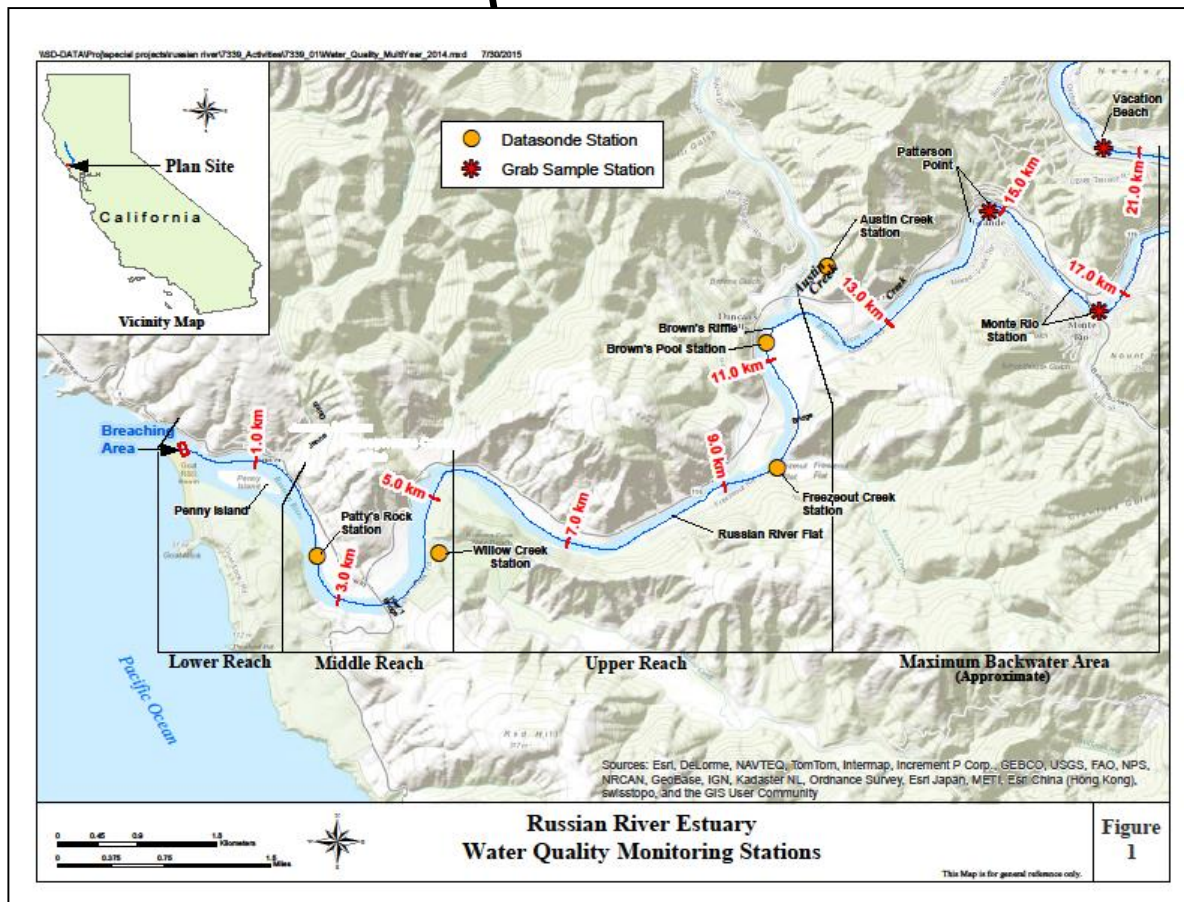




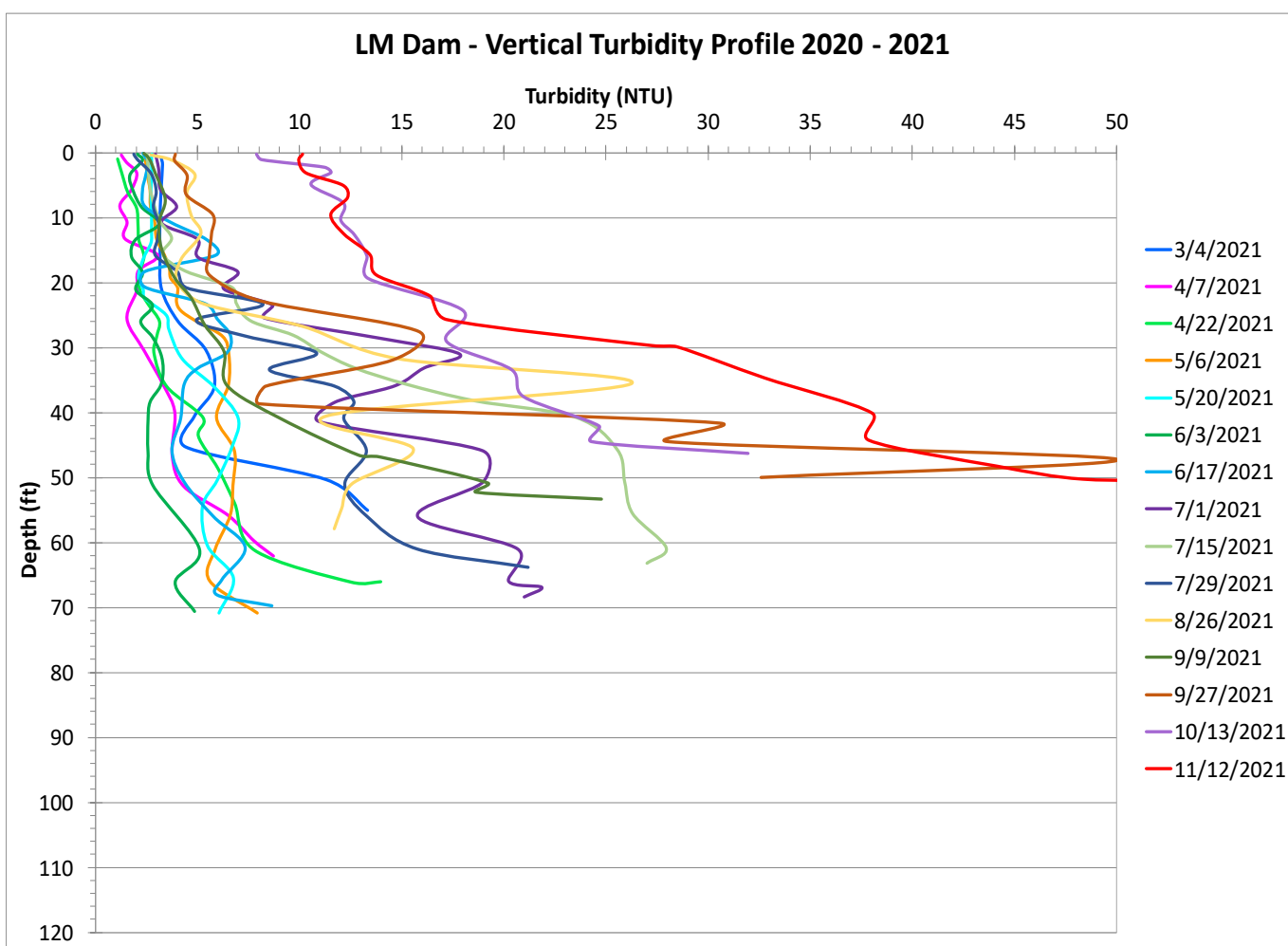
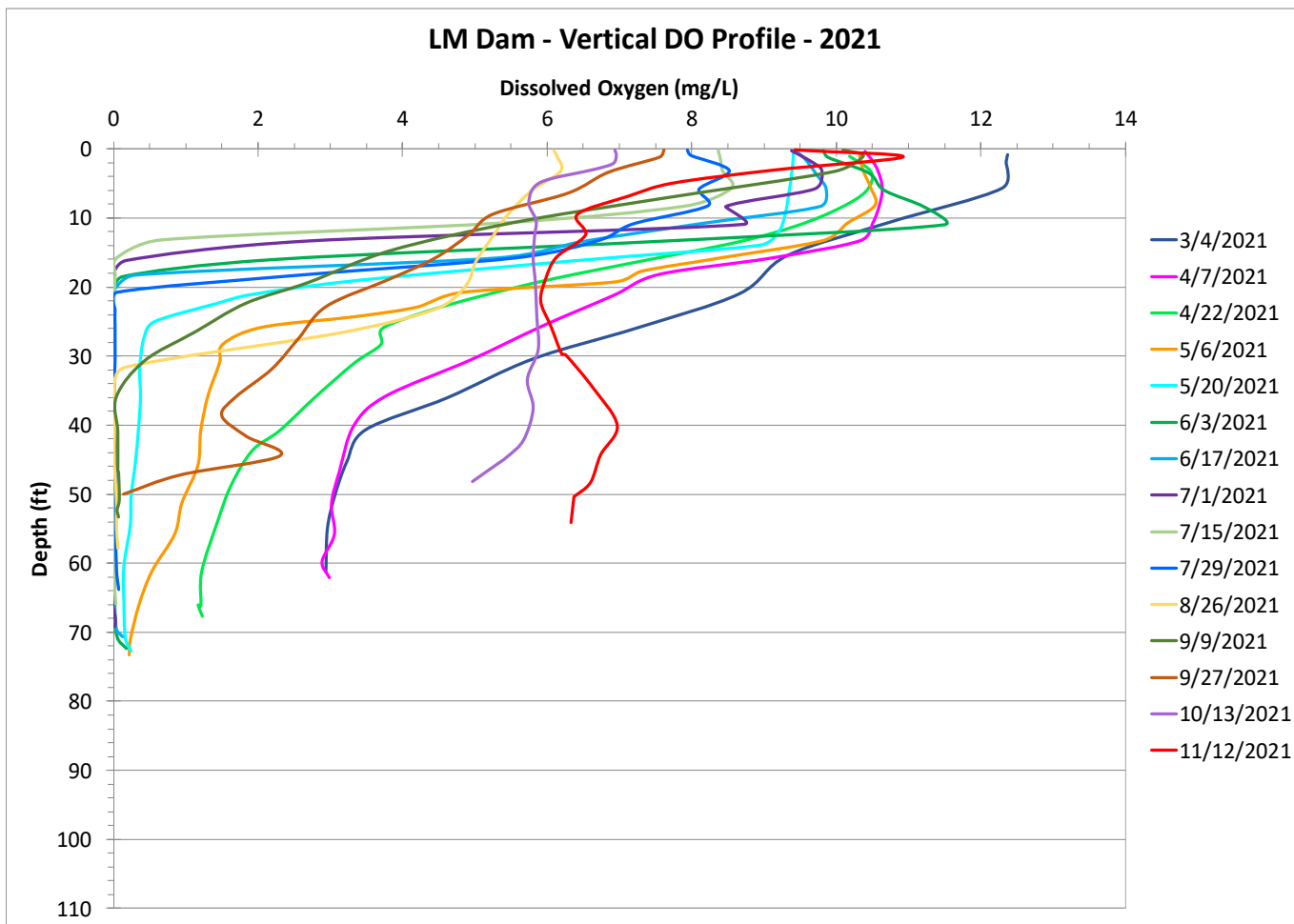
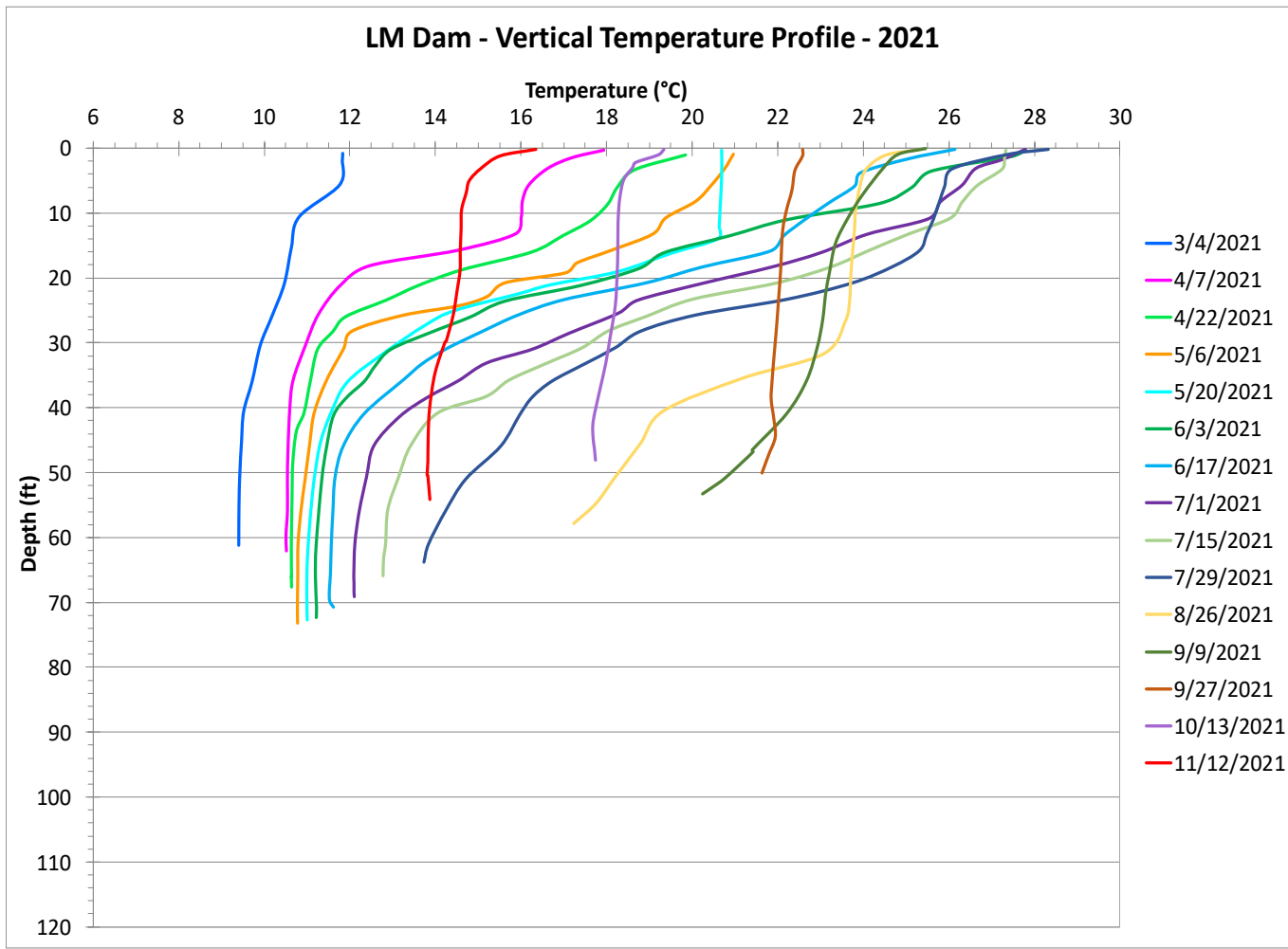
Sonoma Water

State Water Resources Control Board Temporary Urgency Change Order (6/14/2021) Russian River Water Quality Report December 3, 2021 - December 9, 2021

Prepared as a requirement of the Order approving Sonoma Water's Petition for Temporary Urgency Change in Permits 12947A, 12949, 12950, and 16596 (Applications 12919A, 15736, 15737, and 19351).



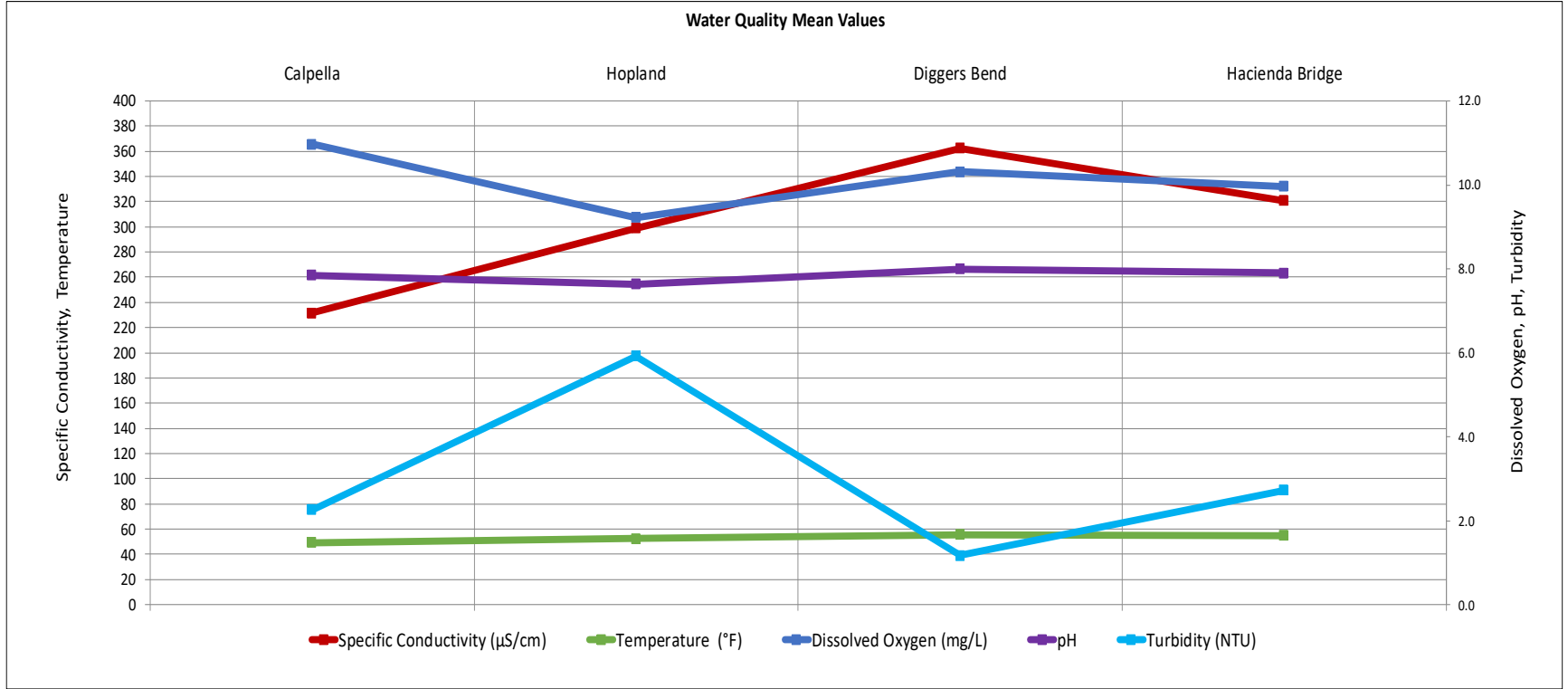
Lake Mendocino Water Quality Vertical Profiles (March 4 - December 9, 2021)
Provisional Data Subject to Revision



