TECHNICAL MEMORANDUM

Upper Klamath Lake Tributary Sampling: 2014 Data Summary Report

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INTRODUCTION

The Klamath Tribes have been monitoring nutrient concentration and loading in Upper Klamath Lake (UKL) tributaries since 1991. Data from 1991-1998 were summarized and incorporated into water and nutrient balances for UKL (Kann and Walker 1999). More recently the longer term 1991-2010 database was evaluated for seasonal and inter-annual dynamics, long term trends, and both water and nutrient balances were computed for UKL (Walker et al. 2012). This report serves as an annual update to the UKL tributary water quality database, including a summary of 2014 data (basic summary statistics and graphical analysis), and limited comparison of graphical time-series trends of tributary data collected for the 1991-2014 period. Included in this summary is an update of previous UKL tributary water quality databases with data collected during 2014, including appropriate quality assurance analyses (*see Excel spreadsheets: Klamath Tribes Inflow Nutrient Data 1991-2000.xls* and *Klamath Tribes Inflow Nutrient-Q Data 2001-2014.xls*).

METHODS

Methods followed the Klamath Tribes established procedures for field collection and laboratory analysis of water quality parameters (see Klamath Tribes QAPP and SOP; 2013 for a complete description of these methods). Beginning in 2008 for nutrient parameters, laboratory analyses transitioned from Aquatic Research, INC. in Seattle WA to the Sprague River Water Quality Laboratory (SRWQL) in Chiloquin OR. During the transition period duplicate samples were analyzed by both laboratories to confirm parameter reproducibility. Specific nutrient methodology and field collection protocol are contained in the SRWQL QAPP (Klamath Tribes 2013) and SOP (2013). Nutrient parameters (Table 1) were collected at seven tributary stations during the 2014 sampling season at an approximately biweekly frequency (Table 2; Figure 1; Figure 2). Specific computation of nutrient loading is outlined in Kann and Walker (1999) and Walker et al. (2012), but is briefly summarized here.

Table 1. Nutrient parameters collected in Upper Klamath Lake tributaries, 2014.

Parameter	Abbreviation/Unit	Grab [a]
Total Phosphorus	TP (µg/L)	X
Soluble Reactive Phosphorus	SRP or PO_4 (µg/L)	X
Total Nitrogen	TN (µg/L)	X
Ammonia Nitrogen	NH_4-N (µg/L)	X
Nitrate-Nitrite Nitrogen	NO_3+ NO_2-N (µg/L)	X
Silica	SiO_2 (µg/L)[1]	X

[a] Grab = integrated water column sample and x-sectional sample collected with a Van-Dorn sampler.

[1] Silica measurements were initiated in 2008 and are now included as a regularly measured parameter. The 2012 data report provides the first inclusion of tributary silica data.

Table 2. Station location and Site ID Code for data collected in Upper Klamath Lake tributaries, 2014.

Location	Site ID Code	Latitude/Longitude
Sprague R. @ Kirchers Bridge	WR1000	N42.567806° W121.864472°
Annie Ck @ Snow Park	WR2000	N42.763685° W122.058362°
Wood R @ Weed Rd	WR3000	N42.646461° W121.994959°
Wood R @ Dike Rd	WR4000	N42.581460° W121.941536°
7-mile canal @ Dike Rd	WR5000	N42.581970° W121.970898°
Williamson R @ Bridge on Modoc Pt. Road	WR6000	N42.514355° W121.916714°
Upper Klamath Lake @ Pelican Marina/Fremont Bridge (UKL Outflow)	KL0001/KL0002	N42.238472° W121.805557°

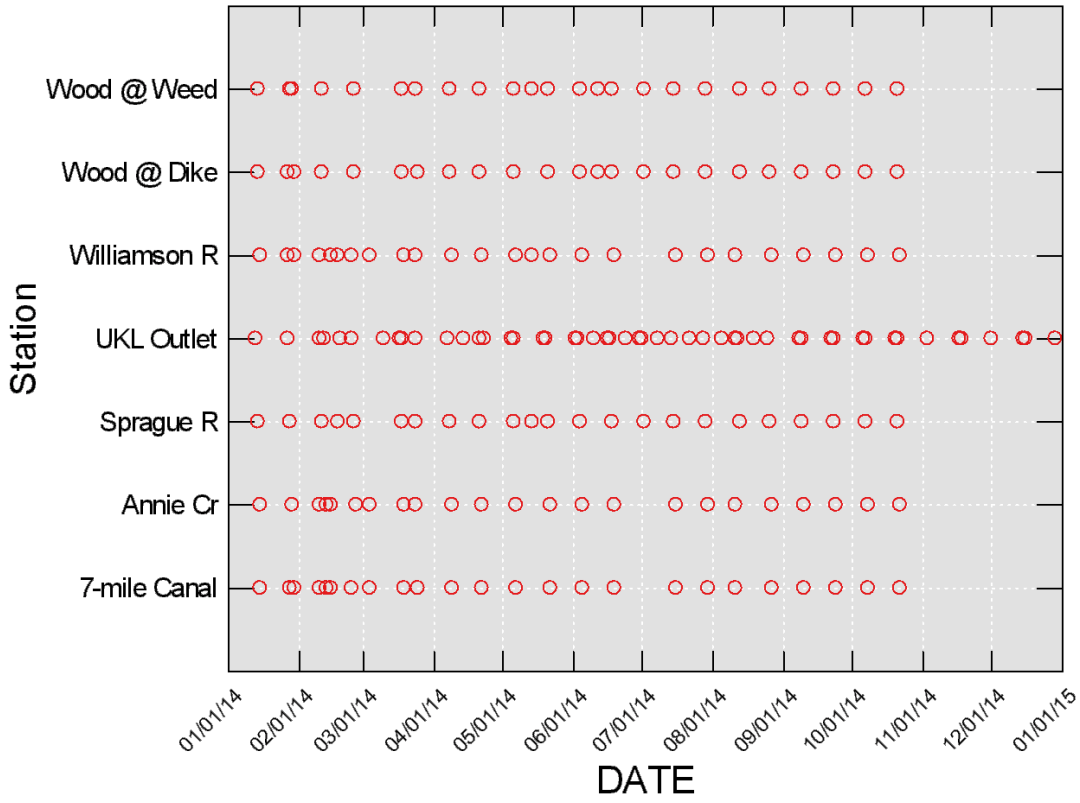

Figure 1. Spatial-temporal sampling matrix for Upper Klamath Lake tributaries, 2014.

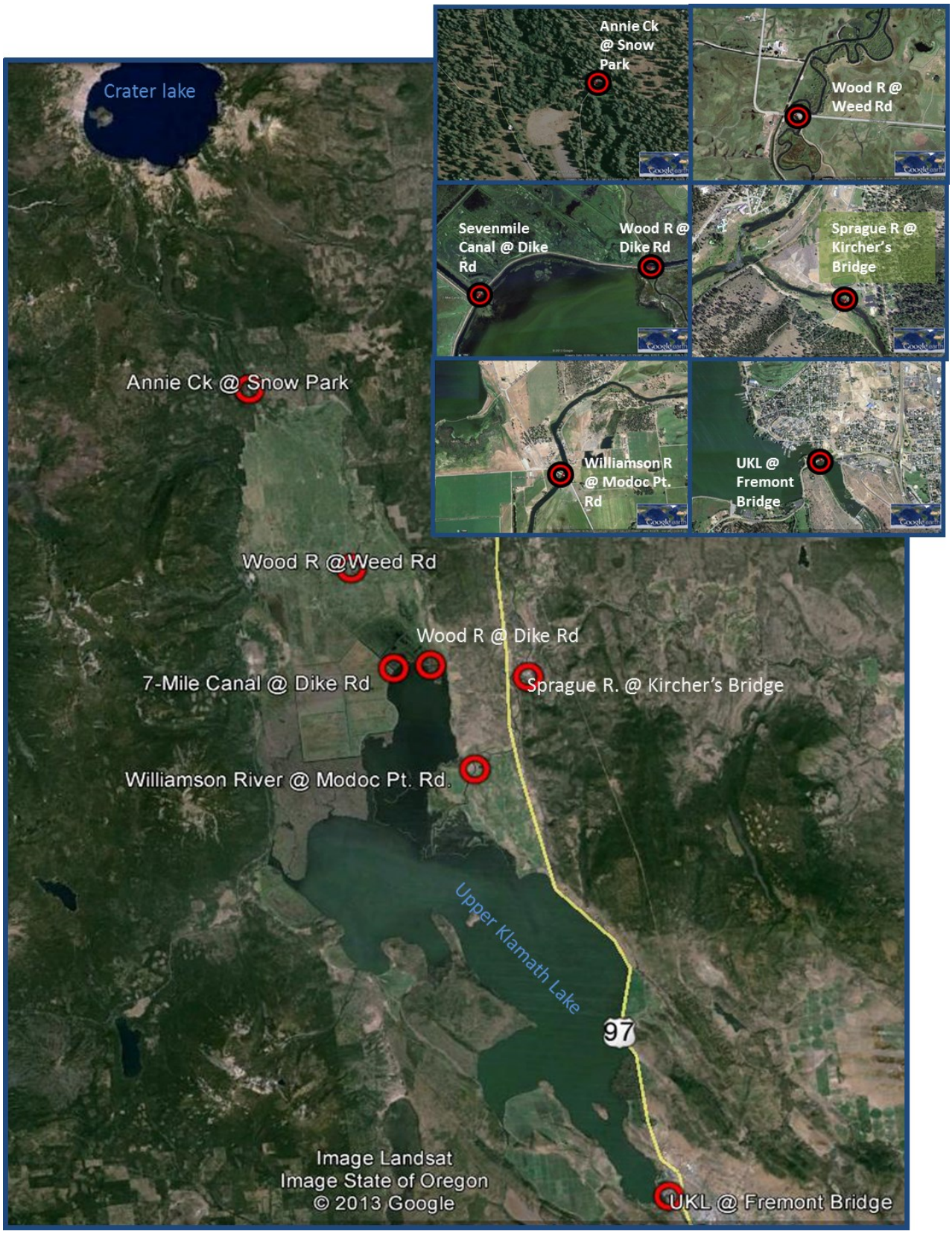

Figure 2. Location of Klamath Tribes Upper Klamath Lake tributary sampling stations.

Daily inflow volume for the Williamson and Sprague Rivers on a given sample date was extracted from continuous daily discharge data obtained from U.S. Geological Survey (USGS) stream-flow discharge stations. These data were obtained online– Williamson River Gage 11502500:http://waterdata.usgs.gov/nwis/dv/?site_no=11502500&agency_cd=USGS&referred_module=sw, and Sprague River Gage 11501000: http://waterdata.usgs.gov/or/nwis/dv/?site_no=11501000&agency_cd=USGS&referred_module=sw). Daily outflow volume for Upper Klamath Lake (UKL outflow) was computed from the sum of USGS discharge station at Link River 11507500: http://waterdata.usgs.gov/or/nwis/dv/?site_no=11507500&agency_cd=USGS&referred_module=sw, and USBR A-Canal daily discharge measurements: http://www.usbr.gov/mp/kbao/operations/water/korep1.cfm?lakeid=ukldata3.

For the Wood R. @ Weed and Wood R. @ Dike stations, continuous daily discharge measurements were generated by Graham Matthews and Associates (e.g., see GMA 2004) for 1992-2006, but these data were not available after 2006 for Dike Road. However, instantaneous discharge continued to be measured at Wood R. @ Weed, Wood R. @ Dike, 7-mile canal @ Dike Rd and Annie Cr. @ Snow Park stations by both the Klamath Tribes and GMA (2004a; 2011a). Flow measurements coinciding with nutrient sample collection dates are shown in Figure 3. Although additional nutrient concentration data were collected by GMA (e.g., 2004b; 2011b) and these data were incorporated into tributary loading calculations for the overall 1991-2010 analysis (Walker et al. 2012), only data collected by the Klamath Tribes are presented in this annual data update report.

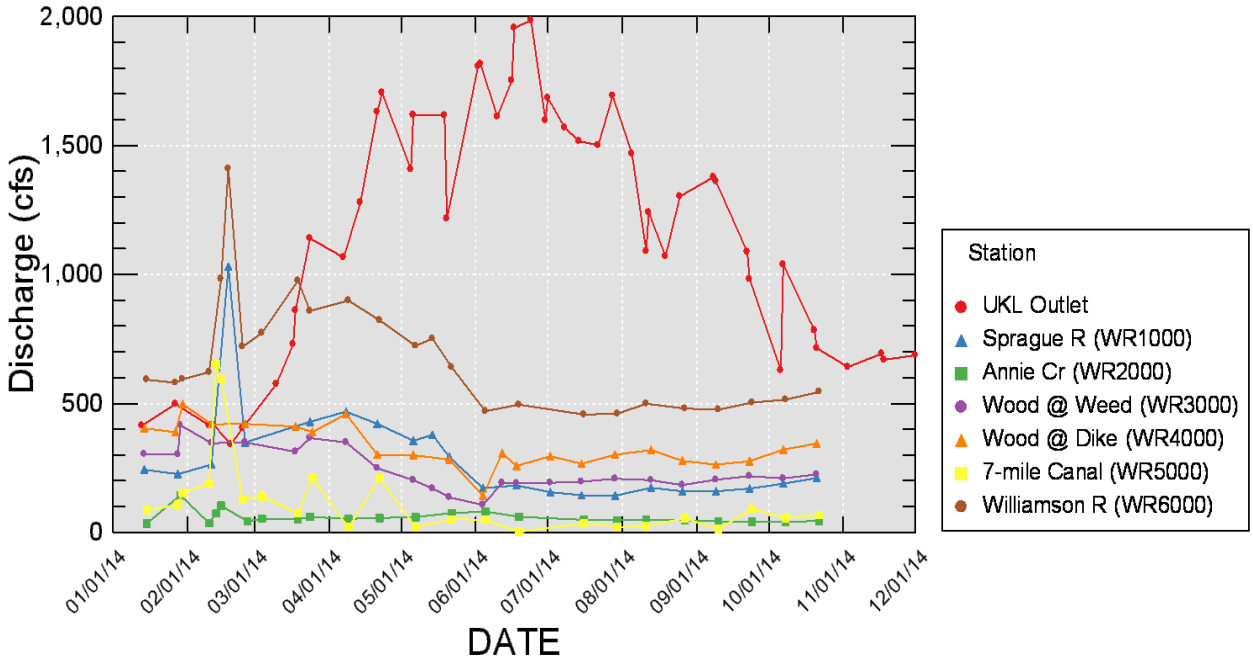

Figure 3. Flow (cfs) measurements coinciding with nutrient sample collection dates, 2014. Flow shown only for dates that nutrient data exist.

The total phosphorus (TP) and total nitrogen (TN) mass (kg/day) for each 2014 sample station and date were computed as the product of daily water volume and measured TP or TN concentration. Nutrient data collection at the UKL outflow station (Upper Klamath Lake @

Fremont Bridge) was discontinued by the Klamath Tribes during 2006-2011 due to funding reductions. Although the UKL sampling station PM is used as a surrogate for the UKL outflow for intervals when data for Upper Klamath Lake @ Fremont Bridge are not available, this caused data gaps for the October-March period during 2006 and 2007.

Beginning in 2008, the U.S. Bureau of Reclamation (USBOR) began monitoring nutrients during the winter months at Link River Dam and near the mouth of the Link River. These data were provided by USBOR along with limited data collected by PacifiCorp during the winter of 2009 and 2010 (Excel spreadsheets: *KRWQ2007-2010KLLD.xls* and *Pacificorpdata2009-2010.xlsx*). Outflow data provided by USBOR for 2011 and 2012 also included additional data for 2009 and 2010 that had not been previously provided (Excel spreadsheets: *KRWQ2007-2012KLLD.xls*[2]) In addition, the Klamath Tribes again began sampling Upper Klamath Lake @ Fremont Bridge in 2012. Additional nutrient data were incorporated from data provided by both USGS and USBR in 2013 and 2014 leading to greater sampling frequency at this station. Station names for the various outflow stations were standardized by renaming them UKL-Out. When stations were sampled on the same date a mean was taken. Loading graphs and summaries are computed based on the October-September hydrologic water year (denoted HY in below plots).

RESULTS/DISCUSSION

Nutrient Concentration

The 2014 nutrient concentration pattern compared among inflow stations was similar to that of the 1991-2013 sampling period (Figure 4); total P and PO_4-P tended to be higher at the Wood River and Seven Mile stations (WR3000, WR4000, and WR5000); total N tended to be lower for the Wood River stations (WR3000 and WR4000) but higher for Seven Mile (WR5000); values for the Williamson River (WR6000) tended to be intermediate relative to other stations for most parameters, but values for the Sprague River (WR1000) tended to be lower for TP and PO_4-P, and second highest for TN after Seven Mile. In addition, Annie Creek at Snow Park (previously sampled from 2003-2013) showed consistently lower concentrations for all nutrient parameters except nitrate/nitrite among the inflow stations (Figure 4; Table 3).

With the exception of Seven Mile Canal, the UKL outlet (KL0001) tended to be higher than inflow stations for TP, lower for PO_4, and substantially higher for TN and ammonia (NH_4-N). Long-term upper quartile values for NO_3-N were also higher at the UKL Outlet station than for inflow stations, and were substantially higher in 2014. Outflow NO_3-N was also notably higher than inflow stations in 2012 and 2013. Unlike 2010 and 2013, when NH_4-N at the UKL Outlet was substantially higher than Seven Mile Canal, the pattern in 2014 was more similar to 2009 and 2011 when the UKL Outlet was similar to Sevenmile Canal (Figure 4; Table 3).
Similar to 2013, TP distribution in 2014 was noticeably lower for the Sprague River; Sevenmile and Williamson River also showed a lower overall distribution, and remaining stations were

[2] sources: http://www.kbmp.net/collaboration/klamath-hydroelectric-settlement-agreement-monitoring, and spreadsheet "UKL-FreemontBridge-WQ-2012-13-BOR.xlsx" provided by Rick Carlson, Physical Scientist, Bureau of Reclamation Klamath Basin Area Office, racarlson@usbr.gov. The latter file includes additional data collected at Fremont Bridge as part of a 3-year nutrient budget study of the Klamath Project.

similar to the long-term 1991-2013 distribution, with fewer extreme values as well (Figure 4). UKL-Outflow TP was very similar to the long-term distribution

Similar to 2011-2013, the 2014 distribution of Sprague River PO_4-P concentration was noticeably lower when compared to the long-term distribution, and all but Sprague River and Sevenmile were similar to their respective long-term PO_4-P distributions in 2014 (Sevenmile was also lower). The UKL-Outflow PO_4-P distribution in 2014 was noticeably higher than the long-term distribution. Other notable departures from the long-term distributions include overall lower TN concentration at the Outflow, Sprague, Annie Cr., Wood-Dike, and Williamson stations; lower NH_4-N at all stations (Outflow and Sevenmile NH_4-N were higher in 2013), and higher Outflow, Wood-Weed, Wood-Dike, but lower Sevenmile and Sprague NO_3-N (Figure 4).

Comparisons of inflow ammonia and nitrate-nitrite between 2014 and the long-term distribution are confounded by levels near method detection limits and by a change in detection limits when the SRWQL began processing samples in 2008[3]. However, Outflow, Williamson River, and Sevenmile values for these parameters are affected to a lesser degree because values tend to be above method detection limits. Higher Outflow nitrate values in 2013 and 2014 may be due to the increased sampling frequency during winter months when NO_3-N is usually higher overall than other seasons. A plot of the June-October distributions shows that the Sprague River was lower for all parameters, and all stations were generally lower for TN (Appendix II)

Similar to 2012 and 2013, time series plots of the 2014 concentration data show Seven Mile Canal (WR5000) to have among the highest values for TP, PO_4, PP (particulate P which equals TP minus PO_4), and TN, especially during the summer irrigation season (Figure 5). Although phosphorus values typically tend to seasonally peak during both the spring runoff period and the summer irrigation season, the peak was less pronounced in the spring than previous years, and similar to 2013 higher values generally occurred during the irrigation season in 2014. With respect to PO_4, the Wood River stations also showed high values, followed by the Williamson and Sprague Rivers; a pattern similar to other years. The typical pattern of Sprague River PP concentrations being among the highest in the spring, and declining during the low-flow summer period was not observed in either of the two low flow years of 2013 and 2014 (Figure 5). TP, PO_4, PP, and TN at the UKL Outflow station increased relative to the inflow stations during the summer algal growing season (primarily June-August).

Ammonia (NH_4-N) and nitrate (NO_3-N) at the Outflow station also increased seasonally, ammonia in June-July and nitrate in August, with 2014 values decreasing in September and then increasing and remaining high through the fall and winter before declining in the spring (Figure 6). Outflow NO_3-N patterns are tied to algal uptake and fixation dynamics in UKL. In general, ammonia in Sevenmile Cr. tends to be among the highest relative to other inflow stations, especially during the irrigation season. Silica concentration at the Wood River and Annie Cr. Stations tended to be higher than the Sevenmile, Sprague, and Williamson stations during the spring, with Annie Creek declining during May and June before increasing in July; the Sprague River tended to show the lowest silica concentrations (Figure 6). The UKL Outflow station showed a clear seasonal pattern where silica values were depressed during the spring and early summer before increasing sharply in July to higher levels (Figure 6). The spring silica

[3] Aquatic Research Inc. indicated a reporting limit of 10 µg/L; the SRWQL utilizes a reporting limit of 12 µg/L.

depression at the Outflow station coincides with diatom blooms occurring in Upper Klamath Lake.

