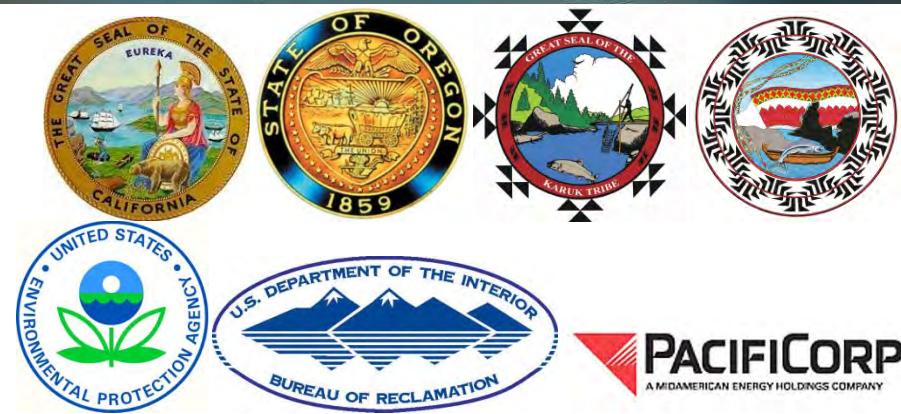


# KLAMATH RIVER WATER QUALITY SAMPLING

## FINAL 2017 ANNUAL REPORT

Prepared for the  
KHSa Water Quality Monitoring Group

Prepared by  
Watercourse Engineering, Inc.  
August 23, 2018





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## 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 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Klamath Hydroelectric Settlement Agreement (KHSA), signed on February 18, 2010 (subsequently amended on April 6, 2016), superseded the AIP.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 2017 water quality monitoring program conducted under IM 15 represents the ninth year of water quality monitoring under the AIP and the KHSA.

The monitoring program is a cooperative effort of the KHSA Monitoring Group<sup>1</sup>. This group developed the KHSA IM 15 monitoring study plan that is located on PacifiCorp's Klamath website<sup>2</sup>, as well as the Klamath Basin Monitoring Program (KBMP) website<sup>3</sup>. 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 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 2017 grab sampling data collection and available water quality probe data, as well as the 2017 public health data collection. Four appendices accompany this report: the sampling locations (Appendix A); the 2017 baseline grab sample results (Appendix B); the phytoplankton species charts and biovolume graphs (Appendix C); and the 2017 public health data (Appendix D).

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<sup>1</sup> 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.

<sup>2</sup> <http://www.pacificorp.com/es/hydro/hl/kr.html#>

<sup>3</sup> <http://kbmp.net/collaboration/klamath-hydroelectric-settlement-agreement-monitoring>

## **2. Program Elements**

The primary elements of the IM 15 monitoring program include baseline and public health monitoring. The baseline water quality monitoring element includes water quality grab samples, physical observations associated with these grab samples, and water quality probe and algae species data. The grab samples are 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 includes 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 2017.

The public health monitoring program data consists of sampling of algae species at specific sites within reservoirs and river reaches and focuses 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<sup>4</sup>. These memoranda are 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 2017 public health monitoring program data is presented herein.

The KBMP hosts reports from previous years, other, 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.

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<sup>4</sup> PacifiCorp public health memoranda are available online at <http://www.pacificorp.com/es/hydro/hl/kr.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**

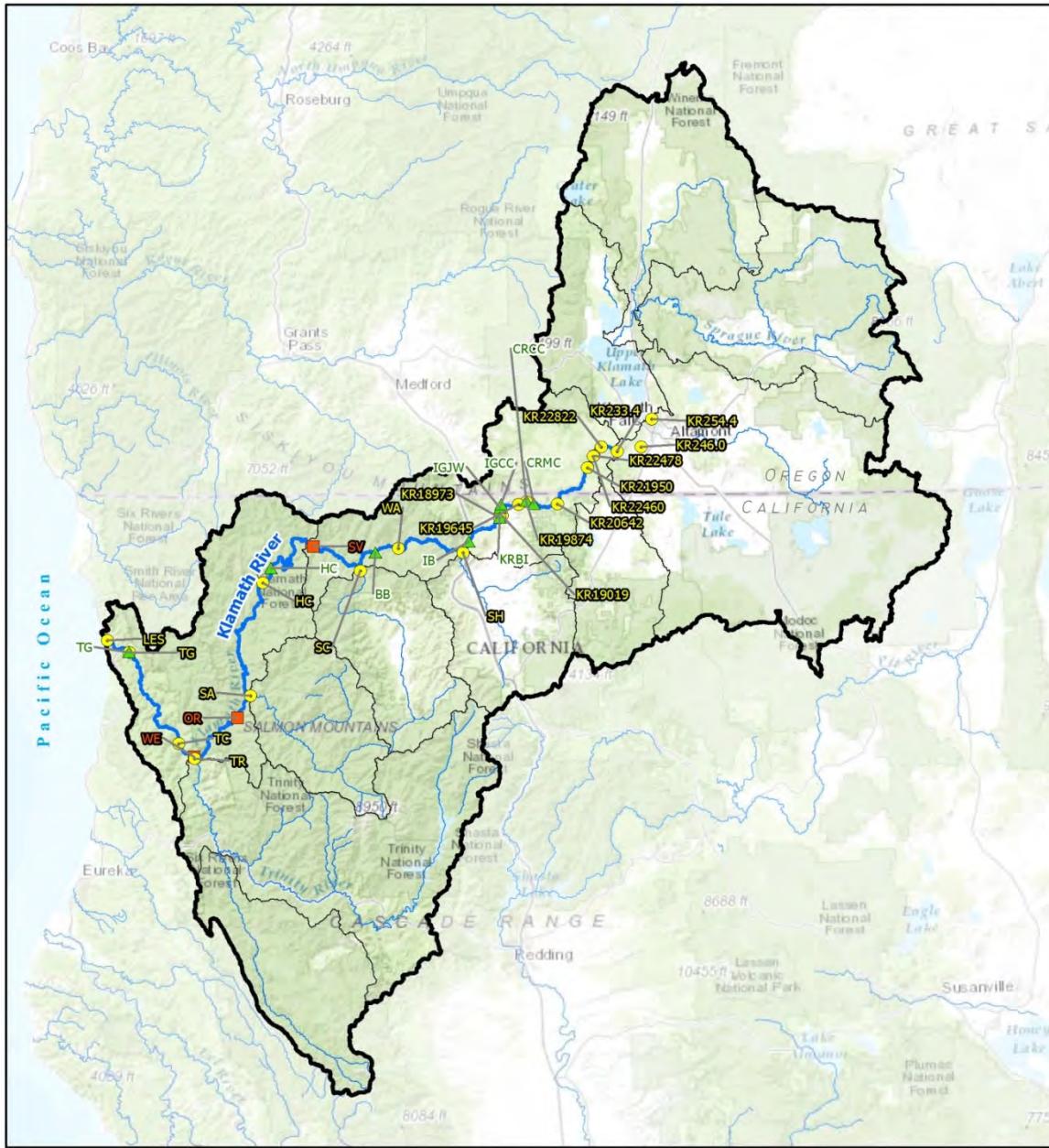
In 2017, sampling was conducted at 24 sites along the Klamath River and its tributaries, from Link Dam to the Klamath River Estuary (Figure 1), by the four sampling entities: U.S. Bureau of Reclamation (USBR), PacifiCorp, Karuk Tribe, and Yurok Tribe. Sixteen of those sites were located on the mainstem of the Klamath River, four 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 USBR. While data collected above Keno Dam is not a proxy for water quality conditions below the dam, as conditions can differ in Keno Reservoir and in the Klamath River below Keno Dam, the sonde provided data to illustrate conditions at the downstream end of the reservoir prior to 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 2017: 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 and volatile suspended solids,



#### KHSA Sampling Site

- Baseline
- Baseline & Public Health
- ▲ Public Health

River

■ Klamath River Watershed

□ Klamath Sub Basin

0 5 10 20 Miles

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Figure 1. 2017 KHSA Klamath River baseline monitoring and public health sampling sites

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 2017 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 to the 2017 sampling plan to control costs. Changes in the 2017 baseline sampling program included the following:

- Two sites (Klamath River above J.C. Boyle Reservoir (RM 228.22; Baseline) and J.C. Boyle Reservoir (RM 224.78; Baseline)) were removed from the baseline sampling program.
  - The QA spike sample set was reduced from two to one per trip for samples collected by PacifiCorp.
  - All February baseline samples were dropped except those collected by Reclamation at Link and Keno dams and Keno Reservoir at Miller Island.
  - The PacifiCorp contingency trip was removed from the program.
  - Volatile Suspended Solids (VSS) was removed from the program.
  - The frequency of phytoplankton analysis at the following sites was changed to monthly from May through October (M/S)
    - Klamath River near Klamath (RM 6.0; Baseline)
    - Klamath River at Orleans (USGS) (RM 59.1; Baseline)
    - Klamath River below Seiad (RM 128.5; Baseline)
    - Klamath River above Shovel Creek (RM 206.42; Baseline)
    - Klamath River below USGS Gage (RM 219.50; Baseline)
    - Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)
    - Keno Reservoir at Miller Island (RM 246.0; Baseline)
- .

**Table 1. 2017 Baseline monitoring locations, sampling frequency, and sampling entities.**

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/Phaeo (µg/l)	Phytoplankton species	Microcystin (µg/l)	LC/MS confirmation	Turbidity (NTU)	Sampling Entity
Site ID	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	M/BM	M/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	M2	M2	M2	M2	M/S	M/S	M2	USBR
KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	H	D	D	D	M2/BM2	M2/BM2	M2/BM2	M2/BM2	M2/BM2	M	M	M	M	M	M2/BM2**	M	M/S	M/S	M2/BM2	USBR	
KR22822	Klamath River above J.C. Boyle Reservoir (RM 228.22; Baseline)																				Dropped	
KR22478	J.C. Boyle Reservoir (RM 224.78; Baseline)*																				Dropped	
KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	H	D	D	D	M	M	M	M	M	M	M	M	M	M	M	M	M/S	M/S	M/S	PaciCorp	
KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	H	D	D	D	M	M	M	M	M	M	M	M	M	M	M	M	M/S	M/S	M	PaciCorp	
KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	H	D	D	D	M3/BM2	M3/BM2	M3/BM2	M3/BM2	M3/BM2	M	M	M	M	M	M	M	M/S	M/S	M	PaciCorp	
KR19874	Copco Reservoir (RM 198.74; Baseline)*	VP	VP	VP	VP	M	M	M	M	M	M	M	M	M	M	M	M	M/S	M/S	M/S	PaciCorp	
KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	H	D	D	D	M	M	M	M	M	M	M	M	M	M	M	M	M/S	M/S	M/S	PaciCorp	
KR19019	Iron Gate Reservoir (RM 190.19; Baseline)*	VP	VP	VP	VP	M	M	M	M	M	M	M	M	M	M	M	M	M/S	M/S	M/S	PaciCorp	
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	M2/BM	M2/BM	BM/S	M2/BM	PaciCorp
KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	H	D	D	D	M	M	M	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	M/S	M/S	M	Karuk	
KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	H	D	D	D	M	M	M	M	M	M	M	M	M	*	M	M/S	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	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	*	M	M/S	M/S	S2	M/S	Yurok	
KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	H	H	H	H	M	M	M	M	M	M	M	M	M	*	M	M/S	M/S	M/S	M/S	Yurok	
KR00600	Klamath River near Klamath (RM 6.0; Baseline)*	H	H	H	H	M	M	M	M	M	M	M	M	M	*	M	M/S	M/S	M/S	M	Yurok	
KR00050	Klamath River Estuary (RM 0.5; Baseline)*	HP	D	D	D	M	M	M	M	M	M	M	M	M	*	M	M/S	M/S	M/S	M/S	Yurok	
SH00000	Shasta River near mouth (Baseline)	H	H	H	H	M	M	M	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	*	M	*	M	*	M	Karuk	
SA00000	Salmon River near mouth (Baseline)	H	H	H	H	M	M	M	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	*	M	*	M	*	M	Yurok	

**Notes:**

<sup>a</sup> Sampling at one depth in J.C. Boyle reservoir (0.5 m depth = surface)

<sup>b</sup> Sampling at three depths in Copco Reservoir (0.5 m below surface, thermocline, and 0.5 m above bottom)

<sup>c</sup> Sampling at three depths in Iron Gate Reservoir (0.5 m below surface, thermocline, and 0.5 m above bottom)

<sup>d</sup> Continuously deployed sonde is located 2 miles upstream of this site at Klamath above Turwar (RM8.0)

<sup>e</sup> 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*, *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 which 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, and liver toxicity (WHO 2003; OEHHA 2012).

Rewrites to the 2017 public health sampling, when compared with the 2016 program, included the following:

- Sampling entities only submitted public health phytoplankton samples in May, June, and July, and rushed the processing of all those samples. If a sampling entity desired, samples were collected after July, but the analysis was not funded through IM 15.
- The second November public health trip for PacifiCorp sites was combined with the early December baseline trip.

**Table 2. 2017 Klamath River public health monitoring locations, constituents, method, and sampling frequency.**

Location	Site ID	River Mile	Phytoplankton Species	Microcystin - EPA	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	9	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	4	Analysis for anatoxin-a will be tied to the temporal and density distribution of <i>Dolichospermum</i> (formerly <i>Anabaena</i> ) in the reservoirs however; four 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 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, and 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 (NH<sub>4</sub>), nitrate+nitrite (NO<sub>3</sub>+NO<sub>2</sub>), total nitrogen (TN), particulate nitrogen (PN)
- Phosphorus: orthophosphate (OPO<sub>4</sub>), 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* and pheophytin
- Microcystin (MCYN) and anatoxin-a (if warranted)
- Algae species

Six laboratories completed the analytical work during the field season:

- TestAmerica Applied Sciences Laboratory (TestAmerica) in Corvallis, Oregon
  - <http://www.testamericainc.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>
- EPA Region 9 (EPA) laboratory in Richmond, California
  - <http://www.epa.gov/region9/lab/>
- GreenWater Laboratories in Palatka, Florida
  - <https://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 each site using either thermistors or 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](http://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**

TestAmerica, IEH, and CBL used either Standard Methods or EPA analytical methods for analysis of nutrients, dissolved and particulate carbon, alkalinity, carbonaceous biological oxygen demand, total suspended solids and volatile suspended solids chlorophyll-a, and pheophytin (Table 3). Each laboratory used its own internal water quality control and assurance samples during analysis of the KHSA 2017 samples. Method detection limits (MDL) and reporting limits (RL) varied among the laboratories. Some constituent MDLs at TestAmerica varied over the course of the year, and all unique pairs of MDLs and RLs are presented below. The IEH MDL values did not vary during the year, so only one value is presented below per constituent.

Algae species analysis method information for Aquatic Analysts is not presented because this analysis does not include MDLs or RLs.

## **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. 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 Green Water Laboratories using liquid chromatography-tandem mass spectrometry (LCMS/MS) for selected locations.

**Table 3. 2017 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.**

		TestAmerica			IEH			CBL			EPA			GreenWater		
Constituent Name	Constituent ID	Method	MDL <sup>1</sup>	RL <sup>2</sup>	Method	MDL	RL	Method	MDL	RL	Method	MDL	RL	Method	MDL	RL
Alkalinity	ALKT	SM2320B	n/a	5.0 20.0	SM18 2320B	0.70	1.0	-	-	-	-	-	-	-	-	-
Ammonia	NH4	EPA 350.1	0.024	0.05 0.10	SM18 4500NH3H	0.005	0.01	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	DOC	SM5310B	0.2	0.5	SM20 5310B	0.10	0.25	-	-	-	-	-	-	-	-	-
Nitrate + Nitrite	NO3+NO2	EPA 353.2	0.0028	0.010	SM18 4500N03F	0.006	0.01	-	-	-	-	-	-	-	-	-
Total Nitrogen	TN	SM4500-N C	0.024	0.20	SM204500NC	0.024	0.05	-	-	-	-	-	-	-	-	-
Ortho-phosphate	OPO4	EPA 365.1	0.0014 0.0016	0.010	SM18 4500PF	0.001	0.001	-	-	-	-	-	-	-	-	-
Total Phosphorus	TP	EPA 365.4	0.017	0.050	SM18 4500PF	0.001	0.002	-	-	-	-	-	-	-	-	-
Total Suspended Solids	TSS	SM2540D	0.6	5.0	SM20 2540D	0.3	0.5	-	-	-	-	-	-	-	-	-
Turbidity	TURB	-	-	-	SM20 2130B	0.10	0.10	-	-	-	-	-	-	-	-	-
Chlorophyll-a <sup>3</sup>	CHLOR-A	-	-	-	SM1810200H-2b	0.1	0.1	EPA 445.0	0.89	0.89	-	-	-	-	-	-
Pheophytin	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	0.0105	0.0315 0.0316 0.0321 0.0322 0.0325	-	-	-	-	-	-
Microcystin <sup>3</sup>	MCYN	-	-	-	-	-	-	-	-	-	ELISA	0.10	0.15	-	-	-
Anatoxin-a <sup>3</sup>	ANTX-A	-	-	-	-	-	-	-	-	-	-	-	-	LCMS/MS	0.05	n/a

MDL – method detection limit    RL – method reporting limit

<sup>1</sup> TestAmerica uses the term limit of detection (LOD) instead of MDL

<sup>2</sup> TestAmerica uses the term limit of quantification (LOQ) instead of RL

<sup>3</sup> Units for chlorophyll-a, microcystin, and anatoxin-a are in µg/L (or ppb).

## **6. Baseline Program Water Quality Data**

Water quality samples for the 2017 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 24 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 2017 sampling period. In addition to the dataset (Appendix B), data also are summarized in three formats:

- (1) Longitudinal boxplots<sup>5</sup> 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 2017, the boxplots presented in the annual report are not statistically robust and are included for illustration purposes only. Also, no boxplots were generated for sites with less than six points of data in 2017; the captions of the boxplot figures indicate the locations that were omitted due to lack of sufficient data. The charts and graphs of algae are presented in Appendix C. The data summary constituents presented include: dissolved oxygen, dissolved organic carbon, total nitrogen, total phosphorus, and microcystin.

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<sup>5</sup> 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 25<sup>th</sup> quartile and 75<sup>th</sup> 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.

The mainstem sites and major tributaries (Shasta, Scott, Salmon, and Trinity rivers) are presented separately.

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

Grab sample data and the associated physical water quality measurements (e.g., water temperature and dissolved oxygen) are presented in the following figures. These illustrations are not intended to be comprehensive, but rather to present general conditions throughout the Klamath River during the sampling season. Box plots of constituents from samples collected in the Shasta, Scott, Salmon and Trinity rivers are presented first (Figure 3) followed by individual plots of the same constituents for the Klamath River from Link Dam to the Klamath River estuary (Figures 4 to 8). Time series data of water temperature, dissolved oxygen, pH, total nitrogen, total phosphorus, and microcystin are presented in Figures 9 through 17

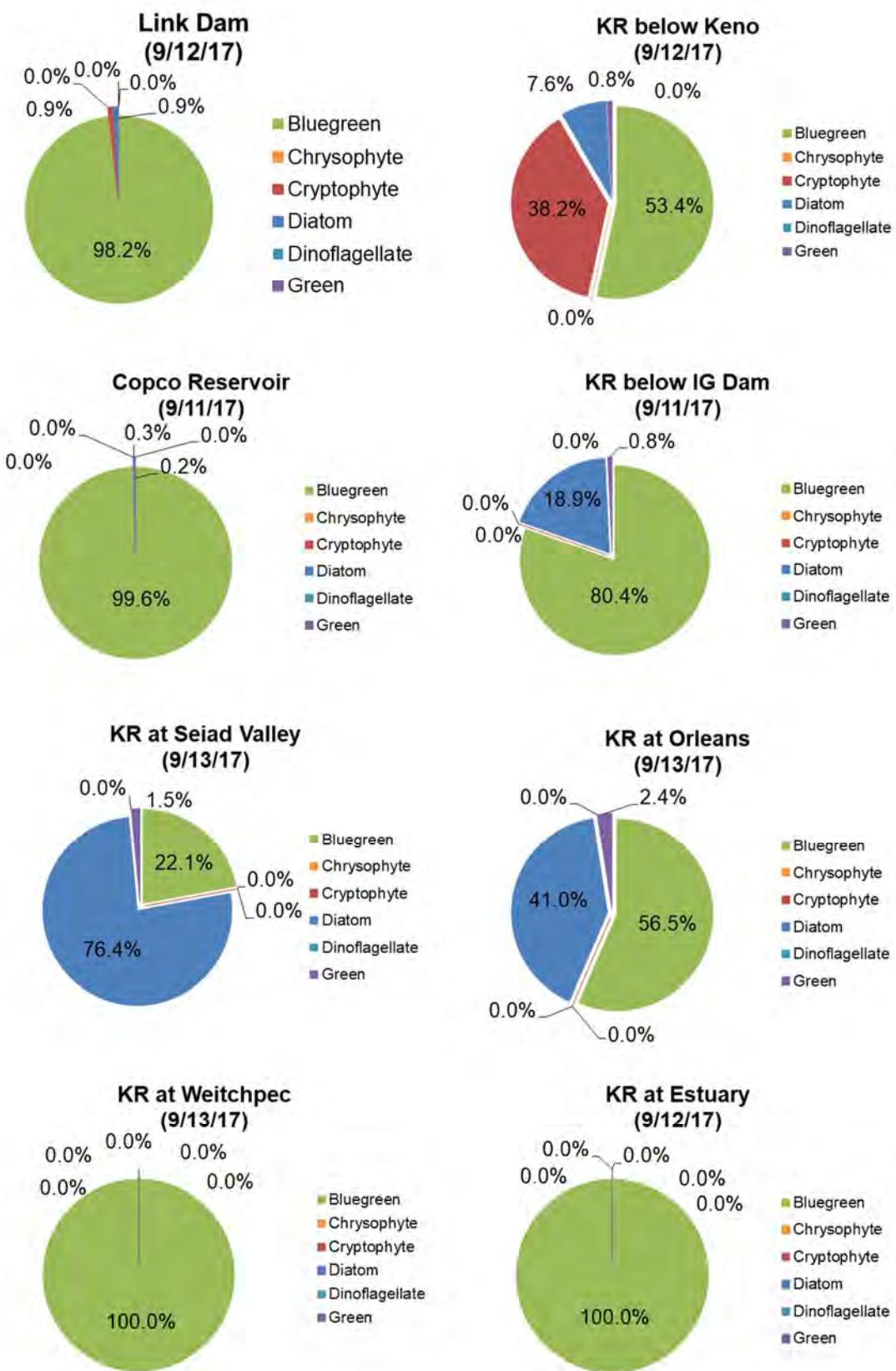


Figure 2. Phytoplankton species percent biovolume for eight locations in the Klamath River: September 2017.

### 6.1.1. Major Tributaries (Boxplot)

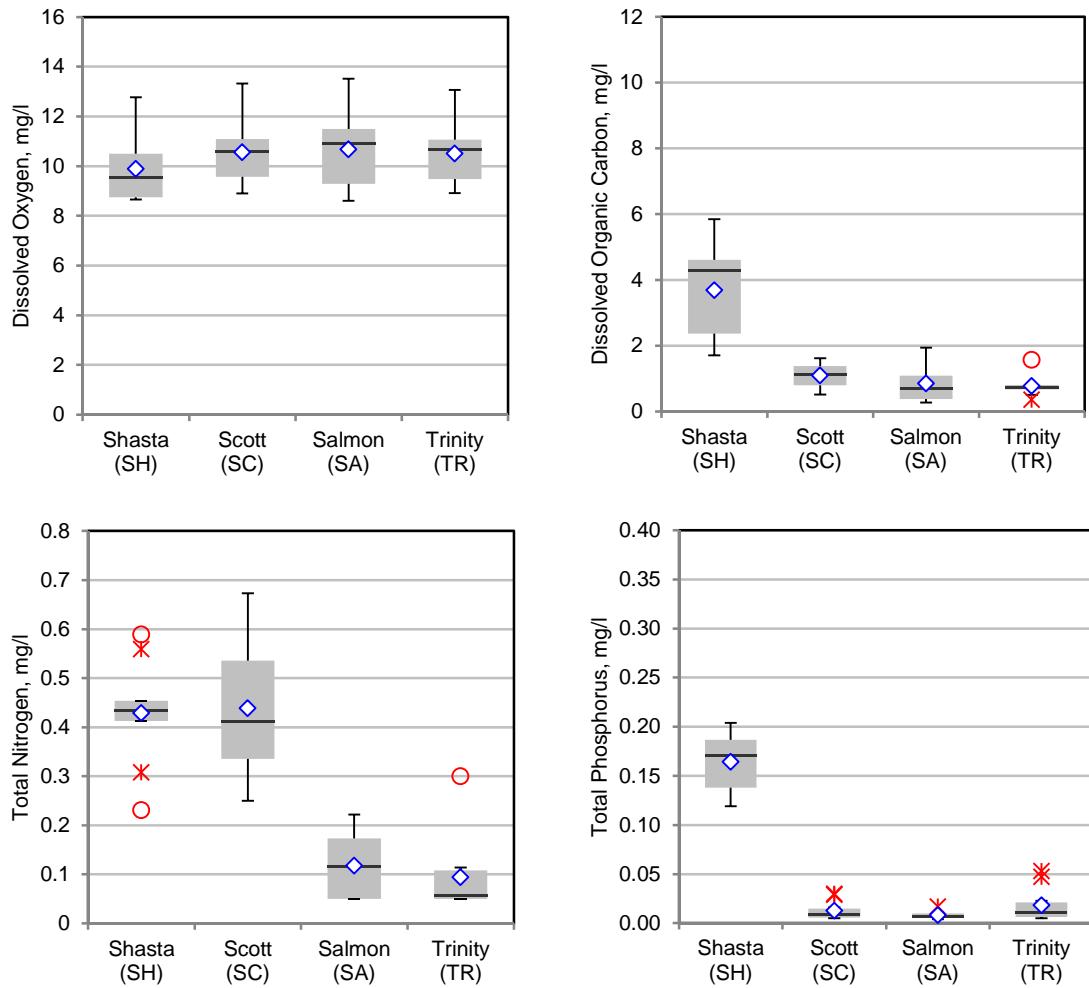
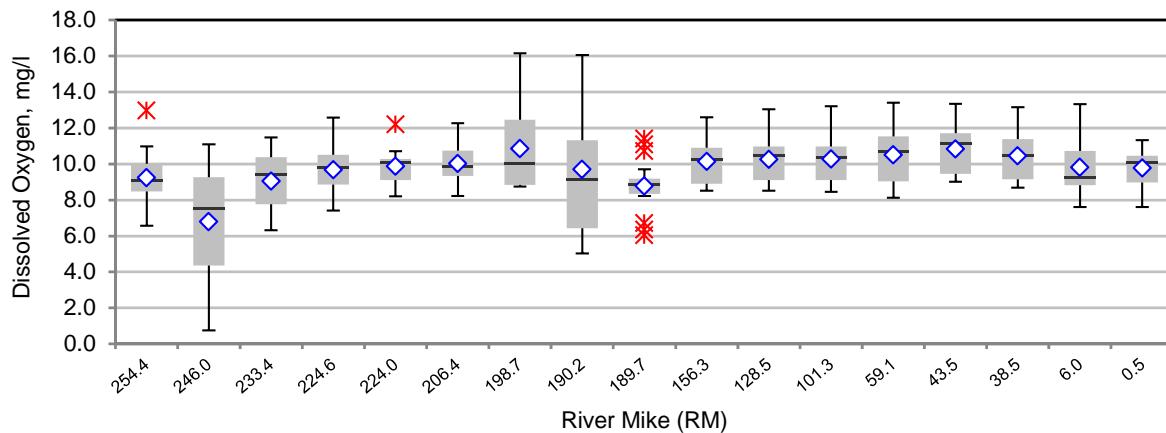
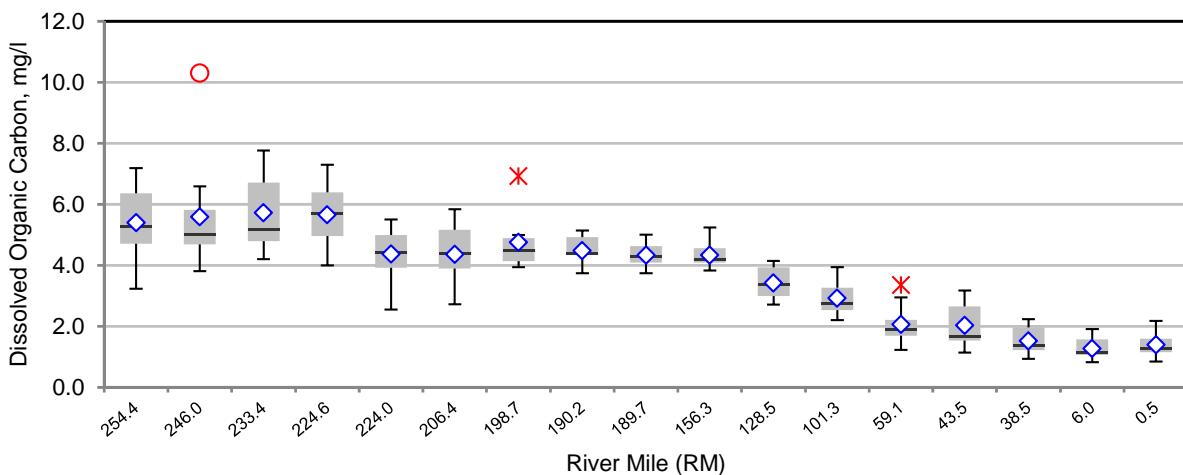


Figure 3. Baseline data for discrete dissolved oxygen, dissolved organic carbon, total nitrogen, and total phosphorus for the Shasta, Scott, Salmon, and Trinity rivers with median (—), mean (◊), outliers (\*), and extreme outliers (○) identified (February 2017 – December 2017).