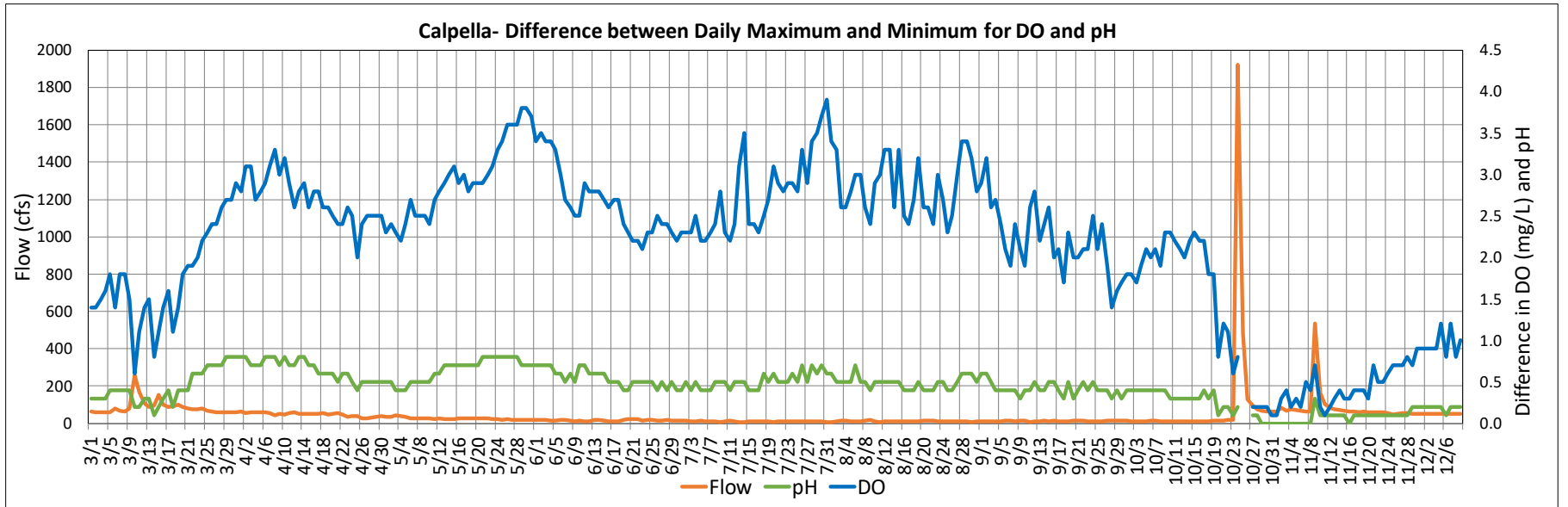
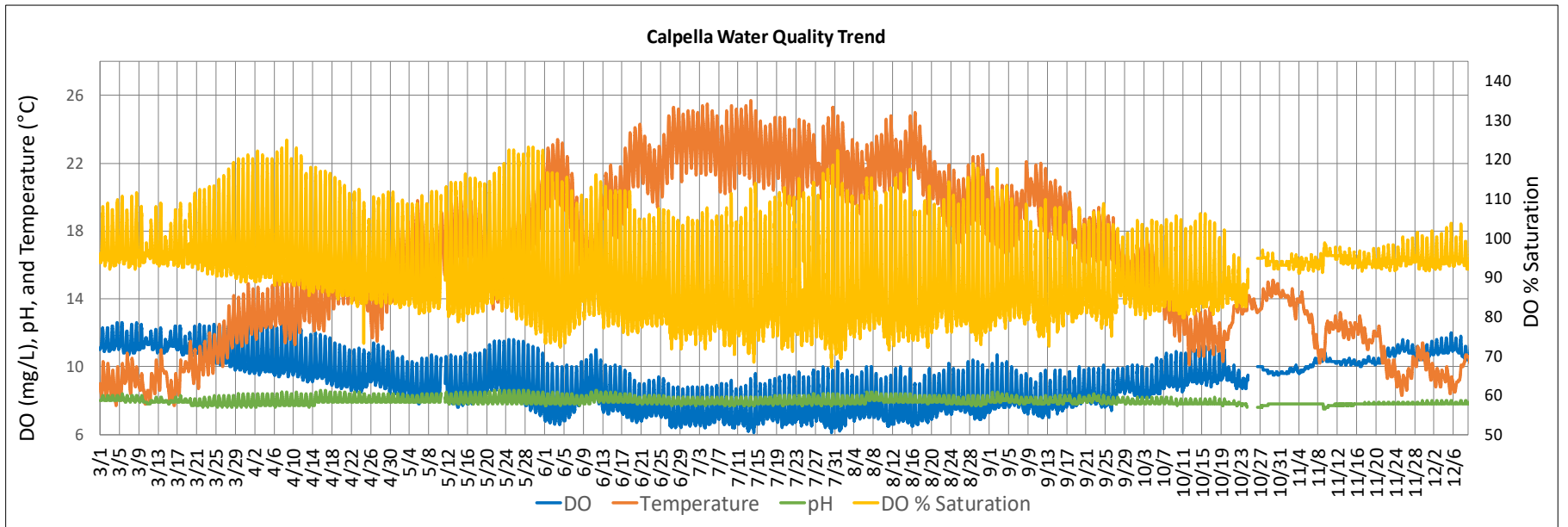
Russian River Water Quality Sondes (December 3 - December 9, 2021)
Provisional Data Subject to Revision

Parameter		Calpella	East Fork Below Lake Mendocino	Hopland	Cloverdale*	Jimtown*	Diggers Bend	River Diversion System at Mirabel*	Hacienda Bridge	Johnsons Beach*
		USGS 11461500	SCWA	USGS 11462500	USGS 11463200	USGS 11463682	USGS 11463980	SCWA	USGS 11467000	SCWA
Temperature (°F)	Min	47.1		50.4			54.0		53.8	
	Max	51.3		54.1			57.0		55.8	
	Mean	49.2		52.3			55.6		54.8	
Specific Conductivity (µS/cm)	Min	229		294			360		319	
	Max	235		305			364		329	
	Mean	232		299			363		321	
Dissolved Oxygen (mg/L)	Min	10.4		8.7			9.2		8.8	
	Max	12.0		9.6			12.6		10.7	
	Mean	11.0		9.2			10.3		10.0	
Dissolved Oxygen (% Saturation)	Min	88		77			85		82	
	Max	106		89			120		102	
	Mean	95		84			98		92	
pH	Min	7.8		7.6			7.7		7.8	
	Max	8.0		7.7			8.4		8.0	
	Mean	7.9		7.6			8.0		7.9	
Turbidity (NTU)	Min	1.9		3.6			0.5		2.1	
	Max	4.1		22.8			2.5		3.8	
	Mean	2.3		5.9			1.2		2.7	

*Station operated seasonally

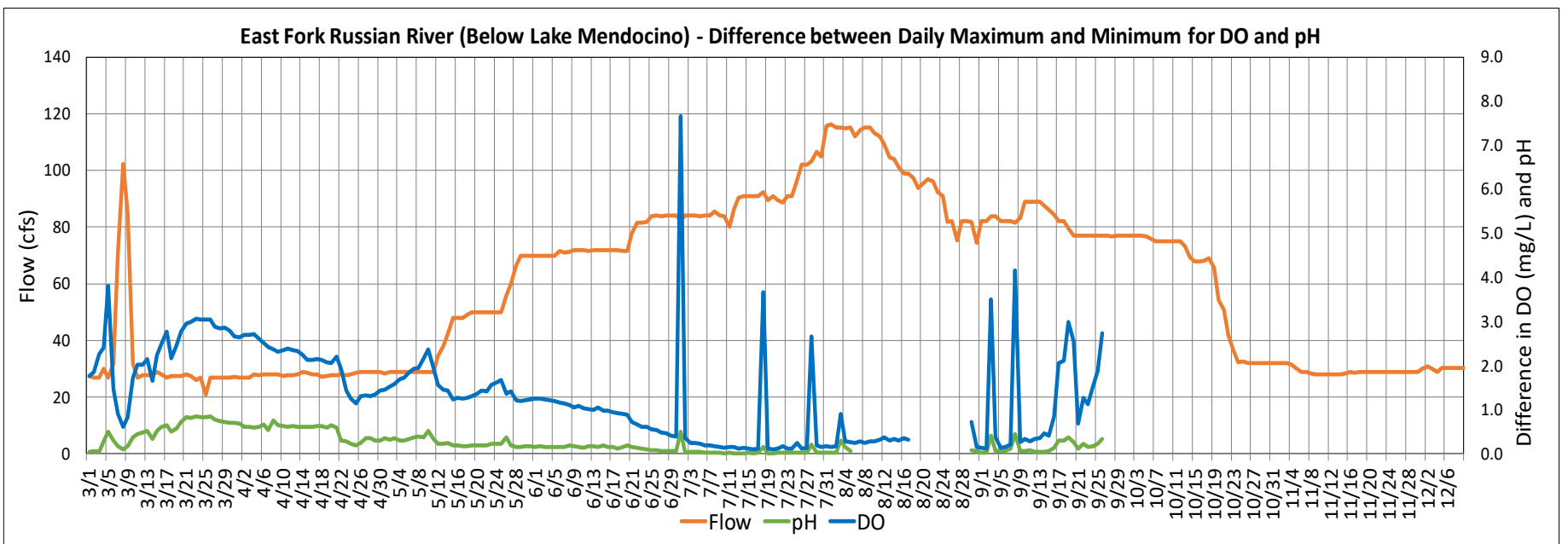
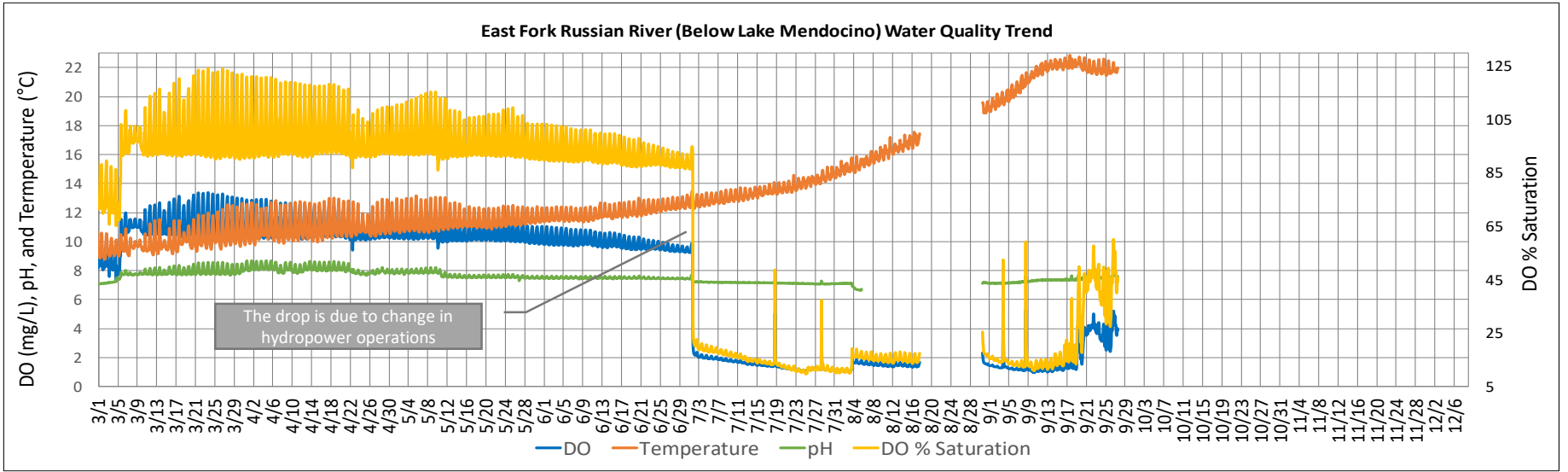


Russian River Water Quality Sonde Data (March 1 - December 9, 2021)
Provisional Data Subject to Revision
Calpella (East Fork Russian River)

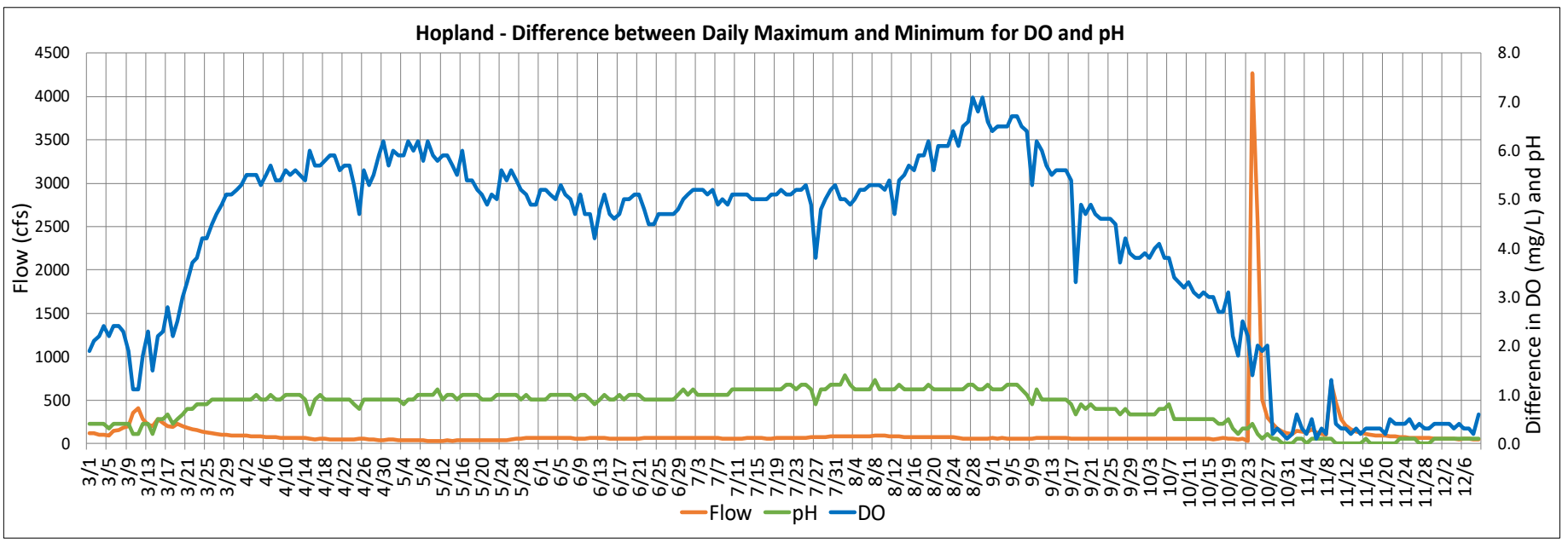
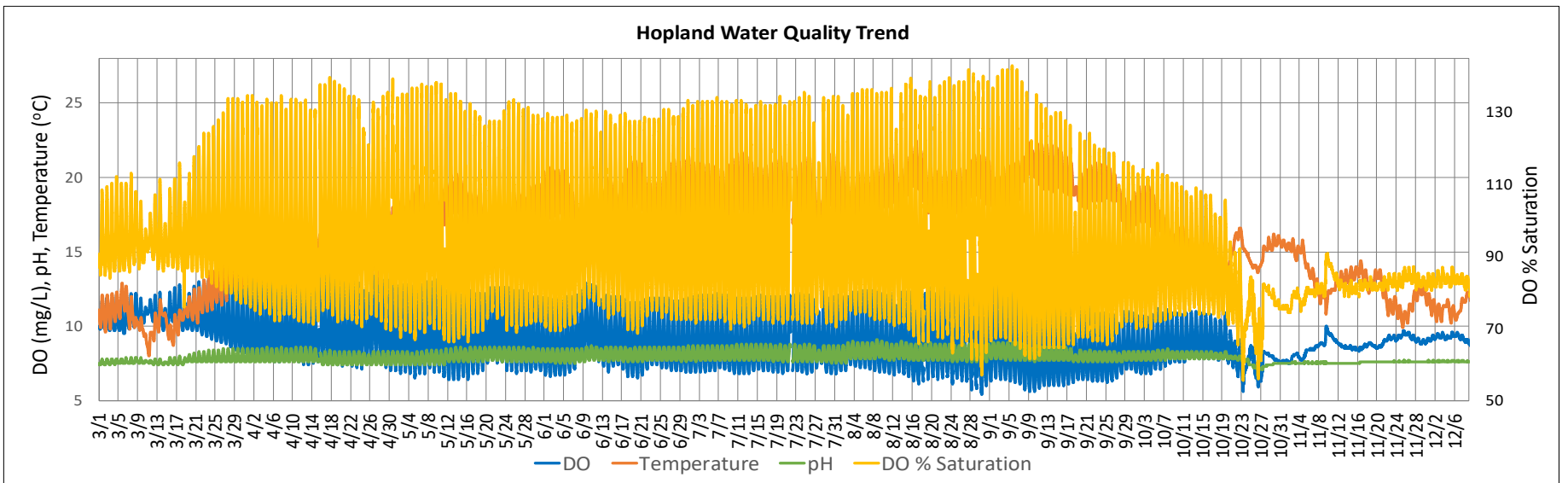


Russian River Water Quality Sonde Data (March 1 - December 9, 2021)
 Provisional Data Subject to Revision

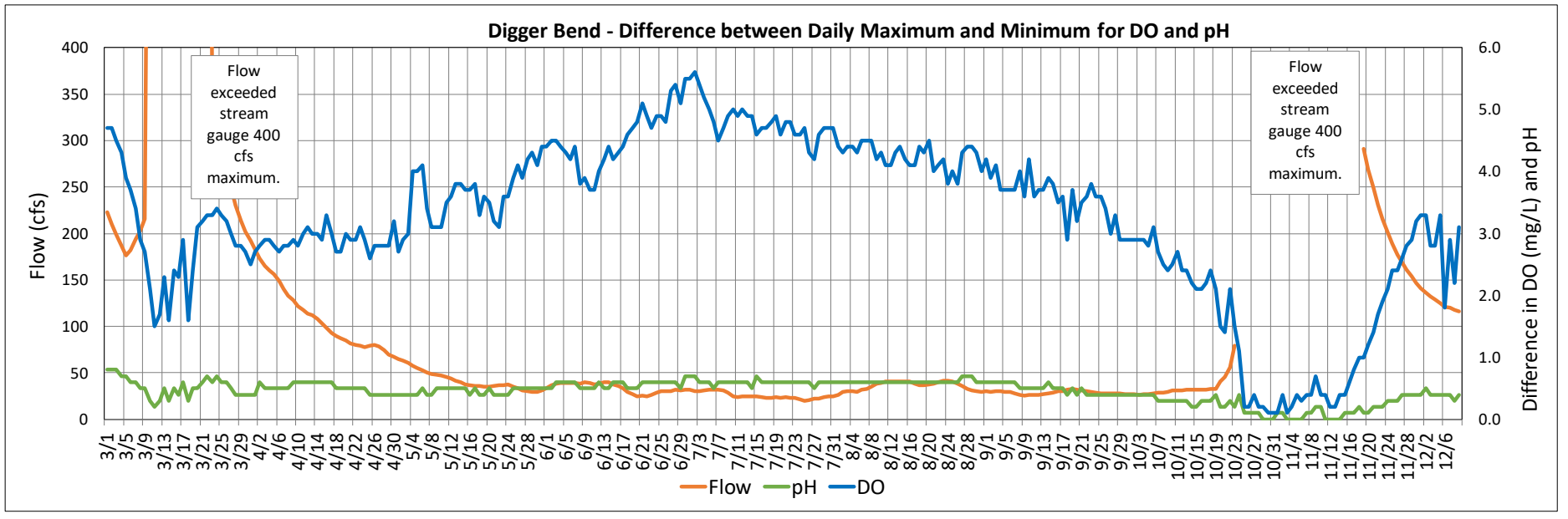
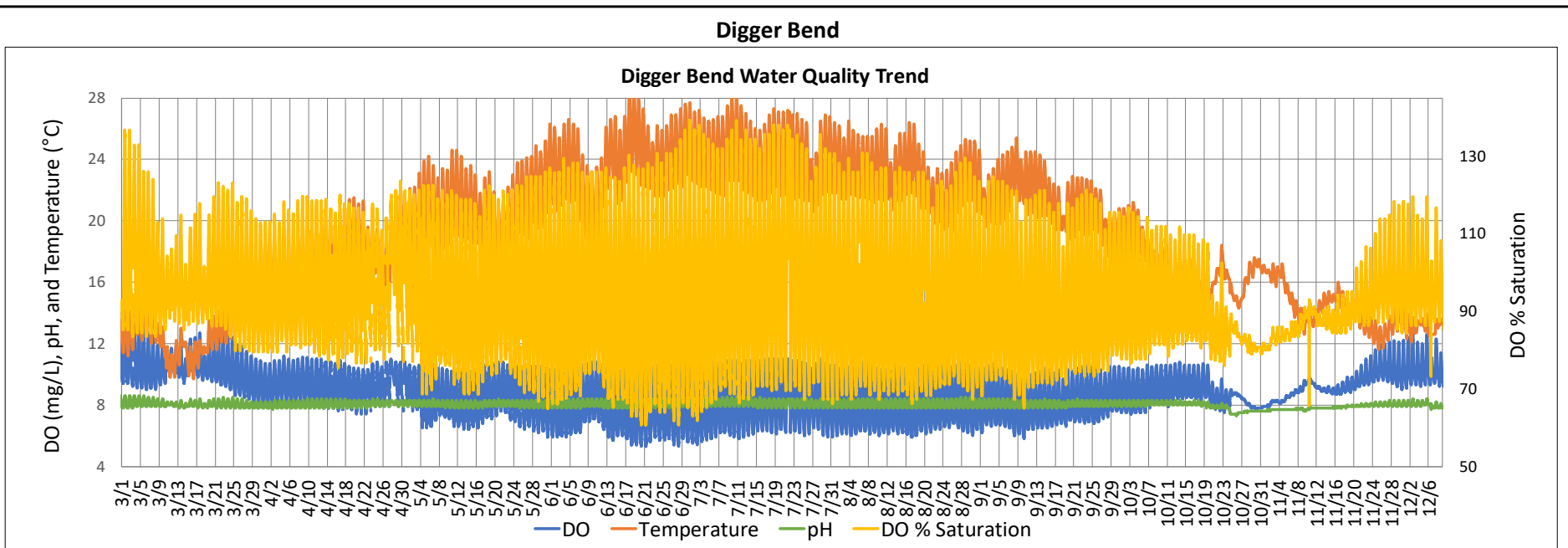
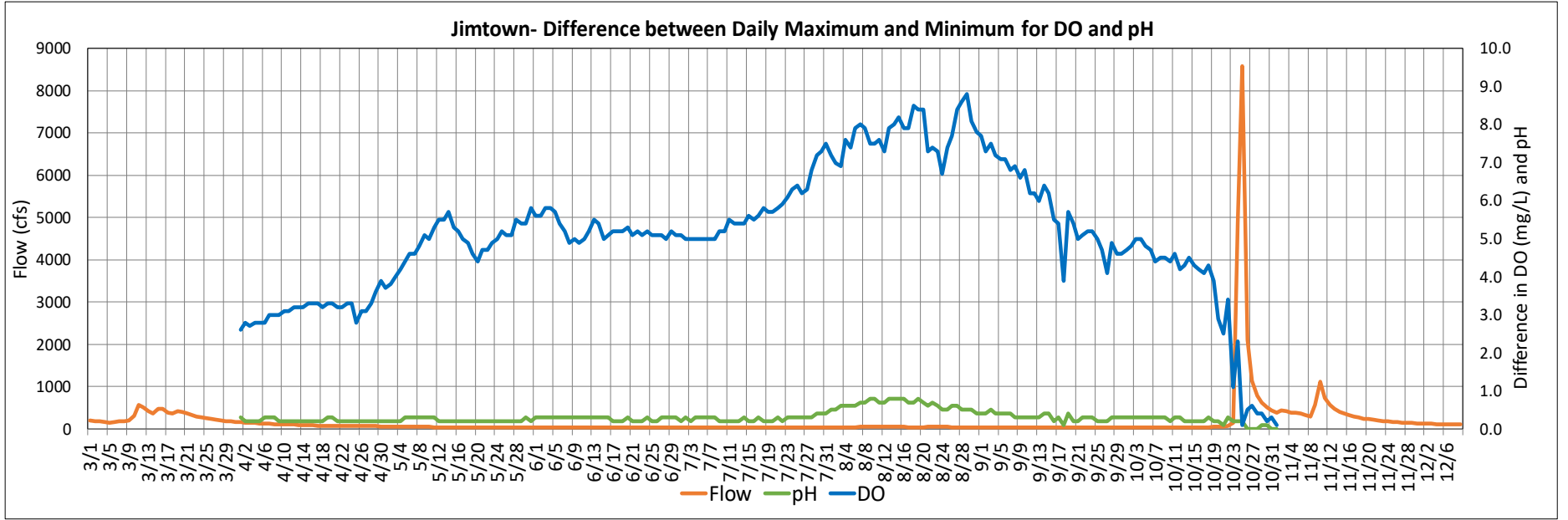
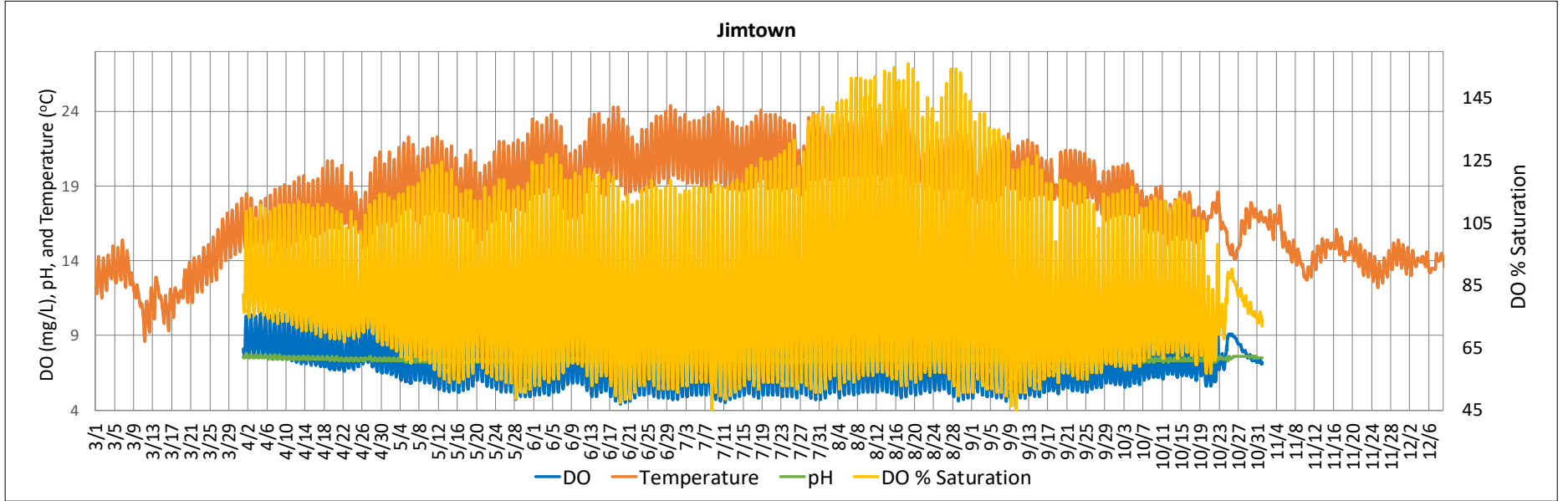
East Fork Russian River (Below Lake Mendocino)