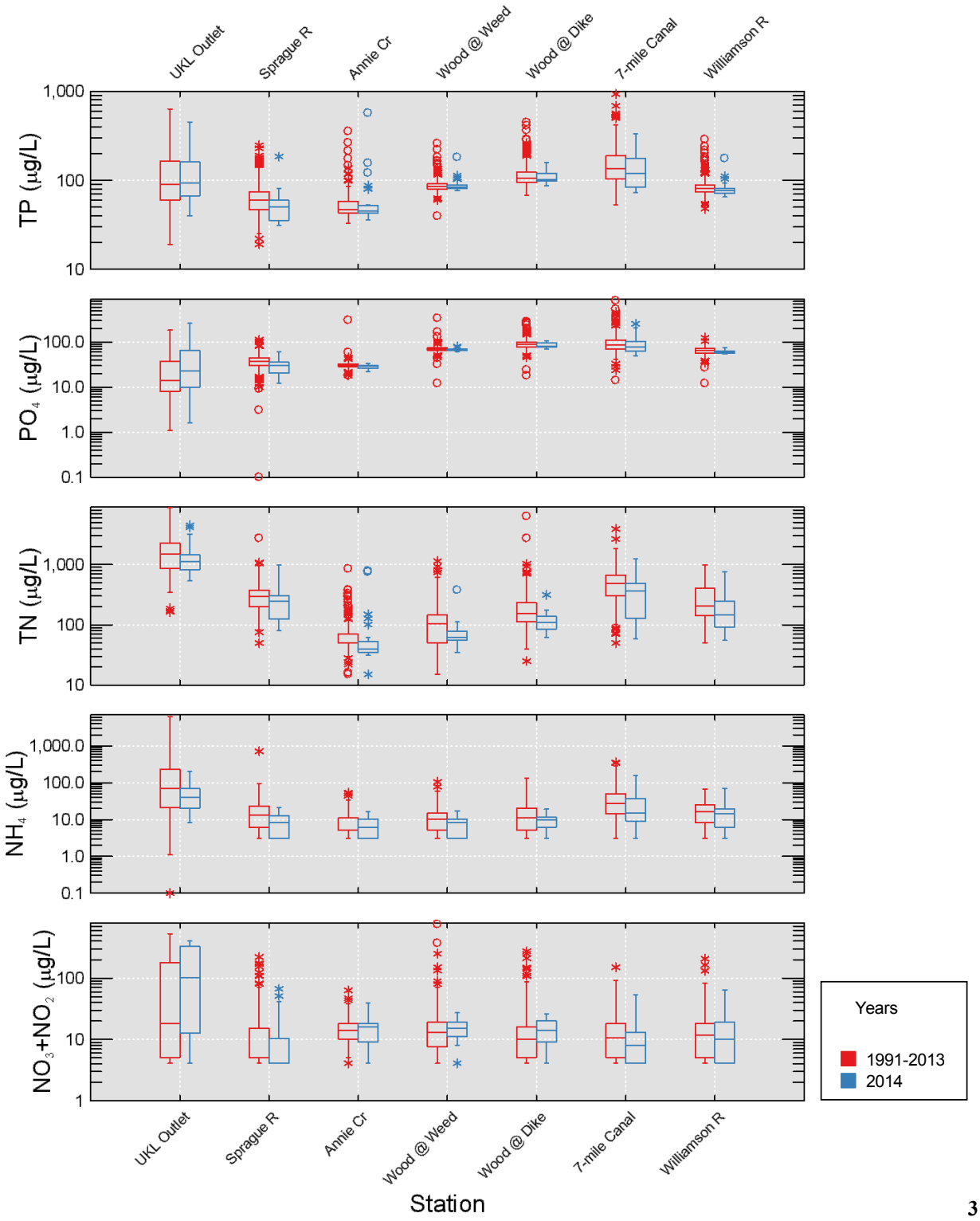

Figure 4. Station distributions of TP, SRP, TN, NH4-N, and NO3+ NO2-N concentration (µg/L) compared between 1991-2013 (red) and 2014(blue).

Table 3. Basic statistics by station for TP, SRP, TN, NH_4-N, NO_3+ NO_2-N and SiO_2 concentration, and TP and TN load, Water Year 2014.

Station Code	Station Name	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
UKL Out	UKL Outlet	N of Cases	50.00	46.00	50.00	43.00	43.00	21.00	47.00	47.00
UKL Out	UKL Outlet	Median	93.50	23.00	1134.17	40.00	101.50	37300.00	310.17	2696.65
UKL Out	UKL Outlet	Arithmetic Mean	134.04	48.95	1447.00	53.07	170.81	36145.24	460.82	4543.94
UKL Out	UKL Outlet	Coefficient of Variation	0.74	1.24	0.62	0.81	0.90	0.19	0.97	0.95
UKL Out	UKL Outlet	Pct25	66.50	9.85	824.50	20.00	12.25	30337.50	137.17	1953.07
UKL Out	UKL Outlet	Pct75	160.00	65.00	1450.00	69.73	330.75	41625.00	655.18	5665.20
WR1000	Sprague R	N of Cases	28.00	28.00	28.00	28.00	28.00	28.00	23.00	23.00
WR1000	Sprague R	Median	50.50	30.50	247.50	8.00	4.00	27800.00	28.54	113.87
WR1000	Sprague R	Arithmetic Mean	54.25	29.00	254.39	8.82	13.14	27564.29	50.68	251.82
WR1000	Sprague R	Coefficient of Variation	0.54	0.37	0.67	0.64	1.27	0.13	1.83	1.95
WR1000	Sprague R	Pct25	35.50	20.50	123.50	3.00	4.00	25200.00	15.07	86.95
WR1000	Sprague R	Pct75	59.50	35.50	306.00	12.50	10.50	29700.00	49.49	252.87
WR2000	Annie Cr	N of Cases	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00
WR2000	Annie Cr	Median	45.00	29.00	40.00	6.00	16.00	39500.00	5.40	4.66
WR2000	Annie Cr	Arithmetic Mean	73.00	28.14	98.24	6.83	15.24	37734.48	14.28	18.34
WR2000	Annie Cr	Coefficient of Variation	1.36	0.12	1.91	0.61	0.51	0.14	2.56	2.71
WR2000	Annie Cr	Pct25	43.00	25.75	34.75	3.00	8.75	36400.00	4.68	3.77
WR2000	Annie Cr	Pct75	52.25	30.25	55.00	10.25	18.50	41425.00	8.49	7.82
WR3000	Wood @ Weed	N of Cases	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00
WR3000	Wood @ Weed	Median	84.00	68.00	62.00	8.00	15.00	38200.00	61.16	42.28
WR3000	Wood @ Weed	Arithmetic Mean	90.24	68.59	77.03	7.66	15.93	38217.24	59.09	53.61
WR3000	Wood @ Weed	Coefficient of Variation	0.22	0.06	0.79	0.53	0.39	0.03	0.49	1.23
WR3000	Wood @ Weed	Pct25	81.00	66.00	55.50	3.00	11.00	37800.00	39.36	27.43
WR3000	Wood @ Weed	Pct75	89.00	70.25	79.00	10.00	19.75	38675.00	67.18	53.19
WR4000	Wood @ Dike	N of Cases	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
WR4000	Wood @ Dike	Median	102.00	81.50	109.00	9.50	14.00	36650.00	92.79	86.90
WR4000	Wood @ Dike	Arithmetic Mean	110.39	86.86	118.39	8.93	14.07	36566.43	90.39	99.81
WR4000	Wood @ Dike	Coefficient of Variation	0.17	0.13	0.41	0.49	0.49	0.05	0.32	0.65
WR4000	Wood @ Dike	Pct25	97.50	77.00	85.50	6.00	9.00	36250.00	77.67	65.01
WR4000	Wood @ Dike	Pct75	120.00	97.50	139.00	11.50	20.00	37500.00	99.97	110.51
WR5000	7-mile Canal	N of Cases	30.00	30.00	30.00	30.00	30.00	30.00	29.00	29.00
WR5000	7-mile Canal	Median	119.00	77.00	363.00	15.00	8.00	31350.00	19.55	34.32
WR5000	7-mile Canal	Arithmetic Mean	137.67	92.90	386.97	26.50	11.87	28963.33	41.99	183.78
WR5000	7-mile Canal	Coefficient of Variation	0.47	0.51	0.78	1.14	1.04	0.22	1.60	2.42
WR5000	7-mile Canal	Pct25	84.00	63.00	127.00	9.00	4.00	26100.00	15.35	21.66
WR5000	7-mile Canal	Pct75	175.00	103.00	488.00	37.00	13.00	32600.00	40.38	113.57
WR6000	Williamson R	N of Cases	31.00	31.00	31.00	31.00	31.00	31.00	27.00	27.00
WR6000	Williamson R	Median	77.00	60.00	148.00	14.00	10.00	33000.00	120.04	176.84
WR6000	Williamson R	Arithmetic Mean	81.10	61.26	187.00	14.77	14.81	32903.23	141.03	398.67
WR6000	Williamson R	Coefficient of Variation	0.25	0.09	0.78	0.90	0.92	0.08	0.71	1.28
WR6000	Williamson R	Pct25	71.00	57.25	90.50	6.00	4.00	31650.00	92.97	135.31
WR6000	Williamson R	Pct75	81.00	64.00	252.00	19.00	19.00	34475.00	156.94	508.57

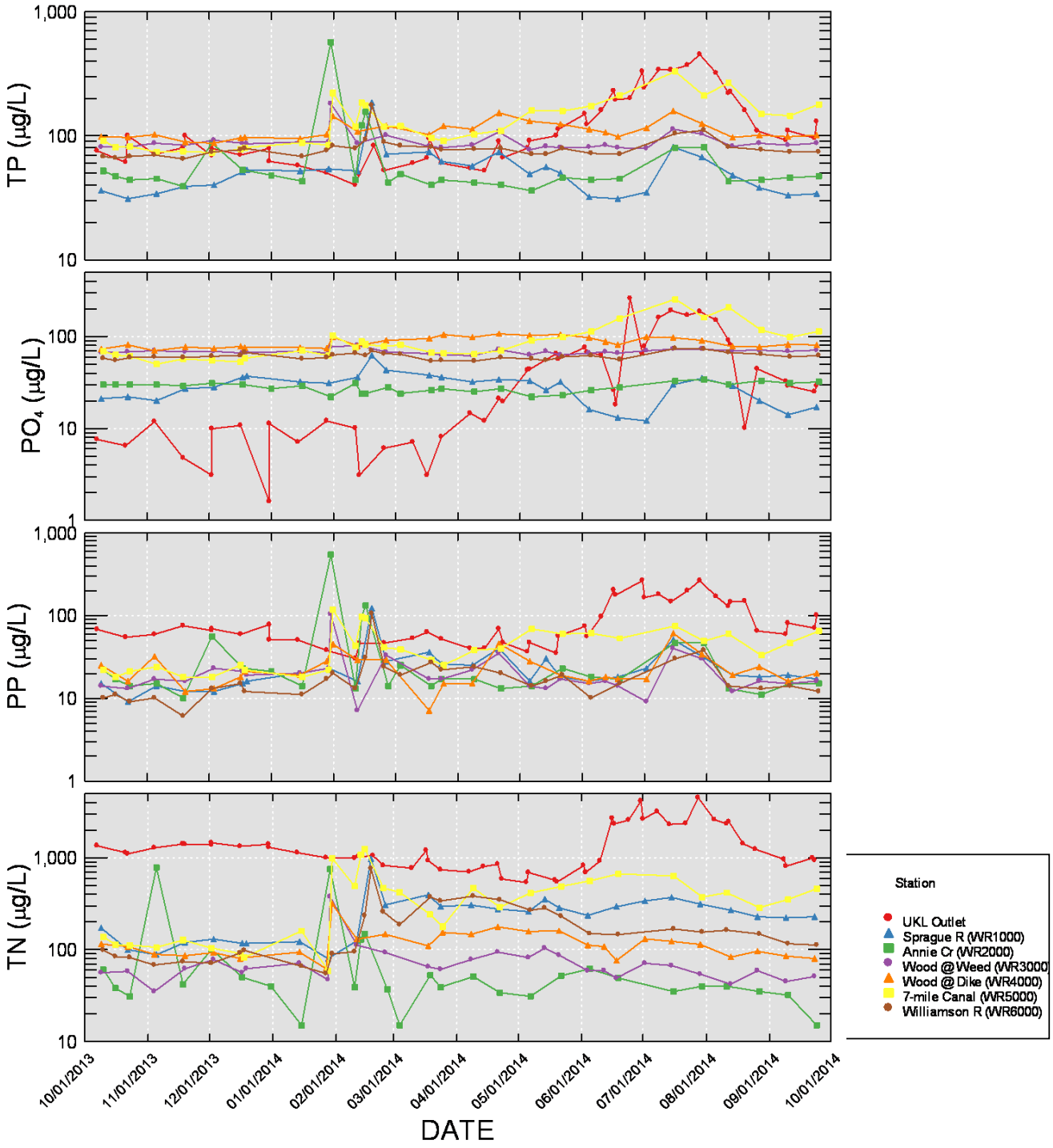

Figure 5. Time-series plot of TP, SRP, PP and TN concentrations for Upper Klamath Lake tributaries and outflow, HY 2014.

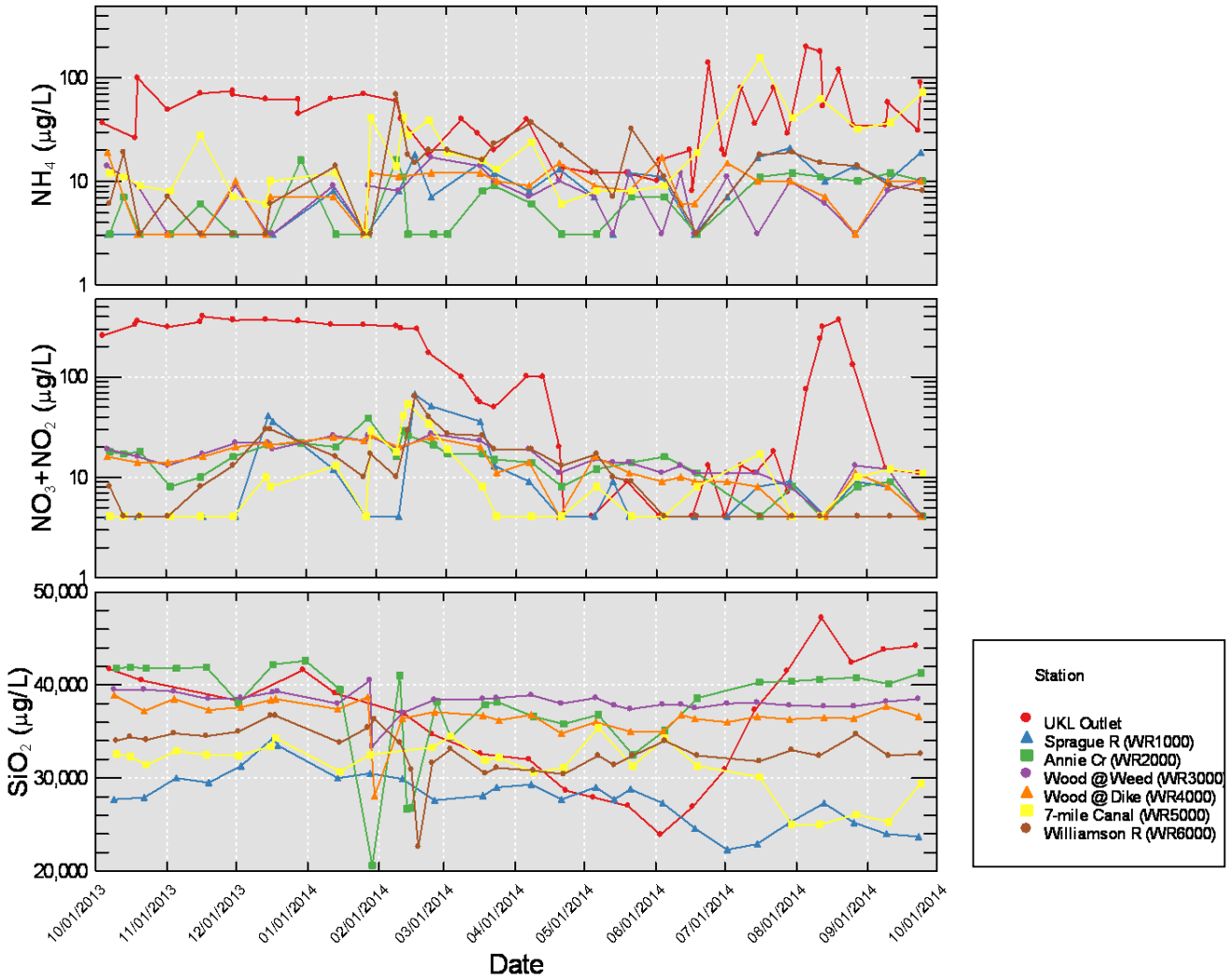

Figure 6. Time-series plot of NH_4-N, NO_3+ NO_2-N and SiO_2 concentrations for Upper Klamath Lake tributaries and outflow, HY 2014.

The TN:TP ratio at the UKL Outflow station was relatively high (TN:TP > ~15) during the late fall and early winter (2013-2014), and similar to earlier years (see Kann 2013), ratios then remained mostly higher than tributary stations through the season (Figure 7). The lowest values of the year (~5) occurred during late-May and June. The overall pattern appears similar to earlier years when the TN:TP ratio at UKL Outflow was higher (TN:TP ≅ 10) than tributary stations in April, declined during May and June, increased during early summer UKL bloom development, and declined through the bloom decline period before increasing again in September (Figure 7). In 2014 the TIN:SRP ratio in the Outflow decreased from peak values of ~300 during December to ~10 in early-spring, and then to seasonal low values in June-July (~0.2), before increasing sharply into August and September (~10) (Figure 7). Both TN:TP and the majority of TIN:SRP values in the inflow tributary stations indicate nitrogen limiting conditions (<10 for TN:TP and <1 for TIN:SRP) that would tend to promote nitrogen-fixing algae such as the *Aphanizomenon* prevalent in UKL. The Wood River in particular showed very low TIN:SRP ratios (<0.3).

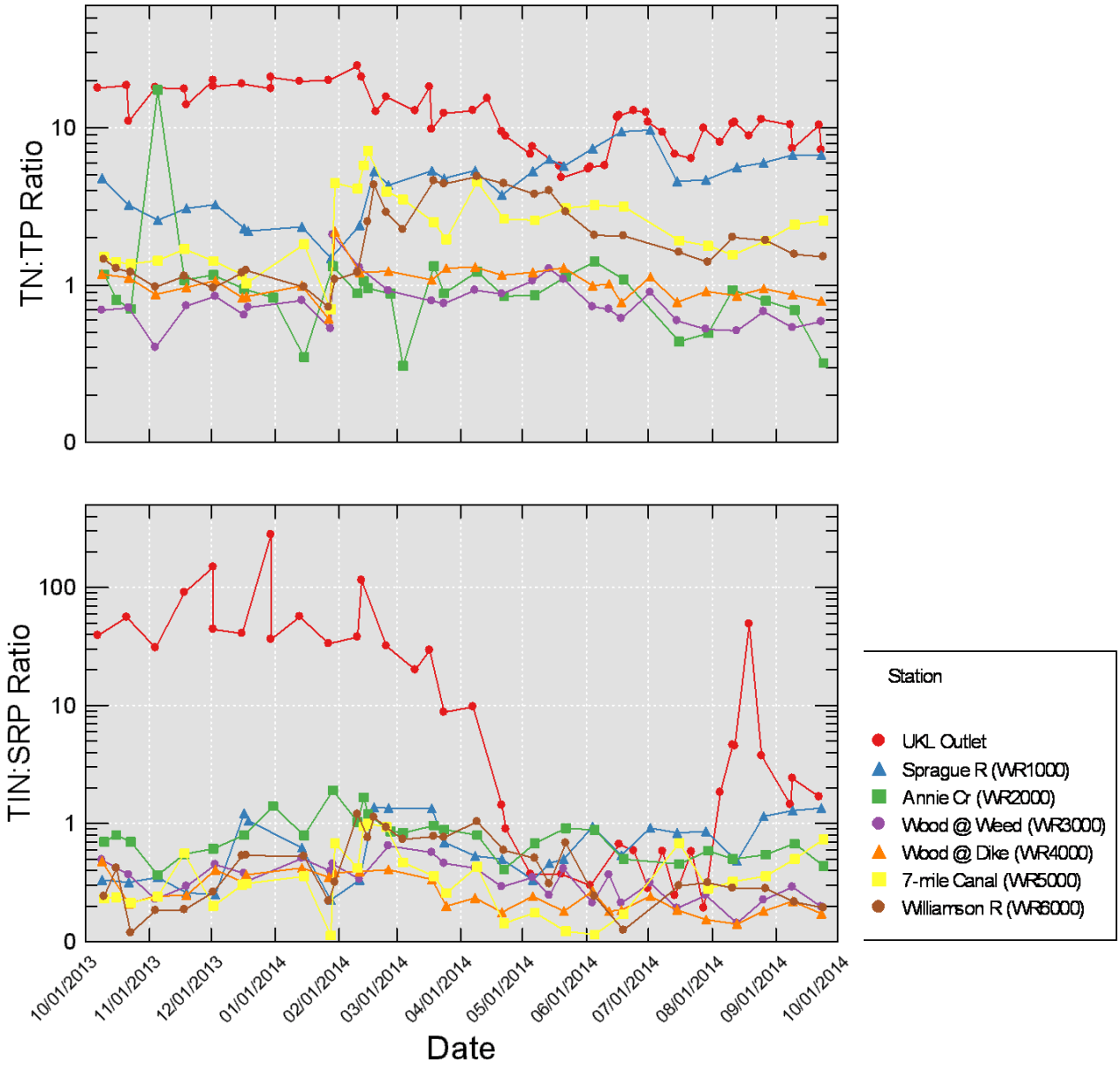

Figure 7. Total nitrogen to total phosphorus (TN:TP) and total inorganic nitrogen ($NOx\text{-}N+NH_4\text{-}N$) to PO_4 (TIN:SRP) ratios in Upper Klamath Lake tributaries and outflow stations, HY 2014.

Time-series plots of these ratio data comparing the Williamson River and UKL Outflow (summarized for the April-October period when data for both stations were consistently available) show that both ratios (TP:TN and TIN:SRP) were always higher leaving UKL than they were in the Williamson River inflow (Figure 8). Much of this increase is likely due to increases in UKL nitrogen due to both nitrogen-fixation by blue-green algae (particularly the dominant *Aphanizomenon flos-aquae*) and sediment regeneration of ammonia to the water column (although the ultimate source of the sediment nitrogen is also derived from settled algal biomass). Ratios rose in the outflow relative to inflow despite additional internal loading or sediment recycling of phosphorus (Walker et al. 2012), which would tend to drive ratios downward. There is also indication of cyclical sub-decadal trends, particularly for the TIN:SRP ratio, over the 1991-2014 period. Further analysis is required to explore these apparent trends.

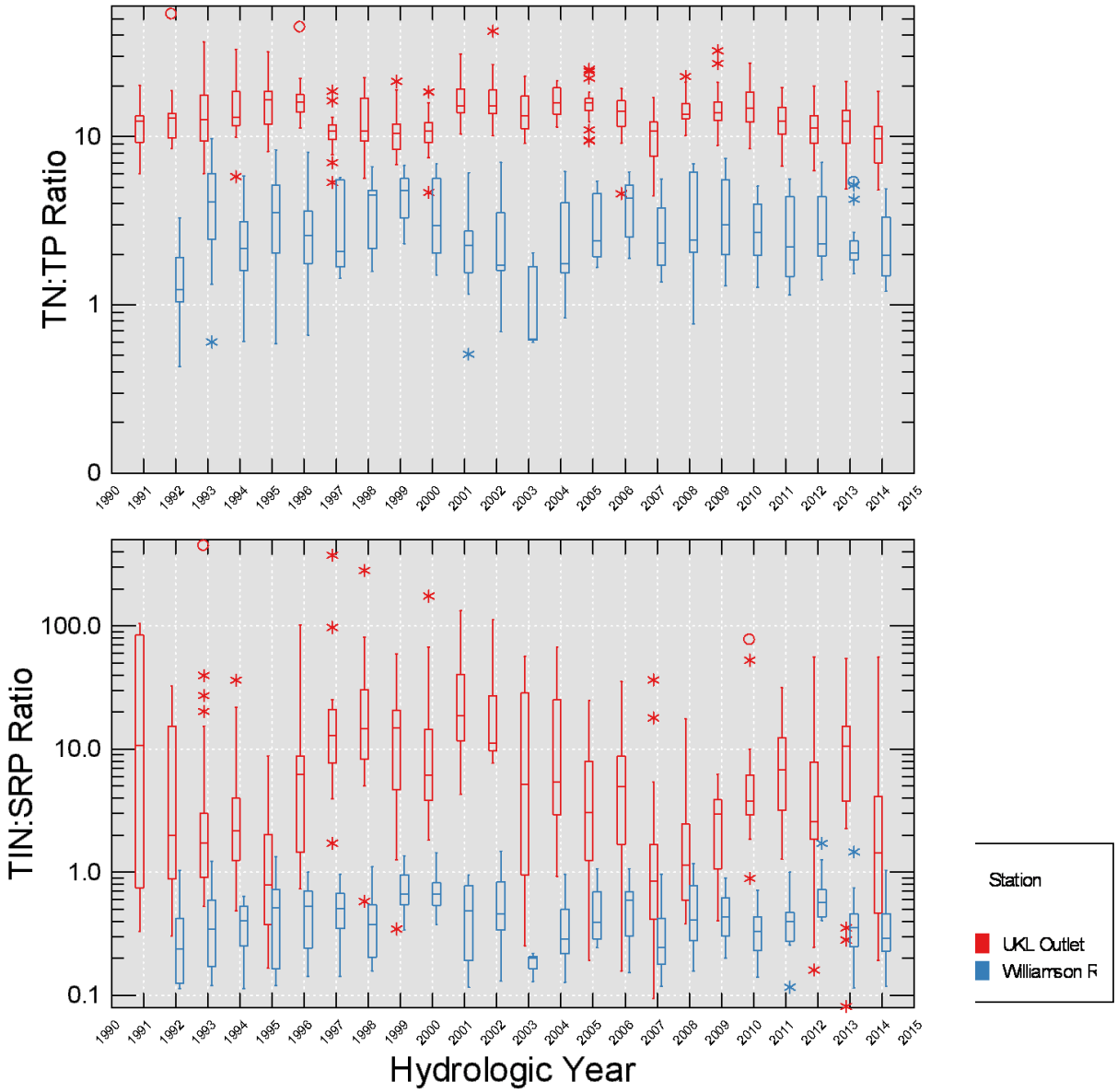

Figure 8. Total nitrogen to total phosphorus (TN:TP) and total inorganic nitrogen ($NOx\text{-}N+NH_4\text{-}N$) to PO_4 (TIN:SRP) ratios in the Williamson River and UKL outflow stations, April-October: 1991-2014.

