<0.15
TG060519-OC	6/5/2019	6:56	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	16.831	7.91	119.6	9.38	1.1	1.5	57	1.15	0.366		<0.01	0.017	<0.0789		0.113	0.009	0.02	0.007800794	<0.0063	3.34	6.6	1.2	
TG070919-OC	7/9/2019	10:12	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	19.016	7.95	147.2	9.53																1.19			<0.15
TG071019-OC	7/10/2019	7:02	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	18.531	7.82	148.4	8.44	1.8	0.7		0.867	0.273		0.026	0.041	<0.0789		0.22	0.008	0.016	<0.0063	<0.0063	4.65	2.1	0.71	
TG080619-OC	8/6/2019	10:44	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	21.577	8.28	166.8	9.56																1.07			<0.15
TG080719-OC	8/7/2019	7:05	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	21.121	7.93	167.1	7.76	1.6	1.9		1.21	0.242		<0.01	0.068	<0.0789		0.32	0.012	0.02	<0.0063	<0.0063	0.93	1.1	<0.5	
TG091019-OC	9/10/2019	10:25	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	20.849	8.43	166.9	9.46																0.74			<0.15
TG091119-OC	9/11/2019	6:48	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	19.728	8.05	168.9	7.79	2.5	2.9	73.4	1.57	0.515		<0.01	0.023	<0.0789		0.231	0.022	0.041	0.008101587	<0.0063	1.67	5	1.4	
TG100819-OC	10/8/2019	10:35	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	15.46	8.68	176.6	11.31																0.44			<0.15
TG100919-OC	10/9/2019	7:06	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	14.63	8.35	177.4	9.31	3.6	2.5		1.48	0.437		<0.01	0.032	<0.0789		0.244	0.032	0.048	<0.0063	<0.0063	0.66	2.2	1	
TG110619-OC	11/6/2019	08:58	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	10.725	7.39	186.4	9.19	1.2	2.9		11.1	0.193		0.012	0.185	<0.0789		0.401	0.035	0.046	<0.0063	<0.0063	1.17	1.3	0.5	
TG121119-OC	12/11/2019	08:04	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	8.786	7.62	158.8	10.46	2.3	2.8		2.01	0.401		0.016	0.265	<0.0789		0.497	0.019	0.035	0.006645238	<0.0063	4.11	4	1.2	

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
LES031319-OC	3/13/2019	6:40	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	8.115	8.02	141.6		2.1	1.6		0.828	0.58		<0.01	0.128	<0.0789		0.134	0.015	0.05			16.25	31	<0.5	
LES041719-OC	4/17/2019	6:43	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	10.64	8.09	118.6	11.21	1.9	1.1		1.27	0.792		<0.01	0.102	<0.0789		0.121	0.011	0.063			26.31	43	3.3	
LES050719-OC	5/7/2019	9:20	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	13.932	7.85	120	10.22																42.5			<0.15
LES050819-OC	5/8/2019	6:33	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	14.416	7.82	114.4	10.14	1.6	0.1		1.22	0.792		<0.01	0.051	<0.0789		0.257	0.012	0.027			11.3	16	1.2	
LES060419-OC	6/4/2019	10:40	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	17.327	7.94	123.9	9.52																3.21			<0.15
LES060519-OC	6/5/2019	6:23	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	16.841	7.92	119.9	9.42	2.3	0.6	55	1.13	0.414		<0.01	0.014	<0.0789		0.054	0.011	0.02			3.32	6.4	1.2	
LES070919-OC	7/9/2019	9:10	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	19.299	7.97	678	8.77																0.93			<0.15
LES071019-OC	7/10/2019	6:29	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	19.237	7.98	421	8.52	14	2		1.06	1.07		0.017	0.01	0.173		0.288	0.005	0.029			0.84	10	2.3	
LES080619-OC	8/6/2019	12:03	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	21.863	7.88	2041	8.02																0.65			<0.15
LES080719-OC	8/7/2019	6:33	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	20.998	8.03	1292	7.80	0.9	0.4		1.27	<0.1899		0.014	0.059	<0.0789		0.286	0.016	0.021			0.92	0.67	<0.5	
LES091019-OC	9/10/2019	9:00	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	20.556	8.04	174.4	8.29																0.63			<0.15
LES091119-OC	9/11/2019	6:07	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	20.402	8.37	1013	8.82	0.9	0.7	75.2	1.72	0.209		0.017	<0.01	<0.0789		0.265	0.018	0.031			0.53	0.8	<0.5	
LES100819-OC	10/8/2019	12:00	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	15.483	8.43	446.4	10.50																0.8			<0.15
LES100919-OC	10/9/2019	6:26	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	16.646	8.43	466.2	10.16	1.4	2.3		1.6	0.448		<0.01	0.018	<0.0789		0.206	0.03	0.047			0.42	1.4	0.8	
LES110619-OC	11/6/2019	08:23	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	10.381	7.72	646	10.95	3.2	4		11.5	0.651		0.013	0.134	0.0882		0.476	0.036	0.08			5.4	17	2.2	
LES121119-OC	12/11/2019	07:30	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	8.674	7.63	355.2	10.87	2.1	2.6		2.3	0.34		0.041	0.19	<0.0789		0.478	0.019	0.034			5.21	4.2	1.4	
SH031319-OC	3/13/2019	10:14	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	8.144	8.52	50.9	11.39	2.6	<0.1		2.59	0.914		0.014	0.595			0.951	0.139	0.163			1.9	7.8		
SH041719-OC	4/17/2019	11:23	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	12.59	8.62	494.2	10.95	3.4	1.6		3.87	0.736		<0.01	0.155			0.519	0.111	0.143			1.9	4		
SH050819-OC	5/8/2019	11:33	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	17.5	8.61	502	9.76	5	3.9		5.29	0.946		0.014	0.051			0.879	0.147	0.174			1.3	10	2.5	
SH060519-OC	6/5/2019	11:20	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	20.1	8.51	478.1	8.91	3.3	4		4.78	1.12		0.014	0.052			0.523	0.161	0.199			3.2	10	3	
SH071019-OC	7/10/2019	12:15	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	20.92	8.66	494.3	9.19	1.4	0.2		5.04			0.021	0.01			0.468	0.168	0.184			0.63	1.3	0.57	
SH080719-OC	8/7/2019	12:13	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	23.41	8.62	565	8.78	1.6	0.5		5.76	0.548		<0.01	0.024			0.7	0.182	0.217			0.79	3.8	1.8	
SH091119-OC	9/11/2019	11:19	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	16.84	8.63	569	9.78	1.1	0.8		4.98	0.403		0.017	0.013			0.412	0.134	0.156			0.46	1	0.8	
SH100919-OC	10/9/2019	11:30	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	10.95	8.47	458.2	10.92	3.3	0.3		2.28	0.389		0.013	0.079			0.447	0.142	0.168			0.85	3.6	1.3	
SH110619-OC	11/6/2019	13:06	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	9.07	8.63	441	11.78	4.6	2.5		20.2	0.365		<0.01	0.16			0.28	0.164	0.173			0.49	1.6		
SH121119-OC	12/11/2019	11:51	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	7.071	8.41	493.2	11.49	3.7	1.7		2.8	0.365		0.019	0.349			0.784	0.189	0.223			0.93	2		