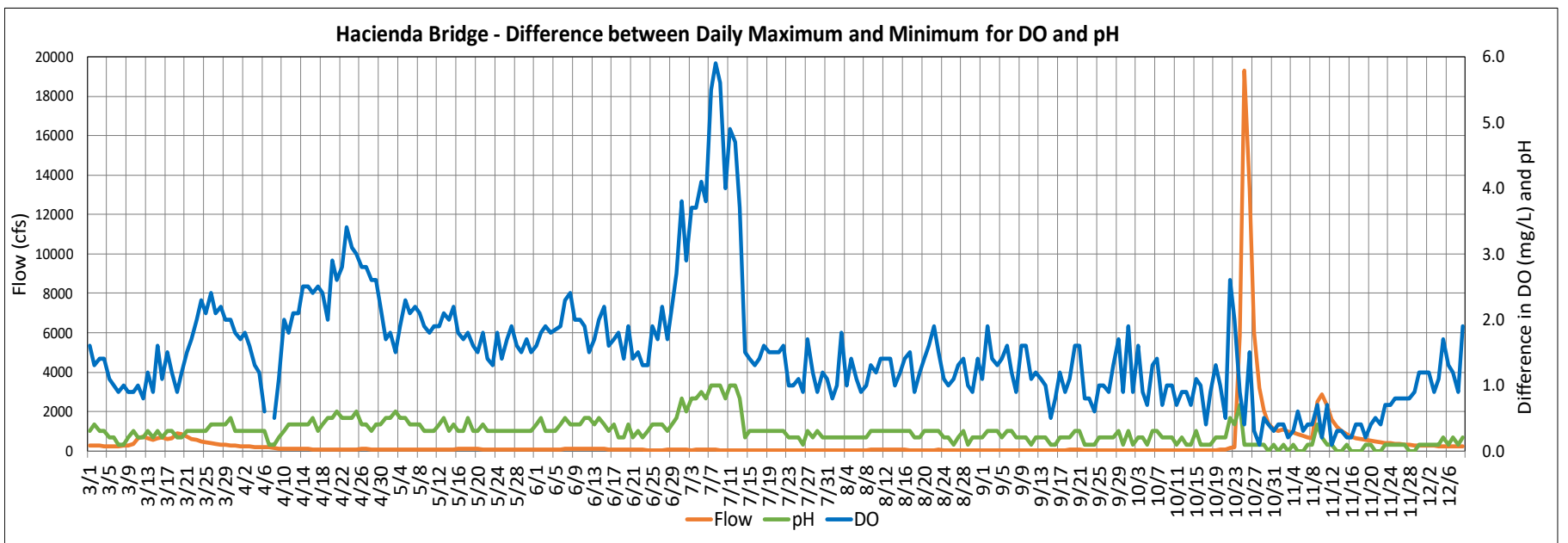
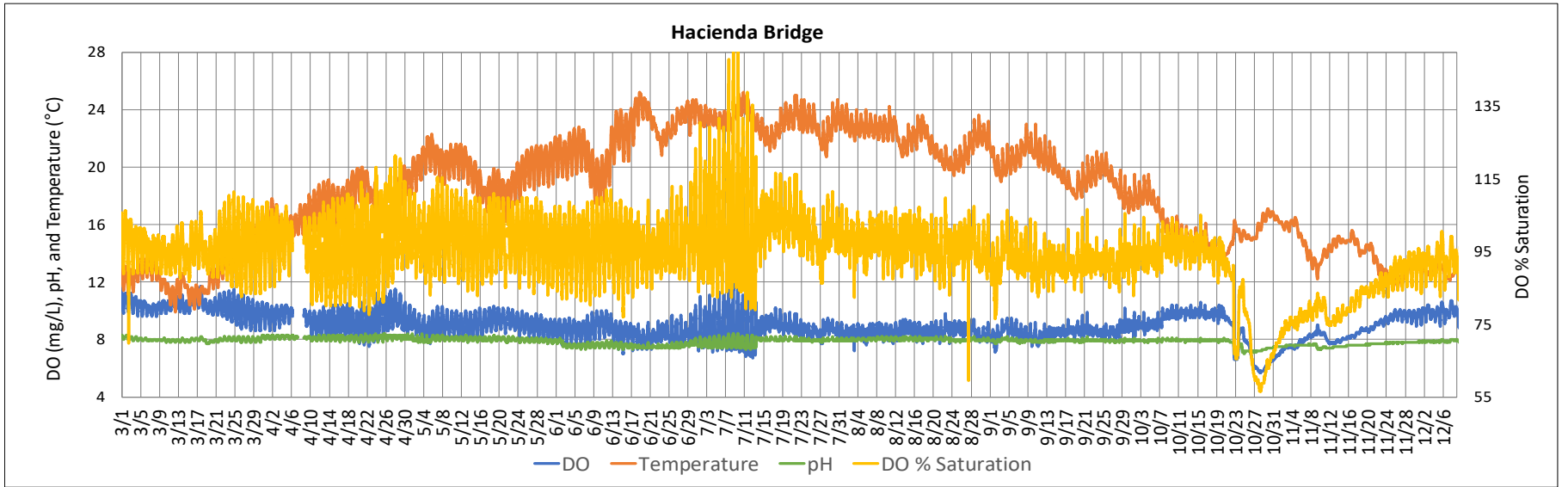
Hopland



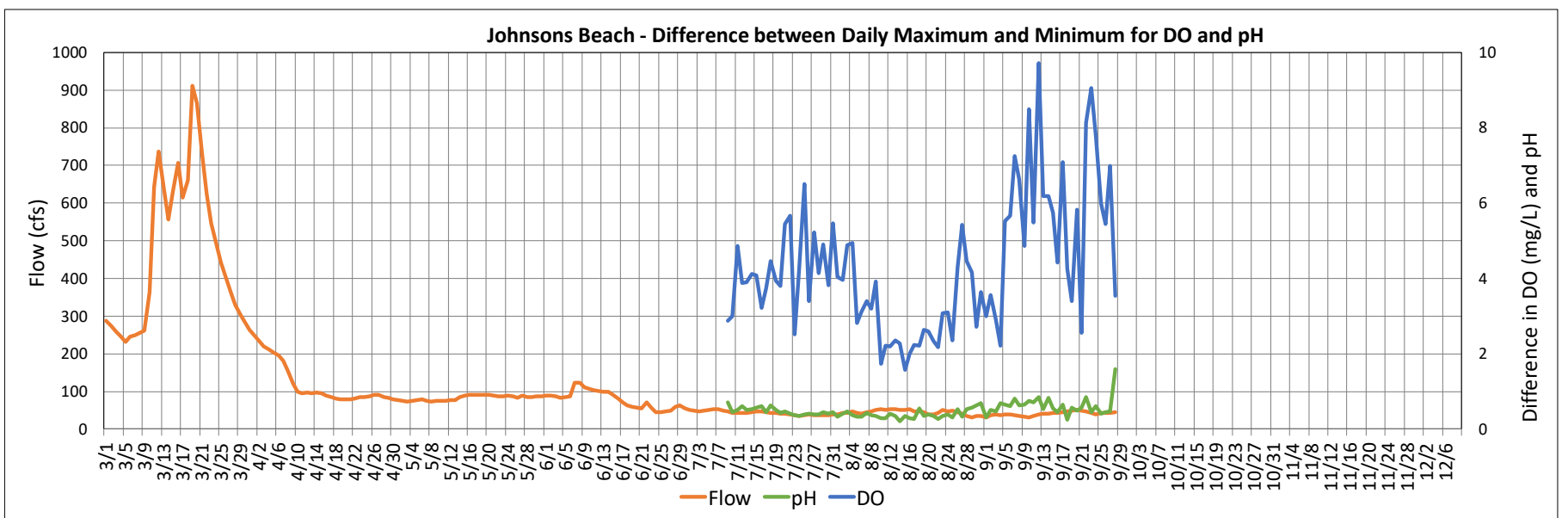
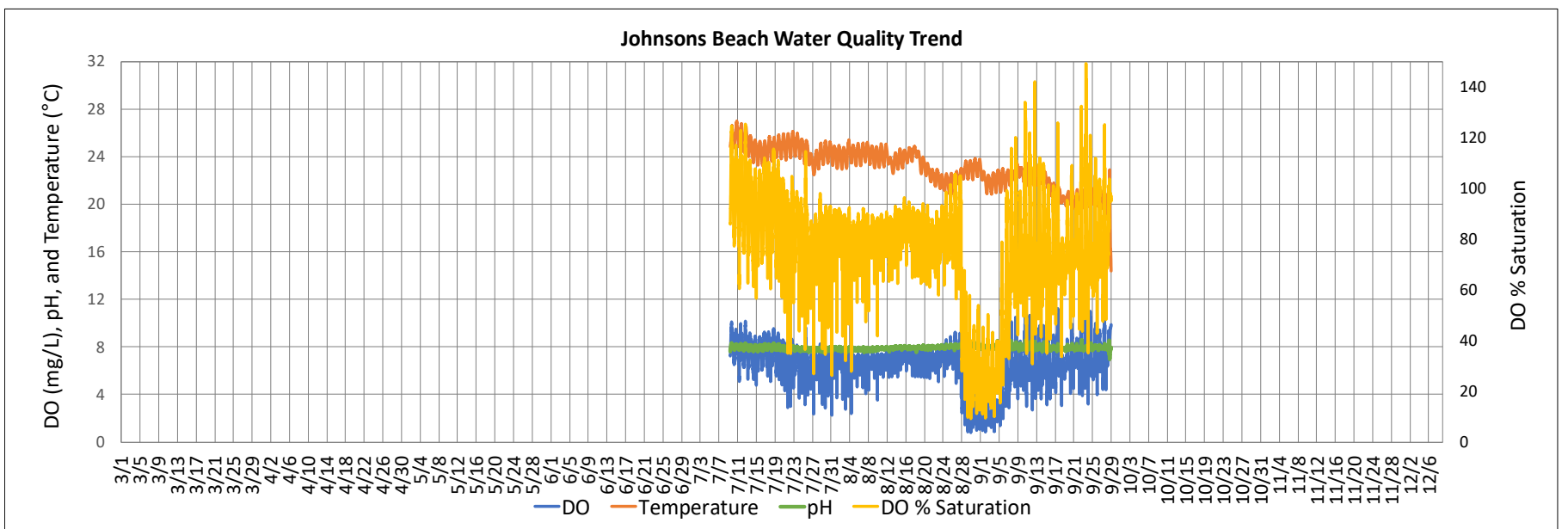
Russian River Water Quality Sonde Data (March 1 - December 9, 2021)
Provisional Data Subject to Revision
Jimtown Water Quality



Russian River Water Quality Sonde Data (March 1 - December 9, 2021)
Provisional Data Subject to Revision
Hacienda Bridge Water Quality



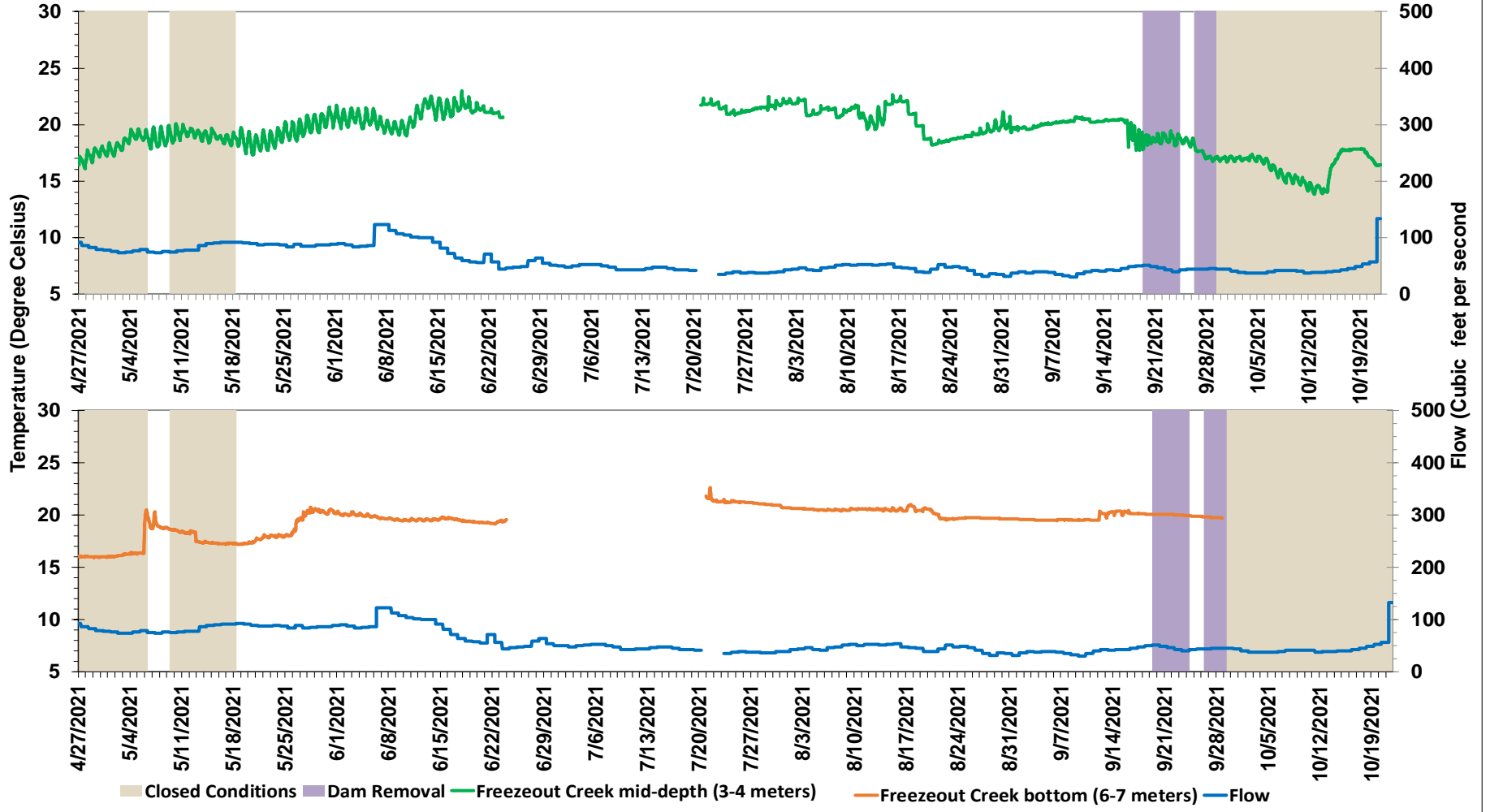
Johnsons Beach



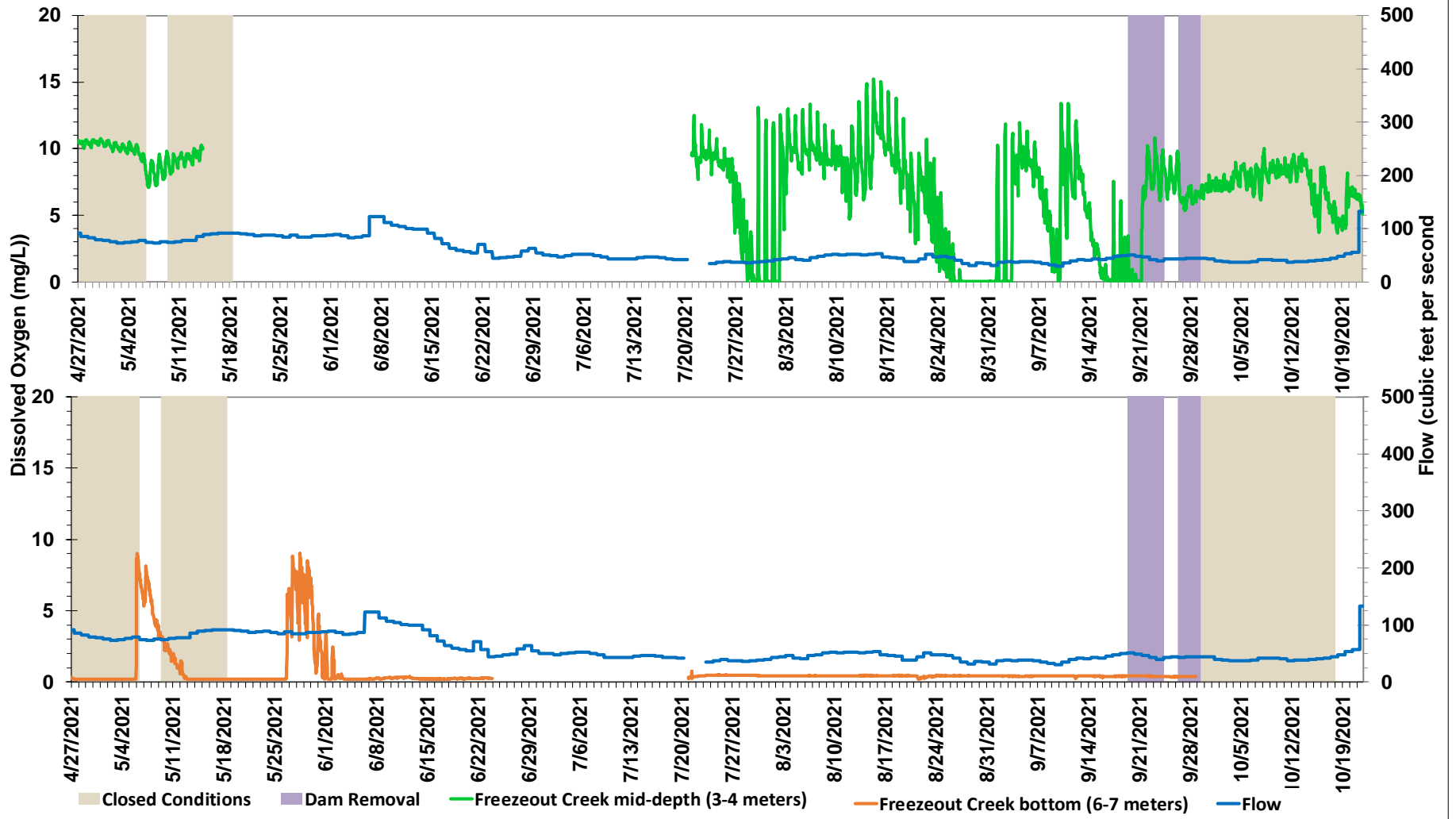
Note: Flow at Johnsons Beach is plotted using data collected at Hacienda Bridge.

