

**Atchafalaya River Basin Monitoring Program  
for East Grand Lake Restoration Activities**

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## Introduction

The Atchafalaya Basin Program's East Grand Lake project (EGL) is the state of Louisiana's restoration plan for a 202,424 acre portion of the Atchafalaya Basin bound by Bayou Sorrel, the Atchafalaya River, and the East Atchafalaya Guide Levee (LDNR 2012). The project area was partitioned into three regions: Upper Region, Lower Region and Western Region. These regions were then subdivided into smaller Assessment Units (AU) to aid in the planning and implementation of project features. The Nature Conservancy's (TNC) Atchafalaya Basin Preserve falls within the Upper Region and spans a portion of AUs 1, 2, 3, 5, and 6 (Figure 1).

The main strategy of the EGL Project is to improve the north to south flow of water through the area during moderate river stages (i.e., 3.0-3.6 m at Butte La Rose) to improve water quality and ecosystem health. The swamps in this area suffer from poor water quality due to historic hydrologic alterations. Currently, Atchafalaya River water tends to stay confined within the banks of distributary channels and does not flood the backswamps until extremely high-water levels occur with high river flow. For example, water entering Bayou Sorrel heads south through School Board Canal, Indigo Bayou, Salt Mine Bayou, and the GIWW, but tends to pass through those channels with little to no communication with adjacent swamps until water levels are high (LDNR 2012). Significant overbank flow into those AUs from Bayou Sorrel does not happen until the Butte La Rose gauge is greater than 5.5 m. Below this stage, inflow is limited to point source locations including input from the Florida Gas pipeline. The EGL project consists of hundreds of separate project features, but within the Upper Region there are two major types of features: those that increase the flow of river water from channels into the backswamps at the north end of AU's and those that increase drainage of water at the southern end of AU's. To date, there has been no work done on an AU that incorporates both types of features.

The goal of this monitoring program is to evaluate the effectiveness of hydrologic restoration done as part of the EGL Project. This project has many restoration features, and it will be necessary to assess the effectiveness of selected individual project features, as well as the combined effects of multiple project features. By providing a network of stations across the area, we can assess not only the areas affected by project features, but also the ecological condition of areas not being restored (i.e., reference sites). Therefore, a small network of stations, similar to that employed by the Coastwide Reference Monitoring System (CRMS) has been deployed throughout the study area (CRMS 2014). This report is a summary of the pre-restoration monitoring activities conducted in during the 2019 calendar year on TNC and adjacent State lands to support East Grand Lake restoration activities.

## Methods

### *Site description*

The Nature Conservancy's Atchafalaya Basin Preserve was established in 2015 in the vicinity of Bayou Sorrel. The Preserve consists of five distinct tracts that are surrounded by a mix of private

and State Lands (Figure 1). The habitat is predominantly baldcypress/water tupelo swamp, with bottomland hardwoods dominating the higher ground along channels and canals.

#### *Data collection*

Seven monitoring stations were setup in the Atchafalaya Basin Preserve and adjacent State Lands in 2016 (Figure 1). Each station consists of a fixed wooden structure with a 4” perforated PVC pipe that houses a YSI Exo2 multiparameter sonde. Each sonde was equipped with sensors to measure water level, dissolved oxygen, turbidity, specific conductance, and temperature. The sondes are also equipped with a central wiper which cleaned the sensors twice an hour to prevent biofouling. The sondes collected data every hour, and data were then binned to give daily averages for analysis. Sondes were deployed throughout the year except for periods of regular maintenance and calibration. Additionally, low water levels during periods of the year prevented sonde deployment and data collection. Water monitoring equipment was deployed for two separate periods during the year. The first deployment began on 18 January 2019 during an already ongoing high-water event in the Atchafalaya Basin. The sondes were then retrieved on 5 August 2019 for data download and calibration. During the first deployment, high water prevented sonde service at the regular intervals, and as a result, the batteries on the sonde at station AU6 expired on 15 May. All other stations collected data for the entire period. The second deployment began on 6 November and is currently ongoing.

Surface water sampling trips occurred on 21 March, 29 April, 11 July, 5 August, and 6 November 2019. Duplicate samples were taken from 45 cm to 60 cm below the water’s surface and analyzed for total suspended solids, total nitrogen,  $\text{NH}_4\text{-N}$ ,  $\text{NO}_3\text{-N}$ , and  $\text{PO}_4\text{-P}$ . Total suspended solids of the samples were determined by filtering a well-mixed volume of the water through a pre-weighed glass fiber filter. The filters were then dried at  $60^\circ\text{C}$  for 24-hours and reweighed. Total suspended solid (TSS) concentrations were calculated as the increase of weight on the filter divided by the volume of water filtered. Nutrient concentrations were determined by analyses at the Wetland Biogeochemistry Analytical Laboratory at Louisiana State University following standard EPA methods. In addition to the collection of water samples, a YSI ProDSS multiparameter water quality meter was deployed to record triplicate water temperatures, dissolved oxygen, specific conductance, and turbidity at each of the sampling locations. The sampling trips in March, April and July focused on water quality in the distributary channels around Bayou Sorrel (Figure 2), while the trips in August and November added water samples from the backswamp monitoring stations (Figure 1).

Surface accretion is being monitored using the feldspar horizon technique (Cahoon and Turner 1989). A one cm thick layer of feldspar clay was laid down over a quarter-meter squared area at six different locations consisting of three plots in two-separate Assessment Units in December 2016 (Figure 3). Additional feldspar clay was laid down at each of the backswamp monitoring

stations on 15 August 2018. Surface accretion was not measured in 2019 due to the extended period of high-water restricting access to the soil surface.

Long-term forest monitoring plots were setup in the project area in 2019. Triplicate 20m x 20m plots were setup along transects with three different elevation zones. Transects were placed in areas expected to be impacted by EGL restoration activities and areas outside the influence of individual project elements. The goal of the forest monitoring is to assess changes in forest structure, and individual tree growth rates, as a result of the EGL restoration activities.

To date, no restoration has been conducted in the area, so all data presented within this report can be considered pre-restoration monitoring.

## **Results**

### *Basinwide conditions*

Water levels in the Atchafalaya Basin were already high when 2019 began and stayed elevated until August. The Atchafalaya River at Butte La Rose stayed above bankfull stage from the end of February until the beginning of August (Figure 4). The extended period of high water meant water was flowing overbank out of Bayou Sorrel for nearly half the year and influencing water quality in the backswamp. In August water levels fell precipitously, and water levels in September were within the long-term average (Figure 5). The period of normal water levels was short-lived and water levels were again rising in the Basin in October.

### *Backswamp water quality – continuous measurements*

The magnitude and duration of high-water in 2019 had a significant, and positive impact, on water quality in the backswamp. Water levels peaked on the Atchafalaya River at Butte La Rose (BLR) on 15 March at 6.31 m (20.7 ft) and crested at the seven backswamp monitoring stations the next day (Figure 6). Similar to the previous three years, water levels in Bayou Sorrel and along the GIWW were high enough to overtop banks and connect the backswamp to a source of river water. However, determining when that connection was initiated between the channels and the backswamp was difficult as the sites may have already been connected when sondes were deployed in mid-January. Cold river water (Figure 7) moving through the backswamp kept dissolved oxygen concentrations above 2 mg/l for nearly the entire 8-month deployment at all sites except T3 (Figure 8). Dissolved oxygen at site T3 stayed near anoxic except for the periods of maximum river stage when river water came overbank from Bayou Sorrel and penetrated further into the swamp to the north. In early August, water levels were dropping, water temperatures were rising, and the backswamp monitoring stations began to experience hypoxic conditions prior to sonde retrieval.

Specific conductance was similar between all backswamp monitoring stations, except site T3 (Figure 9; Table 1) and largely corresponded to specific conductance of the Atchafalaya River (Figure 10). Specific conductance at site T3 was similar to the other stations for most of the deployment, however, there was a large spike in specific conductance from mid-April to mid-May

that corresponded to a drop in water levels, a drop in turbidity, and a drop in dissolved oxygen at the site. As water began to fall after the second flood peak in late-May, specific conductance at the backswamp monitoring stations began to rise.

Turbidity was variable at the backswamp monitoring stations, with AU2S having the highest recorded turbidity during a spike in early March (Figure 11). Turbidities stayed below 50 FNU during most of the deployment, except for sites AU2S and AU2N both having periods of time above 50 FNU. On average, AU5 had the lowest turbidity, and AU2S had the highest turbidity (Table 1).

#### *Distributary water quality – discrete measurements*

The surface water sampling events in March, April, and July were all completed during high river stages – over 17.5ft on the Butte La Rose gage. This led to well mixed conditions with turbid Atchafalaya River water flowing overbank along Bayou Sorrel and many of the local distributaries. Despite those conditions, there were observable differences in the surface waters surrounding Bayou Sorrel (Table 2). For example, turbidity, TSS, and dissolved oxygen tended to be highest in the stations near the Atchafalaya River and decreased with distance from the river, while specific conductance and water temperatures remained very similar among all stations. Turbidity proved to be a good predictor of TSS in the surface water, however the exact relationship varied by sampling event (Figure 12). For the individual sampling events the turbidity values explained 89 to 98% of the variation in the TSS data, while taken cumulatively the turbidity values explained 72% of the data ( $TSS = 1.9854 * Turbidity - 15.578$ ). There was no discernable pattern to the nutrient concentrations in the surface waters around Bayou Sorrel (Table 2).

#### *Backswamp water quality – discrete measurements*

The backswamp water sampling in August occurred during a period of falling water levels in the Basin, but the stage (16.7ft at Butte La Rose) was still high enough to maintain a connection between the distributaries and the backswamp in many locations. This was evidenced by similar specific conductance levels between the backswamp and distributary network samples (Table 3) and direct observation on the ground. Despite this connection, there was lower turbidity, TSS, and dissolved oxygen concentrations in the backswamp compared to the surrounding channels (Table 3). Dissolved oxygen was higher at stations AU1 and AU3 because the samples were taken higher in the water column than at all the other stations to avoid disturbing the sediment surface. Nutrient concentrations were similar at most sampling stations, except for T3 and AU5 which had lower nitrate concentrations and higher phosphate concentrations (Table 3).

## **Discussion**

Water levels in the Atchafalaya Basin were high enough to cause overbank flooding along Bayou Sorrel and the GIWW for the fourth year in a row. We were able to document the impact overbank flooding had on water quality (i.e., dissolved oxygen) through our series of monitoring



stations for the third consecutive flood event. This year, as in 2017 and 2018, we saw that when the backswamp was connected to a source of river water, dissolved oxygen concentrations in the backswamp increased. These results indicate that a restoration action that increases the amount of time there is a connection between river water and the backswamp has the potential to increase dissolved oxygen concentrations in the backswamp and improve aquatic habitat quality.

Water quality measurements in surface waters during the discrete water sampling events showed water in the distributary network is not homogenous, and turbidity and TSS can vary from one location to the next. The sampling stations near the proposed input features of the East Grand Lake restoration, BS1 and BS2 along Bayou Sorrel and Launch near the Bayou Sorrel public boat launch (Figure 2), regularly had some of the lowest TSS and turbidity concentrations during the discrete samplings. The TSS concentrations at these stations are lower than what has been reported in the Basin previously, although previously published measurements of turbidity or TSS tend to be focused on the mainstem of the Atchafalaya River and/or incorporate depth-integrated samples (USCOE 2011; Kroes and Kramer 2013; Rosen and Xu 2015). The previous studies are good for developing sediment budgets for the Basin as a whole, but not as relevant to understanding sediment dynamics of the planned East Grand Lake restoration that only involves shallow inputs of water from the top few feet of the water column. The TSS concentrations reported here are lower than other estimates, but the potential sediment load is also dependent on the length of time the water is flowing through the swamp. The flood in 2019 was long in duration, so there was the potential for high amounts of sediment to be flowing through the swamp. Sediment laden water flowing through a swamp does not indicate there will be sedimentation, thus future measurements of surface accretion in the backswamp will be useful in understanding the magnitude of sedimentation on the swamp floor from this extended flood. Additionally, the central and southeastern portions of the Atchafalaya Basin are known to have subsidence rates in excess of 20 mm/yr, so sedimentation on the soil surface does not necessarily equal an increase in elevation but may just be offsetting subsidence and sea level rise (Kroes et al. 2019).

The impact Hurricane Barry had on water quality appeared to be minor. Water levels in the backswamp increased as the storm passed on 13 July, likely as a result of the wind and storm surge temporarily reducing the discharge of the Atchafalaya River at Morgan City by nearly two orders of magnitude (Figure 13) and backing water up in the Basin. There was also a slight dip in water temperatures and specific conductance indicating locally heavy rainfall. Interestingly, the impacts to turbidity and dissolved oxygen were not as easily discernable. Following storm passage there may have been slight decreases in dissolved oxygen and turbidity at sites AU1, AU2N, AU3, and AU5 but the effect was minor. In addition, water levels began dropping basinwide after storm passage, and the backswamp became disconnected which led to lower turbidities, specific conductance, and dissolved oxygen concentrations in the weeks following the storm.



Monitoring in 2019 again showed that when the backswamp is connected to a source of flowing river water dissolved oxygen concentrations increase. This improves aquatic habitat for fish and crawfish (Bonvillain et al. 2013; Bonvillain et al. 2015; Kong et al. 2019) and may improve tree growth (McAlhaney 2018). Furthermore, TSS in the surface water near the proposed East Grand Lake restoration is lower than other reported values for the Atchafalaya Basin, which reduces the potential for infilling of the backswamp following restoration. Sedimentation that does occur may only be offsetting sea-level rise and regional subsidence (Kroes et al. 2019).

### **Future Monitoring Activities**

Monitoring activities planned for 2020 include continuation of the continuous backswamp water quality sampling, discrete backswamp and channel water quality, forest structure surveys, and surface accretion measurements. All monitoring activities planned for 2020 will add to the knowledge base of ecosystem function in the Upper Region of the East Grand Lake project area prior to hydrologic restoration.

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## Tables

Table 1. Mean water conditions at the backswamp monitoring stations during the January to August deployment.

	Water depth (m)	Water temp (°C)	Dissolved oxygen (mg l <sup>-1</sup> )	Specific Conductance (µS/cm)	Turbidity (FNU)
AU1	1.61 ± 0.02	18.8 ± 0.5	6.32 ± 0.18	291 ± 3	29 ± 1
AU2N	1.64 ± 0.03	18.7 ± 0.5	5.59 ± 0.15	293 ± 3	46 ± 1
AU2S	1.75 ± 0.03	18.5 ± 0.5	6.22 ± 0.16	295 ± 3	55 ± 2
AU3	1.84 ± 0.03	18.4 ± 0.5	5.47 ± 0.24	292 ± 3	32 ± 1
AU5	1.95 ± 0.03	19.2 ± 0.5	4.39 ± 0.13	287 ± 3	21 ± 0
T3	2.04 ± 0.02	18.6 ± 0.5	2.42 ± 0.22	321 ± 4	29 ± 1

*Note: AU6 not included due to battery failure prior to sonde retrieval*

Table 2. Physicochemical properties of the surface water in the channel network around Bayou Sorrel during discrete sampling events.