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
SC031319-OC	3/13/2019	9:00	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	6.714	8.29	216.6	12.08	1.3	<0.1		1.49	0.317		<0.01	0.758			1.03	0.012	0.012			1.3	3.6		
SC041719-OC	4/17/2019	9:55	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	9.101	8.17	151.4	11.51	1.8	0.5		1.71	0.508		0.011	0.315			0.403	0.006	0.022			3.9	11		
SC050819-OC	5/8/2019	10:00	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	11.46	8.13	108	10.75	2.1	0.4		2.02	0.384		0.014	0.122			0.393	0.003	0.019			2.7	11	1.5	
SC060519-OC	6/5/2019	9:33	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	14.32	8.27	594	10.42	4.8	2.9		1.57	0.664		<0.01	0.135			0.221	0.001	0.032			4.6	23	2.3	
SC071019-OC	7/10/2019	10:30	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	17.85	8.53	219	9.61	1.4	0.6		0.962			0.025	0.331			0.4	0.002	0.005			0.33	2	<0.5	
SC080719-OC	8/7/2019	10:30	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	23.01	8.63	243.3	9.29	1.8	1		0.926	0.356		<0.01	0.16			0.365	0.003	0.006			0.3	2.2	1.1	
SC091119-OC	9/11/2019	9:54	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	16.92	8.5	251.2	10.08	0.7	0.8		0.779	0.324		0.013	0.019			0.137	0.002	0.005			0.13	<0.5	<0.5	
SC100919-OC	10/9/2019	9:42	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	10.58	8.37	275.6	11.25	1.8	<0.1		0.72	0.251		<0.01	0.441			0.523	<0.001	0.011			0.34	0.6	<0.5	
SC110619-OC	11/6/2019	11:52	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	7.701	8.49	283.4	12.13	2.1	0.6		14.5	0.288		<0.01	0.56			0.757	0.001	0.003			0.13	<0.5		
SC121119-OC	12/11/2019	10:38	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	6.632	8.32	234.1	12.00	1.2	2.2		1.65	0.32		0.022	0.632			1.75	0.089	0.114			2.1	2.8		
SA031319-OC	3/13/2019	6:50	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	6.302	8.09	115.8	12.55	0.9	<0.1		0.494	0.421		0.012	0.031			<0.05	0.003	0.007			0.51	4		
SA041719-OC	4/17/2019	7:22	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	8.638	7.97	85.3	12.28	0.5	<0.1		0.92	0.36		<0.01	0.096			0.128	0.003	0.008			0.71	3.3		
SA050819-OC	5/8/2019	7:46	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	10.36	7.9	57.5	11.40	1.3	<0.1		1.09	0.306		0.016	0.057			0.317	0.002	0.01			1.1	6.2	0.83	
SA060519-OC	6/5/2019	6:59	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	14.19	8.13	62.7	10.46	1.3	0.3		0.967	0.408		<0.01	<0.01			<0.05	0.004	0.006			0.78	4	0.86	
SA071019-OC	7/10/2019	7:17	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	16.85	8.02	99.7	9.48	0.7	<0.1		0.623			<0.01	<0.01			<0.05	0.003	0.004			0.16	<0.5	<0.5	
SA080719-OC	8/7/2019	7:54	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	20.84	8.11	123	8.67	0.7	1		0.454	0.318		<0.01	0.027			0.177	0.003	0.005			0.16	1.3	1.1	
SA091119-OC	9/11/2019	7:19	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	17.13	7.95	139.6	8.69	0.7	0.4		0.457	0.407		0.017	<0.01			0.083	0.002	0.003			<0.1	0.6	<0.5	
SA100919-OC	10/9/2019	7:00	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	11.47	8.18	134.5	10.52	2	<0.1		0.501	0.804		<0.01	<0.01			0.056	<0.001	0.009			0.25	2	1	
SA110619-OC	11/6/2019	8:23	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	7.826	8.09	136.5	11.56	2.4	0.3		10.4	0.472		<0.01	<0.01			0.079	0.005	0.015			0.23	3.4		
SA121119-OC	12/11/2019	8:27	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	6.669	8.21	110.9	12.17	0.8	<0.1		1.16	<0.189 9		<0.01	0.024			0.145	0.003	0.009			0.29	<0.5		
TR031319-OC	3/13/2019	10:54	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	7.891	8.06	153.4		1.9	3		0.642	0.421		0.014	0.066	<0.078 9		0.105	0.011	0.043			18.4	35	2.3	
TR041719-OC	4/17/2019	10:08	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	11.228	7.99	126.9	11.31	2.4	2.6		0.84	0.631		0.018	0.022	<0.078 9		<0.05	0.007	0.061			28.25	43	4.7	
TR050819-OC	5/8/2019	10:00	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	13.154	7.94	118.6	10.74	2	<0.1		0.774	0.631		0.011	0.014	<0.078 9		0.168	0.004	0.015			6.85	11	0.8	
TR060519-OC	6/5/2019	10:22	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	15.389	8.01	119	10.17	0.9	0.2	56.2	0.671	<0.189 9		<0.01	<0.01	<0.078 9		<0.05	0.004	0.009			3.32	4.8	0.6	
TR071019-OC	7/10/2019	10:31	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	17.735	8.15	136.1	9.79	1.2	0.1		0.739	<0.189 9		<0.01	<0.01	<0.078 9		0.121	0.002	0.005			1.2	2.1	1.1	
TR080719-OC	8/7/2019	10:24	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	22.497	8.29	165.1	8.88	0.7	0.2		0.654	<0.189 9		<0.01	0.027	<0.078 9		0.086	0.003	0.005			0.49	<0.5	<0.5	

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature	pH	Specific Conductivity	Dissolved Oxygen	Algae, Chlorophyll-a	Algae, Pheophytin	Alkalinity	Carbon, Dissolved Organic Carbon	Carbon, Particulate Carbon	Demand, Carbonaceous Biological Oxygen Demand	Nitrogen, Ammonia	Nitrogen, Nitrate+Nitrite	Nitrogen, Particulate Nitrogen	Nitrogen, Total Kjeldahl Nitrogen	Nitrogen, Total Nitrogen	Phosphorus, Phosphate	Phosphorus, Total Phosphorus	Phosphorus, Particulate Phosphorus	Phosphorus, Particulate Inorganic Phosphorus	Turbidity	Solids, Total Suspended Solids	Solids, Volatile Suspended Solids	Toxins, Microcystin
								°C	-	µS/cm	mg/l	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	mg/l	mg/l	µg/l
TR091119-OC	9/11/2019	10:06	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	19.232	8.3	164	9.52	0.5	0.6	70.8	0.691	<0.1899		<0.01	<0.01	<0.0789		<0.05	<0.001	0.005			3.39	0.6	<0.5	
TR100919-OC	10/9/2019	10:01	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	13.537	8.26	167.7	10.59	0.8	<0.1		0.74	<0.1899		<0.01	<0.01	<0.0789		0.076	0.002	0.006			1.04	<0.5	<0.5	
TR110619-OC	11/6/2019	12:05	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	9.664	8.18	185	11.83	0.7	<0.1		9.53	<0.1899		<0.01	<0.01	<0.0789		0.071	0.002	0.01			8.73	<0.5	<0.5	
TR121119-OC	12/11/2019	11:02	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	8.34	8.01	166.5		1.9	<0.1		1.82	0.308		0.021	0.063	<0.0789		0.193	0.005	0.015			2.35	3.2	1	

Appendix C. Selected Results of 2019 Baseline Phytoplankton Analysis

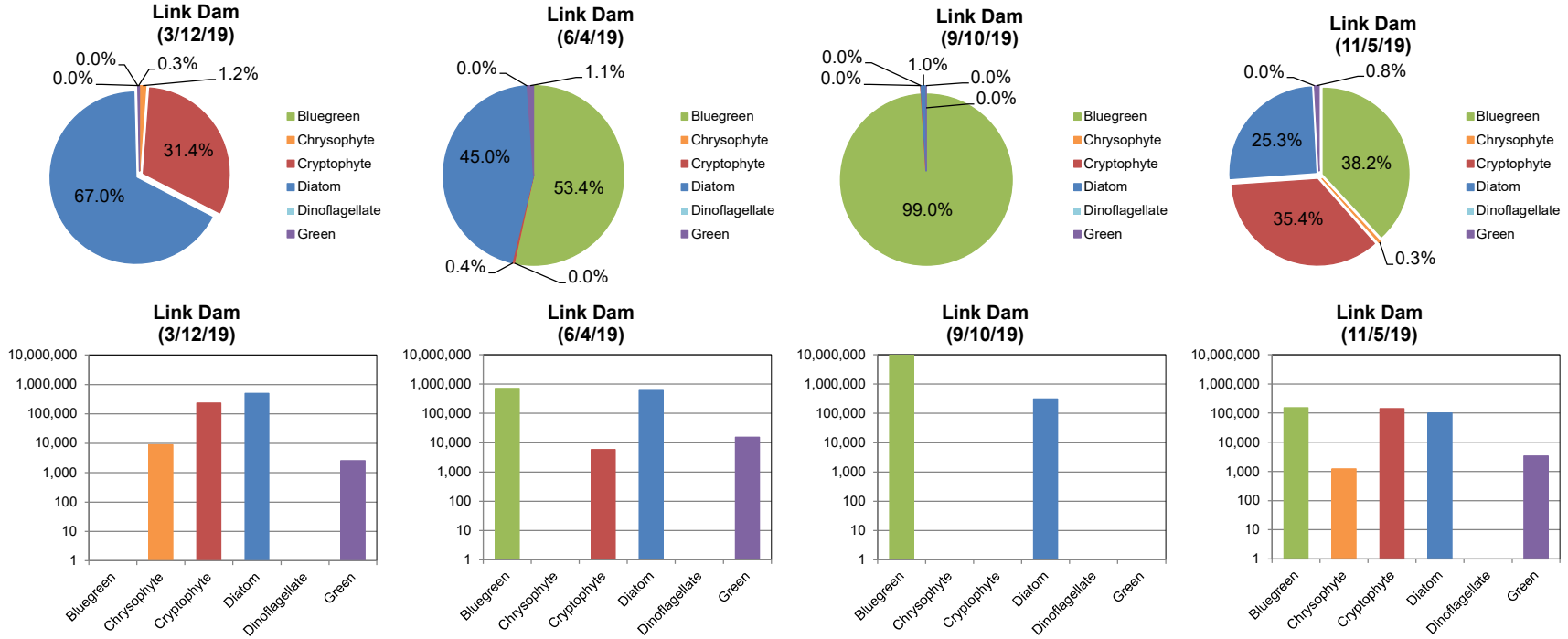


Figure C-1. Phytoplankton species percent biovolume (top) and biovolume by taxa (bottom) at Link Dam (RM 254.44; Baseline) for samples collected as part of Baseline sampling on 3/12/2019, 6/4/2019, 9/10/2019, and 11/5/2019. Note: y-axis in logarithmic scale.