Russian River Water Quality Sonde Data - Estuary (April 27 - December 9, 2021)
 Provisional Data Subject to Revision
 Russian River at Freezeout Creek Water Quality

Russian River at Freezeout Creek - Temperature and Flow 2021



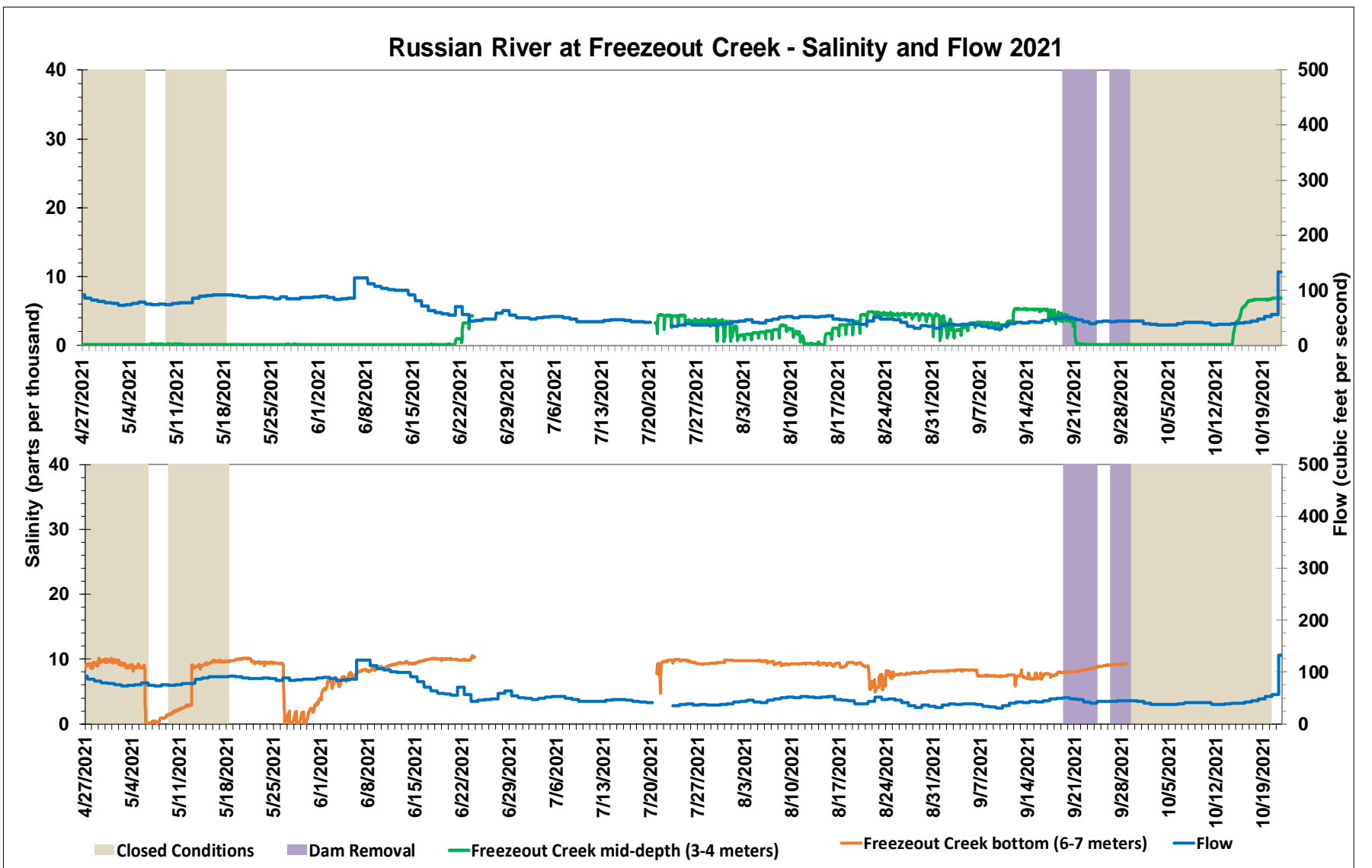
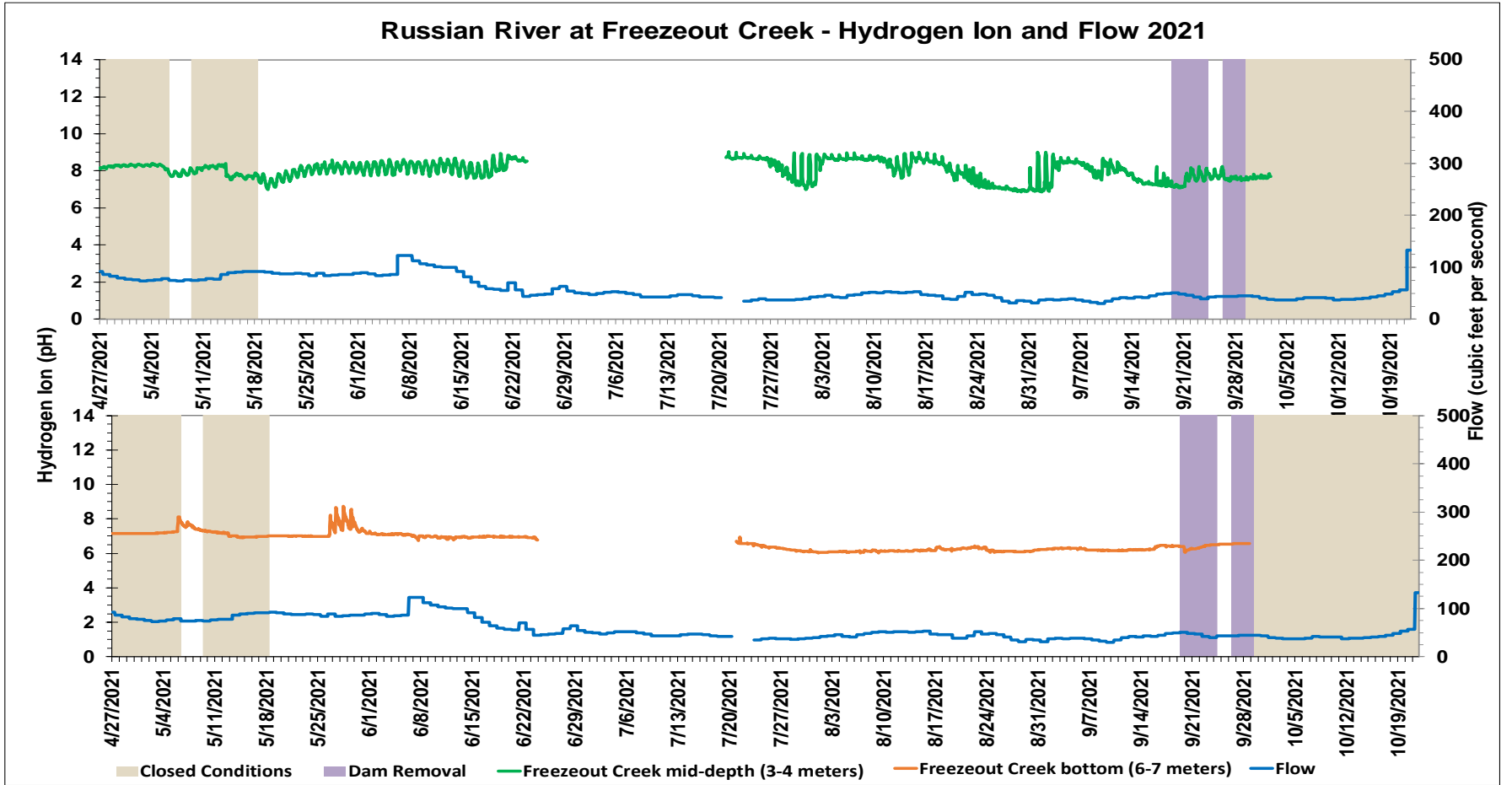
Russian River at Freezeout Creek - Dissolved Oxygen and Flow 2021



Russian River Water Quality Sonde Data - Estuary (April 27 - December 9, 2021)

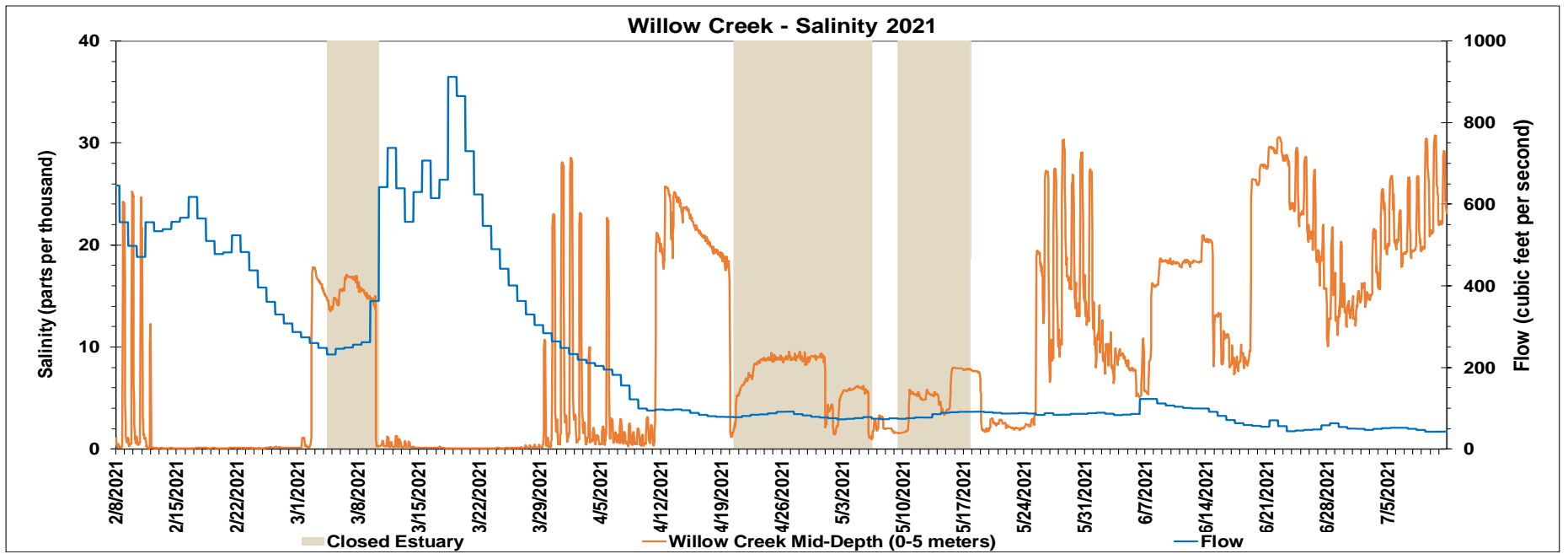
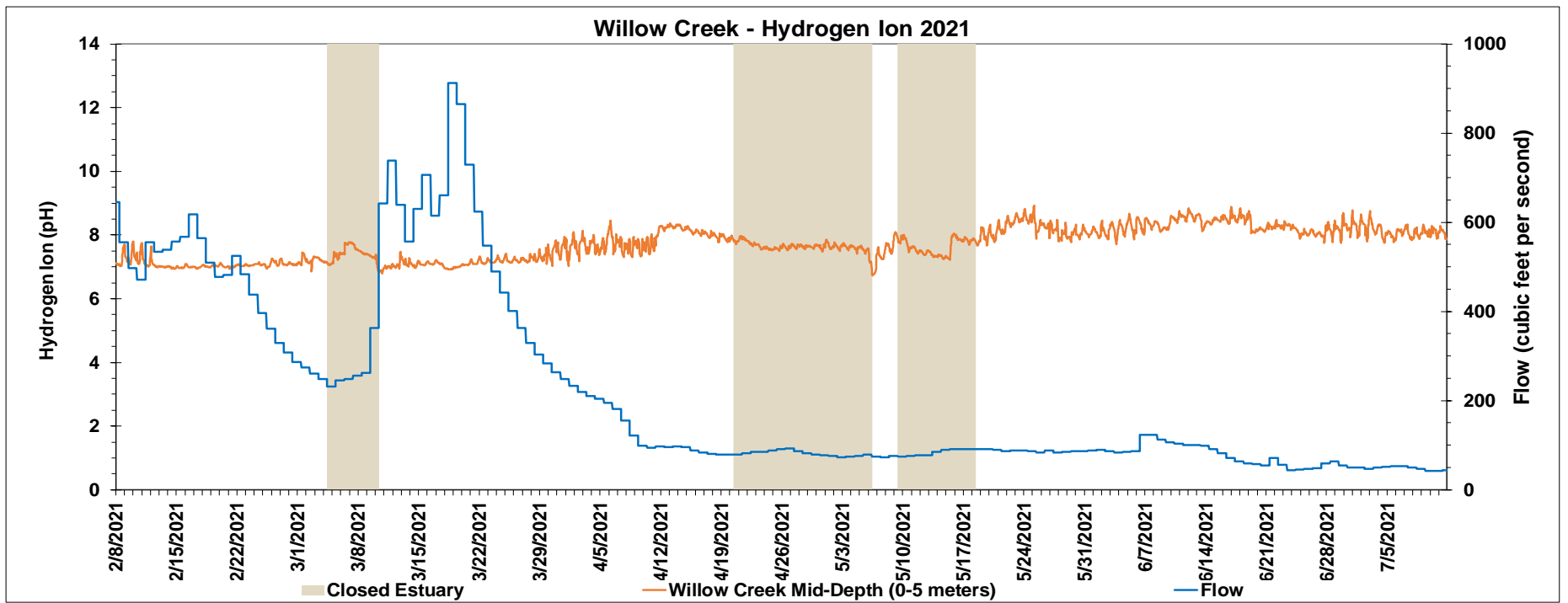
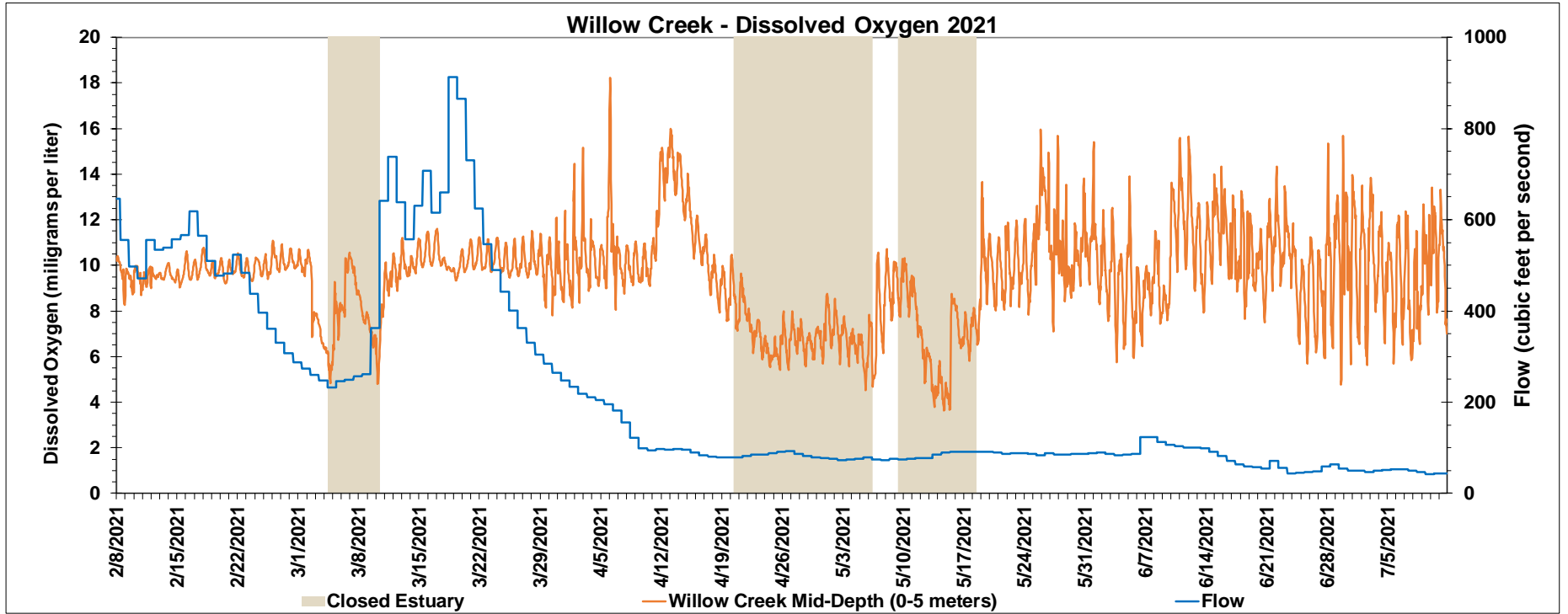
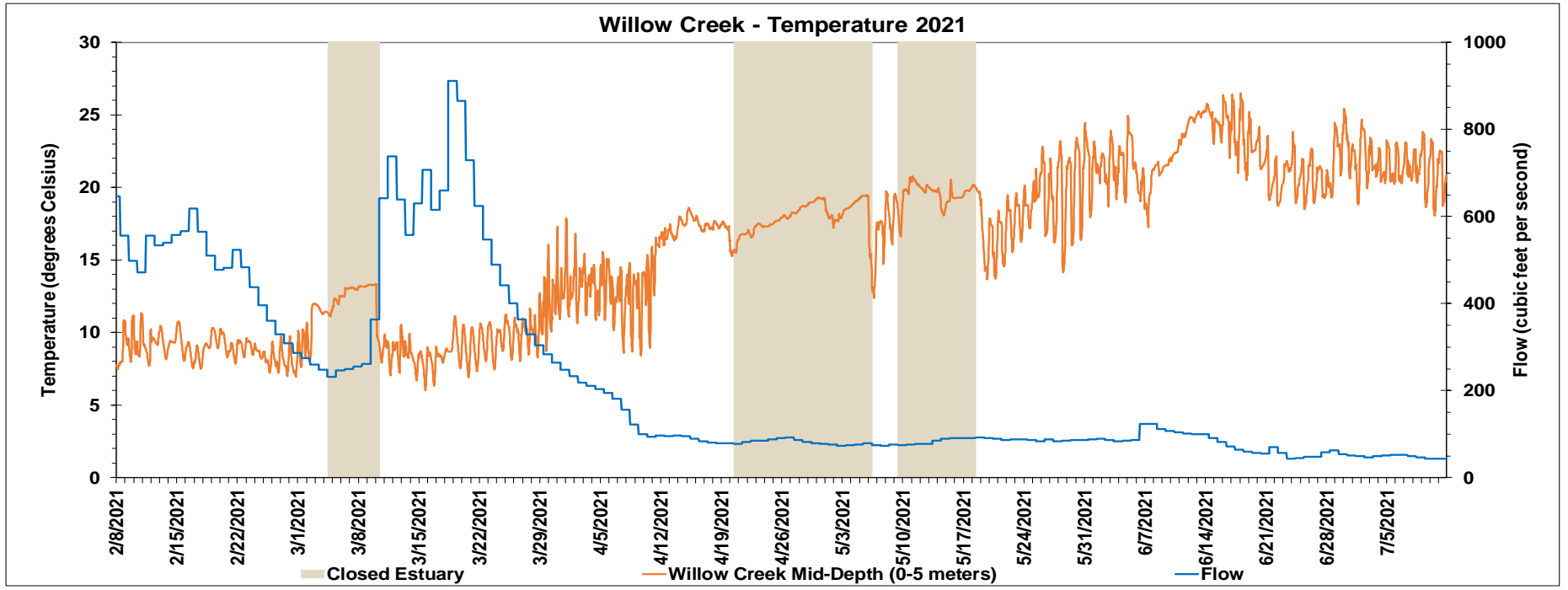
Provisional Data Subject to Revision

