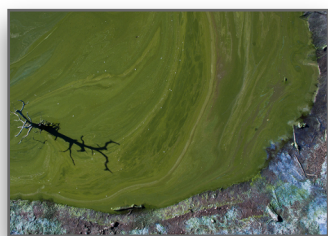


# 2017 MID KLAMATH WATER QUALITY

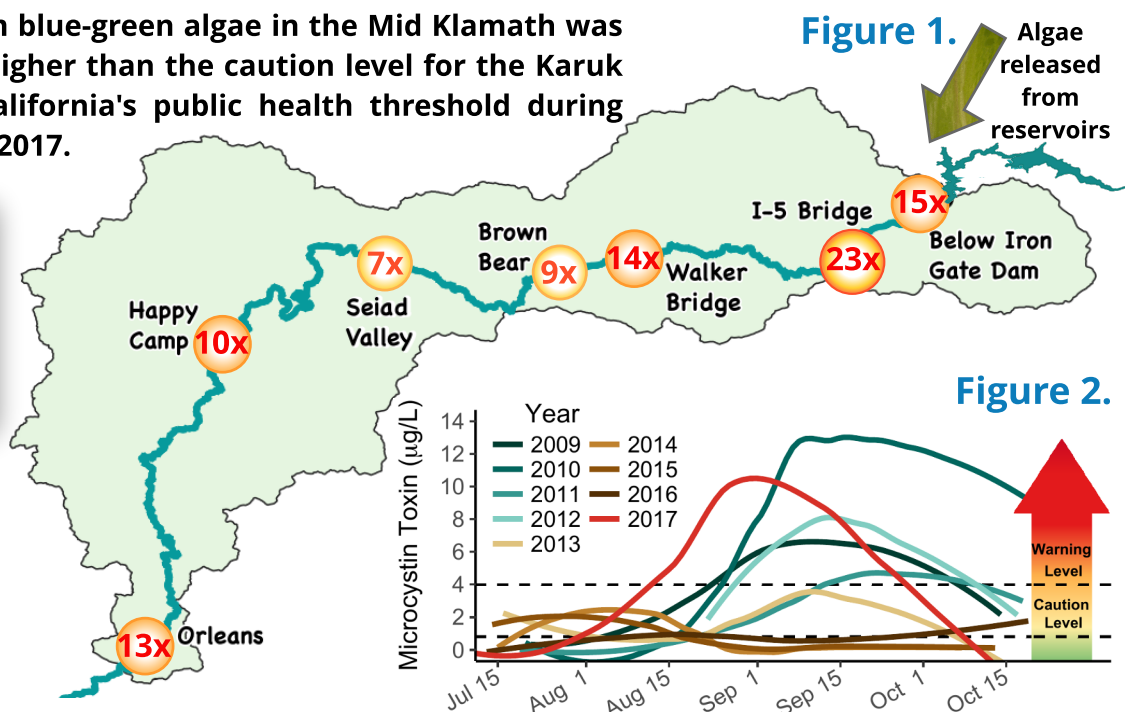
The Mid Klamath River extends from below Iron Gate Dam to below Orleans, California. Water quality here is degraded from dams, upstream water diversions and nutrient runoff from agriculture, and a legacy of mining, logging, and fire suppression throughout the watershed. Microcystin toxin from blue-green algae is a major human health concern. High water temperatures can be bad for fish and other tribal trust species, as can high pH and low dissolved oxygen from excessive algae growth driven by the high nutrients.



**Microcystin toxin from blue-green algae in the Mid Klamath was on average 13-times higher than the caution level for the Karuk Tribe and State of California's public health threshold during August-September of 2017.**



The algae, which produces microcystin toxin, blooms in the calm, nutrient-rich waters of Copco and Iron Gate reservoirs and is released downstream into the Klamath River.

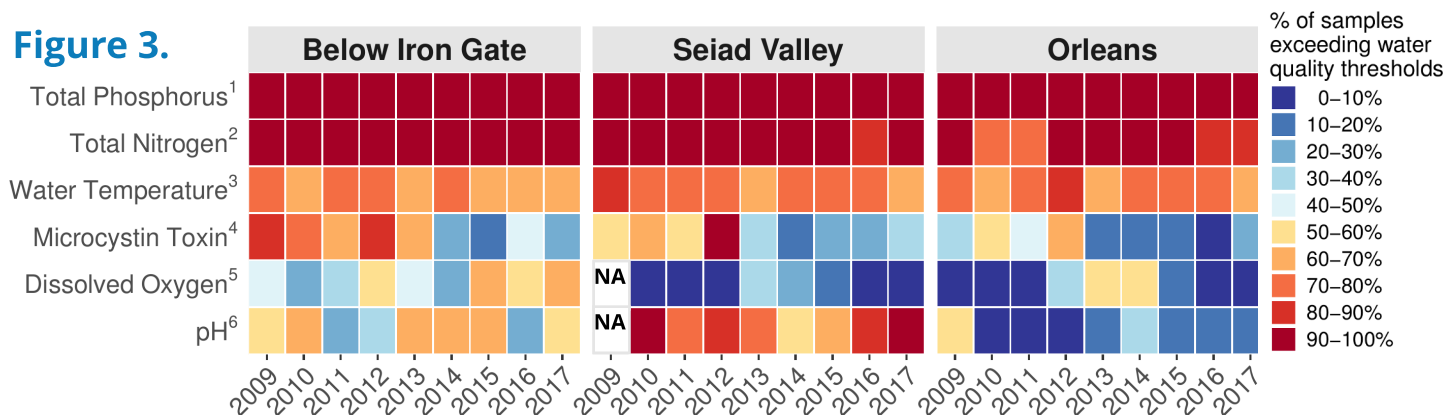


**Figure 1.** The Mid Klamath Watershed with algae sampling sites named in black. Circles show how many times higher the August-September mean toxin level was than the caution level at each site in 2017.