Date	Station	Water Temp (°C)	Dissolved oxygen (mg l <sup>-1</sup> )	Specific conductance (µS cm <sup>-1</sup> )	Turbidity (FNU)	TSS (mg l <sup>-1</sup> )	NO <sub>3</sub> -N (mg l <sup>-1</sup> )	NH <sub>4</sub> -N (mg l <sup>-1</sup> )	PO <sub>4</sub> -P (mg l <sup>-1</sup> )	Total N (mg l <sup>-1</sup> )
3/21/19	Atch	11.6	9.83	232	50	79	0.53	0.027	0.032	0.82
3/21/19	Berwick	12.1	8.25	233	33	41	0.71	0.032	0.029	0.84
3/21/19	BS1	11.9	8.31	230	23	15	0.71	0.019	0.030	0.81
3/21/19	BS2	11.6	9.13	229	35	40	0.59	0.017	0.029	0.82
3/21/19	BS3	11.6	9.76	230	46	71	0.79	0.026	0.028	0.74
3/21/19	FG1	12.2	7.84	233	21	17	0.62	0.021	0.032	0.77
3/21/19	FG2	12.1	7.89	232	22	17	0.67	0.025	0.030	0.55
3/21/19	FG3	11.7	8.60	229	26	23	0.73	0.017	0.023	0.73
3/21/19	FG4	11.7	9.01	229	27	22	0.63	0.016	0.026	0.80
3/21/19	Indigo	11.6	9.78	230	47	78	0.53	0.025	0.029	0.88
3/21/19	Jakes	11.6	9.30	230	43	55	0.60	0.026	0.025	1.35
3/21/19	Launch	12.2	8.34	233	28	27	0.74	0.022	0.029	0.47
3/21/19	SaltMine	11.4	8.35	229	28	27	0.62	0.023	0.023	0.82
4/29/19	Atch	18.6	7.03	244	46	72	0.87	0.023	0.054	0.89
4/29/19	Berwick	19.0	5.52	247	38	56	0.68	0.043	0.087	0.89
4/29/19	BS1	18.7	4.73	248	31	27	0.56	0.032	0.084	0.75
4/29/19	BS2	18.7	6.98	245	44	74	0.84	0.028	0.056	0.89
4/29/19	BS3	18.7	6.91	245	44	71	0.84	0.028	0.056	0.89
4/29/19	FG1	18.9	6.78	246	35	44	0.82	0.030	0.060	0.84
4/29/19	FG2	18.8	6.98	246	39	50	0.81	0.029	0.058	0.83
4/29/19	FG3	18.8	6.98	246	45	64	0.82	0.031	0.060	0.87
4/29/19	FG4	18.6	5.17	244	29	27	0.72	0.031	0.052	0.84
4/29/19	Indigo	18.7	7.01	245	46	75	0.75	0.027	0.054	0.97
4/29/19	Jakes	18.7	7.19	245	45	75	0.79	0.028	0.054	0.84
4/29/19	Launch	19.2	5.02	248	33	50	0.60	0.040	0.079	0.82
4/29/19	SaltMine	18.7	7.03	245	47	73	0.79	0.027	0.056	0.87
7/11/19	Atch	28.6	5.28	375	32	64	1.02	0.013	0.053	1.64
7/11/19	Berwick	28.3	4.05	367	29	45	0.76	0.019	0.059	1.53
7/11/19	BS1	28.2	4.11	376	21	40	1.05	0.021	0.066	1.60
7/11/19	BS2	28.6	5.24	375	32	65	1.12	0.012	0.068	1.61
7/11/19	BS3	28.6	5.20	375	33	59	0.81	0.026	0.068	1.37
7/11/19	FG1	28.2	4.97	376	17	28	0.94	0.011	0.056	1.57
7/11/19	FG2	28.1	5.31	377	20	27	0.89	0.016	0.049	1.58
7/11/19	FG3	28.4	5.23	376	24	31	0.98	0.022	0.057	1.58
7/11/19	FG4	28.3	4.75	378	19	26	0.94	0.019	0.057	1.54
7/11/19	Indigo	28.6	5.23	375	33	69	1.06	0.013	0.065	1.61
7/11/19	Jakes	28.6	5.47	375	33	66	0.98	0.015	0.061	1.67
7/11/19	Launch	28.3	3.79	368	23	32	0.60	0.028	0.065	1.27
7/11/19	SaltMine	28.6	5.24	375	38	69	0.88	0.016	0.050	1.59

Table 3. Physicochemical properties of the water at the backswamp monitoring stations and surrounding channels during discrete sampling events.

Date	Station	Location	Water temp (°C)	Dissolved oxygen (mg l <sup>-1</sup> )	Specific conductance (µS/cm)	Turbidity (FNU)	TSS (mg l <sup>-1</sup> )	NO <sub>3</sub> -N (mg l <sup>-1</sup> )	NH <sub>4</sub> -N (mg l <sup>-1</sup> )	PO <sub>4</sub> -P (mg l <sup>-1</sup> )	Total N (mg l <sup>-1</sup> )
8/5/19	AU1	Backswamp	28.6	4.79	338	15	17	0.78	0.013	0.090	1.17
8/5/19	AU2N	Backswamp	27.7	2.40	341	16	11	0.70	0.007	0.108	1.11
8/5/19	AU2S	Backswamp	28.4	1.09	344	40	26	0.81	0.009	0.090	1.21
8/5/19	AU3	Backswamp	28.0	5.66	342	17	22	0.86	0.016	0.091	1.20
8/5/19	AU5	Backswamp	27.8	1.94	347	7	6	0.38	0.015	0.124	0.90
8/5/19	AU6	Backswamp	27.8	0.63	346	21	13	0.82	0.018	0.091	1.18
8/5/19	T3	Backswamp	26.2	0.21	368	1	2	0.22	0.048	0.148	0.75
8/5/19	BS1	Channel	29.3	5.24	339	32	50	0.84	0.011	0.085	1.30
8/5/19	BS2	Channel	29.0	5.04	339	31	57	0.82	0.009	0.082	1.24
8/5/19	BS3	Channel	29.0	5.00	339	35	65	0.83	0.011	0.080	1.30
8/5/19	FG2	Channel	29.0	5.11	339	37	75	0.74	0.017	0.083	1.18
8/5/19	FG3	Channel	29.2	5.23	339	39	75	0.80	0.015	0.077	1.22
8/5/19	FG4	Channel	29.1	5.28	339	44	93	0.83	0.015	0.079	1.23
8/5/19	Launch	Channel	28.6	3.51	338	23	44	0.46	0.030	0.092	0.98
11/6/19	AU1	Backswamp	18.2	7.23	461	2	3				
11/6/19	AU2N	Backswamp	21.2	6.96	421	4	5				
11/6/19	AU2S	Backswamp	19.5	8.45	518	4	10				
11/6/19	AU3	Backswamp	19.2	7.09	423	27	36				
11/6/19	AU5	Backswamp	17.5	6.70	400	1	1				
11/6/19	AU6	Backswamp	18.2	7.59	493	11	11				
11/6/19	T3	Backswamp	19.2	5.87	418	1	1				
11/6/19	BS2	Channel	15.6	8.80	410	55	90				

*Note: nutrient data from the November sampling are still be processed at the lab*

Figures

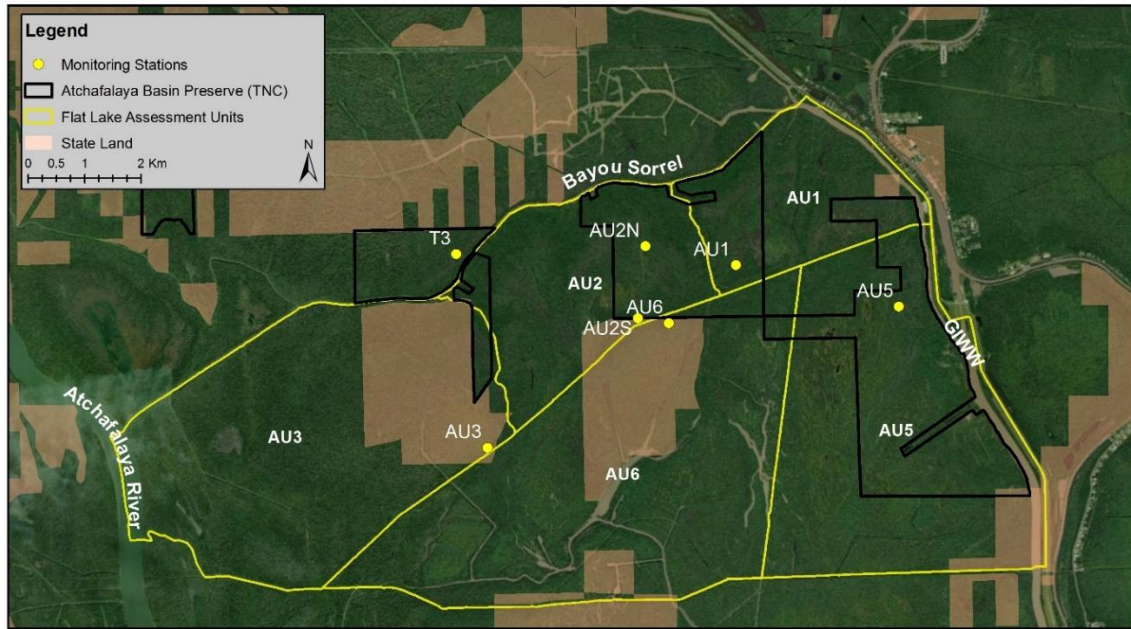


Figure 1. Monitoring stations on TNC's Atchafalaya Basin Preserve and State Lands.

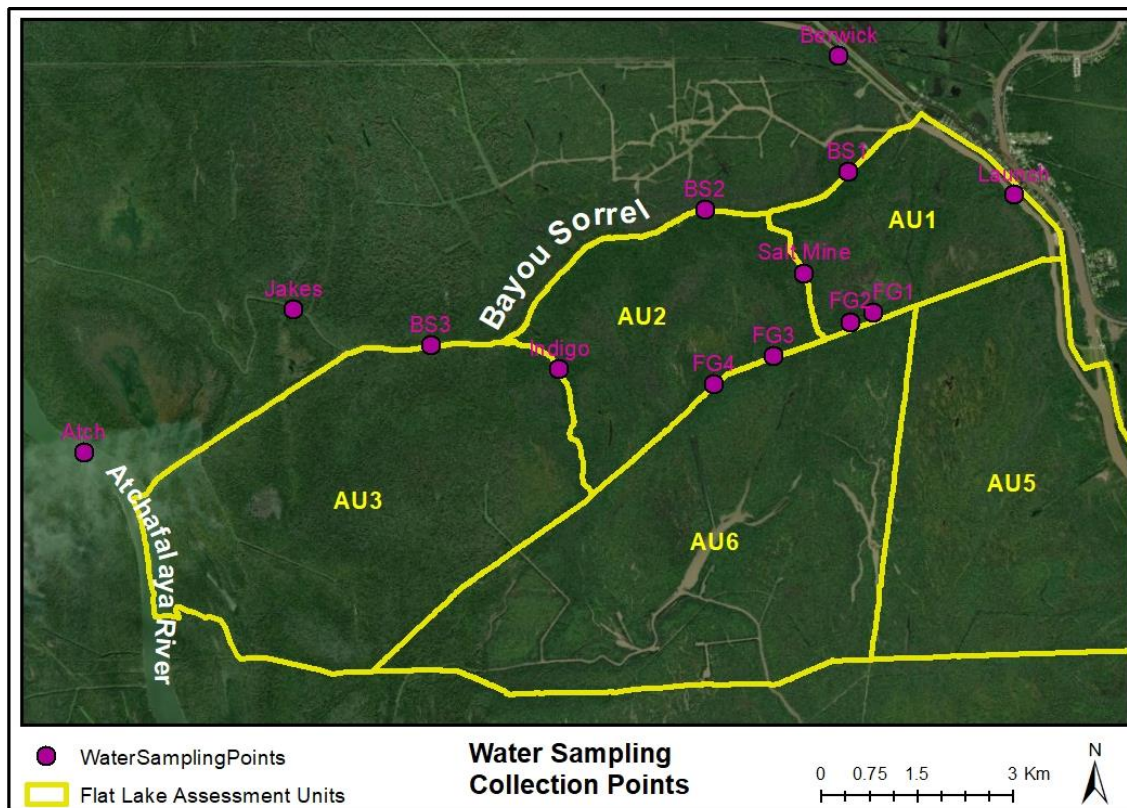


Figure 2. Water sampling locations in the distributary channels around Bayou Sorrel.



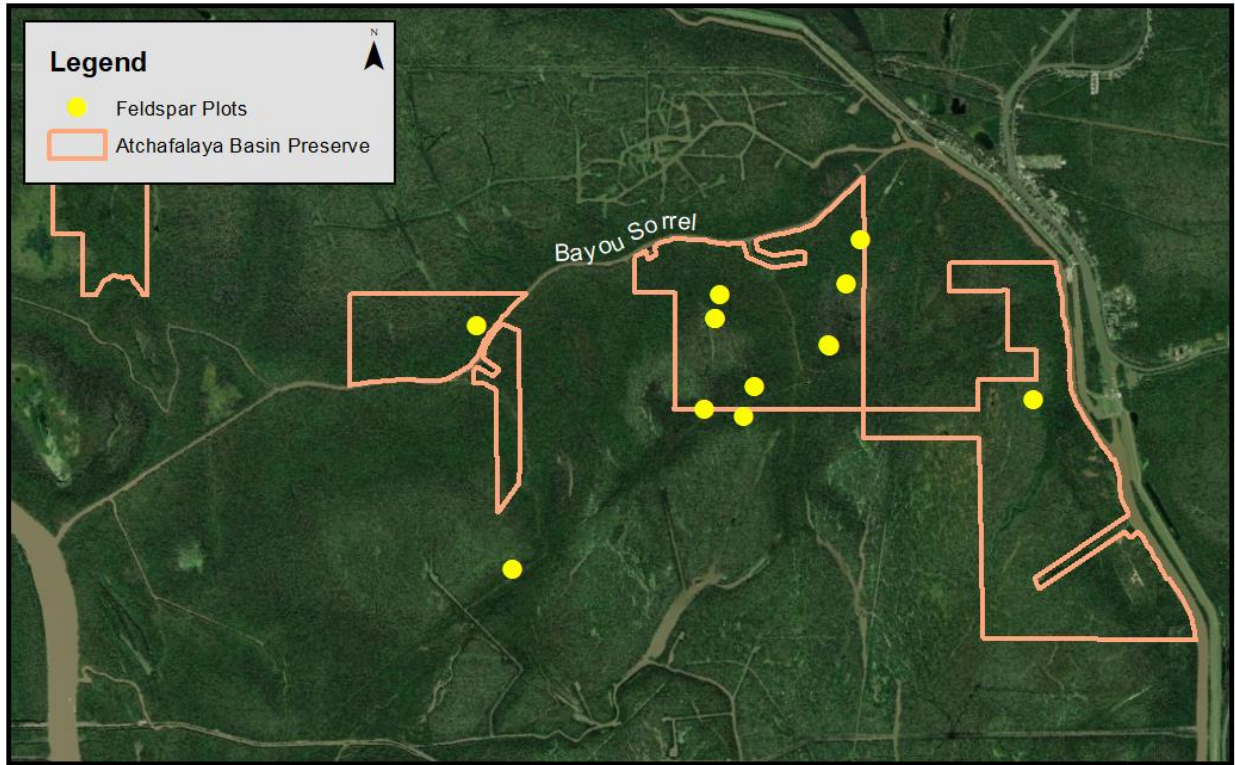


Figure 3. Location of the surface accretion sampling stations.