Russian River at Freezeout Creek Water Quality



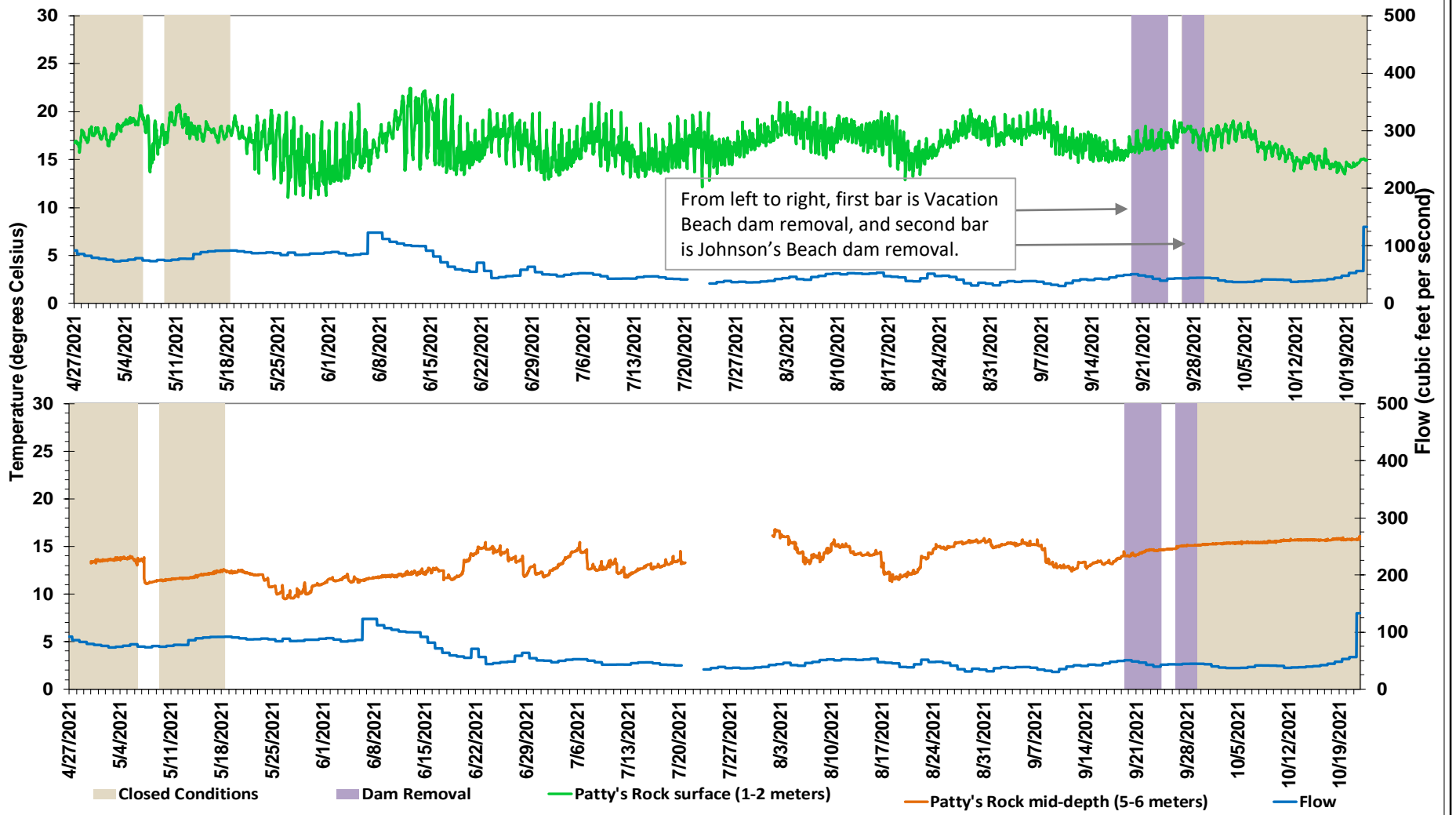
Russian River Water Quality Sonde Data - Estuary (February 28 - December 9, 2021)
Provisional Data Subject to Revision

Willow Creek Water Quality

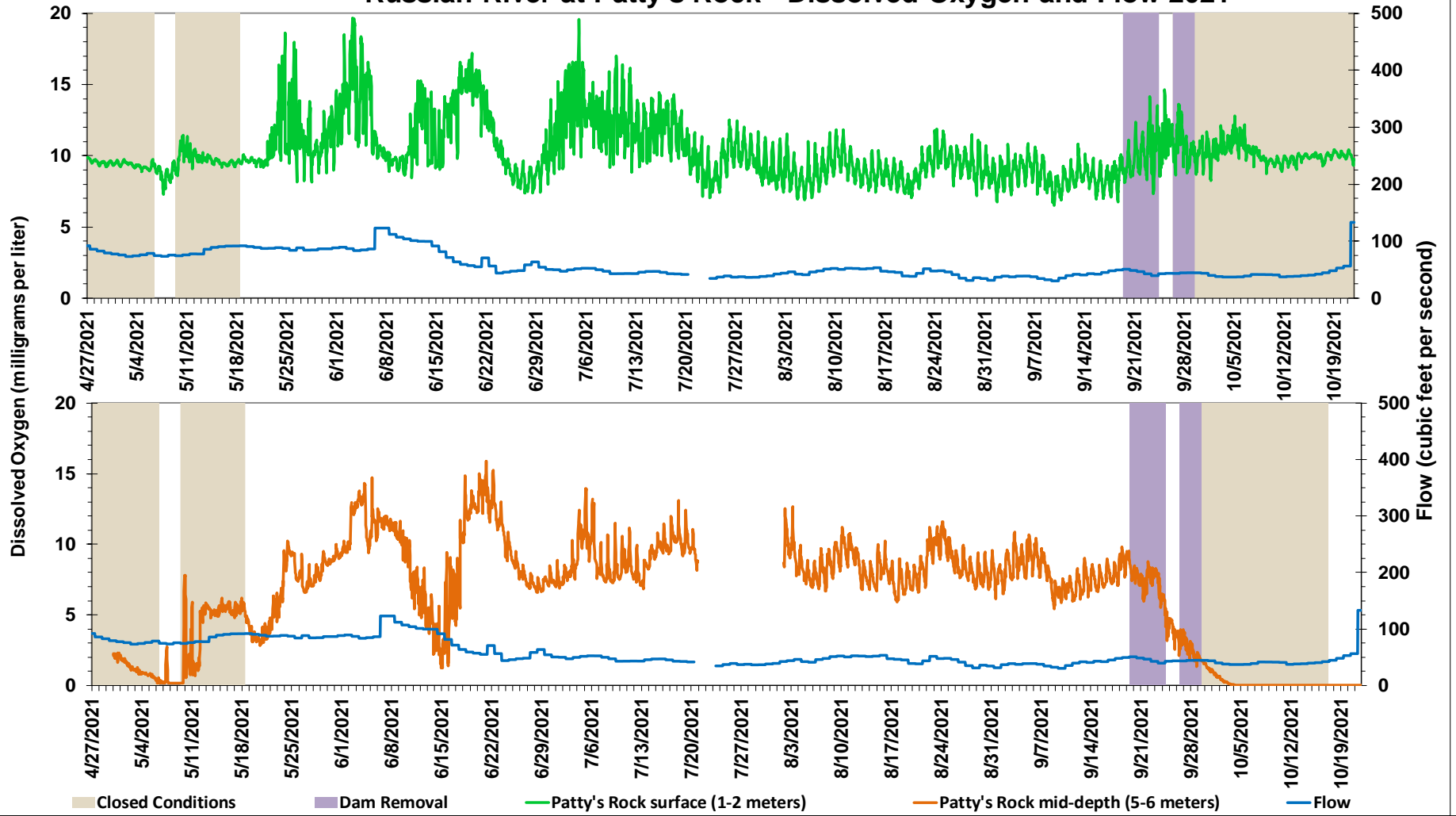


Russian River Water Quality Sonde Data - Estuary (April 27 - December 9, 2021)
Provisional Data Subject to Revision

Russian River at Patty's Rock Water Quality
Russian River at Patty's Rock - Temperature and Flow 2021

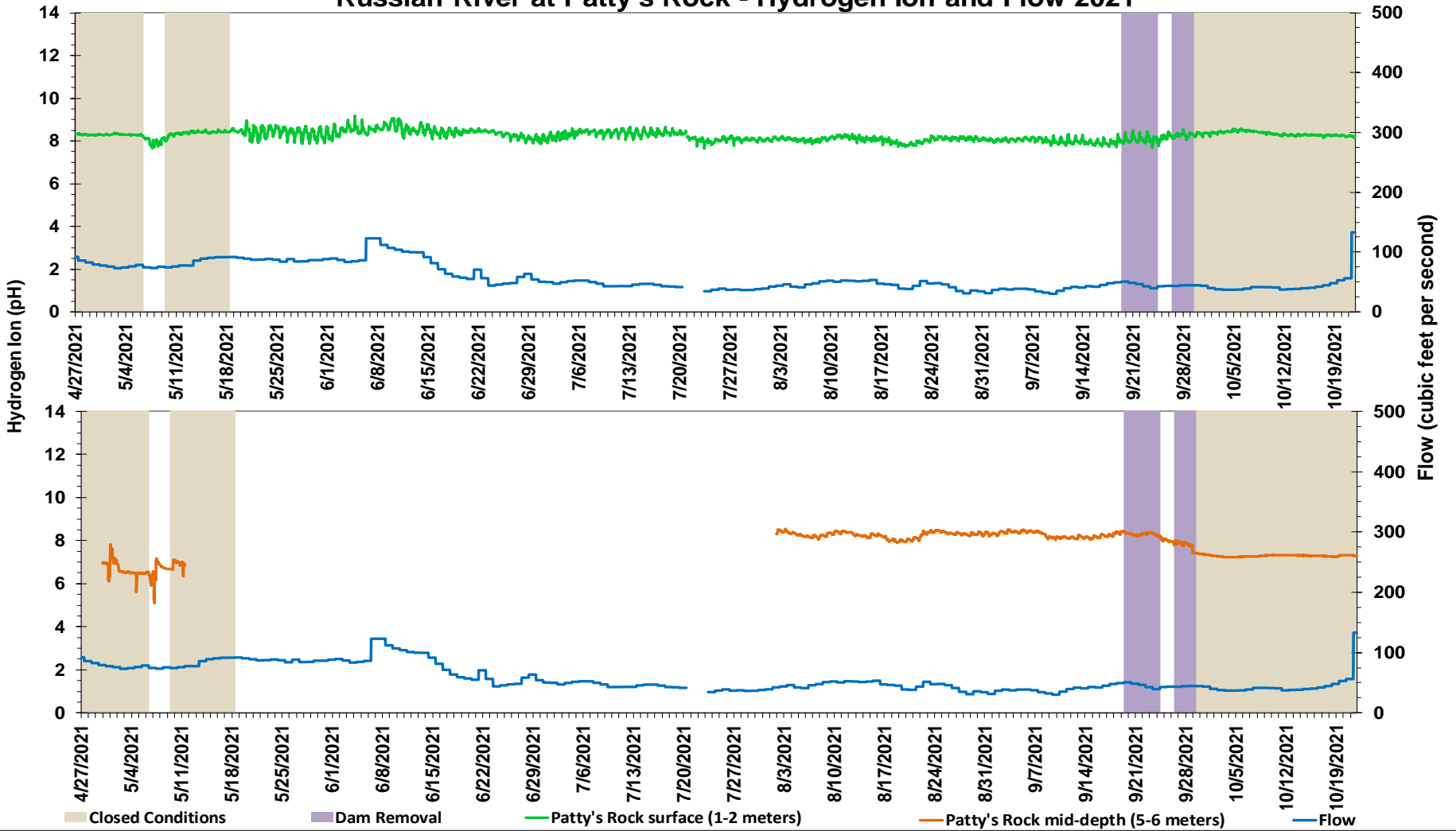


Russian River at Patty's Rock - Dissolved Oxygen and Flow 2021

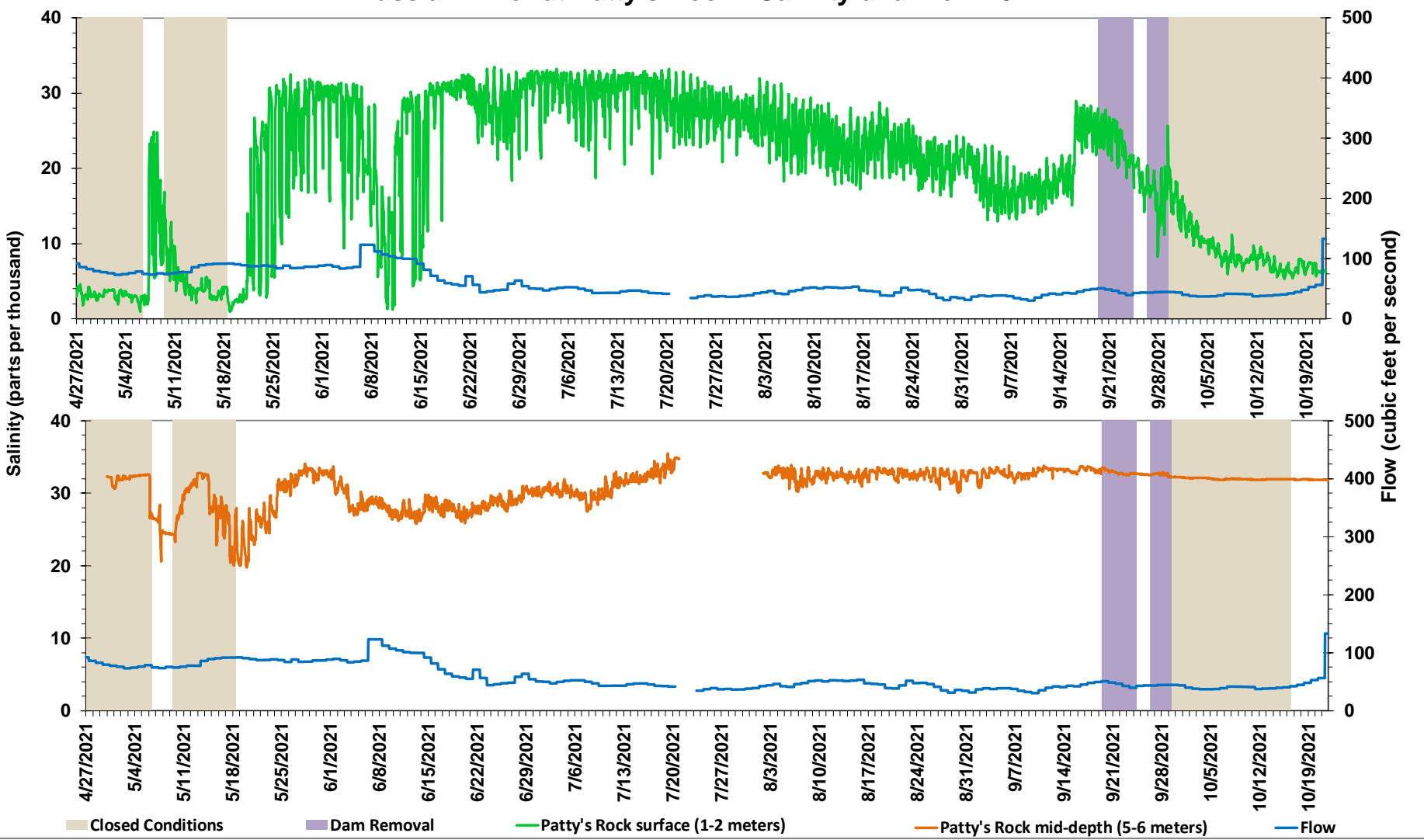


Russian River Water Quality Sonde Data - Estuary (April 27 - December 9, 2021)
 Provisional Data Subject to Revision
 Russian River at Patty's Rock Water Quality

Russian River at Patty's Rock - Hydrogen Ion and Flow 2021



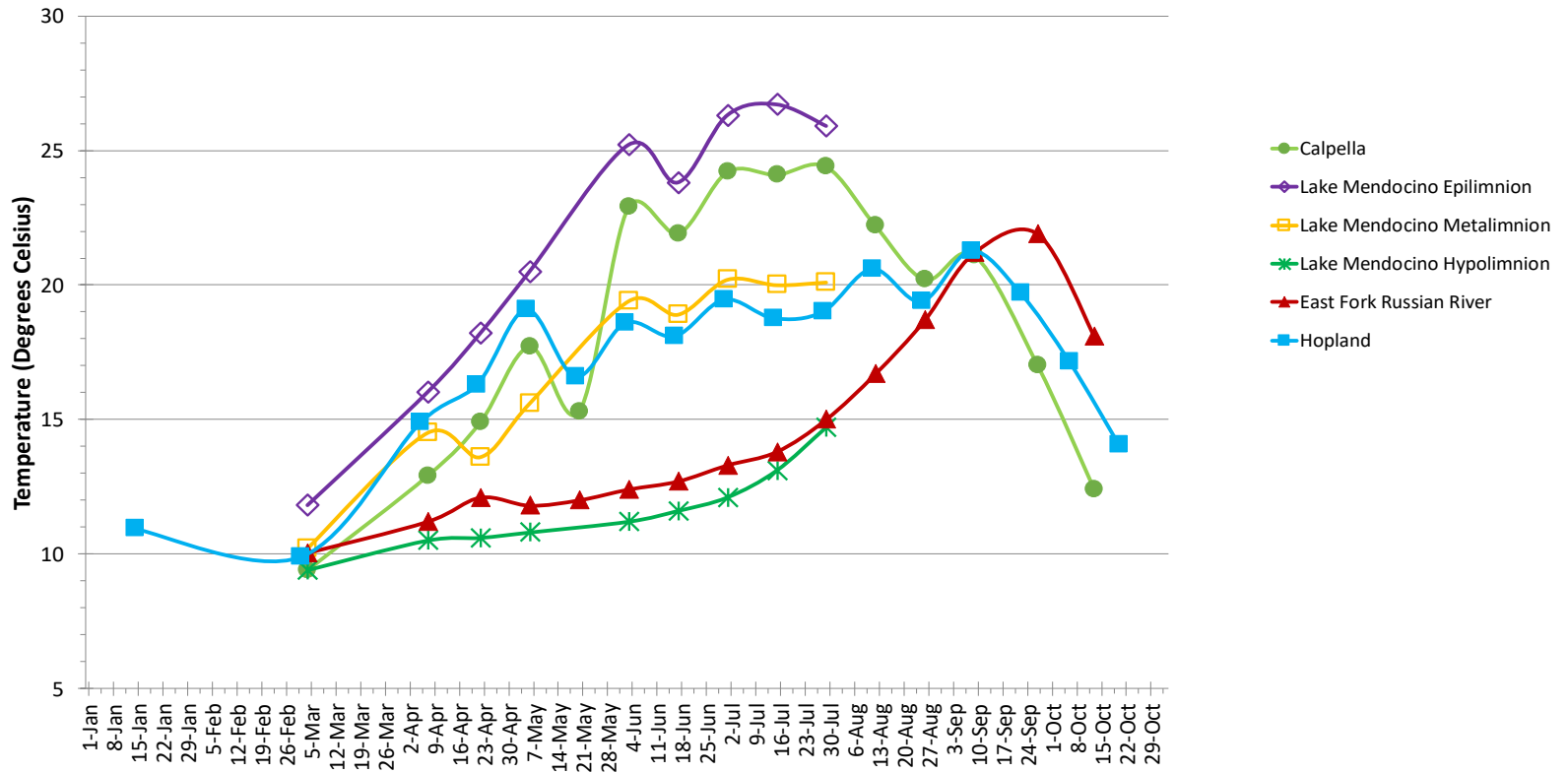
Russian River at Patty's Rock - Salinity and Flow 2021