TP and TN Loading

2014 Seasonal Pattern

The 2014 seasonal TP and TN tributary loading pattern showed a small peak in February, but unlike other years when loading increases during the March-May period coinciding with peak discharge, loading was relatively constant during that period (Figure 3; Figure 9)[4]. Loads then remained relatively stable during the early-spring to early-summer period, and into the late-summer (although the Sprague R. continued to decline and Sevenmile fluctuated). An initial increase in UKL outflow loads of TP and TN began in late-March, with a secondary and larger increase in mid-June that is tied to internal nutrient recycling from sediments and nitrogen fixation in UKL (e.g., see Kann 1998; Kann and Walker 1999; Walker et al. 2012). Outflow TP loads were similar to or lower than Williamson River and Sprague River loading during the late-winter to early-spring spring period, but were then higher through the remainder of the year, while outflow TN loads generally remained higher than those for the Williamson River over this same period (Figure 9).

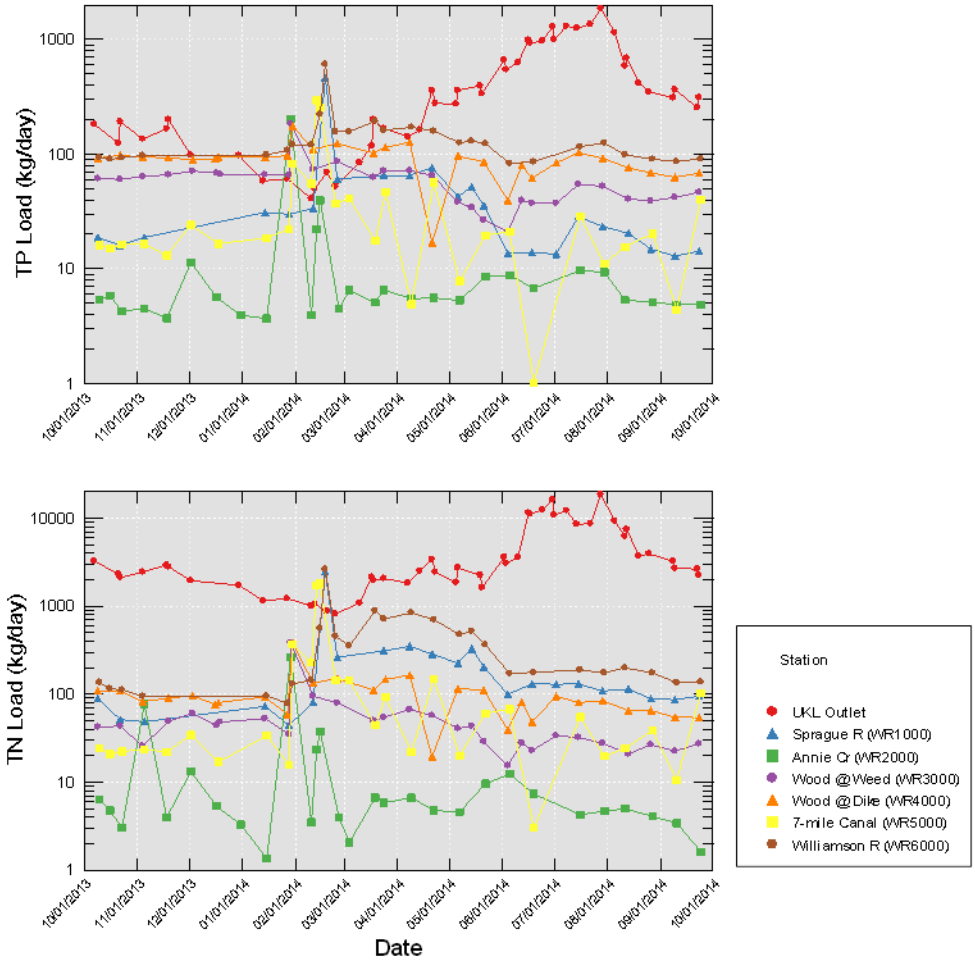

Figure 9. Seasonal TP and TN loading trends by station, HY 2014.

[4] 2014 was among the driest years on record with low precipitation and snowpack.

2014 Station Patterns

The 2014 nutrient loading pattern among stations was similar to that of the 1991-2013 sampling period (Figure 10). Also, as indicated above, TP and TN outflow loads tended to be higher than any individual inflow tributary loads during both 2014 and for the overall time period (1991-2013). Similar to 2013, when outflow TP and TN loads were lower overall than they were for the previous long-term period, 2014 outflow loads were also lower than the long term distribution (a similar trend occurred in 2010). However, comparisons are somewhat confounded by the lack of consistent winter data for the outflow during earlier years. As noted above, high UKL outlet loads reflect sediment regeneration and nitrogen fixation processes taking place in UKL.

Of the inflow tributaries, the Williamson River (WR6000) showed highest overall loading, with the 2014 TP and TN loading distributions somewhat lower than previous years. As with concentration, Annie Creek at Snow Park was consistently lower for both loading parameters (Figure 10). Sprague River TN load was more similar to the Williamson River TN load than it was for TP load (which was noticeably lower in the Sprague when compared to the Williamson), indicating that the Sprague River is contributing proportionally more nitrogen to the overall load. Both TP and TN loads in Sevenmile Canal were somewhat lower in 2014 than the long-term distribution (more so for TN), while Wood River TP was similar to the long-term distribution, but Wood River TN was noticeably lower (Figure 10). TP and TN loading patterns in both the Williamson and Sprague Rivers tended to follow the general pattern in discharge (although loading appears to be more closely linked to discharge in the Sprague River than in the Williamson River), and as noted above for Outflow concentration, there is indication of cyclical trending over the period of record (Figure 11).

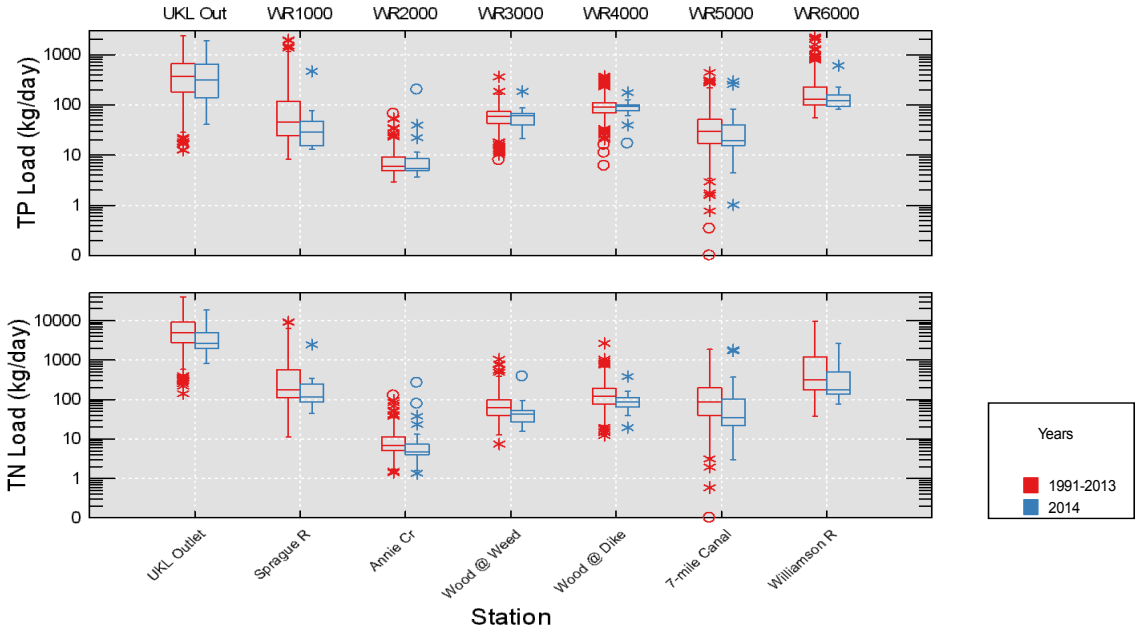

Figure 10. Station distributions of TP and TN loading compared between 1991-2013 (red) and 2014 (blue). Note: for the outflow station KL0001 there are no samples from January to mid-April in HY2006, and for HY2007-2009 and HY2011 samples are missing between November and mid-April.

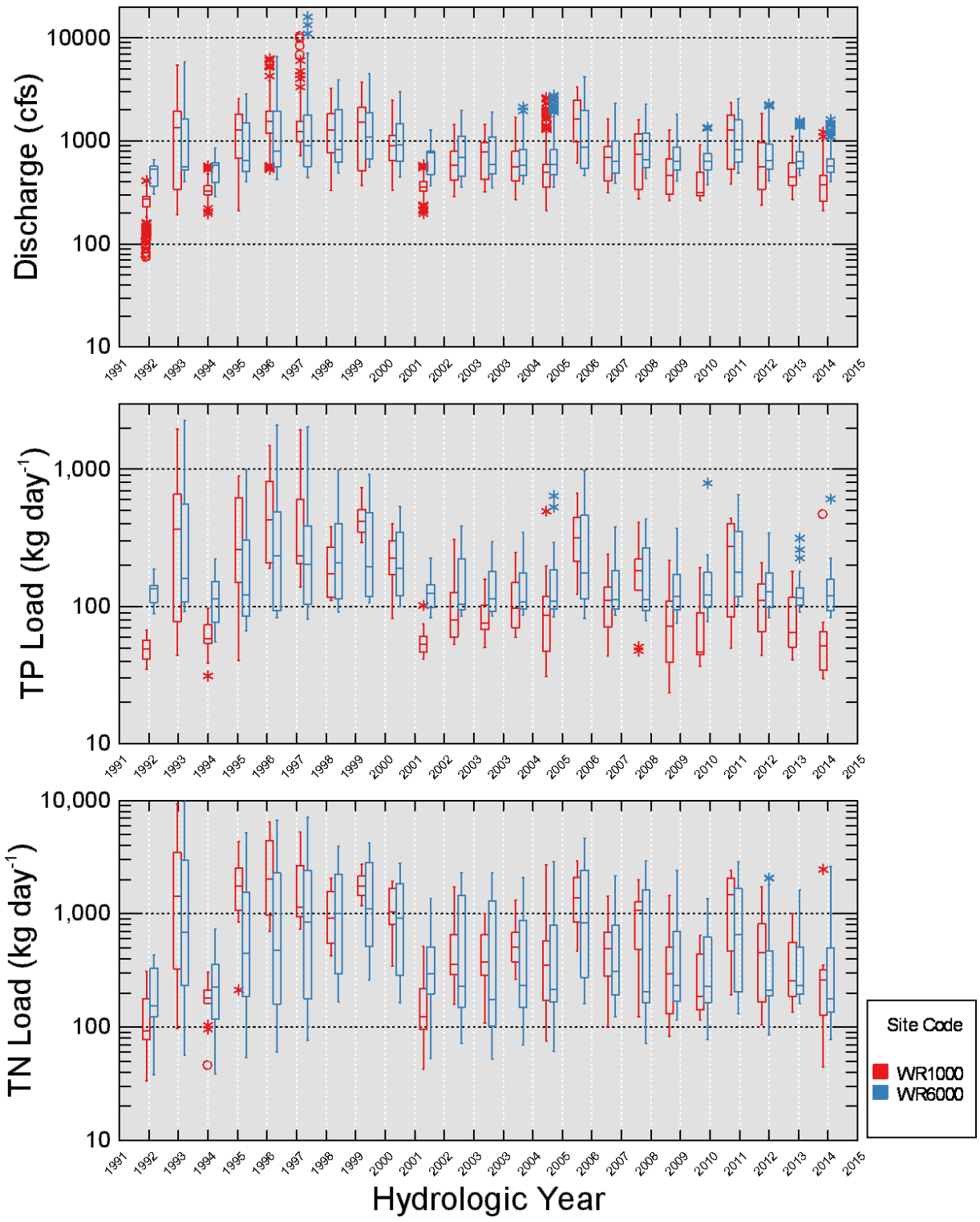

Figure 11. Distribution of Williamson River (WR6000) and Sprague River (WR1000) daily discharge (top panel), TP load (middle panel), and TN load (bottom panel) for the January-May inflow period, 1992-2014.

During the June-September irrigation season TP load was lower in 2014 than for the long term distribution for the Sprague River, Annie Cr., and Sevenmile, while the TN load was lower at all inflow stations (Appendix II).

Inter-annual Patterns, 1991-2014

Although it is beyond the scope of this 2014 data summary report to analyze the inter-annual trends in detail, 1991-2014 comparisons for all sampling stations for three periods (all dates, the June-September period, and the Jan-May period) are shown for reference in Figures 11 to 24. Briefly, in 2014 the June -September UKL outflow TP loads were similar to the previous two years, but were still generally lower than many previous years (Figure 12; especially the lower quartile). Similarly, June-September TN loads were also similar to the previous two years and were also lower than many previous years (Figure 19). Note that for the UKL outlet station, the June-September period provides the most consistent inter-annual comparison due to changes in the winter and early spring sampling frequency over the period of record.

June-September and TP and TN loading distributions for the Sprague River in 2014 were higher than 2012, which was an exceptionally low year, but were still low relative to many other years (Figure 13 and Figure 20). Similarly Williamson River TP and TN loading distributions were among the lowest for the June-September period, but low to intermediate for the January through May period (Figure 18 and Figure 25). TN loading distributions for the Wood River stations during 2014 tended to be low for the period of record, especially during the June-September period (Figure 22 and Figure 23). The Wood River TP loading distribution for 2014 also tended to be lower when compared to previous years, but mostly for Weed Rd. and not Dike Rd. (Figure 15 and Figure 16). Seven Mile Canal TP and TN loading during June-September 2014 was lower compared to previous years (Figure 17 and Figure 24), and overall loads for Annie Creek during the Jun-Sep period was lower compared to previous years, but not as low as 2013 (Figure 14 and Figure 21).

Inter-annual comparisons of nutrient concentration and loading at the various UKL inflow stations requires refined estimation of loading using multiple regression based-algorithms that represent concentration variations associated with flow (i.e., magnitude as well as ascending/descending limb of hydrograph), season (i.e., Julian day), and year (e.g., Walker and Havens 2003). A comprehensive analysis of time-series trends as well as hydrologic and nutrient budgets based on estimated daily data were completed for UKL through 2010 (Walker et al. 2012).

SUMMARY

With the addition of 2014 data, the UKL tributary nutrient and loading database now includes 24 years of data and includes the years 1991-2014. As with the UKL water quality database, such a long-term monitoring program is essential for assessing change relative to management programs, as well as for understanding inter-annual dynamics. Also similar to recommendations for the UKL water quality database, continued monitoring is recommended to accommodate the restoration time-frame for Klamath Basin activities and to increase statistical power (sample size) for inter-variable analyses. While this data summary report is intended to provide an

update of the long-term data base with 2014 tributary and outflow data, Walker et al. (2012) provide a more detailed and comprehensive analysis of the long-term UKL tributary database including statistical trend analyses and construction of hydrologic and nutrient budgets for UKL using the 1991-2010 dataset (Walker et al. 2012). A similar comprehensive treatment of the data is recommended at five year intervals.

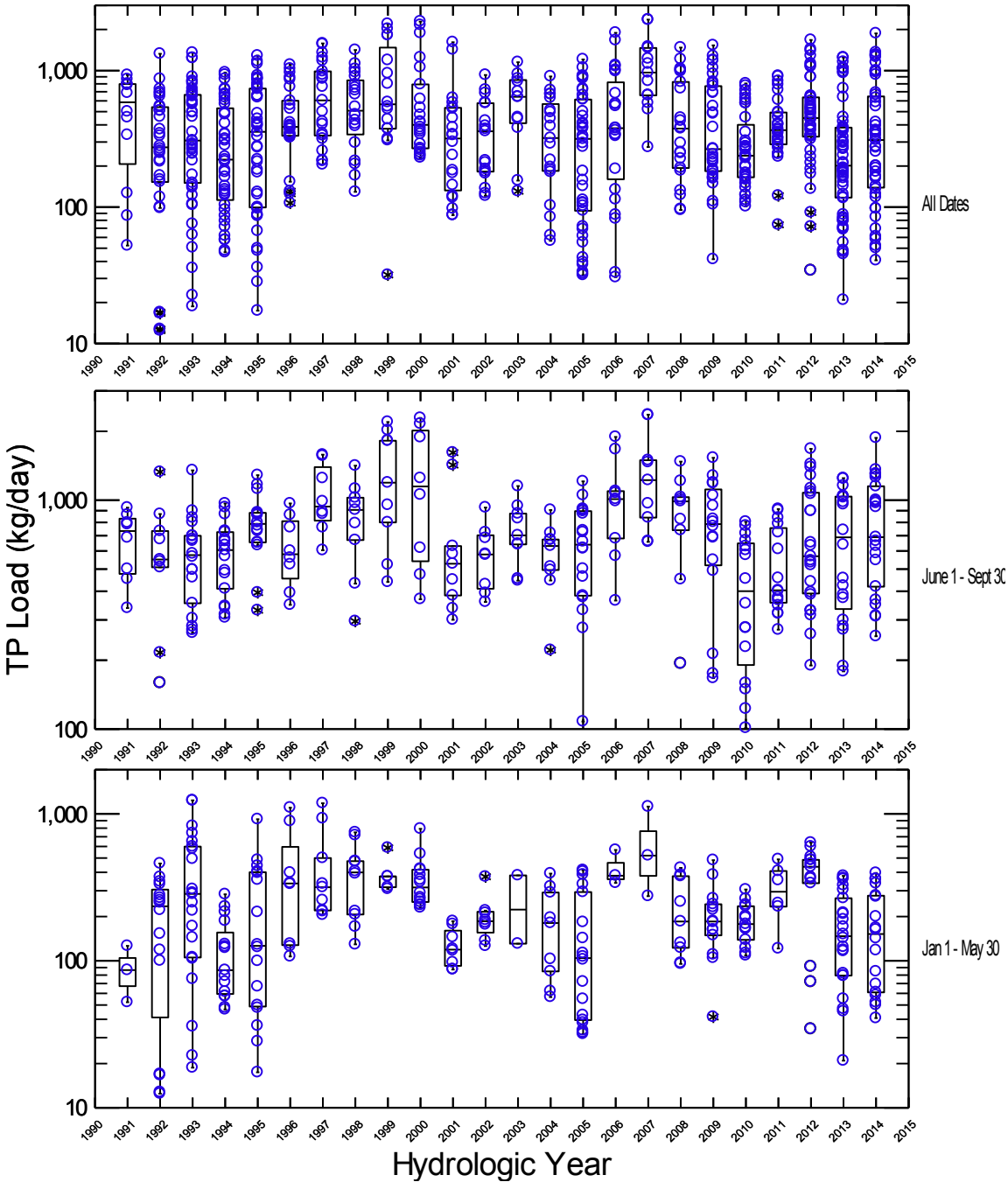

Figure 12. Annual and seasonal distributions of UKL Outlet TP loading, 1991-2014. Note: in HY2006, there are no samples from January to mid-April and in HY2007-2008 and 2011 there are no samples from November to mid-April.

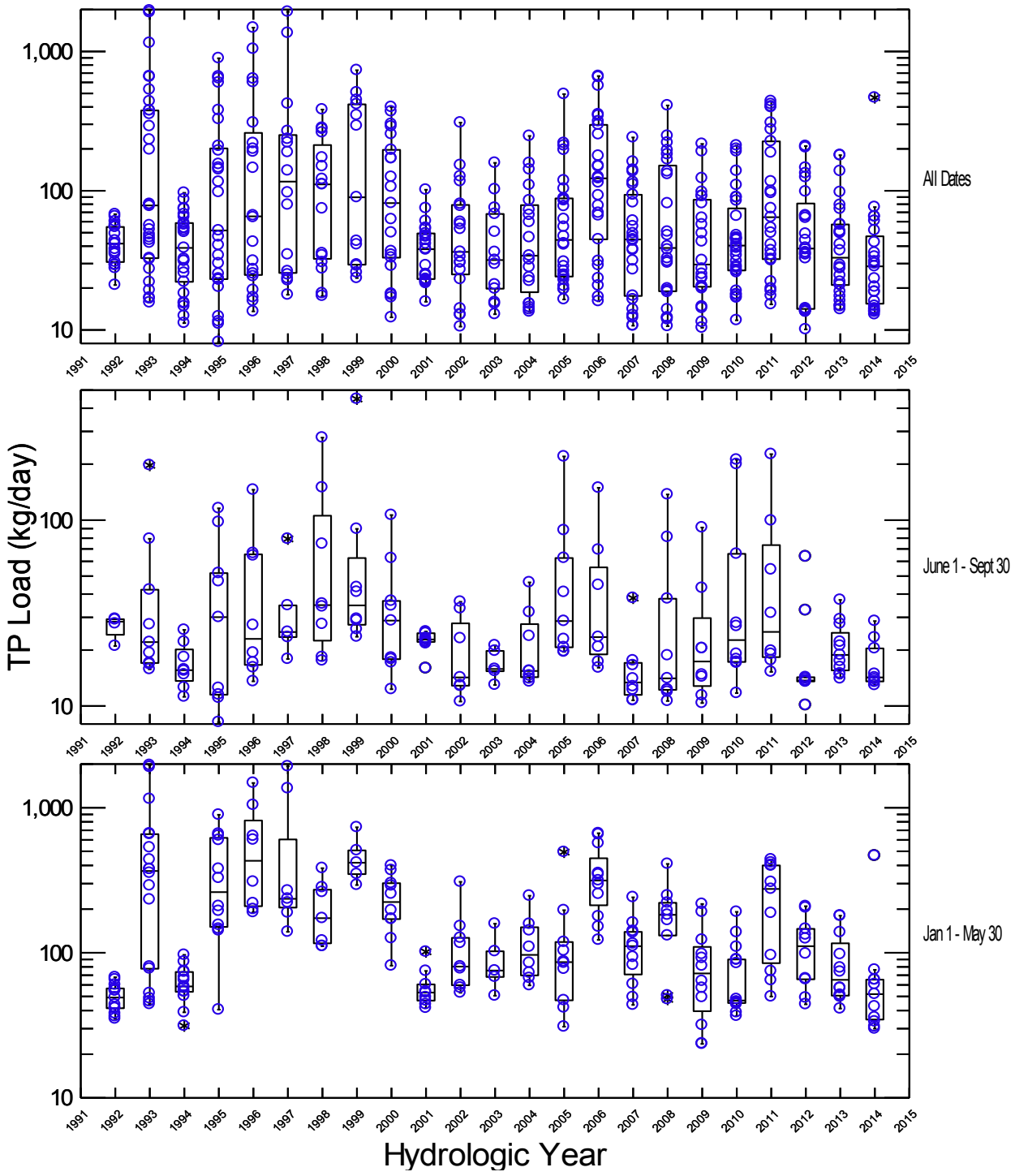

Figure 13. Annual and seasonal distributions of Sprague River TP loading, 1992-2014.