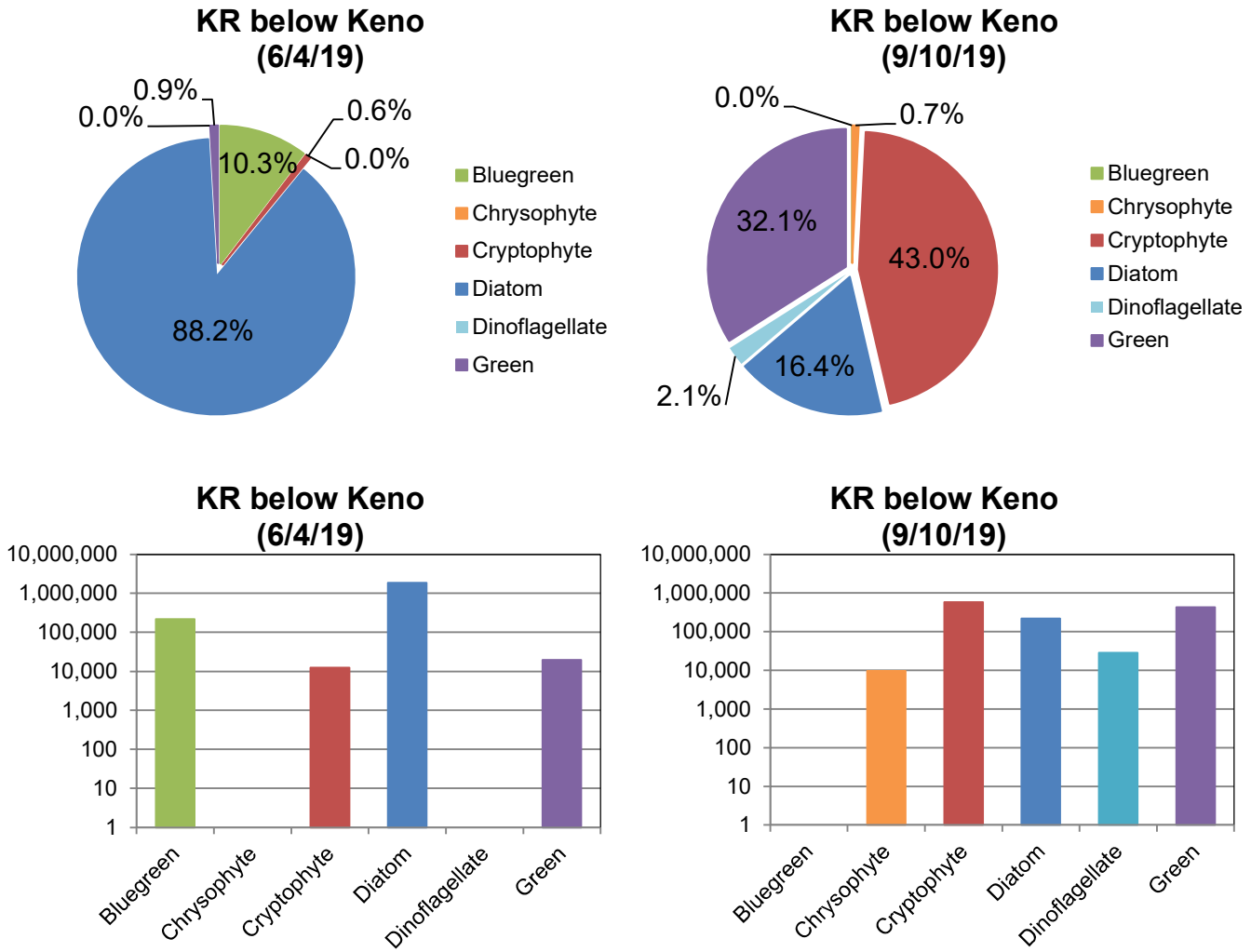


Figure C-2. Phytoplankton species percent biovolume (top) and biovolume by taxa (bottom) at Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline) for samples collected as part of Baseline sampling on 6/4/2019 and 9/10/2019. No samples were collected for March or November 2019. Note: y-axis in logarithmic scale.

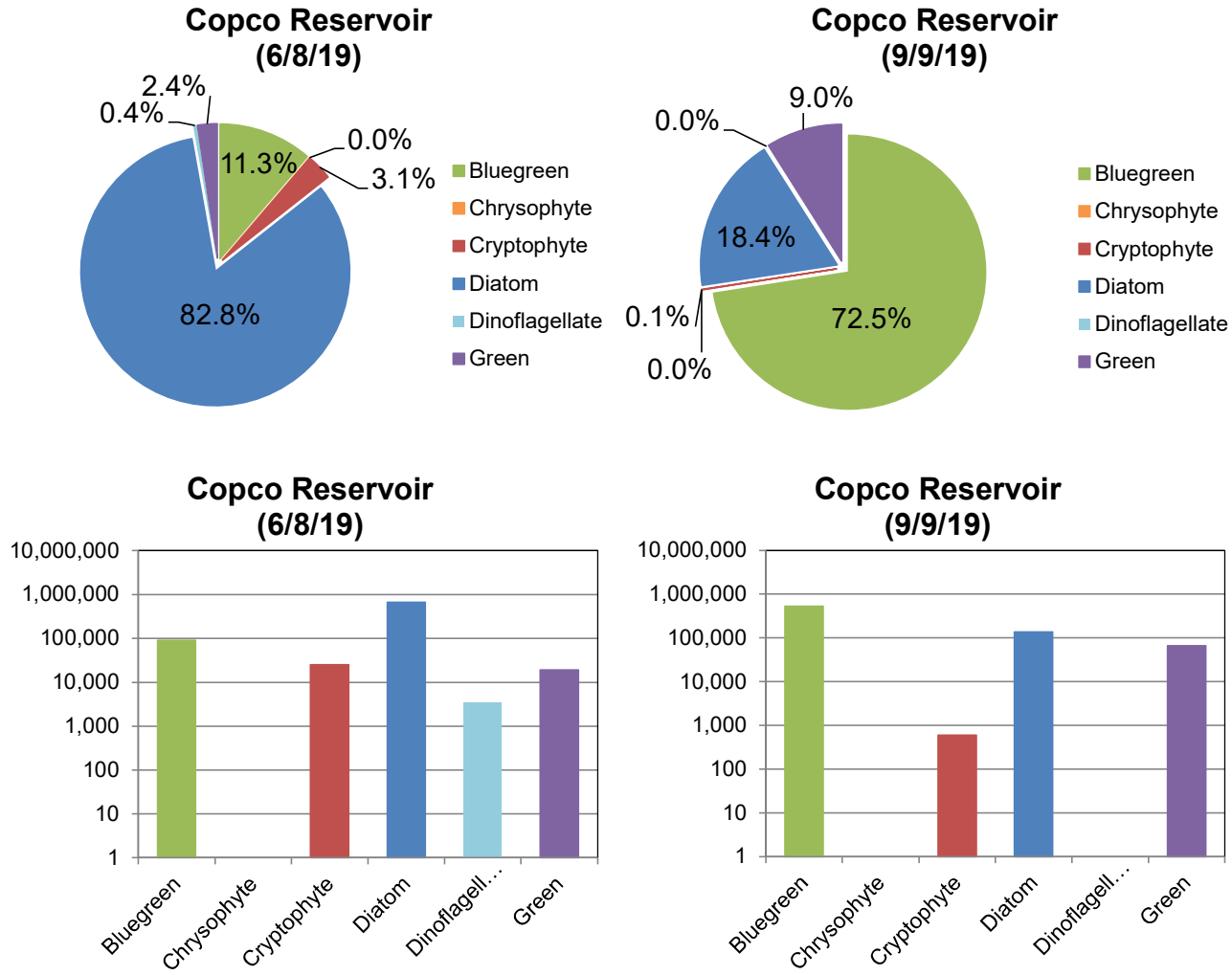


Figure C-3. Phytoplankton species percent biovolume (top) and biovolume by taxa (bottom) at Copco Reservoir (RM 198.74; Baseline) near dam for samples collected as part of Baseline sampling on 6/8/2019 and 9/9/2019. No samples were collected for March or November 2019. Note: y-axis in logarithmic scale.