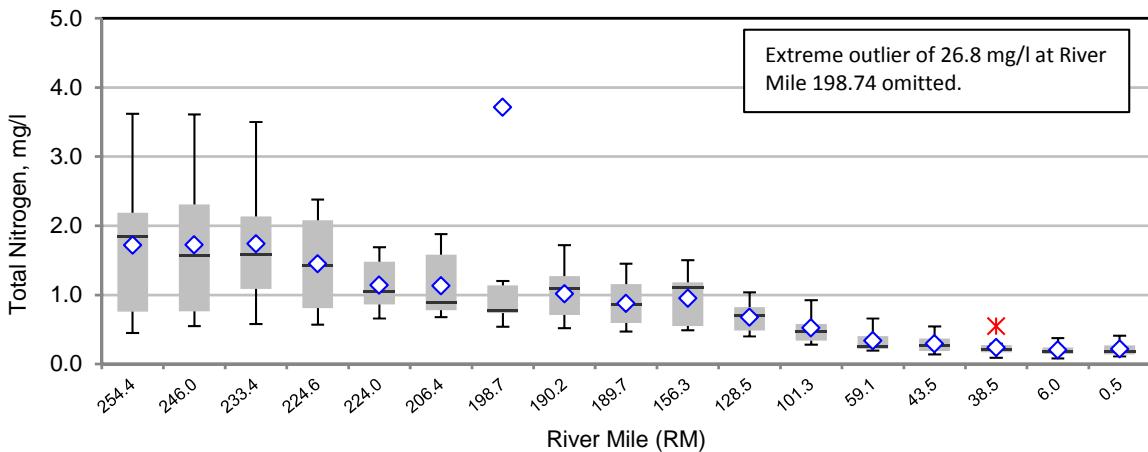
### 6.1.2. Mainstem Klamath River (Boxplot)



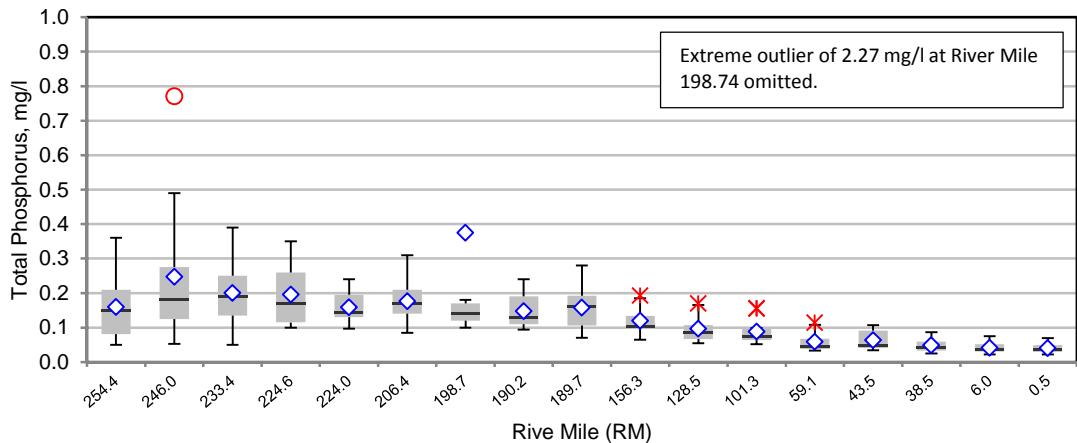
**Figure 4.** Discrete dissolved oxygen concentration in the Klamath River from Link Dam to the Klamath River Estuary with median (—), mean (◊), outliers (\*), and extreme outliers (○) identified (February 2017 – December 2017). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), Copco Reservoir (RM 198.74; Baseline), and Iron Gate Reservoir (RM 190.19; Baseline). River mile on x-axis not to scale.



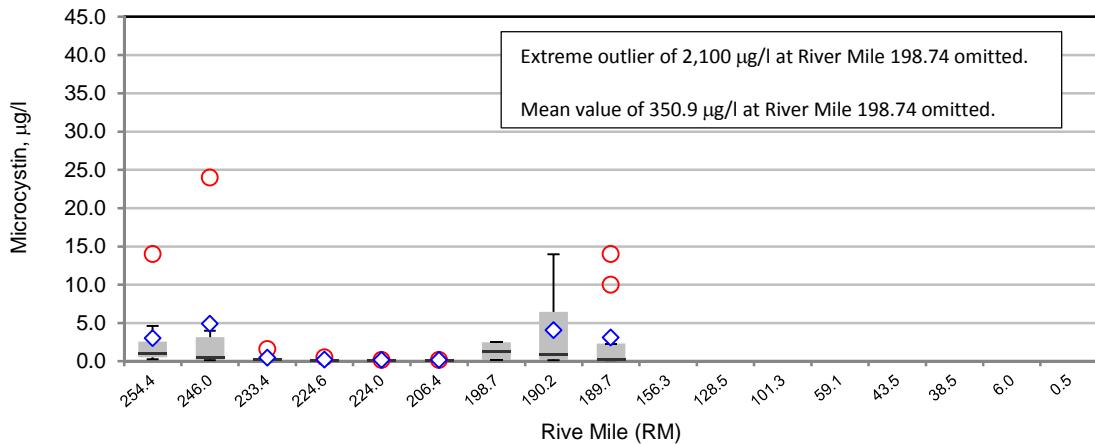
**Figure 5.** Dissolved organic carbon in the Klamath River from Link Dam to the Klamath River Estuary with median (—), mean (◊), outliers (\*), and extreme outliers (○) identified (February 2017 – December 2017). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), 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 Dam to the Klamath River Estuary with median (—), mean (◊), outliers (\*), and extreme outliers (○) identified (February 2017 – December 2017). 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 26.8 mg/l in Copco Reservoir (RM 198.74; Baseline) omitted.

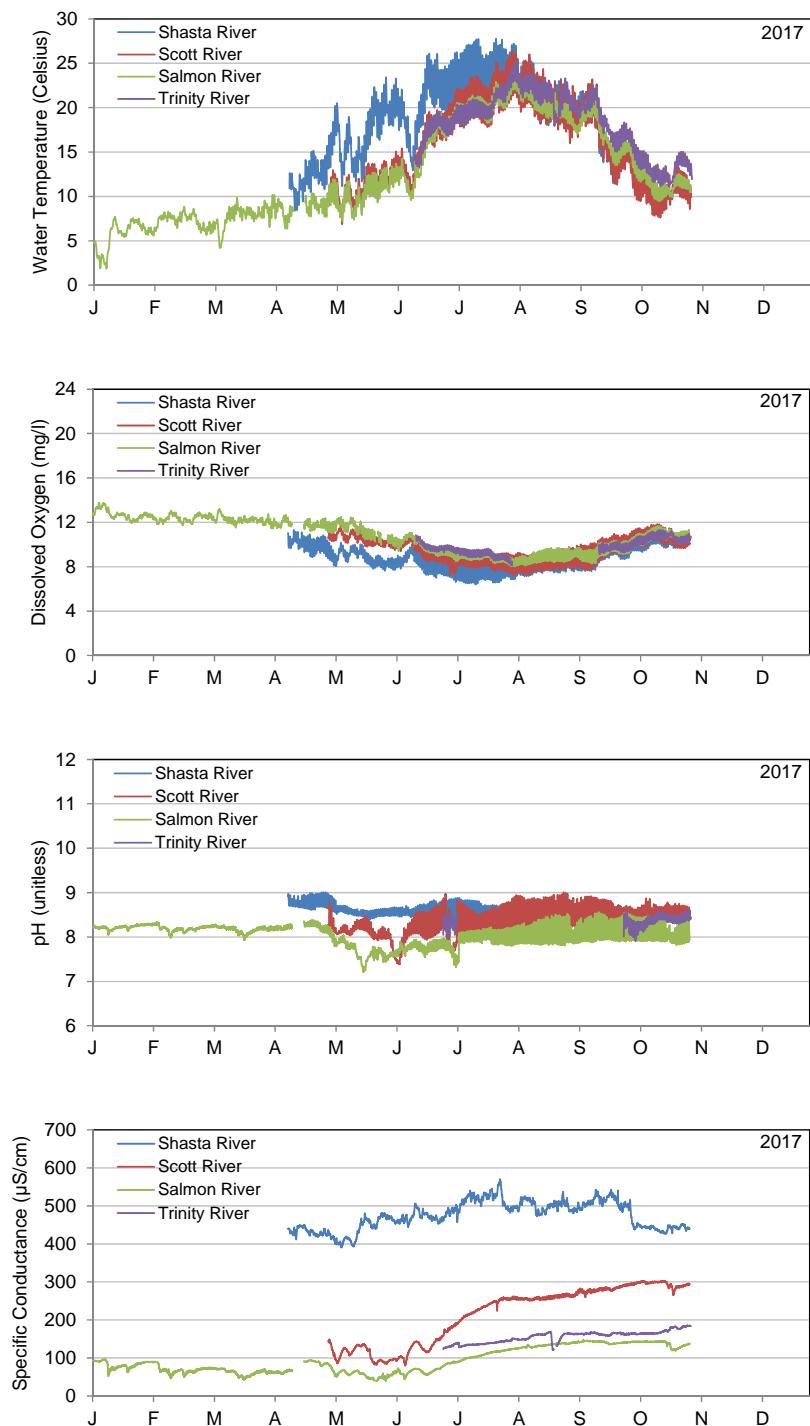


**Figure 7.** Total phosphorus in the Klamath River from Link Dam to the Klamath River Estuary with median (—), mean (◊), outliers (\*), and extreme outliers (○) identified (February 2017 – December 2017). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), Copco Reservoir (RM 198.74; Baseline), and Iron Gate Reservoir (RM 190.19; Baseline). River mile on x-axis not to scale. Extreme outlier of 2.27 mg/l in Copco Reservoir (RM 198.74; Baseline) omitted.



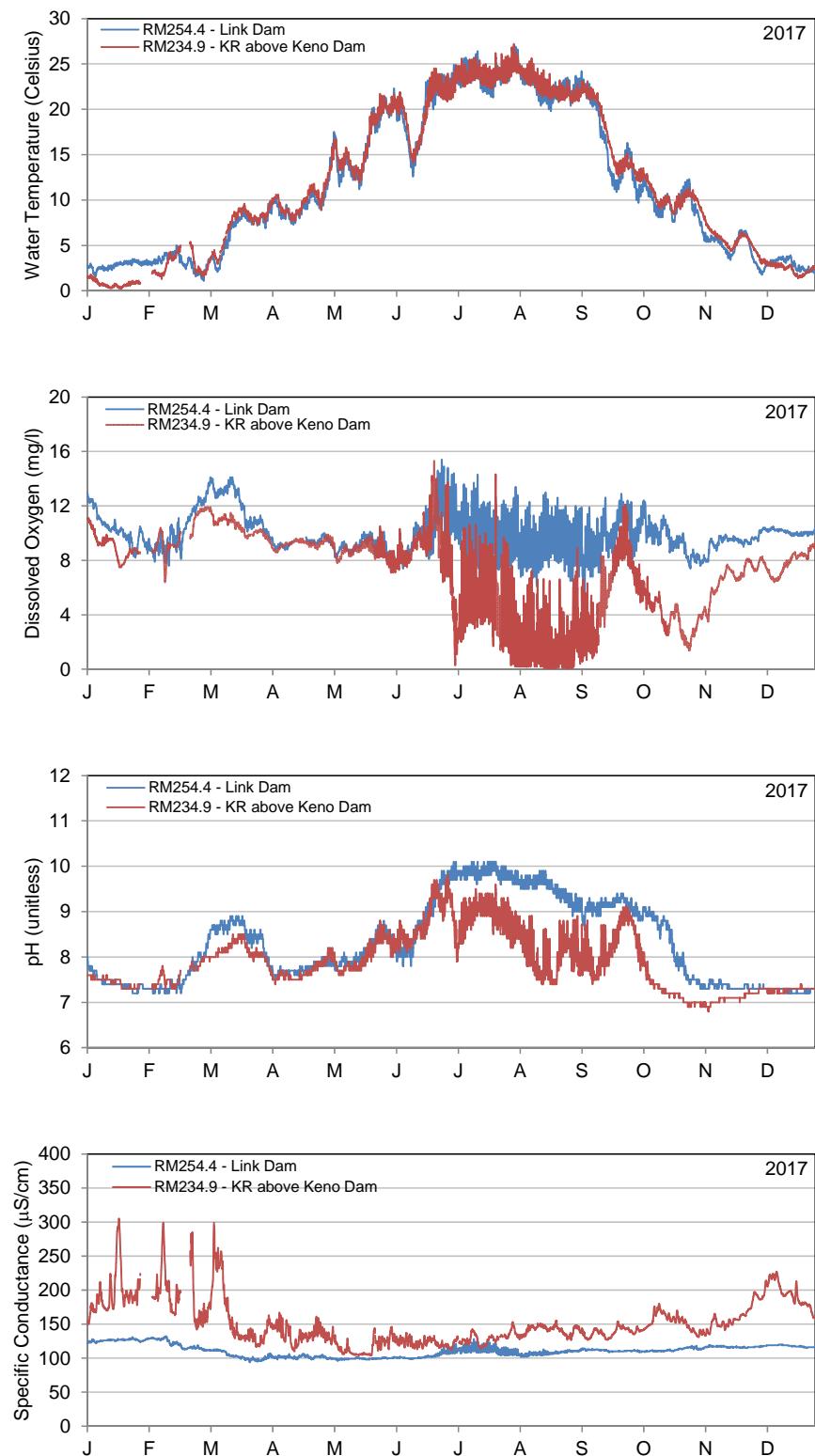
**Figure 8. Microcystin in the Klamath River from Link Dam to the Klamath River Estuary with median (—), mean (◊), outliers (\*), and extreme outliers (○) identified (February 2017 – December 2017). Note: Includes reservoir sites at Keno Reservoir at Miller Island (RM 246.0; Baseline), Copco Reservoir (RM 198.74; Baseline), and Iron Gate Reservoir (RM 190.19; Baseline). River mile on x-axis not to scale. Extreme outlier of 2,100 µg/l in Copco Reservoir (RM 198.74; Baseline) omitted. Mean of 350.9 µg/l Copco Reservoir (RM 198.74; Baseline) omitted. No microcystin boxplots are included for River Mile 156.26, 128.50, 101.30, 59.10, 43.50, 38.50, 6.0 and 0.5 because there were fewer than six data points at each of these sites.**

### 6.1.3. Major Tributaries (Time Series)

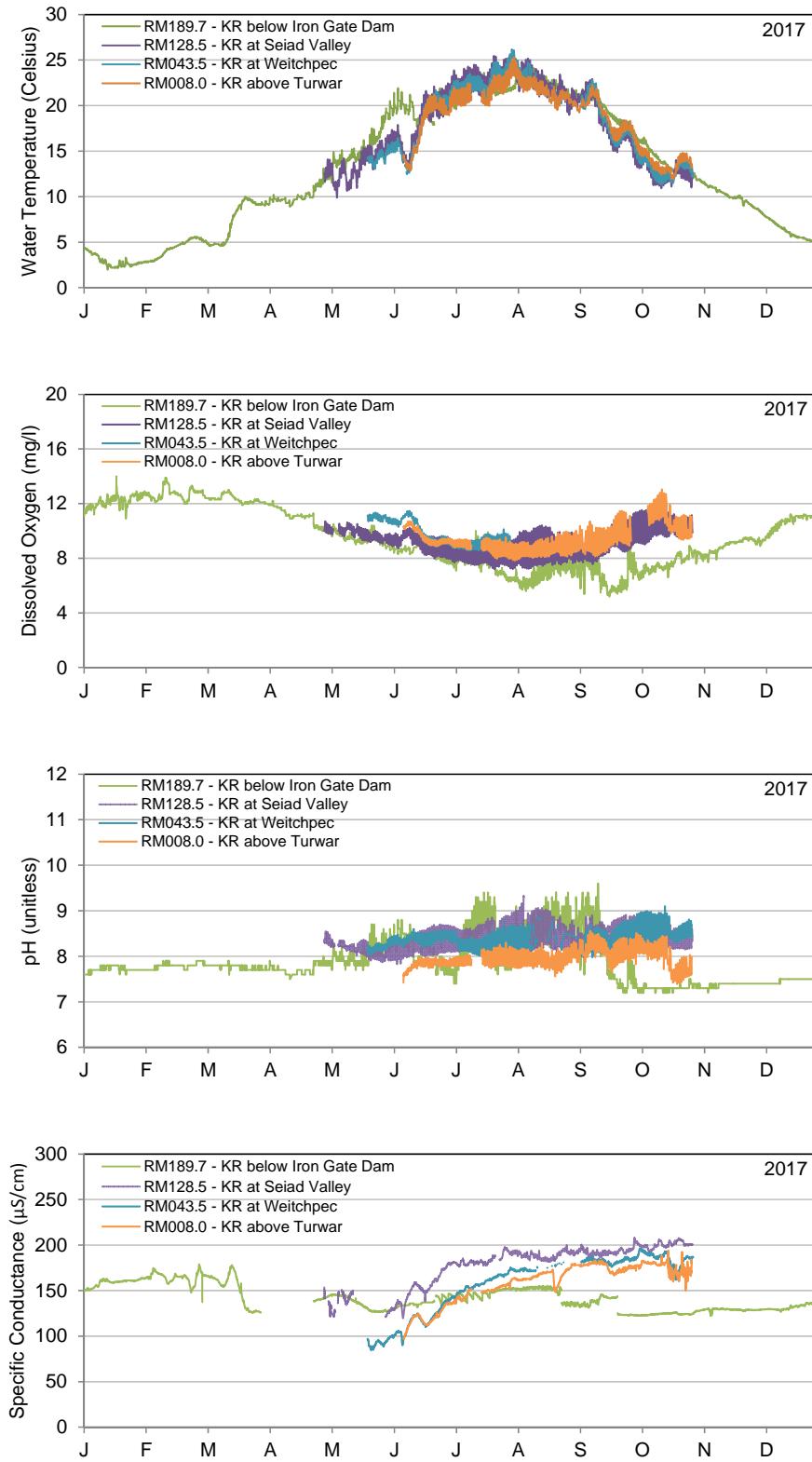


**Figure 9. Continuous water temperature, dissolved oxygen, pH, and specific conductance data (2017) for the Shasta River, Scott River, Salmon River, and Trinity River.**

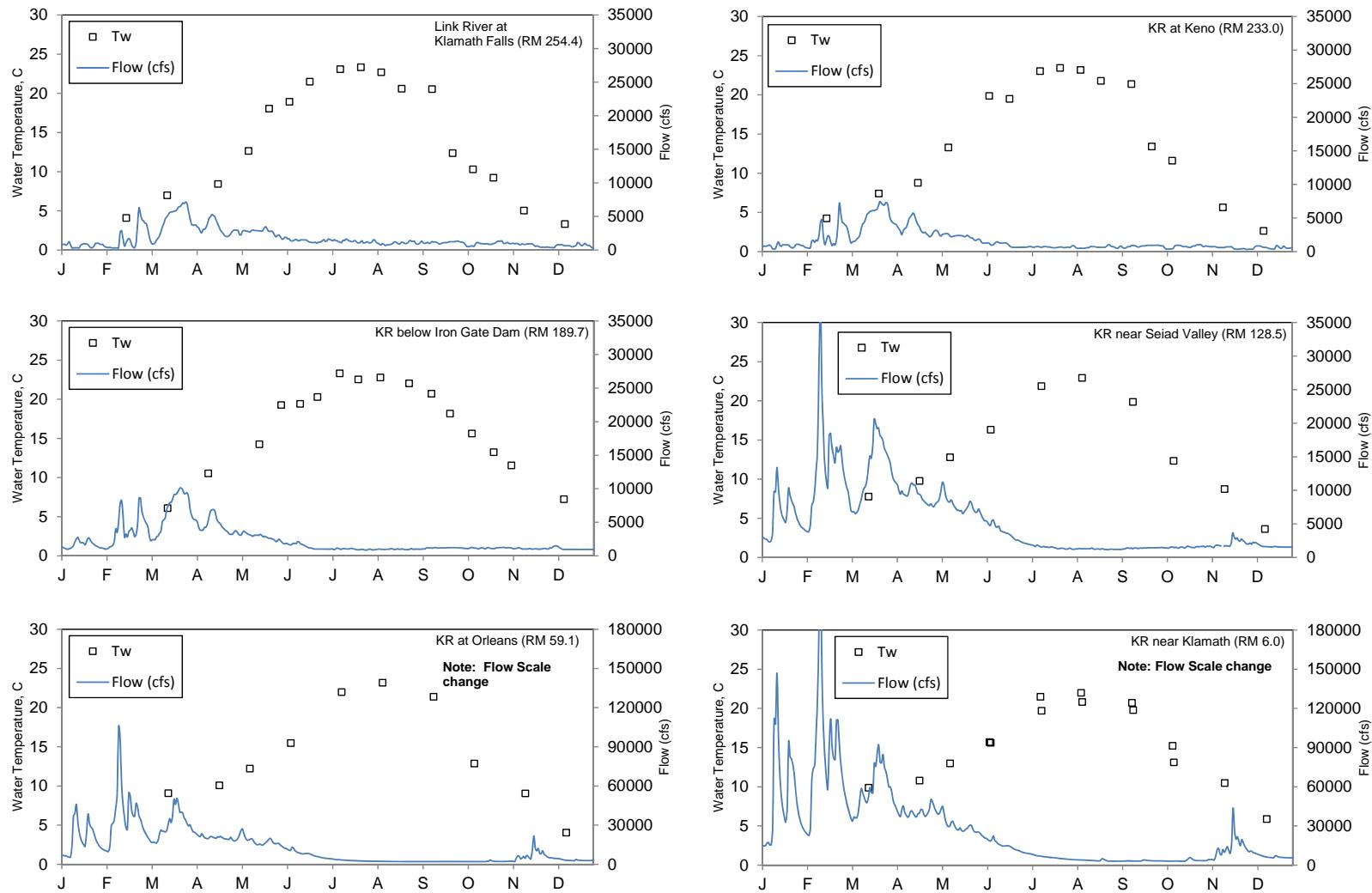
#### 6.1.4. Mainstem Klamath River (Time Series)



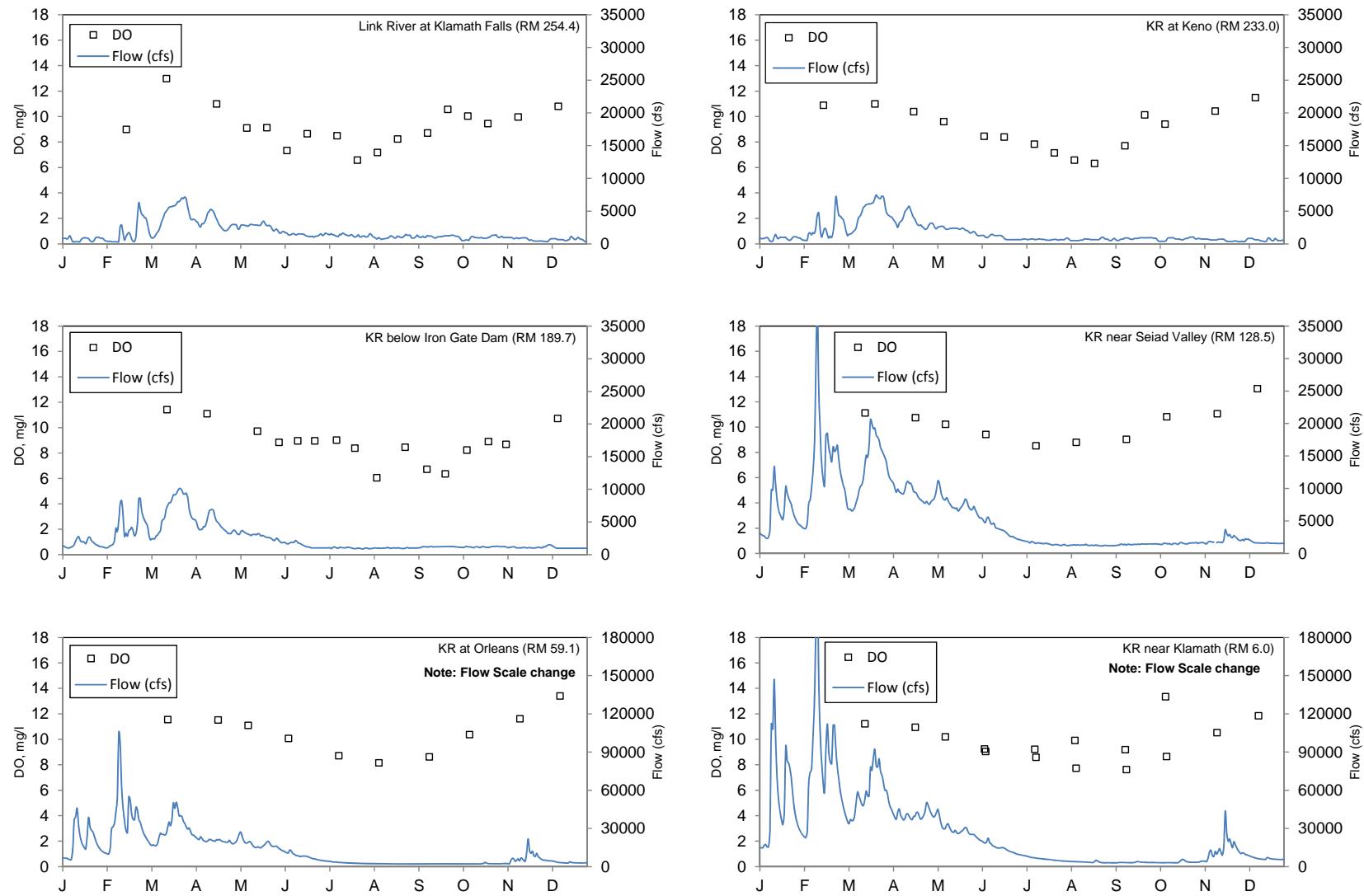
**Figure 10. Continuous water temperature, dissolved oxygen, pH, and specific conductance data (2017) for the Klamath River (KR) at Link Dam (RM 254.44; Baseline) and Klamath River above Keno Dam (surface) (RM 234.9).**



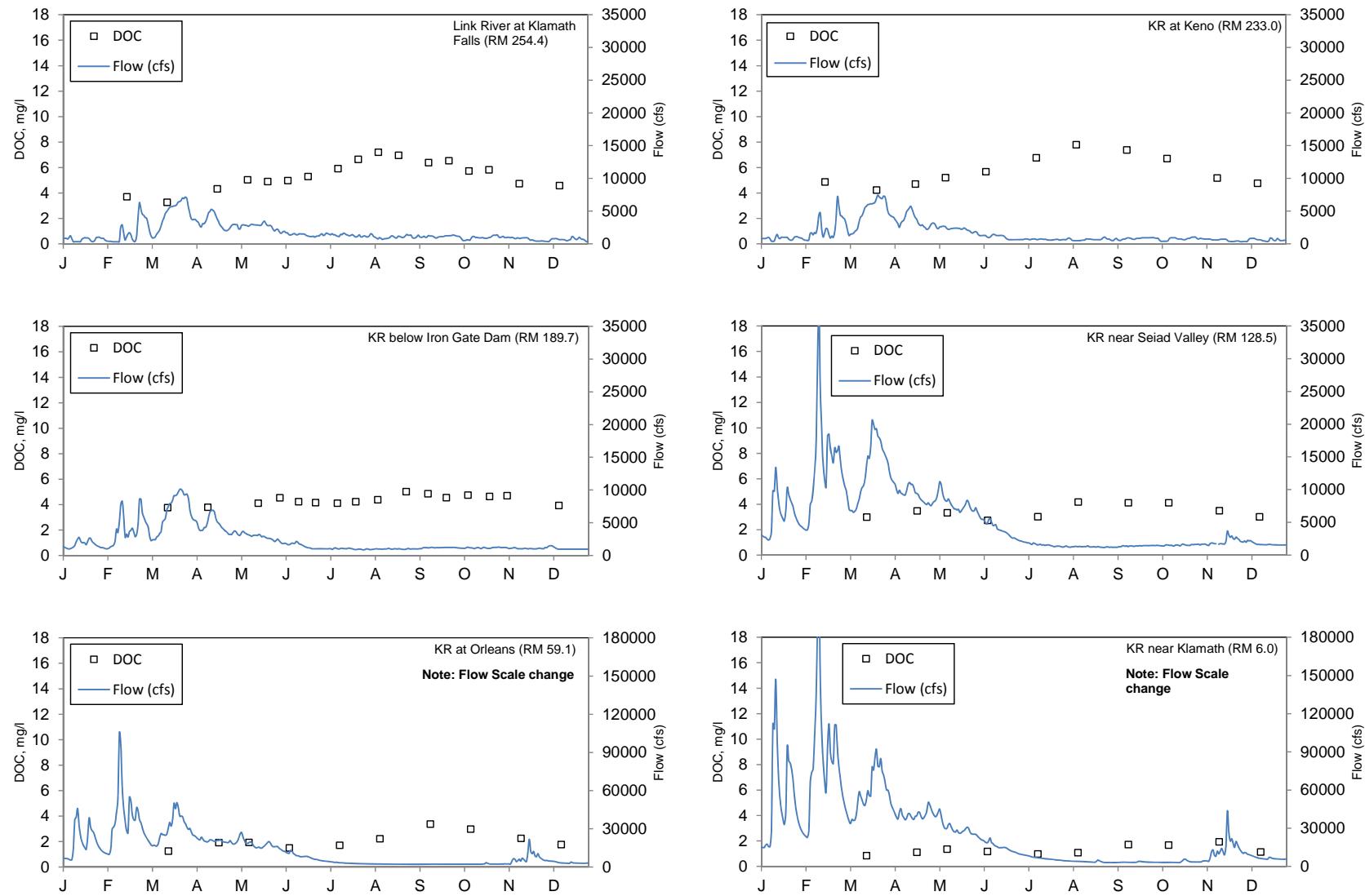
**Figure 11.** Continuous water temperature, dissolved oxygen, pH, and specific conductance data (2017) for the Klamath River below Iron Gate Dam (RM 189.73; Baseline), Klamath River below Seiad (RM 128.5; Baseline), Klamath River at Weitchpec (RM 43.5; Baseline), and Klamath River above Turwar (RM 8.0).



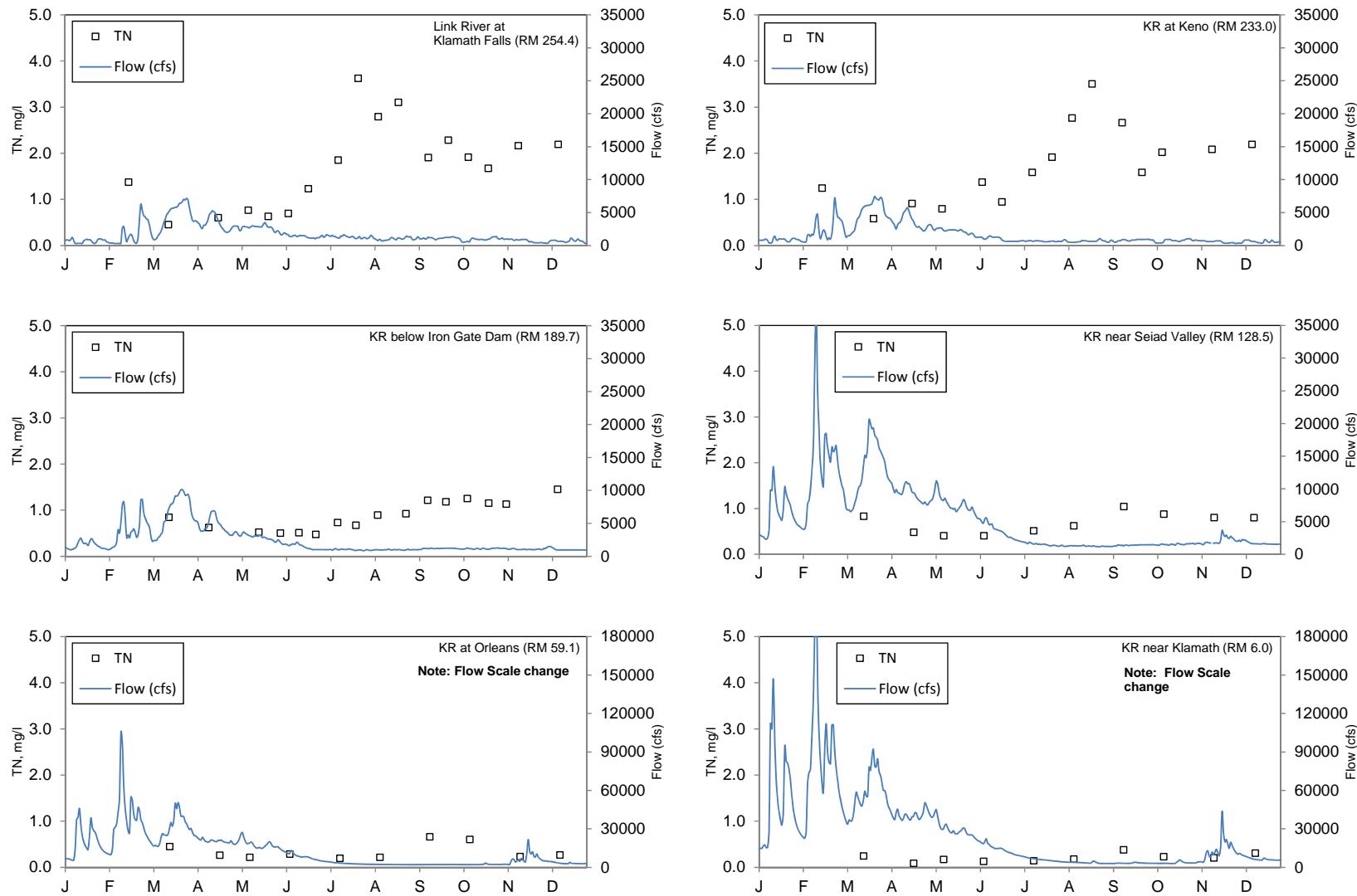
**Figure 12.** Discrete 2017 water temperature ( $T_w$ ) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River 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).