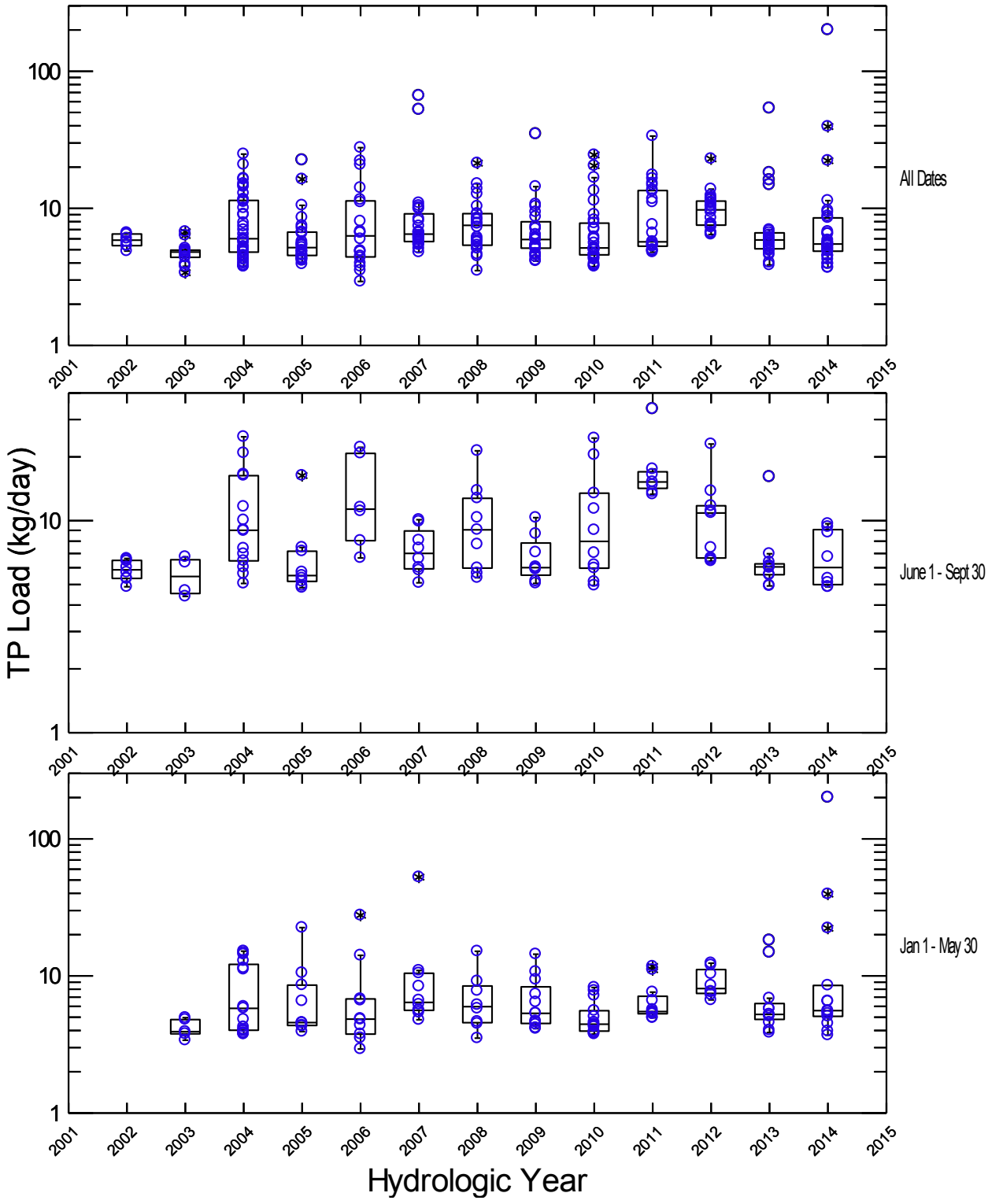

Figure 14. Annual and seasonal distributions of Annie Creek TP loading, 2002-2014.

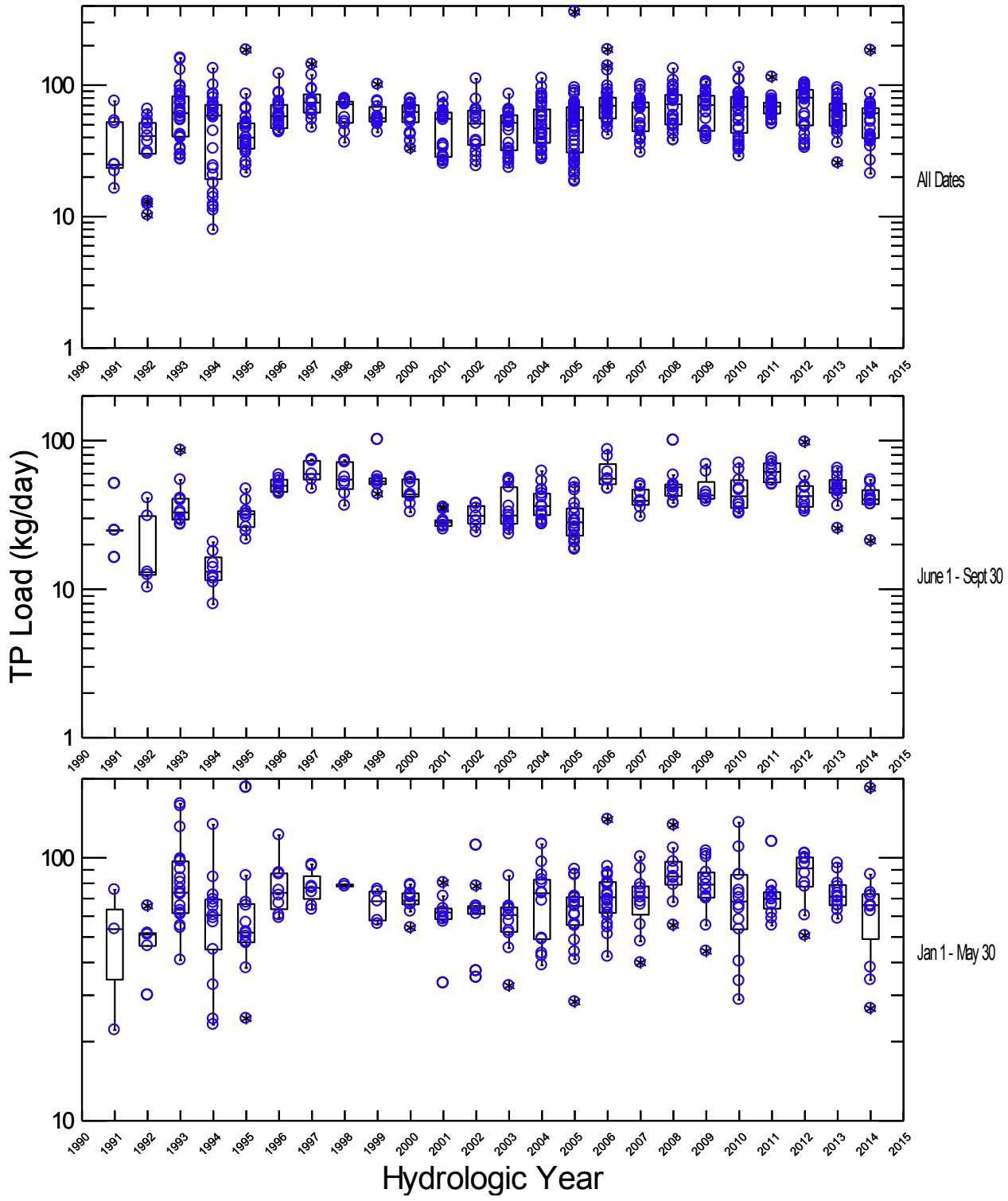

Figure 15. Annual and seasonal distributions of Wood River at Weed Rd. TP loading, 1991-2014.

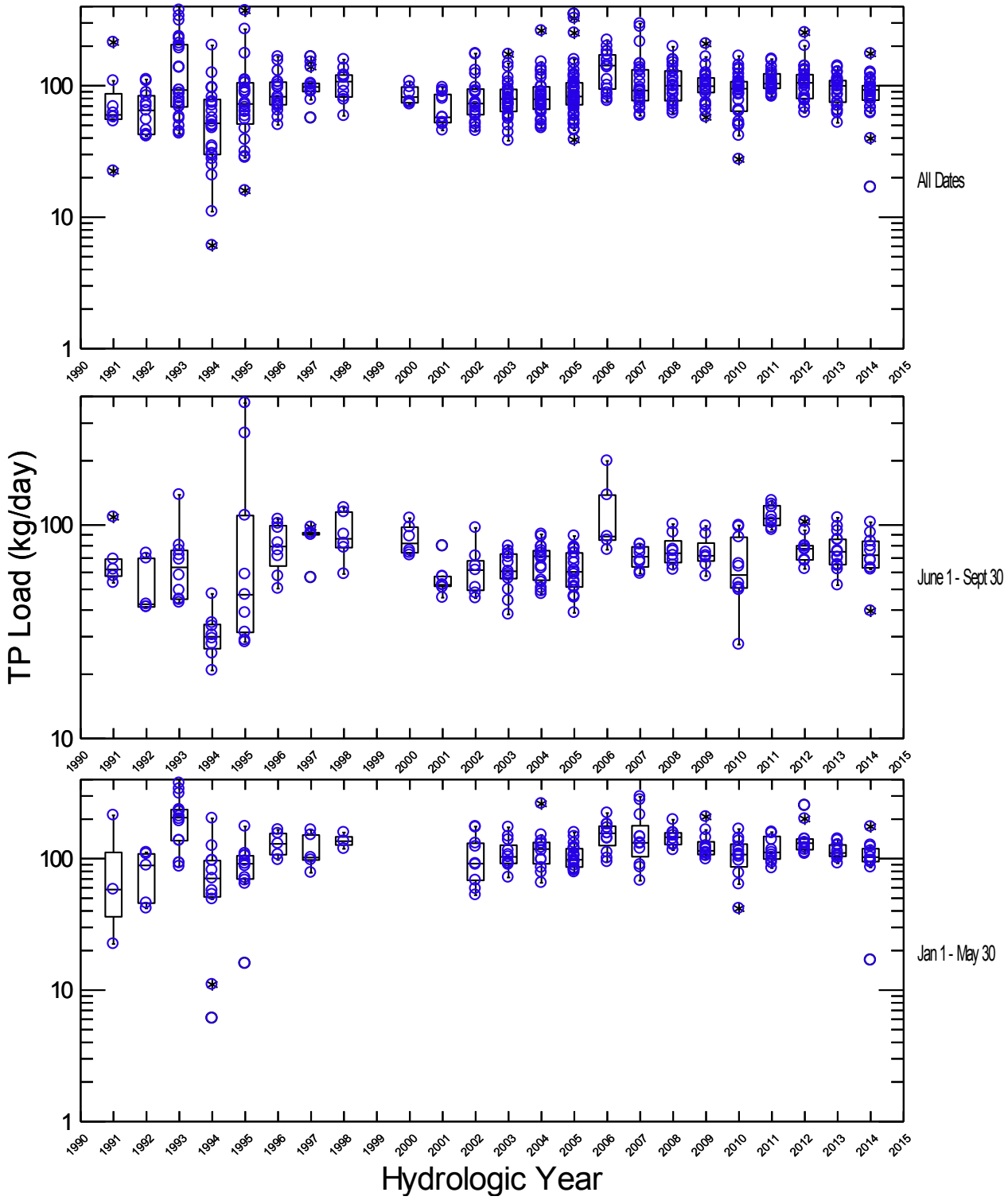

Figure 16. Annual and seasonal distributions of Wood River at Dike Rd. TP loading, 1991-2014.

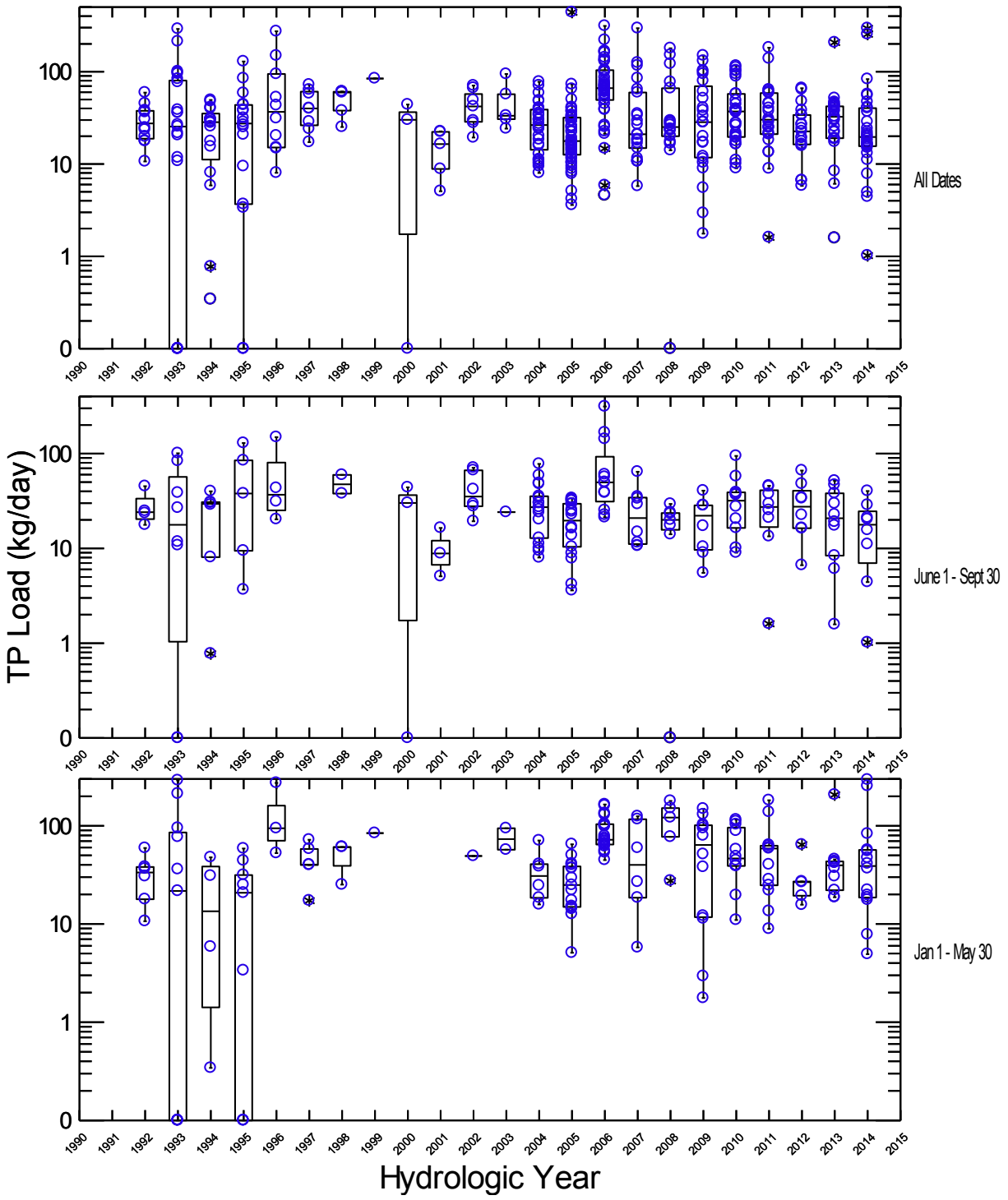

Figure 17. Annual and seasonal distributions of Seven Mile Canal TP loading, 1992-2014. Note that occurrences of zero load are due to lake-backwater effects when no flow is measured at the sampling location

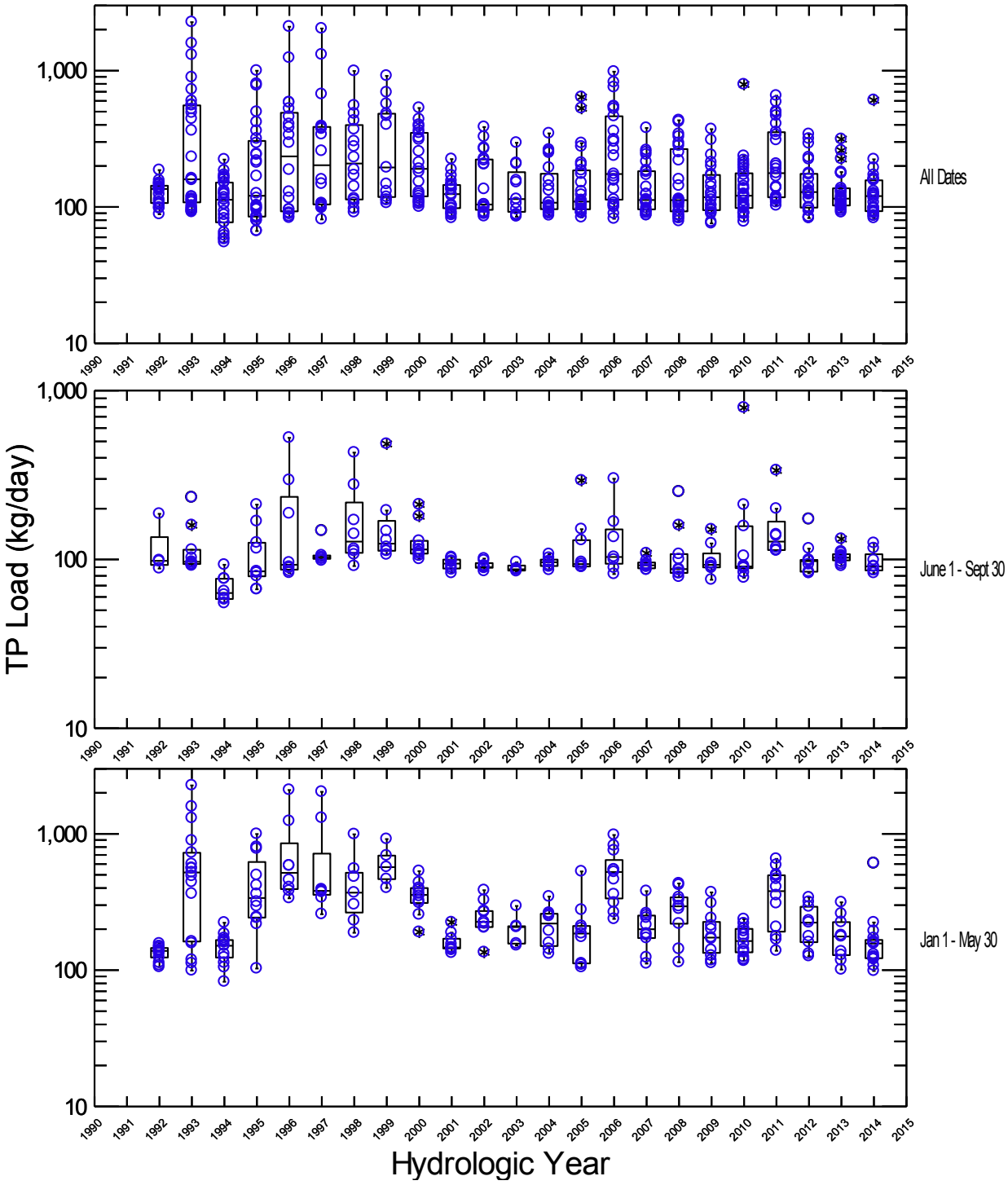

Figure 18. Annual and seasonal distributions of Williamson River TP loading, 1992-2014.

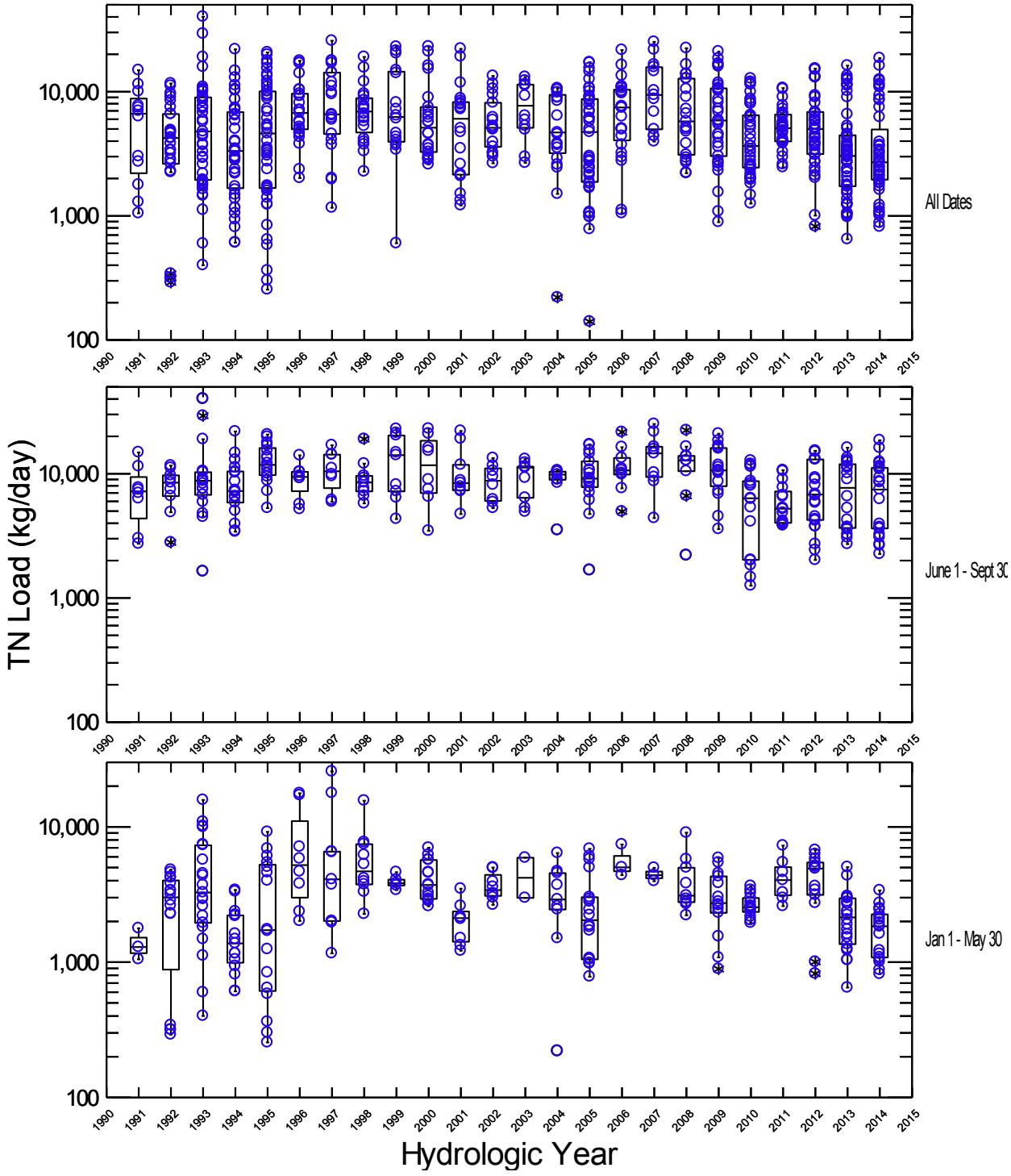

Figure 19. Annual and seasonal distributions of UKL Outlet TN loading, 1991-2014. Note: in HY2006, there are no samples from January to mid-April and in HY2007-2008 and 2011 there are no samples from November to mid-April.