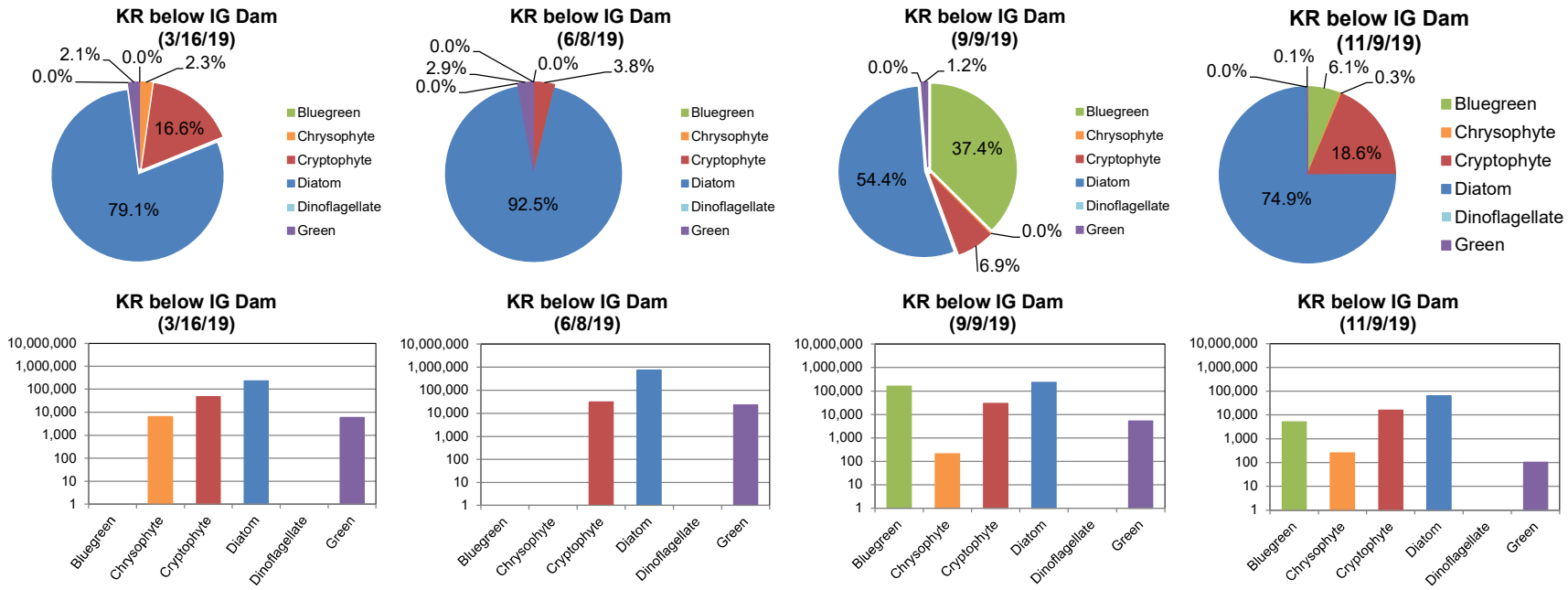


Figure C-4. Phytoplankton species percent biovolume (top) and biovolume by taxa (bottom) at Klamath River below Iron Gate Dam (RM 189.73; Baseline) for samples collected as part of Baseline sampling on 3/16/2019, 6/8/2019, 9/9/2019, and 11/9/2019. Note: y-axis in logarithmic scale.

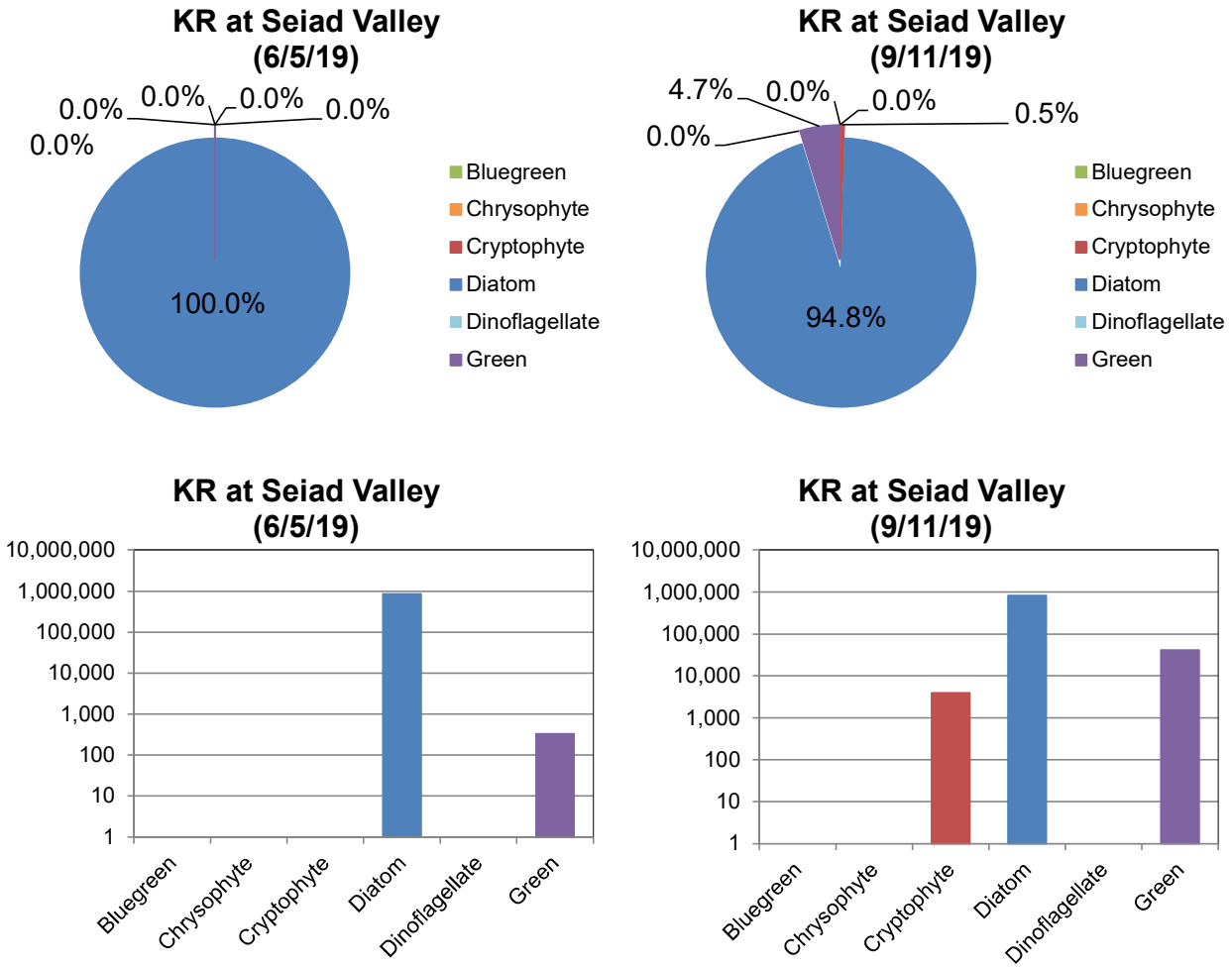


Figure C-5. Phytoplankton species percent biovolume (top) and biovolume by taxa (bottom) at Klamath River below Seiad (RM 128.5; Baseline) for samples collected as part of Baseline sampling on 6/5/2019 and 9/11/2019. No samples were collected for March and November 2019. Note: y-axis in logarithmic scale.