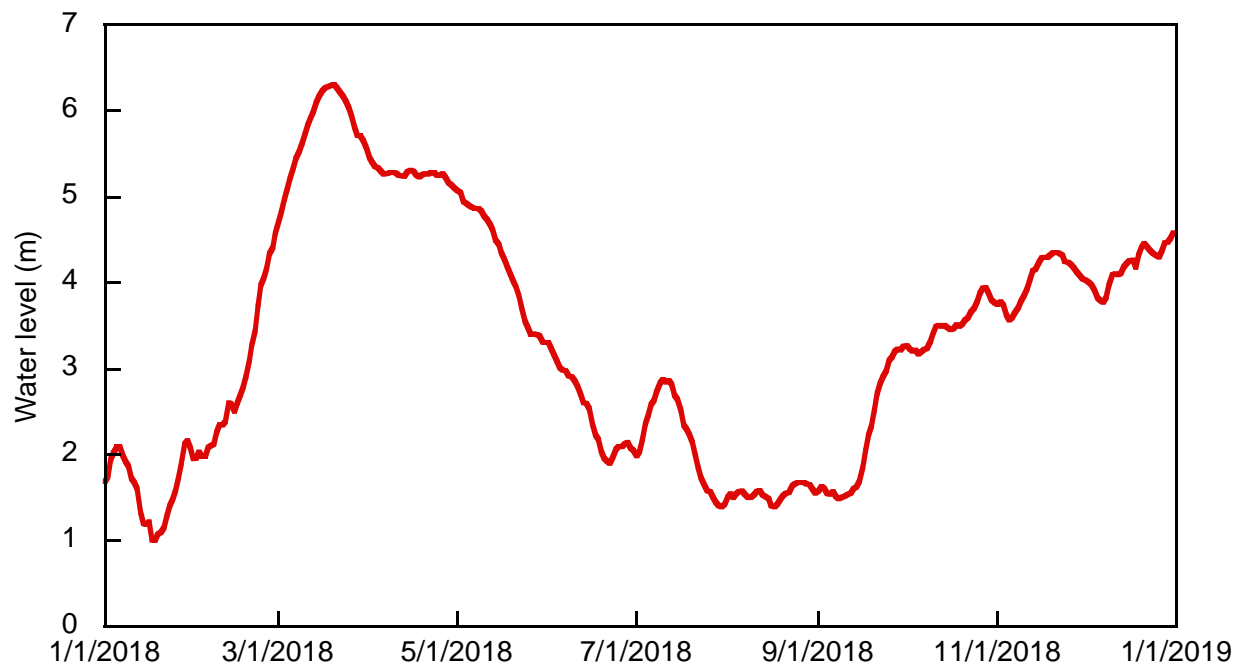


Figure 4. Atchafalaya River water levels at Butte La Rose in 2019. Preliminary data from USGS Gage 07381515.



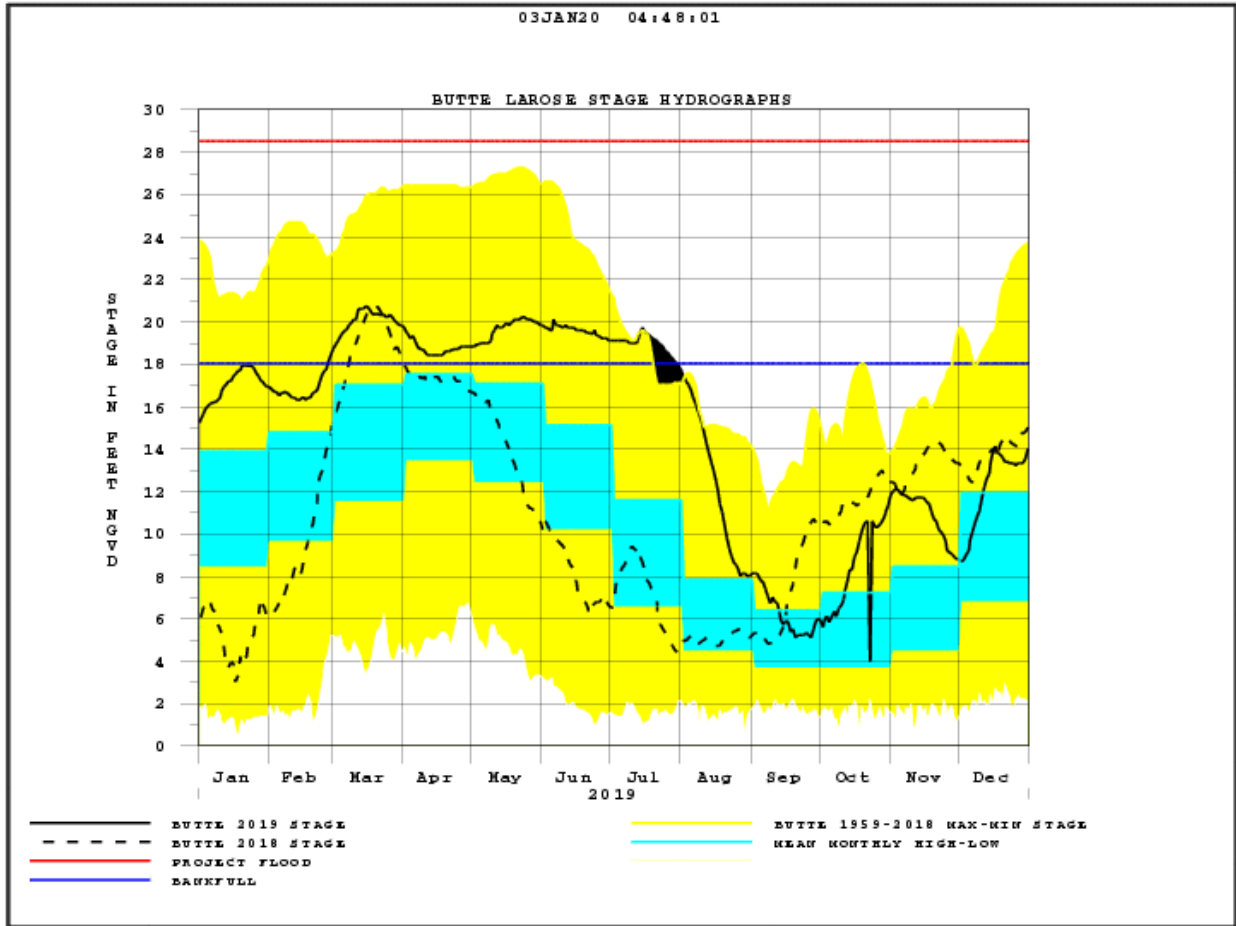


Figure 5. Butte La Rose stage hydrograph showing 2019 stage (solid black line), 2018 stage (dotted line), minimum and maximum stage (shaded yellow), and mean monthly stage (shaded torquise). Data are courtesy of U.S. Army Corps of Engineers New Orleans District.

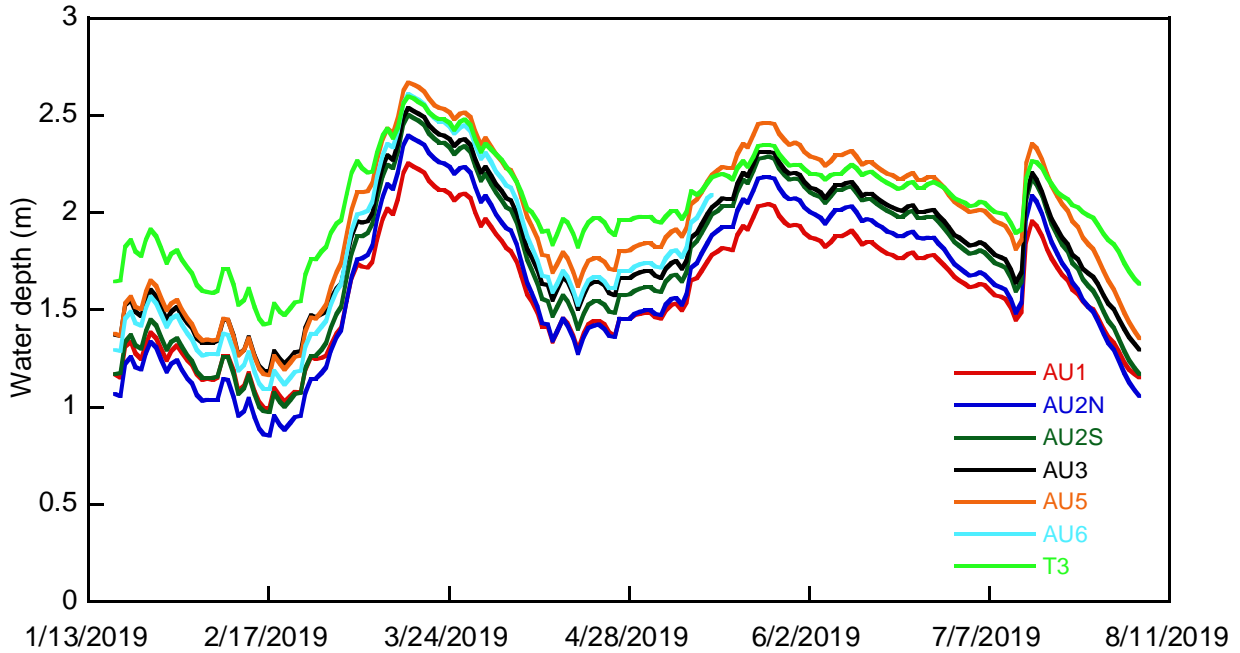


Figure 6. Mean daily water levels at the backswamp monitoring stations from January to August 2019.

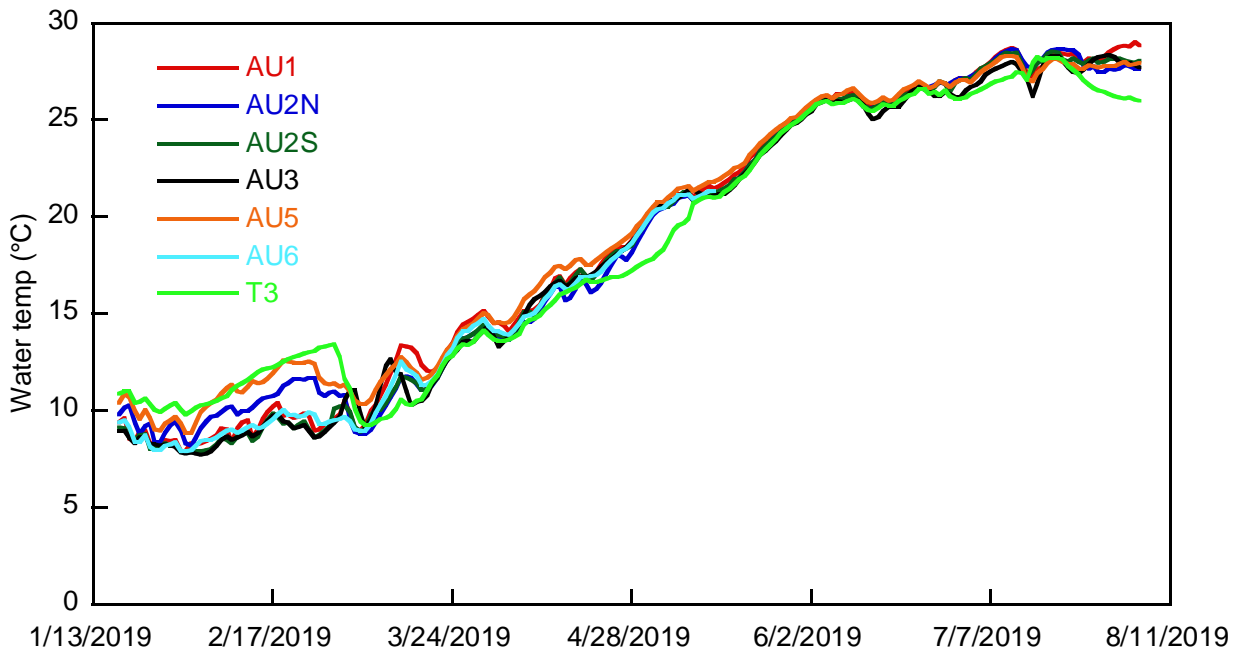


Figure 7. Mean daily water temperatures at the backswamp monitoring stations from January to August 2019.

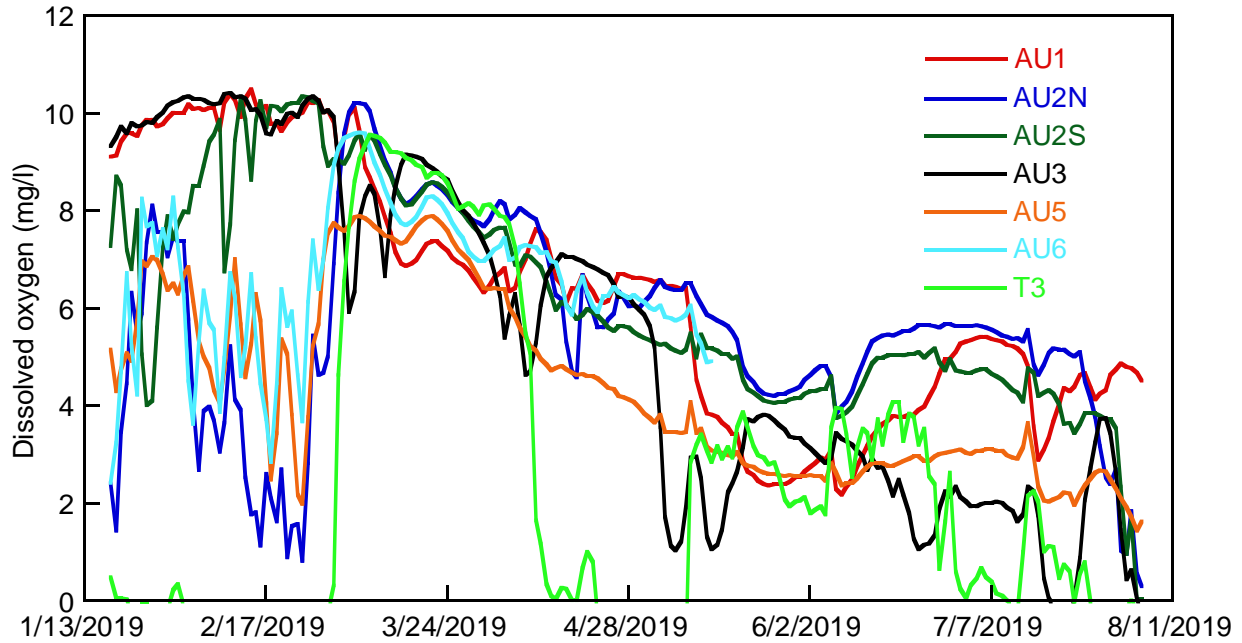


Figure 8. Mean daily dissolved oxygen concentrations at the backswamp monitoring stations from January to August 2019.

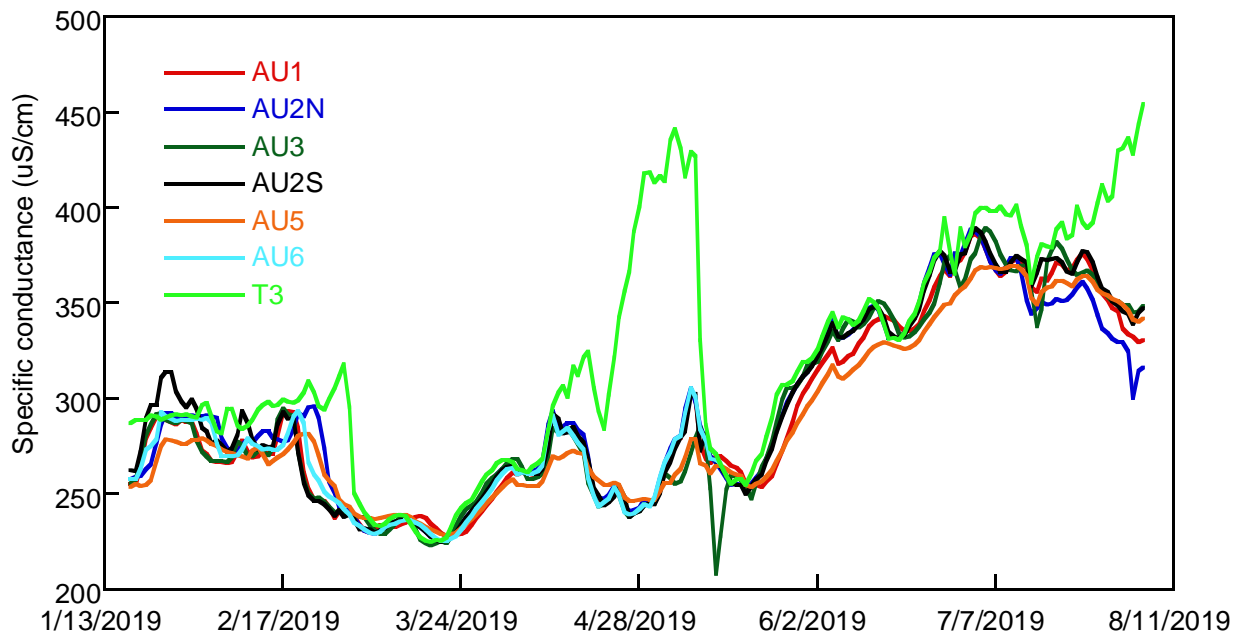


Figure 9. Mean daily specific conductance at the backswamp monitoring stations from January to August 2019.