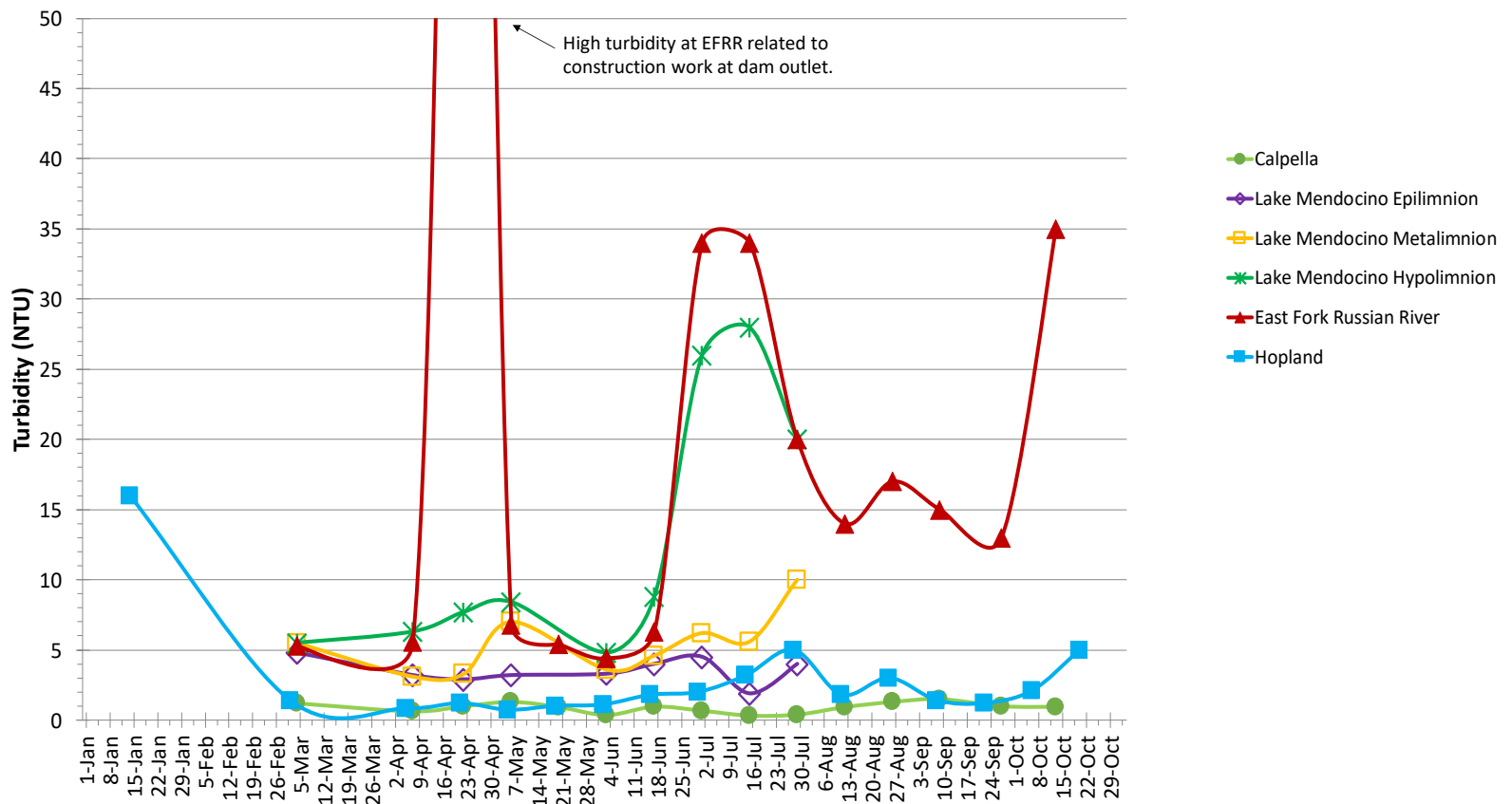
Russian River Water Quality Grab Samples (January 14 - December 9, 2021)
Provisional Data Subject to Revision

Lake Mendocino to Hopland Water Quality

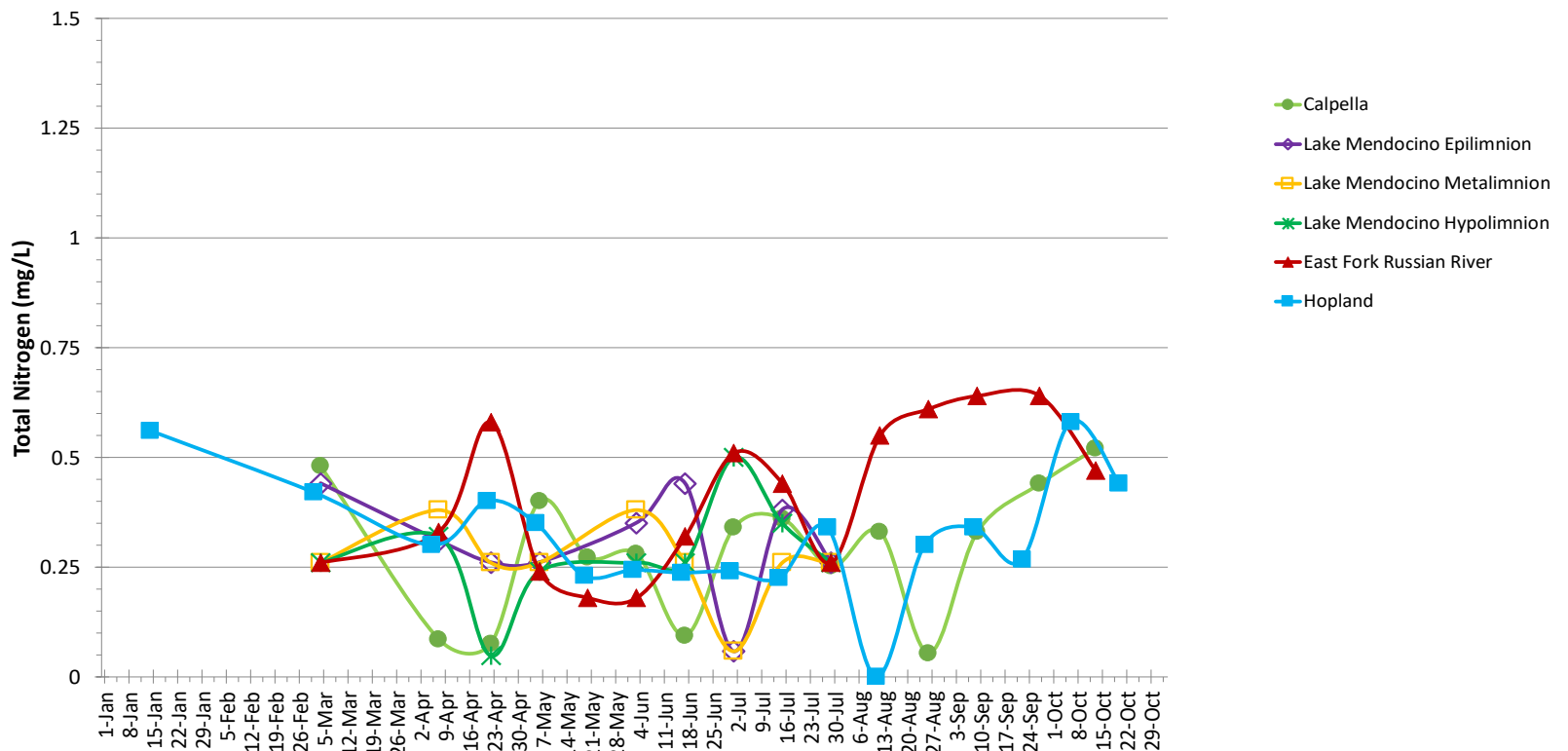
Temperature - East Fork at Calpella, Lake Mendocino, East Fork below dam, and Hopland - 2021



Turbidity - East Fork at Calpella, Lake Mendocino, East Fork below dam, and Hopland - 2021

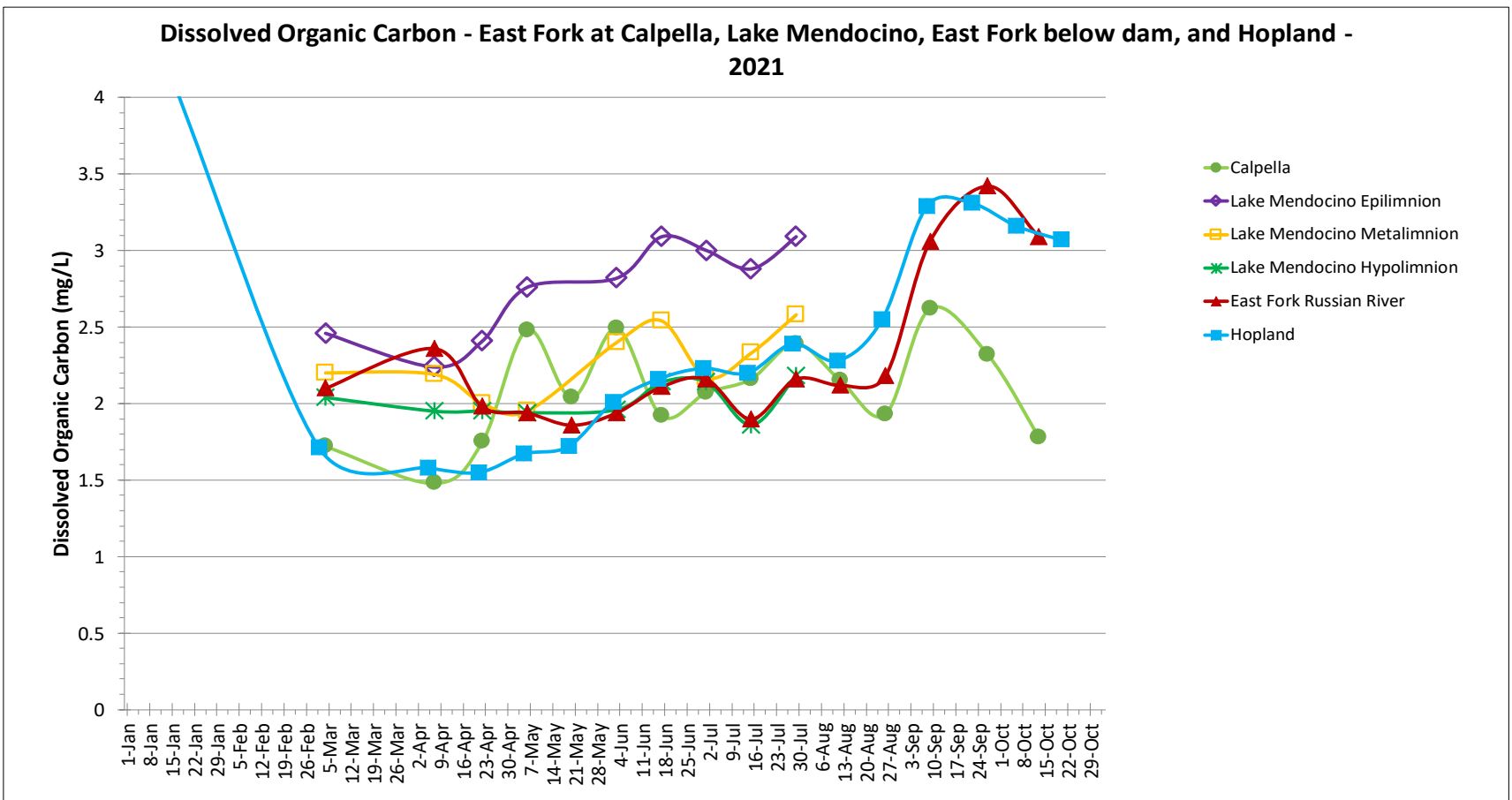
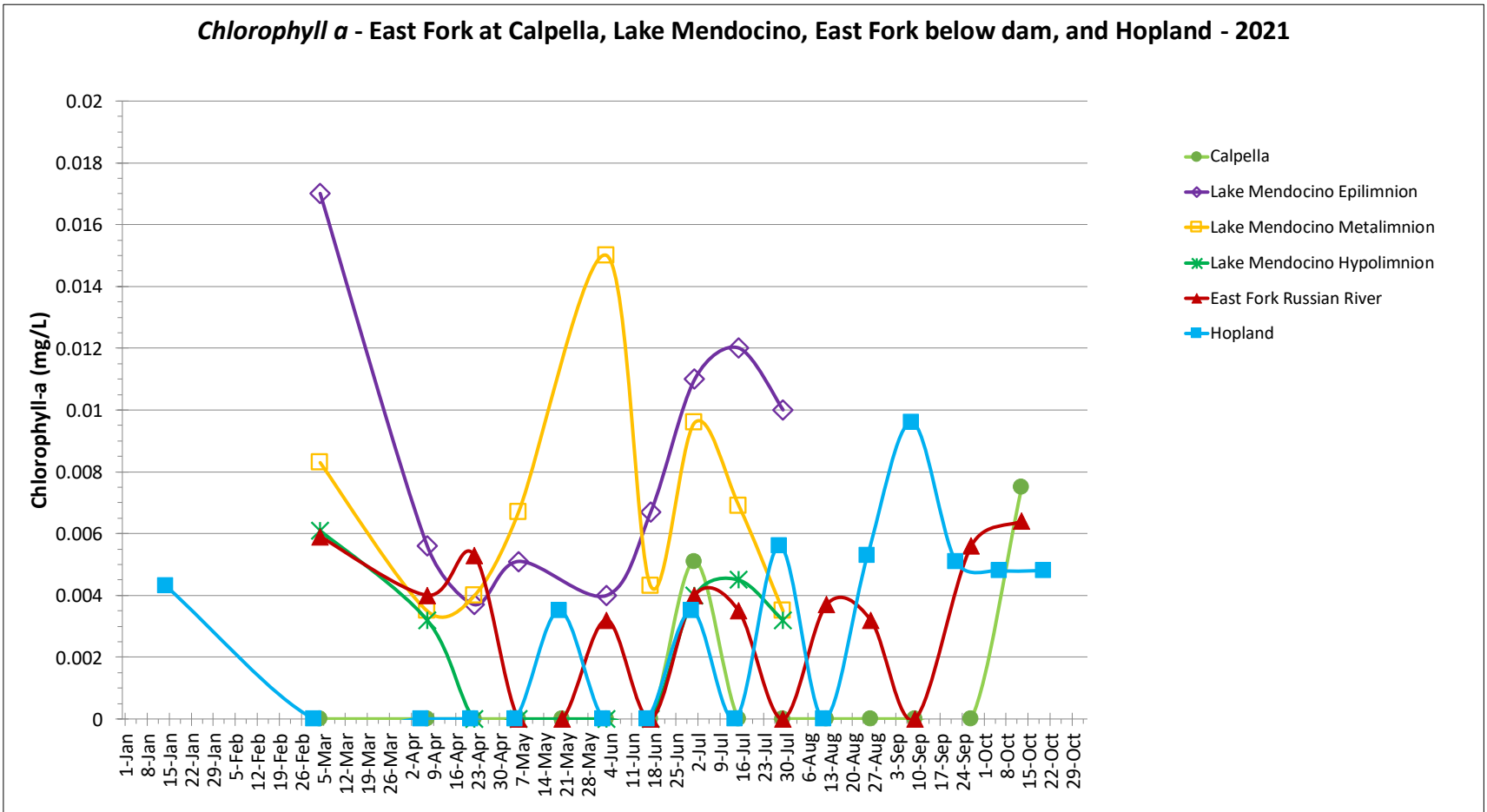
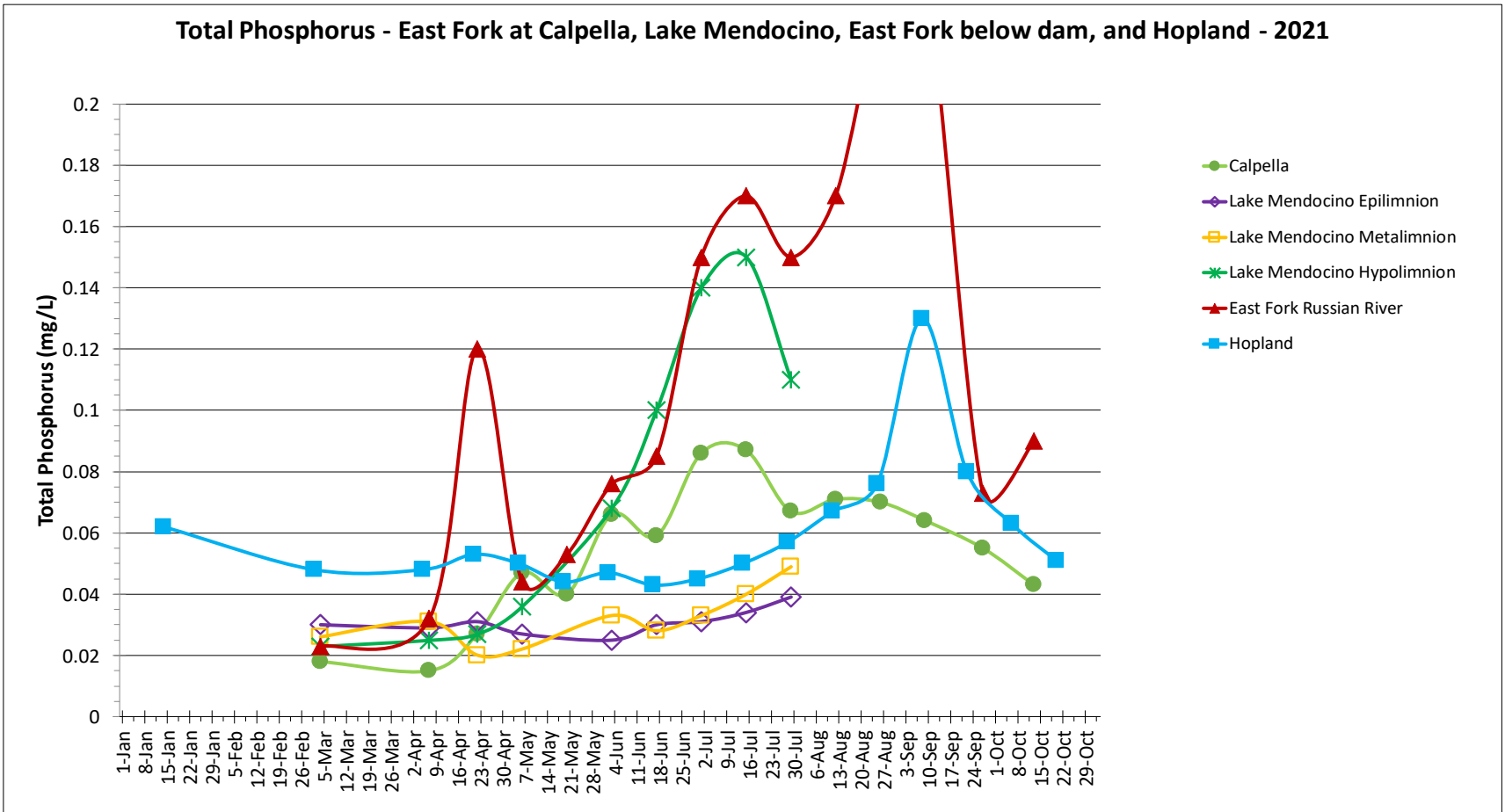


Total Nitrogen - East Fork at Calpella, Lake Mendocino, East Fork below dam, and Hopland - 2021



*Each marker in the plot represents a grab sample. The lines are used to help visualize the data, but do not represent a continuous data measurement.