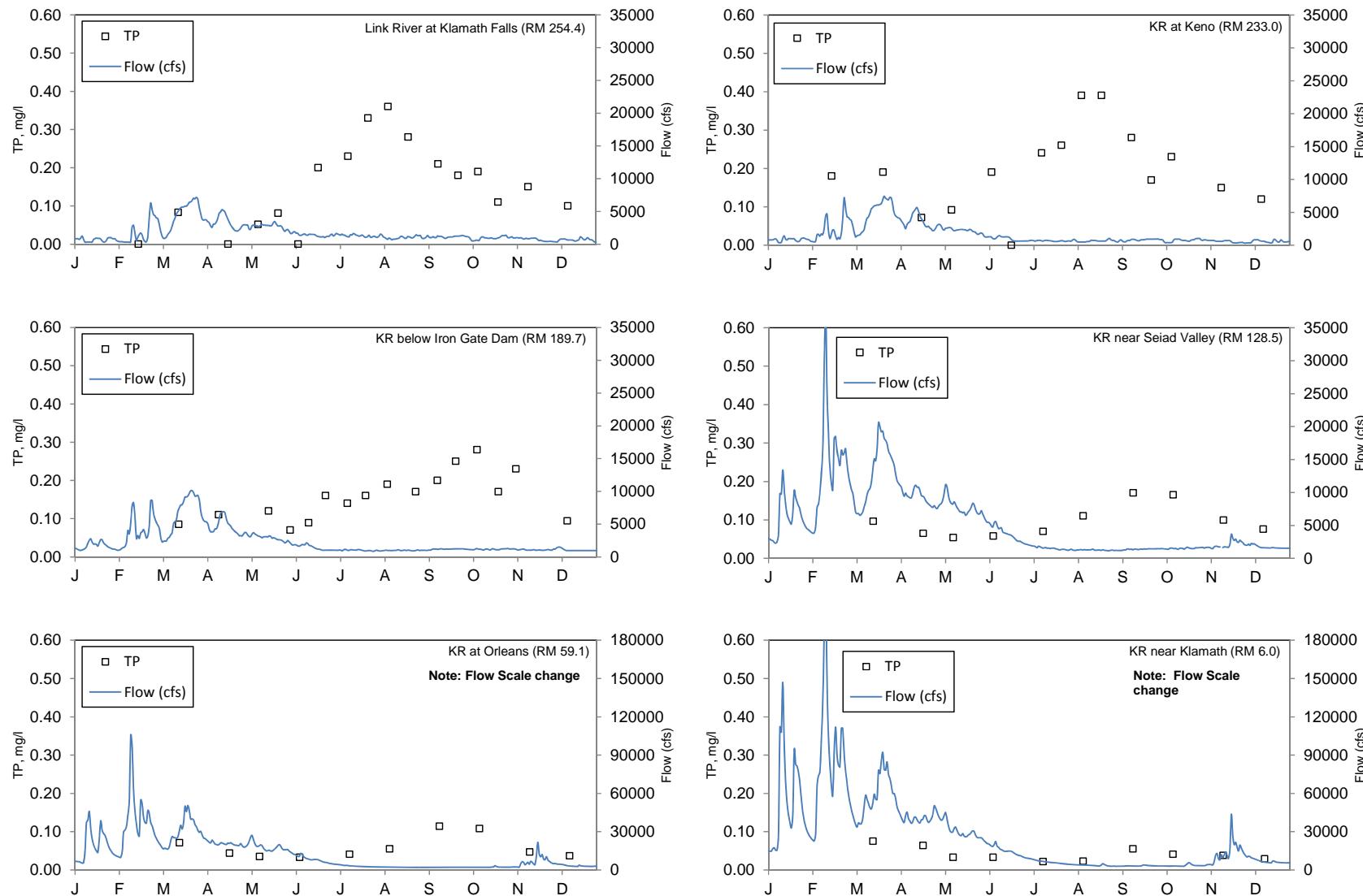
**Figure 13.** Discrete 2017 dissolved oxygen (DO) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River near 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).



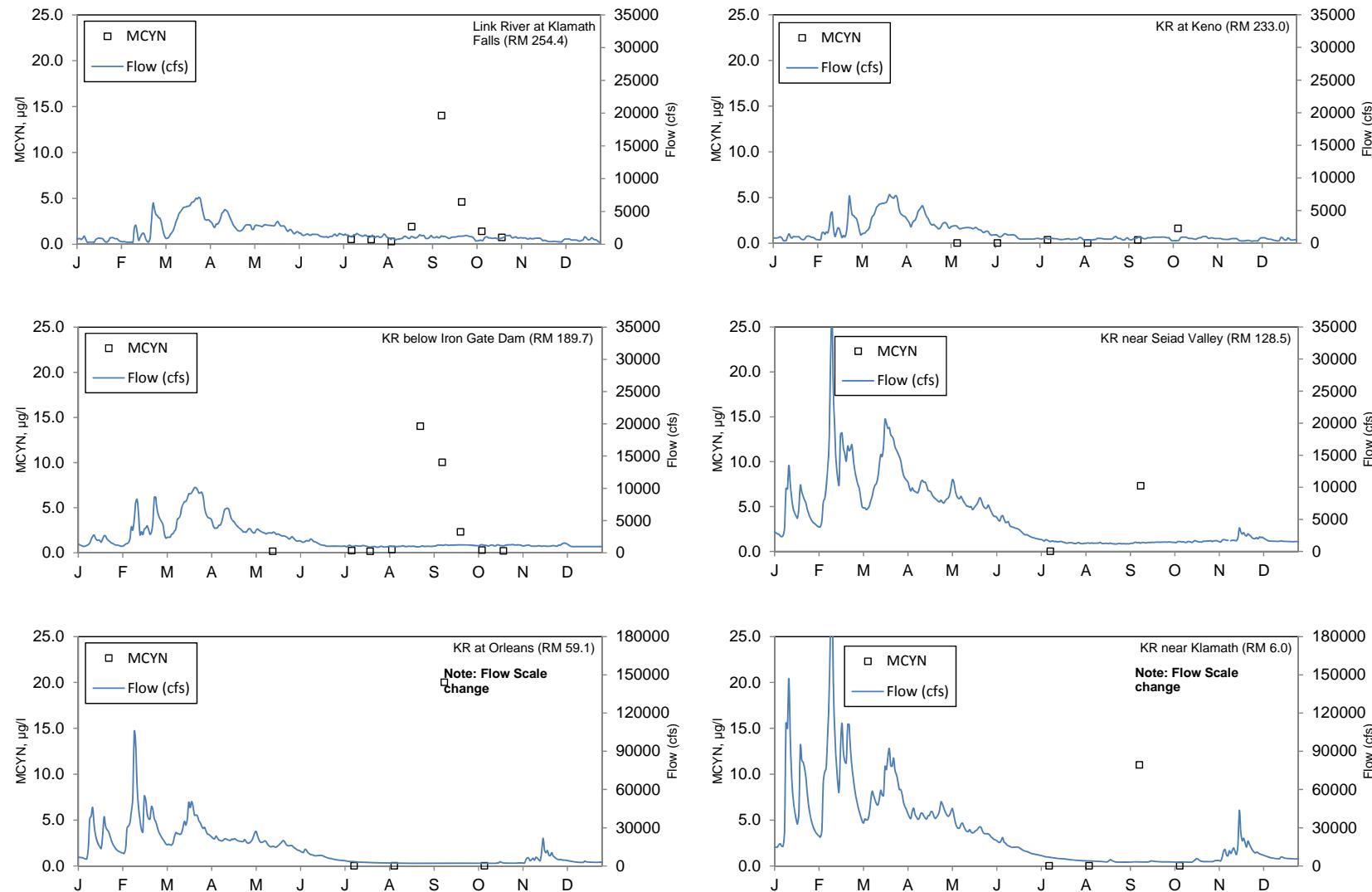
**Figure 14. Discrete 2017 dissolved organic carbon (DOC) measured during grab sampling and mean daily flow at USGS flow gage locations for: Link River at Klamath Falls (USGS Gage 11507500), Klamath River at Keno (USGS Gage 11509500), Klamath River below Iron Gate Dam (USGS Gage 11516530), Klamath River 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 2017 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 2017 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 2017 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 2017 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**

The Oregon Health Authority issued multiple health advisories in 2017 because of cyanotoxins in a specific waterbody at concentrations greater than the Oregon guideline values (OHA 2017)<sup>6</sup> (Table 5). A health advisory was issued for Agency Lake on August 7, 2017. This advisory was lifted on November 2, 2017. Similarly, a health advisory for Upper Klamath Lake in the Eagle Ridge County Park area was issued on June 7, 2017, and was lifted on June 20, 2017; however, on August 7, 2017, a second health advisory for the Eagle Ridge County Park area was issued. A health advisory for the Howard's Bay area of Upper Klamath Lake was issued on July 28, 2017, and a health advisory for the entire Upper Klamath Lake was issued on September 1, 2017. The health advisory for the entire lake was lifted on November 17, 2017.

The Oregon Health Authority also issued a health advisory for Link River, from Link River Dam through Lake Ewauna, on September 20, 2017 that was lifted November 2, 2017. Two different advisories were issued for the Klamath River from Keno Reservoir to Keno Dam by the Oregon Health Authority. The first was issued on September 20, 2017, and was lifted on September 25, 2017, and the second was issued on September 26, 2017 and was lifted on November 2, 2017. A single health advisory was issued for the Klamath River from Keno dam to J.C. Boyle Reservoir on October 9, 2017, and was lifted November 2, 2017. Additionally, J.C. Boyle Reservoir had a single health advisory issued on October 9, 2017 that was lifted on November 2, 2017.

In 2017, the North Coast Regional Water Quality Control Board (NCRWQCB), working under the updated posting guidelines defined in 2016<sup>7</sup>, issued a health advisory at the Caution level for Copco Reservoir on June 29, 2017<sup>8</sup>. The advisory level was changed to Warning on July 6, 2017, and then to the Danger level on July 28, 2017, until the reservoir was de-posted on December 29, 2017. Similar postings occurred in Iron Gate

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<sup>6</sup> Note that the dates in the posting discussion reference the date that the Oregon Health issued an advisory or direction to post a waterbody. They do not refer to the dates that water samples were actually collected.

<sup>7</sup> <http://www.mywaterquality.ca.gov/habs/>

<sup>8</sup> Note that the dates in the posting discussion reference the date that the North Coast Regional Water Quality Control Board issued an advisory or direction to post or de-post a waterbody. They do not refer to the dates that water samples were actually collected.

Reservoir where a health advisory at the Caution level was issued on July 18, 2017 and the level was raised to Danger on July 20, 2017. On October 19, 2017, the level was lowered to Caution until the reservoir was de-posted on December 29, 2017.

**Table 5. Oregon Health Authority health advisories actions in 2017.**

Waterbody	Sub-area	Date	Action
Agency Lake	-	8/7/2017	Advisory
		11/2/2017	Lifted Advisory
Upper Klamath Lake	Eagle Ridge Co Park	6/7/2017	Advisory
		6/20/2017	Lifted Advisory
		8/7/2017	Advisory
		11/17/2017	Lifted Advisory
Howard's Bay Area	-	7/28/2017	Advisory
		11/17/2017	Lifted Advisory
Entire Lake	-	9/1/2017	Advisory
		11/17/2017	Lifted Advisory
Link River	Link Dam to Keno Reservoir	9/20/2017	Advisory
		11/2/2017	Lifted Advisory
Klamath River	Keno Reservoir to Keno Dam	9/20/2017	Advisory
		9/25/2017	Lifted Advisory
		9/26/2017	Advisory
		11/2/2017	Lifted Advisory
Keno to J.C. Boyle	-	10/9/2017	Advisory
		11/2/2017	Lifted Advisory
J.C. Boyle Reservoir	-	10/9/2017	Advisory
		11/2/2017	Lifted Advisory

The 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 late November (Table 6). The Klamath River downstream of Iron Gate dam to the Walker Road bridge was posted at the Caution level on August 18. On August 22, this posting level was increased to the Warning level and the Klamath River from Walker Road Bridge downstream to Orleans was posted at the Caution level. By August 28, the Klamath River from Iron Gate dam to Walker Road Bridge was posted at the Danger level, the river from Walker Road Bridge to downstream of Seiad was posted at the Warning level, and from Seiad to Weitchpec it was posted at the Caution level. Also on August 28, the Yurok Tribe issued a Level 2 advisory for the Klamath River from Weitchpec to Tully Creek and a Level 1 advisory from Tully Creek to the Estuary. The Klamath River remained posted at these levels until September 20 when the posting levels for the reach from Seiad to downstream of Happy Camp was increased from Caution to Warning and the posting levels for the Happy Camp to Weitchpec reach was increased from Caution to Danger.

The first de-postings of the season were issued on October 19 when the Iron Gate to Brown Bear reach was downgraded to Caution and the Klamath River downstream of

Brown Bear was de-posted. The Iron Gate to Walker Road Bridge reach was de-posted for the season on November 21.

**Table 6. California State Water Resources Control Board (SWRCB) health advisories actions in 2017.**

Waterbody	Sub-area	Date	Posting Level/Action
Copco Reservoir		6/29/2017	Caution
		7/6/2017	Warning
		7/28/2017	Danger
		12/29/2017	De-posted
Iron Gate Reservoir		7/18/2017	Caution
		7/20/2017	Danger
		110/9/2017	Caution
		12/29/2017	De-posted
Klamath River	Iron Gate to I-5 Bridge	8/18/2017	Caution
	Iron Gate to I-5 Bridge	8/22/2017	Warning
	Iron Gate to I-5 Bridge	8/28/2017	Danger
	Iron Gate to I-5 Bridge	10/19/2017	Caution
	Iron Gate to I-5 Bridge	11/21/2017	De-Posted
	I-5 Bridge to Walker Rd Bridge	8/18/2017	Caution
	I-5 Bridge to Walker Rd Bridge	8/22/2017	Warning
	I-5 Bridge to Walker Rd Bridge	8/28/2017	Danger
	I-5 Bridge to Walker Rd Bridge	10/19/2017	Caution
	I-5 Bridge to Walker Rd Bridge	10/26/2017	Caution
Walker Rd Bridge to Brown Bear	I-5 Bridge to Walker Rd Bridge	11/21/2017	De-Posted
	Walker Rd Bridge to Brown Bear	8/22/2017	Caution
	Walker Rd Bridge to Brown Bear	8/28/2017	Warning
	Walker Rd Bridge to Brown Bear	10/19/2017	Caution
	Walker Rd Bridge to Brown Bear	10/26/2017	Caution
Brown Bear to below Seiad	Walker Rd Bridge to Brown Bear	11/21/2017	De-Posted
	Brown Bear to below Seiad	8/22/2017	Caution
	Brown Bear to below Seiad	8/28/2017	Warning
Seiad to below Happy Camp	Brown Bear to below Seiad	10/19/2017	De-Posted
	Seiad to below Happy Camp	8/22/2017	Caution
	Seiad to below Happy Camp	8/28/2017	Caution
	Seiad to below Happy Camp	9/20/2017	Warning
Happy Camp to Orleans	Seiad to below Happy Camp	10/19/2017	De-Posted
	Happy Camp to Orleans	8/22/2017	Caution
	Happy Camp to Orleans	8/28/2017	Caution
	Happy Camp to Orleans	9/20/2017	Danger
Orleans to Weitchpec	Happy Camp to Orleans	10/19/2017	De-Posted
	Orleans to Weitchpec	8/28/2017	Caution
	Orleans to Weitchpec	9/20/2017	Danger
Weitchpec to below Trinity River	Orleans to Weitchpec	10/19/2017	De-Posted
	Weitchpec to below Trinity River	8/28/2017	Yurok Level 2
	Weitchpec to below Trinity River	10/19/2017	De-Posted
Below Trinity River to Estuary	Below Trinity River to Estuary	8/28/2017	Yurok Level 1
	Below Trinity River to Estuary	10/19/2017	De-Posted

## **7.2. Data Summary**

The public health data is summarized below to illustrate general spatial and temporal patterns during the 2017 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. Data for each location is presented on two separate graphs.

Anatoxin-a data was collected in accordance with the public health sampling SOP for the public health monitoring program. At public health sites sampled by PacifiCorp, samples were screened for anatoxin-a using strip tests from Abraxis. Over the course of the season three samples tested positive and were sent for follow-up laboratory analysis (Table D-3). Other samples collected from the Klamath River below Iron Gate Dam (RM 189.73; Baseline) to Klamath River at Weitchpec (RM 43.5; Public Health) from June through October, 2017 were sent directly to the laboratory. Greenwater analyzed all anatoxin-a samples using LC/MS-MS (Table D-3). The Greenwater method had an MDL of 0.05 µg/l but they did not provide a reporting limit. No anatoxin-a was detected in any of the samples collected at any location in 2017.

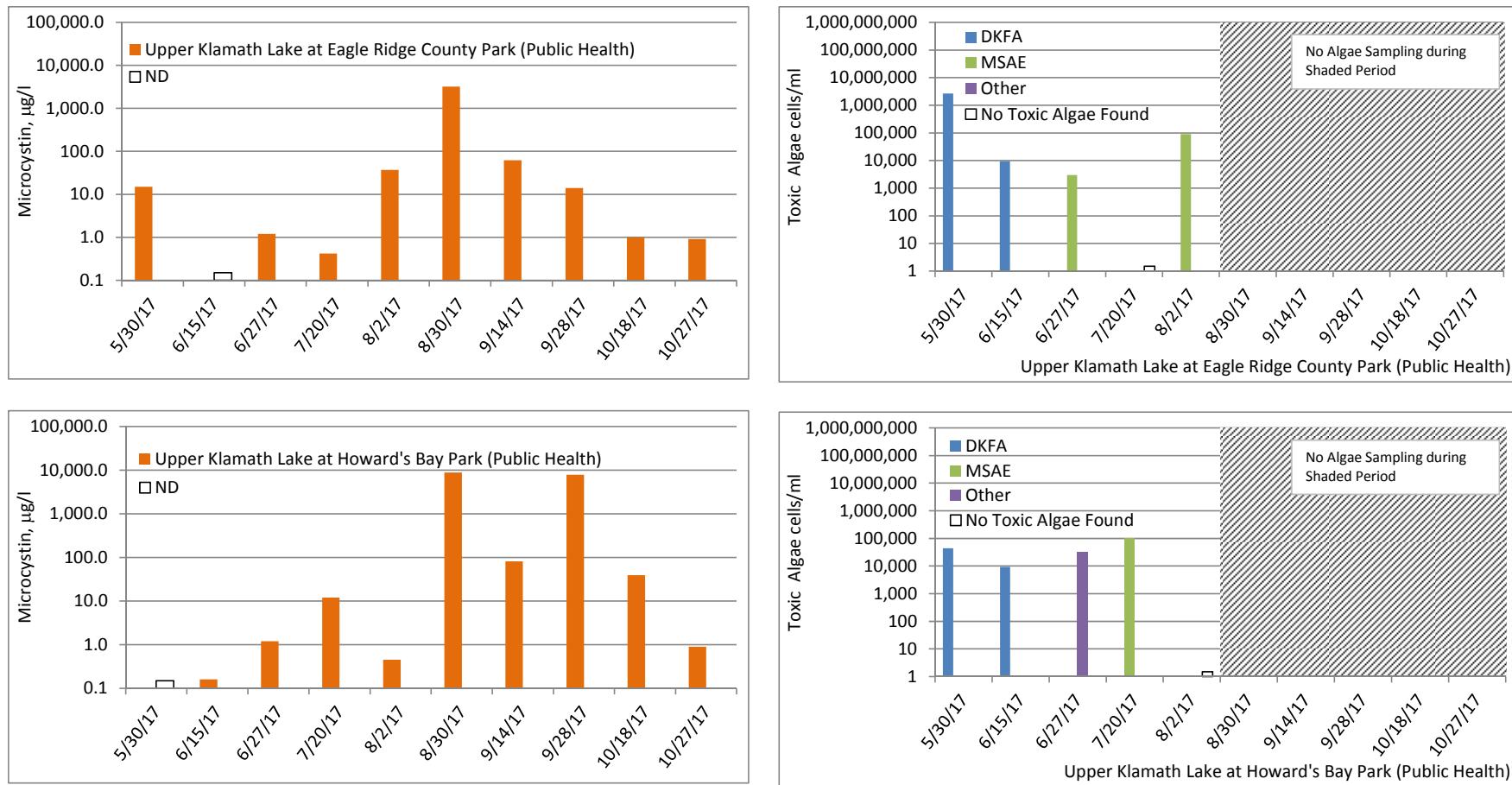
All microcystin data included below was collected in accordance with the public health sampling SOP for the public health monitoring program, except for the South Slough site, where microcystin samples were collected using the baseline SOP instead of the public health SOP. The main difference in these SOPs that could affect the comparison of South Slough results to public health sites is the depth of the sample (surface for public health samples versus 0.5 m for baseline sites) and the sample location. Baseline sites are typically in a fixed location with flowing water. Public health sites vary slightly as sampling crews find the areas of highest apparent algae concentrations.

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, a note was added to the specific graph for that site.

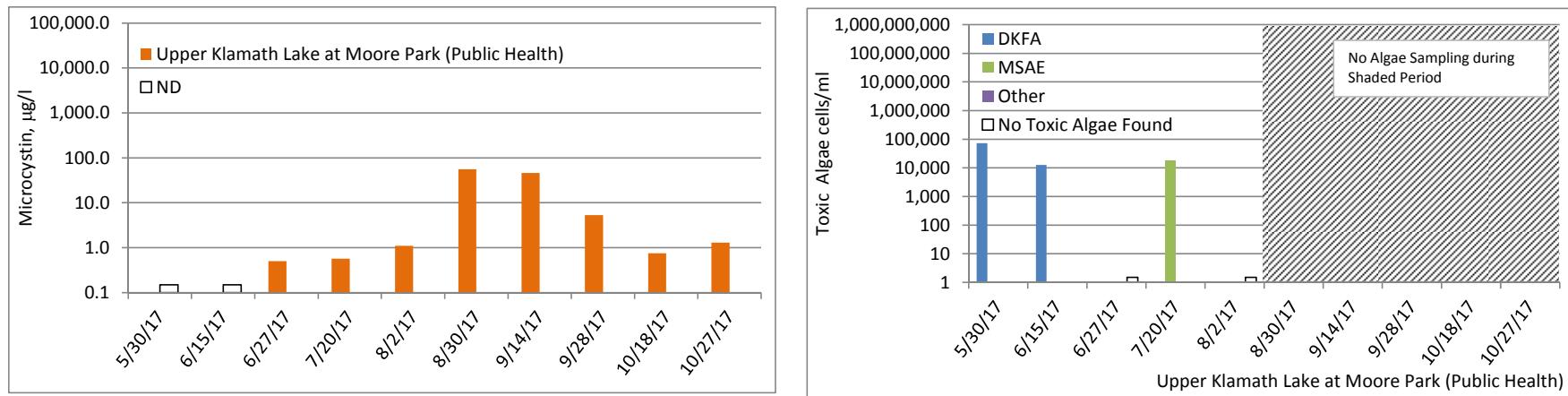
There were also instances when an algae sample was collected, but no toxic algae were detected. In such cases, a value of zero for the toxic algae cell count indicated that a sample was collected and no toxic algae were detected. The toxic algae cell count graphs present values for *Dolichospermum flos-aquae* (DKFA) (formerly *Anabaena flos-aquae*) and MSAE. Also presented on the graphs is a summation of other potentially toxic cyanobacteria, including *Dolichospermum circinalis*, *Dolichospermum* sp., *Gloeotrichia echinulate*, *Planktothrix* sp. (formerly *Oscillatoria* sp.), *Dolichospermum variabilis*, and *Limnothrix* sp., which were present in the 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.



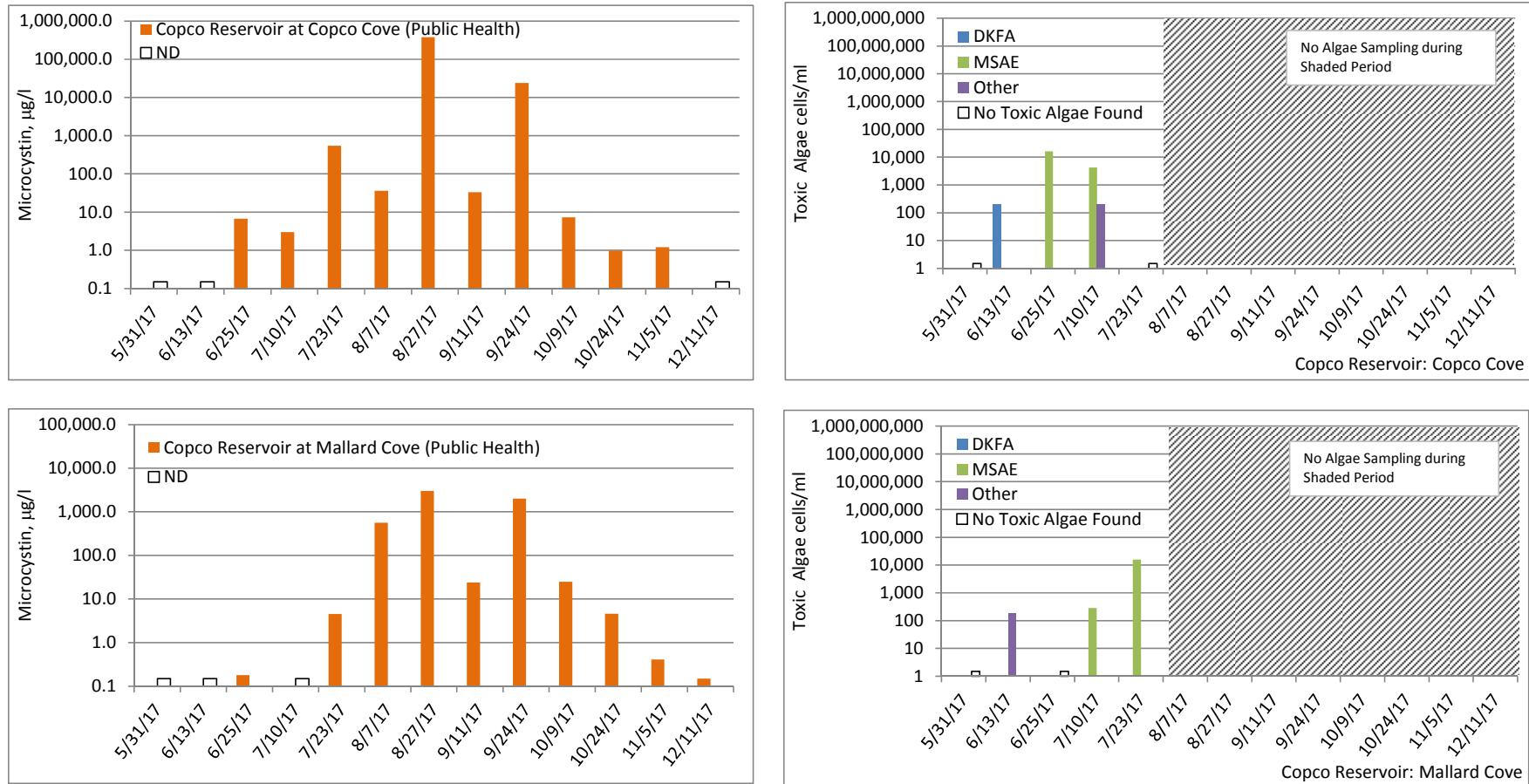
**Figure 18. Microcystin concentrations and toxic algae cell counts from 2017 public health samples collected in Upper Klamath Lake at Eagle Ridge County Park (Public Health) and Upper Klamath Lake at Howard's Bay Park (Public Health) (ND indicates non-detect results). Other potential toxic cyanobacteria present at Upper Klamath Lake at Howard's Bay Park (Public Health) included *Gloeotrichia echinulata*.**