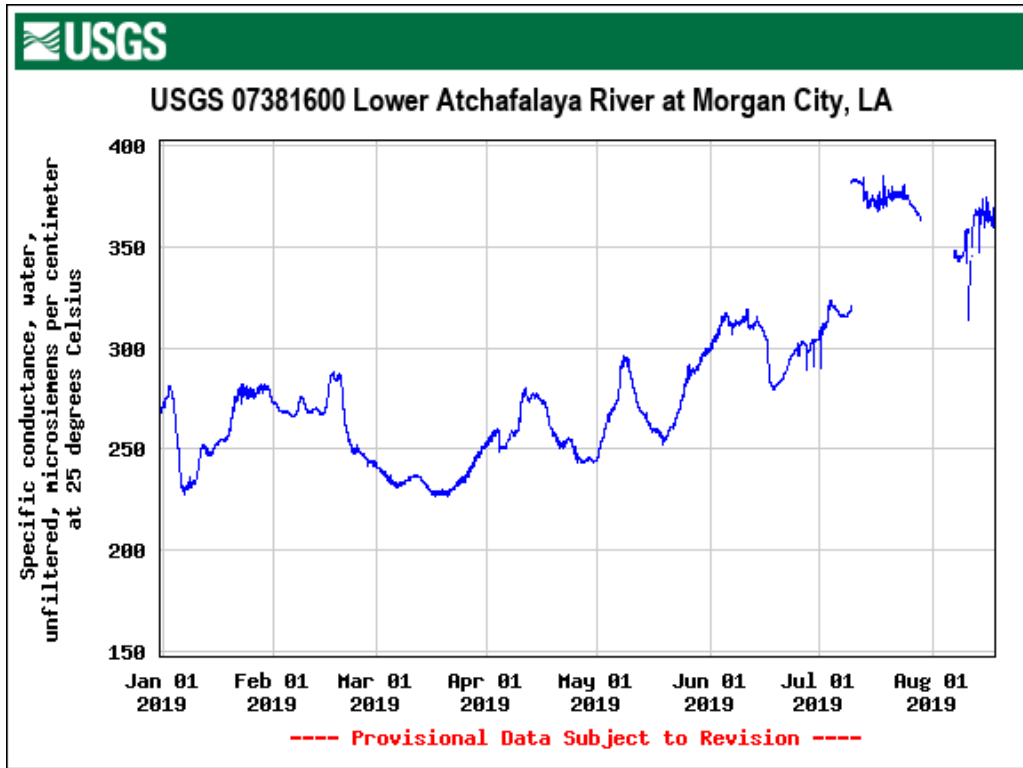


Figure 10. Specific conductance of Atchafalaya River water at Morgan City from January to August 2019. Provisional data from USGS gage 07381600.

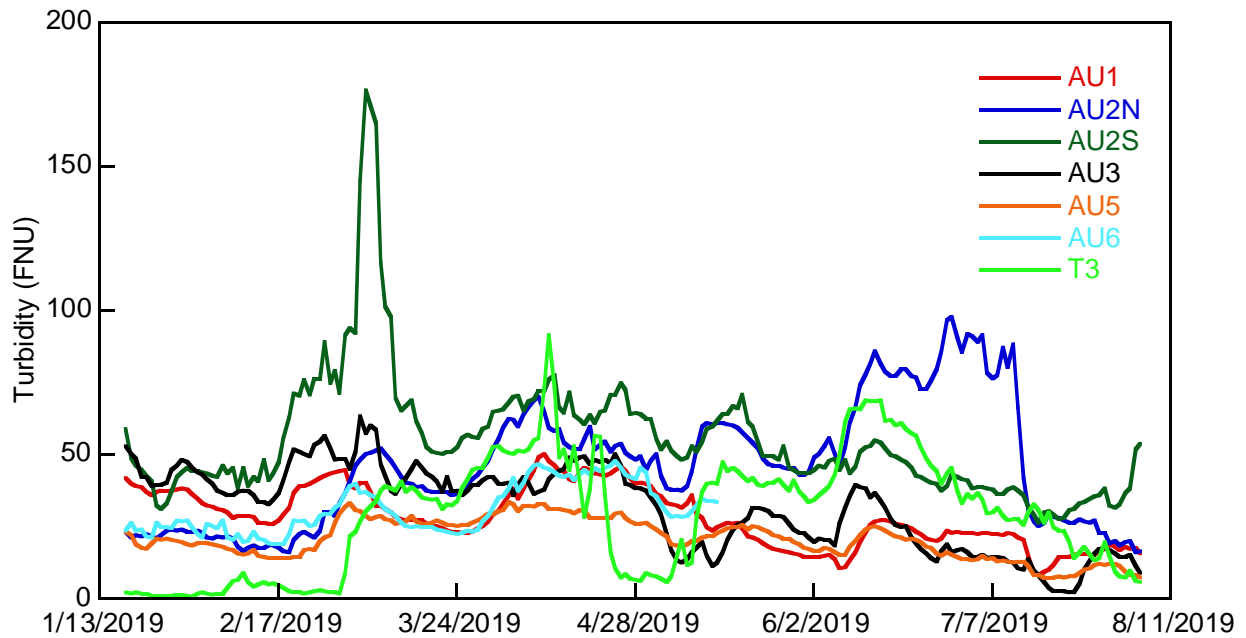


Figure 11. Mean daily turbidity at the backswamp monitoring stations from January to August 2019.

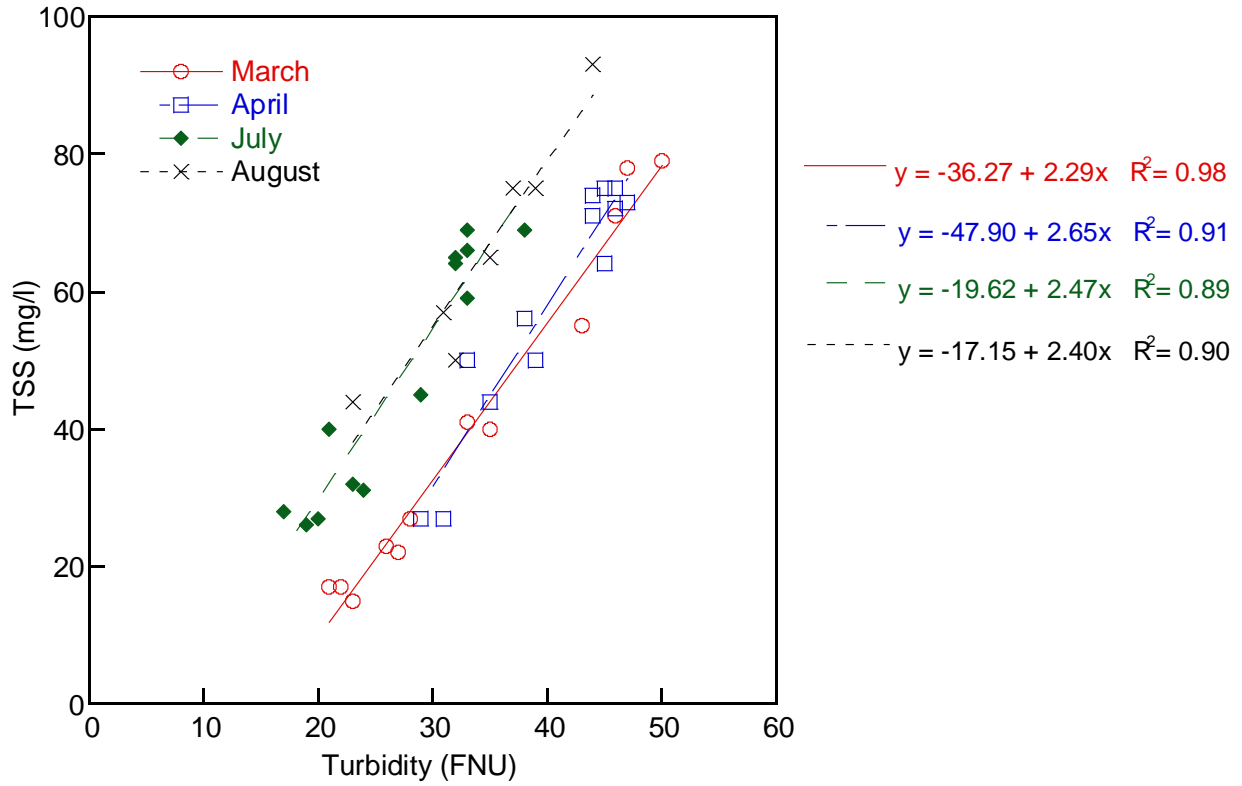


Figure 12. The relationship between turbidity and TSS in the surface waters in the vicinity of Bayou Sorrel during four separate sampling events.

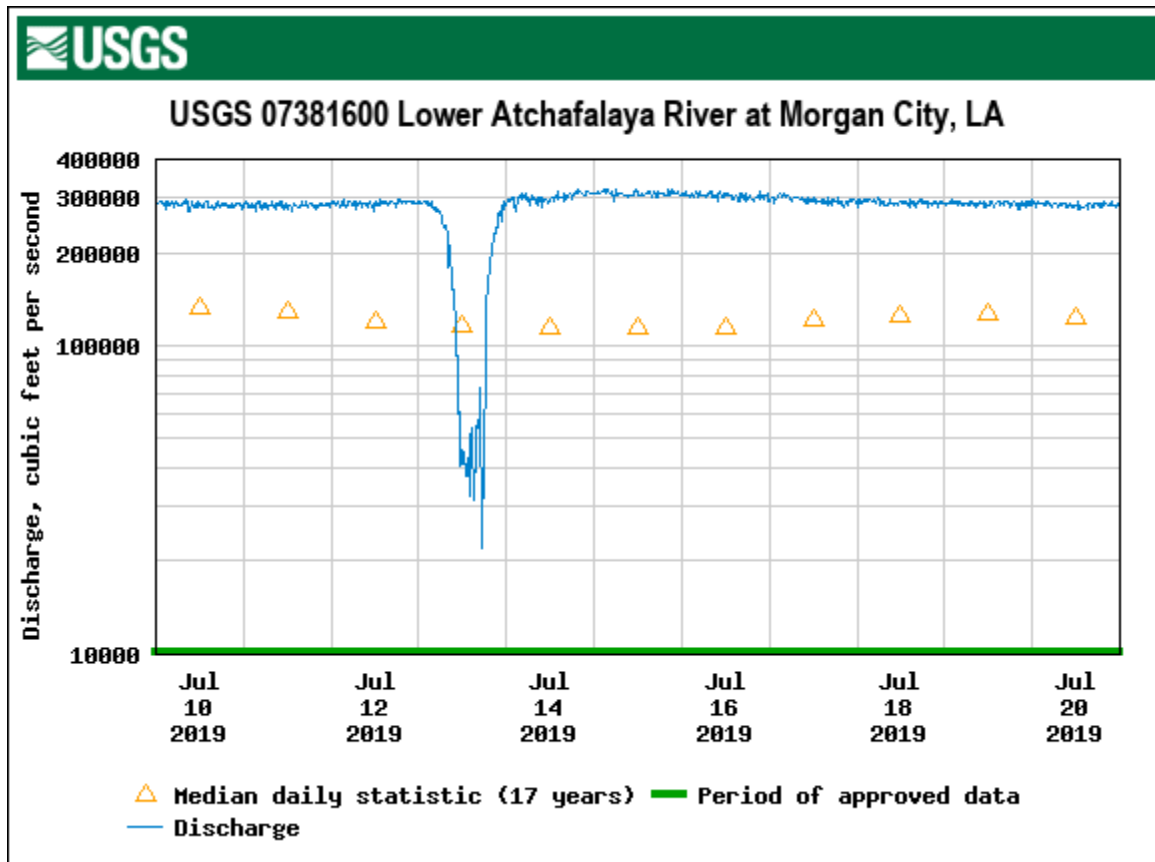


Figure 13. Discharge of the Atchafalaya River at Morgan City, LA (USGS gage 07381600) during the passage of Hurricane Barry on 13 July 2019.

**Appendix 1.** Daily mean water quality data from the seven backswamp monitoring stations collected during the calendar year 2019.

Site	Date	Depth (m)	Water temp (°C)	Dissolved oxygen (mg/l)	Specific conductance (µS/cm)	Turbidity (FNU)
AU1	1/18/2019	1.17	9.4	9.11	256	42.0
AU1	1/19/2019	1.16	9.6	9.14	256	40.1
AU1	1/20/2019	1.31	8.6	9.44	265	39.2
AU1	1/21/2019	1.34	8.4	9.59	279	39.0
AU1	1/22/2019	1.28	8.9	9.60	285	37.5
AU1	1/23/2019	1.25	9.0	9.56	291	36.0
AU1	1/24/2019	1.33	8.3	9.76	293	37.2
AU1	1/25/2019	1.39	8.4	9.88	289	37.8
AU1	1/26/2019	1.36	8.4	9.88	288	37.9
AU1	1/27/2019	1.30	8.5	9.74	287	37.9
AU1	1/28/2019	1.24	8.5	9.80	289	38.0
AU1	1/29/2019	1.29	8.5	9.91	288	38.5
AU1	1/30/2019	1.32	7.9	10.03	288	38.1
AU1	1/31/2019	1.29	8.0	10.03	282	36.7
AU1	2/1/2019	1.25	8.4	10.03	273	35.0
AU1	2/2/2019	1.22	8.3	10.18	271	33.5
AU1	2/3/2019	1.17	8.3	10.10	268	32.6
AU1	2/4/2019	1.14	8.4	10.13	267	32.2
AU1	2/5/2019	1.15	8.6	10.08	267	31.2
AU1	2/6/2019	1.14	8.8	10.12	266	30.9
AU1	2/7/2019	1.15	9.1	10.11	267	30.0
AU1	2/8/2019	1.27	9.1	9.66	273	28.4
AU1	2/9/2019	1.27	8.4	10.24	279	28.9
AU1	2/10/2019	1.19	9.1	10.41	272	29.0
AU1	2/11/2019	1.09	9.4	10.29	269	29.2
AU1	2/12/2019	1.12	9.5	9.94	270	28.7
AU1	2/13/2019	1.18	8.6	10.30	273	26.5
AU1	2/14/2019	1.09	9.1	10.49	271	26.5
AU1	2/15/2019	1.03	9.6	10.20	271	26.2
AU1	2/16/2019	1.00	9.9	10.09	281	26.4
AU1	2/17/2019	1.00	10.2	10.18	293	27.3
AU1	2/18/2019	1.10	10.4	9.78	294	29.2
AU1	2/19/2019	1.06	9.8	9.82	293	31.8
AU1	2/20/2019	1.03	9.8	9.65	285	37.1
AU1	2/21/2019	1.06	9.6	9.83	261	39.2