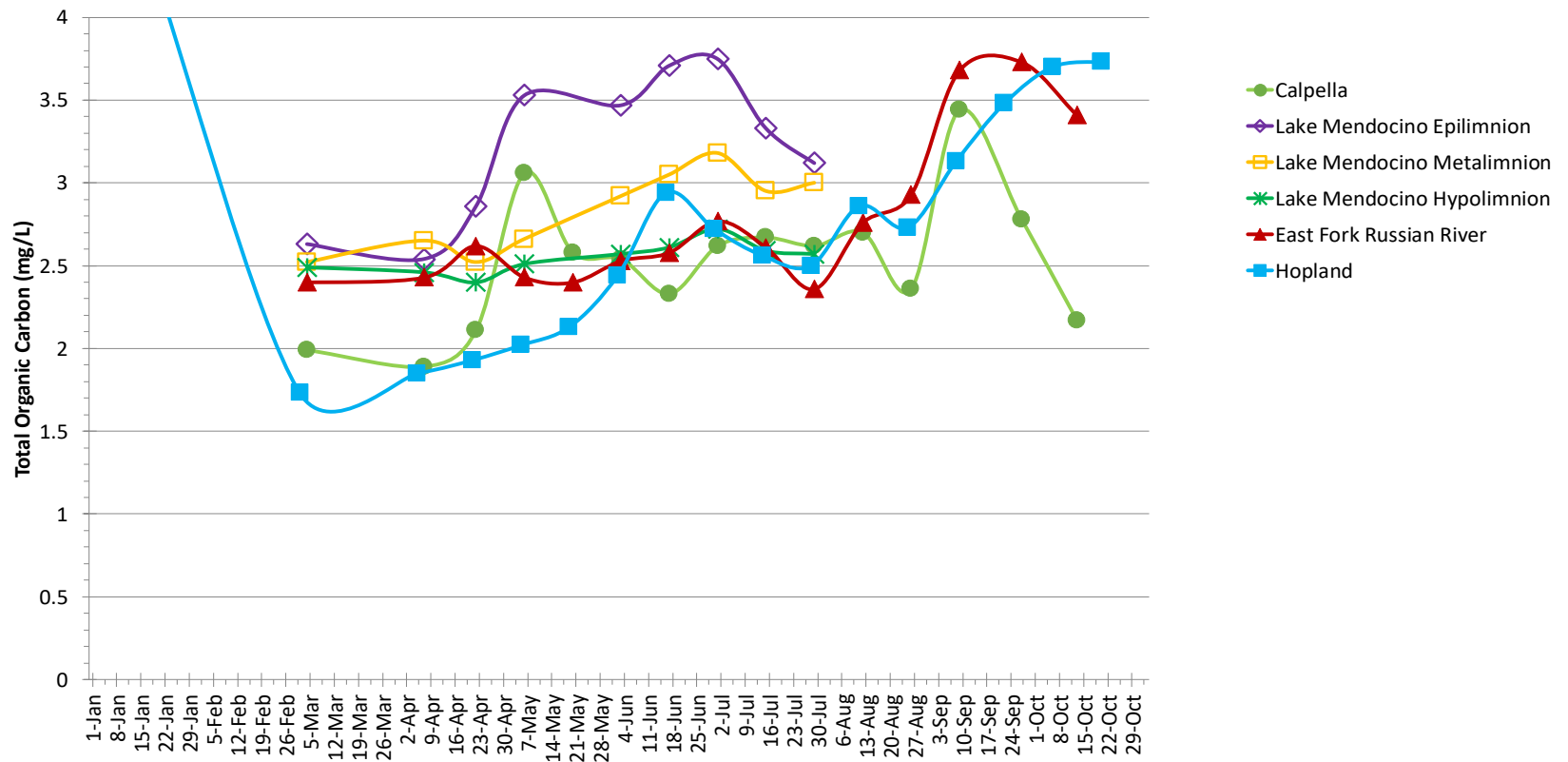
Russian River Water Quality Grab Samples (January 14 - December 9, 2021)
Provisional Data Subject to Revision
Lake Mendocino to Hopland Water Quality



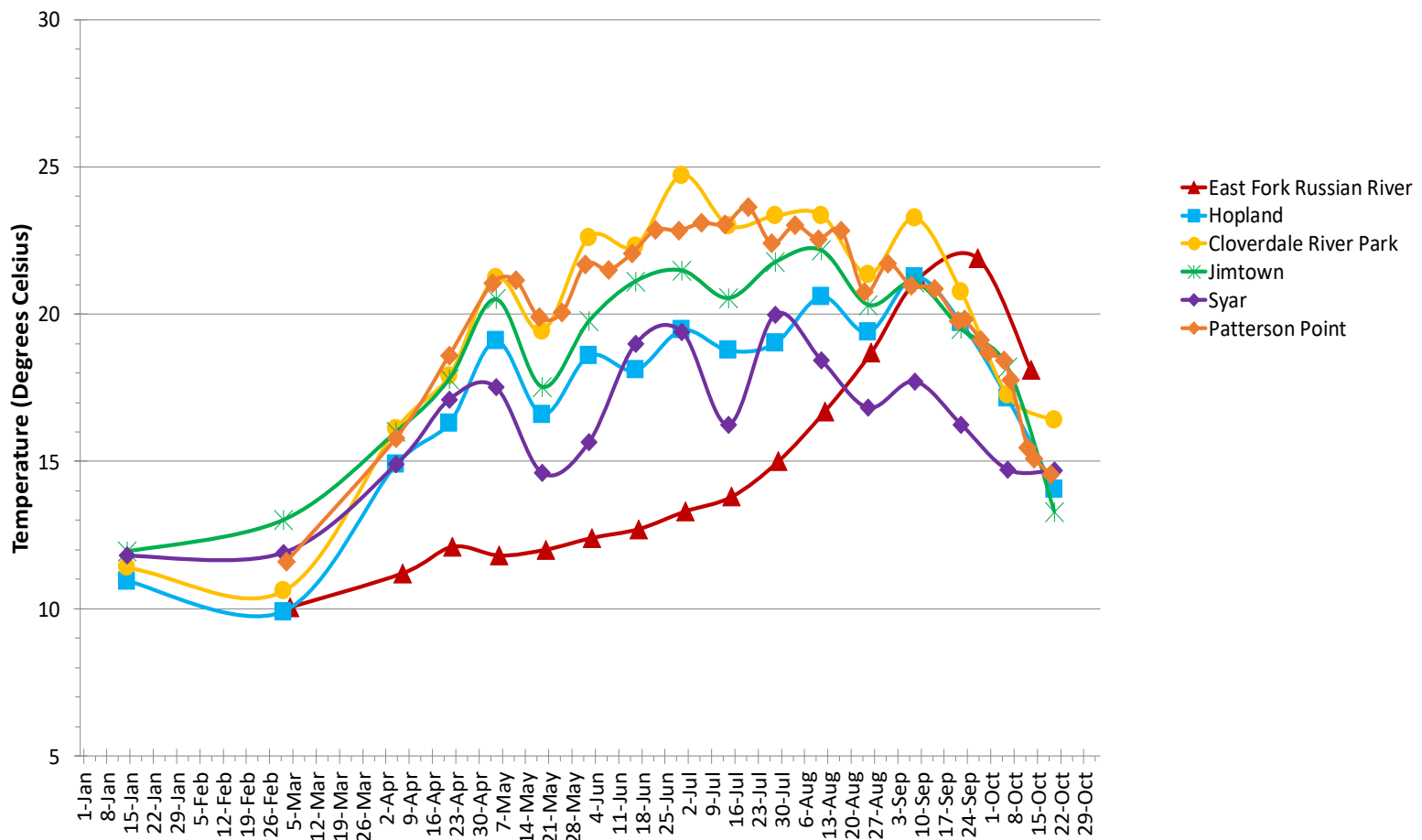
*Each marker in the plot represents a grab sample. The lines are used to help visualize the data, but do not represent a continuous data measurement.

Russian River Water Quality Grab Samples (January 14 - December 9, 2021)
Provisional Data Subject to Revision
Lake Mendocino to Hopland Water Quality

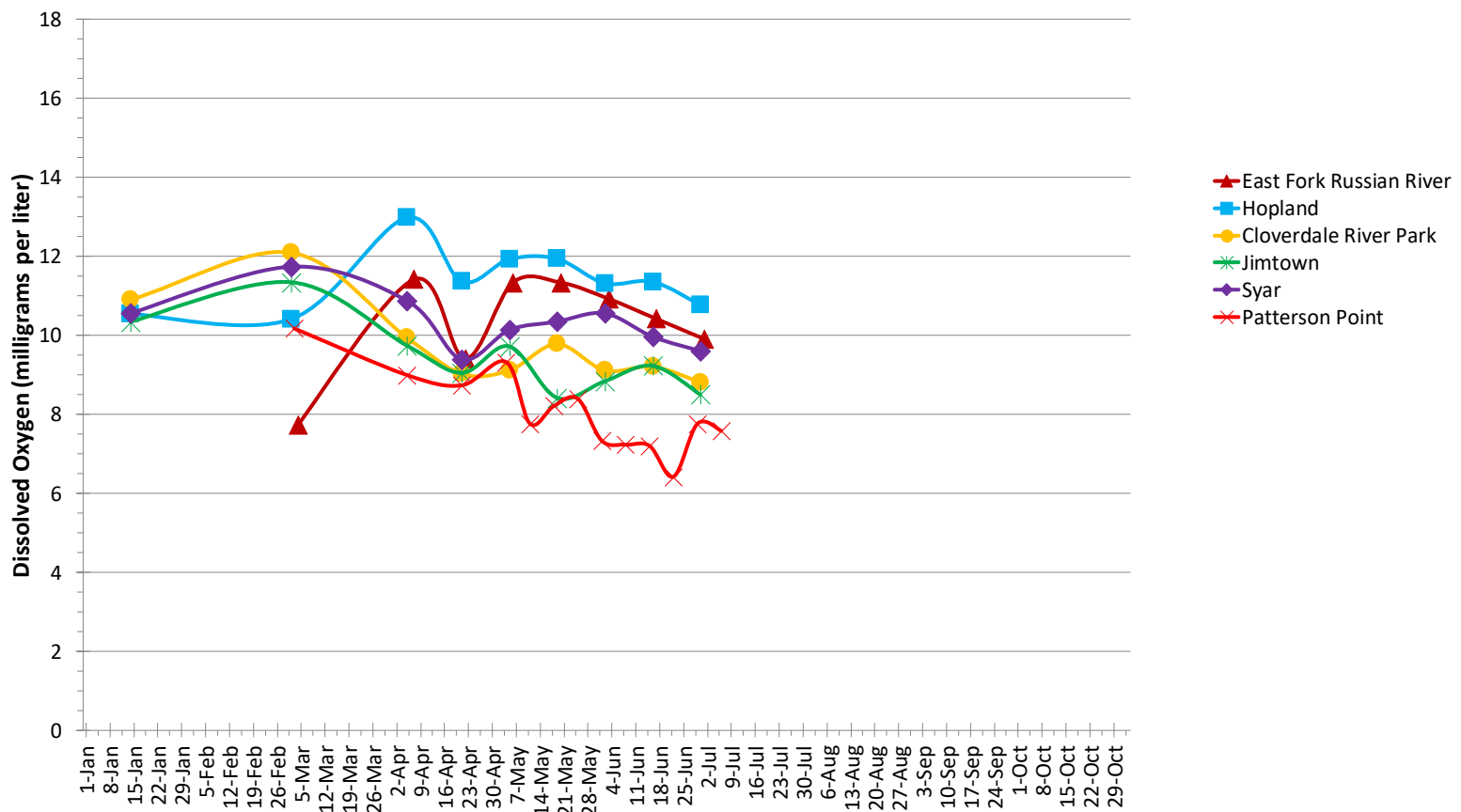
Total Organic Carbon - East Fork at Calpella, Lake Mendocino, East Fork below dam, and Hopland - 2021



Temperature - East Fork to Patterson Point - 2021



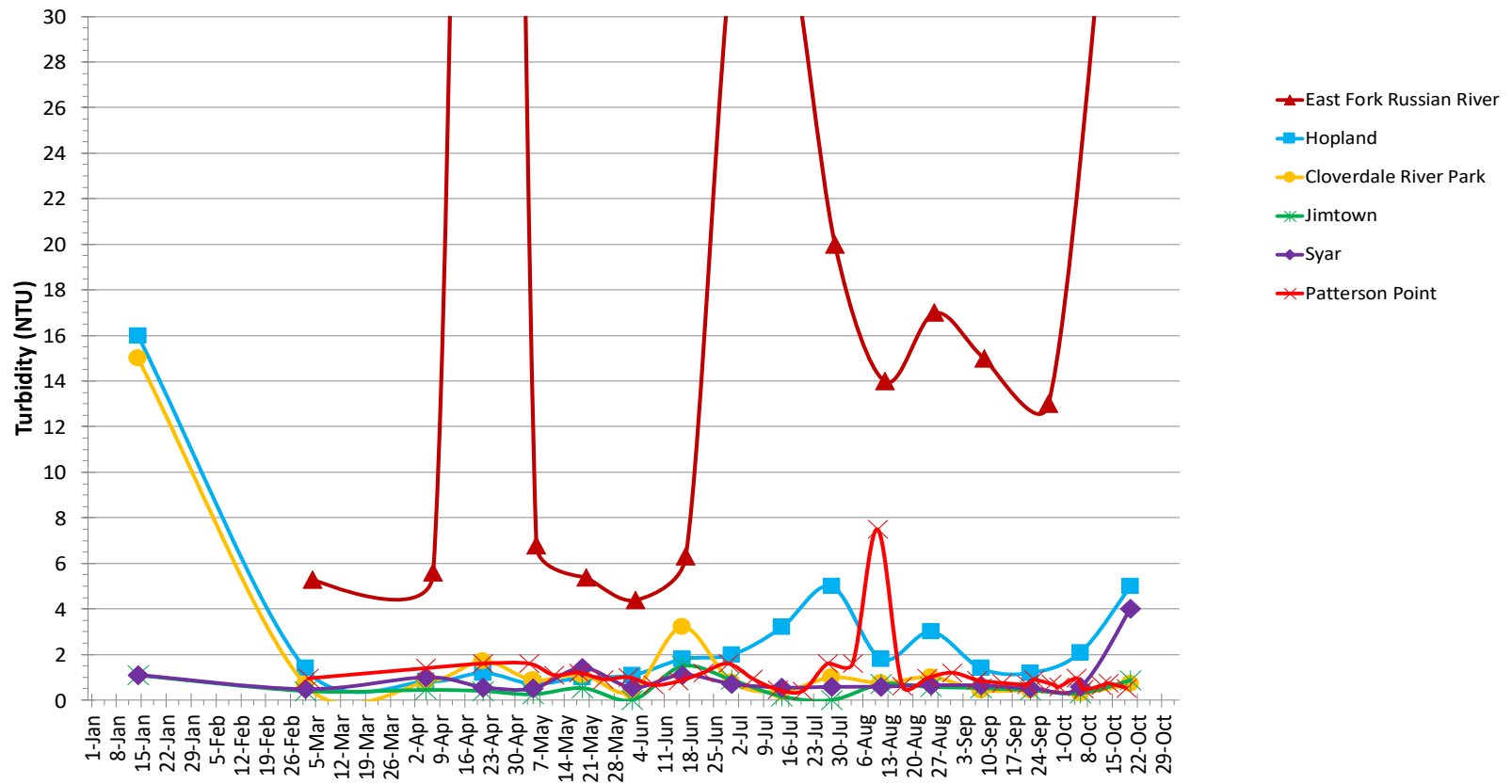
Dissolved Oxygen - East Fork to Patterson Point - 2021



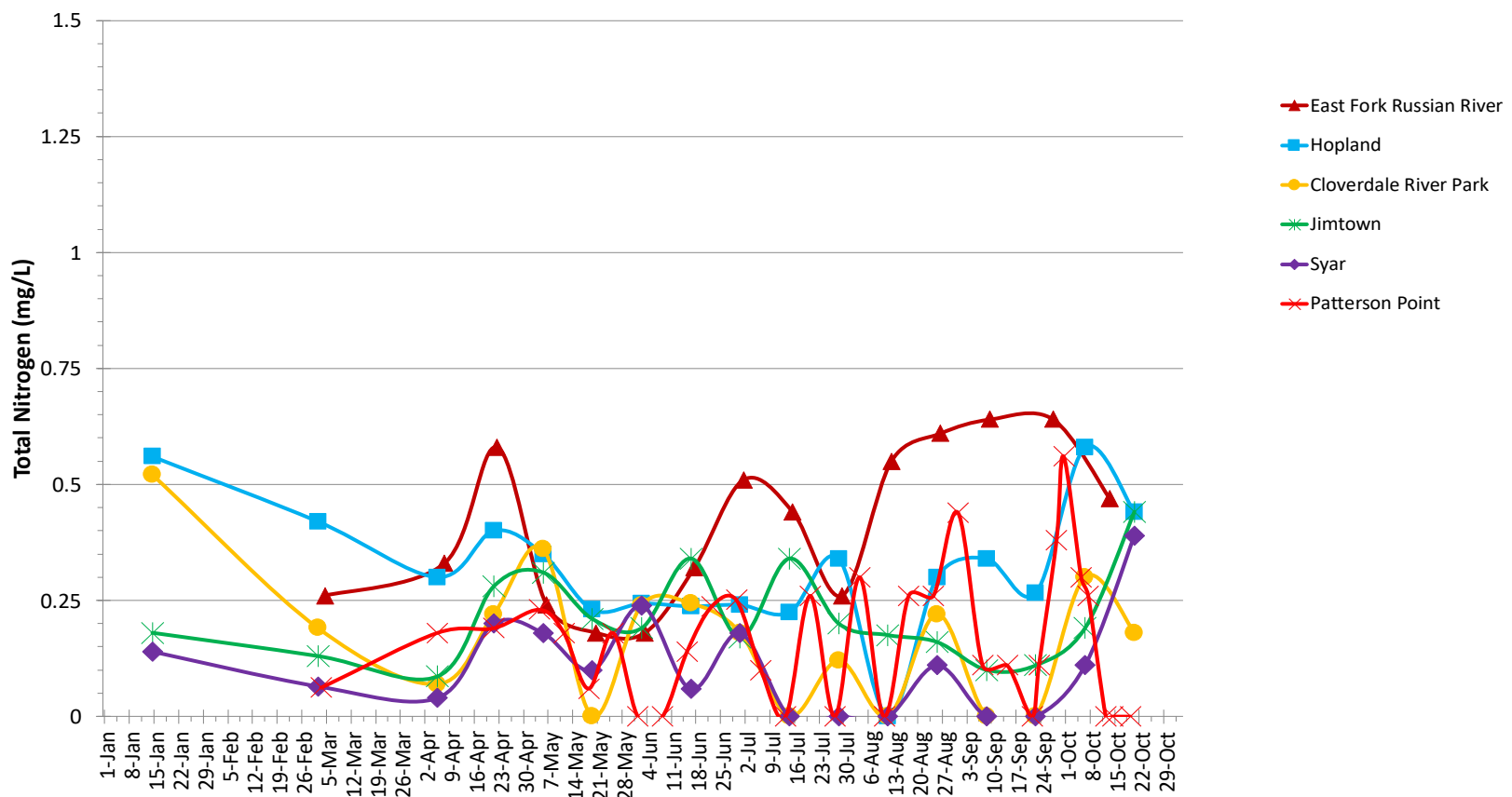
*Each marker in the plot represents a grab sample. The lines are used to help visualize the data, but do not represent a continuous data measurement.

Russian River Water Quality Grab Samples (January 14 - December 9, 2021)
Provisional Data Subject to Revision
East Fork (below Lake Mendocino) to Patterson Point Water Quality

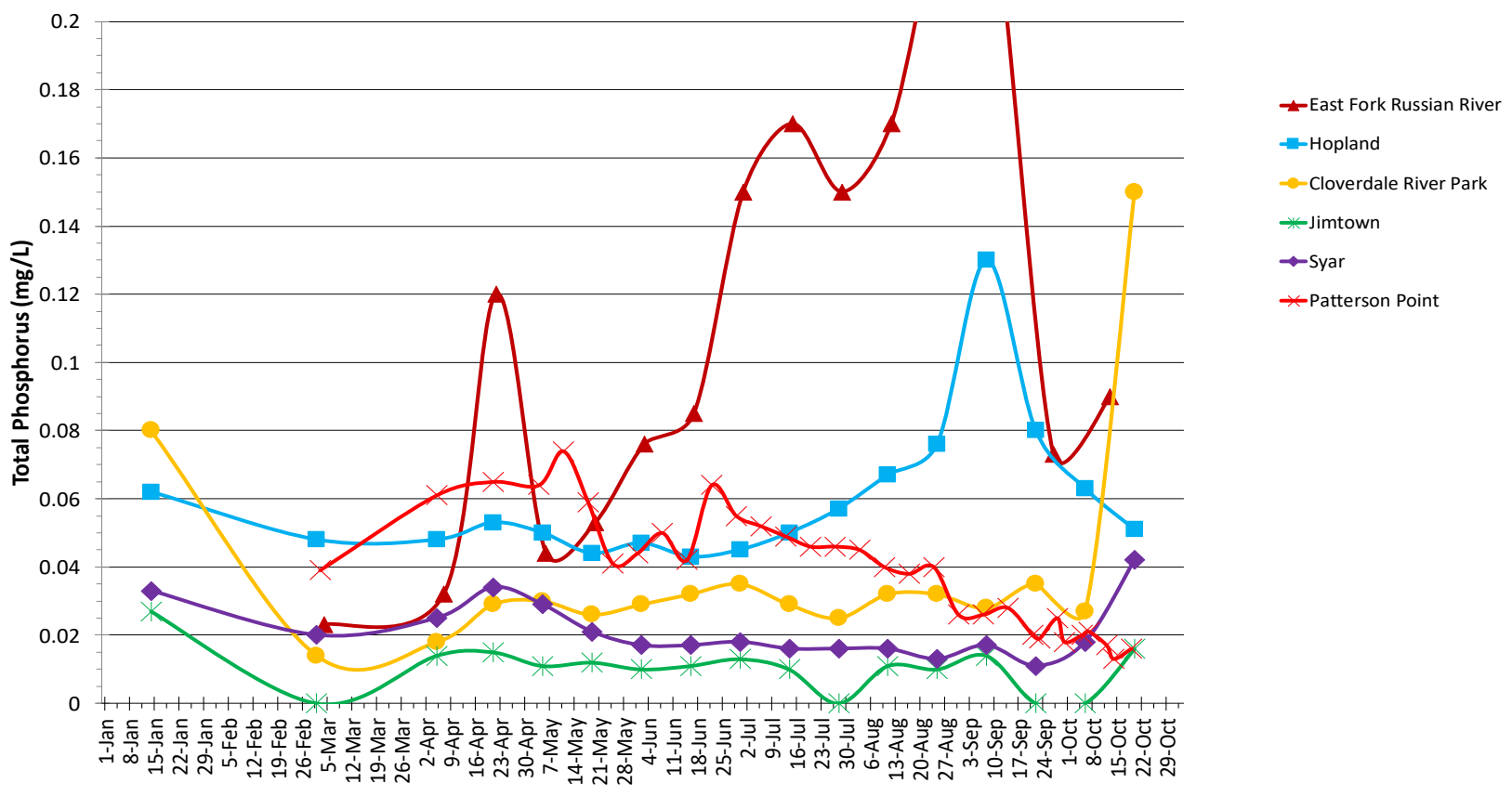
Turbidity - East Fork to Patterson Point - 2021