**Figure 2.** Seasonal microcystin trends compared among years (colored lines) show that toxins increased in late summer above the caution and warning levels (dashed lines). Note that colored lines represent average toxin levels and some individual samples were much higher.

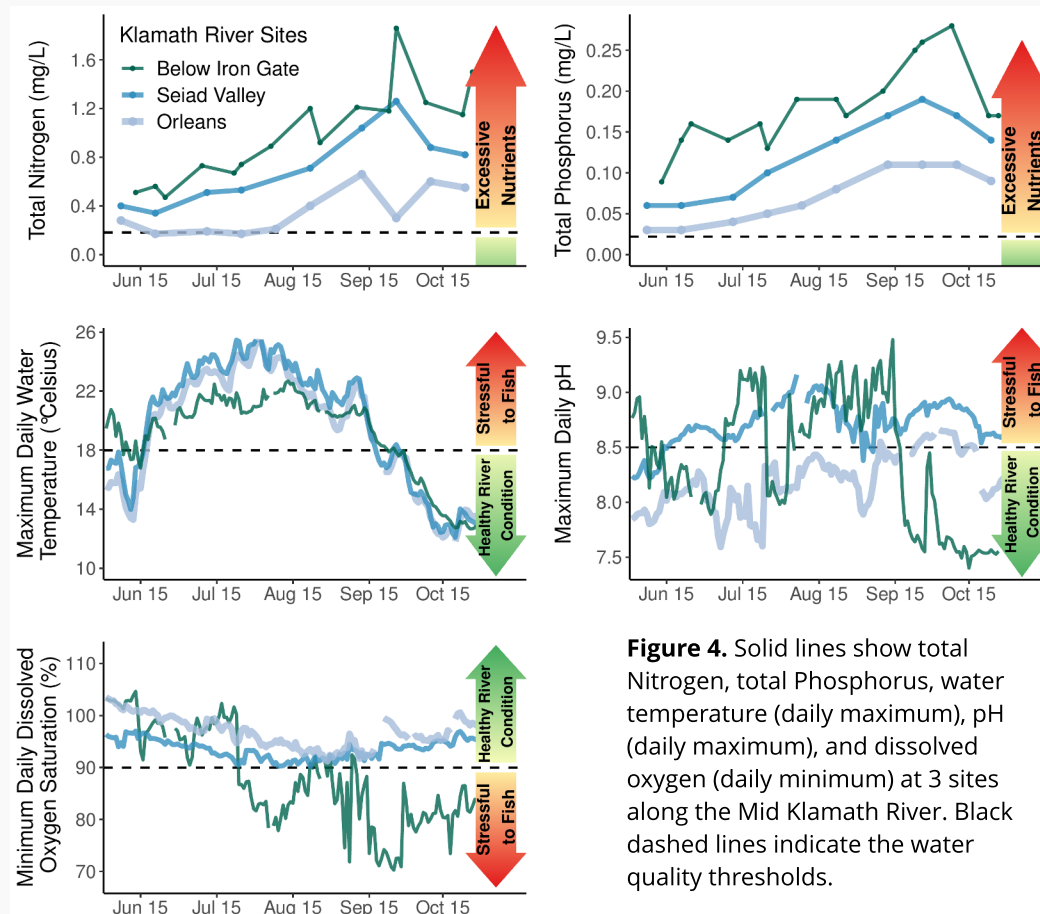
**Figure 3.** The percent of samples that exceeded the water quality thresholds in the summer (Jun-Oct) for each of 6 parameters are shown by color for each year at 3 Klamath River sites. Thresholds are defined on the next page.

**Figure 3.**



# 2017 WATER QUALITY RESULTS

Poor water quality in the Mid Klamath River is a threat to human health and fisheries. Tribal natural resource departments monitor water quality to inform state and federal processes, to observe changing conditions, and to inform the public about the status of the river. Below are the 2017 results.



**Water quality followed similar trends in 2017 as in previous years:**

**Nutrients** were high; most samples exceeded the thresholds for Nitrogen and Phosphorus.

**Maximum daily water temperature** was above the 18°C threshold from mid-June to mid-September.

**Maximum daily pH** decreased from Seiad to Orleans, but was more sporadic below Iron Gate.

**Minimum daily dissolved oxygen** was lowest below Iron Gate Dam and improved at downstream sites.

**Microcystin Toxin** was higher and present earlier in 2017 than in most previous years.



## Stay informed about Klamath water quality!

For current information about blue-green algae blooms and water quality in the Mid-Klamath, check out the **Blue-Green Algae Tracker** at <http://kbmp.net>

The Klamath Tribal Water Quality Consortium created this handout using funding from U.S. EPA region 9. Published November 2018. The full report can be found at [www.klamathwaterquality.com](http://www.klamathwaterquality.com)



**Water Quality Thresholds** are based on Tribal and State standards set for the Klamath River. When seasonal and site-specific thresholds were presented, a single threshold was selected for use in this analysis. **1. Total Phosphorus:** 0.022 mg/L (upper limit); **2. Total Nitrogen:** 0.182 mg/L (upper limit); **3. Water temperature:** 18 °C (upper limit); **4. Microcystin:** 0.8 µg/L (caution level, upper limit); **5. Dissolved oxygen:** 90% (lower limit); **6. pH:** range of 7.0–8.5