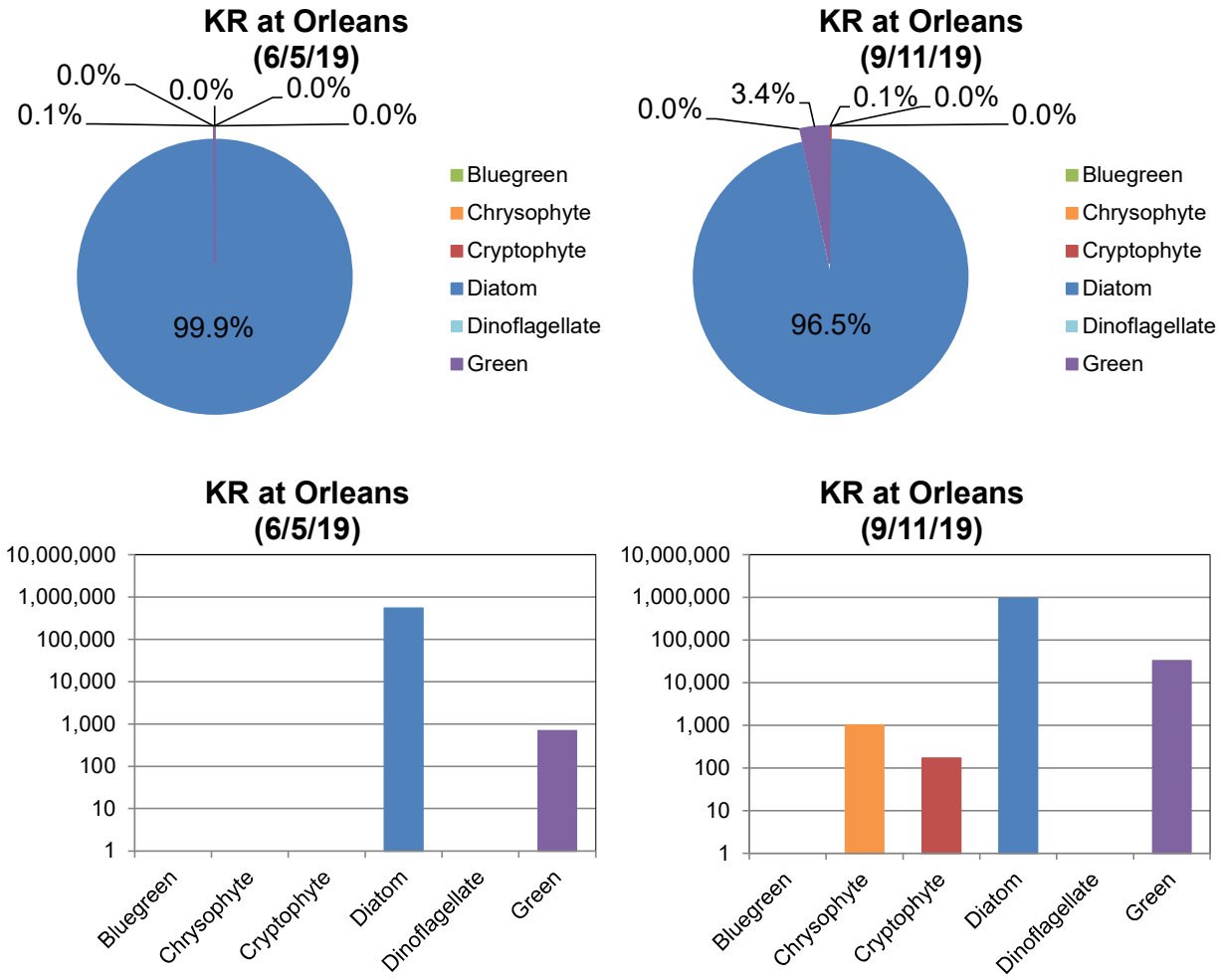


Figure C-6. Phytoplankton species percent biovolume (top) and biovolume by taxa (bottom) at Klamath River at Orleans (USGS) (RM 59.1; Baseline) for samples collected as part of Baseline sampling on 6/5/2019 and 9/11/2019. No samples were collected for March and November 2019. Note: y-axis in logarithmic scale.

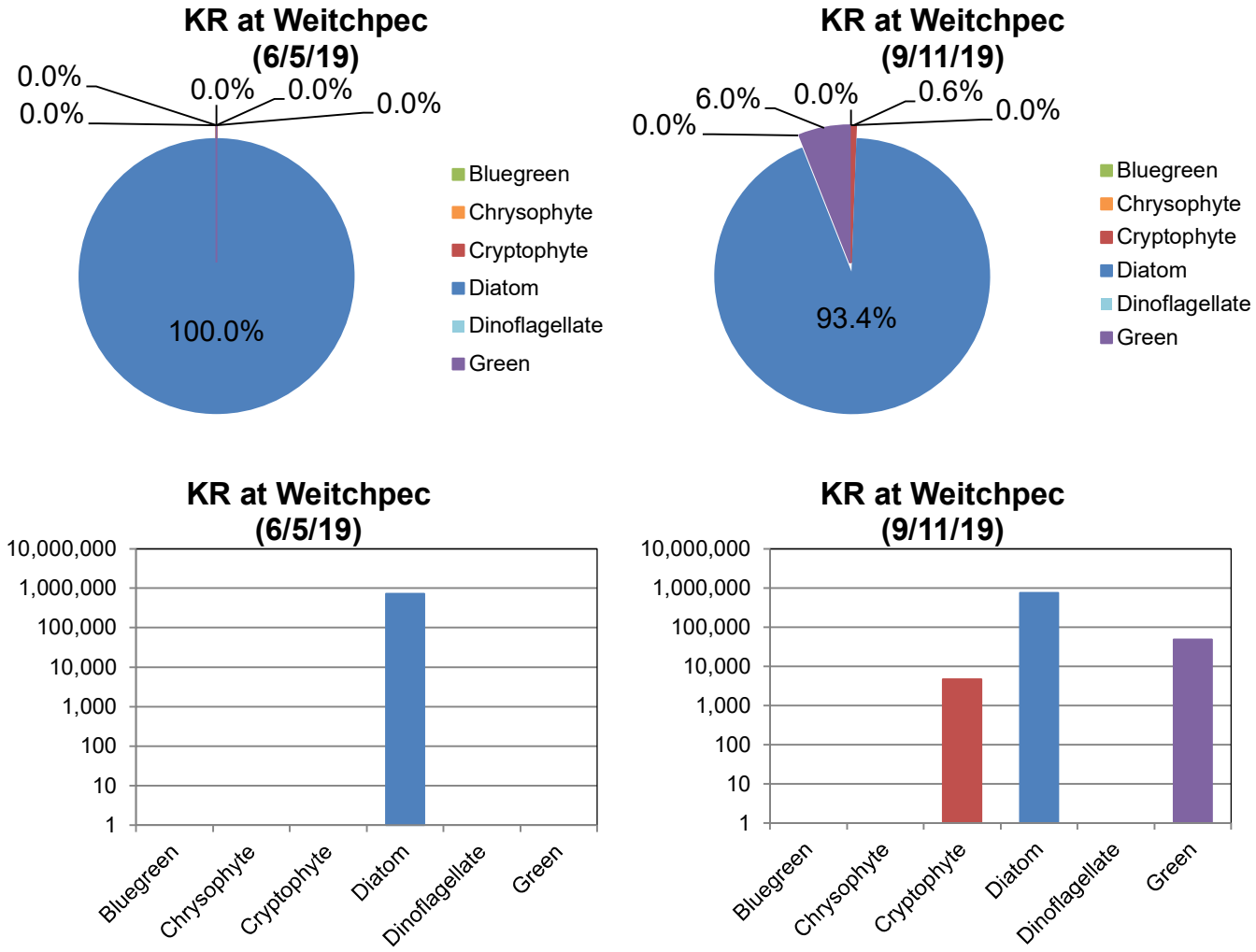


Figure C-7. Phytoplankton species percent biovolume (top) and biovolume by taxa (bottom) at Klamath River at Weitchpec (RM 43.5; Baseline) for samples collected as part of Baseline sampling on 6/5/2019 and 9/11/2019. No samples were collected for March or November 2019. Note: y-axis in logarithmic scale.

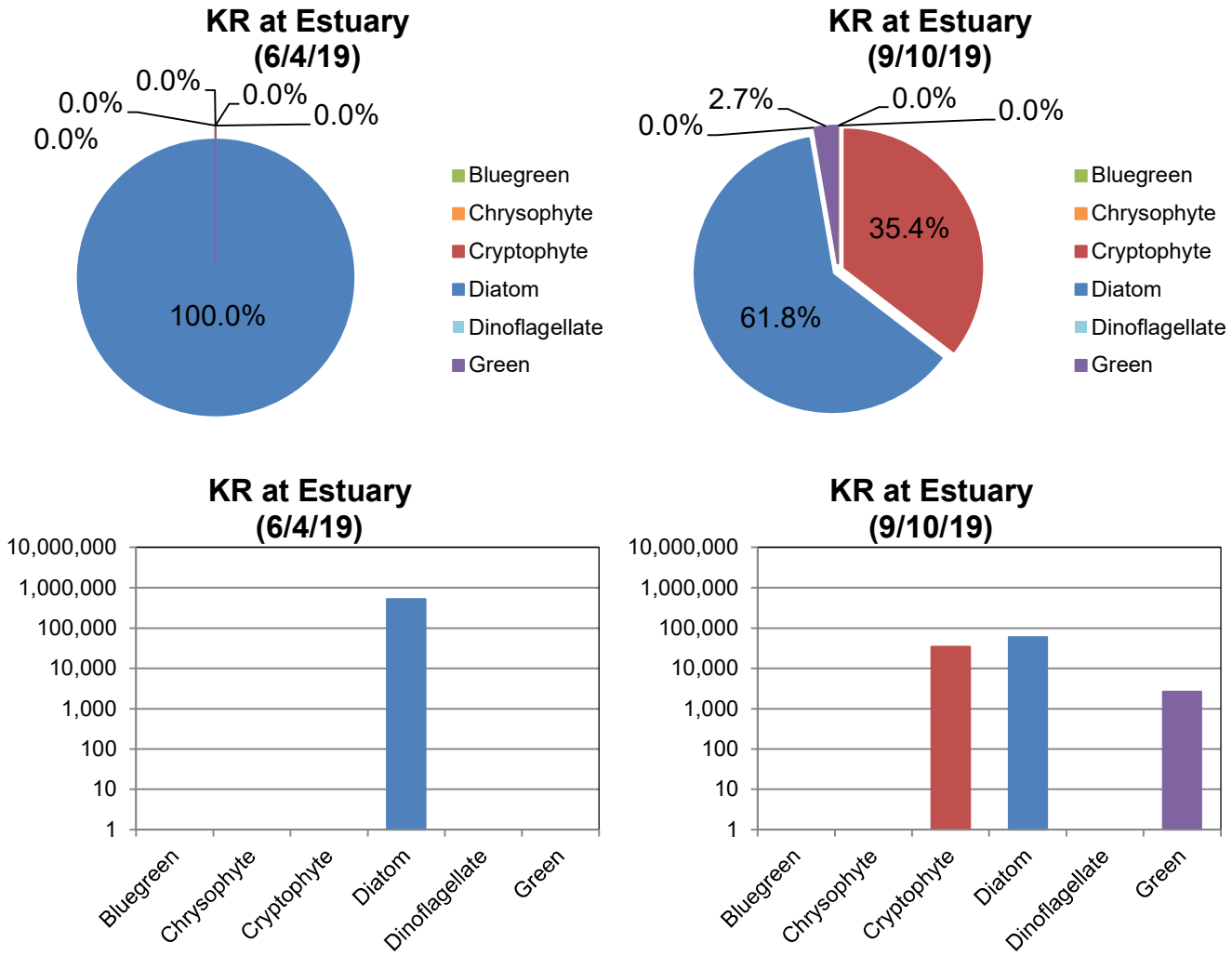


Figure C-8. Phytoplankton species percent biovolume (top) and biovolume by taxa (bottom) at Klamath River Estuary (RM 0.5; Baseline) for samples collected as part of Baseline sampling on 6/4/2019 and 9/10/2019. No samples were collected for March or November 2019. Note: y-axis in logarithmic scale.