Total Nitrogen - East Fork to Patterson Point - 2021

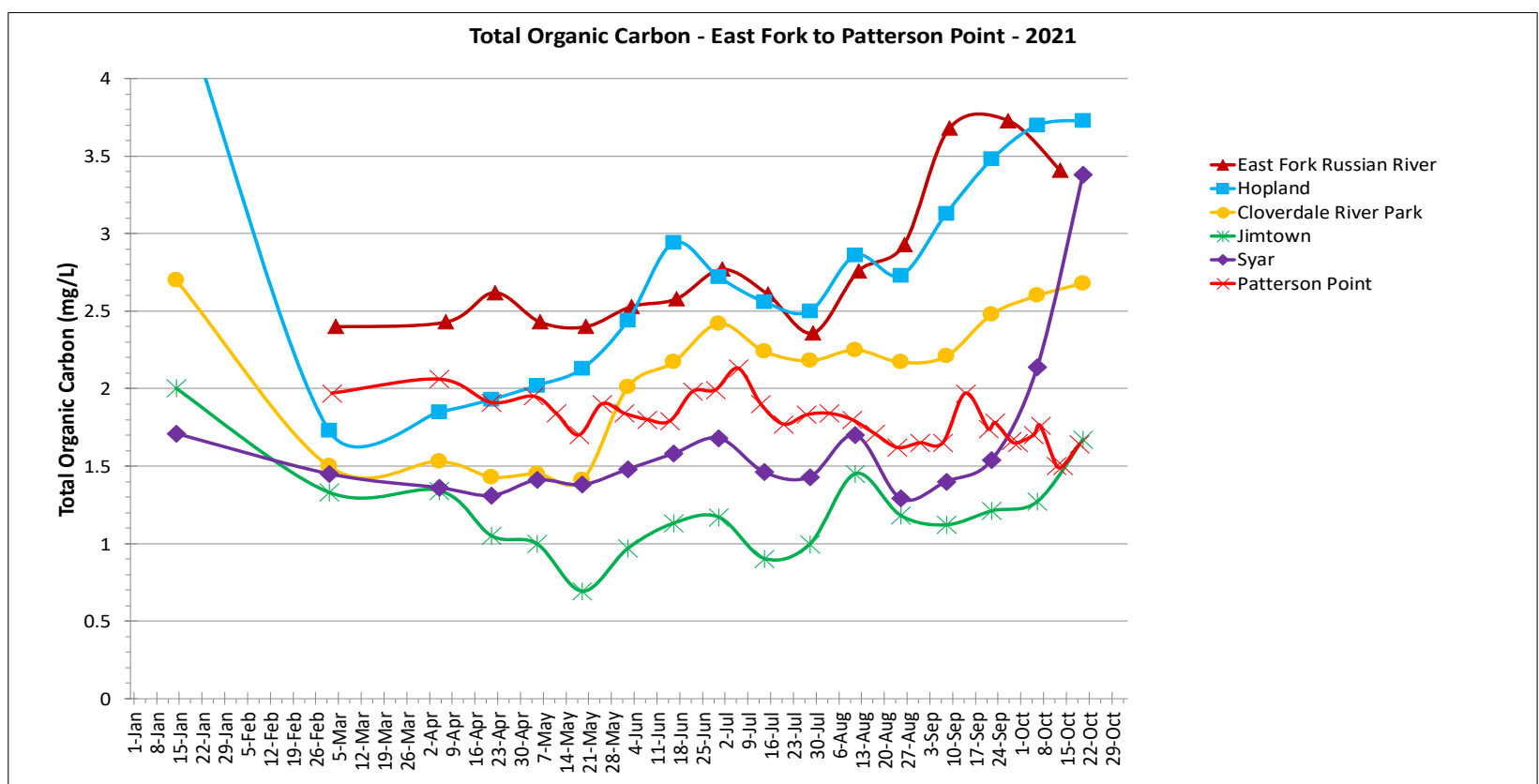
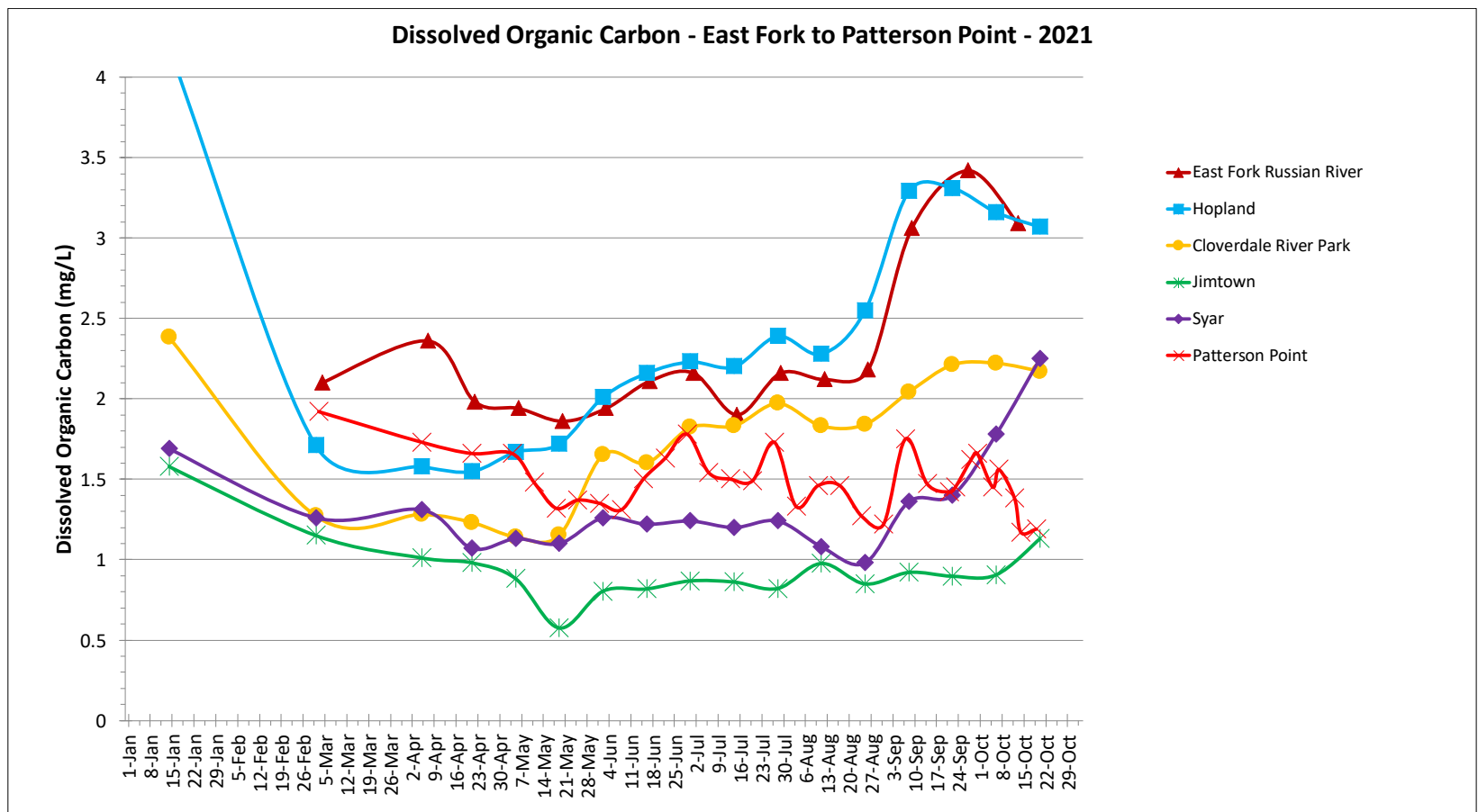
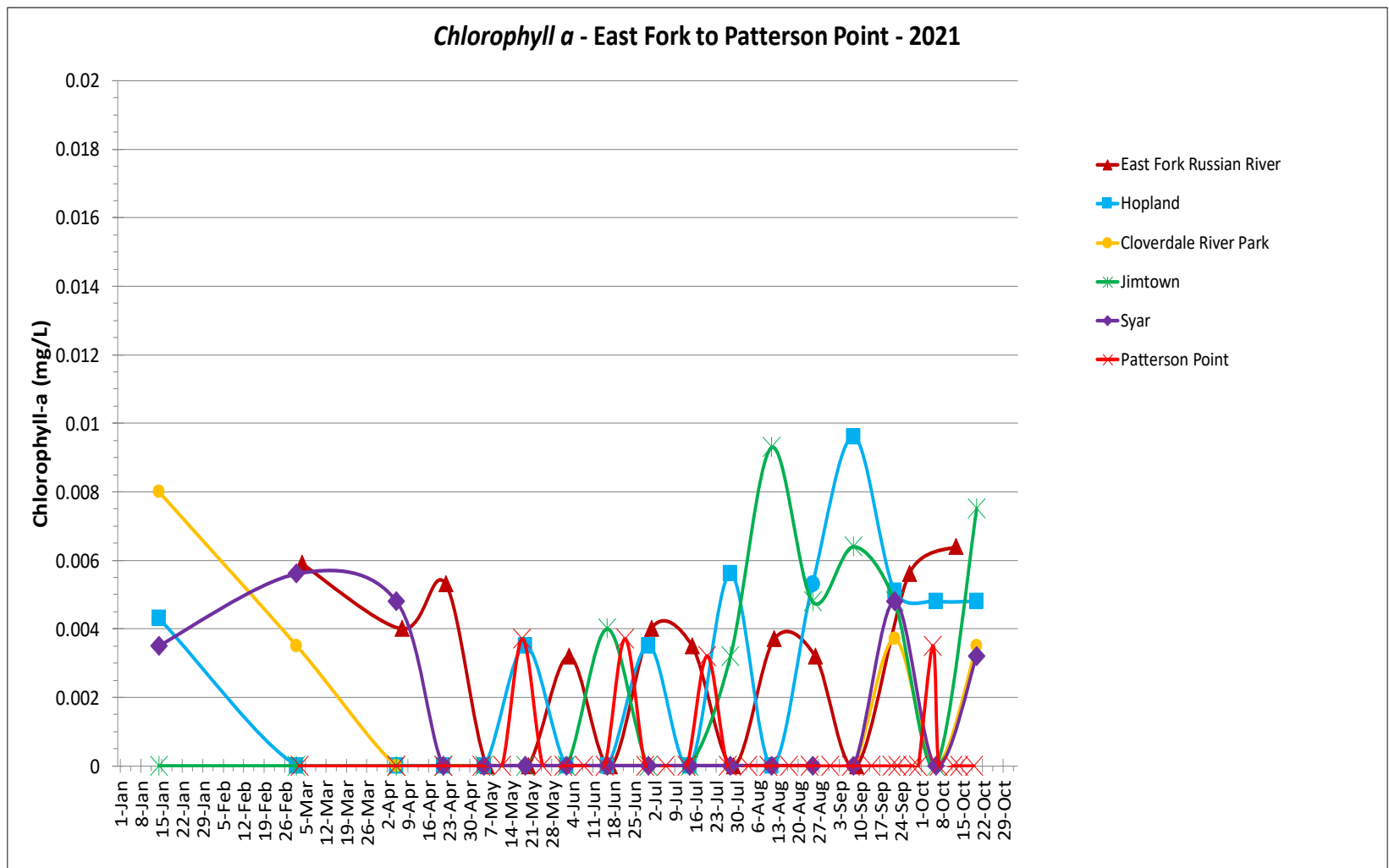


Total Phosphorus - East Fork to Patterson Point - 2021



*Each marker in the plot represents a grab sample. The lines are used to help visualize the data, but do not represent a continuous data measurement.

Russian River Water Quality Grab Samples (January 14 - December 9, 2021)
Provisional Data Subject to Revision
East Fork (below Lake Mendocino) to Patterson Point Water Quality



*Each marker in the plot represents a grab sample. The lines are used to help visualize the data, but do not represent a continuous data measurement.

Russian River Water Quality Grab Samples (September 23 - October 19, 2021)
Provisional Data Subject to Revision
Russian River Estuary Standard Bacterial Indicators

Parameter***	CDPH Guidance*	Date	Patterson Point	Monte Rio	Vacation Beach
Total Coliforms MPN/100 mL	10,000	9/23/2021	2481**	1664**	1119**
		9/28/2021	1203.3	1986.3	1732.9
		9/30/2021	1203.3	1986.3	1986.3
		10/5/2021	727.0	1119.9	1413.6
		10/7/2021	1299.7	1299.7	1413.6
		10/12/2021	920.8	980.4	629.4
		10/14/2021	613.1	686.7	727.0
		10/19/2021	547.5	547.5	461.1
E. Coli MPN/100 mL	235	9/23/2021	41.0	75.9	40.8
		9/28/2021	4.1	25.3	6.3
		9/30/2021	17.3	67.6	24.1
		10/5/2021	18.5	18.5	8.5
		10/7/2021	35.5	50.4	31.5
		10/12/2021	33.6	54.6	34.1
		10/14/2021	38.8	42.0	24.9
		10/19/2021	22.6	33.6	30.9
Enterococcus MPN/100 mL ****	61	9/23/2021	73.3	59.1	28.5
		9/28/2021	16.8	36.4	9.8
		9/30/2021	17.3	53.8	7.2
		10/5/2021	22.6	23.3	7.5
		10/7/2021	23.5	20.3	8.6
		10/12/2021	38.8	76.2	19.5
		10/14/2021	33.6	21.8	22.6
		10/19/2021	47.1	39.9	22.6

*California Department of Public Health (CDPH) Guidance for Fresh Water Beaches - Single Sample Values:

Freshwater beaches include Patterson Point, Monte Rio, and Vacation Beach

Beach posting is recommended when indicator organisms exceed any of the above corresponding levels

**Sample diluted 1:10

***Method Detection Limit for all parameters = 2 MPN/100 mL or 20 MPN/100 mL if sample diluted

****We continue to collect enterococcus data, however it is not a reliable fecal indicator bacteria in freshwater environments and is not being relied upon for posting at freshwater beaches, per SoCo DHS and NCRWQCB

Russian River Water Quality Grab Samples (September 7 - October 19, 2021)
Provisional Data Subject to Revision

Parameter	MDL*	Units	Date	Patterson Point	Monte Rio	Vacation Beach	
Temperature	-	°C	9/7/2021	21.0	21.1	21.4	
			9/14/2021	20.9	21.0	21.2	
			9/21/2021	19.8	19.7	19.9	
			9/23/2021	19.8	20.0	20.3	
			9/28/2021	19.1	19.0	19.9	
			9/30/2021	18.7	18.8	19.9	
			10/5/2021	18.4	18.2	18.0	
			10/7/2021	17.8	17.2	17.2	
			10/12/2021	15.5	14.8	15.5	
			10/19/2021	14.6	14.1	14.3	
Nutrients	Ammonia as N	mg/L	9/7/2021	ND	ND	ND	
			9/14/2021	ND	ND	ND	
			9/21/2021	ND	ND	ND	
			9/23/2021	ND	ND	ND	
			9/28/2021	ND	ND	ND	
			9/30/2021	ND	ND	ND	
			10/5/2021	ND	ND	ND	
			10/7/2021	ND	ND	ND	
			10/12/2021	ND	ND	ND	
			10/19/2021	ND	ND	ND	
	Nitrate as N	0.03	mg/L	9/7/2021	0.11	0.12	0.11
				9/14/2021	0.11	0.12	0.11
				9/21/2021	ND	ND	ND
				9/23/2021	0.11	0.12	0.12
				9/28/2021	0.12	0.11	0.12
				9/30/2021	0.12	0.11	0.12
				10/5/2021	0.12	0.12	0.12
				10/7/2021	ND	ND	ND
				10/12/2021	ND	ND	ND
				10/19/2021	ND	ND	ND
Nutrients	Nitrite as N	0.03	mg/L	9/7/2021	ND	ND	ND
				9/14/2021	ND	ND	ND
				9/21/2021	ND	ND	ND
				9/23/2021	ND	ND	ND
				9/28/2021	ND	ND	ND
				9/30/2021	ND	ND	ND
				10/5/2021	ND	ND	ND
				10/7/2021	ND	ND	ND
				10/12/2021	ND	ND	ND
				10/19/2021	ND	ND	ND
	Total Organic Nitrogen as N	0.2	mg/L	9/7/2021	ND	ND	ND
				9/14/2021	ND	ND	ND
				9/21/2021	ND	ND	ND
				9/23/2021	ND	ND	0.70
				9/28/2021	0.26	0.18	0.18
				9/30/2021	0.44	0.18	0.18
				10/5/2021	0.18	0.18	0.18
				10/7/2021	0.26	0.18	0.35
				10/12/2021	ND	0.18	0.18
				10/19/2021	ND	ND	ND
	Total Kjeldahl Nitrogen	0.1	mg/L	9/7/2021	ND	ND	ND
				9/14/2021	ND	ND	ND
				9/21/2021	ND	ND	ND
				9/23/2021	ND	ND	0.70
				9/28/2021	0.26	ND	ND
				9/30/2021	0.44	ND	ND
				10/5/2021	ND	ND	ND
				10/7/2021	0.26	ND	0.35
				10/12/2021	ND	ND	ND
				10/19/2021	ND	ND	ND
	Total Phosphorus	0.02	mg/L	9/7/2021	0.026	0.028	0.013
				9/14/2021	0.028	0.023	0.017
				9/21/2021	0.020	0.019	0.018
				9/23/2021	0.019	0.020	0.060
				9/28/2021	0.025	0.017	0.020
				9/30/2021	0.018	0.018	0.021
				10/5/2021	0.020	0.020	0.018
				10/7/2021	0.021	0.023	0.025
				10/12/2021	0.017	0.015	0.018
				10/19/2021	0.016	0.019	0.015
Total Orthophosphate	0.02	mg/L	9/7/2021	ND	ND	ND	
			9/14/2021	0.032	ND	ND	
			9/21/2021	ND	ND	ND	
			9/23/2021	ND	ND	0.038	
			9/28/2021	ND	ND	0.039	
			9/30/2021	ND	ND	0.031	
			10/5/2021	ND	ND	ND	
			10/7/2021	ND	ND	ND	
			10/12/2021	ND	ND	ND	
			10/19/2021	ND	0.030	0.120	

Russian River Water Quality Grab Samples (September 7 - October 19, 2021)
Provisional Data Subject to Revision

Parameter		MDL*	Units	Date	Patterson Point	Monte Rio	Vacation Beach
Chlorophyll	Chlorophyll A	0.00005	mg/L	9/7/2021	ND	0.0032	0.0040
				9/14/2021	ND	ND	0.0035
				9/21/2021	ND	ND	ND
				9/23/2021	ND	0.0630	0.0083
				9/28/2021	ND	0.0048	0.0032
				9/30/2021	ND	ND	ND
				10/5/2021	0.0035	ND	ND
				10/7/2021	ND	0.0037	0.0032
				10/12/2021	ND	0.0110	ND
				10/19/2021	ND	ND	ND
Carbon	Total Organic Carbon	0.04	mg/L	9/7/2021	1.65	1.67	1.65
				9/14/2021	1.97	1.89	1.90
				9/21/2021	1.74	1.76	1.78
				9/23/2021	1.78	1.74	1.76
				9/28/2021	1.66	1.65	1.62
				9/30/2021	1.65	1.62	1.55
				10/5/2021	1.70	1.66	1.54
				10/7/2021	1.76	1.63	1.60
				10/12/2021	1.50	1.46	1.45
				10/19/2021	1.64	1.53	1.46
	Dissolved Organic Carbon	0.04	mg/L	9/7/2021	1.75	1.47	1.49
				9/14/2021	1.47	1.51	1.52
				9/21/2021	1.42	1.40	1.43
				9/23/2021	1.45	1.44	1.30
				9/28/2021	1.62	1.34	1.24
				9/30/2021	1.66	1.40	1.37
				10/5/2021	1.45	1.43	1.57
				10/7/2021	1.56	1.23	1.25
				10/12/2021	1.38	1.16	1.13
				10/19/2021	1.19	1.10	1.14
Solids	Turbidity	0.02	NTU	9/7/2021	0.88	1.00	0.88
				9/14/2021	0.75	0.91	0.86
				9/21/2021	0.69	0.98	0.81
				9/23/2021	0.89	1.40	3.10
				9/28/2021	0.70	0.79	0.84
				9/30/2021	0.58	0.71	0.57
				10/5/2021	0.96	2.20	2.10
				10/7/2021	0.47	1.00	0.58
				10/12/2021	0.64	1.20	1.30
				10/19/2021	0.53	1.40	2.40
	TDS	4.2	mg/L	9/7/2021	160	170	160
				9/14/2021	170	130	140
				9/21/2021	140	150	130
				9/23/2021	190	170	130
				9/28/2021	140	150	140
				9/30/2021	130	140	150
				10/5/2021	150	150	140
				10/7/2021	140	140	150
				10/12/2021	160	140	140
				10/19/2021	150	130	140