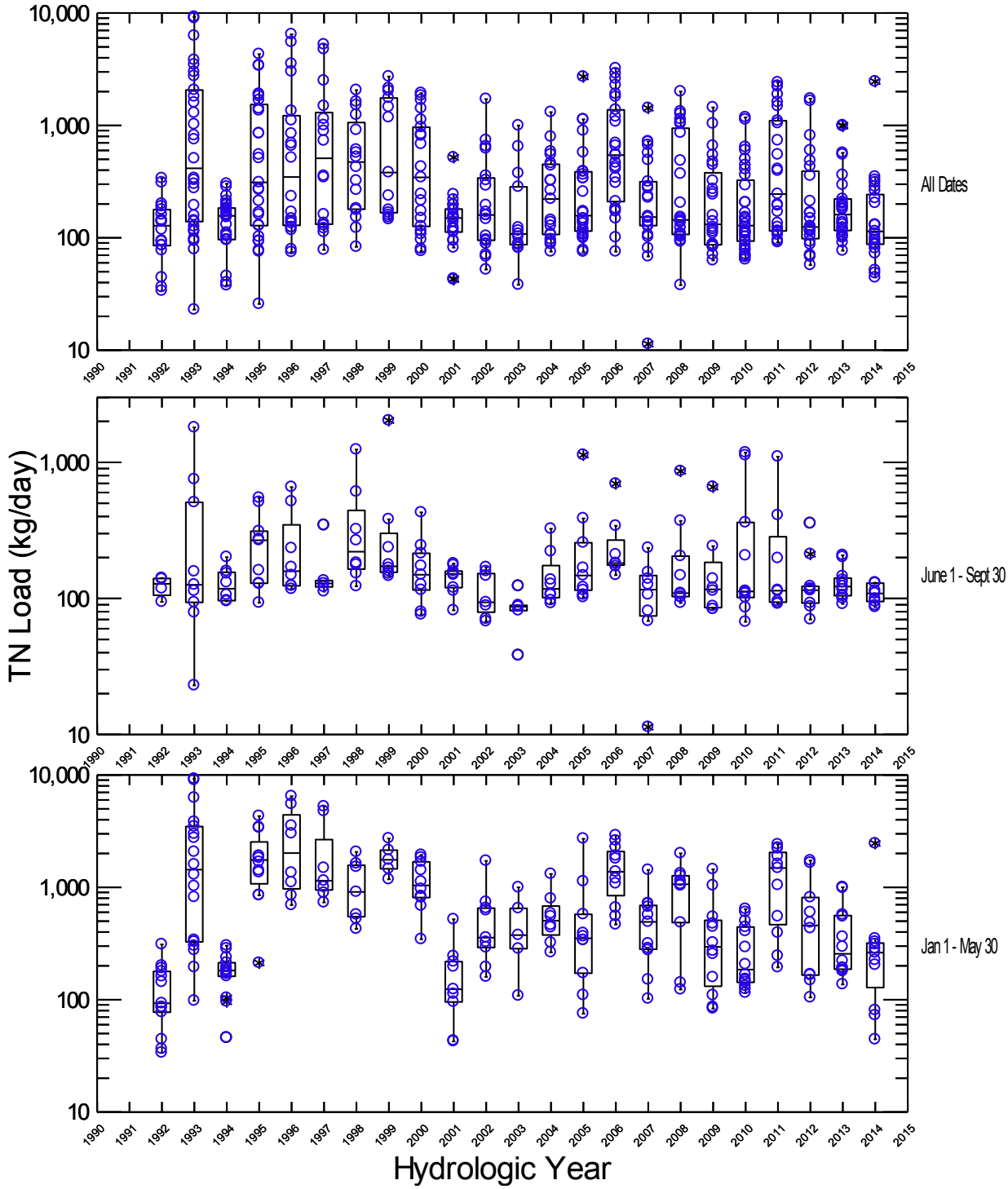

Figure 20. Annual and seasonal distributions of Sprague River TN loading, 1992-2014.

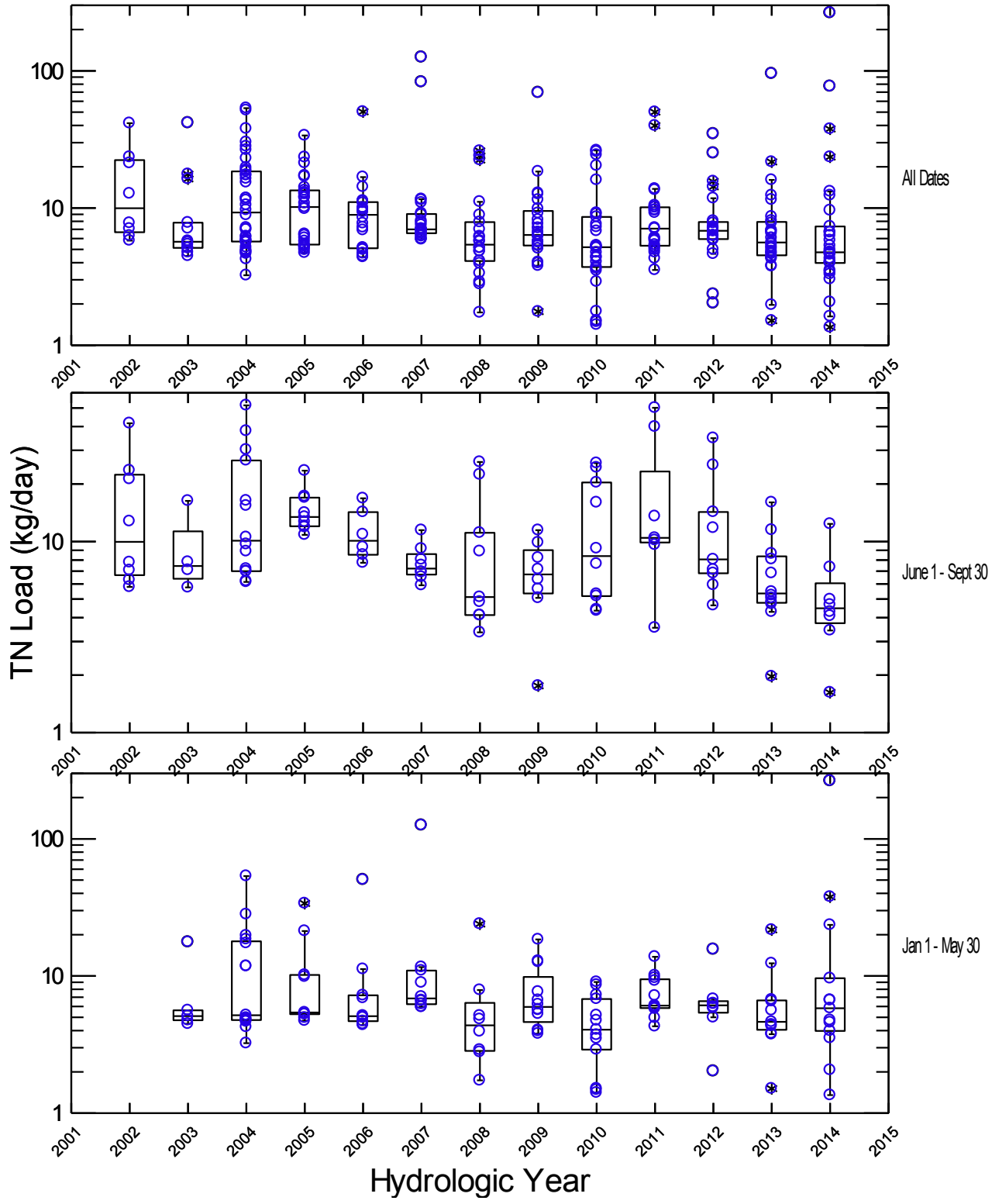

Figure 21. Annual and seasonal distributions of Annie Creek TN loading, 2002-2014.

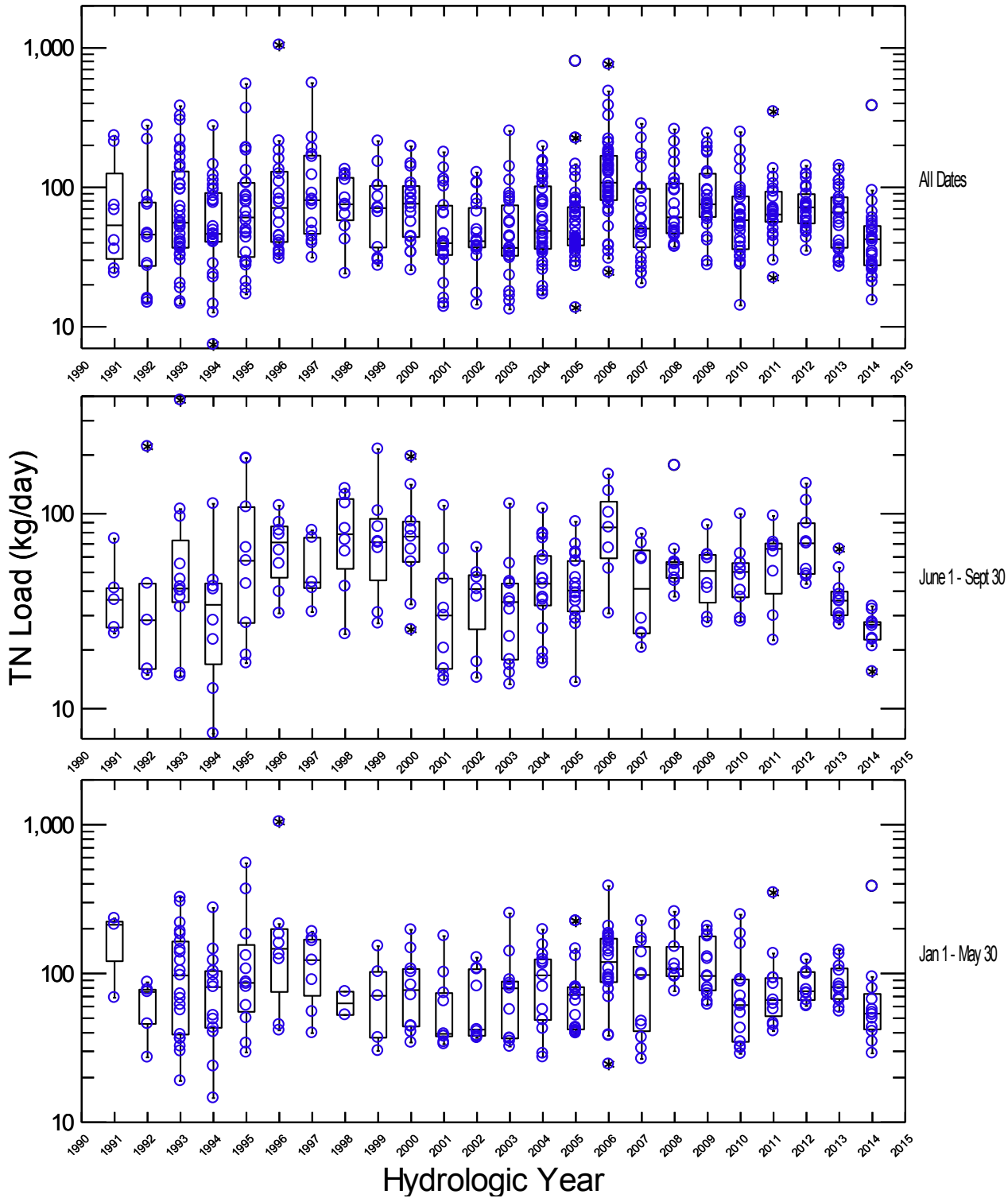

Figure 22. Annual and seasonal distributions of Wood River at Weed Rd. TN loading, 1991-2014.

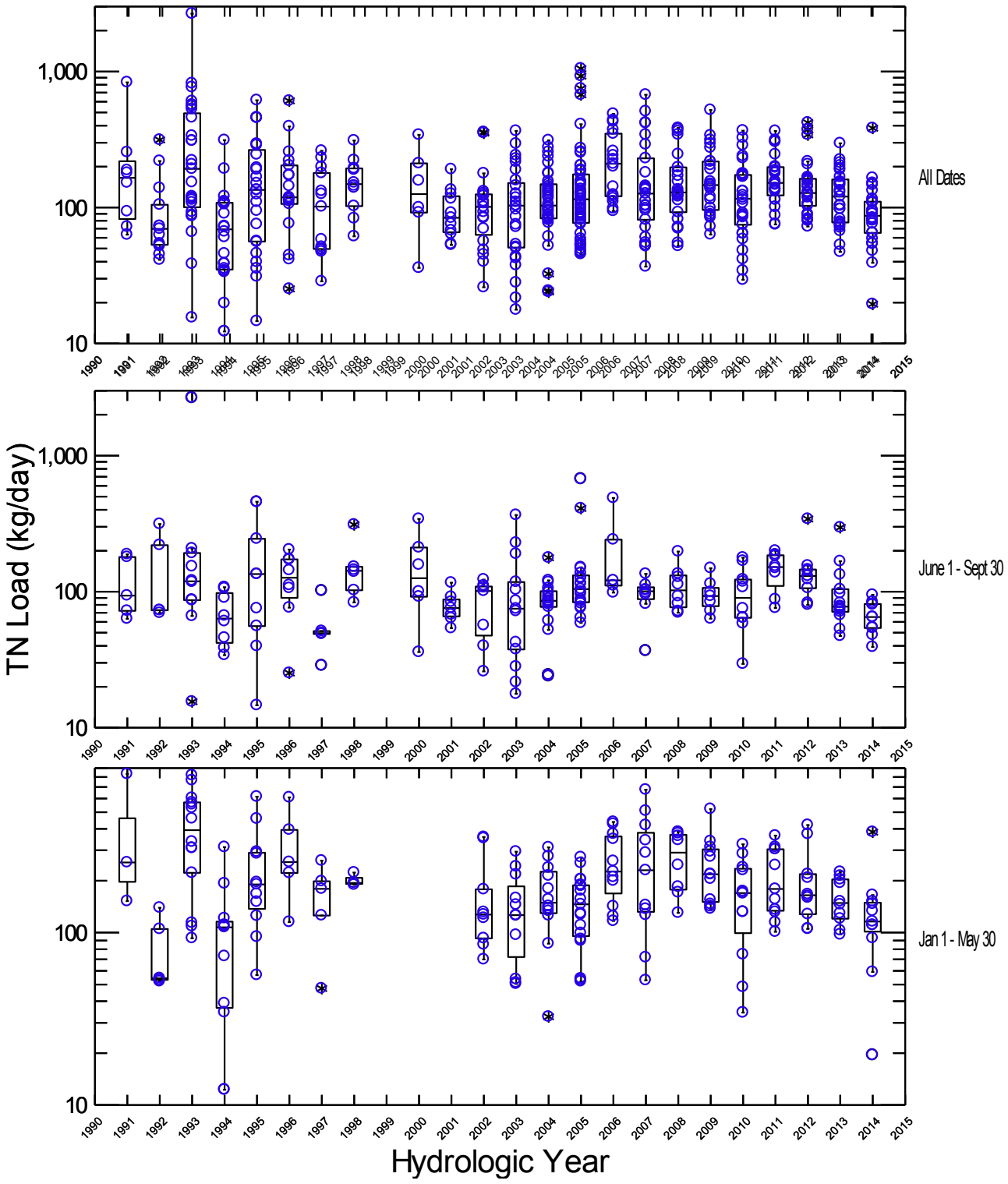

Figure 23. Annual and seasonal distributions of Wood River at Dike Rd. TN loading, 1991-2014.

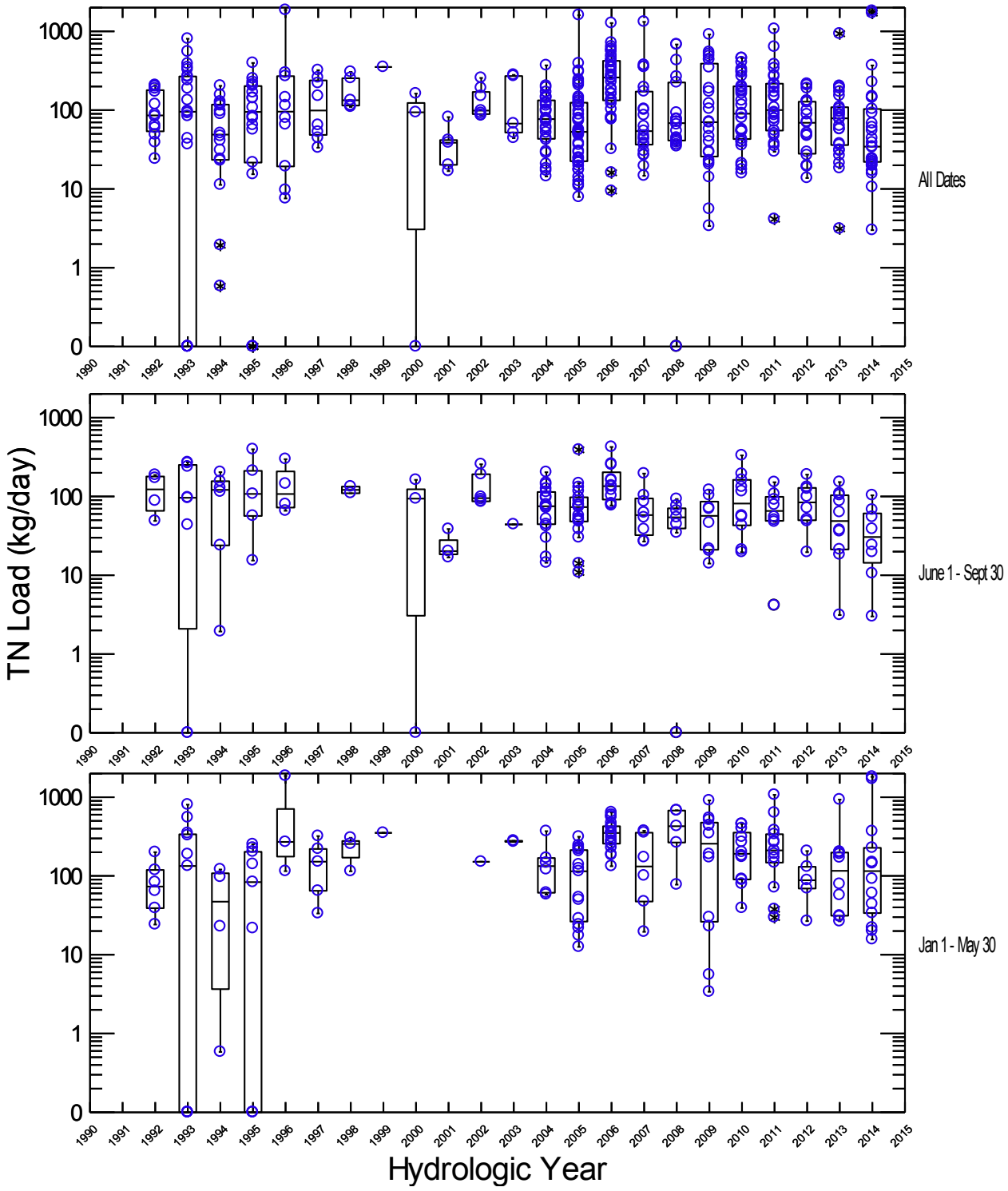

Figure 24. Annual and seasonal distributions of Seven Mile Canal TN loading, 1992-2014. Note that occurrences of zero load are due to lake-backwater effects when no flow is measured at the sampling location.

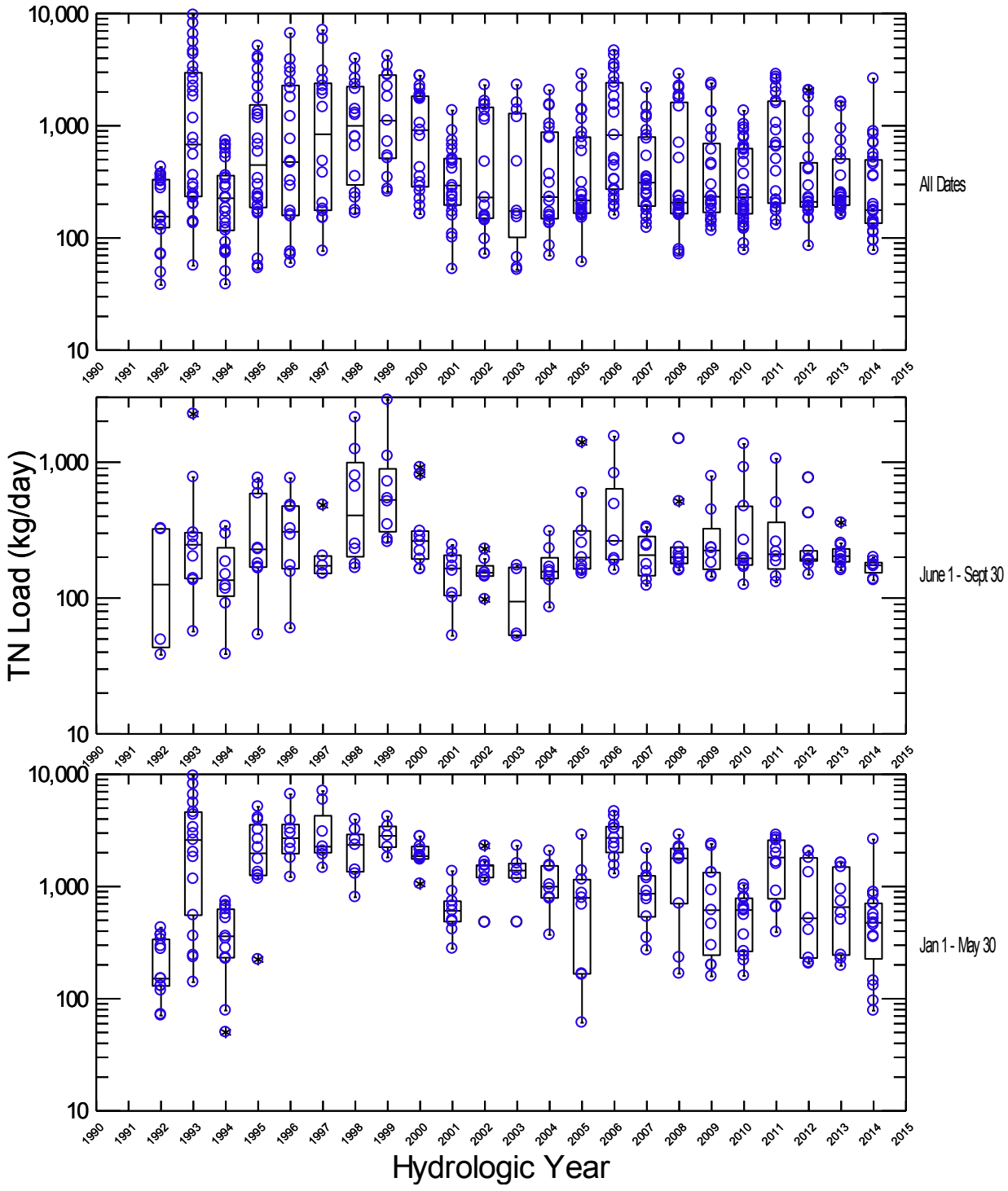

Figure 25. Annual and seasonal distributions of Williamson River TN loading, 1992-2014.