AU1	2/22/2019	1.08	9.7	9.92	253	39.4
AU1	2/23/2019	1.08	9.9	9.99	247	39.9
AU1	2/24/2019	1.20	9.8	10.02	247	40.9
AU1	2/25/2019	1.26	9.0	10.24	246	41.9
AU1	2/26/2019	1.25	9.1	10.23	243	42.9
AU1	2/27/2019	1.26	9.3	10.28	237	43.5
AU1	2/28/2019	1.27	9.4	10.04	242	44.0
AU1	3/1/2019	1.32	9.6	10.08	240	44.6
AU1	3/2/2019	1.38	9.8	9.82	239	44.7
AU1	3/3/2019	1.41	10.6	9.07	238	39.6
AU1	3/4/2019	1.55	9.9	9.51	234	38.5
AU1	3/5/2019	1.67	9.1	9.99	231	40.5
AU1	3/6/2019	1.74	9.0	10.13	230	40.7
AU1	3/7/2019	1.73	9.3	9.67	231	37.2
AU1	3/8/2019	1.72	10.0	8.90	234	32.8
AU1	3/9/2019	1.75	10.3	8.70	234	32.6
AU1	3/10/2019	1.87	10.8	8.45	233	31.4
AU1	3/11/2019	1.97	11.3	8.19	233	30.3
AU1	3/12/2019	2.03	12.0	7.88	234	28.5
AU1	3/13/2019	2.00	12.7	7.55	236	28.0
AU1	3/14/2019	2.07	13.4	7.18	237	27.5
AU1	3/15/2019	2.21	13.3	6.94	238	27.4
AU1	3/16/2019	2.26	13.3	6.87	239	27.2
AU1	3/17/2019	2.24	13.0	6.93	238	27.5
AU1	3/18/2019	2.23	12.4	6.99	235	26.3
AU1	3/19/2019	2.21	12.1	7.19	232	25.6
AU1	3/20/2019	2.17	12.0	7.34	230	25.3
AU1	3/21/2019	2.14	12.2	7.39	228	24.5
AU1	3/22/2019	2.12	12.6	7.38	228	23.9
AU1	3/23/2019	2.12	13.1	7.29	228	23.6
AU1	3/24/2019	2.10	13.5	7.19	229	23.6
AU1	3/25/2019	2.06	14.0	7.06	231	22.9
AU1	3/26/2019	2.10	14.5	6.96	234	23.1
AU1	3/27/2019	2.10	14.6	6.92	238	23.4
AU1	3/28/2019	2.08	14.8	6.78	241	24.6
AU1	3/29/2019	2.01	14.9	6.65	244	25.4
AU1	3/30/2019	1.94	15.2	6.48	248	26.9
AU1	3/31/2019	1.97	14.9	6.34	251	29.2
AU1	4/1/2019	1.93	14.5	6.48	255	30.5
AU1	4/2/2019	1.89	14.6	6.64	259	32.8
AU1	4/3/2019	1.86	14.4	6.75	262	36.0

AU1	4/4/2019	1.82	14.1	6.84	260	38.3
AU1	4/5/2019	1.81	14.4	6.36	261	34.8
AU1	4/6/2019	1.75	14.8	6.43	261	38.3
AU1	4/7/2019	1.68	15.2	6.77	260	41.5
AU1	4/8/2019	1.58	15.2	7.03	260	45.0
AU1	4/9/2019	1.55	15.2	7.34	264	49.3
AU1	4/10/2019	1.49	15.5	7.64	281	50.4
AU1	4/11/2019	1.42	16.0	7.58	292	48.1
AU1	4/12/2019	1.42	16.3	7.40	284	46.4
AU1	4/13/2019	1.34	16.8	7.04	283	44.4
AU1	4/14/2019	1.39	17.0	6.65	284	44.3
AU1	4/15/2019	1.46	16.5	6.49	285	41.7
AU1	4/16/2019	1.44	16.8	6.13	279	40.9
AU1	4/17/2019	1.37	17.2	6.44	274	44.1
AU1	4/18/2019	1.30	17.3	6.40	261	45.9
AU1	4/19/2019	1.38	16.9	6.70	251	44.9
AU1	4/20/2019	1.43	16.8	6.53	248	43.7
AU1	4/21/2019	1.45	17.2	6.37	245	43.3
AU1	4/22/2019	1.45	17.6	6.18	247	42.8
AU1	4/23/2019	1.43	18.0	6.13	252	43.6
AU1	4/24/2019	1.39	18.2	6.17	254	44.9
AU1	4/25/2019	1.37	18.4	6.49	243	46.0
AU1	4/26/2019	1.46	18.5	6.72	239	44.3
AU1	4/27/2019	1.46	18.5	6.71	240	42.2
AU1	4/28/2019	1.46	18.8	6.67	242	40.2
AU1	4/29/2019	1.48	19.2	6.63	245	40.6
AU1	4/30/2019	1.48	19.7	6.64	244	39.9
AU1	5/1/2019	1.49	20.1	6.62	246	39.3
AU1	5/2/2019	1.49	20.4	6.59	257	36.4
AU1	5/3/2019	1.46	20.6	6.56	265	35.6
AU1	5/4/2019	1.46	20.5	6.61	272	33.4
AU1	5/5/2019	1.50	20.8	6.49	278	33.1
AU1	5/6/2019	1.53	20.9	6.47	280	32.5
AU1	5/7/2019	1.54	21.2	6.44	292	31.9
AU1	5/8/2019	1.50	21.2	6.40	305	33.4
AU1	5/9/2019	1.54	21.2	6.42	300	36.0
AU1	5/10/2019	1.65	21.1	5.63	277	29.9
AU1	5/11/2019	1.67	21.3	4.54	269	28.1
AU1	5/12/2019	1.70	21.5	4.23	267	25.0
AU1	5/13/2019	1.75	21.6	3.86	270	23.8
AU1	5/14/2019	1.78	21.5	3.84	270	25.0

AU1	5/15/2019	1.80	21.6	3.80	267	26.0
AU1	5/16/2019	1.82	21.8	3.68	265	26.4
AU1	5/17/2019	1.82	21.9	3.57	264	26.2
AU1	5/18/2019	1.81	22.2	3.43	262	26.6
AU1	5/19/2019	1.88	22.3	3.42	255	24.6
AU1	5/20/2019	1.94	22.6	2.88	255	22.0
AU1	5/21/2019	1.92	23.1	2.68	255	21.6
AU1	5/22/2019	1.98	23.4	2.61	254	20.7
AU1	5/23/2019	2.04	23.7	2.47	257	19.5
AU1	5/24/2019	2.04	24.0	2.41	260	18.4
AU1	5/25/2019	2.05	24.2	2.39	266	17.6
AU1	5/26/2019	2.04	24.5	2.40	273	16.9
AU1	5/27/2019	1.99	24.6	2.40	280	16.6
AU1	5/28/2019	1.95	24.9	2.41	288	16.1
AU1	5/29/2019	1.93	25.0	2.47	297	16.0
AU1	5/30/2019	1.94	25.1	2.55	303	15.7
AU1	5/31/2019	1.93	25.4	2.54	307	14.8
AU1	6/1/2019	1.90	25.5	2.66	310	14.8
AU1	6/2/2019	1.87	25.8	2.77	315	14.7
AU1	6/3/2019	1.87	26.0	2.84	319	14.6
AU1	6/4/2019	1.86	26.2	2.95	323	15.0
AU1	6/5/2019	1.83	26.2	2.92	327	15.6
AU1	6/6/2019	1.85	26.1	3.10	319	13.9
AU1	6/7/2019	1.88	26.4	2.30	319	10.8
AU1	6/8/2019	1.88	26.4	2.19	323	11.2
AU1	6/9/2019	1.89	26.5	2.36	324	13.5
AU1	6/10/2019	1.91	26.5	2.51	329	16.4
AU1	6/11/2019	1.88	26.3	2.76	332	19.9
AU1	6/12/2019	1.84	26.0	3.01	338	23.6
AU1	6/13/2019	1.85	25.9	3.20	340	26.0
AU1	6/14/2019	1.85	25.8	3.37	342	27.1
AU1	6/15/2019	1.83	25.8	3.52	344	27.5
AU1	6/16/2019	1.81	25.9	3.64	342	27.4
AU1	6/17/2019	1.79	25.8	3.71	341	27.1
AU1	6/18/2019	1.78	26.0	3.81	338	26.4
AU1	6/19/2019	1.77	26.3	3.79	336	25.9
AU1	6/20/2019	1.77	26.4	3.79	336	25.6
AU1	6/21/2019	1.79	26.5	3.84	337	24.7
AU1	6/22/2019	1.80	26.8	3.84	340	23.5
AU1	6/23/2019	1.77	26.9	3.93	346	22.7
AU1	6/24/2019	1.77	26.8	3.99	352	21.3

AU1	6/25/2019	1.78	26.7	4.18	358	20.6
AU1	6/26/2019	1.79	26.8	4.40	364	20.1
AU1	6/27/2019	1.76	27.0	4.66	368	21.1
AU1	6/28/2019	1.73	26.9	4.98	364	23.9
AU1	6/29/2019	1.71	26.8	4.97	371	23.2
AU1	6/30/2019	1.67	27.1	5.12	373	23.4
AU1	7/1/2019	1.66	27.2	5.29	377	23.1
AU1	7/2/2019	1.64	27.2	5.33	385	23.0
AU1	7/3/2019	1.62	27.2	5.37	387	23.0
AU1	7/4/2019	1.62	27.5	5.42	384	22.7
AU1	7/5/2019	1.64	27.7	5.43	379	23.2
AU1	7/6/2019	1.63	27.8	5.42	372	22.9
AU1	7/7/2019	1.60	28.1	5.39	367	22.6
AU1	7/8/2019	1.58	28.3	5.36	365	22.6
AU1	7/9/2019	1.57	28.5	5.33	367	22.3
AU1	7/10/2019	1.56	28.6	5.28	372	23.2
AU1	7/11/2019	1.51	28.7	5.24	373	22.7
AU1	7/12/2019	1.45	28.6	5.20	372	21.6
AU1	7/13/2019	1.50	28.0	5.07	369	20.7
AU1	7/14/2019	1.85	27.5	4.83	358	15.0
AU1	7/15/2019	1.96	27.3	3.59	356	8.6
AU1	7/16/2019	1.93	27.6	2.90	363	8.3
AU1	7/17/2019	1.88	27.8	3.13	362	9.5
AU1	7/18/2019	1.82	28.1	3.36	366	10.4
AU1	7/19/2019	1.77	28.4	3.68	372	11.9
AU1	7/20/2019	1.72	28.5	4.05	370	14.6
AU1	7/21/2019	1.68	28.5	4.38	368	14.9
AU1	7/22/2019	1.65	28.4	4.31	368	14.7
AU1	7/23/2019	1.61	28.5	4.40	372	15.3
AU1	7/24/2019	1.59	28.1	4.63	376	16.0
AU1	7/25/2019	1.55	28.0	4.70	373	15.9
AU1	7/26/2019	1.52	28.2	4.39	367	15.4
AU1	7/27/2019	1.51	28.2	4.14	359	15.3
AU1	7/28/2019	1.47	28.0	4.26	355	16.6
AU1	7/29/2019	1.41	28.3	4.33	352	17.3
AU1	7/30/2019	1.36	28.5	4.66	348	19.2
AU1	7/31/2019	1.33	28.7	4.77	346	18.3
AU1	8/1/2019	1.29	28.8	4.88	337	17.1
AU1	8/2/2019	1.23	28.9	4.80	334	18.2
AU1	8/3/2019	1.20	28.8	4.79	333	17.6
AU1	8/4/2019	1.17	29.0	4.69	330	17.8

<b>AU1</b>	8/5/2019	1.16	28.9	4.53	331	16.1
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<b>Site</b>	<b>Date</b>	<b>Depth (m)</b>	<b>Water temp (°C)</b>	<b>Dissolved oxygen (mg/l)</b>	<b>Specific conductance (µS/cm)</b>	<b>Turbidity (FNU)</b>
AU2N	1/18/2019	1.07	9.8	2.44	258	23.3
AU2N	1/19/2019	1.06	10.2	1.47	259	21.4
AU2N	1/20/2019	1.23	10.3	3.48	260	22.2
AU2N	1/21/2019	1.26	9.4	4.47	263	22.0
AU2N	1/22/2019	1.21	8.8	6.34	266	22.5
AU2N	1/23/2019	1.19	9.3	5.49	277	22.0
AU2N	1/24/2019	1.28	9.4	5.91	287	21.3
AU2N	1/25/2019	1.34	8.4	7.37	293	22.2
AU2N	1/26/2019	1.31	8.4	8.12	293	23.7
AU2N	1/27/2019	1.25	8.9	7.57	290	24.2
AU2N	1/28/2019	1.19	9.3	7.56	290	23.9
AU2N	1/29/2019	1.23	9.5	7.07	290	24.4
AU2N	1/30/2019	1.24	9.0	7.51	291	23.5
AU2N	1/31/2019	1.20	8.4	7.39	291	23.5
AU2N	2/1/2019	1.15	8.2	7.39	291	23.9
AU2N	2/2/2019	1.12	8.7	5.78	291	23.0
AU2N	2/3/2019	1.07	9.1	4.11	291	21.5
AU2N	2/4/2019	1.04	9.5	2.70	290	21.0
AU2N	2/5/2019	1.04	9.7	3.90	279	21.8
AU2N	2/6/2019	1.04	9.8	4.01	274	21.6
AU2N	2/7/2019	1.04	9.9	3.71	273	21.9
AU2N	2/8/2019	1.15	10.2	3.07	272	21.1
AU2N	2/9/2019	1.14	10.2	3.67	276	18.3
AU2N	2/10/2019	1.06	9.8	5.24	279	16.6
AU2N	2/11/2019	0.96	10.0	4.14	277	18.0
AU2N	2/12/2019	0.99	10.0	3.93	281	18.8
AU2N	2/13/2019	1.05	10.2	2.55	283	18.0
AU2N	2/14/2019	0.95	10.5	1.78	283	17.9
AU2N	2/15/2019	0.89	10.6	1.85	280	18.9
AU2N	2/16/2019	0.86	10.7	1.15	279	18.8
AU2N	2/17/2019	0.86	10.8	2.62	278	17.9
AU2N	2/18/2019	0.96	10.9	2.12	278	16.8
AU2N	2/19/2019	0.91	11.3	1.65	284	16.3
AU2N	2/20/2019	0.89	11.4	2.72	293	20.7
AU2N	2/21/2019	0.92	11.7	0.90	291	22.5

AU2N	2/22/2019	0.95	11.7	1.54	296	23.6
AU2N	2/23/2019	0.96	11.6	1.61	296	22.1
AU2N	2/24/2019	1.08	11.7	0.84	290	21.3
AU2N	2/25/2019	1.15	11.7	2.85	274	23.9
AU2N	2/26/2019	1.15	11.0	5.45	257	30.3
AU2N	2/27/2019	1.18	10.8	4.66	251	30.1
AU2N	2/28/2019	1.21	10.9	4.69	244	28.8
AU2N	3/1/2019	1.29	11.0	5.02	242	33.4
AU2N	3/2/2019	1.36	10.8	6.94	242	36.8
AU2N	3/3/2019	1.40	10.8	8.37	238	40.8
AU2N	3/4/2019	1.56	9.5	9.59	234	46.3
AU2N	3/5/2019	1.68	9.0	10.03	231	48.6
AU2N	3/6/2019	1.76	8.8	10.21	230	50.5
AU2N	3/7/2019	1.77	8.8	10.22	229	50.9
AU2N	3/8/2019	1.79	9.1	10.18	231	51.8
AU2N	3/9/2019	1.84	9.4	10.04	234	52.5
AU2N	3/10/2019	1.97	9.8	9.68	235	50.6
AU2N	3/11/2019	2.09	10.3	9.34	236	48.1
AU2N	3/12/2019	2.15	10.7	9.06	237	45.7
AU2N	3/13/2019	2.13	11.2	8.80	237	42.3
AU2N	3/14/2019	2.21	11.8	8.47	237	40.4
AU2N	3/15/2019	2.35	11.8	8.25	235	40.3
AU2N	3/16/2019	2.40	11.7	8.15	233	39.1
AU2N	3/17/2019	2.38	11.4	8.21	230	39.3
AU2N	3/18/2019	2.37	11.1	8.32	228	37.7
AU2N	3/19/2019	2.35	11.1	8.46	226	37.3
AU2N	3/20/2019	2.31	11.3	8.55	225	37.2
AU2N	3/21/2019	2.28	11.7	8.60	226	37.2
AU2N	3/22/2019	2.26	12.2	8.53	227	37.2
AU2N	3/23/2019	2.26	12.6	8.45	230	36.3
AU2N	3/24/2019	2.24	13.0	8.34	234	36.6
AU2N	3/25/2019	2.20	13.4	8.20	238	37.4
AU2N	3/26/2019	2.23	13.7	8.07	241	40.1
AU2N	3/27/2019	2.24	13.8	7.99	245	41.9
AU2N	3/28/2019	2.21	14.0	7.89	248	43.4
AU2N	3/29/2019	2.14	14.1	7.82	252	45.8
AU2N	3/30/2019	2.06	14.4	7.75	256	48.2
AU2N	3/31/2019	2.09	14.2	7.69	260	51.8
AU2N	4/1/2019	2.04	13.9	7.84	263	55.4
AU2N	4/2/2019	2.00	13.8	8.01	265	59.6
AU2N	4/3/2019	1.96	13.7	8.21	265	62.6