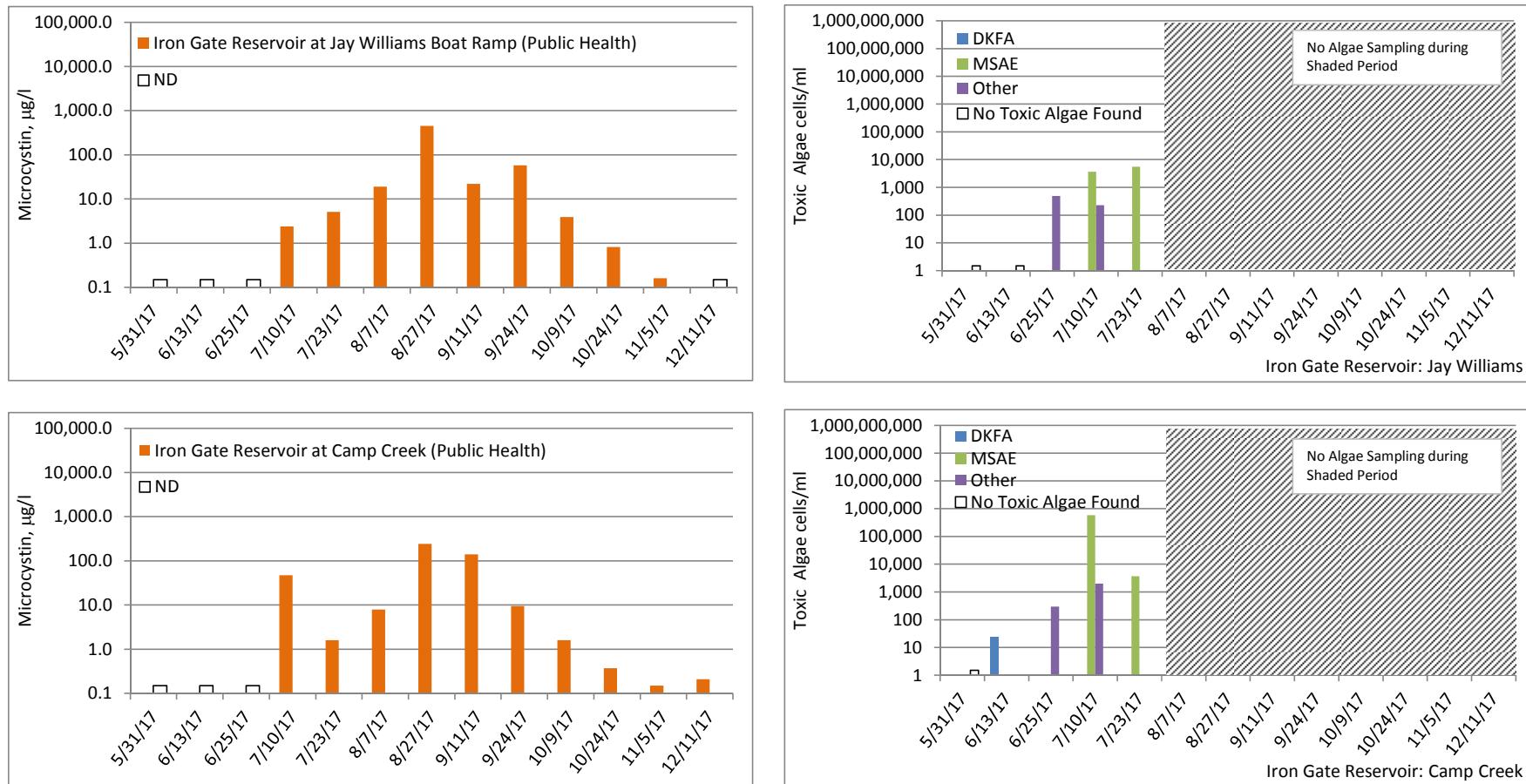
**Figure 19. Microcystin concentrations and toxic algae cell counts from 2017 public health samples collected in Upper Klamath Lake at Moore Park (Public Health) (ND indicates non-detect results).**



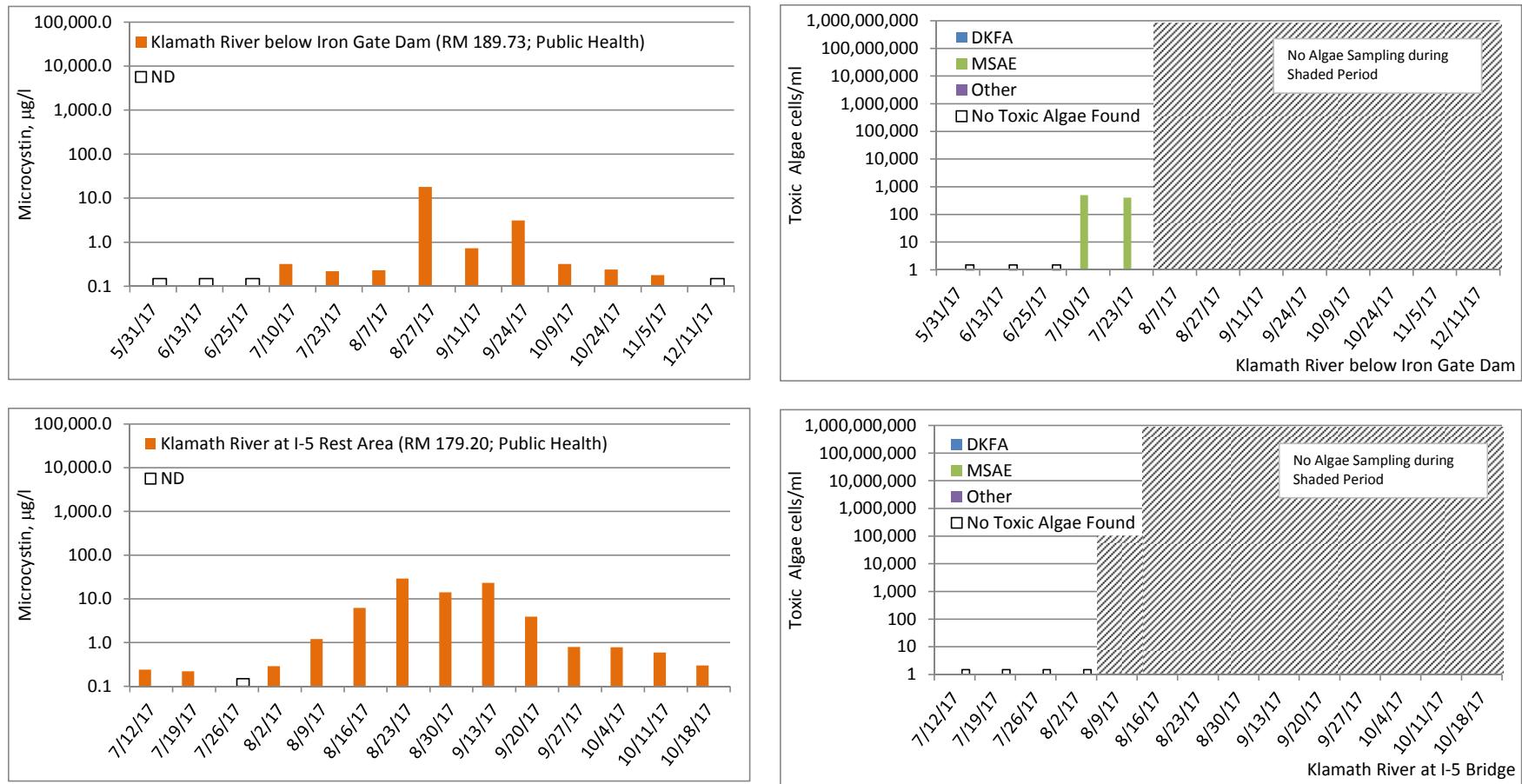
**Figure 20. Microcystin concentrations and toxic algae cell counts from 2017 public health samples collected in Keno Reservoir at Keno Park (Public Health) and J.C. Boyle Reservoir at Topsy Campground (Public Health) (ND indicates non-detect results).**



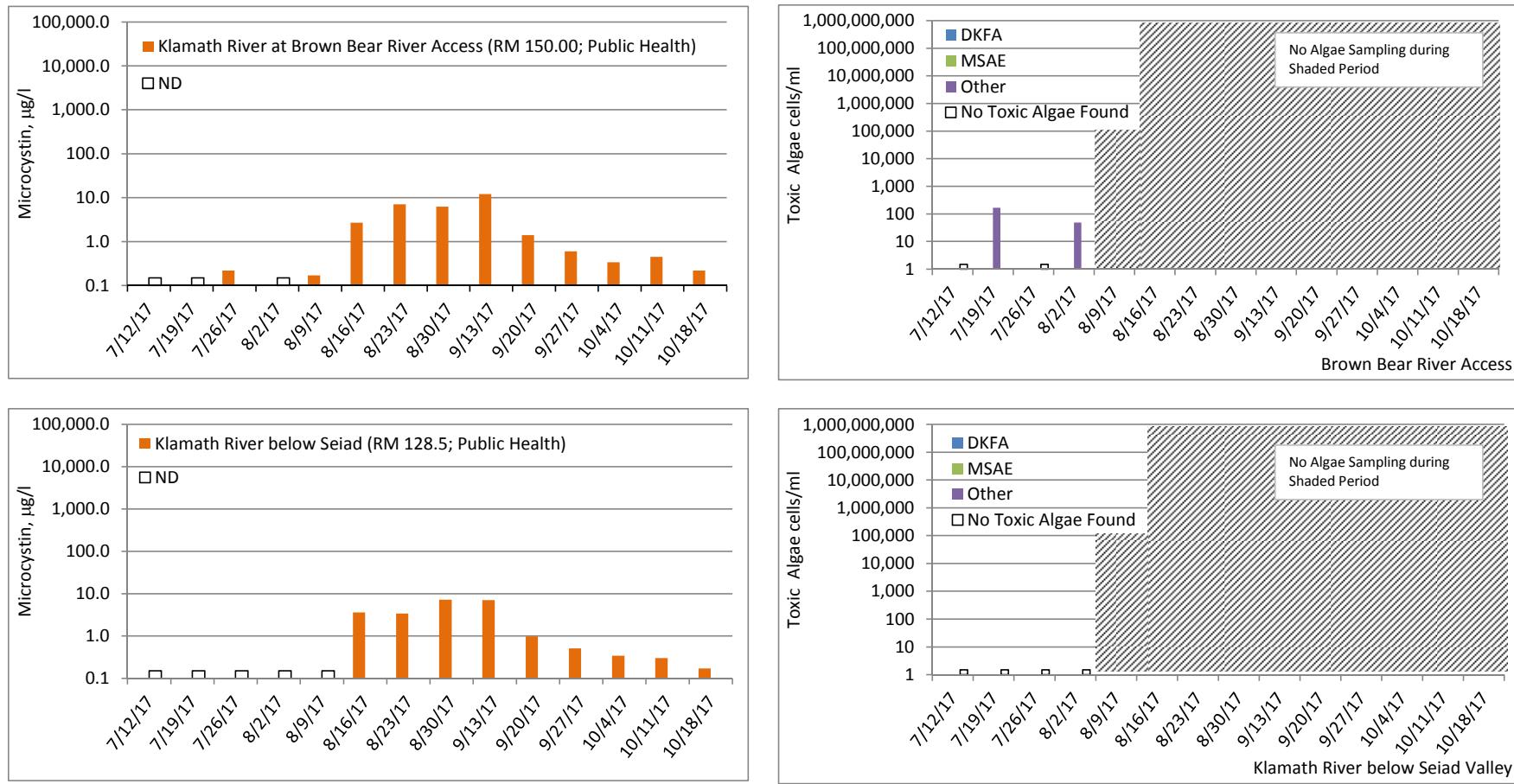
**Figure 21. Microcystin concentrations and toxic algae cell counts from 2017 public health samples collected in Copco Reservoir at Copco Cove and Mallard Cove (ND indicates non-detect results). Other potential toxic cyanobacteria present at Copco Reservoir at Copco Cove included *Dolichospermum circinalis*. Other potential toxic cyanobacteria present at Copco Reservoir at Mallard Cove included *Planktothrix sp.***



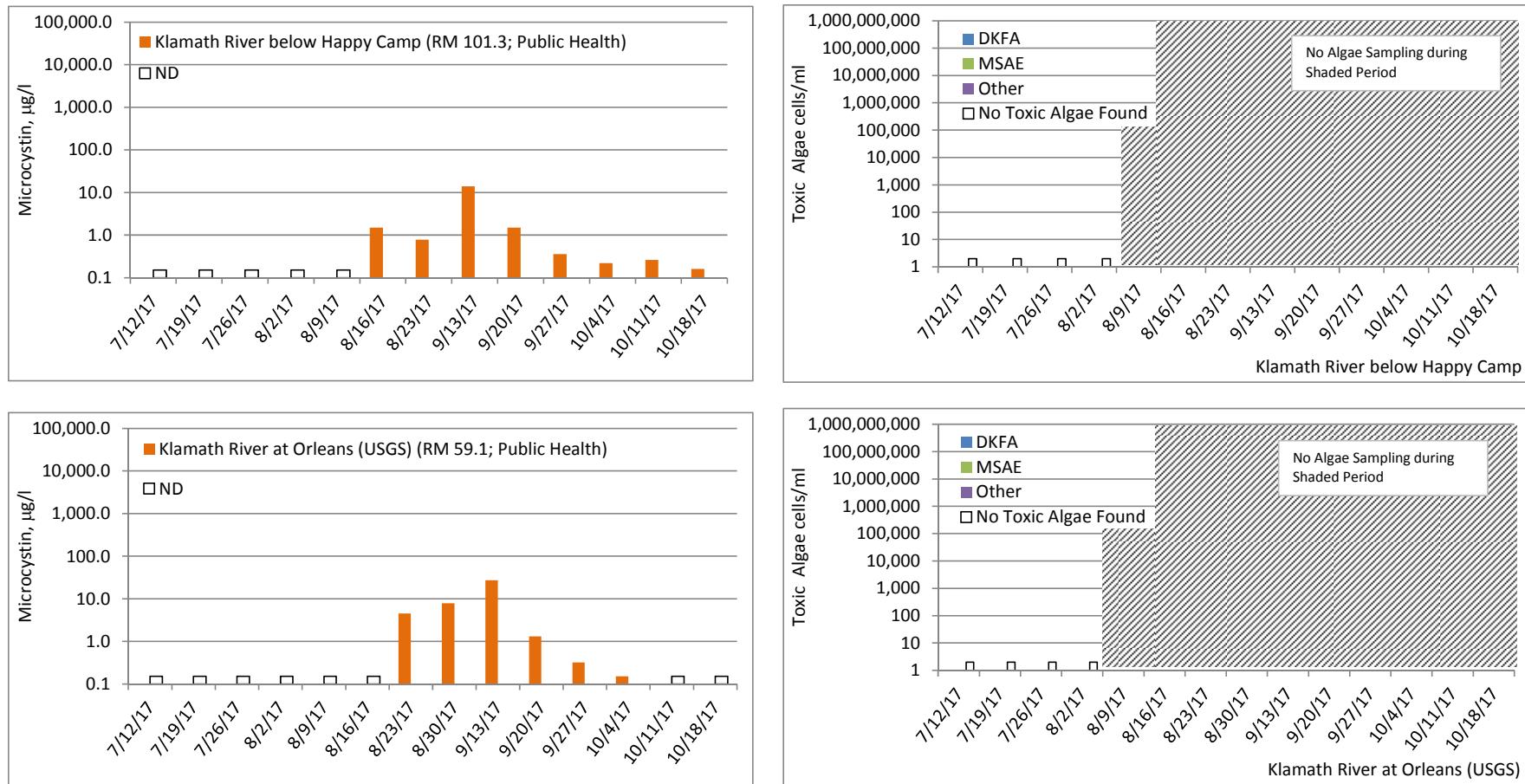
**Figure 22. Microcystin concentrations and toxic algae cell counts from 2017 public health samples collected in Iron Gate Reservoir at Jay Williams Boat Ramp and Camp Creek (ND indicates non-detect results). Other potential toxic cyanobacteria present at Iron Gate Reservoir at Jay Williams Boat Ramp included *Dolichospermum* sp. Other potential toxic cyanobacteria present at Iron Gate Reservoir at Camp Creek included *Dolichospermum* sp. and *Limnothrix* sp.**



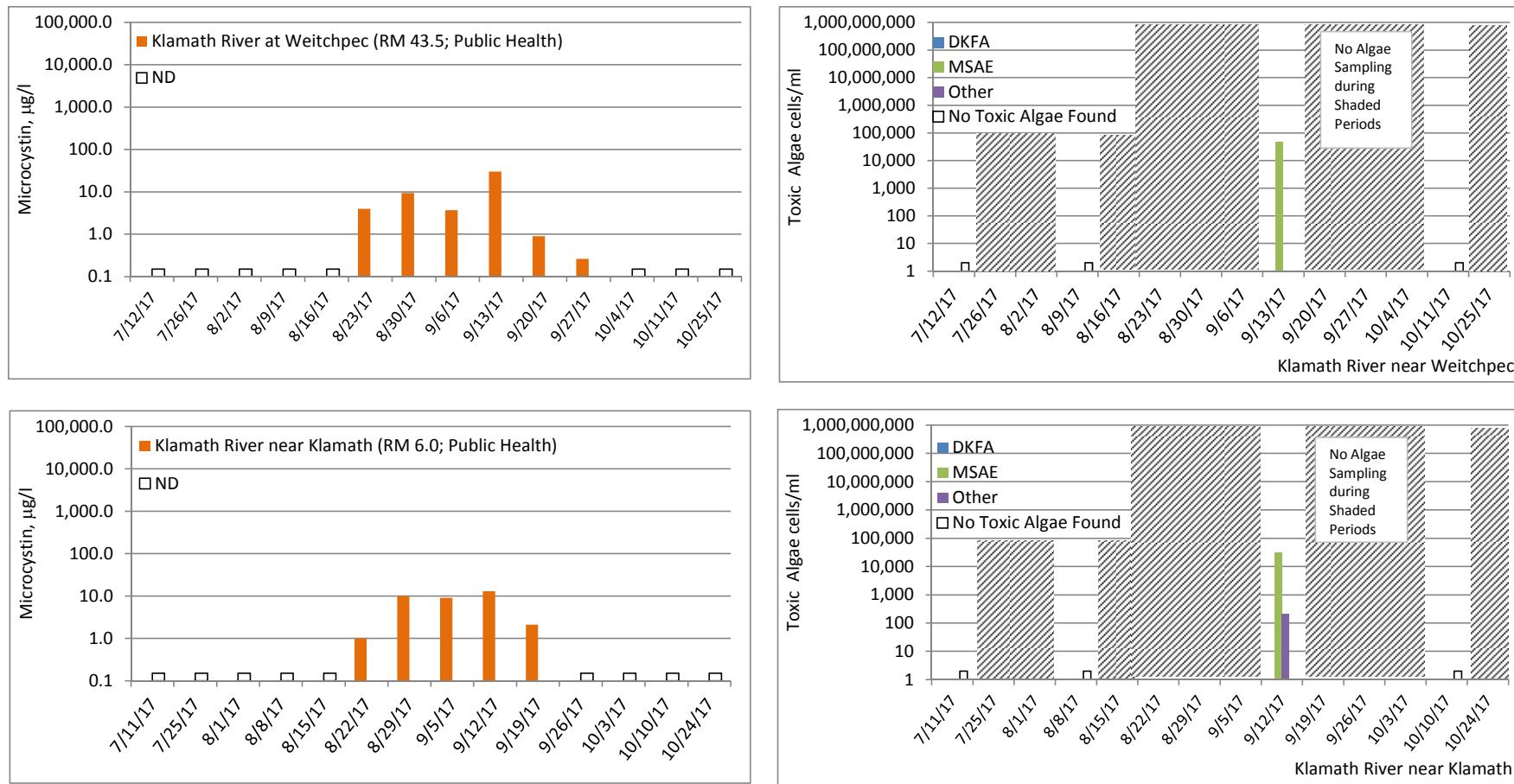
**Figure 23. Microcystin concentrations and toxic algae cell counts from 2017 public health samples collected in Klamath River Klamath River below Iron Gate Dam (RM 189.73; Public Health) and Klamath River at I-5 Rest Area (RM 179.20; Public Health) (ND indicates non-detect results).**



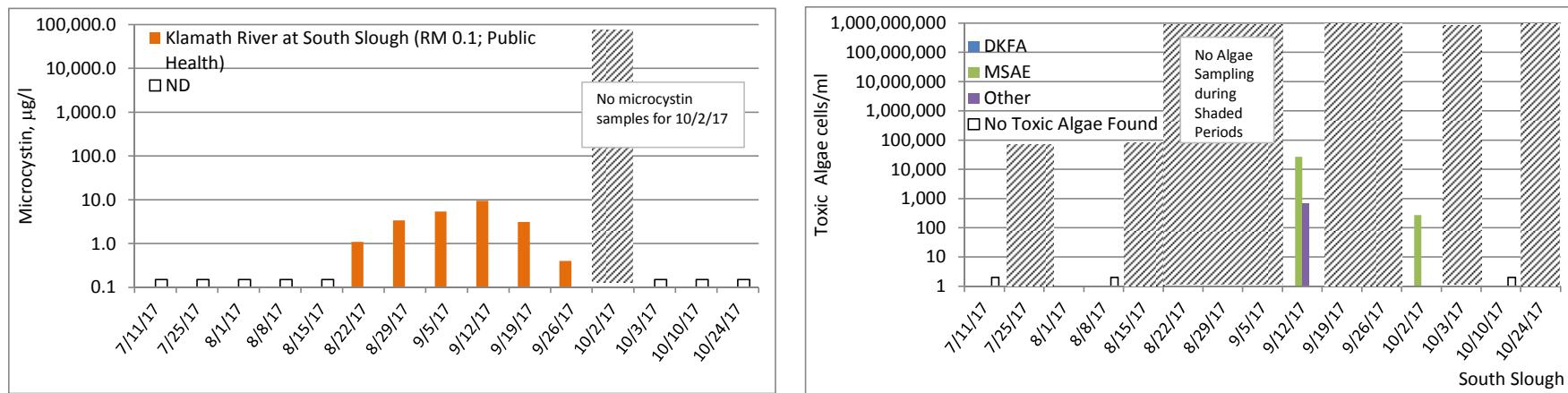
**Figure 24. Microcystin concentrations and toxic algae cell counts from 2017 public health samples collected at Klamath River at Brown Bear River Access (RM 150.00; Public Health) and Klamath River below Seiad (RM 128.5; Public Health) (ND indicates non-detect results). Other potential toxic cyanobacteria present at Klamath River at Brown Bear River Access (RM 150.00; Public Health) included *Dolichospermum variabilis* and *Dolichospermum sp.***



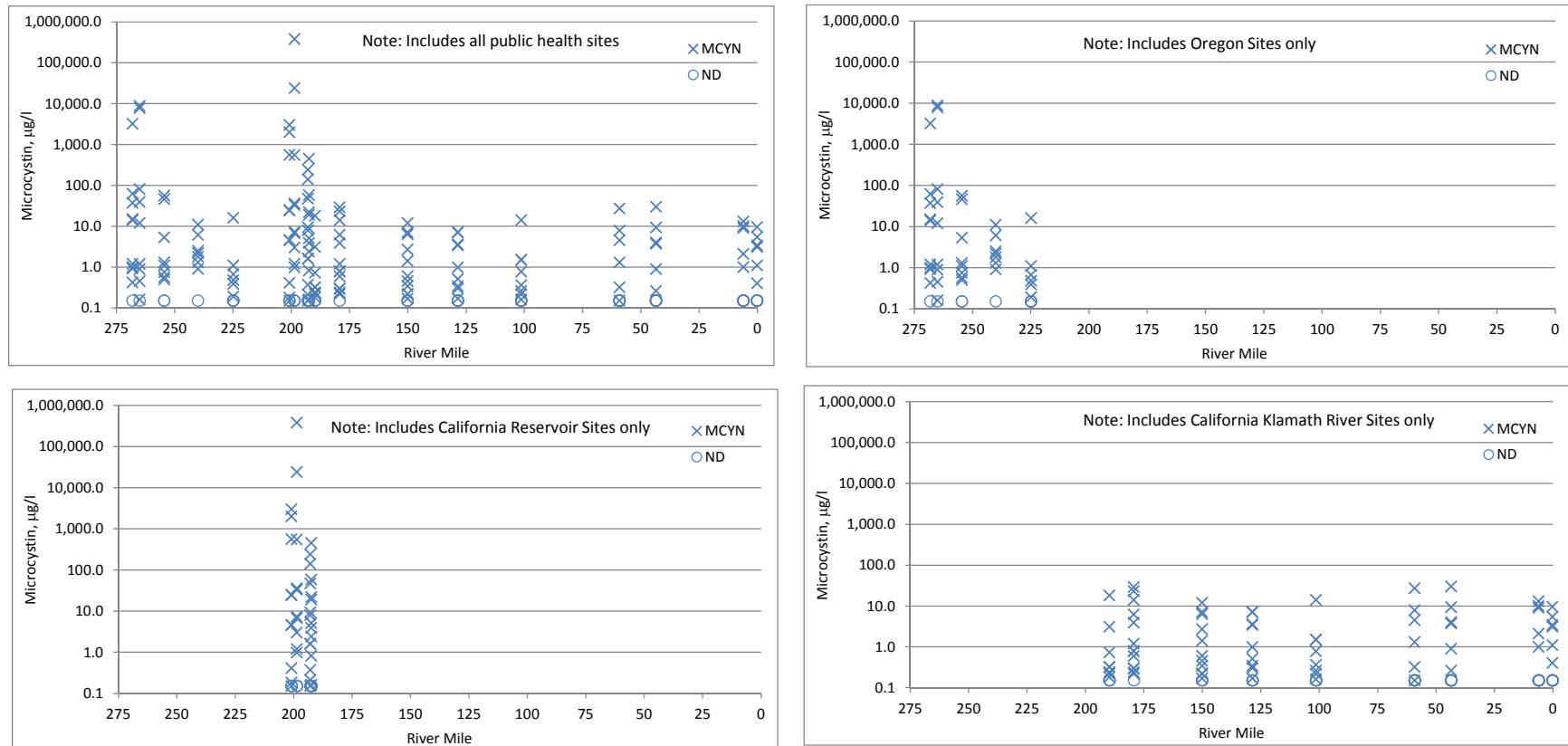
**Figure 25. Microcystin concentrations and toxic algae cell counts from 2017 public health samples collected in Klamath River below Happy Camp (RM 101.3; Public Health) and Klamath River at Orleans (USGS) (RM 59.1; Public Health) (ND indicates non-detect results).**



**Figure 26. Microcystin concentrations and toxic algae cell counts from 2017 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 potential toxic cyanobacteria present at Klamath River near Klamath (RM 6.0; Public Health) included *Limnothrix* sp.**



**Figure 27. Microcystin concentrations and toxic algae cell counts from 2017 public health samples collected at Klamath River at South Slough (RM 0.1; Public Health) (ND indicates non-detect results). Other potential toxic cyanobacteria present at Klamath River at South Slough (RM 0.1; Public Health) included *Limnothrix* sp.**



**Figure 28. 2017 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.

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## Appendix A. Baseline Water Quality Sampling Site Locations

**Table A-1. 2017 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. 2017 Baseline Data Summary

Appendix Table B-1 presents the complete general water quality and nutrient data set for the 2017 KHSAs baseline sampling. 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 2017 but columns are in the table to preserve data formatting with historic datasets. While VSS was removed from the KHSAs 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. 2017 Klamath River Baseline Data Summary**

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature °C	pH	Specific Conductivity $\mu\text{S}/\text{cm}$	Dissolved Oxygen mg/l	Algae, Chlorophyll-a $\mu\text{g}/\text{l}$	Algae, Phycoerythrin $\mu\text{g}/\text{l}$	Alkalinity mg/l	Carbon, Dissolved Organic Carbon mg/l	Carbon, Particulate Carbon mg/l	Demand, Cationic Biodegradable Oxygen Demand mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate+Nitrite mg/l	Nitrogen, Particulate Nitrogen mg/l	Nitrogen, Total Kjeldahl Nitrogen mg/l	Nitrogen, Total Nitrogen mg/l	Phosphorus, Phosphate mg/l	Phosphorus, Total Phosphorus mg/l	Phosphorus, Particulate Phosphorus mg/l	Phosphorus, Particulate Inorganic Phosphorus mg/l	Turbidity NTU	Solids, Total Suspended Solids mg/l	Solids, Volatile Suspended Solids mg/l	Toxins, Microcystin $\mu\text{g}/\text{l}$
2017KHSAs-001	2/14/2017	10:45	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	4.08	6.48	120	8.98	9.79	2.60	51.10	3.68	1.29	0.45	0.43	0.20	1.37	<0.01	<0.05	0.02	0.01	13.40	16.0				
2017KHSAs-007	3/14/2017	9:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	6.97	8.60	102	12.97	32.02	3.56	44.00	3.24	3.74	<0.05	0.19	0.42	0.45	<0.01	0.08	0.04	0.03	12.90	17.4				
2017KHSAs-013	4/18/2017	8:40	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	8.41	7.50	99	10.97	5.51	1.69	45.10	4.31	1.00	0.07	0.08	0.15	0.60	0.03	<0.05	0.02	0.01	9.28	11.6				
2017KHSAs-019	5/9/2017	8:45	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	12.62	7.10	94	9.09	8.47	2.56	42.50	5.02	1.52	0.10	0.10	0.22	0.76	0.03	0.05	0.21	0.02	12.60	14.6				
2017KHSAs-025	5/23/2017	8:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	18.02	8.25	97	9.11	14.25	2.10	45.10	4.88	1.33	0.08	0.01	0.20	0.63	0.04	0.08	0.02	0.01	9.89	7.6				
2017KHSAs-029	6/6/2017	8:30	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	18.90	8.23	97	7.32	15.40	1.16	45.10	4.96	1.46	0.07	0.01	0.24	0.69	0.09	<0.05	0.04	0.01	10.18	12.2				
2017KHSAs-035	6/20/2017	9:45	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	21.46	8.95	100	8.64	57.09	1.75	46.70	5.28	3.26	0.06	0.01	0.64	1.23	0.03	0.20	0.09	0.05	23.40	14.2				
2017KHSAs-040	7/11/2017	7:00	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	23.06	10.01	107	8.48	144.60	0.38	49.80	5.89	5.98	0.06	0.01	1.20	1.85	0.08	0.23	0.08	0.05	26.90	11.0	0.52			
2017KHSAs-046	7/25/2017	8:45	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	23.30	10.02	106	6.57	388.66	0.38	50.40	6.63	15.00	0.07	0.02	3.15	3.62	0.12	0.33	0.24	0.11	52.27	39.6	0.50			
2017KHSAs-051	8/8/2017	8:15	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	22.66	9.69	100	7.17	124.67	1.38	54.00	7.19	10.10	0.09	0.03	2.03	2.79	0.16	0.36	0.13	0.05	52.23	25.2	0.29			
2017KHSAs-057	8/22/2017	10:20	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	20.57	9.54	101	8.22	220.99	3.14	53.10	6.94	9.43	0.09	0.02	1.92	3.10	0.11	0.28	0.14	0.05	47.13	30.4	1.90			
2017KHSAs-062	9/12/2017	7:45	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	20.51	8.80	107	8.70	81.00	1.95	57.70	6.36	4.41	0.07	0.03	0.85	1.90	0.06	0.21	0.10	0.05	18.47	16.2	14.00			
2017KHSAs-068	9/26/2017	9:00	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	12.35	8.98	105	10.56	123.17	1.88	52.90	6.52	7.33	<0.05	0.02	1.35	2.28	0.03	0.18	0.09	0.04	58.13	21.4	4.60			
2017KHSAs-073	10/10/2017	9:15	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	10.27	9.18	107	10.02	50.42	2.68	52.80	5.72	7.01	0.07	0.03	1.37	1.91	0.02	0.19	0.07	0.03	26.17	13.4	1.40			
2017KHSAs-079	10/24/2017	9:00	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	9.21	8.00	109	9.43	29.84	2.64	55.40	5.81	3.08	0.22	0.11	0.61	1.67	0.02	0.11	0.04	0.03	20.30	10.0	0.73			
2017KHSAs-083	11/14/2017	10:00	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	5.02	7.75	116	9.95	5.21	2.99	52.60	4.71	1.66	0.92	0.24	0.25	2.16	0.04	0.15	0.02	0.01	26.33	29.3				
2017KHSAs-089	12/12/2017	10:15	KR25444	Link Dam (RM 254.44; Baseline)	USBR	0.5	R	3.29	6.59	117	10.80	5.78	1.70	71.50	4.57	1.57	0.80	0.41	0.27	2.19	0.02	0.10	0.04	0.01	16.10	7.4				
2017KHSAs-004	2/14/2017	12:05	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P				8.15	2.52	68.50	4.75	1.53	0.24	0.53	0.25	1.57	0.12	0.14			18.50	18.6					
2017KHSAs-010	3/14/2017	7:35	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	7.34	8.01	135	10.18	26.28	5.28	56.90	3.81	2.48	<0.05	0.26	0.38	0.55	0.02	0.13			15.90	22.0				
2017KHSAs-016	4/18/2017	9:50	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	9.17	7.55	142	9.27	6.39	2.33	62.70	4.64	0.85	0.10	0.15	0.13	0.73	0.05	<0.053			9.84	13.8				