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APPENDIX I: Basic monthly statistics by station for TP, SRP, TN, NH_4-N, NO_3+ NO_2-N, SiO_2 concentration, and TP and TN load, Water Year 2014.

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
UKL Out	UKL Outlet	10	N of Cases	3.00	2.00	3.00	3.00	3.00	2.00	3.00	3.00
UKL Out	UKL Outlet	10	Median	75.50	6.95	1133.33	36.50	331.00	41,100.00	181.42	2315.58
UKL Out	UKL Outlet	10	Arithmetic Mean	78.83	6.95	1194.44	54.23	316.00	41,100.00	166.21	2559.24
UKL Out	UKL Outlet	10	Coefficient of Variation	0.25	0.11	0.11	0.74	0.17	0.02	0.22	0.23
UKL Out	UKL Outlet	10	Pct25	64.63	6.40	1108.33	28.78	275.50	40,500.00	138.83	2167.61
UKL Out	UKL Outlet	10	Pct75	93.88	7.50	1295.83	84.13	352.75	41,700.00	189.78	3011.79
UKL Out	UKL Outlet	11	N of Cases	3.00	2.00	3.00	2.00	3.00	0.00	3.00	3.00
UKL Out	UKL Outlet	11	Median	80.00	8.25	1400.00	60.00	353.00		166.58	2805.62
UKL Out	UKL Outlet	11	Arithmetic Mean	83.67	8.25	1363.33	60.00	355.67		167.50	2728.22
UKL Out	UKL Outlet	11	Coefficient of Variation	0.18	0.61	0.05	0.25	0.12		0.19	0.09
UKL Out	UKL Outlet	11	Pct25	73.25	4.69	1310.00	49.20	323.75		143.28	2533.64
UKL Out	UKL Outlet	11	Pct75	95.00	11.80	1407.50	70.80	388.25		191.95	2903.45
UKL Out	UKL Outlet	12	N of Cases	5.00	5.00	5.00	5.00	5.00	2.00	2.00	2.00
UKL Out	UKL Outlet	12	Median	70.00	9.85	1380.00	62.70	366.00	39,950.00	97.51	1839.14
UKL Out	UKL Outlet	12	Arithmetic Mean	71.80	7.25	1372.00	62.72	365.60	39,950.00	97.51	1839.14
UKL Out	UKL Outlet	12	Coefficient of Variation	0.10	0.64	0.04	0.18	0.02	0.06	0.00	0.09
UKL Out	UKL Outlet	12	Pct25	67.25	2.63	1322.50	57.75	360.00	38,300.00	97.43	1726.53
UKL Out	UKL Outlet	12	Pct75	79.00	10.83	1412.50	70.43	371.50	41,600.00	97.59	1951.75
UKL Out	UKL Outlet	1	N of Cases	2.00	2.00	2.00	2.00	2.00	1.00	2.00	2.00
UKL Out	UKL Outlet	1	Median	53.75	9.50	1067.50	66.25	331.00	39,100.00	59.59	1184.17
UKL Out	UKL Outlet	1	Arithmetic Mean	53.75	9.50	1067.50	66.25	331.00	39,100.00	59.59	1184.17
UKL Out	UKL Outlet	1	Coefficient of Variation	0.10	0.37	0.09	0.08	0.00	1.00	0.03	0.04
UKL Out	UKL Outlet	1	Pct25	50.00	7.00	1000.00	62.50	330.00		58.25	1149.77
UKL Out	UKL Outlet	1	Pct75	57.50	12.00	1135.00	70.00	332.00		60.93	1218.56
UKL Out	UKL Outlet	2	N of Cases	4.00	3.00	4.00	3.00	4.00	2.00	4.00	4.00
UKL Out	UKL Outlet	2	Median	50.75	6.00	1010.00	40.00	302.00	35,800.00	50.95	940.71
UKL Out	UKL Outlet	2	Arithmetic Mean	56.13	6.33	973.63	39.33	274.25	35,800.00	52.94	936.74
UKL Out	UKL Outlet	2	Coefficient of Variation	0.33	0.55	0.11	0.53	0.25	0.04	0.23	0.12
UKL Out	UKL Outlet	2	Pct25	44.50	3.75	907.25	23.50	236.50	34,700.00	45.25	846.59
UKL Out	UKL Outlet	2	Pct75	67.75	9.00	1040.00	55.00	312.00	36,900.00	60.64	1026.88
UKL Out	UKL Outlet	3	N of Cases	4.00	3.00	4.00	3.00	4.00	1.00	4.00	4.00

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
UKL Out	UKL Outlet	3	Median	63.00	7.00	850.00	29.00	57.50	32,600.00	142.63	2010.62
UKL Out	UKL Outlet	3	Arithmetic Mean	70.25	6.00	910.00	29.67	66.25	32,600.00	142.40	1812.02
UKL Out	UKL Outlet	3	Coefficient of Variation	0.24	0.44	0.23	0.34	0.34	1.00	0.36	0.27
UKL Out	UKL Outlet	3	Pct25	60.00	4.00	755.00	22.25	53.00		101.15	1520.20
UKL Out	UKL Outlet	3	Pct75	80.50	7.75	1065.00	37.25	79.50		183.64	2103.84
UKL Out	UKL Outlet	4	N of Cases	4.00	4.00	4.00	3.00	4.00	2.00	4.00	4.00
UKL Out	UKL Outlet	4	Median	60.50	17.00	750.75	13.50	60.00	30,325.00	220.05	2476.06
UKL Out	UKL Outlet	4	Arithmetic Mean	65.75	16.75	734.63	21.00	56.38	30,325.00	235.29	2542.88
UKL Out	UKL Outlet	4	Coefficient of Variation	0.26	0.25	0.16	0.77	0.92	0.08	0.43	0.25
UKL Out	UKL Outlet	4	Pct25	53.25	13.25	644.25	10.88	12.00	28,650.00	152.45	2138.75
UKL Out	UKL Outlet	4	Pct75	78.25	20.25	825.00	33.00	100.75	32,000.00	318.13	2947.01
UKL Out	UKL Outlet	5	N of Cases	4.00	4.00	4.00	2.00	2.00	2.00	4.00	4.00
UKL Out	UKL Outlet	5	Median	95.50	50.25	557.50	12.00	6.50	27,450.00	348.38	2053.88
UKL Out	UKL Outlet	5	Arithmetic Mean	95.83	52.13	585.75	12.00	6.50	27,450.00	341.40	2115.76
UKL Out	UKL Outlet	5	Coefficient of Variation	0.15	0.20	0.12	0.00	0.54	0.02	0.15	0.23
UKL Out	UKL Outlet	5	Pct25	85.17	43.50	541.50	12.00	4.00	27,000.00	304.73	1737.26
UKL Out	UKL Outlet	5	Pct75	106.50	60.75	630.00	12.00	9.00	27,900.00	378.06	2494.26
UKL Out	UKL Outlet	6	N of Cases	7.00	7.00	7.00	6.00	3.00	2.00	7.00	7.00
UKL Out	UKL Outlet	6	Median	195.00	65.00	2330.00	18.00	4.00	25,400.00	933.26	11151.30
UKL Out	UKL Outlet	6	Arithmetic Mean	198.29	82.14	2020.29	35.67	7.00	25,400.00	860.27	8800.23
UKL Out	UKL Outlet	6	Coefficient of Variation	0.34	0.99	0.63	1.44	0.74	0.08	0.30	0.60
UKL Out	UKL Outlet	6	Pct25	152.50	35.25	845.00	10.00	4.00	23,900.00	639.02	3626.36
UKL Out	UKL Outlet	6	Pct75	222.50	73.75	2652.50	20.00	10.75	26,900.00	982.38	12234.08
UKL Out	UKL Outlet	7	N of Cases	5.00	5.00	5.00	5.00	5.00	3.00	5.00	5.00
UKL Out	UKL Outlet	7	Median	340.00	170.00	2640.00	36.00	11.00	37,300.00	1305.85	10881.75
UKL Out	UKL Outlet	7	Arithmetic Mean	348.80	157.30	2995.00	48.60	10.60	36,566.67	1359.29	11782.94
UKL Out	UKL Outlet	7	Coefficient of Variation	0.21	0.29	0.30	0.60	0.51	0.15	0.23	0.35
UKL Out	UKL Outlet	7	Pct25	315.00	139.50	2345.00	26.25	6.25	32,500.00	1194.11	8634.40
UKL Out	UKL Outlet	7	Pct75	390.50	188.13	3508.75	80.00	14.25	40,450.00	1487.07	13814.04
UKL Out	UKL Outlet	8	N of Cases	5.00	5.00	5.00	5.00	5.00	2.00	5.00	5.00
UKL Out	UKL Outlet	8	Median	220.00	81.00	2340.00	120.00	240.00	44,800.00	586.78	6241.23
UKL Out	UKL Outlet	8	Arithmetic Mean	207.30	75.30	2009.00	117.60	226.10	44,800.00	638.78	6134.49
UKL Out	UKL Outlet	8	Coefficient of Variation	0.38	0.70	0.31	0.63	0.54	0.08	0.49	0.39
UKL Out	UKL Outlet	8	Pct25	147.38	35.88	1373.75	48.50	117.38	42,400.00	401.54	3882.54
UKL Out	UKL Outlet	8	Pct75	250.25	105.75	2492.50	185.00	328.00	47,200.00	804.36	7928.30

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
UKL Out	UKL Outlet	9	N of Cases	4.00	4.00	4.00	4.00	3.00	2.00	4.00	4.00
UKL Out	UKL Outlet	9	Median	102.75	29.00	950.25	46.50	12.00	44,000.00	311.29	2670.21
UKL Out	UKL Outlet	9	Arithmetic Mean	106.88	28.88	925.88	53.50	11.67	44,000.00	310.76	2709.42
UKL Out	UKL Outlet	9	Coefficient of Variation	0.16	0.11	0.09	0.51	0.05	0.01	0.15	0.15
UKL Out	UKL Outlet	9	Pct25	93.75	27.00	875.00	33.00	11.25	43,800.00	282.21	2451.40
UKL Out	UKL Outlet	9	Pct75	120.00	30.75	976.75	74.00	12.00	44,200.00	339.32	2967.44
WR1000	Sprague R	10	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR1000	Sprague R	10	Median	33.50	21.50	136.00	3.00	4.00	27,800.00	17.30	70.30
WR1000	Sprague R	10	Arithmetic Mean	33.50	21.50	136.00	3.00	4.00	27,800.00	17.30	70.30
WR1000	Sprague R	10	Coefficient of Variation	0.11	0.03	0.37	0.00	0.00	0.01	0.11	0.38
WR1000	Sprague R	10	Pct25	31.00	21.00	100.00	3.00	4.00	27,700.00	15.93	51.38
WR1000	Sprague R	10	Pct75	36.00	22.00	172.00	3.00	4.00	27,900.00	18.67	89.22
WR1000	Sprague R	11	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00
WR1000	Sprague R	11	Median	36.50	23.50	104.00	3.00	4.00	29,750.00	18.72	48.45
WR1000	Sprague R	11	Arithmetic Mean	36.50	23.50	104.00	3.00	4.00	29,750.00	18.72	48.45
WR1000	Sprague R	11	Coefficient of Variation	0.10	0.21	0.22	0.00	0.00	0.01	1.00	1.00
WR1000	Sprague R	11	Pct25	34.00	20.00	88.00	3.00	4.00	29,500.00		
WR1000	Sprague R	11	Pct75	39.00	27.00	120.00	3.00	4.00	30,000.00		
WR1000	Sprague R	12	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	0.00	0.00
WR1000	Sprague R	12	Median	51.00	36.00	117.00	3.00	36.00	33,500.00		
WR1000	Sprague R	12	Arithmetic Mean	48.00	33.67	121.33	3.00	27.00	33,033.33		
WR1000	Sprague R	12	Coefficient of Variation	0.15	0.15	0.06	0.00	0.74	0.05		
WR1000	Sprague R	12	Pct25	42.75	30.00	117.00	3.00	12.00	31,850.00		
WR1000	Sprague R	12	Pct75	52.50	36.75	126.75	3.00	39.75	34,100.00		
WR1000	Sprague R	1	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR1000	Sprague R	1	Median	53.00	31.50	101.00	5.50	8.00	30,250.00	30.39	58.39
WR1000	Sprague R	1	Arithmetic Mean	53.00	31.50	101.00	5.50	8.00	30,250.00	30.39	58.39
WR1000	Sprague R	1	Coefficient of Variation	0.03	0.02	0.29	0.64	0.71	0.01	0.02	0.34
WR1000	Sprague R	1	Pct25	52.00	31.00	80.00	3.00	4.00	30,000.00	29.86	44.24
WR1000	Sprague R	1	Pct75	54.00	32.00	122.00	8.00	12.00	30,500.00	30.92	72.54
WR1000	Sprague R	2	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR1000	Sprague R	2	Median	71.00	43.00	307.00	8.00	51.00	27,600.00	60.63	262.17
WR1000	Sprague R	2	Arithmetic Mean	102.67	47.00	469.33	11.00	40.67	25,000.00	186.78	934.14
WR1000	Sprague R	2	Coefficient of Variation	0.70	0.29	0.95	0.55	0.81	0.26	1.30	1.42
WR1000	Sprague R	2	Pct25	56.75	37.75	170.50	7.25	15.75	20,025.00	40.26	125.87

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
WR1000	Sprague R	2	Pct75	156.50	57.25	808.75	15.50	63.00	29,325.00	364.85	1910.41
WR1000	Sprague R	3	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00
WR1000	Sprague R	3	Median	68.00	37.00	345.50	13.50	24.50	28,550.00	65.08	310.72
WR1000	Sprague R	3	Arithmetic Mean	68.00	37.00	345.50	13.50	24.50	28,550.00	65.08	310.72
WR1000	Sprague R	3	Coefficient of Variation	0.12	0.04	0.20	0.16	0.66	0.02	1.00	1.00
WR1000	Sprague R	3	Pct25	62.00	36.00	296.00	12.00	13.00	28,100.00		
WR1000	Sprague R	3	Pct75	74.00	38.00	395.00	15.00	36.00	29,000.00		
WR1000	Sprague R	4	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR1000	Sprague R	4	Median	65.50	33.00	291.00	10.50	6.50	28,500.00	70.75	317.31
WR1000	Sprague R	4	Arithmetic Mean	65.50	33.00	291.00	10.50	6.50	28,500.00	70.75	317.31
WR1000	Sprague R	4	Coefficient of Variation	0.18	0.04	0.07	0.34	0.54	0.04	0.11	0.14
WR1000	Sprague R	4	Pct25	57.00	32.00	277.00	8.00	4.00	27,700.00	65.27	285.35
WR1000	Sprague R	4	Pct75	74.00	34.00	305.00	13.00	9.00	29,300.00	76.23	349.27
WR1000	Sprague R	5	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR1000	Sprague R	5	Median	50.00	32.00	285.00	7.00	4.00	28,800.00	42.56	224.98
WR1000	Sprague R	5	Arithmetic Mean	51.67	30.33	299.33	7.33	5.67	28,500.00	43.36	252.01
WR1000	Sprague R	5	Coefficient of Variation	0.07	0.12	0.16	0.61	0.51	0.02	0.19	0.26
WR1000	Sprague R	5	Pct25	49.25	27.50	265.50	4.00	4.00	27,975.00	37.43	208.97
WR1000	Sprague R	5	Pct75	54.50	32.75	336.75	10.75	7.75	28,950.00	49.49	301.81
WR1000	Sprague R	6	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR1000	Sprague R	6	Median	31.50	14.50	264.50	7.00	4.00	25,950.00	13.64	114.90
WR1000	Sprague R	6	Arithmetic Mean	31.50	14.50	264.50	7.00	4.00	25,950.00	13.64	114.90
WR1000	Sprague R	6	Coefficient of Variation	0.02	0.15	0.15	0.81	0.00	0.07	0.02	0.19
WR1000	Sprague R	6	Pct25	31.00	13.00	236.00	3.00	4.00	24,600.00	13.47	99.32
WR1000	Sprague R	6	Pct75	32.00	16.00	293.00	11.00	4.00	27,300.00	13.81	130.48
WR1000	Sprague R	7	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR1000	Sprague R	7	Median	67.00	30.00	339.00	17.00	8.00	22,900.00	23.28	129.40
WR1000	Sprague R	7	Arithmetic Mean	61.00	25.67	340.67	15.00	7.00	23,466.67	21.73	122.84
WR1000	Sprague R	7	Coefficient of Variation	0.39	0.47	0.08	0.48	0.38	0.07	0.35	0.10
WR1000	Sprague R	7	Pct25	43.00	16.50	319.50	9.50	5.00	22,450.00	15.84	113.92
WR1000	Sprague R	7	Pct75	77.50	33.75	362.25	20.00	8.75	24,625.00	27.23	130.13
WR1000	Sprague R	8	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR1000	Sprague R	8	Median	43.00	24.50	248.50	12.00	6.50	26,250.00	17.55	101.29
WR1000	Sprague R	8	Arithmetic Mean	43.00	24.50	248.50	12.00	6.50	26,250.00	17.55	101.29
WR1000	Sprague R	8	Coefficient of Variation	0.16	0.26	0.12	0.24	0.54	0.06	0.22	0.18

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
WR1000	Sprague R	8	Pct25	38.00	20.00	228.00	10.00	4.00	25,200.00	14.78	88.71
WR1000	Sprague R	8	Pct75	48.00	29.00	269.00	14.00	9.00	27,300.00	20.32	113.87
WR1000	Sprague R	9	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR1000	Sprague R	9	Median	33.50	15.50	225.00	14.50	6.00	23,850.00	13.49	90.61
WR1000	Sprague R	9	Arithmetic Mean	33.50	15.50	225.00	14.50	6.00	23,850.00	13.49	90.61
WR1000	Sprague R	9	Coefficient of Variation	0.02	0.14	0.02	0.44	0.47	0.01	0.07	0.07
WR1000	Sprague R	9	Pct25	33.00	14.00	222.00	10.00	4.00	23,700.00	12.84	86.37
WR1000	Sprague R	9	Pct75	34.00	17.00	228.00	19.00	8.00	24,000.00	14.14	94.84
WR2000	Annie Cr	10	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR2000	Annie Cr	10	Median	47.00	30.00	38.00	3.00	18.00	41,800.00	5.29	4.66
WR2000	Annie Cr	10	Arithmetic Mean	47.67	30.00	43.33	4.33	17.67	41,833.33	5.07	4.60
WR2000	Annie Cr	10	Coefficient of Variation	0.08	0.00	0.36	0.53	0.03	0.00	0.16	0.36
WR2000	Annie Cr	10	Pct25	44.75	30.00	32.75	3.00	17.25	41,800.00	4.44	3.36
WR2000	Annie Cr	10	Pct75	50.75	30.00	55.25	6.00	18.00	41,875.00	5.64	5.82
WR2000	Annie Cr	11	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR2000	Annie Cr	11	Median	42.00	29.50	413.00	4.50	9.00	41,850.00	4.02	40.48
WR2000	Annie Cr	11	Arithmetic Mean	42.00	29.50	413.00	4.50	9.00	41,850.00	4.02	40.48
WR2000	Annie Cr	11	Coefficient of Variation	0.10	0.02	1.27	0.47	0.16	0.00	0.14	1.28
WR2000	Annie Cr	11	Pct25	39.00	29.00	42.00	3.00	8.00	41,800.00	3.61	3.89
WR2000	Annie Cr	11	Pct75	45.00	30.00	784.00	6.00	10.00	41,900.00	4.42	77.06
WR2000	Annie Cr	12	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR2000	Annie Cr	12	Median	53.00	30.00	50.00	3.00	21.00	42,200.00	5.53	5.21
WR2000	Annie Cr	12	Arithmetic Mean	62.67	29.33	63.67	7.33	19.67	40,966.67	6.88	7.17
WR2000	Annie Cr	12	Coefficient of Variation	0.34	0.07	0.51	1.02	0.16	0.06	0.57	0.73
WR2000	Annie Cr	12	Pct25	49.25	27.75	42.50	3.00	17.25	39,125.00	4.26	3.70
WR2000	Annie Cr	12	Pct75	78.50	30.75	88.25	12.75	21.75	42,500.00	9.84	11.13
WR2000	Annie Cr	1	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR2000	Annie Cr	1	Median	306.00	25.50	383.00	3.00	29.50	30,050.00	102.01	132.90
WR2000	Annie Cr	1	Arithmetic Mean	306.00	25.50	383.00	3.00	29.50	30,050.00	102.01	132.90
WR2000	Annie Cr	1	Coefficient of Variation	1.22	0.19	1.36	0.00	0.46	0.44	1.36	1.40
WR2000	Annie Cr	1	Pct25	43.00	22.00	15.00	3.00	20.00	20,600.00	3.59	1.25
WR2000	Annie Cr	1	Pct75	569.00	29.00	751.00	3.00	39.00	39,500.00	200.43	264.54
WR2000	Annie Cr	2	N of Cases	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
WR2000	Annie Cr	2	Median	82.50	26.00	83.50	7.00	23.50	32,500.00	13.29	13.67
WR2000	Annie Cr	2	Arithmetic Mean	90.75	26.75	88.25	8.25	23.00	33,175.00	17.47	17.10