Appendix D. 2019 Public Health Data

Table D-1. 2019 Public Health Dataset. NS indicates an analysis for a sample that was not conducted or a sample that was not collected. Sample IDs for Karuk and Yurok algae species data were assigned based on date and location and matched with microcystin sample IDs as no unique sample IDs were provided to the algae speciation laboratory for analysis. Microcystin test results of non-detect or values less than the reporting limit of 0.15 µg/l have been replaced with <0.15 µg/l. Algae genera names were updated to reflect the newest nomenclature of the field: *Anabaena* was renamed *Dolichospermum* and *Oscillatoria* was renamed *Planktothrix* for all species.

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin	Dolichospermum flos-aquae	Aphanizomenon flos-aquae	Microcystis aeruginosa	Dolichospermum circinalis	Dolichospermum planctonica	Dolichospermum sp.	Aphanizomenon sp.	Gloeotrichia echinulata	Lyngbya sp.	Planktothrix limosa	Planktothrix sp.	PseudDolichospermum sp.	Dolichospermum variabilis	Limnothrix sp.	Cylindrospermopsis sp.	Planktolyngbya sp.
							ug/l	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml
UKEP19001	5/21/2019	10:19	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	<0.15	347	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKEP19002	5/30/2019	10:37	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	0.22	29671	9698	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKEP19003	6/12/2019	11:26	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	0.16	3922	36864	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKEP19004	6/25/2019	11:26	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	<0.15	0	231138	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKEP19005	7/10/2019	12:39	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	38	0	7937600	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKEP19006	7/30/2019	11:19	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	<0.15	0	4160224	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKEP19007	8/13/2019	11:09	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	0.51	0	50315	6342	0	0	0	0	0	0	0	0	0	0	0	0	0
UKEP19008	9/11/2019	10:15	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKEP19009	9/25/2019	10:33	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKEP19010	10/15/2019	11:49	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKHP19001	5/21/2019	10:53	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	<0.15	399	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKHP19002	5/30/2019	11:20	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	<0.15	4747	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKHP19003	6/12/2019	12:09	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	1.4	479787	0	0	0	0	0	0	159929	0	0	0	0	0	0	0	0
UKHP19004	6/25/2019	12:15	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	0.18	0	269202	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKHP19005	7/10/2019	13:21	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	0.16	0	149617	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKHP19006	7/30/2019	12:05	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	36	0	3546576	92556	0	0	0	0	0	0	0	0	0	0	0	0	0
UKHP19007	8/13/2019	11:56	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	7.5	0	2756526	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKHP19008	9/11/2019	10:54	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	32	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKHP19009	9/25/2019	11:20	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	1.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKHP19010	10/15/2019	10:16	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	0.66	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKMP19001	5/21/2019	11:09	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	4.1	139555	11318	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin	Dolichospermum flos-aquae	Aphanizomenon flos-aquae	Microcystis aeruginosa	Dolichospermum circinalis	Dolichospermum planctonica	Dolichospermum sp.	Aphanizomenon sp.	Gloeotrichia echinulata	Lyngbya sp.	Planktothrix limosa	Planktothrix sp.	PseudDolichospermum sp.	Dolichospermum variabilis	Limnothrix sp.	Cylindrospermopsis sp.	Planktolyngbya sp.
							ug/l	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml
UKMP19002	5/30/2019	11:38	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	<0.15	8279	12300	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKMP19003	6/12/2019	12:31	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	<0.15	83443	641028	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKMP19004	6/25/2019	12:35	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	0.18	1622	106802	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKMP19005	7/10/2019	13:37	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	0.44	0	197735	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKMP19006	7/30/2019	12:21	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	<0.15	0	876323	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKMP19007	8/13/2019	12:13	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	0.25	0	440512	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKMP19008	9/11/2019	11:08	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKMP19009	9/25/2019	11:35	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	2.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKMP19010	10/15/2019	10:35	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	0.77	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KEKP19001	5/21/2019	10:04	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	<0.15	6967	2042	0	0	0	0	0	0	0	449	0	0	0	0	0	0
KEKP19002	5/30/2019	10:23	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	0.17	12361	1793	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KEKP19003	6/12/2019	11:09	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	0.91	321627	16751	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KEKP19004	6/25/2019	11:03	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	0.15	0	133339	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KEKP19005	7/10/2019	12:25	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	3.2	0	2053178	8054	0	0	0	0	0	0	0	0	0	0	0	0	0
KEKP19006	7/30/2019	11:01	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	2.1	0	408797	8613	0	0	0	0	0	0	0	0	0	0	0	0	0
KEKP19007	8/13/2019	10:53	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	<0.15	0	35234	0	415	0	0	0	0	0	0	0	0	0	415	0	0
KEKP19008	9/11/2019	10:00	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KEKP19009	9/25/2019	10:19	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BRTC19001	5/21/2019	9:04	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRTC19002	5/30/2019	11:24	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	<0.15	3060	480	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRTC19003	6/12/2019	11:53	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	<0.15	564	8150	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRTC19004	6/25/2019	12:49	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	<0.15	0	18227	0	0	0	0	0	0	0	636	0	0	0	0	0	0
BRTC19005	7/10/2019	12:53	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	0.18	0	16739	632	0	0	0	0	0	0	0	0	0	0	0	0	0
BRTC19006	7/30/2019	13:53	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	<0.15	0	6901	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRTC19007	8/13/2019	12:35	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	<0.15	0	6759	0	0	0	0	0	0	0	791	0	0	0	226	0	0