Sample ID	Date	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature °C	Specific Conductivity µS/cm	pH	Dissolved Oxygen mg/l	Algae, Chlorophyll-a µg/l	Algae, Phycoeytin µg/l	Alkalinity mg/l	B/Cation Ratio	Carbon, Dissolved Organic Carbon mg/l	Demand, Chemical Oxygen Demand mg/l	Carbon, Particulate Carbon mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate+Nitrite mg/l	Nitrogen, Particulate Nitrogen mg/l	Nitrogen, Total Nitrogen mg/l	Phosphorus, Phosphate mg/l	Phosphorus, Total Phosphorus mg/l	Phosphorus, Particulate Phosphorus mg/l	Inorganic Phosphorus mg/l	Turbidity NTU	Solids, Total Suspended Solids mg/l	Solids, Volatile Suspended Solids mg/l	Tourns, Microcystin µg/l
2017KHSAs-022	5/9/2017	10:00	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	14.30	7.72	101	9.25	9.62	2.85	45.10	5.15	1.56	0.13	0.09	0.20	0.69	0.04	0.77	14.40	16.0	<0.15				
2017KHSAs-032	6/6/2017	9:45	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	20.42	8.27	103	7.27	18.72	0.73	46.40	5.03	1.83	<0.05	0.03	0.34	0.80	0.09	0.06	7.73	9.2	<0.15				
2017KHSAs-043	7/11/2017	9:50	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	24.34	9.08	103	2.83	42.28	11.35	48.00	5.77	2.88	0.40	0.03	0.57	1.47	0.11	0.26	9.10	6.4	0.68				
2017KHSAs-054	8/8/2017	9:55	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	23.53	8.61	124	0.75	25.92	7.87	55.00	####	6.92	2.09	0.02	1.35	3.61	0.26	0.49	10.73	12.8	0.26				
2017KHSAs-065	9/12/2017	10:05	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	20.71	8.22	119	4.03	184.55	3.81	56.90	6.59	8.45	0.46	0.02	1.75	2.82	0.07	0.29	20.03	19.6	24.00				
2016KHSAs-076	10/10/2017	8:20	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	10.74	7.82	162	5.30	68.12	3.26	75.70	5.88	5.86	0.42	0.09	1.25	2.12	0.03	0.22	10.17	13.0	4.00				
2017KHSAs-086	11/14/2017	11:30	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	5.62	7.69	140	7.84	6.53	4.26	60.00	4.94	1.49	1.06	0.22	0.21	2.24	0.05	0.18	19.53	15.8					
2017KHSAs-092	12/12/2017	11:15	KR24600	Keno Reservoir at Miller Island (RM 246.0; Baseline)	USBR	0.5	P	1.37	6.71	167	11.10	6.22	2.31	51.90	4.63	0.86	0.87	0.46	0.16	2.38	0.06	0.12	16.37	6.2					
2017KHSAs-005	2/14/2017	9:40	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	4.21	6.72	159	10.87	7.66	3.60	64.10	4.85	2.04	0.39	0.45	0.29	1.24	0.08	0.18	0.04	0.02	28.80	26.9			
2017KHSAs-011	3/14/2017	8:24	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	7.39	7.86	150	10.97	37.17	12.85	54.30	4.21	6.42	<0.05	0.29	0.88	0.58	<0.012	0.19	0.12	0.06	39.90	85.2			
2017KHSAs-017	4/18/2017	7:50	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	8.75	7.11	125	10.37	10.40	4.61	50.90	4.68	2.49	0.10	0.11	0.37	0.91	0.09	0.07	0.04	0.02	20.20	37.6			
2017KHSAs-023	5/9/2017	7:45	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	13.27	7.32	102	9.59	10.20	3.99	46.10	5.18	1.65	0.12	0.11	0.22	0.79	0.05	0.09	0.03	0.01	17.80	22.8	<0.15		
2017KHSAs-033	6/6/2017	7:50	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	19.85	8.36	121	8.44	18.73	3.99	52.30	5.65	3.89	0.05	0.03	0.78	1.37	0.11	0.19	0.13	0.09	9.27	12.2	<0.15		
2017KHSAs-038	6/20/2017	7:40	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	19.47	8.28	118	8.37			52.20			0.08	0.02		0.94	0.06	<0.05		9.35					
2017KHSAs-044	7/11/2017	8:55	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	23.01	8.92	122	7.82	55.07	14.63	54.50	6.75	3.53	0.24	0.04	0.71	1.58	0.12	0.24	0.10	0.05	8.68	8.6	0.36		
2017KHSAs-049	7/25/2017	7:50	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	23.41	8.39	122	7.13			53.40			0.42	<0.01		1.91	0.15	0.26		7.09					
2017KHSAs-055	8/8/2017	7:20	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	23.15	8.12	130	6.56	43.41	16.74	60.00	7.77	4.61	1.24	0.02	0.95	2.76	0.18	0.39	0.14	0.05	6.90	10.0	<0.15		
2017KHSAs-060	8/22/2017	8:40	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	21.77	7.53	138	6.31			61.10			1.49	0.01		3.50	0.22	0.39		7.22					
2017KHSAs-066	9/12/2017	9:00	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	21.36	7.84	133	7.69	113.69	19.88	61.00	7.37	4.12	0.81	0.02	0.84	2.66	0.12	0.28	0.09	0.04	10.97	7.4	0.35		
2017KHSAs-071	9/26/2017	7:35	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	13.38	6.92	139	10.12			65.10			0.18	0.05		1.58	0.07	0.17		10.53					
2017KHSAs-077	10/10/2017	10:45	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	11.56	7.81	145	9.39	32.39	7.33	66.80	6.68	2.60	0.65	0.11	0.46	2.02	0.05	0.23	0.05	0.02	20.93	7.8	1.60		
2017KHSAs-087	11/14/2017	8:45	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	5.61	7.24	142	10.41	5.19	3.34	60.10	5.16	1.07	0.84	0.31	0.16	2.08	0.05	0.15	0.03	<0.0063	11.20	<5.0			
2017KHSAs-093	12/12/2017	9:00	KR23340	Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline)	USBR	0.5	P	2.62	6.36	211	11.48	13.59	3.57	87.90	4.74	1.29	0.71	0.41	0.22	2.19	0.05	0.12	0.02	0.01	15.60	9.2			
KR17001	3/13/2017	11:55	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	7.21	7.63	155.6	10.68	25.34	8.06	59.7	4	2.66	<0.05	0.41	0.387	0.73	0.027	0.12		40.7					
KR17017	4/10/2017	13:30	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	8.82	7.51	105.9	10	8.26	3.80	51	4.37	1.9	0.12	0.12	0.274	0.86	0.048	0.11		29.6					
KR17033	5/15/2017	8:40	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	12.73	7.9	89.77	9.19	11.70	6.41	49.1	4.96	2.2	0.058	0.13	0.348	0.77	0.065	0.1		16		<0.15			
KR17050	6/12/2017	12:50	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	15.45	7.81	129.3	8.75	14.47	5.75	53.9	5.7	2.31	0.099	0.076	0.366	0.85	0.11	0.25		14.6		<0.15			

Sample ID	Date	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature °C	Specific Conductivity µS/cm	pH	Dissolved Oxygen mg/l	Algae, Chlorophyll-a µg/l	Algae, Pheophytin µg/l	Alkalinity mg/l	Carbon, Dissolved Organic BOD5/Cation mg/l	Carbon, Particulate Carbon mg/l	Demand, Chemical Oxygen Demand mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate+Nitrite mg/l	Nitrogen, Particulate Nitrogen mg/l	Nitrogen, Total Kjeldahl mg/l	Nitrogen, Total Nitrogen mg/l	Phosphorus, Phosphate mg/l	Phosphorus, Total Phosphorus mg/l	Phosphorus, Particulate Phosphorus BOD5/Cation mg/l	Phosphorus, Particulate Inorganic Phosphorus mg/l	Turbidity NTU	Solids, Total Suspended Solids mg/l	Solids, Volatile Suspended Solids mg/l	Turbidity, Microscopy mg/l
KR17066	6/25/2017	12:10	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	21.35		135.7	9.68						0.061	0.21			0.57	0.08	0.17						
KR17068	7/11/2017	6:55	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P					22.25	11.06	51.9	6.18	2.02	0.11	0.47	0.361		1.42	0.16	0.28			6	<0.15		
KR17086	8/8/2017	7:45	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	22.66	7.63	128.6	7.41	8.77	7.53	54	7.3	0.925	0.39	1.23	0.114		2.38	0.27	0.35			<5.0	<0.15		
KR17104	9/12/2017	8:30	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	20.85	7.76	120.1	7.81	9.94	8.61	54	6.94	1.03	0.23	0.84	0.145		2.11	0.19	0.27			<5.0	<0.15		
KR17122	10/10/2017	13:30	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	11.06	7.93	137.7	9.93	6.43	5.64	67.8	6.47	0.86	0.47	0.72	0.14		2.05	0.13	0.22			<5.0	0.49		
KR17139	11/6/2017	10:35	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	7.65	7.82	116.3	10.84	4.96	4.38	57.4	5.72	0.993	0.27	0.79	0.133		1.8	0.063	0.17			<5.0			
KR17155	12/12/2017	11:40	KR22460	Klamath River below J.C. Boyle Dam (RM 224.60; Baseline)	PacifiCorp	0.5	P	2.48		214.9	12.58	9.63	3.31	84.3	4.96	0.822	0.43	0.8	0.1475		2.38	0.068	0.11			7.2			
KR17002	3/13/2017	12:35	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	7.87	8.23	156	10.21	15.00	4.92	62.3	3.84	2.55	<0.05	0.41	0.377		0.9	0.041	0.13			25.6	37.7		
KR17018	4/10/2017	12:35	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	9.13	6.99	107.1	10.29	8.48	3.73	52.1	4.2	1.84	0.088	0.14	0.254		0.85	0.046	0.13			18.9	30.7		
KR17034	5/15/2017	7:59	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	12.7	7.49	92.07	9.21	10.31	5.91	47.9	4.64	1.5	0.054	0.14	0.208		0.66	0.063	0.11			12.9	14	<0.15	
KR17051	6/12/2017	12:15	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	15.11	7.87	130.3	8.76	14.30	4.99	56.3	5.03	1.84	0.098	0.085	0.295		0.77	0.098	0.15			9.23	14	<0.15	
KR17069	7/11/2017	7:45	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P					18.03	9.58	52.7	5.51	1.48	0.081	0.44	0.258		1.21	0.15	0.24			4.57	6	<0.15	
KR17087	8/8/2017	7:00	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	14.92	7.96	134.2	9.12	3.39	2.95	62.5	2.56	0.563	0.051	0.61	0.0605		0.9	0.12	0.2			1.9	<5.0	<0.15	
KR17105	9/12/2017	7:20	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	17.91	7.75	123.7	8.2	6.87	6.28	60.6	5.16	0.87	0.11	0.74	0.115		1.59	0.15	0.21			2.07	<5.0	<0.15	
KR17123	10/10/2017	13:10	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	11.52	8.18	136.3	10.09	4.24	3.63	64.7	4.19	0.495	0.14	0.69	0.0738		1.28	0.1	0.18			2.2	<5.0	0.16	
KR17140	11/6/2017	10:00	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	8.19	7.78	115.7	10.7	3.51	3.79	57.2	4.9	0.644	0.22	0.7	0.0901		1.55	0.074	0.14			7.54	<5.0		
KR17156	12/12/2017	11:10	KR21950	Klamath River below USGS Gage (RM 219.50; Baseline)	PacifiCorp	0.5	P	4.39		193.2	12.21	7.93	3.00	79	3.67	0.473	0.25	0.7	0.098		1.69	0.063	0.097			7.53	<5.0		
KR17004	3/14/2017	15:20	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	9.43	8.14	144.7	10.15	23.31	7.96	56	4.02	2.78	<0.05	0.31	0.4		0.76	0.039	0.14	0.0748	0.0351	31.4	48.8		
KR17020	4/12/2017	10:00	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	9.58	7.95	120.4	10.07	6.42	3.83	55.8	4.22	1.67	0.078	0.22	0.224		0.89	0.061	0.14	0.0288	0.0094	18	27.7		
KR17036	5/16/2017	15:20	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	13.96	7.96	93.02	9.45	9.70	5.67	47.6	4.55	1.53	<0.05	0.16	0.179		0.68	0.065	0.1	0.0177	0.0085	12.5	14	<0.15	
KR17053	6/13/2017	15:10	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	17.18	8.45	127.5	8.98	9.32	4.29	54.9	5.09	1.25	0.065	0.078	0.164		0.79	0.087	0.12	0.0246	0.0089	9.2	13.8	<0.15	
KR17071	7/10/2017	16:15	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	23.94	8.03	108.9	8.23	11.21	5.55	53.7	5.2	1.27	0.051	0.49	0.185		1.11	0.15	0.21	0.0318	0.0123	4.53	7.2	<0.15	
KR17084	7/23/2017	11:20	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	20.37	8.43	135.9	9.61					<0.05	0.32			0.71	0.13	0.19							
KR17089	8/7/2017	16:40	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P					8.68	6.74	57.1	5.84	1.38	0.086	1.13	0.179		1.77	0.21	0.31	0.0232	0.0083	2.59	7.6	<0.15	
KR17102	8/27/2017	11:20	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	19.71	8.27	144.4	9.56						0.065	1.26			1.88	0.2	0.27						
KR17107	9/11/2017	16:00	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	19.65	8.39	120.7	8.65	8.86	7.01	62.3	5.31	1.06	<0.05	0.76	0.137		1.58	0.16	0.22	0.0249	0.0087	3.63	<5.0	<0.15	
KR17120	9/24/2017	10:50	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	11.99	8.23	135.7	10.61						0.052	0.45			1.15	0.094	0.17						

Sample ID	Date	Site ID	Site Name	Agency	Standard Time												Phosphorus, Particulate Phosphorus mg/l	Phosphorus, Total Phosphorus mg/l	Sols. Volatile Suspended Solids mg/l	Sols. Total Suspended Solids mg/l	Turbidity NTU	$\Sigma$ Tons, Microscopin					
					Depth, m	Type	Water Temperature °C	Dissolved Oxygen mg/l	Specific Conductivity $\mu\text{S}/\text{cm}$	Algae, Chlorophyll-a $\mu\text{g/l}$	Algae, Phycoeytin $\mu\text{g/l}$	Alkalinity mg/l	B/C Ratio	Carbon, Dissolved Organic Carbon, Particulate Carbon mg/l	Demand, Chemical Oxygen Demand mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate+Nitrite mg/l	Nitrogen, Particulate Nitrogen mg/l	Nitrogen, Total Kjeldahl Nitrogen mg/l	Nitrogen, Total Nitrogen mg/l	Phosphorus, Phosphate mg/l	Sols. Inorganic Phosphorus mg/l					
KR17125	10/9/2017	10:30	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	9.72	8.11	145.4	11.15	3.03	2.80	66.6	2.74	0.436	<0.05	0.48	0.056	0.78	0.088	0.16	0.010	<0.005	2.51	<5.0	0.16
KR17142	11/5/2017	15:40	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	8.65	8.44	116.3	11.63	3.13	2.78	63	2.73	0.424	0.058	0.51	0.042	0.86	0.058	0.17	0.007	<0.002	4.27	<5.0	
KR17158	12/11/2017	14:00	KR20642	Klamath River above Shovel Creek (RM 206.42; Baseline)	PacifiCorp	0.5	P	4.15		192.7	12.27	8.77	3.17	78.3	3.86	0.536	0.15	0.85	0.098	1.76	0.059	0.085	0.010	<0.009	7.68	<5.0	
KR17005	3/14/2017	13:30	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					19.01	5.17														
KR17027	4/11/2017	12:50	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					7.44	2.40														
KR17043	5/16/2017	13:45	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					5.66	3.41														<0.15
KR17060	6/13/2017	13:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					9.93	2.45														<0.15
KR17078	7/10/2017	14:50	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					27.94	3.75														<0.15
KR17096	8/7/2017	15:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					23.42	1.02														1.3
KR17114	9/11/2017	14:25	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					125.06	2.78														33
KR17132	10/10/2017	9:20	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					18.42	2.37														4.5
KR17149	11/5/2017	14:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0-8	I					1.37	1.46														
KR17006	3/14/2017	13:40	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	9.59	8.46	170.9	11.33	27.36	5.83	66.5	3.95	2.45	<0.05	0.44	0.396	0.74	0.045	0.11				23	
KR17007	3/14/2017	13:50	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	7	P	8.48	8.16	168.5	10.47	19.74	5.29	64.2	3.8	2.3	<0.05	0.45	0.343	0.77	0.038	0.12				26.3	
KR17008	3/14/2017	14:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	30	P	5.64	7.91	197.1	9.59			74.2	4.27	1.08	0.11	0.51	0.215	0.91	0.056	0.081				17.7	
KR17026	4/11/2017	12:40	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	11.03	8.04	121.6	10.05	10.77	3.12	55	4.02	0.948	<0.05	0.16	0.177	0.74	0.12	0.1				8	
KR17028	4/11/2017	13:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	16	P	10.08	7.81	121.9	9.06	5.21	2.99	53.9	4.1	0.767	0.091	0.17	0.115	0.74	0.065	0.094				11	
KR17029	4/11/2017	13:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	29	P	9.66	7.73	120.9	9.1			53.8	4.2	0.978	0.1	0.18	0.145	0.75	0.067	0.11				17.4	
KR17042	5/16/2017	13:30	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	14.87	7.81	99.78	8.74	6.98	3.67	51.2	4.49	0.988	<0.05	0.15	0.145	0.65	0.07	0.12				<5.0	<0.15
KR17044	5/16/2017	14:20	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	8	P	14.25	7.6	100.3	7.98	4.98	3.56	50	4.49	0.892	0.077	0.16	0.101	0.62	0.076	0.098				<5.0	
KR17045	5/16/2017	14:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	29	P	11.21	7.12	123.2	3.08			49.4	4.58	0.854	0.063	0.15	0.114	0.62	0.069	0.096				<5.0	
KR17059	6/13/2017	12:55	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	19.27	8.42	129.4	8.75	19.48	4.86	57.2	4.46	1.15	0.061	0.179	0.54	0.1	0.14				6.8	<0.15	
KR17061	6/13/2017	13:45	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	10	P	16.76	7.67	127.6	6.17	7.64	2.32	54.2	4.52	0.891	0.077	0.11	0.133	0.64	0.13	0.18				7.2	
KR17062	6/13/2017	13:25	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	29	P	12.27	6.98	141.3	0.00			54.3	4.5	0.714	0.25	0.29	0.12	1.02	0.2	0.25				5.2	
KR17077	7/10/2017	14:40	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	24.27	8.55	124.6	12.48	44.60	1.36	62.1	4.14	2.24	<0.05	<0.01	0.358	0.78	0.044	0.17				6.6	<0.15
KR17079	7/10/2017	15:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	12	P	18.7	7.76	125.2	2.22	5.04	2.52	56.1	3.91	0.764	<0.05	0.22	0.095	0.64	0.1	0.13				<5.0	
KR17080	7/10/2017	15:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	32	P	13.27	6.96	128.9	0.00			58.6	4.62	0.834	0.51	0.028	0.115	0.92	0.48	0.52				7.2	

Sample ID	Date	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature °C	Specific Conductivity µS/cm	pH	Dissolved Oxygen mg/l	Algae, Chlorophyll-a µg/l	Algae, Pheophytin µg/l	Alkalinity mg/l	Carbon, Dissolved Organic BOD5 mg/l	Carbon, Particulate Carbon mg/l	Demand, Chemical Oxygen Demand mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate+Nitrite mg/l	Nitrogen, Particulate Nitrogen mg/l	Nitrogen, Total Kjeldahl mg/l	Nitrogen, Total Nitrogen mg/l	Phosphorus, Phosphate mg/l	Phosphorus, Total Phosphorus mg/l	Phosphorus, Particulate Phosphorus mg/l	Phosphorus, Particulate Inorganic Phosphorus mg/l	Turbidity NTU	Solids, Total Suspended Solids mg/l	Solids, Volatile Suspended Solids mg/l	Tourns, Microcystin µg/l
KR17095	8/7/2017	14:50	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	25.08	9.2	127.7	12.46	22.28	0.53	64.3	5	1.32	0.079	0.096	0.208	0.82	0.1	0.16			<5.0	2.4			
KR17097	8/7/2017	15:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	12	P				2.86	1.39	59.5	4.38	0.701	0.21	0.35	0.075	0.93	0.17	0.26			<5.0					
KR17098	8/7/2017	15:20	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	33	P					64.4	4.9	0.734	1.02	0.018	0.096	0.7	1.38	0.68	0.72			6.6					
KR17113	9/11/2017	14:00	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	23.07	9.52	129.5	16.15	####	0.38	68.2	6.92	44.2	0.12	0.11	9.24	26.8	0.066	2.27			270	2100			
KR17115	9/11/2017	14:35	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	19	P				7.30	1.81	65.1	5.01	0.888	0.45	0.37	0.142	1.42	0.23	0.25			<5.0					
KR17116	9/11/2017	14:50	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	32	P					73	4.91	1.32	1.63	0.04	0.2	2.19	0.81	0.85			9						
KR17131	10/10/2017	9:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	13.65	7.68	137.3	8.84	18.01	2.36	62.3	4.9	0.751	0.09	0.43	0.133	1.14	0.1	0.18			5.6	2.5			
KR17133	10/10/2017	9:30	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	14	P	12.92	7.8	138.3	7.82	13.33	2.10	63.5	4.85	0.917	0.078	0.44	0.162	1.17	0.1	0.18			6				
KR17134	10/10/2017	9:40	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	29	P	12.4	7.66	154.2	6.79			63.4	4.82	0.731	0.2	0.44	0.108	1.38	0.11	0.19			6.2				
KR17148	11/5/2017	13:50	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	0.5	P	10.68	7.67	134	8.86	1.30	1.21	66.4	4.87	0.472	0.17	0.56	0.057	6	1.2	0.076	0.12		<5.0				
KR17150	11/5/2017	14:10	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	18	P	10.41	7.64	129.6	8.71			66.8	4.64		0.16	0.54		1.21	0.076	0.14			<5.0				
KR17151	11/5/2017	14:20	KR19874	Copco Reservoir (RM 198.74; Baseline)	PacifiCorp	29	P	10.14	7.64	126.7	8.87			64.2	4.51	1.38	0.15	0.58	0.193	1.38	0.072	0.17			24.6				
KR17009	3/14/2017	12:30	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	8.04	8.11	179.7	10.96	16.89	5.19	68.2	4	1.74	0.056	0.48	0.26	0.81	0.045	0.11				23			
KR17025	4/12/2017	9:10	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	10.17	7.85	119.8	10.3	6.17	2.70	55.5	4.19	0.953	0.089	0.18	0.135	0.72	0.069	0.084			14.2				
KR17041	5/16/2017	12:40	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	14.2	7.59	100.2	8.4	6.48	4.04	50.1	4.76	2.02	0.069	0.16	0.355	0.59	0.075	0.13			6	<0.15			
KR17058	6/13/2017	11:50	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	17.54	7.74	128.4	7.20	9.55	3.17	55.7	4.71	1.22	0.057	0.11	0.214	0.64	0.13	0.17			7.8	<0.15			
KR17076	7/10/2017	13:45	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	22.09	8.37	127.6	7.4	21.15	2.98	59.5	4.1	1.04	<0.05	0.11	0.19	0.65	0.077	0.12			5.6	<0.15			
KR17094	8/7/2017	14:00	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	22.61	8.19	130.4	5.92	11.59	1.46	59.3	4.67	1.05	0.15	0.25	0.152	0.87	0.15	0.31			<5.0	0.54			
KR17112	9/11/2017	13:00	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	21.11	8.94	129.3	9.21	149.54	3.74	64.6	5.68	7.11	0.11	0.38	1.58	2.35	0.14	0.31			13.1	7.9			
KR17130	10/9/2017	8:15	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	13.71	7.66	143	8.63	12.33	2.90	64.7	4.85	1.05	0.081	0.46	0.184	1.19	0.11	0.2			5.4	2.2			
KR17147	11/5/2017	13:05	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	10.63	7.59	143.6	8.81	1.64	1.66	66.4	4.63	0.536	0.17	0.54	0.061	4	1.21	0.077	0.17			<5.0			
KR17163	12/11/2017	12:45	KR19645	Klamath River below Copco Dam (RM 196.45; Baseline)	PacifiCorp	0.5	P	5.37		153.6	12.60	1.90	1.98	64.3	3.29	0.496	0.14	0.79	0.076	1.46	0.062	0.1			<5.0				
KR17010	3/14/2017	10:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					11.57	5.37																
KR17022	4/11/2017	10:40	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					6.97	2.67																
KR17038	5/16/2017	9:45	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					4.79	3.42												<0.15				
KR17055	6/13/2017	8:45	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					25.40	3.94												<0.15				
KR17073	7/10/2017	11:15	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I					14.30	1.19												0.15				

Sample ID	Date	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature °C	Specific Conductivity µS/cm	Dissolved Oxygen mg/l	Algae, Chlorophyll-a µg/l	Algae, Pheophytin µg/l	Alkalinity mg/l	Carbon, Dissolved Organic BOD5, mg/l	Carbon, Particulate Carbon mg/l	Demand, Chemical Oxygen Demand mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate+Nitrite mg/l	Nitrogen, Total Kjeldahl mg/l	Nitrogen, Total Nitrogen mg/l	Phosphorus, Phosphate mg/l	Phosphorus, Total mg/l	Phosphorus, Particulate BOD5, mg/l	Phosphorus, Particulate Inorganic Phosphorus mg/l	Turbidity NTU	Solids, Total Suspended Solids mg/l	Solids, Volatile Suspended Solids mg/l	Tourns, Microcystin µg/l
KR17091	8/7/2017	11:10	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I		7.54	0.95																1.3	
KR17109	9/11/2017	9:55	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I		30.19	0.38																17	
KR17127	10/10/2017	7:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I		6.97	2.03																0.26	
KR17144	11/5/2017	11:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0-8	I		2.62	1.01																	
KR17011	3/14/2017	9:50	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	8.35	8.22	167.3	11.32	11.67	3.87	64.2	3.74	1.75	0.081	0.45	0.268	0.78	0.041	0.094				14.6	
KR17012	3/14/2017	10:10	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	1.5	P	7	8.18	165.7	11.22	9.14	3.59	66.5	3.68	1.59	0.098	0.46	0.237	0.78	0.047	0.083				16	
KR17013	3/14/2017	10:20	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	44	P	4.76	7.82	165.4	9.93			66.2	3.73	1.44	0.12	0.46	0.213	0.76	0.048	0.08				15.4	
KR17021	4/11/2017	10:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	10.87	7.85	118.7	9.89	8.54	2.41	54.2	3.88	0.641	0.087	0.13	0.107	0.71	0.06	0.11				6.2	
KR17023	4/11/2017	10:50	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	21	P	9.84	7.7	114.4	9.05	5.25	2.82	54.2	3.94	0.57	0.089	0.11	0.092	0.56	0.044	0.11				5.6	
KR17024	4/11/2017	11:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	44	P	5.33	7.47	146.3	6.81			62.9	3.89	0.713	0.24	0.41	0.1	1.16	0.075	0.086				5.8	
KR17037	5/16/2017	9:55	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	15.08	7.83	105.3	9.12	10.07	3.57	52.4	4.39	1.2	<0.05	0.14	0.167	0.55	0.062	0.13				<5.0	<0.15
KR17039	5/16/2017	9:50	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	10	P	13.79	7.61	111.7	8.06	3.90	2.95	54	4.11	0.849	0.053	0.15	0.113	0.5	0.058	0.079				<5.0	
KR17040	5/16/2017	9:40	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	44	P	7.55	7.09	132.4	1.59			57.2	3.74	0.488	<0.05	0.51	0.050	0.82	0.12	0.13				<5.0	
KR17054	6/13/2017	8:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	18.34	8.09	125.4	8.56	10.65	1.88	54.9	4.34	1.28	<0.05	<0.01	0.228	0.52	0.071	0.11				5.4	<0.15
KR17056	6/13/2017	9:15	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	10	P	17.84	7.86	124.8	7.85	15.01	1.90	54.7	4.39	0.966	<0.05	<0.01	0.152	0.49	0.072	0.072				6.4	
KR17057	6/13/2017	9:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	44	P	8.55	6.93	145	0.00			56.9	3.65	0.789	<0.05	0.52	0.142	0.9	0.15	0.28				<5.0	
KR17072	7/10/2017	10:45	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	26.82	8.74	137.2	14.76	84.83	0.38	63.1	4.39	3.73	<0.05	<0.01	0.75	1.29	0.027	0.14				12.6	1.6
KR17074	7/10/2017	11:45	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	12	P	16.83	7.53	130	3.62	1.81	1.15	57.6	3.93	0.367	<0.05	0.13	0.043	0.48	0.098	0.14				<5.0	
KR17075	7/10/2017	11:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	41	P	9.03	6.96	141.6	0.00			58.6	3.96	0.542	<0.05	0.13	0.058	0.6	0.095	0.17				<5.0	
KR17090	8/7/2017	11:00	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	25.14	8.53	136.7	6.43	39.45	1.59	64.9	4.93	2.74	0.21	0.034	0.496	1.27	0.036	0.11				<5.0	14
KR17092	8/7/2017	11:20	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	12	P	19.92	7.56	133.4	1.12	25.12	1.03	63.3	4.92	1.54	0.21	0.034	0.259	1.11	0.041	0.1				<5.0	
KR17093	8/7/2017	11:30	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	47	P							64.1	3.82	0.797	0.53	0.021	0.116	0.84	0.29	0.43				5.6	
KR17108	9/11/2017	9:35	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	22.97	9.73	146.6	16.06	111.41	0.38	68.9	4.94	6.99	<0.05	<0.01	1.29	1.72	0.074	0.19				14.7	8.1
KR17110	9/11/2017	10:20	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	16	P					1.58	0.98	62.6	4.04	0.528	0.27	0.11	0.072	0.75	0.19	0.22				<5.0	
KR17111	9/11/2017	10:40	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	44	P							62.5	3.97	0.407	0.65	0.024	0.062	0.95	0.33	0.36				5.2	
KR17126	10/10/2017	6:50	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	15.28	6.05	140.6	5.02	7.43	2.13	61.4	4.6	0.574	<0.05	0.69	0.091	1.19	0.16	0.24				<5.0	0.28
KR17128	10/10/2017	7:10	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	25	P	12.82	7	134.9	0.00	6.60	2.19	62	4.72	0.684	<0.05	0.67	0.108	1.22	0.16	0.23				<5.0	