AU2N	4/4/2019	1.92	13.7	8.15	261	62.4
AU2N	4/5/2019	1.91	13.9	7.82	262	59.8
AU2N	4/6/2019	1.84	14.2	7.93	260	64.4
AU2N	4/7/2019	1.75	14.6	8.07	262	66.9
AU2N	4/8/2019	1.64	14.6	7.98	263	69.0
AU2N	4/9/2019	1.59	14.8	7.91	268	70.5
AU2N	4/10/2019	1.52	15.2	7.84	287	65.0
AU2N	4/11/2019	1.44	15.6	7.54	294	59.7
AU2N	4/12/2019	1.43	16.1	7.16	285	58.5
AU2N	4/13/2019	1.35	16.4	6.72	285	59.1
AU2N	4/14/2019	1.39	16.4	6.30	287	54.6
AU2N	4/15/2019	1.46	15.7	6.19	287	52.7
AU2N	4/16/2019	1.43	15.8	5.33	284	52.0
AU2N	4/17/2019	1.36	16.3	4.72	281	52.0
AU2N	4/18/2019	1.28	16.9	4.60	270	55.6
AU2N	4/19/2019	1.36	16.5	6.70	251	59.9
AU2N	4/20/2019	1.41	16.1	6.26	249	52.0
AU2N	4/21/2019	1.43	16.3	5.93	248	53.4
AU2N	4/22/2019	1.43	16.6	5.61	249	54.8
AU2N	4/23/2019	1.41	17.2	5.62	254	51.4
AU2N	4/24/2019	1.37	17.6	5.78	255	53.2
AU2N	4/25/2019	1.37	18.0	5.92	244	53.8
AU2N	4/26/2019	1.46	18.0	6.35	241	50.8
AU2N	4/27/2019	1.46	17.8	6.23	242	49.7
AU2N	4/28/2019	1.46	18.2	6.05	243	48.3
AU2N	4/29/2019	1.48	18.7	6.07	247	49.6
AU2N	4/30/2019	1.49	19.2	6.02	246	44.8
AU2N	5/1/2019	1.50	19.7	6.14	248	48.3
AU2N	5/2/2019	1.50	20.1	6.28	259	50.5
AU2N	5/3/2019	1.48	20.4	6.42	267	42.7
AU2N	5/4/2019	1.48	20.5	6.59	274	38.4
AU2N	5/5/2019	1.53	20.6	6.47	279	38.0
AU2N	5/6/2019	1.56	20.7	6.40	281	38.1
AU2N	5/7/2019	1.57	21.0	6.38	295	37.6
AU2N	5/8/2019	1.53	21.1	6.39	306	39.4
AU2N	5/9/2019	1.58	21.1	6.53	299	44.4
AU2N	5/10/2019	1.72	20.9	6.53	286	52.1
AU2N	5/11/2019	1.75	21.0	6.27	279	59.8
AU2N	5/12/2019	1.79	21.1	6.10	270	61.2
AU2N	5/13/2019	1.85	21.3	5.88	267	60.8
AU2N	5/14/2019	1.89	21.2	5.83	263	61.2



AU2N	5/15/2019	1.91	21.3	5.77	259	61.1
AU2N	5/16/2019	1.93	21.5	5.71	255	60.8
AU2N	5/17/2019	1.93	21.6	5.65	255	60.3
AU2N	5/18/2019	1.93	21.9	5.53	255	59.6
AU2N	5/19/2019	2.01	22.0	5.37	252	58.1
AU2N	5/20/2019	2.07	22.3	4.81	256	56.0
AU2N	5/21/2019	2.05	22.7	4.61	259	54.2
AU2N	5/22/2019	2.12	23.0	4.51	262	52.4
AU2N	5/23/2019	2.18	23.4	4.36	269	49.0
AU2N	5/24/2019	2.18	23.7	4.28	275	46.9
AU2N	5/25/2019	2.19	23.9	4.25	284	46.5
AU2N	5/26/2019	2.18	24.2	4.23	292	46.5
AU2N	5/27/2019	2.13	24.4	4.26	298	45.8
AU2N	5/28/2019	2.09	24.7	4.28	303	45.4
AU2N	5/29/2019	2.07	24.9	4.32	308	45.6
AU2N	5/30/2019	2.08	25.0	4.36	312	43.4
AU2N	5/31/2019	2.07	25.2	4.41	314	43.4
AU2N	6/1/2019	2.03	25.4	4.56	318	44.2
AU2N	6/2/2019	2.00	25.7	4.63	323	49.4
AU2N	6/3/2019	1.99	25.9	4.74	329	50.6
AU2N	6/4/2019	1.98	26.1	4.82	337	53.0
AU2N	6/5/2019	1.95	26.0	4.84	342	56.0
AU2N	6/6/2019	1.99	25.9	4.60	332	50.6
AU2N	6/7/2019	2.02	26.1	3.87	332	46.6
AU2N	6/8/2019	2.02	26.1	3.99	334	53.0
AU2N	6/9/2019	2.03	26.2	4.11	336	61.0
AU2N	6/10/2019	2.04	26.2	4.30	339	66.5
AU2N	6/11/2019	2.00	26.1	4.59	343	74.4
AU2N	6/12/2019	1.96	25.7	4.88	348	78.1
AU2N	6/13/2019	1.97	25.7	5.12	349	81.8
AU2N	6/14/2019	1.97	25.6	5.33	347	86.1
AU2N	6/15/2019	1.94	25.8	5.41	339	81.6
AU2N	6/16/2019	1.93	25.9	5.45	332	79.2
AU2N	6/17/2019	1.91	25.8	5.47	332	77.4
AU2N	6/18/2019	1.90	25.9	5.47	331	77.3
AU2N	6/19/2019	1.88	26.1	5.51	335	80.0
AU2N	6/20/2019	1.88	26.2	5.55	340	80.0
AU2N	6/21/2019	1.90	26.3	5.56	344	77.4
AU2N	6/22/2019	1.90	26.5	5.61	351	77.1
AU2N	6/23/2019	1.87	26.8	5.66	361	73.2
AU2N	6/24/2019	1.87	26.6	5.67	369	73.0

AU2N	6/25/2019	1.88	26.7	5.67	376	76.0
AU2N	6/26/2019	1.88	26.8	5.66	377	79.7
AU2N	6/27/2019	1.85	27.0	5.63	371	85.7
AU2N	6/28/2019	1.81	26.9	5.69	365	97.0
AU2N	6/29/2019	1.78	26.9	5.70	376	97.9
AU2N	6/30/2019	1.74	27.1	5.63	375	90.9
AU2N	7/1/2019	1.72	27.2	5.64	381	85.8
AU2N	7/2/2019	1.70	27.2	5.64	389	92.3
AU2N	7/3/2019	1.68	27.2	5.66	388	91.4
AU2N	7/4/2019	1.68	27.5	5.67	385	89.1
AU2N	7/5/2019	1.70	27.6	5.66	378	91.7
AU2N	7/6/2019	1.69	27.7	5.61	372	78.6
AU2N	7/7/2019	1.66	28.0	5.57	368	76.7
AU2N	7/8/2019	1.63	28.2	5.52	366	78.0
AU2N	7/9/2019	1.62	28.5	5.46	369	87.4
AU2N	7/10/2019	1.61	28.6	5.44	374	80.6
AU2N	7/11/2019	1.56	28.7	5.38	374	88.4
AU2N	7/12/2019	1.49	28.6	5.40	367	66.7
AU2N	7/13/2019	1.54	28.1	5.34	352	42.1
AU2N	7/14/2019	1.97	27.8	5.57	345	31.5
AU2N	7/15/2019	2.09	27.7	4.86	348	27.1
AU2N	7/16/2019	2.06	28.0	4.64	351	25.3
AU2N	7/17/2019	2.00	28.2	4.87	350	26.5
AU2N	7/18/2019	1.92	28.5	5.10	350	29.9
AU2N	7/19/2019	1.85	28.7	5.19	352	28.5
AU2N	7/20/2019	1.79	28.7	5.17	351	28.2
AU2N	7/21/2019	1.74	28.7	5.18	352	27.4
AU2N	7/22/2019	1.70	28.7	5.06	355	26.5
AU2N	7/23/2019	1.65	28.6	5.03	359	26.7
AU2N	7/24/2019	1.61	28.4	5.12	361	27.8
AU2N	7/25/2019	1.55	27.9	4.52	358	27.0
AU2N	7/26/2019	1.52	27.7	4.17	352	26.8
AU2N	7/27/2019	1.49	27.8	3.78	344	27.3
AU2N	7/28/2019	1.45	27.5	3.19	337	23.0
AU2N	7/29/2019	1.38	27.5	2.56	335	22.9
AU2N	7/30/2019	1.33	27.7	2.40	332	19.4
AU2N	7/31/2019	1.30	27.6	2.71	330	20.1
AU2N	8/1/2019	1.24	27.7	1.04	330	18.6
AU2N	8/2/2019	1.18	27.8	0.98	325	19.8
AU2N	8/3/2019	1.13	27.8	1.85	300	20.2
AU2N	8/4/2019	1.09	27.7	0.57	315	16.2

AU2N	8/5/2019	1.06	27.7	0.30	317	16.8
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Site	Date	Depth (m)	Water temp (°C)	Dissolved oxygen (mg/l)	Specific conductance (µS/cm)	Turbidity (FNU)
AU2S	1/18/2019	1.17	9.2	7.30	263	59.3
AU2S	1/19/2019	1.18	9.1	8.71	262	49.0
AU2S	1/20/2019	1.34	8.6	8.53	273	46.6
AU2S	1/21/2019	1.38	8.5	7.22	290	45.0
AU2S	1/22/2019	1.32	8.8	6.81	297	42.9
AU2S	1/23/2019	1.31	8.8	8.03	297	41.0
AU2S	1/24/2019	1.39	8.1	5.06	311	32.6
AU2S	1/25/2019	1.45	8.1	4.03	314	31.4
AU2S	1/26/2019	1.42	8.1	4.13	314	33.2
AU2S	1/27/2019	1.37	8.3	5.63	304	37.2
AU2S	1/28/2019	1.30	8.2	7.27	298	42.3
AU2S	1/29/2019	1.34	8.2	7.91	296	44.3
AU2S	1/30/2019	1.36	7.9	7.43	300	45.7
AU2S	1/31/2019	1.31	7.9	7.75	295	44.4
AU2S	2/1/2019	1.27	8.0	8.00	285	44.3
AU2S	2/2/2019	1.24	7.9	7.97	283	44.1
AU2S	2/3/2019	1.18	7.9	8.52	277	43.8
AU2S	2/4/2019	1.15	8.0	8.52	278	42.9
AU2S	2/5/2019	1.16	8.0	8.94	276	42.3
AU2S	2/6/2019	1.16	8.3	9.43	272	46.6
AU2S	2/7/2019	1.16	8.6	9.57	274	43.8
AU2S	2/8/2019	1.26	8.5	9.89	281	45.7
AU2S	2/9/2019	1.26	8.3	6.75	294	38.5
AU2S	2/10/2019	1.17	8.7	7.73	287	45.8
AU2S	2/11/2019	1.07	8.8	9.45	279	39.4
AU2S	2/12/2019	1.10	8.9	10.34	274	42.3
AU2S	2/13/2019	1.17	8.4	9.88	276	40.9
AU2S	2/14/2019	1.07	8.7	8.64	275	48.4
AU2S	2/15/2019	1.01	9.1	9.86	275	41.5
AU2S	2/16/2019	0.98	9.5	10.25	287	43.6
AU2S	2/17/2019	0.98	9.9	9.73	293	47.6
AU2S	2/18/2019	1.08	9.7	10.17	290	56.0
AU2S	2/19/2019	1.03	9.3	10.15	290	63.1
AU2S	2/20/2019	1.01	9.4	10.04	272	71.4
AU2S	2/21/2019	1.04	9.1	10.20	256	70.6
AU2S	2/22/2019	1.07	9.3	10.21	250	76.1

AU2S	2/23/2019	1.08	9.4	10.21	247	70.9
AU2S	2/24/2019	1.20	9.1	10.35	247	76.7
AU2S	2/25/2019	1.27	8.6	10.34	245	76.8
AU2S	2/26/2019	1.27	8.7	10.26	242	89.2
AU2S	2/27/2019	1.30	9.0	10.22	239	74.9
AU2S	2/28/2019	1.33	9.2	9.34	242	79.3
AU2S	3/1/2019	1.41	10.1	8.92	238	71.4
AU2S	3/2/2019	1.48	10.2	9.07	239	91.8
AU2S	3/3/2019	1.52	10.3	9.06	237	93.9
AU2S	3/4/2019	1.67	9.9	8.99	232	92.3
AU2S	3/5/2019	1.79	9.2	9.14	233	145.1
AU2S	3/6/2019	1.88	8.9	9.45	231	176.5
AU2S	3/7/2019	1.88	9.1	9.59	230	171.6
AU2S	3/8/2019	1.90	9.8	9.26	231	164.9
AU2S	3/9/2019	1.95	10.1	9.56	232	117.3
AU2S	3/10/2019	2.07	10.1	9.44	235	101.5
AU2S	3/11/2019	2.19	10.4	9.17	236	97.9
AU2S	3/12/2019	2.25	10.8	8.95	237	69.7
AU2S	3/13/2019	2.23	11.2	8.73	237	65.5
AU2S	3/14/2019	2.32	11.8	8.48	237	67.3
AU2S	3/15/2019	2.46	11.7	8.27	235	69.2
AU2S	3/16/2019	2.51	11.6	8.12	233	61.9
AU2S	3/17/2019	2.49	11.4	8.14	231	57.4
AU2S	3/18/2019	2.48	11.1	8.25	228	52.7
AU2S	3/19/2019	2.45	11.2	8.41	227	51.1
AU2S	3/20/2019	2.41	11.3	8.54	225	50.9
AU2S	3/21/2019	2.38	11.7	8.61	226	50.6
AU2S	3/22/2019	2.37	12.2	8.57	227	51.0
AU2S	3/23/2019	2.36	12.6	8.51	230	51.2
AU2S	3/24/2019	2.34	13.0	8.38	234	52.9
AU2S	3/25/2019	2.31	13.4	8.25	238	56.1
AU2S	3/26/2019	2.34	13.8	8.08	241	57.2
AU2S	3/27/2019	2.34	13.8	7.97	244	56.5
AU2S	3/28/2019	2.32	14.0	7.81	248	56.0
AU2S	3/29/2019	2.24	14.2	7.69	251	59.3
AU2S	3/30/2019	2.17	14.5	7.57	255	60.2
AU2S	3/31/2019	2.20	14.3	7.46	259	65.0
AU2S	4/1/2019	2.15	13.9	7.52	263	65.3
AU2S	4/2/2019	2.11	13.9	7.61	265	66.1
AU2S	4/3/2019	2.07	13.8	7.67	265	68.3
AU2S	4/4/2019	2.03	13.9	7.67	261	70.3