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin	Dolichospermum flos-aquae	Aphanizomenon flos-aquae	Microcystis aeruginosa	Dolichospermum circinalis	Dolichospermum planctonica	Dolichospermum sp.	Aphanizomenon sp.	Gloeotrichia echinulata	Lyngbya sp.	Planktothrix limosa	Planktothrix sp.	PseudDolichospermum sp.	Dolichospermum variabilis	Limnothrix sp.	Cylindrospermopsis sp.	Planktolyngbya sp.
							ug/l	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml
BRTC19008	9/11/2019	12:30	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BRTC19009	9/25/2019	11:24	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19801	5/18/2019	11:30	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19806	6/8/2019	11:30	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	<0.15	58	2113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19811	6/24/2019	7:40	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	0.21	0	10036	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19816	7/8/2019	12:00	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	4.8	0	40590	22908	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19821	7/22/2019	8:30	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	4200	0	########	2150923	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19826	8/5/2019	10:40	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	4600	0	########	2439836	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19831	8/19/2019	8:15	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	12000	0	7202290	707168	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19836	9/9/2019	11:50	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	2.6	0	23110	965	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19841	9/23/2019	9:06	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	1.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19851	10/20/2019	9:00	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	0.17	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19856	11/9/2019	11:20	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19861	12/8/2019	13:15	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19800	5/18/2019	12:05	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19805	6/8/2019	15:15	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	<0.15	0	508	0	0	0	0	0	0	0	36	0	0	0	0	0	0	0
KR19810	6/24/2019	8:50	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	<0.15	0	809	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19815	7/8/2019	15:10	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	2	0	139	12836	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19820	7/22/2019	10:00	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	100	0	27974	589555	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19825	8/5/2019	14:00	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	17	0	7517	73496	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19830	8/19/2019	9:30	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	57	0	0	233440	0	0	0	0	0	0	0	0	0	0	0	0	0	4446
KR19835	9/9/2019	14:50	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	1.4	0	839719	6647	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19840	9/23/2019	10:35	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19845	10/5/2019	15:10	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19850	10/20/2019	9:55	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	0.92	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin	Dolichospermum flos-aquae	Aphanizomenon flos-aquae	Microcystis aeruginosa	Dolichospermum circinalis	Dolichospermum planctonica	Dolichospermum sp.	Aphanizomenon sp.	Gloeotrichia echinulata	Lyngbya sp.	Planktothrix limosa	Planktothrix sp.	PseudDolichospermum sp.	Dolichospermum variabilis	Limnothrix sp.	Cylindrospermopsis sp.	Planktolyngbya sp.
							ug/l	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml
KR19855	11/9/2019	14:55	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19860	12/8/2019	16:35	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19803	5/18/2019	10:50	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19808	6/8/2019	10:00	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19813	6/24/2019	6:50	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19818	7/8/2019	10:40	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	0.31	0	14432	1804	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19823	7/22/2019	7:50	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	2.7	0	75493	1634	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19828	8/5/2019	9:30	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	38	0	343048	106753	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19833	8/19/2019	7:30	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	39	0	785984	179622	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19838	9/9/2019	10:35	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	9.8	0	15481	24309	0	0	0	0	0	0	0	0	0	0	480	0	0
KR19843	9/23/2019	8:08	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	3.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19848	10/5/2019	8:15	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	0.17	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19853	10/20/2019	8:00	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19858	11/9/2019	9:40	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19863	12/8/2019	11:45	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19802	5/18/2019	11:00	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19807	6/8/2019	10:15	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	<0.15	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19812	6/24/2019	7:15	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	0.18	113	339	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19817	7/8/2019	11:00	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	10	0	17378	52858	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19822	7/22/2019	8:00	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	4.5	0	135089	14798	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19827	8/5/2019	9:40	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	38	0	161772	134810	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19832	8/19/2019	7:45	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	18	0	45291	59710	0	0	0	0	0	0	0	0	0	0	953	0	0	0
KR19837	9/9/2019	11:00	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	55	0	46734	297399	0	0	0	0	0	0	0	0	0	0	3268	0	0	0
KR19842	9/23/2019	8:32	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	2.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19847	10/5/2019	8:45	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	0.45	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin	Dolichospermum flos-aquae	Aphanizomenon flos-aquae	Microcystis aeruginosa	Dolichospermum circinalis	Dolichospermum planctonica	Dolichospermum sp.	Aphanizomenon sp.	Gloeotrichia echinulata	Lyngbya sp.	Planktothrix limosa	Planktothrix sp.	PseudDolichospermum sp.	Dolichospermum variabilis	Limnothrix sp.	Cylindrospermopsis sp.	Planktolyngbya sp.
							ug/l	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml
KR19852	10/20/2019	8:20	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19857	11/9/2019	10:05	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19862	12/8/2019	12:05	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19804	5/18/2019	12:50	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19809	6/8/2019	16:05	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19814	6/24/2019	9:20	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	<0.15	0	738	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19819	7/8/2019	16:40	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19824	7/22/2019	10:30	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	0.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19829	8/5/2019	14:45	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	4.3	0	4439	3551	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19834	8/19/2019	10:05	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	5.4	0	318	13022	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19839	9/9/2019	15:25	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	0.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KR19844	9/23/2019	11:21	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	2.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19849	10/5/2019	16:20	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19854	10/20/2019	10:40	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	0.22	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19859	11/9/2019	15:45	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
KR19864	12/8/2019	17:45	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB061219-SG	6/12/2019	10:00	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IB062619-SG	6/26/2019	9:47	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IB070319-SG	7/3/2019	10:09	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB071019-SG	7/10/2019	11:57	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB071719-SG	7/17/2019	10:11	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	0.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IB072419-SG	7/24/2019	11:21	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	0.67	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB073119-SG	7/31/2019	10:22	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	2	0	1913	2084	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IB080719-SG	8/7/2019	11:55	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	1.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB081419-SG	8/14/2019	10:38	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin	Dolichospermum flos-aquae	Aphanizomenon flos-aquae	Microcystis aeruginosa	Dolichospermum circinalis	Dolichospermum planctonica	Dolichospermum sp.	Aphanizomenon sp.	Gloeotrichia echinulata	Lyngbya sp.	Planktothrix limosa	Planktothrix sp.	PseudDolichospermum sp.	Dolichospermum variabilis	Limnothrix sp.	Cylindrospermopsis sp.	Planktolyngbya sp.
							ug/l	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml
IB082119-SG	8/21/2019	11:33	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	2.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB082819-SG	8/28/2019	10:04	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB090419-SG	9/4/2019	12:43	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	0.26	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB091119-SG	9/11/2019	11:35	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	4.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB091819-SG	9/18/2019	10:06	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	3.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB092519-SG	9/25/2019	11:51	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	0.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB100219-SG	10/2/2019	11:40	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB100919-SG	10/9/2019	11:12	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB101619-SG	10/16/2019	9:56	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB061219-SG	6/12/2019	9:18	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BB062619-SG	6/26/2019	9:05	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BB070319-SG	7/3/2019	9:28	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB071019-SG	7/10/2019	10:57	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB071719-SG	7/17/2019	9:30	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BB072419-SG	7/24/2019	10:12	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB073119-SG	7/31/2019	9:40	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	0	0	1959	0	0	790	0	0	0	0	0	0	2502	0	0	0
BB080719-SG	8/7/2019	10:56	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB081419-SG	8/14/2019	9:53	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	0.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB082119-SG	8/21/2019	10:11	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	0.62	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB082819-SG	8/28/2019	9:20	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	0.71	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB090419-SG	9/4/2019	10:01	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB091119-SG	9/11/2019	10:18	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	0.45	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB091819-SG	9/18/2019	9:20	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	2.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB092519-SG	9/25/2019	10:37	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB100219-SG	10/2/2019	9:44	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin	Dolichospermum flos-aquae	Aphanizomenon flos-aquae	Microcystis aeruginosa	Dolichospermum circinalis	Dolichospermum planctonica	Dolichospermum sp.	Aphanizomenon sp.	Gloeotrichia echinulata	Lyngbya sp.	Planktothrix limosa	Planktothrix sp.	PseudDolichospermum sp.	Dolichospermum variabilis	Limnothrix sp.	Cylindrospermopsis sp.	Planktolyngbya sp.
							ug/l	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml
BB100919-SG	10/9/2019	10:06	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB101619-SG	10/16/2019	9:05	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV061219-SG	6/12/2019	8:48	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SV062619-SG	6/26/2019	8:34	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SV070319-SG	7/3/2019	8:56	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV071019-SG	7/10/2019	9:48	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV071719-SG	7/17/2019	9:00	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SV072419-SG	7/24/2019	9:04	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV073119-SG	7/31/2019	9:10	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	0.18	0	0	564	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SV080719-SG	8/7/2019	9:46	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	0.26	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV081419-SG	8/14/2019	9:20	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	1.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV082119-SG	8/21/2019	9:07	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	3.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV082819-SG	8/28/2019	8:47	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	0.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV090419-SG	9/4/2019	9:29	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV091119-SG	9/11/2019	9:05	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	0.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV091819-SG	9/18/2019	8:39	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV092519-SG	9/25/2019	9:34	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	0.18	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV100219-SG	10/2/2019	9:16	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV101619-SG	10/16/2019	8:34	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HC061219-SG	6/12/2019	7:54	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HC062619-SG	6/26/2019	7:49	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HC070319-SG	7/3/2019	8:09	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HC071019-SG	7/10/2019	8:37	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HC071719-SG	7/17/2019	8:22	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HC072419-SG	7/24/2019	8:27	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin	Dolichospermum flos-aquae	Aphanizomenon flos-aquae	Microcystis aeruginosa	Dolichospermum circinalis	Dolichospermum planctonica	Dolichospermum sp.	Aphanizomenon sp.	Gloeotrichia echinulata	Lyngbya sp.	Planktothrix limosa	Planktothrix sp.	PseudoDolichospermum sp.	Dolichospermum variabilis	Limnothrix sp.	Cylindrospermopsis sp.	Planktolyngbya sp.
							ug/l	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml
HC073119-SG	7/31/2019	8:23	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	<0.15	0	251	0	0	0	0	0	0	0	0	0	0	287	0	0	0
HC080719-SG	8/7/2019	8:58	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HC081419-SG	8/14/2019	8:25	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HC082119-SG	8/21/2019	8:22	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	2.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HC082819-SG	8/28/2019	7:55	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	0.59	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HC090419-SG	9/4/2019	8:42	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HC091119-SG	9/11/2019	8:20	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	0.65	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HC091819-SG	9/18/2019	7:53	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	0.59	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HC092519-SG	9/25/2019	8:54	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	0.18	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HC100219-SG	10/2/2019	8:16	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
HC101619-SG	10/16/2019	7:43	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OR061219-SG	6/12/2019	6:54	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OR062619-SG	6/26/2019	6:49	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OR070319-SG	7/3/2019	6:54	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OR071019-SG	7/10/2019	6:49	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OR071719-SG	7/17/2019	6:52	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OR072419-SG	7/24/2019	6:58	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OR073119-SG	7/31/2019	7:07	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	0	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OR080719-SG	8/7/2019	7:04	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OR081419-SG	8/14/2019	7:06	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	0.32	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OR082119-SG	8/21/2019	6:43	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	0.44	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OR082819-SG	8/28/2019	6:54	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OR090419-SG	9/4/2019	7:38	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OR091119-SG	9/11/2019	6:53	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OR091819-SG	9/18/2019	6:49	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	0.25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin	Dolichospermum flos-aquae	Aphanizomenon flos-aquae	Microcystis aeruginosa	Dolichospermum circinalis	Dolichospermum planctonica	Dolichospermum sp.	Aphanizomenon sp.	Gloeotrichia echinulata	Lyngbya sp.	Planktothrix limosa	Planktothrix sp.	PseudDolichospermum sp.	Dolichospermum variabilis	Limnothrix sp.	Cylindrospermopsis sp.	Planktolyngbya sp.
							ug/l	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml
OR092519-SG	9/25/2019	7:10	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OR100219-SG	10/2/2019	7:18	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OR100919-SG	10/9/2019	6:35	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OR101619-SG	10/16/2019	6:48	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WE060519-SG	6/5/2019	10:40	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WE062519-SG	6/25/2019	13:14	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WE071019-SG	7/10/2019	10:47	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WE072419-SG	7/24/2019	10:55	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	<0.15	0	2685	0	0	237	0	0	0	0	0	0	0	474	0	0	0
WE073019-SG	7/30/2019	10:31	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WE080719-SG	8/7/2019	10:45	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	0.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WE081319-SG	8/13/2019	12:01	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	0.19	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WE082019-SG	8/20/2019	10:45	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	NS	0	0	81	0	0	0	0	0	0	0	0	0	0	0	0	0
WE082119-SG	8/21/2019	10:39	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WE082719-SG	8/27/2019	10:18	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	3.1	83	1365	11772	0	55	0	0	0	0	0	0	0	221	0	0	0
WE090319-SG	9/3/2019	12:49	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	0.28	0	0	483	0	0	0	0	0	0	0	0	0	0	0	0	0
WE091119-SG	9/11/2019	10:22	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	3245	0	0	0
WE091719-SG	9/17/2019	12:02	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	0.25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WE092519-SG	9/25/2019	10:18	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WE100119-SG	10/1/2019	11:09	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WE100819-SG	10/8/2019	10:24	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	NS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WE100919-SG	10/9/2019	10:18	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WE102319-SG	10/23/2019	10:21	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TG060419-SG	6/4/2019	11:27	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TG070919-SG	7/9/2019	10:12	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TG072319-SG	7/23/2019	11:42	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin	Dolichospermum flos-aquae	Aphanizomenon flos-aquae	Microcystis aeruginosa	Dolichospermum circinalis	Dolichospermum planctonica	Dolichospermum sp.	Aphanizomenon sp.	Gloeotrichia echinulata	Lyngbya sp.	Planktothrix limosa	Planktothrix sp.	PseudDolichospermum sp.	Dolichospermum variabilis	Limnothrix sp.	Cylindrospermopsis sp.	Planktolyngbya sp.
							ug/l	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml
TG073119-SG	7/31/2019	11:49	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TG080619-SG	8/6/2019	10:44	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TG081419-SG	8/14/2019	11:15	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	0.29	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TG082019-SG	8/20/2019	11:15	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	0.16	0	0	218	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TG082819-SG	8/28/2019	11:39	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	1.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TG090419-SG	9/4/2019	9:38	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	0.22	0	0	470	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TG091019-SG	9/10/2019	10:22	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	0.25	0	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TG091819-SG	9/18/2019	10:05	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
TG092419-SG	9/24/2019	9:36	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	0.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TG100219-SG	10/2/2019	9:56	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	<0.15	0	249	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TG100819-SG	10/8/2019	9:50	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TG102219-SG	10/22/2019	12:08	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SS060419-SG	6/4/2019	12:01	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SS062619-SG	6/26/2019	11:25	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SS070919-SG	7/9/2019	10:58	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SS072319-SG	7/23/2019	11:42	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	0.33	0	0	0	0	0	80	0	0	0	0	0	0	0	0	0	0	0
SS073119-SG	7/31/2019	11:18	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SS080619-SG	8/6/2019	9:53	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	<0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SS081419-SG	8/14/2019	11:43	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	0.15	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SS082019-SG	8/20/2019	9:32	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SS082819-SG	8/28/2019	12:26	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	0.55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SS090419-SG	9/4/2019	9:06	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	1.9	0	106	1470	0	0	0	0	0	0	71	0	0	0	0	0	0	0
SS091019-SG	9/10/2019	11:05	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SS091819-SG	9/18/2019	9:35	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	0.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SS092419-SG	9/24/2019	9:36	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	0.28	0	1592	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin	Dolichospermum flos-aquae	Aphanizomenon flos-aquae	Microcystis aeruginosa	Dolichospermum circinalis	Dolichospermum planctonica	Dolichospermum sp.	Aphanizomenon sp.	Gloeotrichia echinulata	Lyngbya sp.	Planktothrix limosa	Planktothrix sp.	PseudDolichospermum sp.	Dolichospermum variabilis	Limnothrix sp.	Cylindrospermopsis sp.	Planktolyngbya sp.
							ug/l	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml	cells/ml
SS100219-SG	10/2/2019	9:16	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SS100819-SG	10/8/2019	11:30	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SS102219-SG	10/22/2019	12:46	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	<0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table D-2. Mass spectroscopy data for the 2019 samples collected by the Karuk Tribe and Yurok Tribe. Results are presented in micrograms per liter (µg/l). NA = Samples not analyzed for these constituents during 2019.