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
WR2000	Annie Cr	2	Coefficient of Variation	0.63	0.13	0.66	0.78	0.25	0.23	0.97	0.97
WR2000	Annie Cr	2	Pct25	43.00	24.00	38.00	3.00	18.50	26,750.00	4.13	3.65
WR2000	Annie Cr	2	Pct75	138.50	29.50	138.50	13.50	27.50	39,600.00	30.80	30.55
WR2000	Annie Cr	3	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR2000	Annie Cr	3	Median	44.00	26.00	39.00	8.00	17.00	37,900.00	6.41	5.72
WR2000	Annie Cr	3	Arithmetic Mean	44.33	25.67	35.67	6.67	16.33	36,833.33	5.94	4.76
WR2000	Annie Cr	3	Coefficient of Variation	0.10	0.06	0.54	0.48	0.07	0.06	0.14	0.52
WR2000	Annie Cr	3	Pct25	41.00	24.50	21.00	4.25	15.50	35,275.00	5.33	2.90
WR2000	Annie Cr	3	Pct75	47.75	26.75	49.50	8.75	17.00	38,125.00	6.44	6.37
WR2000	Annie Cr	4	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR2000	Annie Cr	4	Median	41.00	26.00	42.50	4.50	11.00	36,200.00	5.44	5.61
WR2000	Annie Cr	4	Arithmetic Mean	41.00	26.00	42.50	4.50	11.00	36,200.00	5.44	5.61
WR2000	Annie Cr	4	Coefficient of Variation	0.03	0.05	0.28	0.47	0.39	0.02	0.01	0.24
WR2000	Annie Cr	4	Pct25	40.00	25.00	34.00	3.00	8.00	35,800.00	5.40	4.66
WR2000	Annie Cr	4	Pct75	42.00	27.00	51.00	6.00	14.00	36,600.00	5.48	6.55
WR2000	Annie Cr	5	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR2000	Annie Cr	5	Median	41.00	22.50	41.50	5.00	13.00	34,650.00	6.82	7.00
WR2000	Annie Cr	5	Arithmetic Mean	41.00	22.50	41.50	5.00	13.00	34,650.00	6.82	7.00
WR2000	Annie Cr	5	Coefficient of Variation	0.17	0.03	0.36	0.57	0.11	0.09	0.33	0.51
WR2000	Annie Cr	5	Pct25	36.00	22.00	31.00	3.00	12.00	32,500.00	5.21	4.48
WR2000	Annie Cr	5	Pct75	46.00	23.00	52.00	7.00	14.00	36,800.00	8.42	9.52
WR2000	Annie Cr	6	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR2000	Annie Cr	6	Median	44.50	27.00	55.50	5.00	13.50	36,850.00	7.68	9.76
WR2000	Annie Cr	6	Arithmetic Mean	44.50	27.00	55.50	5.00	13.50	36,850.00	7.68	9.76
WR2000	Annie Cr	6	Coefficient of Variation	0.02	0.05	0.17	0.57	0.26	0.07	0.19	0.36
WR2000	Annie Cr	6	Pct25	44.00	26.00	49.00	3.00	11.00	35,100.00	6.66	7.25
WR2000	Annie Cr	6	Pct75	45.00	28.00	62.00	7.00	16.00	38,600.00	8.70	12.26
WR2000	Annie Cr	7	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR2000	Annie Cr	7	Median	80.50	33.50	37.50	11.50	6.00	40,350.00	9.41	4.38
WR2000	Annie Cr	7	Arithmetic Mean	80.50	33.50	37.50	11.50	6.00	40,350.00	9.41	4.38
WR2000	Annie Cr	7	Coefficient of Variation	0.01	0.02	0.09	0.06	0.47	0.00	0.02	0.06
WR2000	Annie Cr	7	Pct25	80.00	33.00	35.00	11.00	4.00	40,300.00	9.26	4.19
WR2000	Annie Cr	7	Pct75	81.00	34.00	40.00	12.00	8.00	40,400.00	9.57	4.57
WR2000	Annie Cr	8	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR2000	Annie Cr	8	Median	43.50	31.50	37.50	10.50	6.00	40,700.00	5.13	4.43

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
WR2000	Annie Cr	8	Arithmetic Mean	43.50	31.50	37.50	10.50	6.00	40,700.00	5.13	4.43
WR2000	Annie Cr	8	Coefficient of Variation	0.02	0.07	0.09	0.07	0.47	0.00	0.03	0.14
WR2000	Annie Cr	8	Pct25	43.00	30.00	35.00	10.00	4.00	40,600.00	5.01	3.98
WR2000	Annie Cr	8	Pct75	44.00	33.00	40.00	11.00	8.00	40,800.00	5.24	4.88
WR2000	Annie Cr	9	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR2000	Annie Cr	9	Median	46.50	31.50	23.50	11.00	6.50	40,700.00	4.78	2.42
WR2000	Annie Cr	9	Arithmetic Mean	46.50	31.50	23.50	11.00	6.50	40,700.00	4.78	2.42
WR2000	Annie Cr	9	Coefficient of Variation	0.02	0.02	0.51	0.13	0.54	0.02	0.00	0.53
WR2000	Annie Cr	9	Pct25	46.00	31.00	15.00	10.00	4.00	40,100.00	4.77	1.52
WR2000	Annie Cr	9	Pct75	47.00	32.00	32.00	12.00	9.00	41,300.00	4.78	3.33
WR3000	Wood @ Weed	10	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR3000	Wood @ Weed	10	Median	81.00	67.50	57.00	11.50	17.50	39,500.00	60.70	42.71
WR3000	Wood @ Weed	10	Arithmetic Mean	81.00	67.50	57.00	11.50	17.50	39,500.00	60.70	42.71
WR3000	Wood @ Weed	10	Coefficient of Variation	0.00	0.01	0.02	0.31	0.12	0.00	0.01	0.01
WR3000	Wood @ Weed	10	Pct25	81.00	67.00	56.00	9.00	16.00	39,500.00	60.25	42.28
WR3000	Wood @ Weed	10	Pct75	81.00	68.00	58.00	14.00	19.00	39,500.00	61.16	43.14
WR3000	Wood @ Weed	11	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR3000	Wood @ Weed	11	Median	85.50	69.00	48.50	3.00	15.00	38,900.00	64.97	37.25
WR3000	Wood @ Weed	11	Arithmetic Mean	85.50	69.00	48.50	3.00	15.00	38,900.00	64.97	37.25
WR3000	Wood @ Weed	11	Coefficient of Variation	0.02	0.02	0.39	0.00	0.19	0.01	0.03	0.44
WR3000	Wood @ Weed	11	Pct25	84.00	68.00	35.00	3.00	13.00	38,500.00	63.79	25.66
WR3000	Wood @ Weed	11	Pct75	87.00	70.00	62.00	3.00	17.00	39,300.00	66.15	48.83
WR3000	Wood @ Weed	12	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR3000	Wood @ Weed	12	Median	87.00	67.00	62.00	3.00	22.00	39,200.00	68.41	48.14
WR3000	Wood @ Weed	12	Arithmetic Mean	88.33	67.33	65.33	5.00	21.00	39,033.33	68.77	50.83
WR3000	Wood @ Weed	12	Coefficient of Variation	0.04	0.02	0.17	0.69	0.08	0.01	0.03	0.17
WR3000	Wood @ Weed	12	Pct25	86.25	66.25	57.50	3.00	19.75	38,750.00	67.18	45.06
WR3000	Wood @ Weed	12	Pct75	90.75	68.50	74.00	7.50	22.00	39,275.00	70.45	57.26
WR3000	Wood @ Weed	1	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR3000	Wood @ Weed	1	Median	89.00	69.00	71.00	9.00	26.00	38,000.00	66.11	52.74
WR3000	Wood @ Weed	1	Arithmetic Mean	119.67	70.67	165.00	7.00	25.00	37,300.00	105.33	157.00

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
WR3000	Wood @ Weed	1	Coefficient of Variation	0.44	0.08	1.12	0.49	0.07	0.10	0.65	1.25
WR3000	Wood @ Weed	1	Pct25	89.00	66.75	53.00	4.50	23.75	34,550.00	65.85	39.23
WR3000	Wood @ Weed	1	Pct75	158.00	75.00	300.50	9.00	26.00	39,875.00	154.62	300.83
WR3000	Wood @ Weed	2	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR3000	Wood @ Weed	2	Median	94.00	74.00	102.50	12.50	23.00	37,700.00	79.94	87.10
WR3000	Wood @ Weed	2	Arithmetic Mean	94.00	74.00	102.50	12.50	23.00	37,700.00	79.94	87.10
WR3000	Wood @ Weed	2	Coefficient of Variation	0.11	0.11	0.13	0.51	0.25	0.03	0.11	0.12
WR3000	Wood @ Weed	2	Pct25	87.00	68.00	93.00	8.00	19.00	37,000.00	73.61	79.43
WR3000	Wood @ Weed	2	Pct75	101.00	80.00	112.00	17.00	27.00	38,400.00	86.27	94.76
WR3000	Wood @ Weed	3	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR3000	Wood @ Weed	3	Median	81.00	64.00	63.00	12.00	21.00	38,550.00	67.13	52.13
WR3000	Wood @ Weed	3	Arithmetic Mean	81.00	64.00	63.00	12.00	21.00	38,550.00	67.13	52.13
WR3000	Wood @ Weed	3	Coefficient of Variation	0.02	0.02	0.04	0.24	0.13	0.00	0.09	0.07
WR3000	Wood @ Weed	3	Pct25	80.00	63.00	61.00	10.00	19.00	38,500.00	62.71	49.71
WR3000	Wood @ Weed	3	Pct75	82.00	65.00	65.00	14.00	23.00	38,600.00	71.55	54.56
WR3000	Wood @ Weed	4	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR3000	Wood @ Weed	4	Median	95.50	67.00	86.00	8.50	15.00	38,450.00	68.46	61.94
WR3000	Wood @ Weed	4	Arithmetic Mean	95.50	67.00	86.00	8.50	15.00	38,450.00	68.46	61.94
WR3000	Wood @ Weed	4	Coefficient of Variation	0.17	0.11	0.13	0.25	0.38	0.02	0.07	0.11
WR3000	Wood @ Weed	4	Pct25	84.00	62.00	78.00	7.00	11.00	38,000.00	65.11	57.20
WR3000	Wood @ Weed	4	Pct75	107.00	72.00	94.00	10.00	19.00	38,900.00	71.80	66.67
WR3000	Wood @ Weed	5	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR3000	Wood @ Weed	5	Median	80.00	63.00	87.00	7.00	14.00	37,800.00	34.18	40.69
WR3000	Wood @ Weed	5	Arithmetic Mean	79.67	65.00	91.00	7.33	14.33	37,933.33	33.01	37.67
WR3000	Wood @ Weed	5	Coefficient of Variation	0.03	0.05	0.13	0.61	0.04	0.02	0.18	0.20
WR3000	Wood @ Weed	5	Pct25	77.75	63.00	83.25	4.00	14.00	37,500.00	28.52	31.89
WR3000	Wood @ Weed	5	Pct75	81.50	67.50	99.75	10.75	14.75	38,400.00	37.20	42.68
WR3000	Wood @ Weed	6	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR3000	Wood @ Weed	6	Median	81.00	66.00	59.00	3.00	11.00	37,900.00	37.25	22.82

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
WR3000	Wood @ Weed	6	Arithmetic Mean	81.67	66.67	55.67	6.00	11.67	37,766.67	32.60	21.97
WR3000	Wood @ Weed	6	Coefficient of Variation	0.03	0.02	0.10	0.87	0.10	0.01	0.31	0.28
WR3000	Wood @ Weed	6	Pct25	80.25	66.00	51.50	3.00	11.00	37,600.00	25.13	17.23
WR3000	Wood @ Weed	6	Pct75	83.25	67.50	59.00	9.75	12.50	37,900.00	38.91	26.49
WR3000	Wood @ Weed	7	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR3000	Wood @ Weed	7	Median	103.00	73.00	67.00	10.00	11.00	38,000.00	52.46	32.22
WR3000	Wood @ Weed	7	Arithmetic Mean	98.33	72.00	64.00	8.00	10.00	37,966.67	47.98	31.04
WR3000	Wood @ Weed	7	Coefficient of Variation	0.18	0.02	0.14	0.54	0.17	0.00	0.20	0.10
WR3000	Wood @ Weed	7	Pct25	85.00	70.75	57.25	4.75	8.75	37,850.00	40.98	28.68
WR3000	Wood @ Weed	7	Pct75	110.50	73.00	70.00	10.75	11.00	38,075.00	53.87	33.09
WR3000	Wood @ Weed	8	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR3000	Wood @ Weed	8	Median	84.50	70.50	50.50	4.50	8.50	37,700.00	39.84	23.65
WR3000	Wood @ Weed	8	Arithmetic Mean	84.50	70.50	50.50	4.50	8.50	37,700.00	39.84	23.65
WR3000	Wood @ Weed	8	Coefficient of Variation	0.04	0.01	0.24	0.47	0.75	0.00	0.03	0.17
WR3000	Wood @ Weed	8	Pct25	82.00	70.00	42.00	3.00	4.00	37,700.00	39.06	20.81
WR3000	Wood @ Weed	8	Pct75	87.00	71.00	59.00	6.00	13.00	37,700.00	40.63	26.49
WR3000	Wood @ Weed	9	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR3000	Wood @ Weed	9	Median	85.50	70.00	48.00	9.00	8.00	38,350.00	44.21	24.85
WR3000	Wood @ Weed	9	Arithmetic Mean	85.50	70.00	48.00	9.00	8.00	38,350.00	44.21	24.85
WR3000	Wood @ Weed	9	Coefficient of Variation	0.02	0.02	0.09	0.16	0.71	0.01	0.07	0.13
WR3000	Wood @ Weed	9	Pct25	84.00	69.00	45.00	8.00	4.00	38,200.00	42.00	22.50
WR3000	Wood @ Weed	9	Pct75	87.00	71.00	51.00	10.00	12.00	38,500.00	46.41	27.21
WR4000	Wood @ Dike	10	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR4000	Wood @ Dike	10	Median	97.50	77.00	111.50	11.00	15.00	38,050.00	95.08	108.64
WR4000	Wood @ Dike	10	Arithmetic Mean	97.50	77.00	111.50	11.00	15.00	38,050.00	95.08	108.64
WR4000	Wood @ Dike	10	Coefficient of Variation	0.01	0.07	0.04	1.03	0.09	0.03	0.04	0.00
WR4000	Wood @ Dike	10	Pct25	97.00	73.00	108.00	3.00	14.00	37,200.00	92.65	108.55
WR4000	Wood @ Dike	10	Pct75	98.00	81.00	115.00	19.00	16.00	38,900.00	97.50	108.73
WR4000	Wood @ Dike	11	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
WR4000	Wood @ Dike	11	Median	95.50	73.50	87.50	3.00	15.00	37,900.00	93.66	86.08
WR4000	Wood @ Dike	11	Arithmetic Mean	95.50	73.50	87.50	3.00	15.00	37,900.00	93.66	86.08
WR4000	Wood @ Dike	11	Coefficient of Variation	0.10	0.07	0.02	0.00	0.09	0.02	0.01	0.06
WR4000	Wood @ Dike	11	Pct25	89.00	70.00	86.00	3.00	14.00	37,300.00	92.93	82.36
WR4000	Wood @ Dike	11	Pct75	102.00	77.00	89.00	3.00	16.00	38,500.00	94.39	89.80
WR4000	Wood @ Dike	12	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR4000	Wood @ Dike	12	Median	96.00	76.00	82.00	7.00	21.00	38,400.00	91.27	80.25
WR4000	Wood @ Dike	12	Arithmetic Mean	93.33	76.00	85.00	6.67	21.00	38,166.67	91.89	83.98
WR4000	Wood @ Dike	12	Coefficient of Variation	0.06	0.03	0.08	0.53	0.05	0.01	0.03	0.12
WR4000	Wood @ Dike	12	Pct25	89.25	74.50	80.50	4.00	20.25	37,800.00	89.91	77.11
WR4000	Wood @ Dike	12	Pct75	96.75	77.50	90.25	9.25	21.75	38,475.00	94.02	91.78
WR4000	Wood @ Dike	1	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR4000	Wood @ Dike	1	Median	102.00	76.00	94.00	7.00	25.00	37,400.00	97.02	92.76
WR4000	Wood @ Dike	1	Arithmetic Mean	113.67	83.00	157.00	7.33	24.67	34,733.33	122.02	178.40
WR4000	Wood @ Dike	1	Coefficient of Variation	0.23	0.17	0.88	0.61	0.06	0.17	0.38	1.00
WR4000	Wood @ Dike	1	Pct25	96.75	74.50	70.00	4.00	23.50	30,425.00	94.57	67.42
WR4000	Wood @ Dike	1	Pct75	133.50	93.25	259.75	10.75	25.75	38,375.00	155.73	310.79
WR4000	Wood @ Dike	2	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR4000	Wood @ Dike	2	Median	114.00	85.00	138.50	11.50	22.50	36,750.00	117.12	142.29
WR4000	Wood @ Dike	2	Arithmetic Mean	114.00	85.00	138.50	11.50	22.50	36,750.00	117.12	142.29
WR4000	Wood @ Dike	2	Coefficient of Variation	0.07	0.10	0.09	0.06	0.16	0.01	0.08	0.09
WR4000	Wood @ Dike	2	Pct25	108.00	79.00	130.00	11.00	20.00	36,400.00	110.74	133.30
WR4000	Wood @ Dike	2	Pct75	120.00	91.00	147.00	12.00	25.00	37,100.00	123.49	151.28
WR4000	Wood @ Dike	3	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR4000	Wood @ Dike	3	Median	111.00	100.00	132.00	11.00	15.50	36,450.00	108.41	128.63
WR4000	Wood @ Dike	3	Arithmetic Mean	111.00	100.00	132.00	11.00	15.50	36,450.00	108.41	128.63
WR4000	Wood @ Dike	3	Coefficient of Variation	0.11	0.07	0.24	0.13	0.41	0.01	0.08	0.20
WR4000	Wood @ Dike	3	Pct25	102.00	95.00	110.00	10.00	11.00	36,200.00	102.44	110.47
WR4000	Wood @ Dike	3	Pct75	120.00	105.00	154.00	12.00	20.00	36,700.00	114.38	146.79

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
WR4000	Wood @ Dike	4	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR4000	Wood @ Dike	4	Median	133.00	102.50	162.00	12.00	9.00	35,800.00	71.84	92.25
WR4000	Wood @ Dike	4	Arithmetic Mean	133.00	102.50	162.00	12.00	9.00	35,800.00	71.84	92.25
WR4000	Wood @ Dike	4	Coefficient of Variation	0.21	0.06	0.13	0.35	0.79	0.04	1.08	1.12
WR4000	Wood @ Dike	4	Pct25	113.00	98.00	147.00	9.00	4.00	34,800.00	16.76	19.39
WR4000	Wood @ Dike	4	Pct75	153.00	107.00	177.00	15.00	14.00	36,800.00	126.91	165.10
WR4000	Wood @ Dike	5	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR4000	Wood @ Dike	5	Median	127.50	104.00	159.00	8.50	13.50	35,500.00	90.83	113.16
WR4000	Wood @ Dike	5	Arithmetic Mean	127.50	104.00	159.00	8.50	13.50	35,500.00	90.83	113.16
WR4000	Wood @ Dike	5	Coefficient of Variation	0.04	0.01	0.01	0.08	0.26	0.02	0.08	0.03
WR4000	Wood @ Dike	5	Pct25	124.00	103.00	158.00	8.00	11.00	35,000.00	85.67	110.54
WR4000	Wood @ Dike	5	Pct75	131.00	105.00	160.00	9.00	16.00	36,000.00	95.99	115.78
WR4000	Wood @ Dike	6	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR4000	Wood @ Dike	6	Median	106.00	88.00	108.00	6.00	9.00	36,360.00	61.81	47.94
WR4000	Wood @ Dike	6	Arithmetic Mean	105.67	88.67	98.67	9.67	9.33	36,053.33	60.28	56.03
WR4000	Wood @ Dike	6	Coefficient of Variation	0.07	0.09	0.20	0.66	0.06	0.03	0.33	0.39
WR4000	Wood @ Dike	6	Pct25	100.00	82.75	84.00	6.00	9.00	35,340.00	45.06	41.33
WR4000	Wood @ Dike	6	Pct75	111.25	94.75	111.00	14.25	9.75	36,690.00	75.10	72.76
WR4000	Wood @ Dike	7	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR4000	Wood @ Dike	7	Median	125.00	97.00	123.00	10.00	8.00	36,300.00	92.12	84.01
WR4000	Wood @ Dike	7	Arithmetic Mean	133.00	95.67	122.67	11.67	7.00	36,300.00	92.98	86.28
WR4000	Wood @ Dike	7	Coefficient of Variation	0.17	0.04	0.07	0.25	0.38	0.01	0.10	0.09
WR4000	Wood @ Dike	7	Pct25	118.25	92.50	116.25	10.00	5.00	36,075.00	85.90	81.13
WR4000	Wood @ Dike	7	Pct75	149.75	98.50	129.00	13.75	8.75	36,525.00	100.27	92.01
WR4000	Wood @ Dike	8	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR4000	Wood @ Dike	8	Median	99.00	77.50	89.50	5.00	7.50	36,450.00	72.18	65.01
WR4000	Wood @ Dike	8	Arithmetic Mean	99.00	77.50	89.50	5.00	7.50	36,450.00	72.18	65.01
WR4000	Wood @ Dike	8	Coefficient of Variation	0.03	0.01	0.10	0.57	0.66	0.00	0.07	0.00
WR4000	Wood @ Dike	8	Pct25	97.00	77.00	83.00	3.00	4.00	36,400.00	68.56	64.87

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
WR4000	Wood @ Dike	8	Pct75	101.00	78.00	96.00	7.00	11.00	36,500.00	75.81	65.16
WR4000	Wood @ Dike	9	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR4000	Wood @ Dike	9	Median	99.50	81.50	82.50	10.00	6.00	37,150.00	65.56	54.30
WR4000	Wood @ Dike	9	Arithmetic Mean	99.50	81.50	82.50	10.00	6.00	37,150.00	65.56	54.30
WR4000	Wood @ Dike	9	Coefficient of Variation	0.02	0.01	0.04	0.00	0.47	0.02	0.06	0.01
WR4000	Wood @ Dike	9	Pct25	98.00	81.00	80.00	10.00	4.00	36,600.00	62.91	54.03
WR4000	Wood @ Dike	9	Pct75	101.00	82.00	85.00	10.00	8.00	37,700.00	68.21	54.57
WR5000	7-mile Canal	10	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR5000	7-mile Canal	10	Median	82.00	63.00	113.00	11.00	4.00	32,300.00	15.96	22.21
WR5000	7-mile Canal	10	Arithmetic Mean	84.67	64.33	121.00	10.67	4.00	32,100.00	15.72	22.42
WR5000	7-mile Canal	10	Coefficient of Variation	0.07	0.06	0.12	0.14	0.00	0.02	0.04	0.08
WR5000	7-mile Canal	10	Pct25	81.25	61.50	112.25	9.50	4.00	31,625.00	15.19	21.18
WR5000	7-mile Canal	10	Pct75	88.75	67.50	131.75	11.75	4.00	32,525.00	16.19	23.70
WR5000	7-mile Canal	11	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR5000	7-mile Canal	11	Median	74.50	53.50	116.50	18.00	4.00	32,700.00	14.69	22.73
WR5000	7-mile Canal	11	Arithmetic Mean	74.50	53.50	116.50	18.00	4.00	32,700.00	14.69	22.73
WR5000	7-mile Canal	11	Coefficient of Variation	0.01	0.09	0.13	0.79	0.00	0.01	0.16	0.05
WR5000	7-mile Canal	11	Pct25	74.00	50.00	106.00	8.00	4.00	32,500.00	12.99	22.00
WR5000	7-mile Canal	11	Pct75	75.00	57.00	127.00	28.00	4.00	32,900.00	16.38	23.47
WR5000	7-mile Canal	12	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00
WR5000	7-mile Canal	12	Median	78.00	55.00	91.00	7.00	8.00	33,400.00	20.27	25.59
WR5000	7-mile Canal	12	Arithmetic Mean	77.00	55.33	92.33	7.67	7.33	33,366.67	20.27	25.59
WR5000	7-mile Canal	12	Coefficient of Variation	0.05	0.05	0.12	0.27	0.42	0.03	0.27	0.48
WR5000	7-mile Canal	12	Pct25	74.25	53.50	84.25	6.25	5.00	32,650.00	16.45	16.86
WR5000	7-mile Canal	12	Pct75	79.50	57.25	100.75	9.25	9.50	34,075.00	24.09	34.32
WR5000	7-mile Canal	1	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR5000	7-mile Canal	1	Median	88.00	70.00	160.00	12.00	13.00	30,700.00	22.12	33.65
WR5000	7-mile Canal	1	Arithmetic Mean	131.00	78.33	401.33	18.67	15.33	26,233.33	41.20	139.65
WR5000	7-mile Canal	1	Coefficient of Variation	0.60	0.28	1.27	1.06	0.83	0.36	0.88	1.43