AU2S	4/5/2019	2.02	14.0	7.37	262	70.6
AU2S	4/6/2019	1.95	14.6	6.91	262	65.6
AU2S	4/7/2019	1.87	15.1	6.88	261	68.6
AU2S	4/8/2019	1.76	15.1	7.11	261	69.5
AU2S	4/9/2019	1.71	15.0	7.08	264	72.2
AU2S	4/10/2019	1.64	15.4	6.96	275	72.2
AU2S	4/11/2019	1.56	15.9	6.86	292	76.2
AU2S	4/12/2019	1.55	16.4	6.56	290	77.9
AU2S	4/13/2019	1.47	16.6	6.29	282	66.8
AU2S	4/14/2019	1.52	16.9	5.98	282	64.9
AU2S	4/15/2019	1.58	16.4	6.14	285	71.9
AU2S	4/16/2019	1.55	16.6	6.08	281	64.1
AU2S	4/17/2019	1.48	17.0	5.92	277	62.2
AU2S	4/18/2019	1.40	17.3	5.80	269	60.9
AU2S	4/19/2019	1.48	16.9	5.87	253	63.7
AU2S	4/20/2019	1.53	16.7	6.00	250	61.3
AU2S	4/21/2019	1.55	17.1	5.93	244	65.2
AU2S	4/22/2019	1.55	17.4	5.86	246	65.6
AU2S	4/23/2019	1.53	17.8	5.74	249	70.9
AU2S	4/24/2019	1.49	18.0	5.62	254	70.9
AU2S	4/25/2019	1.49	18.3	5.55	248	75.0
AU2S	4/26/2019	1.58	18.3	5.64	238	72.8
AU2S	4/27/2019	1.58	18.4	5.65	240	64.3
AU2S	4/28/2019	1.58	18.6	5.61	241	64.8
AU2S	4/29/2019	1.60	19.0	5.52	244	64.2
AU2S	4/30/2019	1.61	19.5	5.45	246	62.9
AU2S	5/1/2019	1.62	19.9	5.41	245	62.8
AU2S	5/2/2019	1.62	20.3	5.37	251	55.8
AU2S	5/3/2019	1.60	20.5	5.31	261	51.9
AU2S	5/4/2019	1.60	20.6	5.27	267	54.7
AU2S	5/5/2019	1.65	20.5	5.28	274	51.8
AU2S	5/6/2019	1.68	20.8	5.18	280	49.6
AU2S	5/7/2019	1.69	21.1	5.14	283	48.3
AU2S	5/8/2019	1.65	21.3	5.10	301	49.1
AU2S	5/9/2019	1.70	21.3	5.17	303	53.1
AU2S	5/10/2019	1.83	20.9	5.50	273	51.1
AU2S	5/11/2019	1.86	21.1	5.01	282	54.7
AU2S	5/12/2019	1.90	21.2	5.47	269	59.1
AU2S	5/13/2019	1.96	21.3	5.19	268	59.9
AU2S	5/14/2019	1.99	21.3	5.19	264	61.8
AU2S	5/15/2019	2.01	21.4	5.15	260	64.2

AU2S	5/16/2019	2.04	21.5	5.09	256	64.5
AU2S	5/17/2019	2.04	21.7	5.08	255	67.2
AU2S	5/18/2019	2.04	22.0	4.99	255	66.2
AU2S	5/19/2019	2.12	22.1	5.03	250	71.3
AU2S	5/20/2019	2.17	22.3	4.56	254	61.4
AU2S	5/21/2019	2.16	22.7	4.36	258	60.1
AU2S	5/22/2019	2.22	23.0	4.30	261	54.2
AU2S	5/23/2019	2.28	23.4	4.20	268	49.8
AU2S	5/24/2019	2.29	23.7	4.12	274	49.6
AU2S	5/25/2019	2.29	23.9	4.10	283	49.8
AU2S	5/26/2019	2.28	24.2	4.08	291	48.6
AU2S	5/27/2019	2.23	24.4	4.09	297	53.1
AU2S	5/28/2019	2.19	24.7	4.11	303	45.8
AU2S	5/29/2019	2.17	24.9	4.15	307	45.1
AU2S	5/30/2019	2.18	25.0	4.17	312	43.7
AU2S	5/31/2019	2.17	25.3	4.17	314	43.8
AU2S	6/1/2019	2.14	25.4	4.27	317	43.8
AU2S	6/2/2019	2.11	25.7	4.32	322	44.8
AU2S	6/3/2019	2.10	26.0	4.32	327	46.6
AU2S	6/4/2019	2.08	26.1	4.35	334	45.6
AU2S	6/5/2019	2.05	26.1	4.36	340	48.1
AU2S	6/6/2019	2.09	25.9	4.63	333	48.9
AU2S	6/7/2019	2.12	26.1	3.77	332	44.8
AU2S	6/8/2019	2.12	26.1	3.80	334	48.4
AU2S	6/9/2019	2.13	26.2	3.89	336	43.6
AU2S	6/10/2019	2.14	26.3	4.00	339	46.1
AU2S	6/11/2019	2.11	26.1	4.22	342	51.3
AU2S	6/12/2019	2.06	25.8	4.45	347	52.9
AU2S	6/13/2019	2.07	25.7	4.67	348	53.1
AU2S	6/14/2019	2.07	25.6	4.88	348	55.3
AU2S	6/15/2019	2.05	25.8	5.01	343	54.4
AU2S	6/16/2019	2.03	26.0	5.01	335	52.4
AU2S	6/17/2019	2.01	25.8	5.06	333	50.1
AU2S	6/18/2019	2.00	25.9	5.05	332	49.7
AU2S	6/19/2019	1.99	26.2	5.05	333	48.6
AU2S	6/20/2019	1.98	26.3	5.06	338	47.7
AU2S	6/21/2019	2.01	26.4	5.08	342	45.5
AU2S	6/22/2019	2.01	26.6	5.06	347	43.1
AU2S	6/23/2019	1.98	26.8	5.11	357	42.7
AU2S	6/24/2019	1.97	26.6	5.00	365	41.2
AU2S	6/25/2019	1.98	26.5	5.09	373	40.4

AU2S	6/26/2019	1.99	26.7	5.20	377	40.2
AU2S	6/27/2019	1.96	27.0	4.91	375	37.6
AU2S	6/28/2019	1.92	26.9	4.75	367	39.2
AU2S	6/29/2019	1.89	26.5	4.98	367	43.4
AU2S	6/30/2019	1.85	27.0	4.73	376	42.3
AU2S	7/1/2019	1.83	27.1	4.71	377	41.8
AU2S	7/2/2019	1.81	27.2	4.70	386	41.2
AU2S	7/3/2019	1.79	27.1	4.69	389	38.5
AU2S	7/4/2019	1.80	27.4	4.74	387	39.1
AU2S	7/5/2019	1.81	27.7	4.77	383	39.0
AU2S	7/6/2019	1.80	27.8	4.76	376	38.7
AU2S	7/7/2019	1.77	28.0	4.66	370	38.2
AU2S	7/8/2019	1.74	28.1	4.62	367	36.5
AU2S	7/9/2019	1.73	28.4	4.55	367	36.6
AU2S	7/10/2019	1.72	28.5	4.45	371	38.0
AU2S	7/11/2019	1.67	28.5	4.34	375	39.0
AU2S	7/12/2019	1.60	28.5	4.29	374	37.9
AU2S	7/13/2019	1.65	27.8	4.10	372	36.1
AU2S	7/14/2019	2.07	27.2	4.80	359	32.4
AU2S	7/15/2019	2.18	27.6	4.70	366	29.3
AU2S	7/16/2019	2.15	28.0	4.22	374	26.6
AU2S	7/17/2019	2.09	28.2	4.28	373	30.2
AU2S	7/18/2019	2.01	28.5	4.34	374	30.7
AU2S	7/19/2019	1.95	28.6	4.26	374	29.4
AU2S	7/20/2019	1.89	28.5	4.06	371	27.7
AU2S	7/21/2019	1.84	28.2	3.64	367	28.3
AU2S	7/22/2019	1.80	28.0	3.66	365	31.0
AU2S	7/23/2019	1.75	28.2	3.47	372	31.4
AU2S	7/24/2019	1.71	28.0	3.65	378	33.4
AU2S	7/25/2019	1.66	27.9	3.87	377	33.9
AU2S	7/26/2019	1.62	28.1	3.87	372	35.1
AU2S	7/27/2019	1.60	28.2	3.85	364	35.8
AU2S	7/28/2019	1.56	28.0	3.80	358	36.3
AU2S	7/29/2019	1.50	28.1	3.73	356	38.4
AU2S	7/30/2019	1.45	28.1	3.74	351	32.7
AU2S	7/31/2019	1.41	28.2	3.55	349	31.9
AU2S	8/1/2019	1.36	28.2	2.35	346	33.2
AU2S	8/2/2019	1.29	28.1	0.97	345	37.1
AU2S	8/3/2019	1.25	28.1	1.68	339	38.7
AU2S	8/4/2019	1.20	28.0	0.05	345	52.0
AU2S	8/5/2019	1.17	28.1	0.04	348	54.1



Site	Date	Depth (m)	Water temp (°C)	Dissolved oxygen (mg/l)	Specific conductance (µS/cm)	Turbidity (FNU)
AU3	1/18/2019	1.37	9.0	9.33	256	53.1
AU3	1/19/2019	1.37	9.0	9.53	258	50.2
AU3	1/20/2019	1.53	8.6	9.73	268	48.8
AU3	1/21/2019	1.56	8.3	9.59	281	42.7
AU3	1/22/2019	1.50	8.6	9.81	287	42.6
AU3	1/23/2019	1.47	8.7	9.73	292	39.3
AU3	1/24/2019	1.55	8.3	9.77	293	39.6
AU3	1/25/2019	1.61	8.3	9.83	289	39.8
AU3	1/26/2019	1.57	8.2	9.80	288	40.5
AU3	1/27/2019	1.52	8.3	9.94	287	45.0
AU3	1/28/2019	1.45	8.2	10.03	289	46.3
AU3	1/29/2019	1.50	8.2	10.16	288	48.5
AU3	1/30/2019	1.52	7.9	10.24	287	47.7
AU3	1/31/2019	1.48	7.8	10.26	278	45.5
AU3	2/1/2019	1.44	7.8	10.34	273	44.2
AU3	2/2/2019	1.41	7.8	10.35	270	43.3
AU3	2/3/2019	1.36	7.8	10.32	267	41.7
AU3	2/4/2019	1.33	7.8	10.31	268	40.2
AU3	2/5/2019	1.34	7.9	10.29	268	37.6
AU3	2/6/2019	1.34	8.2	10.22	267	36.9
AU3	2/7/2019	1.34	8.5	10.20	269	36.2
AU3	2/8/2019	1.45	8.7	10.23	278	36.0
AU3	2/9/2019	1.45	8.5	10.41	276	37.3
AU3	2/10/2019	1.37	8.6	10.44	270	37.6
AU3	2/11/2019	1.27	8.8	10.35	270	37.9
AU3	2/12/2019	1.30	8.9	10.35	273	36.1
AU3	2/13/2019	1.36	8.7	10.31	273	33.9
AU3	2/14/2019	1.27	8.9	10.06	271	33.7
AU3	2/15/2019	1.22	9.2	10.09	275	33.1
AU3	2/16/2019	1.19	9.5	9.98	289	34.5
AU3	2/17/2019	1.19	9.8	9.60	295	36.9
AU3	2/18/2019	1.29	9.8	9.58	292	41.1
AU3	2/19/2019	1.25	9.5	9.86	291	47.7
AU3	2/20/2019	1.23	9.4	9.79	272	52.0
AU3	2/21/2019	1.26	9.1	9.99	258	51.4
AU3	2/22/2019	1.28	9.1	10.03	251	50.4
AU3	2/23/2019	1.29	9.3	9.94	248	49.5
AU3	2/24/2019	1.41	9.0	10.18	248	53.5
AU3	2/25/2019	1.48	8.6	10.30	246	54.9

AU3	2/26/2019	1.47	8.7	10.35	243	57.0
AU3	2/27/2019	1.48	8.9	10.26	241	52.4
AU3	2/28/2019	1.50	9.2	10.02	241	48.6
AU3	3/1/2019	1.56	9.4	10.06	240	49.1
AU3	3/2/2019	1.61	9.7	9.92	239	49.0
AU3	3/3/2019	1.64	10.5	8.96	239	45.1
AU3	3/4/2019	1.78	11.1	7.59	238	51.2
AU3	3/5/2019	1.88	11.1	5.93	238	63.4
AU3	3/6/2019	1.96	9.9	6.35	234	57.7
AU3	3/7/2019	1.95	9.1	7.87	231	60.2
AU3	3/8/2019	1.96	9.6	8.31	230	58.9
AU3	3/9/2019	2.00	10.3	8.52	229	46.9
AU3	3/10/2019	2.12	11.3	8.36	232	42.7
AU3	3/11/2019	2.24	12.4	7.62	235	37.9
AU3	3/12/2019	2.30	12.7	6.67	239	36.5
AU3	3/13/2019	2.27	12.0	7.94	239	40.0
AU3	3/14/2019	2.36	11.9	8.50	237	41.9
AU3	3/15/2019	2.50	11.0	8.96	232	45.2
AU3	3/16/2019	2.54	10.3	9.16	227	48.0
AU3	3/17/2019	2.53	10.5	9.14	224	45.6
AU3	3/18/2019	2.51	10.5	9.12	223	43.7
AU3	3/19/2019	2.49	10.8	9.08	224	42.3
AU3	3/20/2019	2.45	11.4	8.95	225	40.8
AU3	3/21/2019	2.42	11.8	8.89	224	37.2
AU3	3/22/2019	2.40	12.2	8.81	228	42.7
AU3	3/23/2019	2.40	12.6	8.73	233	37.6
AU3	3/24/2019	2.38	12.9	8.64	239	37.6
AU3	3/25/2019	2.34	13.2	8.43	243	36.2
AU3	3/26/2019	2.37	13.6	8.20	244	37.7
AU3	3/27/2019	2.38	13.6	8.03	246	39.6
AU3	3/28/2019	2.35	13.6	7.92	251	39.6
AU3	3/29/2019	2.28	13.9	7.76	256	41.2
AU3	3/30/2019	2.21	14.2	7.56	258	42.6
AU3	3/31/2019	2.24	14.4	7.35	260	42.4
AU3	4/1/2019	2.19	13.8	7.09	264	40.2
AU3	4/2/2019	2.15	13.3	6.77	266	40.1
AU3	4/3/2019	2.11	13.6	6.27	269	40.4
AU3	4/4/2019	2.08	13.8	5.40	268	36.3
AU3	4/5/2019	2.06	14.2	5.87	264	39.7
AU3	4/6/2019	2.00	14.4	6.32	258	42.3
AU3	4/7/2019	1.92	14.9	5.67	258	40.7