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature °C	pH	Specific Conductivity µS/cm	Dissolved Oxygen mg/l	Algae, Chlorophyll-a µg/l	Algae, Pheophytin µg/l	Alkalinity mg/l	B/Cation Ratio	Carbon, Dissolved Organic Carbon mg/l	Carbon, Particulate Carbon mg/l	Demand, Chemical Oxygen Demand mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate+Nitrite mg/l	Nitrogen, Particulate Nitrogen mg/l	Nitrogen, Total Kjeldahl Nitrogen mg/l	Nitrogen, Total Nitrogen mg/l	Phosphorus, Phosphate mg/l	Phosphorus, Total Phosphorus mg/l	Phosphorus, Particulate Phosphorus mg/l	Inorganic Phosphorus mg/l	Turbidity NTU	Solids, Total Suspended Solids mg/l	Solids, Volatile Suspended Solids mg/l	T, TOC, Microscopy		
KR17129	10/10/2017	7:20	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	44.8	P	9.45	6.87	156.1	0.00	62.3	4.18	0.39	0.78	0.031	0.044	3	1.12	0.32	0.42					10							
KR17143	11/5/2017	10:50	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	0.5	P	11.76	6.3	149.1	6.11	2.43	0.94	65.5	5.15	0.385	0.14	0.5	0.037	6	1.1	0.12	0.2					<5.0					
KR17145	11/5/2017	11:10	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	35	P	10.86	6.98	143.6	0.05	1.30	1.35	66.2	4.45	0.632	0.23	0.48	0.082	6	1.19	0.11	0.21					<5.0					
KR17146	11/5/2017	11:20	KR19019	Iron Gate Reservoir (RM 190.19; Baseline)	PacifiCorp	44.5	P	9.66	6.81	172.7	0.00	66.1	4.18	0.436	0.8	0.019	0.052	6	1.12	0.26	0.35					6.6							
KR17049	5/31/2017	17:35	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	19.23	8.25	100.6	8.82	14.06	4.58	50.7	4.52	0.991	<0.05	0.034	0.178	0.5	0.057	0.07	0.027	4	0.009	9	6.58	5.4					
KR17067	6/25/2017	13:25	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	20.26		130.8	8.94	4.87	2.63	56.1	4.14	0.627	0.05	0.048	0.089	4	0.47	0.089	0.16	0.011	5	0.006	6	3.79	<5.0				
KR17085	7/23/2017	12:15	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	22.5	8.81	134.6	8.37	9.36	1.80	61.5	4.22	0.761	0.1	0.13	0.118	0.67	0.085	0.16	0.011	3	<0.00	63	1.76	<5.0	<0.15				
KR17103	8/27/2017	12:15	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	22.02	8.9	142.1	8.45	13.40	1.36	65.8	5.01	1.23	0.19	0.21	0.219	0.92	0.12	0.17	0.020	1	0.008	4	2.57	<5.0	14				
KR17121	9/24/2017	11:45	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	18.15	7.63	140	6.34	6.64	2.74	61.5	4.53	0.691	0.25	0.35	0.123	1.18	0.2	0.25	0.017	8	0.010	7	2.05	<5.0	2.3				
KR17138	10/24/2017	11:15	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	P	13.22	7.41	143.9	8.88	4.19	1.22	64.3	4.62	0.417	0.094	0.52	0.061	5	1.15	0.15	0.17	0.014	9	<0.00	63	2.16	<5.0	0.2			
KR17003	3/14/2017	16:50	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	6.08	8.14	171.6	11.41	8.17	4.53	67.4	3.74	1.16	0.14	0.46	0.166	0.84	0.054	0.085	0.021	2	0.008	1	16.9	13.3					
KR17019	4/11/2017	15:20	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	10.52	7.89	119	11.08	8.02	2.48	56.4	3.77	0.687	0.073	0.12	0.11	0.62	0.049	0.11	0.021	6	0.006	9	5.81	5.6					
KR17035	5/16/2017	16:15	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	14.22	7.79	110.3	9.7	4.74	2.79	54.7	4.09	0.758	0.055	0.16	0.091	7	0.52	0.057	0.12	0.012	5	0.006	5	5.86	<5.0	<0.15			
KR17052	6/13/2017	16:30	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	19.4	8.45	127	8.95	10.99	1.96	56.2	4.22	1.7	0.054	0.015	0.295	0.51	0.067	0.089	0.027	0.009	9	5.26	6.6						
KR17070	7/10/2017	18:30	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	23.29	8.57	116.9	9.01	25.03	1.17	59	4.09	1.94	<0.05	0.079	0.361	0.73	0.067	0.14	0.032	2	0.010	1	2.57	<5.0	0.22				
KR17088	8/7/2017	18:35	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	22.77	7.96	133.7	6.03	3.84	1.49	60.5	4.37	0.744	0.29	0.16	0.104	0.89	0.12	0.19	0.009	9	<0.00	63	1.4	<5.0	0.35				
KR17106	9/11/2017	18:10	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	20.68	8.36	131.9	6.71	25.70	1.54	63.4	4.83	1.74	0.16	0.28	0.32	1.21	0.13	0.2	0.036	7	0.015	9	3.97	<5.0	10				
KR17124	10/9/2017	12:20	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	15.59	7.81	141.8	8.22	7.94	2.16	62.3	4.73	0.572	0.063	0.71	0.088	5	1.25	0.17	0.28	0.028	6	0.012	6	2.05	<5.0	0.29			
KR17141	11/5/2017	17:20	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	11.54	7.41	127	8.67	2.55	1.09	66	4.68	0.314	0.14	0.5	0.045	1	1.13	0.13	0.23	0.012	1	0.006	4	3.15	<5.0				
KR17157	12/11/2017	16:00	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	PacifiCorp	0.5	R	7.22		149.8	10.71	1.36	1.33	64.1	3.91	0.377	0.052	0.76	0.056	1.45	0.082	0.094	0.008	8	<0.00	63	2.84	<5.0					
WA031517-OC	3/15/2017	10:28	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	7.08	8.24	189	11.39	9.60	5.00		3.83		0.071	0.415		1.14	0.034	0.096					19						
WA041917-OC	4/19/2017	11:04	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	10.02	8.32	163	10.63	2.70	2.50		4.12	0.802	0.023	0.183	0.103		0.488	0.047	0.083					9.2					
WA051017-OC	5/10/2017	11:42	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	13.96	8.12	163	10.10	4.80	4.40		4.76	0.902	<0.01	0.102	0.121		0.502	0.034	0.065					9					
WA060717-OC	6/7/2017	10:39	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	17.54	8.14	154	9.09	5.30	2.60		4.08	1.19	0.015	0.018		0.498	0.048	0.101					9.5						
WA071217-OC	7/12/2017	10:42	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	22.79	8.37	167	8.52	3.70	1.90		4.15	0.804	0.019	0.03		0.693	0.062	0.103					3			<0.15			
WA080917-OC	8/9/2017	10:39	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	23.66	8.44	173	8.83	2.80	1.90		4.67	0.626	0.026	0.239	0.094	2	1.29	0.091	0.13					2.6					
WA091317-OC	9/13/2017	10:16	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	20.71	8.56	175	8.77	17.00	5.20		5.25	1.6	0.023	0.316		1.5	0.137	0.193					6			13			

Sample ID	Date	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature °C	pH	Specific Conductivity µS/cm	Dissolved Oxygen mg/l	Eg. Algae, Chlorophyll-a µg/l	Eg. Algae, Pheophytin µg/l	Alkalinity mg/l	B/C Carbon, Dissolved Organic Carbon, Particulate Carbon mg/l	Demand, Chemical Oxygen Demand mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate+Nitrite mg/l	Nitrogen, Particulate Nitrogen mg/l	Nitrogen, Total Kjeldahl Nitrogen mg/l	Nitrogen, Total Nitrogen mg/l	Phosphorus, Phosphate mg/l	Phosphorus, Total Phosphorus mg/l	Phosphorus, Particulate Phosphorus mg/l	Phosphorus, Particulate Inorganic Phosphorus mg/l	Turbidity NTU	Solids, Total Suspended Solids mg/l	Solids, Volatile Suspended Solids mg/l	Eg. T-Tests, Microscopy
WA101117-OC	10/11/2017	10:50	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	13.17	8.39	183	10.43	3.70	3.70	4.28	0.556	<0.01	0.521		1.19	0.16	0.185				2.4			
WA111517-OC	11/15/2017	13:23	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	9.16	8.37	208	10.99	3.20	1.80	4.24	0.339	0.019	0.466		1.07	0.113	0.135				2.8		1.2	
WA121317-OC	12/13/2017	11:48	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.5	P	4.88	8.29	208	12.59	1.60	1.90	4.01		<0.01	0.638		1.15	0.082	0.105				1.9			
SV031517-OC	3/15/2017	9:25	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	7.74	8.24	175	11.11	4.60	3.20	2.97		0.056	0.35		0.828	0.03	0.096				14	37		
SV041917-OC	4/19/2017	9:57	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	9.75	8.32	165	10.72	2.70	2.10	3.46	0.75	0.01	0.193	0.082 <sub>5</sub>	0.476	0.034	0.065	0.009 <sub>9</sub>	0.009 <sub>1</sub>	3.7	15			
SV051017-OC	5/10/2017	10:19	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	12.77	8.09	124	10.21	3.70	3.10	3.3	0.664	<0.01	0.12	0.072 <sub>4</sub>	0.402	0.021	0.054	0.029 <sub>5</sub>	<0.0063	4.1	20			
SV060717-OC	6/7/2017	9:33	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	16.29	8.13	136	9.4	4.30	2.60	2.71	0.858	<0.01	0.073	0.101	0.4	0.026	0.058	0.019 <sub>9</sub>	0.009 <sub>9</sub>	3.7	12			
SV071217-OC	7/12/2017	9:14	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	21.85	8.12	181	8.51	3.40	1.40	3	1.04	<0.01	0.058	0.167	0.509	0.039	0.07	0.013 <sub>7</sub>	<0.0063	1.6	4.5	<0.15		
SV080917-OC	8/9/2017	9:14	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	22.91	8.36	184	8.78	6.90	2.90	4.15	0.472	0.014	0.154	0.064 <sub>9</sub>	0.62	0.082	0.11	0.011 <sub>3</sub>	<0.0063	0.65	2.4			
SV091317-OC	9/13/2017	8:49	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	19.84	8.32	186	9.02	11.00	5.10	4.1	1.21	0.015	0.327	0.209	1.04	0.127	0.17	0.030 <sub>3</sub>	0.011 <sub>6</sub>	2.5	6	7.3		
SV101117-OC	10/11/2017	9:20	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	12.3	8.4	196	10.8	6.80	6.30	4.09	0.677	<0.01	0.442	0.09	0.875	0.137	0.165	0.010 <sub>8</sub>	0.007 <sub>9</sub>	1.2	4.6			
SV111517-OC	11/15/2017	12:06	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	8.71	8.29	212	11.04	4.00	3.30	3.48	0.24	0.011	0.396	0.028 <sub>4</sub>	0.801	0.082	0.099				0.99	2.4	0.86	
SV121317-OC	12/13/2017	10:35	KR12850	Klamath River below Seiad (RM 128.5; Baseline)	Karuk	0.5	P	3.62	8.22	213	13.03	1.60	2.10	2.99		<0.01	0.543		0.797	0.061	0.076				1.5	3		
HC031517-OC	3/15/2017	8:35	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	8.32	8.13	155	11.3	4.50	2.00	2.21		0.043	0.275		0.548	0.025	0.099				65			
HC041917-OC	4/19/2017	9:05	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	9.98	8.24	151	10.95	4.30	1.90	2.8	0.648	<0.01	0.151	0.061 <sub>7</sub>	0.335	0.026	0.069				22			
HC051017-OC	5/10/2017	9:05	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	12.39	8	136	10.37	3.30	2.70	2.7	0.591	<0.01	0.087	0.072 <sub>4</sub>	0.279	0.016	0.056				22			
HC060717-OC	6/7/2017	8:30	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	15.6	8.02	129	9.62	3.60	2.30	2.26	0.699	<0.01	0.041		0.308	0.02	0.052				14			
HC071217-OC	7/12/2017	8:29	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	21.8	8.05	174	8.6	3.40	1.10	2.51	0.625	0.013	0.028		0.359	0.042	0.064				3.6		<0.15	
HC080917-OC	8/9/2017	8:32	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	22.79	8.3	186	8.45	3.90	2.80	3.38	0.445	0.011	0.06	0.065 <sub>6</sub>	0.404	0.063	0.087				1.3		<0.15	
HC091317-OC	9/13/2017	8:11	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	20.32	8.29	186	8.95	17.00	6.20	3.95	1.57	0.015	0.203		0.923	0.104	0.156				3	7.6	15	
HC101117-OC	10/11/2017	8:33	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	12.07	8.31	193	10.31	25.00	16.0 <sub>0</sub>	3.88	1.31	<0.01	0.322		0.901	0.115	0.155				8.8		0.26	
HC111517-OC	11/15/2017	11:20	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	9.01	8.15	189	11	3.70	3.00	2.95	0.386	0.014	0.292		0.552	0.06	0.078				1.3	4	1.8	
HC121317-OC	12/13/2017	9:57	KR10130	Klamath River below Happy Camp (RM 101.3; Baseline)	Karuk	0.5	P	3.53	8.16	199	13.22	2.40	1.00	2.62		<0.01	0.432		0.587	0.049	0.064				2.3			
OR031517-OC	3/15/2017	7:09	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	9.05	8.13	125	11.54	2.70	1.50	61.2	1.23		0.027	0.165		0.445	0.016	0.071				18	48	
OR041917-OC	4/19/2017	7:42	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	10.05	8.17	123	11.5	1.30	1.50	62	1.89	0.253	<0.01	0.095	<0.0315	0.257	0.017	0.044				5.9	19	
OR051017-OC	5/10/2017	7:07	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	12.19	7.92	108	11.08	2.3	1.3	53.9	1.91	0.653	<0.01	0.061	0.077 <sub>8</sub>	0.214	0.01	0.035				3.9	18	
OR060717-OC	6/7/2017	6:58	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	15.47	7.65	101	10.06	1.9	1.3	51.8	1.48	0.572	<0.01	0.015		0.282	0.009	0.033				3.6	8.8	

Sample ID	Date	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature °C	Specific Conductivity µS/cm	pH	Dissolved Oxygen mg/l	Algae, Chlorophyll-a µg/l	Algae, Phycoeytin µg/l	Alkalinity mg/l	B/C Ratio	Carbon, Dissolved Organic Carbon mg/l	Demand, Chemical Oxygen Demand mg/l	Carbon, Particulate Carbon mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate+Nitrite mg/l	Nitrogen, Particulate Nitrogen mg/l	Nitrogen, Total Kjeldahl Nitrogen mg/l	Nitrogen, Total Nitrogen mg/l	Phosphorus, Phosphate mg/l	Phosphorus, Total Phosphorus mg/l	Phosphorus, Particulate Phosphorus mg/l	Phosphorus, Particulate Inorganic Phosphorus mg/l	Turbidity NTU	Solids, Total Suspended Solids mg/l	Solids, Volatile Suspended Solids mg/l	Tourns, Microcystin µg/l
OR071217-OC	7/12/2017	6:46	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	21.96	8.06	150	8.7	2.3	0.4	74.3	1.68	0.508	<0.01	0.01			0.193	0.025	0.041		1.1	3.5	<0.15			
OR080917-OC	8/9/2017	6:56	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	23.16	8.29	172	8.13	2.4	0.5	83	2.2	0.291	<0.01	<0.01	0.032	8	0.212	0.039	0.055		0.55	1.7	<0.15			
OR091317-OC	9/13/2017	6:50	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	21.37	8.21	178	8.61	21	4.6	89.5	3.35	1.54	<0.01	<0.01			0.66	0.062	0.114		3.4	4.8	20			
OR101117-OC	10/11/2017	7:05	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	12.84	8.55	189	10.35	19	9.5	92.6	2.95	0.845	<0.01	0.145			0.598	0.076	0.108		1.3	6.7	<0.15			
OR111517-OC	11/15/2017	8:48	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	9.04	8.28	135	11.6	3.5	1.6	67.4	2.23	0.369	<0.01	0.142			0.229	0.032	0.047		2.2	4.2	1.8			
OR121317-OC	12/13/2017	8:41	KR05910	Klamath River at Orleans (USGS) (RM 59.1; Baseline)	Karuk	0.5	P	4.01	8.16	107	13.4	1.4	0.3	74.4	1.75		<0.01	0.256			0.264	0.029	0.037		1	1.1				
WE031517-OC	3/15/2017	10:04	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	8.997	7.97	169.3	12.02	3	1.9		1.15	1.03	0.032	0.151			0.376	0.018	0.107		20	75	4.7			
WE041917-OC	4/19/2017	10:34	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	9.99	8.03	306	11.73	1.8	1.5		1.74	0.494	<0.01	0.098	0.046	7	0.168	0.021	0.052		16	27	2.5			
WE051017-OC	5/10/2017	10:20	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	12.45	8	130.8	10.76	2.9	1.4		1.63	0.583	<0.01	0.063	0.054	9	0.189	0.011	0.039		5.5	25	2			
WE060717-OC	6/7/2017	11:19	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	15.66	7.87	104	9.59	3.4	1.5		1.52	0.715	<0.01	<0.01	0.07		0.141	0.009	0.034		3.7	12	2.3			
WE071217-OC	7/12/2017	10:34	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	22.21	8.15	152	9.02	6.6	1.8		1.41	1.35	<0.01	<0.01			0.192	0.023	0.095		1.4	55	4.8			
WE080917-OC	8/9/2017	10:29	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	22.88	8.42	172	9.41	1.1	3.4		3.18	0.288	<0.01	<0.01			0.23	0.03	0.041		0.5	2	0.86			
WE091317-OC	9/13/2017	10:37	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	21.04	8.25	182	9.29	24	3.7		3.04	2.12	<0.01	<0.01			0.542	0.056	0.099		0.15	6.3	3.4			
WE101117-OC	10/11/2017	10:16	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	12.82	8.69	340	11.66	5.7	5		2.76	0.379	<0.01	0.069			0.314	0.064	0.082		1.9	0.94	<0.15			
WE111517-OC	11/15/2017	12:03	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	9.35	7.51	132	11.48	4.1	1.1		2.34	0.363	<0.01	0.107			0.347	0.031	0.043		5	1.2				
WE121417-OC	12/14/2017	10:58	KR04350	Klamath River at Weitchpec (RM 43.5; Baseline)	Yurok	0.5	P	4.45	8.08	156	13.35	0.9	0.5		1.6	<0.18	99	<0.01	0.229			0.424	0.027	0.041		1	<0.5			
TC031517-OC	3/15/2017	9:04	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	9.52	8.07	144.6	11.61	2	2.2		0.95	0.787	0.027	0.114			0.244	0.014	0.087		68	5				
TC041917-OC	4/19/2017	9:36	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	10.23	8.04	323	11.42	1.6	1.6		1.19	0.394	<0.01	0.067	0.038	9	0.174	0.013	0.058		28	2.5				
TC051017-OC	5/10/2017	9:16	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	12.44	7.94	148	10.56	2.3	0.9		1.42	0.548	<0.01	0.051	0.048	8	0.132	0.009	0.047		22	1.8				
TC060717-OC	6/7/2017	10:10	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	14.95	7.78	110	9.42	2.5	1.2		1.32	0.742	<0.01	<0.01	0.058	1	0.177	0.007	0.036		12	1.5	<0.15			
TC071217-OC	7/12/2017	9:35	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	20.99	7.98	146	9.06	2.5	<0.1		1.04	0.359	<0.01	<0.01			0.089	0.014	0.025		4.6	1.4	<0.15			
TC080917-OC	8/9/2017	9:31	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	22.21	8.24	164	8.68	2.5	<0.1		1.47	0.271	<0.01	<0.01			0.167	0.02	0.028		1.7	0.57	<0.15			
TC091317-OC	9/13/2017	9:40	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	21.14	8.28	180	8.84	18	2.8		2.24	1.29	<0.01	<0.01			0.546	0.039	0.072		4.6	3.1	21			
TC101117-OC	10/11/2017	9:12	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	12.74	8.32	332	10.41	4.6	<0.1		2.14	0.365	<0.01	0.053			0.295	0.048	0.06		2.4	1.1	<0.15			
TC111517-OC	11/15/2017	10:42	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	9.72	7.47	138	11.25	4.1	0.8		2.15	0.519	<0.01	0.085			0.275	0.022	0.035		6	1.6				
TC121417-OC	12/14/2017	09:58	KR03850	Klamath River below Trinity River (RM 38.5; Baseline)	Yurok	0.5	P	4.77	7.45	157	13.15	0.9	0.4		1.32	<0.18	99	<0.01	0.165			0.269	0.02	0.032		1.1	0.57			
TG031517-OC	3/15/2017	6:47	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	9.856	8.04	146.9	11.21	2.1	2.3		0.82	0.566	0.026	0.118	0.044	7	0.242	0.015	0.075	0.024	1	0.024	20	50	2	

Sample ID	Date	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature °C	pH	Specific Conductivity µS/cm	Dissolved Oxygen mg/l	Algae, Chlorophyll-a µg/l	Algae, Pheophytin µg/l	Alkalinity mg/l	B/C Ratio	Carbon, Dissolved Organic Carbon mg/l	Particulate Carbon mg/l	Demand, Chemical Oxygen Demand mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate+Nitrite mg/l	Nitrogen, Particulate Nitrogen mg/l	Nitrogen, Total Kjeldahl Nitrogen mg/l	Nitrogen, Total Nitrogen mg/l	Phosphorus, Phosphate mg/l	Phosphorus, Total Phosphorus mg/l	Phosphorus, Particulate Phosphorus mg/l	Phosphorus, Particulate Inorganic Phosphorus mg/l	Turbidity NTU	Solids, Total Suspended Solids mg/l	Solids, Volatile Suspended Solids mg/l	T-TOXins, Microtoxin µg/l	
TG041917-OC	4/19/2017	6:55	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	10.77	7.82	318	10.93	2	3.1	1.1	0.585	0.011	0.077	0.042	3	0.083	0.012	0.064	0.020	8	0.009	5	17	45	3.5		
TG051017-OC	5/10/2017	7:03	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	12.96	7.94	141.5	10.18	1.8	1.2	1.33	0.553	0.011	0.062	0.044		0.167	0.009	0.033	0.022	6	0.018	5	8.3	28	2		
TG060617-OC	6/6/2017	12:09	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	15.69	7.75	112	9.22																				
TG060717-OC	6/7/2017	7:26	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	15.59	7.62	114	9.02	2.3	1.3	1.15	0.509	<0.01	0.018	0.049	2	0.124	0.007	0.033	0.018	9	0.013	1	5.4	16	1.3		
TG071117-OC	7/11/2017	12:00	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	21.46	7.97	150	9.21																				
TG071217-OC	7/12/2017	7:06	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	19.67	7.68	150	8.58	2.5	0.4	0.96	0.337	<0.01	0.03	0.042	1	0.137	0.01	0.022	0.008	7	<0.00	63	1.3	4.2	1.8		
TG080817-OC	8/8/2017	11:15	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	21.97	8.19	165	9.91																				
TG080917-OC	8/9/2017	7:08	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	20.8	7.6	162	7.71	2.3	<0.1	1.06	0.237	<0.01	0.038	<0.03	15	0.176	0.016	0.023	<0.00	63	<0.00	63	0.6	1.4	1.1		
TG091217-OC	9/12/2017	11:47	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	20.69	8.49	179	9.17																				
TG091317-OC	9/13/2017	6:47	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	19.78	7.98	183	7.61	15	1.9	1.7	1.16	<0.01	0.013	0.22		0.377	0.029	0.055	0.022	9	0.011	6	2.4	4.6	3.4		
TG101017-OC	10/10/2017	12:20	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	15.2	8.77	324	13.33																				
TG101117-OC	10/11/2017	6:55	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	13.09	8.05	329	8.63	3	2.8	1.65	0.344	<0.01	0.039	0.043	2	0.225	0.029	0.041	0.007	1	<0.00	63	1.4	3	1.2		
TG111517-OC	11/15/2017	08:23	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	10.44	7.28	134	10.51	4.8	1.1	1.91	0.565	<0.01	0.11	0.072		0.199	0.019	0.038	0.014	2	0.007		3.6	9.8	1.2		
TG121417-OC	12/14/2017	07:49	KR00600	Klamath River near Klamath (RM 6.0; Baseline)	Yurok	0.5	P	5.87	6.95	154	11.84	0.7	0.5	1.11	<0.18	99	<0.01	0.196	<0.03	15	0.303	0.018	0.029	<0.00	63333	<0.00	63333	1.1	1.3	0.57	
LES031517-OC	3/15/2017	6:07	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	9.916	7.97	157.9	11.17	1.3	1.5	0.85	0.504	0.028	0.120			0.170	0.016	0.069									
LES041917-OC	4/19/2017	6:16	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	10.67	7.89	295	11.05	1.8	2.1	1.16	0.479	0.013	0.088	0.045		0.141	0.012	0.051									
LES051017-OC	5/10/2017	6:20	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	12.95	7.74	153	10.19	2.1	1.6	1.28	0.467	0.019	0.062	0.040		0.213	0.009	0.036									
LES060617-OC	6/6/2017	12:47	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	15.69	8.01	110	9.52																				
LES060717-OC	6/7/2017	6:53	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	15.51	7.59	116	9.01	1.6	1.3	1.16	0.33	<0.01	0.019	0.043		0.111	0.008	0.028									
LES071117-OC	7/11/2017	10:41	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	20.42	8.1	169	8.97																				
LES071217-OC	7/12/2017	6:38	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	20.57	7.87	725	8.49	2.8	0.4	1.02	0.325	<0.01	<0.01			0.122	0.009	0.022									
LES080817-OC	8/8/2017	10:21	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	20.92	8.31	2549	10.15																				
LES080917-OC	8/9/2017	6:32	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	20.66	7.96	1853	8.55	1.8	<0.1	1.25	0.234	<0.01	0.011			0.145	0.015	0.024									
LES091217-OC	9/12/2017	12:25	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	21	8.73	1090	11.33																				
LES091317-OC	9/13/2017	6:22	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	14.14	7.92	43613	7.61	18	2.4	1.68	1.44	<0.01	<0.01			0.410	0.026	0.057									
LES101017-OC	10/10/2017	11:15	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	11.52	7.91	80501	10.54																				
LES101117-OC	10/11/2017	6:20	KR00050	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	P	13.26	8.55	2248	10.24	0.9	1.8	2.01	0.243	0.014	0.013			0.369	0.033	0.042									

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature °C	Specific Conductivity µS/cm	Dissolved Oxygen mg/l	Algae, Chlorophyll-a µg/l	Algae, Phaeophytin µg/l	Alkalinity mg/l	Boron, Dissolved Organic Carbon, Particulate Carbon mg/l	Demand, Chemical Oxygen Demand mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate+Nitrite mg/l	Nitrogen, Particulate Nitrogen mg/l	Nitrogen, Total Kjeldahl Nitrogen mg/l	Nitrogen, Total Nitrogen mg/l	Phosphorus, Phosphate mg/l	Phosphorus, Total Phosphorus mg/l	Phosphorus, Particulate Phosphorus mg/l	Inorganic Phosphorus mg/l	Turbidity NTU	Solids, Total Suspended Solids mg/l	Solids, Volatile Suspended Solids mg/l	T-TOXins, Microtoxin µg/l
LES111517-OC	11/15/2017	07:36	KR00050	Klamath River Estuary (RM 0.5, Baseline)	Yurok	0.5	P	10.81	6.79	143	10.04	2.5	0.7	2.18	<0.18 99	0.019	0.186			0.288	0.026	0.038			2.400	0.710		
LES121417-OC	12/14/2017	07:08	KR00050	Klamath River Estuary (RM 0.5, Baseline)	Yurok	0.5	P	5.79	5.69	161	0.5	0.7	1.36	<0.18 99	<0.01	0.188			0.193	0.019	0.033			2.000	0.710			
SH031517-OC	3/15/2017	11:25	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	11.98	8.85	435	10.16	7.5	2.7	2.89		<0.01	0.188			0.559	0.097	0.123			3.10 0	8.300		
SH041917-OC	4/19/2017	11:53	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	12.64	8.84	438	10.4	3.9	2.2	4.3	0.389	<0.01	0.041	0.040		0.308	0.091	0.119			1.40 0	3.600		
SH051017-OC	5/10/2017	12:34	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	17.15	8.53	404	8.74	2.7	2.5	4.91	1.41	0.013	0.074	0.148		0.454	0.107	0.132			2.40 0	15.00 0		
SH060717-OC	6/7/2017	11:22	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	19.94	8.63	463	8.66	3.2	0.7	4.31	0.687	<0.01	0.042			0.413	0.122	0.156			2.10 0	5.500		
SH071217-OC	7/12/2017	11:29	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	23.26	8.5	516	8.7	1.6	<0.1	4.28	0.262	<0.01	<0.01			0.422	0.166	0.197			1.00 0	0.500		
SH080917-OC	8/9/2017	11:23	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	22.56	8.59	504	8.76	2	<0.1	5.85	0.29	<0.01	<0.01	0.033		0.453	0.156	0.188			0.63 0	1.200		
SH091317-OC	9/13/2017	11:20	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	19.11	8.59	516	8.89	2.1	<0.1	4.71	<0.18 99	<0.01	<0.01			0.447	0.172	0.204			0.60 0	0.800		
SH101117-OC	10/11/2017	11:45	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	10.4	8.55	446	10.53	3.2	0.9	1.71	0.375	<0.01	0.133			0.231	0.159	0.169			1.60 0	2.800		
SH111517-OC	11/15/2017	14:08	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	8.42	8.61	444	11.21	4	0.1	2.2	0.304	<0.01	0.189			0.413	0.167	0.183			1.50 0	2.400	0.570	
SH121317-OC	12/13/2017	12:30	SH00000	Shasta River near mouth (Baseline)	Karuk	0.5	P	3.23	8.55	449	12.77	2.7	1.3	1.71		<0.01	0.354			0.589	0.164	0.172			1.20 0	3.000		
SC031517-OC	3/15/2017	9:57	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	8.6	8.43	154	10.88	2.1	0.5	1.23		0.012	0.251			0.380	0.010	0.029			11.0 00	47.00 0		
SC041917-OC	4/19/2017	10:32	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	9.22	8.55	167	11.12	1.4	0.9	1.48	0.319	<0.01	0.252	<0.03 15		0.294	0.007	0.011			1.80 0	5.600		
SC051017-OC	5/10/2017	10:57	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	11.12	8.2	124	10.3	1.8	0.7	1.62	0.397	<0.01	0.153	0.032		0.250	0.003	0.030			4.60 0	21.00 0		
SC060717-OC	6/7/2017	10:02	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	13.45	8.2	108	9.83	2	0.8	1.26	0.432	<0.01	0.148			0.330	0.003	0.016			3.10 0	8.300		
SC071217-OC	7/12/2017	9:59	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	20.07	8.38	213	8.9	2	1.7	0.79	0.459	0.014	0.298			0.539	<0.00 1	0.008			0.60 0	1.600		
SC080917-OC	8/9/2017	9:55	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	21.4	8.59	253	9.18	2.1	<0.1	0.79	0.296	0.014	0.191	0.041		0.351	<0.00 1	0.009			0.45 0	0.670		
SC091317-OC	9/13/2017	9:28	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	18.31	8.53	273	9.48	2.1	1.2	0.81	0.392	<0.01	0.320			0.526	<0.00 1	0.009			0.49 0	2.600		
SC101117-OC	10/11/2017	10:06	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	9.93	8.49	296	10.99	3	0.6	0.51	0.292	<0.01	0.610			0.673	<0.00 1	0.005			0.47 0	0.710		
SC111517-OC	11/15/2017	12:51	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	7.49	8.5	230	11.48	5.8	<0.1	1.42	0.299	0.012	0.335			0.443	<0.00 1	0.005			0.54 0	1.600	0.570	
SC121317-OC	12/13/2017	11:14	SC00000	Scott River near mouth (Baseline)	Karuk	0.5	P	3.13	8.43	219	13.32	2.1	<0.1	1.01		<0.01	0.481			0.599	0.003	0.005			0.48 0	<0.5		
SA031517-OC	3/15/2017	7:40	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	8.65	8.36	81	11.35	0.5	<0.1	0.51		<0.01	0.040			0.222	0.005	0.017			2.90 0	12.00 0		
SA041917-OC	4/19/2017	8:07	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	8.28	8.23	89	11.64	0.7	<0.1	0.87	<0.18 99	<0.01	0.020	<0.03 15		0.129	0.003	0.004			0.56 0	1.200		
SA051017-OC	5/10/2017	7:49	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	9.55	7.8	64	11.28	0.9	0.4	1.15	0.636	<0.01	0.048	0.042		0.165	0.001	0.010			1.40 0	5.800		
SA060717-OC	6/7/2017	7:31	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	12.49	7.85	58	10.38	1.1	0.4	0.89	0.376	0.014	0.018			0.181	0.001	0.007			1.10 0	2.800		
SA071217-OC	7/12/2017	7:14	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	19.58	7.93	100	8.92	0.6	<0.1	0.33	<0.18 99	<0.01	<0.01			<0.05	0.003	0.006			0.33 0	0.600		