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Lab	Microcystin -RR µg/l	MC-Desmethyl -RR µg/l	Microcystin -LR µg/l	MC-Desmethyl -LR µg/l	Microcystin -YR µg/l	Microcystin -LA µg/l	Microcystin-LW (screening only) µg/l	Microcystin -LF µg/l	Microcystin -LY µg/l	Domoic acid µg/l	Okadaic acid µg/l	Nodularin µg/l
IG082119-OC	8/21/2019	12:55	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	Karuk	0.5	Greenwater	<0.01	<0.01	0.24	<0.03	<0.02	1.43	<0.01	0.02	0.01	NA	NA	<0.07
IB061919-SG	6/19/2019	12:29	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	<0.01	<0.01	<0.01	<0.02	<0.04	<0.01	<0.02	<0.01	<0.01	NA	NA	<0.07
IB080719-SG	8/7/2019	12:55	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	<0.01	<0.01	0.14	<0.03	<0.02	0.57	<0.01	<0.01	0.01	NA	NA	<0.07
IB082119-SG	8/21/2019	12:33	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	<0.01	<0.01	0.15	<0.03	<0.02	1.77	<0.01	0.01	0.01	NA	NA	<0.07
IB091119-SG	9/11/2019	12:35	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	<0.01	<0.01	0.13	<0.04	<0.03	1.18	<0.01	<0.01	<0.01	NA	NA	<0.09
IB092519-SG	9/25/2019	12:50	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	<0.01	<0.01	<0.02	<0.04	<0.03	0.17	<0.01	<0.01	<0.01	NA	NA	<0.09
IB100919-SG	10/9/2019	12:12	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	<0.01	<0.01	<0.02	<0.03	<0.03	0.06	<0.01	<0.01	<0.01	NA	NA	<0.06
IB101619-SG	10/16/2019	10:56	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	<0.01	<0.01	<0.02	<0.03	<0.03	0.04	<0.01	<0.01	<0.01	NA	NA	<0.06
WA080719-OC	8/7/2019	12:15	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	Greenwater	<0.01	<0.01	0.08	<0.03	<0.02	0.43	<0.01	<0.01	0.01	NA	NA	<0.07
WA091119-OC	9/11/2019	11:33	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	Greenwater	<0.01	<0.01	0.06	<0.04	<0.03	0.64	<0.01	<0.01	<0.01	NA	NA	<0.09
WA100919-OC	10/9/2019	11:24	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	Greenwater	<0.01	<0.01	<0.02	<0.03	<0.03	0.03	<0.01	<0.01	<0.01	NA	NA	<0.06
TG082019-OC	8/20/2019	11:18	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	Greenwater	<0.01	<0.01	<0.02	<0.03	<0.02	0.06	<0.01	<0.01	<0.01	NA	NA	<0.05
TG092419-OC	9/24/2019	11:12	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	Greenwater	<0.01	<0.01	0.03	<0.03	<0.02	0.15	<0.01	<0.01	<0.01	NA	NA	<0.09
LES082019-OC	8/20/2019	12:22	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	Greenwater	<0.01	<0.01	0.02	<0.03	<0.02	0.08	<0.01	<0.01	<0.01	NA	NA	<0.05
LES092419-OC	9/24/2019	12:45	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	Greenwater	<0.01	<0.01	0.02	<0.03	<0.02	0.15	<0.01	<0.01	<0.01	NA	NA	<0.09

Table D-3. Results for anatoxin-a analysis for 2019 samples collected by PacifiCorp, the Karuk Tribe, and the Yurok Tribe.

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Lab	Total Anatoxin-a µg/l
KR19821	7/22/2019	9:30	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	Greenwater	<0.05
KR19826	8/5/2019	11:40	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	Greenwater	<0.05
KR19831	8/13/2019	9:15	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	Greenwater	<0.05
IG061919-SG	6/19/2019	12:52	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	Karuk	0.1	Greenwater	<0.05
IB060519-SG	6/5/2019	11:58	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	<0.05
IB061919-SG	6/19/2019	12:29	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	<0.05
IB071019-SG	7/10/2019	12:57	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	<0.05
WA071019-OC	7/10/2019	12:14	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	Greenwater	<0.05
SS070919-SG	7/9/2019	11:58	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	Greenwater	<0.05
SS080619-SG	8/6/2019	10:53	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	Greenwater	<0.05
SS100819-SG	10/8/2019	12:30	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	Greenwater	<0.05