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
WR5000	7-mile Canal	1	Pct25	85.00	64.00	84.25	5.25	6.25	19,300.00	19.41	20.06
WR5000	7-mile Canal	1	Pct75	187.75	94.75	778.75	33.75	25.00	32,050.00	67.75	285.74
WR5000	7-mile Canal	2	N of Cases	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
WR5000	7-mile Canal	2	Median	147.00	80.00	780.00	33.50	37.50	15,050.00	154.73	966.37
WR5000	7-mile Canal	2	Arithmetic Mean	149.50	81.00	819.75	30.75	36.75	18,725.00	160.26	973.37
WR5000	7-mile Canal	2	Coefficient of Variation	0.24	0.07	0.49	0.41	0.41	0.53	0.83	0.94
WR5000	7-mile Canal	2	Pct25	119.00	77.00	479.50	21.00	26.00	12,400.00	45.96	186.03
WR5000	7-mile Canal	2	Pct75	180.00	85.00	1160.00	40.50	47.50	25,050.00	274.55	1760.72
WR5000	7-mile Canal	3	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR5000	7-mile Canal	3	Median	96.00	67.00	241.00	16.00	8.00	32,200.00	41.03	91.90
WR5000	7-mile Canal	3	Arithmetic Mean	102.33	71.33	280.00	16.00	10.33	32,866.67	35.17	93.26
WR5000	7-mile Canal	3	Coefficient of Variation	0.15	0.12	0.45	0.19	0.75	0.04	0.44	0.54
WR5000	7-mile Canal	3	Pct25	92.25	66.25	193.75	13.75	5.00	31,975.00	23.39	55.94
WR5000	7-mile Canal	3	Pct75	114.00	77.50	376.00	18.25	16.25	33,925.00	45.49	130.93
WR5000	7-mile Canal	4	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR5000	7-mile Canal	4	Median	106.50	67.50	379.00	15.00	4.00	30,850.00	30.78	85.74
WR5000	7-mile Canal	4	Arithmetic Mean	106.50	67.50	379.00	15.00	4.00	30,850.00	30.78	85.74
WR5000	7-mile Canal	4	Coefficient of Variation	0.05	0.05	0.33	0.85	0.00	0.01	1.19	1.05
WR5000	7-mile Canal	4	Pct25	103.00	65.00	290.00	6.00	4.00	30,600.00	4.83	21.93
WR5000	7-mile Canal	4	Pct75	110.00	70.00	468.00	24.00	4.00	31,100.00	56.73	149.56
WR5000	7-mile Canal	5	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR5000	7-mile Canal	5	Median	159.00	94.50	451.00	8.00	6.00	33,350.00	13.63	40.16
WR5000	7-mile Canal	5	Arithmetic Mean	159.00	94.50	451.00	8.00	6.00	33,350.00	13.63	40.16
WR5000	7-mile Canal	5	Coefficient of Variation	0.01	0.05	0.12	0.00	0.47	0.09	0.61	0.71
WR5000	7-mile Canal	5	Pct25	158.00	91.00	414.00	8.00	4.00	31,300.00	7.71	19.95
WR5000	7-mile Canal	5	Pct75	160.00	98.00	488.00	8.00	8.00	35,400.00	19.55	60.37
WR5000	7-mile Canal	6	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR5000	7-mile Canal	6	Median	192.50	135.50	614.00	14.00	6.00	32,800.00	10.96	35.30
WR5000	7-mile Canal	6	Arithmetic Mean	192.50	135.50	614.00	14.00	6.00	32,800.00	10.96	35.30

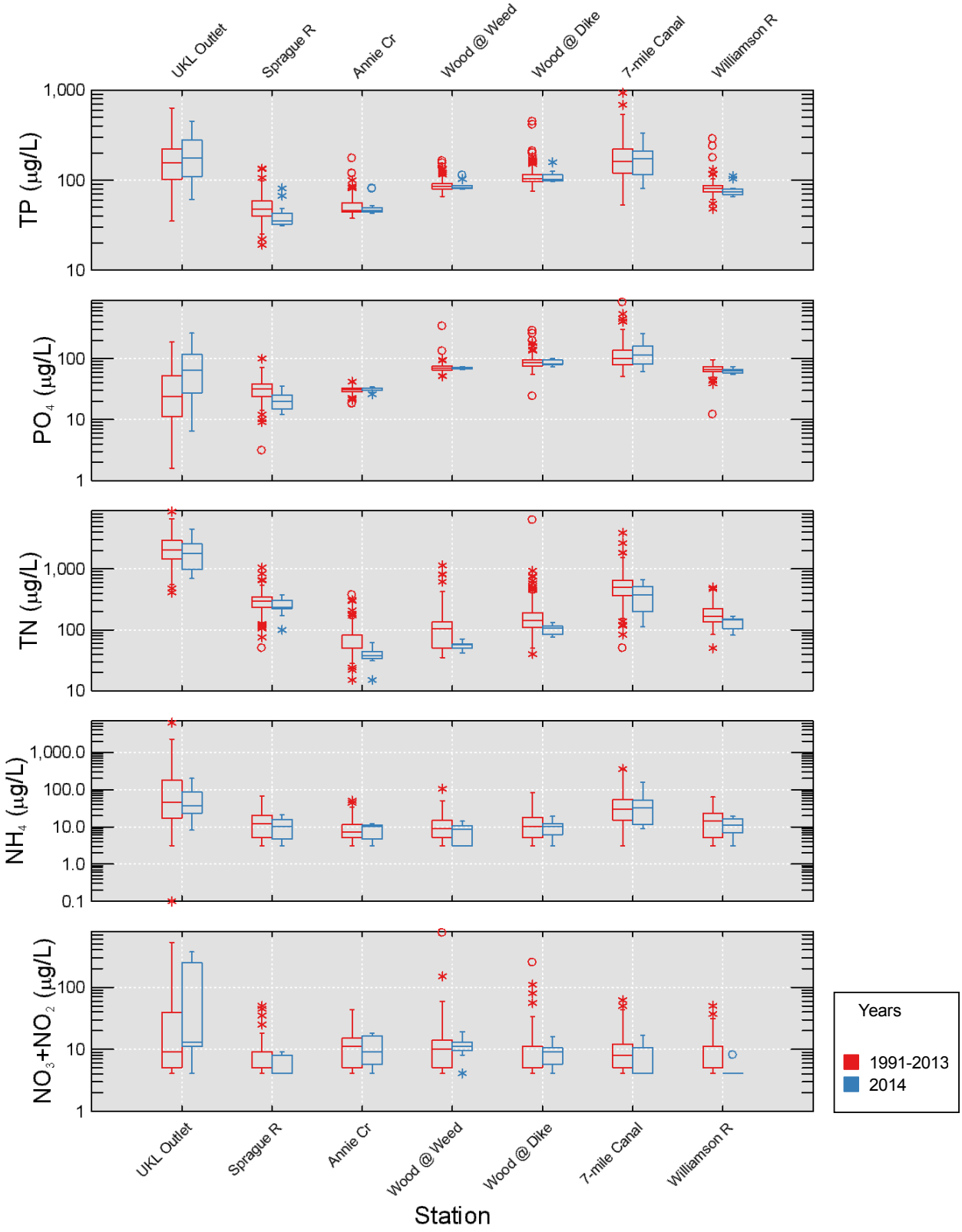
Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
WR5000	7-mile Canal	6	Coefficient of Variation	0.14	0.23	0.12	0.51	0.47	0.06	1.30	1.30
WR5000	7-mile Canal	6	Pct25	174.00	113.00	561.00	9.00	4.00	31,300.00	0.92	2.91
WR5000	7-mile Canal	6	Pct75	211.00	158.00	667.00	19.00	8.00	34,300.00	20.99	67.69
WR5000	7-mile Canal	7	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR5000	7-mile Canal	7	Median	270.00	208.00	504.00	99.00	10.50	27,550.00	19.77	37.22
WR5000	7-mile Canal	7	Arithmetic Mean	270.00	208.00	504.00	99.00	10.50	27,550.00	19.77	37.22
WR5000	7-mile Canal	7	Coefficient of Variation	0.31	0.32	0.36	0.83	0.88	0.13	0.63	0.67
WR5000	7-mile Canal	7	Pct25	210.00	161.00	374.00	41.00	4.00	25,000.00	10.97	19.54
WR5000	7-mile Canal	7	Pct75	330.00	255.00	634.00	157.00	17.00	30,100.00	28.58	54.90
WR5000	7-mile Canal	8	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR5000	7-mile Canal	8	Median	209.00	162.50	352.00	47.50	7.00	25,550.00	17.83	31.36
WR5000	7-mile Canal	8	Arithmetic Mean	209.00	162.50	352.00	47.50	7.00	25,550.00	17.83	31.36
WR5000	7-mile Canal	8	Coefficient of Variation	0.40	0.40	0.26	0.46	0.61	0.03	0.19	0.33
WR5000	7-mile Canal	8	Pct25	150.00	117.00	287.00	32.00	4.00	25,000.00	15.49	24.10
WR5000	7-mile Canal	8	Pct75	268.00	208.00	417.00	63.00	10.00	26,100.00	20.18	38.61
WR5000	7-mile Canal	9	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR5000	7-mile Canal	9	Median	162.00	106.00	406.50	55.00	11.50	27,350.00	22.24	56.96
WR5000	7-mile Canal	9	Arithmetic Mean	162.00	106.00	406.50	55.00	11.50	27,350.00	22.24	56.96
WR5000	7-mile Canal	9	Coefficient of Variation	0.15	0.11	0.19	0.46	0.06	0.11	1.14	1.15
WR5000	7-mile Canal	9	Pct25	145.00	98.00	352.00	37.00	11.00	25,300.00	4.31	10.47
WR5000	7-mile Canal	9	Pct75	179.00	114.00	461.00	73.00	12.00	29,400.00	40.16	103.44
WR6000	Williamson R	10	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR6000	Williamson R	10	Median	68.00	58.00	84.00	6.00	4.00	34,100.00	92.85	115.10
WR6000	Williamson R	10	Arithmetic Mean	67.33	57.33	88.33	9.33	5.33	34,166.67	92.21	120.99
WR6000	Williamson R	10	Coefficient of Variation	0.02	0.04	0.11	0.91	0.43	0.01	0.02	0.11
WR6000	Williamson R	10	Pct25	66.50	55.75	82.50	3.75	4.00	34,025.00	91.04	112.75
WR6000	Williamson R	10	Pct75	68.00	58.75	95.25	15.75	7.00	34,325.00	93.22	130.70
WR6000	Williamson R	11	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00
WR6000	Williamson R	11	Median	67.50	59.50	71.00	5.00	6.00	34,650.00	97.29	94.51

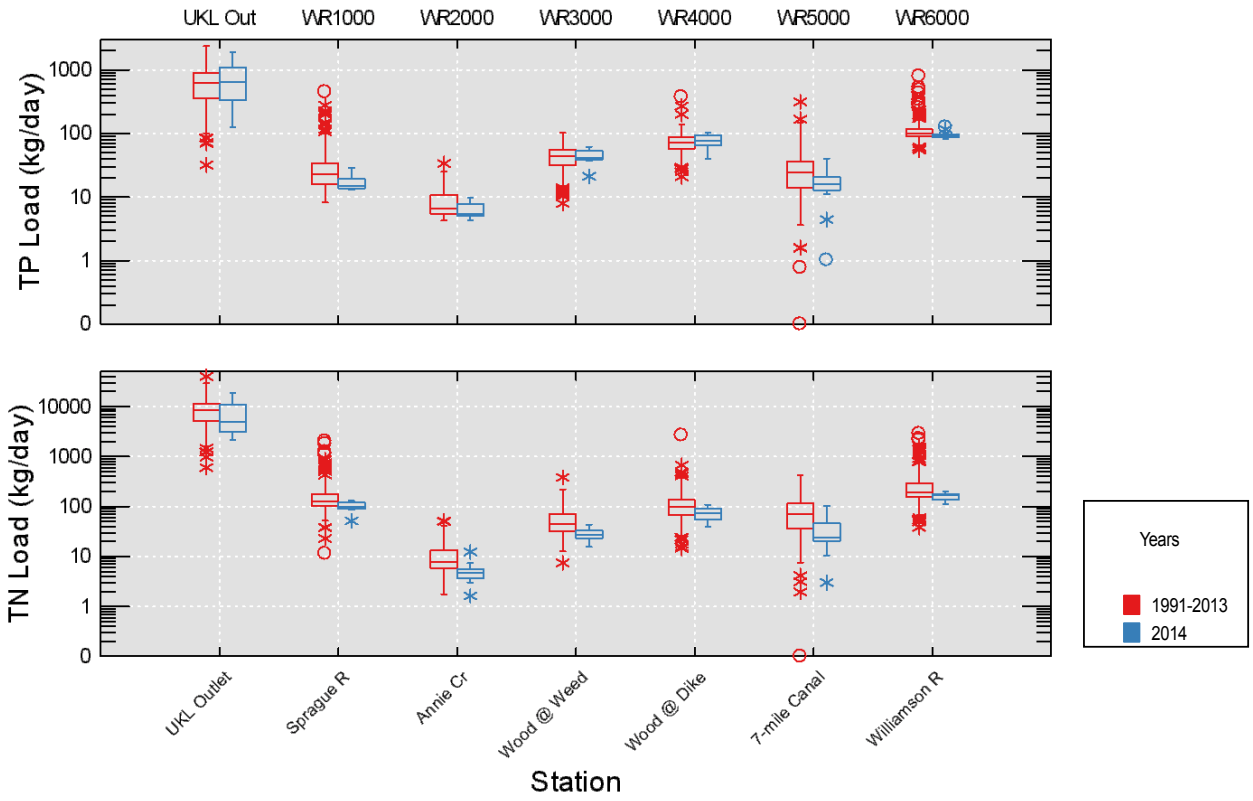
Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
WR6000	Williamson R	11	Arithmetic Mean	67.50	59.50	71.00	5.00	6.00	34,650.00	97.29	94.51
WR6000	Williamson R	11	Coefficient of Variation	0.05	0.01	0.06	0.57	0.47	0.01	1.00	1.00
WR6000	Williamson R	11	Pct25	65.00	59.00	68.00	3.00	4.00	34,500.00		
WR6000	Williamson R	11	Pct75	70.00	60.00	74.00	7.00	8.00	34,800.00		
WR6000	Williamson R	12	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	0.00	0.00
WR6000	Williamson R	12	Median	77.00	62.00	92.00	3.00	30.00	36,700.00		
WR6000	Williamson R	12	Arithmetic Mean	76.67	63.33	87.00	4.00	24.33	36,133.33		
WR6000	Williamson R	12	Coefficient of Variation	0.03	0.05	0.16	0.43	0.40	0.03		
WR6000	Williamson R	12	Pct25	74.75	61.25	76.25	3.00	17.25	35,425.00		
WR6000	Williamson R	12	Pct75	78.50	65.75	96.50	5.25	30.00	36,700.00		
WR6000	Williamson R	1	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR6000	Williamson R	1	Median	76.00	59.00	66.00	3.00	16.00	35,400.00	107.86	95.61
WR6000	Williamson R	1	Arithmetic Mean	75.67	59.67	70.33	6.67	14.33	35,166.67	109.00	101.49
WR6000	Williamson R	1	Coefficient of Variation	0.10	0.05	0.25	0.95	0.26	0.04	0.10	0.26
WR6000	Williamson R	1	Pct25	70.00	57.50	57.75	3.00	11.50	34,200.00	100.84	82.44
WR6000	Williamson R	1	Pct75	81.25	62.00	84.00	11.25	16.75	36,075.00	117.44	122.01
WR6000	Williamson R	2	N of Cases	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
WR6000	Williamson R	2	Median	91.00	65.50	246.00	19.00	34.50	31,250.00	190.25	508.69
WR6000	Williamson R	2	Arithmetic Mean	109.25	65.75	337.25	30.50	35.75	29,725.00	276.94	947.68
WR6000	Williamson R	2	Coefficient of Variation	0.41	0.05	0.87	0.84	0.63	0.17	0.81	1.20
WR6000	Williamson R	2	Pct25	84.00	63.50	164.50	16.50	19.50	26,750.00	138.42	299.45
WR6000	Williamson R	2	Pct75	134.50	68.00	510.00	44.50	52.00	32,700.00	415.46	1595.92
WR6000	Williamson R	3	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR6000	Williamson R	3	Median	81.00	55.00	339.00	20.00	26.00	31,100.00	161.85	712.54
WR6000	Williamson R	3	Arithmetic Mean	80.33	57.67	299.67	19.67	24.00	31,566.67	170.76	652.34
WR6000	Williamson R	3	Coefficient of Variation	0.04	0.10	0.33	0.18	0.18	0.04	0.12	0.42
WR6000	Williamson R	3	Pct25	78.00	54.25	225.00	17.00	20.75	30,650.00	158.20	443.41
WR6000	Williamson R	3	Pct75	82.50	61.75	364.50	22.25	26.75	32,600.00	185.54	846.23
WR6000	Williamson R	4	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
WR6000	Williamson R	4	Median	78.50	56.50	365.50	29.50	16.00	30,600.00	165.24	771.14
WR6000	Williamson R	4	Arithmetic Mean	78.50	56.50	365.50	29.50	16.00	30,600.00	165.24	771.14
WR6000	Williamson R	4	Coefficient of Variation	0.01	0.06	0.06	0.36	0.27	0.01	0.05	0.13
WR6000	Williamson R	4	Pct25	78.00	54.00	349.00	22.00	13.00	30,400.00	158.90	701.96
WR6000	Williamson R	4	Pct75	79.00	59.00	382.00	37.00	19.00	30,800.00	171.58	840.31
WR6000	Williamson R	5	N of Cases	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
WR6000	Williamson R	5	Median	71.00	57.00	268.00	12.00	10.00	32,400.00	125.61	474.12
WR6000	Williamson R	5	Arithmetic Mean	73.67	57.33	260.67	17.00	12.00	32,066.67	126.60	451.97
WR6000	Williamson R	5	Coefficient of Variation	0.06	0.04	0.10	0.78	0.36	0.02	0.03	0.18
WR6000	Williamson R	5	Pct25	71.00	55.50	240.25	8.25	9.25	31,650.00	124.19	389.84
WR6000	Williamson R	5	Pct75	77.00	59.25	279.25	27.00	15.25	32,400.00	129.26	508.57
WR6000	Williamson R	6	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR6000	Williamson R	6	Median	71.50	59.00	147.50	7.00	4.00	33,200.00	84.40	174.10
WR6000	Williamson R	6	Arithmetic Mean	71.50	59.00	147.50	7.00	4.00	33,200.00	84.40	174.10
WR6000	Williamson R	6	Coefficient of Variation	0.01	0.07	0.01	0.81	0.00	0.03	0.03	0.02
WR6000	Williamson R	6	Pct25	71.00	56.00	146.00	3.00	4.00	32,400.00	82.80	171.36
WR6000	Williamson R	6	Pct75	72.00	62.00	149.00	11.00	4.00	34,000.00	86.00	176.84
WR6000	Williamson R	7	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR6000	Williamson R	7	Median	107.50	73.50	161.50	18.50	4.00	32,400.00	120.62	181.16
WR6000	Williamson R	7	Arithmetic Mean	107.50	73.50	161.50	18.50	4.00	32,400.00	120.62	181.16
WR6000	Williamson R	7	Coefficient of Variation	0.05	0.01	0.06	0.04	0.00	0.03	0.05	0.05
WR6000	Williamson R	7	Pct25	104.00	73.00	155.00	18.00	4.00	31,800.00	116.30	174.46
WR6000	Williamson R	7	Pct75	111.00	74.00	168.00	19.00	4.00	33,000.00	124.94	187.86
WR6000	Williamson R	8	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR6000	Williamson R	8	Median	79.00	65.50	155.50	14.50	4.00	33,550.00	94.67	186.43
WR6000	Williamson R	8	Arithmetic Mean	79.00	65.50	155.50	14.50	4.00	33,550.00	94.67	186.43
WR6000	Williamson R	8	Coefficient of Variation	0.04	0.03	0.07	0.05	0.00	0.05	0.06	0.10
WR6000	Williamson R	8	Pct25	77.00	64.00	148.00	14.00	4.00	32,400.00	90.44	173.83
WR6000	Williamson R	8	Pct75	81.00	67.00	163.00	15.00	4.00	34,700.00	98.90	199.02

Station Code	Station Name	Month	Parameter	Total Phosphorus (µg/L)	Soluble Reactive Phosphorus (µg/L)	Total Nitrogen (µg/L)	NH4 Nitrogen (µg/L)	NO3+NO2 Nitrogen (µg/L)	Silica (µg/L)	Total Phosphorus Load (kg/d)	Total Nitrogen Load (kg/d)
WR6000	Williamson R	9	N of Cases	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
WR6000	Williamson R	9	Median	74.00	61.00	114.00	8.50	4.00	32,500.00	88.63	136.48
WR6000	Williamson R	9	Arithmetic Mean	74.00	61.00	114.00	8.50	4.00	32,500.00	88.63	136.48
WR6000	Williamson R	9	Coefficient of Variation	0.00	0.02	0.02	0.08	0.00	0.00	0.04	0.01
WR6000	Williamson R	9	Pct25	74.00	60.00	112.00	8.00	4.00	32,400.00	86.19	135.11
WR6000	Williamson R	9	Pct75	74.00	62.00	116.00	9.00	4.00	32,600.00	91.08	137.85

APPENDIX II: Station distributions of TP, SRP, TN, NH4-N, NO3+ NO2-N concentrations (µg/L) and TP and TN loading (kg/day) during the irrigation season of June-October




UKL Out
WR1000
WR2000
WR3000
WR4000
WR5000
WR6000
TP Load (kg/day)
1000
100
10
1
0
TN Load (kg/day)
10000
1000
100
10
1
0
UKL Outlet
Sprague R
Annie Cr
Wood @ Weed
Wood @ Dike
7-mile Canal
Williamson R
Station
Years
1991-2013
2014