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Type	Water Temperature °C	pH	Specific Conductivity µS/cm	Dissolved Oxygen mg/l	Algae, Chlorophyll-a µg/l	Algae, Pheophytin µg/l	Alkalinity mg/l	Boron, Dissolved Organic Carbon, Particulate Carbon mg/l	Demand, Chemical Oxygen Demand mg/l	Nitrogen, Ammonia mg/l	Nitrogen, Nitrate+Nitrite mg/l	Nitrogen, Particulate Nitrogen mg/l	Nitrogen, Total Kjeldahl Nitrogen mg/l	Nitrogen, Total Nitrogen mg/l	Phosphorus, Phosphate mg/l	Phosphorus, Total Phosphorus mg/l	Phosphorus, Particulate Phosphorus mg/l	Phosphorus, Particulate Inorganic Phosphorus mg/l	Turbidity NTU	Solids, Total Suspended Solids mg/l	Solids, Volatile Suspended Solids mg/l	T-Total, Microcystin µg/l
SA080917-OC	8/9/2017	7:29	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	21.37	8.08	126	8.6	0.7	<0.1	0.33	0.222	<0.01	<0.01	<0.03 15	<0.05	<0.00 1	0.006	0.28 0	<0.5						
SA091317-OC	9/13/2017	7:15	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	18.96	8.16	142	8.87	0.9	0.9	0.52	<0.18 99	<0.01	0.012		0.176	0.009	0.011	0.37 0	0.710						
SA101117-OC	10/11/2017	7:35	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	11.09	8.21	143	10.57	1.8	0.7	0.27	0.259	<0.01	<0.01		0.051	0.003	0.004	0.50 0	2.400						
SA111517-OC	11/15/2017	10:18	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	7.84	7.98	89	11.54	1.7	<0.1	1.94	0.27	<0.01	0.024		0.104	0.003	0.009	0.49 0	2.000	1.300					
SA121317-OC	12/13/2017	9:05	SA00000	Salmon River near mouth (Baseline)	Karuk	0.5	P	3.35	8.23	100	13.52	0.9	<0.1	1.66		<0.01	0.039		<0.05	0.004	0.006	0.30 0	1.000						
TR031517-OC	3/15/2017	9:51	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	10.5	8.12	173.3	11.04	1.3	<0.1	0.35	0.393	0.018	0.035		0.300	0.008	0.053	35.00 0	1.500						
TR041917-OC	4/19/2017	10:19	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	10.35	8.07	342	11.22	1.7	3.4	0.73	0.305	0.012	0.020	<0.03 15	0.114	0.006	0.047	27.00 0	2.000						
TR051017-OC	5/10/2017	10:06	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	12.71	7.99	154.1	10.37	2.1	1.2	0.66	0.298	<0.01	0.021	<0.03 15	0.058	0.004	0.023	15.00 0	1.300						
TR060717-OC	6/7/2017	11:02	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	13.86	7.87	119	9.58	0.7	1.5	0.84	0.356	<0.01	<0.01	<0.03 15	<0.05	0.002	0.016	12.00 0	1.500						
TR071217-OC	7/12/2017	10:21	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	19.08	8.05	135	9.44	1.1	0.4	0.77	0.212	<0.01	<0.01		<0.05	0.002	0.009	4.000	1.000						
TR080917-OC	8/9/2017	10:16	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	22.27	8.14	148	8.91	1.1	<0.1	0.73	<0.18 99	<0.01	<0.01		<0.05	0.002	0.005	<0.5	<0.5						
TR091317-OC	9/13/2017	11:01	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	21.39	8.22	171	9.37	0.5	0.2	0.51	0.2	<0.01	<0.01		0.057	0.002	0.005	0.39 0	0.600	0.600					
TR101117-OC	10/11/2017	9:58	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	12.48	8.39	301	10.93	1.2	0.1	0.72	<0.18 99	<0.01	<0.01		0.100	<0.00 1	0.007	0.44 0	0.710	<0.5					
TR111517-OC	11/15/2017	11:42	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	10.44	7.54	156	11.07	3.7	<0.1	1.57	0.402	<0.01	0.015		0.111	0.003	0.012	2.70 0	5.000	1.200					
TR121417-OC	12/14/2017	10:44	TR00000	Trinity River near mouth (Baseline)	Yurok	0.5	P	5.21	8.18	165	13.06	0.9	0.1	0.82	<0.18 99	<0.01	0.016		<0.05	0.002	0.006	0.49 0	<0.5	<0.5					

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.

## Appendix C. Selected Results of 2017 Baseline Phytoplankton Analysis

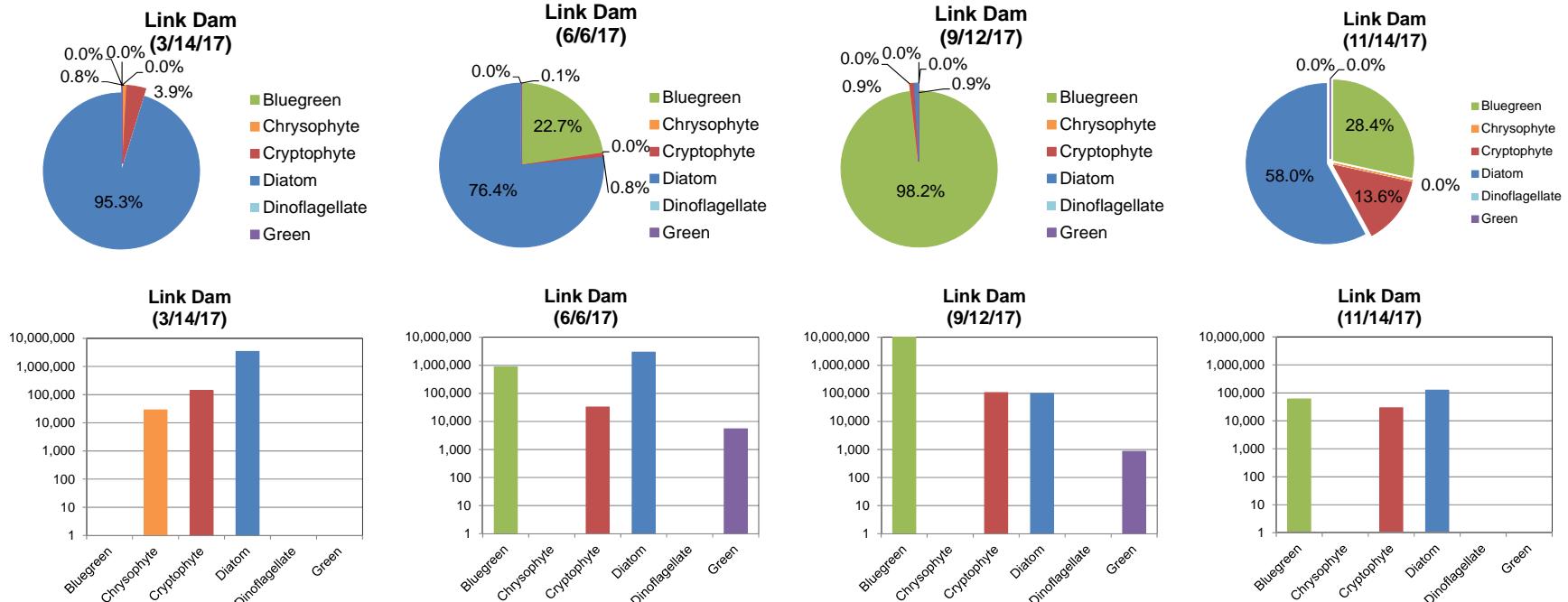
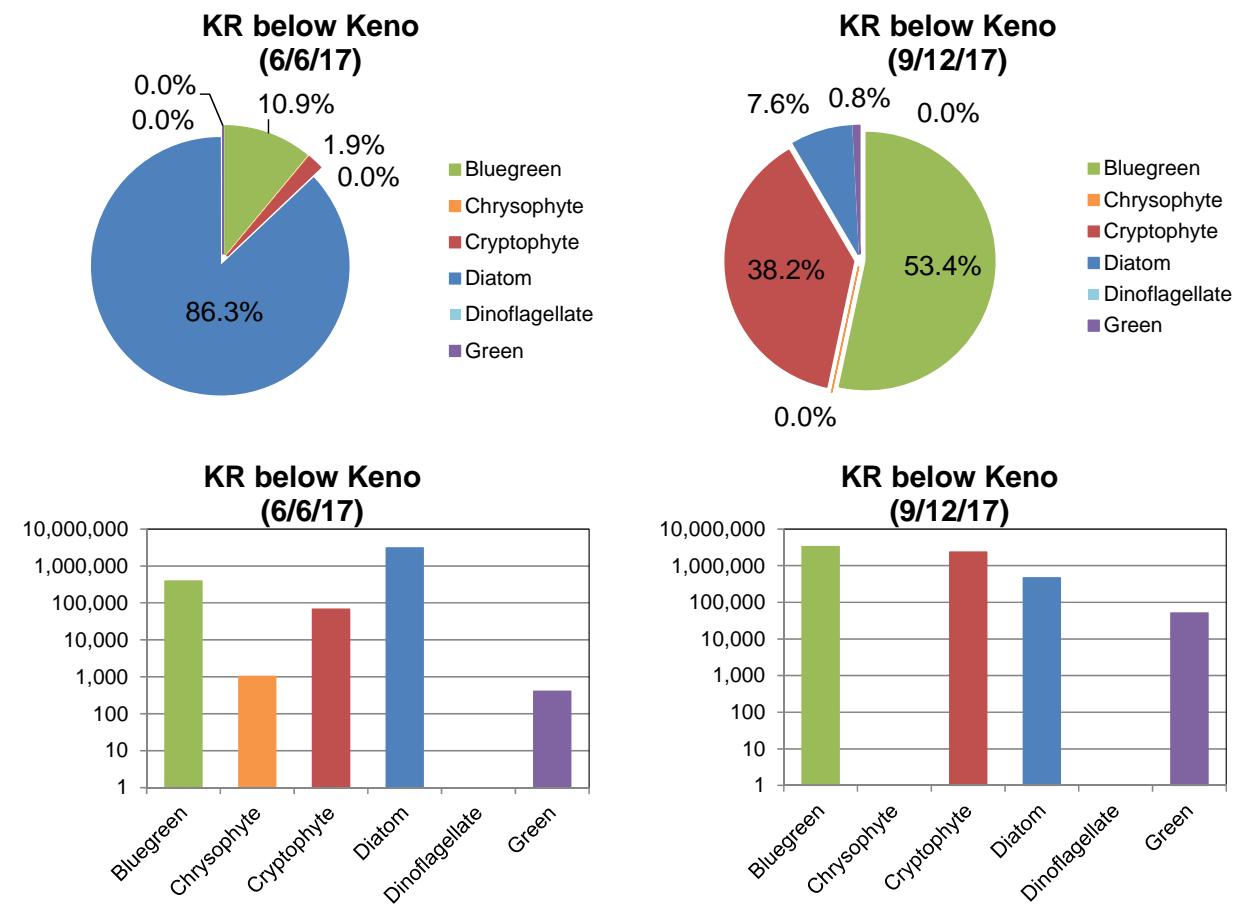
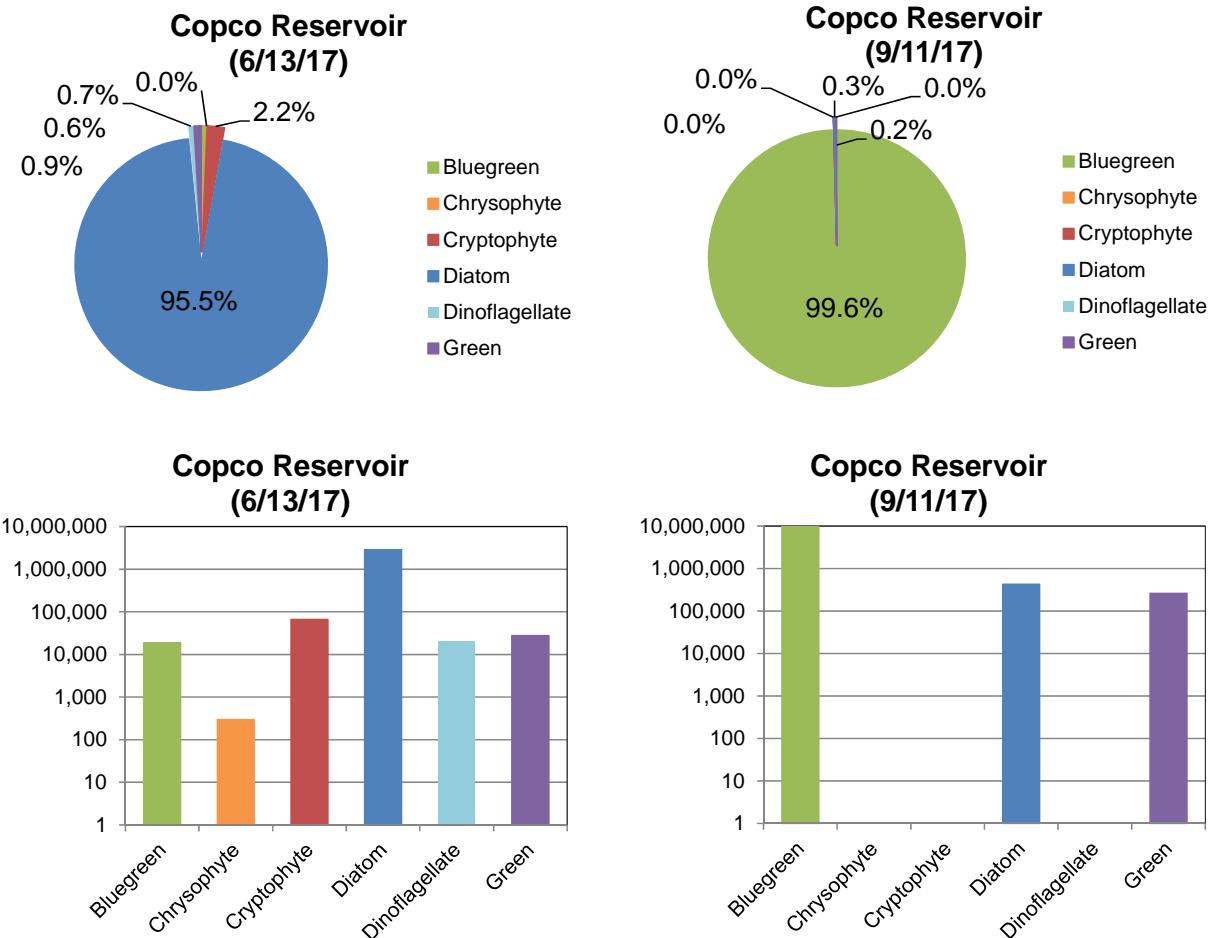


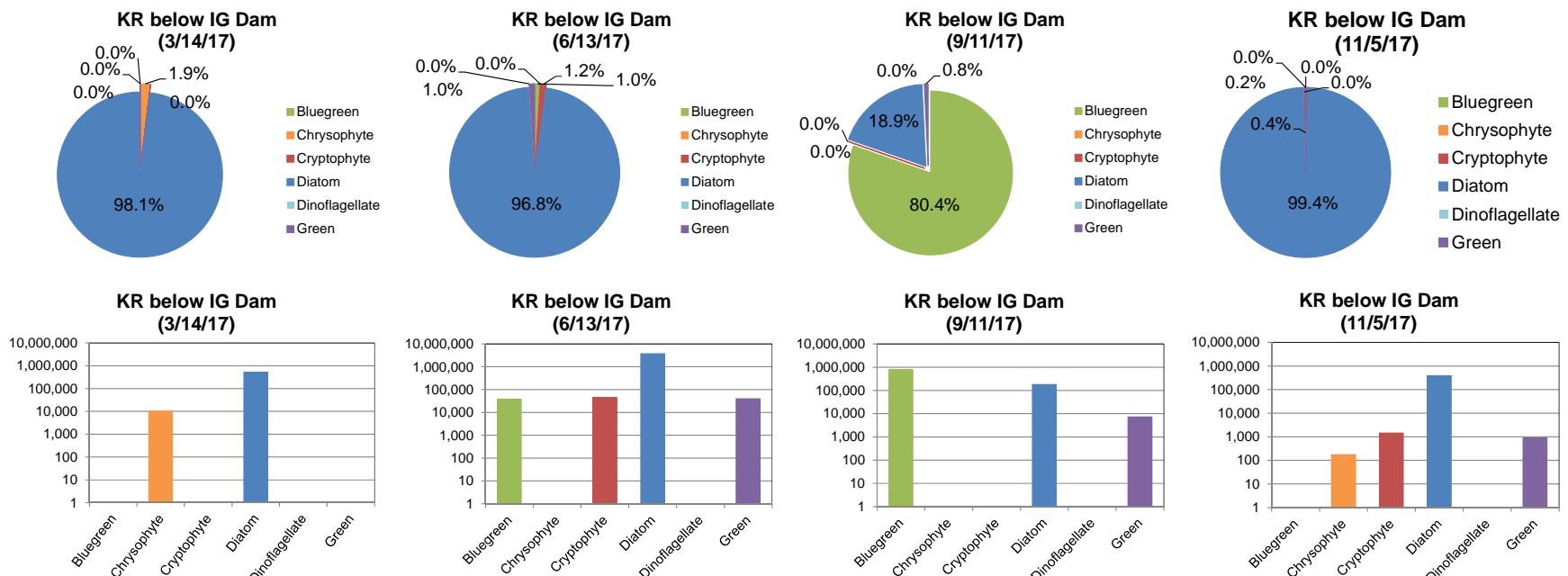
Figure C-1. Phytoplankton species percent biovolume (top) and biovolume by taxa (bottom) at Link River Dam for samples collected as part of Baseline sampling on 3/14/17, 6/6/17, 9/12/17, and 11/14/17. Note: y-axis in logarithmic scale.



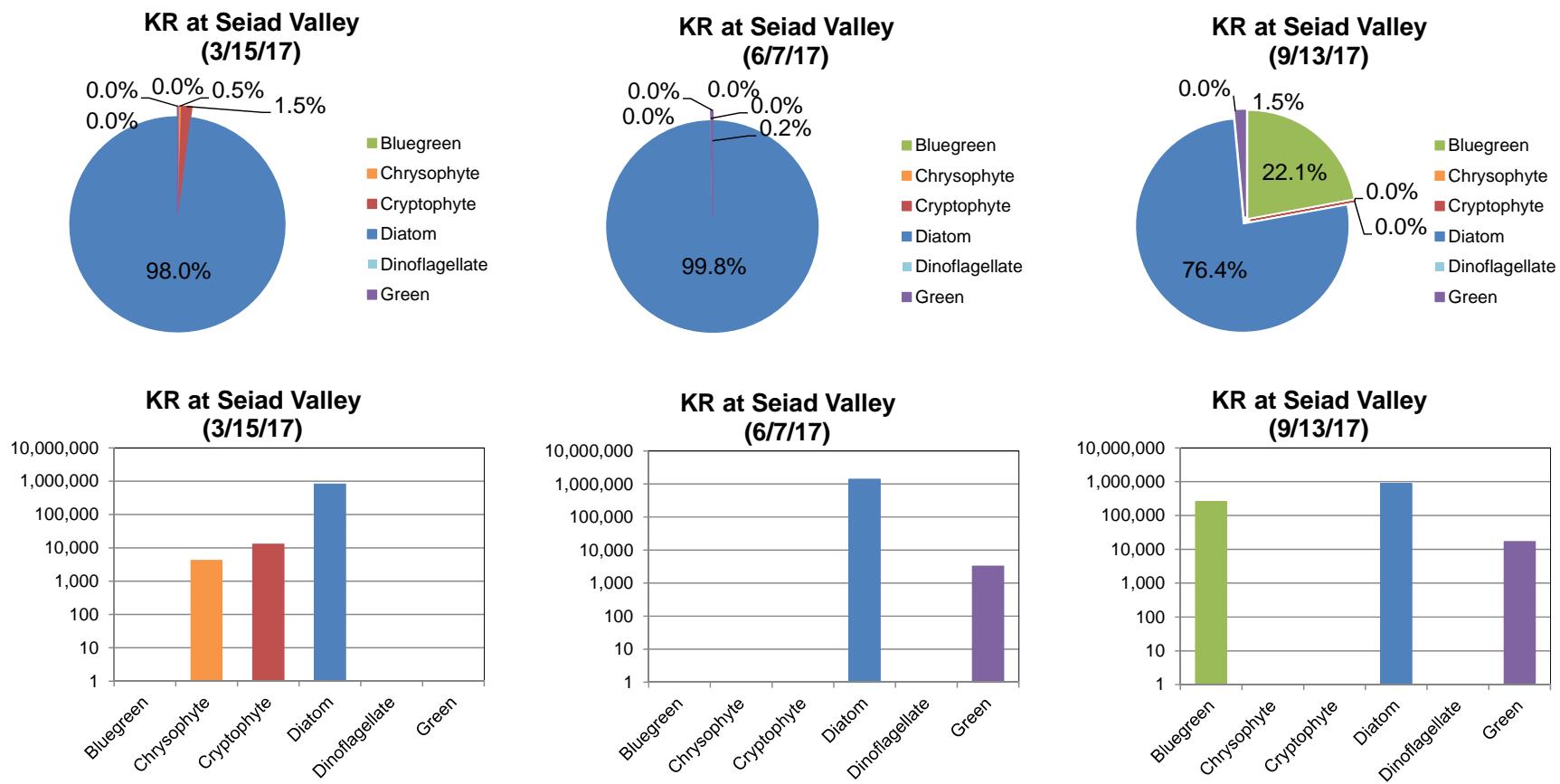
**Figure C-2. Phytoplankton species percent biovolume (top) and biovolume by taxa (bottom) at Klamath River below Keno Dam near a USGS gage (RM 233.4; Baseline) for samples collected as part of Baseline sampling on 6/6/17 and 9/12/17. No samples were collected for March or November 2017. Note: y-axis in logarithmic scale. Also, there was a euglenoid present that is not included in the graph or statistics for June.**



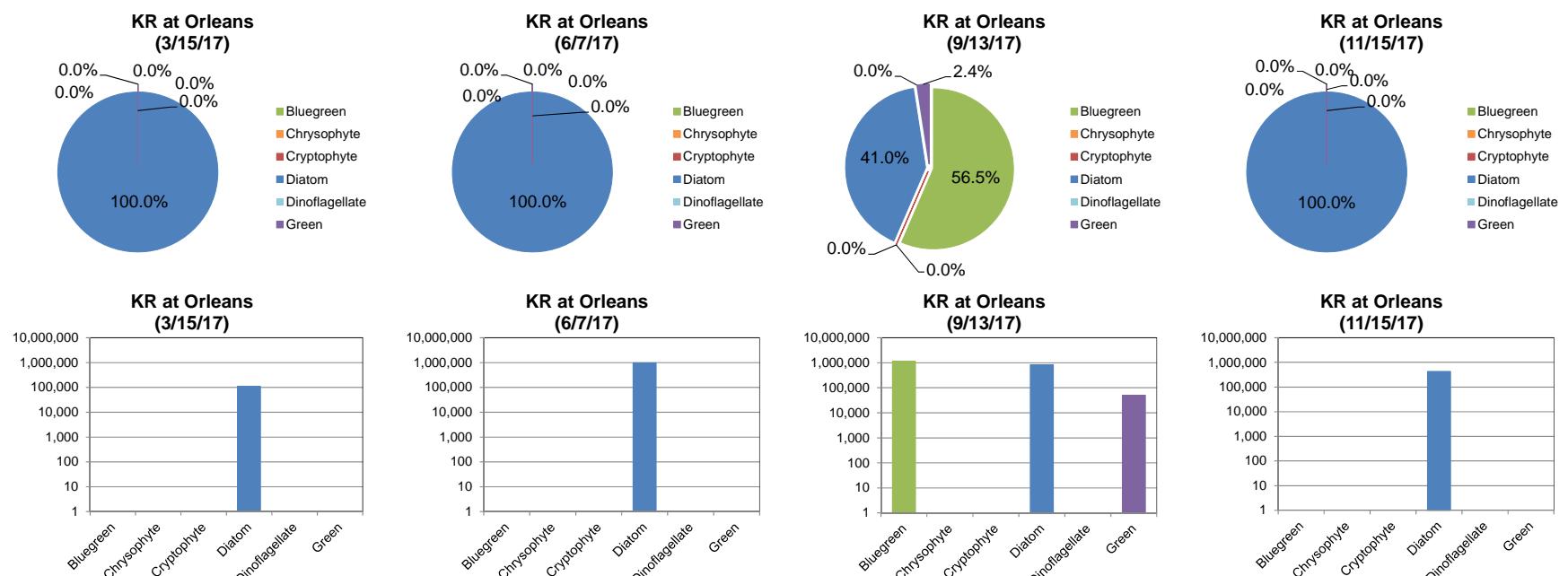
**Figure C-3. Phytoplankton species percent biovolume (top) and biovolume by taxa (bottom) at Copco Reservoir near dam for samples collected as part of Baseline sampling on 6/13/17 and 9/11/17. No samples were collected for March or November 2017. Note: y-axis in logarithmic scale.**



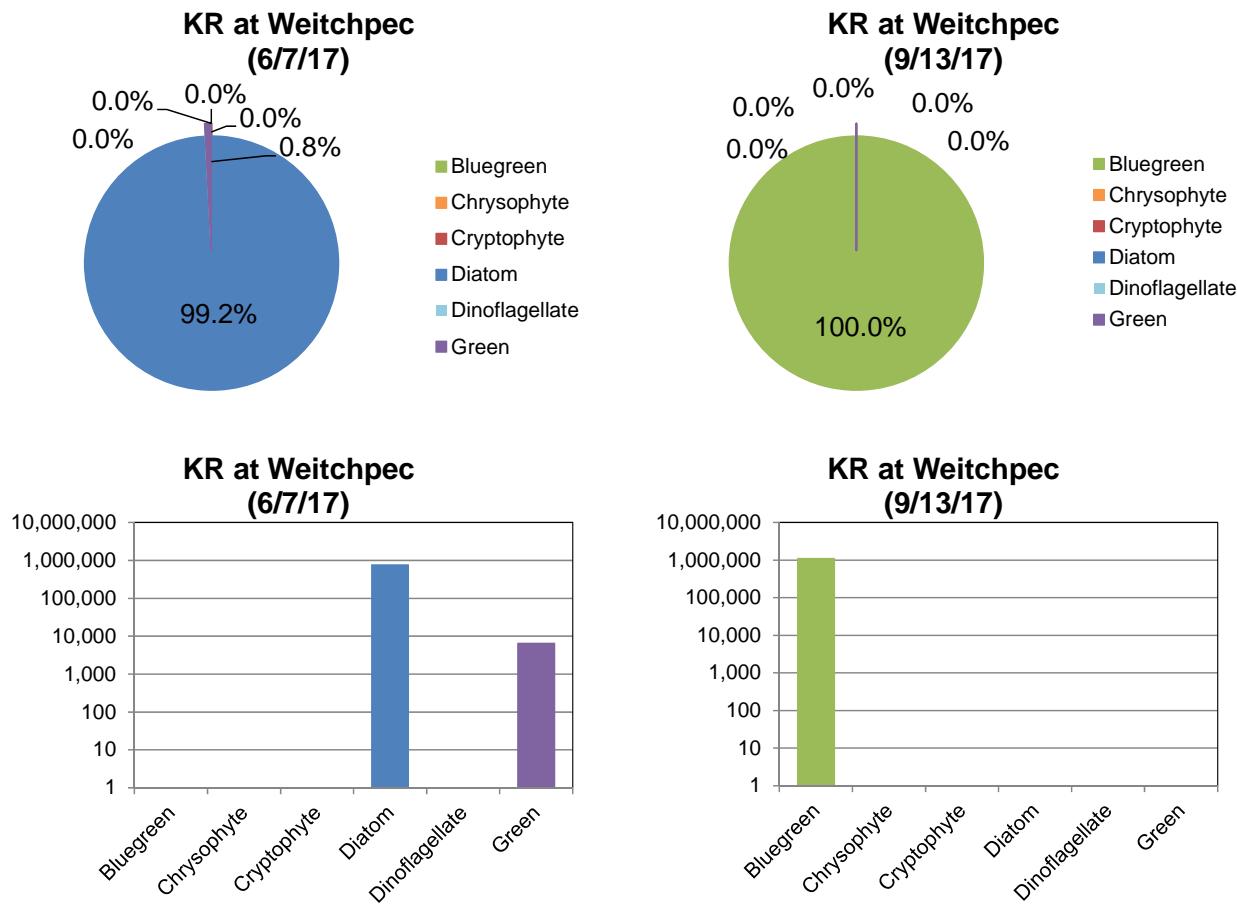
**Figure C-4. Phytoplankton species percent biovolume (top) and biovolume by taxa (bottom) at Klamath River below Iron Gate Dam (RM 189.73; Baseline) for samples collected as part of Baseline sampling on 3/14/17, 6/13/17, 9/11/17, and 11/5/17. Note: y-axis in logarithmic scale.**



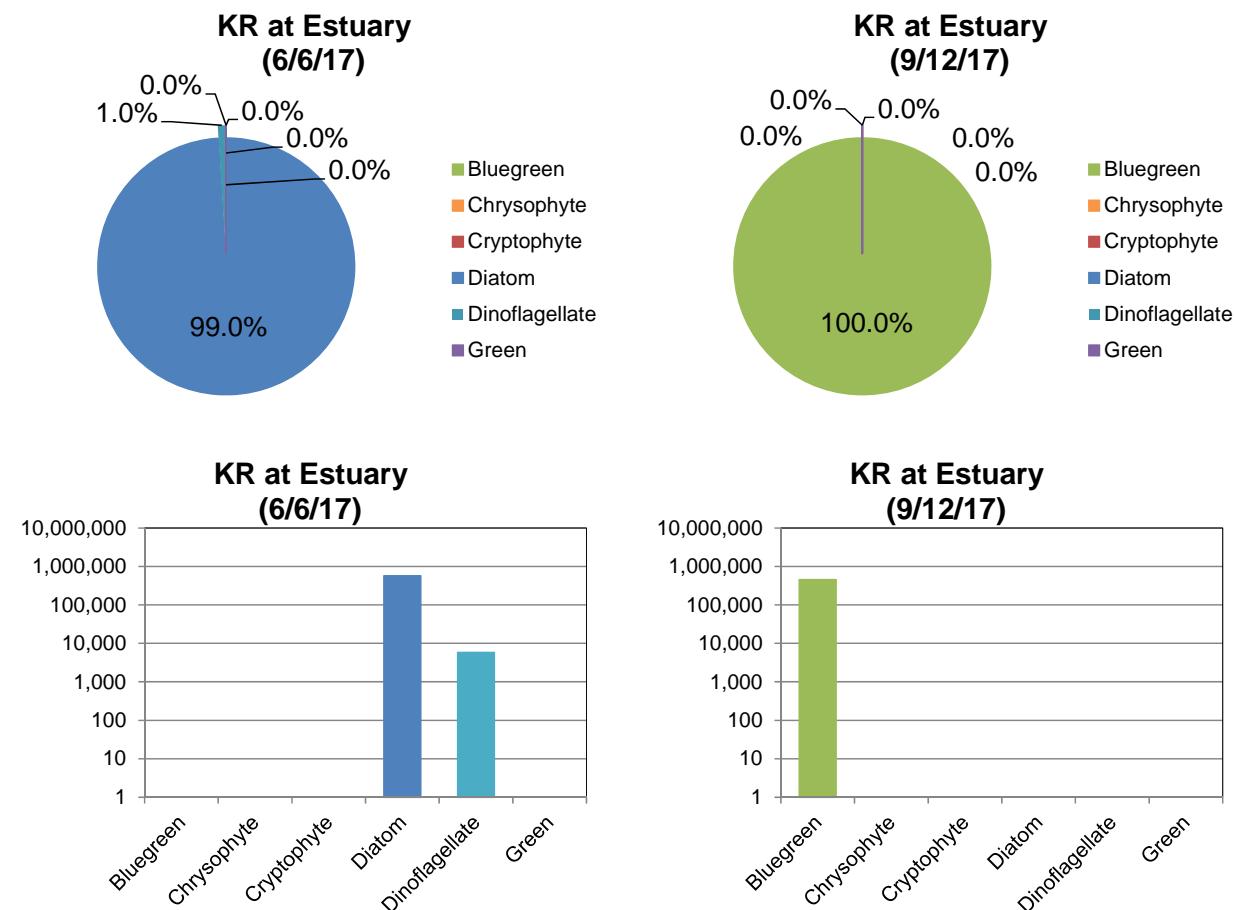
**Figure C-5. Phytoplankton species percent biovolume (top) and biovolume by taxa (bottom) at Klamath River below Seiad (RM 128.5; Baseline) for samples collected as part of Baseline sampling on 3/15/17, 6/7/17 and 9/13/17. No samples were collected for November 2017 Note: y-axis in logarithmic scale.**



**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 3/15/17, 6/7/17, 9/13/17, and 11/15/17. 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 6/7/17 and 9/13/17. No samples were collected for March or November 2017. 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 6/6/17 and 9/12/17. No samples were collected for March or November 2017. Note: y-axis in logarithmic scale.**

## Appendix D. 2017 Public Health Data

**Table D-1. 2017 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 µg/l	Dolichospermum flos-aquae cells/ml	Aphanizomenon flos-aquae cells/ml	Microcystis aeruginosa cells/ml	Dolichospermum circinalis cells/ml	Dolichospermum planktonica cells/ml	Dolichospermum sp. cells/ml	Aphanizomenon sp. cells/ml	Gloeotrichia echinulata cells/ml	Lynbya sp. cells/ml	Planktothrix limosa cells/ml	Planktothrix sp. cells/ml	PseudDolichospermum sp. cells/ml	Dolichospermum variabilis cells/ml	Limnothrix sp. cells/ml
UKEP17001	5/30/2017	11:19	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	15	2662890	0	0	0	0	0	0	0	0	0	0	0	0	0
UKEP17002	6/15/2017	10:06	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	<0.15	9521	4072	0	0	0	0	0	0	0	0	0	0	0	0
UKEP17003	6/27/2017	10:22	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	1.2	0	137243	2966	0	0	0	0	0	0	0	0	0	0	0
UKEP17004	7/20/2017	10:04	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	0.42	0	118923	0	0	0	0	0	0	0	0	0	0	0	0
UKEP17005	8/2/2017	10:46	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	37	0	5267235	90200	0	0	0	0	0	0	0	0	0	0	0
UKEP17006	8/30/2017	11:25	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	3200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKEP17007	9/14/2017	9:48	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	62	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKEP17008	9/28/2017	13:12	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKEP17010	10/18/2017	10:24	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKEP17011	10/27/2017	9:49	UKEP	Upper Klamath Lake at Eagle Ridge County Park (Public Health)	ODEQ	0.1	0.92	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKHP17001	5/30/2017	11:36	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	<0.15	44670	0	0	0	0	0	0	0	0	0	0	0	0	0
UKHP17002	6/15/2017	10:22	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	0.16	9371	11226	0	0	0	0	0	0	0	0	0	0	0	0
UKHP17003	6/27/2017	10:38	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	1.2	0	2469675	0	0	0	0	0	31761	0	0	0	0	0	0
UKHP17004	7/20/2017	10:24	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	12	0	387589	104103	0	0	0	0	0	0	0	0	0	0	0
UKHP17005	8/2/2017	11:08	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	0.45	0	1032864	0	0	0	0	0	0	0	0	0	0	0	0
UKHP17006	8/30/2017	11:41	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	8800	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKHP17007	9/14/2017	10:06	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	81	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKHP17008	9/28/2017	13:25	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	7800	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKHP17010	10/18/2017	10:38	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	39	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
UKHP17011	10/27/2017	10:04	UKHP	Upper Klamath Lake at Howard's Bay Park (Public Health)	ODEQ	0.1	0.89	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 µg/l	Dolichospermum flos-aquae cells/ml	Aphanizomenon flos-aquae cells/ml	Microcysts aeruginosa cells/ml	Dolichospermum circinalis cells/ml	Dolichospermum placentica cells/ml	Dolichospermum sp. cells/ml	Aphanizomenon sp. cells/ml	Gloeothrix echinulata cells/ml	Lyngbya sp. cells/ml	Planktothrix limosa cells/ml	Planktothrix sp. cells/ml	Pseudodolichospermum sp. cells/ml	Dolichospermum variabilis cells/ml	Limnothrix sp. cells/ml
UKMP17001	5/30/2017	11:53	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	<0.15	72611	0	0	0	0	0	0	0	0	0	0	0	0	
UKMP17002	6/15/2017	10:36	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	<0.15	12764	18798	0	0	0	0	0	0	0	0	0	0	0	
UKMP17003	6/27/2017	10:59	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	0.5	0	460204	0	0	0	0	0	0	0	0	0	0	0	
UKMP17004	7/20/2017	10:44	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	0.57	0	7967	17925	0	0	0	0	0	0	0	0	0	0	
UKMP17005	8/2/2017	11:39	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	1.1	0	632052	0	0	0	0	0	0	0	0	0	0	0	
UKMP17006	8/30/2017	11:57	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	56	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
UKMP17007	9/14/2017	10:24	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	46	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
UKMP17008	9/28/2017	13:40	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	5.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
UKMP17010	10/18/2017	10:53	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	0.75	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
UKMP17011	10/27/2017	10:21	UKMP	Upper Klamath Lake at Moore Park (Public Health)	ODEQ	0.1	1.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KEKP17001	5/30/2017	10:32	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	<0.15	2075	0	0	0	0	0	0	0	0	0	0	0	0	
KEKP17002	6/15/2017	9:23	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	1.3	946	141988	4840	0	0	0	0	0	0	0	0	0	0	
KEKP17003	6/27/2017	9:20	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	2.5	0	1458901	0	0	0	0	0	0	0	0	0	0	0	
KEKP17004	7/20/2017	9:19	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	6.1	0	15257	11633	0	0	0	0	0	0	0	0	0	0	
KEKP17005	8/2/2017	9:55	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	0.9	332	0	0	0	0	0	0	0	0	0	0	0	0	
KEKP17006	8/30/2017	10:30	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	1.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KEKP17007	9/14/2017	9:17	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	2.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KEKP17008	9/27/2017	9:20	KEKP	Keno Reservoir at Keno Park (Public Health)	ODEQ	0.1	11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
BRTC17001	5/30/2017	10:14	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	<0.15	635	0	0	0	0	0	0	0	0	0	0	0	0	
BRTC17002	6/15/2017	9:09	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	<0.15	0	26394	0	0	0	0	0	0	0	0	0	0	0	
BRTC17003	6/27/2017	9:01	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	<0.15	0	9364	0	0	0	0	0	0	0	0	0	0	0	
BRTC17004	7/20/2017	9:07	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	0.39	0	0	1956	0	0	0	0	0	0	0	0	0	0	
BRTC17005	8/2/2017	9:36	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	0.19	0	0	0	0	0	0	0	0	0	0	0	0	0	
BRTC17006	8/30/2017	10:15	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	

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin µg/l	Dolichospermum flos-aquae cells/ml	Aphanizomenon flos-aquae cells/ml	Microcysts aeruginosa cells/ml	Dolichospermum circinalis cells/ml	Dolichospermum placentica cells/ml	Dolichospermum sp. cells/ml	Aphanizomenon sp. cells/ml	Gloeothrix echinulata cells/ml	Lyngbya sp. cells/ml	Planktothrix limosa cells/ml	Planktothrix sp. cells/ml	Pseudodolichospermum sp. cells/ml	Dolichospermum variabilis cells/ml	Limnothrix sp. cells/ml
BRTC17007	9/14/2017	9:00	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	1.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
BRTC17008	9/27/2017	9:05	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	16	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
BRTC17010	10/18/2017	9:30	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	0.48	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
BRTC17011	10/27/2017	9:00	BRTC	J.C. Boyle Reservoir at Topsy Campground (Public Health)	ODEQ	0.1	0.67	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17801	5/31/2017	15:10	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	<0.15	0	25	0	0	0	0	0	0	0	0	0	0	0	
KR17806	6/13/2017	13:10	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	<0.15	201	117	0	0	0	0	0	0	0	0	0	0	0	
KR17811	6/25/2017	10:20	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	6.7	0	11300	16161	0	0	0	0	0	0	0	0	0	0	
KR17816	7/10/2017	13:15	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	3	0	23919	4252	201	0	0	0	0	0	0	0	0	0	
KR17821	7/23/2017	9:40	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	550	0	19936041	0	0	0	0	0	0	0	0	0	0		
KR17826	8/7/2017	14:30	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	36	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
KR17831	8/27/2017	10:40	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	380000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
KR17836	9/11/2017	13:30	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	33	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
KR17841	9/24/2017	10:15	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	24000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
KR17846	10/9/2017	9:40	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	7.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
KR17851	10/24/2017	9:00	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	0.98	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
KR17856	11/5/2017	13:25	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
KR17861	12/11/2017	13:05	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		
KR17800	5/31/2017	15:50	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		
KR17805	6/13/2017	14:45	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	<0.15	0	0	0	0	0	0	0	0	0	185	0	0		
KR17810	6/25/2017	11:35	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	0.18	0	0	0	0	0	0	0	0	0	0	0	0		
KR17815	7/10/2017	16:30	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	<0.15	0	1899	288	0	0	0	0	0	0	0	0	0		
KR17820	7/23/2017	10:45	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	4.5	0	381446	15534	0	0	0	0	0	0	0	0	0		
KR17825	8/7/2017	17:15	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	560	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
KR17830	8/27/2017	11:40	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	3000	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 µg/l	Dolichospermum flos-aquae cells/ml	Aphanizomenon flos-aquae cells/ml	Microcysts aeruginosa cells/ml	Dolichospermum circinalis cells/ml	Dolichospermum placentica cells/ml	Dolichospermum sp. cells/ml	Aphanizomenon sp. cells/ml	Gloeothrix echinulata cells/ml	Lyngbya sp. cells/ml	Planktothrix limosa cells/ml	Planktothrix sp. cells/ml	Pseudodolichospermum sp. cells/ml	Dolichospermum variabilis cells/ml	Limnothrix sp. cells/ml
KR17835	9/11/2017	16:40	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	24	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17840	9/24/2017	11:10	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17845	10/9/2017	11:00	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17850	10/24/2017	10:05	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	4.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17855	11/5/2017	16:10	CRMC	Copco Reservoir at Mallard Cove (Public Health)	PacifiCorp	0.1	0.41	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17860	12/11/2017	14:30	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	
KR17803	5/31/2017	14:05	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	
KR17808	6/13/2017	10:00	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	<0.15	0	135	0	0	0	0	0	0	0	0	0	0	0	
KR17813	6/25/2017	9:15	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	<0.15	0	0	0	0	0	490	0	0	0	0	0	0	0	
KR17818	7/10/2017	11:45	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	2.4	0	53118	3644	0	0	228	0	0	0	0	0	0	0	
KR17823	7/23/2017	8:55	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	5.1	0	377467	5556	0	0	0	0	0	0	0	0	0	0	
KR17828	8/7/2017	13:00	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	19	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17833	8/27/2017	9:30	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	450	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17838	9/11/2017	12:05	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	22	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17843	9/24/2017	9:30	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	58	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17848	10/9/2017	7:15	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	3.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17853	10/24/2017	8:10	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	0.82	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17858	11/5/2017	12:20	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	0.16	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17863	12/11/2017	11:30	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	
KR17802	5/31/2017	14:35	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	
KR17807	6/13/2017	10:20	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	<0.15	24	150	0	0	0	0	0	0	0	0	0	0	0	
KR17812	6/25/2017	9:40	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	<0.15	0	0	0	0	0	255	0	0	0	0	0	0	44	
KR17817	7/10/2017	12:00	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	47	0	10988	582554	0	0	0	0	0	0	0	0	0	1998	
KR17822	7/23/2017	9:15	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	1.6	0	54270	3667	0	0	0	0	0	0	0	0	0	0	

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KR17827	8/7/2017	13:30	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	7.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17832	8/27/2017	10:10	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	240	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17837	9/11/2017	12:30	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	140	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17842	9/24/2017	9:55	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	9.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17847	10/9/2017	7:35	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	1.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17852	10/24/2017	8:30	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	0.37	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17857	11/5/2017	12:35	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	
KR17862	12/11/2017	11:50	IGCC	Iron Gate Reservoir at Camp Creek (Public Health)	PacifiCorp	0.1	0.21	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17804	5/31/2017	16:30	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	
KR17809	6/13/2017	15:50	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	
KR17814	6/25/2017	12:35	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	
KR17819	7/10/2017	17:55	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	0.32	0	23750	497	0	0	0	0	0	0	0	0	0	0	
KR17824	7/23/2017	11:30	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	0.22	0	33764	404	0	0	0	0	0	0	0	0	0	0	
KR17829	8/7/2017	18:30	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	0.23	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17834	8/27/2017	12:25	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	18	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17839	9/11/2017	18:15	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17844	9/24/2017	11:50	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	3.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17849	10/9/2017	12:10	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	0.32	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17854	10/24/2017	11:00	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	0.24	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17859	11/5/2017	17:15	KRBI	Klamath River below Iron Gate Dam (RM 189.73; Public Health)	PacifiCorp	0.1	0.18	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
KR17864	12/11/2017	15:50	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	
IB071217-SG	7/12/2017	10:50	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	0.24	0	16574	0	0	0	0	0	0	0	0	0	0	0	
IB071917-SG	7/19/2017	9:19	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	0.22	0	63829	0	0	0	0	0	0	0	0	0	0	0	
IB072617-SG	7/26/2017	11:25	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	<0.15	0	2162	0	0	0	0	0	0	0	0	0	0	0	

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin µg/l	Dolichospermum flos-aquae cells/ml	Aphanizomenon flos-aquae cells/ml	Microcystis aeruginosa cells/ml	Dolichospermum circinalis cells/ml	Dolichospermum placentica cells/ml	Dolichospermum sp. cells/ml	Aphanizomenon sp. cells/ml	Gloeothrix echinulata cells/ml	Lyngbya sp. cells/ml	Planktothrix limosa cells/ml	Planktothrix sp. cells/ml	Pseudodolichospermum sp. cells/ml	Dolichospermum variabilis cells/ml	Limnothrix sp. cells/ml
IB080217-SG	8/2/2017	9:44	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	0.29	0	475	0	0	0	0	0	0	0	0	0	0	0	0
IB080917-SG	8/9/2017	11:42	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB081617-SG	8/16/2017	10:23	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	6.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB082317-SG	8/23/2017	13:13	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	29	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB083017-SG	8/30/2017	10:53	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB091317-SG	9/13/2017	10:58	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	23	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB092017-SG	9/20/2017	10:02	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	3.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB092717-SG	9/27/2017	12:34	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	0.79	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB100417-SG	10/4/2017	10:03	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	0.78	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB101117-SG	10/11/2017	11:30	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	0.59	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
IB101817-SG	10/18/2017	10:13	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
BB071217-SG	7/12/2017	9:22	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	0	12845	0	0	0	0	0	0	0	0	0	0	0	0
BB071917-SG	7/19/2017	8:34	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	0	24053	0	0	0	0	0	0	0	0	0	0	167	0
BB072617-SG	7/26/2017	9:07	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	0.22	0	75307	0	0	0	0	0	0	0	0	0	0	0	0
BB080217-SG	8/2/2017	9:00	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	<0.15	0	0	0	0	0	48	0	0	0	0	0	0	0	0
BB080917-SG	8/9/2017	10:21	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	0.17	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB081617-SG	8/16/2017	9:40	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	2.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB082317-SG	8/23/2017	10:40	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	7.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB083017-SG	8/30/2017	10:04	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	6.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB091317-SG	9/13/2017	10:00	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB092017-SG	9/20/2017	9:19	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	1.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB092717-SG	9/27/2017	10:38	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	0.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB100417-SG	10/4/2017	9:19	KRBB	Klamath River at Brown Bear River Access (RM 150.00; Public Health)	Karuk	0.1	0.34	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BB101117-SG	10/11/2017	10:31	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

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin µg/l	Dolichospermum flos-aquae cells/ml	Aphanizomenon flos-aquae cells/ml	Microcystis aeruginosa cells/ml	Dolichospermum circinalis cells/ml	Dolichospermum placentica cells/ml	Dolichospermum sp. cells/ml	Aphanizomenon sp. cells/ml	Gloeothrix echinulata cells/ml	Lyngbya sp. cells/ml	Planktothrix limosa cells/ml	Planktothrix sp. cells/ml	Pseudodolichospermum sp. cells/ml	Dolichospermum variabilis cells/ml	Limnothrix sp. cells/ml
BB101817-SG	10/18/2017	9:25	KRBB	Klamath River at Brown Bear River Access (RM 150.0; Public Health)	Karuk	0.1	0.22	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
SV071217-SG	7/12/2017	8:20	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	<0.15	0	16079	0	0	0	0	0	0	0	0	0	0	0	
SV071917-SG	7/19/2017	7:27	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	<0.15	0	31119	0	0	0	0	0	0	0	0	0	0	0	
SV072617-SG	7/26/2017	8:00	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	<0.15	0	3998	0	0	0	0	0	0	0	0	0	0	0	
SV080217-SG	8/2/2017	8:24	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	
SV080917-SG	8/9/2017	9:15	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	
SV081617-SG	8/16/2017	8:56	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	3.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
SV082317-SG	8/23/2017	9:50	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	3.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
SV083017-SG	8/30/2017	9:30	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	7.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
SV091317-SG	9/13/2017	8:55	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
SV092017-SG	9/20/2017	8:41	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	0.98	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
SV092717-SG	9/27/2017	9:05	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	0.51	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
SV100417-SG	10/4/2017	8:48	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	0.34	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
SV101117-SG	10/11/2017	9:25	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	0.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
SV101817-SG	10/18/2017	8:52	KRSV	Klamath River below Seiad (RM 128.5; Public Health)	Karuk	0.1	0.17	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
HC071217-SG	7/12/2017	7:30	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	<0.15	0	11874	0	0	0	0	0	0	0	0	0	0	0	
HC071917-SG	7/19/2017	13:29	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	<0.15	0	33761	0	0	0	0	0	0	0	0	0	0	0	
HC072617-SG	7/26/2017	7:19	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	<0.15	0	4702	0	0	0	0	0	0	0	0	0	0	0	
HC080217-SG	8/2/2017	6:55	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	
HC080917-SG	8/9/2017	8:35	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	
HC081617-SG	8/16/2017	8:10	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
HC082317-SG	8/23/2017	8:33	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	0.78	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
HC091317-SG	9/13/2017	8:15	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
HC092017-SG	9/20/2017	8:01	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	1.5	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 µg/l	Dolichospermum flos-aquae cells/ml	Aphanizomenon flos-aquae cells/ml	Microcystis aeruginosa cells/ml	Dolichospermum circinalis cells/ml	Dolichospermum plantonica cells/ml	Dolichospermum sp. cells/ml	Aphanizomenon sp. cells/ml	Gloeothrix echinulata cells/ml	Lynbya sp. cells/ml	Planktothrix limosa cells/ml	Planktothrix sp. cells/ml	Pseudodolichospermum sp. cells/ml	Dolichospermum variabilis cells/ml	Limnothrix sp. cells/ml
HC092717-SG	9/27/2017	8:28	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	0.36	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
HC100417-SG	10/4/2017	8:02	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	0.22	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
HC101117-SG	10/11/2017	8:40	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	0.26	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
HC101817-SG	10/18/2017	8:12	KRHC	Klamath River below Happy Camp (RM 101.3; Public Health)	Karuk	0.1	0.16	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
OR071217-SG	7/12/2017	5:50	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	0	2759	0	0	0	0	0	0	0	0	0	0	0	
OR071917-SG	7/19/2017	5:51	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	0	42151	0	0	0	0	0	0	0	0	0	0	0	
OR072617-SG	7/26/2017	5:58	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	<0.15	0	45134	0	0	0	0	0	0	0	0	0	0	0	
OR080217-SG	8/2/2017	5:39	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	
OR080917-SG	8/9/2017	7:00	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	
OR081617-SG	8/16/2017	7:12	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	
OR082317-SG	8/23/2017	6:50	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	4.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
OR083017-SG	8/30/2017	7:15	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	7.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
OR091317-SG	9/13/2017	6:52	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
OR092017-SG	9/20/2017	6:54	KROR	Klamath River at Orleans (USGS) (RM 59.1; Public Health)	Karuk	0.1	1.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
OR092717-SG	9/27/2017	6:55	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	
OR100417-SG	10/4/2017	7:02	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	
OR101117-SG	10/11/2017	7:07	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	
OR101817-SG	10/18/2017	7:09	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	
WE071217-SG	7/12/2017	9:37	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	
WE072617-SG	7/26/2017	10:06	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	
WE080217-SG	8/2/2017	10:17	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	
WE080917-SG	8/9/2017	9:29	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	
WE081617-SG	8/16/2017	11:20	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	
WE082317-SG	8/23/2017	10:39	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	4	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 µg/l	Dolichospermum flos-aquae cells/ml	Aphanizomenon flos-aquae cells/ml	Microcystis aeruginosa cells/ml	Dolichospermum circinalis cells/ml	Dolichospermum placentica cells/ml	Dolichospermum sp. cells/ml	Aphanizomenon sp. cells/ml	Gloeothrix echinulata cells/ml	Lyngbya sp. cells/ml	Planktothrix limosa cells/ml	Planktothrix sp. cells/ml	Pseudodolichospermum sp. cells/ml	Dolichospermum variabilis cells/ml	Limnothrix sp. cells/ml
WE083017-SG	8/30/2017	11:09	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	9.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
WE090617-SG	9/6/2017	11:08	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	3.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
WE091317-SG	9/13/2017	9:37	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	30	0	12027	48302	0	0	0	0	0	0	0	0	0	0	
WE092017-SG	9/20/2017	11:18	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	0.89	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
WE092717-SG	9/27/2017	10:10	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	0.26	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
WE100417-SG	10/4/2017	11:21	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	
WE101117-SG	10/11/2017	9:20	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	
WE102517-SG	10/25/2017	10:52	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	
TG071117-SG	7/11/2017	11:00	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	
TG072517-SG	7/25/2017	11:28	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	
TG080117-SG	8/1/2017	11:53	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	
TG080817-SG	8/8/2017	10:15	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	
TG081517-SG	8/15/2017	12:54	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	
TG082217-SG	8/22/2017	11:47	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
TG082917-SG	8/29/2017	10:55	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
TG090517-SG	9/5/2017	13:07	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
TG091217-SG	9/12/2017	10:47	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	13	0	5756	32279	0	0	0	0	0	0	0	0	0	207	
TG091917-SG	9/19/2017	11:15	KRTG	Klamath River near Klamath (RM 6.0; Public Health)	Yurok	0.1	2.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
TG092617-SG	9/26/2017	11:14	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	
TG100317-SG	10/3/2017	12:33	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	
TG101017-SG	10/10/2017	11:20	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	
TG102417-SG	10/24/2017	10:57	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	
SS071117-SG	7/11/2017	10:19	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	
SS072517-SG	7/25/2017	10:21	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	

Sample ID	Date	Standard Time	Site ID	Site Name	Agency	Depth, m	Microcystin µg/l	Dolichospermum flos-aquae cells/ml	Aphanizomenon flos-aquae cells/ml	Microcysts aeruginosa cells/ml	Dolichospermum circinalis cells/ml	Dolichospermum plantonica cells/ml	Dolichospermum sp. cells/ml	Aphanizomenon sp. cells/ml	Gloeothrix echinulata cells/ml	Lynbya sp. cells/ml	Planktothrix limosa cells/ml	Planktothrix sp. cells/ml	Pseudodolichospermum sp. cells/ml	Dolichospermum variabilis cells/ml	Limnothrrix sp. cells/ml
SS080117-SG	8/1/2017	11:24	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	
SS080817-SG	8/8/2017	9:49	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	
SS081517-SG	8/15/2017	12:32	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	
SS082217-SG	8/22/2017	11:22	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	1.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
SS082917-SG	8/29/2017	10:29	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	3.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
SS090517-SG	9/5/2017	12:35	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	5.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
SS091217-SG	9/12/2017	10:18	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	9.5	0	2002	26689	0	0	0	0	0	0	0	0	0	667	
SS091917-SG	9/19/2017	10:45	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	3.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
SS092617-SG	9/26/2017	11:48	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	
SS100217-OC	10/2/2017	11:24	KRSS	Klamath River at South Slough (RM 0.1; Public Health)	Yurok	0.1	NS	0	30	271	0	0	0	0	0	0	0	0	0	0	
SS100317-SG	10/3/2017	12:15	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	
SS101017-SG	10/10/2017	10:48	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	
SS102417-SG	10/24/2017	10:17	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	

**Table D-2. Mass spectroscopy data for the 2017 samples collected by the Yurok tribe.** Note: Results are presented in micrograms per liter ( $\mu\text{g/l}$ ). NA = Samples not analyzed for these constituents during 2017.

Sample ID	Date	Time	Site ID	Site Name	Agency	Depth, m	Lab	Microcystin -RR	MC-Desmethyl -RR	Microcystin -LR	MC-Desmethyl -LR	Microcystin -YR	Microcystin -LA	Microcystin-LW (screening only)	Microcystin -LF	Microcystin -LY	Domoic acid	Okadaic acid	Nodularin
								$\mu\text{g/l}$	$\mu\text{g/l}$	$\mu\text{g/l}$	$\mu\text{g/l}$	$\mu\text{g/l}$	$\mu\text{g/l}$	$\mu\text{g/l}$	$\mu\text{g/l}$	$\mu\text{g/l}$	$\mu\text{g/l}$	$\mu\text{g/l}$	
LES062017-OC	6/20/2017	11:14	KR00050_KHSA	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	Greenwater	<0.01	<0.02	<0.04	<0.04	<0.08	<0.02	<0.1	<0.02	<0.1	NA	NA	<0.03
LES072517-OC	7/25/2017	10:55	KR00050_KHSA	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	Greenwater	<0.01	<0.02	<0.04	<0.04	<0.08	<0.02	<0.1	<0.02	<0.1	NA	NA	<0.03
LES082217-OC	8/22/2017	12:19	KR00050_KHSA	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	Greenwater	<0.01	<0.02	<0.04	<0.04	<0.08	0.02	<0.1	<0.02	<0.1	NA	NA	<0.03
LES092617-OC	9/26/2017	10:30	KR00050_KHSA	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	Greenwater	<0.01	<0.02	<0.04	<0.04	<0.08	0.08	<0.1	<0.02	<0.1	NA	NA	<0.03
LES102417-OC	10/24/2017	9:37	KR00050_KHSA	Klamath River Estuary (RM 0.5; Baseline)	Yurok	0.5	Greenwater	<0.01	<0.02	<0.04	<0.04	<0.08	<0.02	<0.1	<0.02	<0.1	NA	NA	<0.03

**Table D-3. Results for anatoxin-a analysis for 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
KR17821	7/23/2017	10:40	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	Greenwater	ND
KR17823	7/23/2017	9:55	IGJW	Iron Gate Reservoir at Jay Williams Boat Ramp (Public Health)	PacifiCorp	0.1	Greenwater	ND
KR17831	8/27/2017	10:40	CRCC	Copco Reservoir at Copco Cove (Public Health)	PacifiCorp	0.1	Greenwater	ND
IB062117-SG	6/21/2017	12:11	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	ND
IG062117-OC	6/21/2017	11:46	KR18973	Klamath River below Iron Gate Dam (RM 189.73; Baseline)	Karuk	0.1	Greenwater	ND
WA071217-OC	7/12/2017	10:42	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.1	Greenwater	ND
IB071217-SG	7/12/2017	11:50	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	ND
IB091317-SG	9/13/2017	10:58	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	ND
IB092717-SG	9/27/2017	12:34	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	ND
WA101117-OC	10/11/2017	10:50	KR15626	Klamath River at Walker Bridge (RM 156.26; Baseline)	Karuk	0.1	Greenwater	ND
IB101117-SG	10/11/2017	11:30	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	ND
IB101817-SG	10/18/2017	10:13	KRIB	Klamath River at I-5 Rest Area (RM 179.20; Public Health)	Karuk	0.1	Greenwater	ND
WE080917-OC	8/9/2017	10:29	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	Greenwater	ND
WE091317-OC	9/13/2017	10:37	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	Greenwater	ND
WE101117-OC	10/11/2017	10:16	KRWE	Klamath River at Weitchpec (RM 43.5; Public Health)	Yurok	0.1	Greenwater	ND