AU3	4/8/2019	1.82	15.5	4.66	260	36.4
AU3	4/9/2019	1.77	15.8	4.72	261	37.3
AU3	4/10/2019	1.71	15.9	5.31	269	38.3
AU3	4/11/2019	1.63	16.2	6.08	285	41.8
AU3	4/12/2019	1.63	16.4	6.67	283	43.6
AU3	4/13/2019	1.56	16.6	6.83	283	44.3
AU3	4/14/2019	1.61	16.7	6.95	285	45.4
AU3	4/15/2019	1.67	16.5	7.12	281	49.2
AU3	4/16/2019	1.65	16.6	7.08	277	48.0
AU3	4/17/2019	1.58	16.8	7.09	271	49.1
AU3	4/18/2019	1.51	17.0	7.02	256	49.7
AU3	4/19/2019	1.58	16.9	6.97	250	46.7
AU3	4/20/2019	1.63	17.0	6.90	243	48.4
AU3	4/21/2019	1.65	17.2	6.87	245	47.6
AU3	4/22/2019	1.65	17.4	6.80	247	48.3
AU3	4/23/2019	1.63	17.7	6.74	253	47.3
AU3	4/24/2019	1.59	17.9	6.69	250	50.5
AU3	4/25/2019	1.58	18.1	6.51	242	46.4
AU3	4/26/2019	1.67	18.3	6.25	238	40.0
AU3	4/27/2019	1.67	18.5	6.26	240	39.7
AU3	4/28/2019	1.67	18.7	6.24	241	38.4
AU3	4/29/2019	1.69	19.1	6.10	245	38.5
AU3	4/30/2019	1.70	19.5	5.99	245	37.6
AU3	5/1/2019	1.70	19.9	5.90	245	35.5
AU3	5/2/2019	1.70	20.3	5.65	253	32.7
AU3	5/3/2019	1.68	20.6	5.21	261	29.3
AU3	5/4/2019	1.67	20.8	3.57	258	22.7
AU3	5/5/2019	1.71	20.9	1.74	256	17.2
AU3	5/6/2019	1.75	20.9	1.16	257	13.7
AU3	5/7/2019	1.75	21.0	1.06	262	12.7
AU3	5/8/2019	1.72	21.2	1.25	272	14.1
AU3	5/9/2019	1.76	21.4	1.93	280	16.5
AU3	5/10/2019	1.88	21.4	2.96	285	17.9
AU3	5/11/2019	1.90	21.3	2.98	277	19.7
AU3	5/12/2019	1.94	21.2	2.52	253	15.1
AU3	5/13/2019	2.00	21.1	1.34	209	11.7
AU3	5/14/2019	2.03	21.1	1.07	228	12.6
AU3	5/15/2019	2.06	21.2	1.18	253	16.3
AU3	5/16/2019	2.08	21.2	1.47	260	20.6
AU3	5/17/2019	2.07	21.4	2.24	260	24.4
AU3	5/18/2019	2.07	21.7	2.44	258	25.6

AU3	5/19/2019	2.15	22.0	2.66	255	26.7
AU3	5/20/2019	2.21	22.3	3.16	248	28.1
AU3	5/21/2019	2.19	22.5	3.73	256	31.7
AU3	5/22/2019	2.25	22.9	3.70	264	31.9
AU3	5/23/2019	2.31	23.2	3.80	269	31.5
AU3	5/24/2019	2.32	23.5	3.84	278	30.6
AU3	5/25/2019	2.32	23.7	3.80	288	29.2
AU3	5/26/2019	2.31	23.9	3.73	300	29.1
AU3	5/27/2019	2.26	24.2	3.62	306	28.7
AU3	5/28/2019	2.22	24.5	3.52	306	26.2
AU3	5/29/2019	2.20	24.7	3.39	307	24.1
AU3	5/30/2019	2.21	24.9	3.36	312	23.2
AU3	5/31/2019	2.20	25.1	3.36	318	23.2
AU3	6/1/2019	2.16	25.3	3.23	318	21.4
AU3	6/2/2019	2.13	25.5	3.14	320	20.0
AU3	6/3/2019	2.12	25.8	3.06	325	21.1
AU3	6/4/2019	2.11	26.0	2.94	330	20.8
AU3	6/5/2019	2.08	26.1	2.84	336	20.6
AU3	6/6/2019	2.11	26.0	2.95	331	18.9
AU3	6/7/2019	2.14	26.0	3.45	337	26.1
AU3	6/8/2019	2.14	26.0	3.34	342	31.6
AU3	6/9/2019	2.15	26.0	3.28	341	35.8
AU3	6/10/2019	2.16	26.1	3.21	338	39.7
AU3	6/11/2019	2.13	26.1	3.11	340	38.9
AU3	6/12/2019	2.09	25.8	2.97	343	38.5
AU3	6/13/2019	2.10	25.4	2.70	348	35.2
AU3	6/14/2019	2.10	25.1	2.93	351	36.9
AU3	6/15/2019	2.08	25.2	2.74	350	34.1
AU3	6/16/2019	2.06	25.5	2.76	346	31.6
AU3	6/17/2019	2.04	25.7	2.48	341	27.8
AU3	6/18/2019	2.03	25.7	2.18	335	25.9
AU3	6/19/2019	2.02	25.7	2.49	332	25.0
AU3	6/20/2019	2.01	26.0	2.19	333	25.3
AU3	6/21/2019	2.03	26.4	1.81	335	21.6
AU3	6/22/2019	2.04	26.6	1.28	338	19.5
AU3	6/23/2019	2.01	26.8	1.06	342	17.6
AU3	6/24/2019	2.00	26.7	1.17	345	15.9
AU3	6/25/2019	2.01	26.6	1.20	350	14.2
AU3	6/26/2019	2.02	26.3	1.35	361	13.3
AU3	6/27/2019	1.99	26.2	1.91	371	16.8
AU3	6/28/2019	1.96	26.5	2.25	375	19.1

AU3	6/29/2019	1.93	26.4	2.14	368	16.3
AU3	6/30/2019	1.89	26.2	2.37	359	17.2
AU3	7/1/2019	1.87	26.2	2.15	363	17.5
AU3	7/2/2019	1.85	26.5	2.05	373	16.3
AU3	7/3/2019	1.83	26.7	1.95	376	14.8
AU3	7/4/2019	1.84	26.8	1.95	386	14.5
AU3	7/5/2019	1.85	27.0	2.01	390	15.4
AU3	7/6/2019	1.84	27.4	2.02	388	14.4
AU3	7/7/2019	1.81	27.6	2.02	382	14.8
AU3	7/8/2019	1.78	27.7	2.04	376	14.6
AU3	7/9/2019	1.77	27.8	2.02	370	14.3
AU3	7/10/2019	1.76	27.9	1.93	367	13.3
AU3	7/11/2019	1.71	28.0	1.86	367	12.7
AU3	7/12/2019	1.64	27.9	1.64	370	10.6
AU3	7/13/2019	1.70	27.5	1.79	370	10.3
AU3	7/14/2019	2.10	27.2	2.35	358	13.8
AU3	7/15/2019	2.21	26.3	2.27	338	10.2
AU3	7/16/2019	2.18	26.9	1.77	347	8.6
AU3	7/17/2019	2.11	27.8	0.48	372	5.9
AU3	7/18/2019	2.03	28.2	0.06	378	4.0
AU3	7/19/2019	1.97	28.3	-0.07	382	3.0
AU3	7/20/2019	1.92	28.3	-0.08	379	3.0
AU3	7/21/2019	1.87	28.1	-0.08	373	2.8
AU3	7/22/2019	1.84	27.7	-0.08	367	2.3
AU3	7/23/2019	1.79	27.5	0.06	365	2.5
AU3	7/24/2019	1.76	27.4	0.90	366	5.6
AU3	7/25/2019	1.72	27.6	2.06	368	10.5
AU3	7/26/2019	1.69	27.9	2.75	365	13.6
AU3	7/27/2019	1.67	28.2	3.25	360	16.0
AU3	7/28/2019	1.64	28.3	3.73	357	17.6
AU3	7/29/2019	1.58	28.4	3.76	354	17.9
AU3	7/30/2019	1.54	28.4	3.45	351	17.3
AU3	7/31/2019	1.51	28.2	2.62	351	16.0
AU3	8/1/2019	1.46	28.1	1.47	349	14.6
AU3	8/2/2019	1.40	28.0	0.46	350	14.6
AU3	8/3/2019	1.36	28.0	0.66	345	15.6
AU3	8/4/2019	1.33	27.8	0.05	346	11.6
AU3	8/5/2019	1.30	27.7	-0.07	349	9.3

Site	Date	Depth (m)	Water temp (°C)	Dissolved oxygen (mg/l)	Specific conductance (µS/cm)	Turbidity (FNU)
AU5	1/18/2019	1.38	10.4	5.17	254	23.5
AU5	1/19/2019	1.37	10.9	4.31	256	22.2
AU5	1/20/2019	1.53	10.7	4.77	255	19.1
AU5	1/21/2019	1.57	10.0	5.10	255	18.0
AU5	1/22/2019	1.52	9.6	4.92	257	17.6
AU5	1/23/2019	1.51	10.1	5.76	268	19.3
AU5	1/24/2019	1.60	9.7	6.97	275	21.1
AU5	1/25/2019	1.65	9.1	6.89	279	20.6
AU5	1/26/2019	1.62	9.0	7.08	278	21.0
AU5	1/27/2019	1.57	9.4	7.00	277	20.7
AU5	1/28/2019	1.50	9.5	6.71	277	20.2
AU5	1/29/2019	1.54	9.7	6.38	277	19.7
AU5	1/30/2019	1.56	9.3	6.52	278	19.2
AU5	1/31/2019	1.51	8.9	6.31	279	18.6
AU5	2/1/2019	1.46	8.9	6.70	279	19.3
AU5	2/2/2019	1.43	9.4	6.87	278	19.6
AU5	2/3/2019	1.38	9.9	6.17	276	19.7
AU5	2/4/2019	1.35	10.2	5.34	275	19.2
AU5	2/5/2019	1.35	10.4	5.01	273	18.6
AU5	2/6/2019	1.35	10.6	4.78	272	18.3
AU5	2/7/2019	1.35	10.9	4.34	272	17.5
AU5	2/8/2019	1.46	11.2	4.08	271	17.1
AU5	2/9/2019	1.45	11.3	4.77	270	16.0
AU5	2/10/2019	1.37	11.0	5.87	269	15.6
AU5	2/11/2019	1.27	10.9	7.03	273	15.8
AU5	2/12/2019	1.30	11.2	5.69	274	17.2
AU5	2/13/2019	1.36	11.6	4.59	271	15.2
AU5	2/14/2019	1.26	11.4	5.30	266	14.8
AU5	2/15/2019	1.20	11.5	6.32	268	14.5
AU5	2/16/2019	1.17	11.7	5.77	269	14.3
AU5	2/17/2019	1.17	12.0	4.08	271	14.5
AU5	2/18/2019	1.27	12.3	2.51	273	14.3
AU5	2/19/2019	1.22	12.7	3.47	277	14.2
AU5	2/20/2019	1.20	12.6	5.38	280	14.9
AU5	2/21/2019	1.23	12.5	5.06	282	14.9
AU5	2/22/2019	1.26	12.5	3.83	282	17.0
AU5	2/23/2019	1.27	12.5	2.20	278	17.5
AU5	2/24/2019	1.39	12.5	2.01	270	17.1

AU5	2/25/2019	1.46	12.4	3.80	260	20.1
AU5	2/26/2019	1.46	11.7	5.24	257	21.6
AU5	2/27/2019	1.50	11.4	5.70	254	22.3
AU5	2/28/2019	1.53	11.4	7.00	247	26.7
AU5	3/1/2019	1.62	11.4	7.54	245	29.8
AU5	3/2/2019	1.69	11.3	7.75	244	32.3
AU5	3/3/2019	1.74	11.4	7.66	240	33.5
AU5	3/4/2019	1.90	11.0	7.61	238	30.8
AU5	3/5/2019	2.02	10.6	7.69	237	30.4
AU5	3/6/2019	2.11	10.4	7.88	237	28.9
AU5	3/7/2019	2.11	10.3	7.90	237	28.0
AU5	3/8/2019	2.11	10.6	7.86	238	28.7
AU5	3/9/2019	2.15	11.1	7.80	239	29.2
AU5	3/10/2019	2.27	11.5	7.70	239	27.9
AU5	3/11/2019	2.38	11.9	7.60	239	27.3
AU5	3/12/2019	2.44	12.2	7.51	240	26.4
AU5	3/13/2019	2.41	12.4	7.48	239	26.7
AU5	3/14/2019	2.49	12.8	7.41	239	27.0
AU5	3/15/2019	2.63	12.5	7.34	236	28.9
AU5	3/16/2019	2.68	12.2	7.38	235	26.9
AU5	3/17/2019	2.66	12.0	7.56	233	26.3
AU5	3/18/2019	2.65	11.6	7.70	231	26.4
AU5	3/19/2019	2.63	11.7	7.81	230	26.4
AU5	3/20/2019	2.59	11.9	7.88	230	27.4
AU5	3/21/2019	2.56	12.3	7.90	229	26.6
AU5	3/22/2019	2.54	12.7	7.85	229	25.6
AU5	3/23/2019	2.54	13.2	7.74	230	25.7
AU5	3/24/2019	2.52	13.5	7.58	232	25.6
AU5	3/25/2019	2.48	13.9	7.40	235	25.7
AU5	3/26/2019	2.51	14.2	7.22	237	25.9
AU5	3/27/2019	2.52	14.3	7.12	239	26.4
AU5	3/28/2019	2.50	14.5	7.01	242	27.4
AU5	3/29/2019	2.42	14.8	6.83	245	28.4
AU5	3/30/2019	2.35	15.1	6.61	248	29.8
AU5	3/31/2019	2.39	15.0	6.43	251	29.3
AU5	4/1/2019	2.34	14.5	6.40	254	30.5
AU5	4/2/2019	2.30	14.6	6.43	256	31.1
AU5	4/3/2019	2.27	14.5	6.41	258	33.8
AU5	4/4/2019	2.23	14.6	6.42	255	33.1
AU5	4/5/2019	2.22	14.8	6.02	255	30.6
AU5	4/6/2019	2.16	15.3	5.84	255	32.4

AU5	4/7/2019	2.09	15.8	5.62	255	32.5
AU5	4/8/2019	1.98	16.0	5.44	255	32.3
AU5	4/9/2019	1.94	16.2	5.24	257	32.9
AU5	4/10/2019	1.87	16.5	5.14	264	33.0
AU5	4/11/2019	1.79	16.9	4.98	270	31.3
AU5	4/12/2019	1.78	17.2	4.85	269	31.2
AU5	4/13/2019	1.70	17.5	4.73	270	31.2
AU5	4/14/2019	1.74	17.5	4.79	272	31.1
AU5	4/15/2019	1.80	17.4	4.84	273	30.6
AU5	4/16/2019	1.77	17.5	4.77	272	29.7
AU5	4/17/2019	1.70	17.8	4.70	271	30.9
AU5	4/18/2019	1.62	17.9	4.65	264	30.7
AU5	4/19/2019	1.71	17.6	4.67	259	28.4
AU5	4/20/2019	1.75	17.5	4.62	257	28.2
AU5	4/21/2019	1.77	17.8	4.62	255	28.4
AU5	4/22/2019	1.77	18.0	4.58	255	28.3
AU5	4/23/2019	1.75	18.2	4.47	256	28.4
AU5	4/24/2019	1.71	18.4	4.38	255	30.0
AU5	4/25/2019	1.71	18.6	4.36	249	30.2
AU5	4/26/2019	1.81	18.7	4.21	247	28.3
AU5	4/27/2019	1.81	18.9	4.20	246	26.9
AU5	4/28/2019	1.81	19.2	4.15	247	26.2
AU5	4/29/2019	1.83	19.5	4.10	248	26.3
AU5	4/30/2019	1.84	19.8	3.98	247	26.5
AU5	5/1/2019	1.85	20.2	3.86	248	25.5
AU5	5/2/2019	1.85	20.6	3.76	252	24.3
AU5	5/3/2019	1.83	20.8	3.67	256	23.1
AU5	5/4/2019	1.82	20.8	3.83	256	21.8
AU5	5/5/2019	1.88	21.0	3.49	260	19.2
AU5	5/6/2019	1.91	21.2	3.49	263	18.5
AU5	5/7/2019	1.91	21.5	3.48	269	18.4
AU5	5/8/2019	1.88	21.6	3.46	279	19.2
AU5	5/9/2019	1.92	21.6	3.48	279	20.4
AU5	5/10/2019	2.05	21.4	4.09	266	20.3
AU5	5/11/2019	2.07	21.6	3.45	265	21.3
AU5	5/12/2019	2.11	21.6	3.55	261	21.7
AU5	5/13/2019	2.16	21.8	3.17	265	22.0
AU5	5/14/2019	2.20	21.9	3.10	265	22.9
AU5	5/15/2019	2.22	22.0	3.08	263	24.0
AU5	5/16/2019	2.24	22.1	3.04	261	24.5
AU5	5/17/2019	2.23	22.3	3.01	260	25.1



AU5	5/18/2019	2.23	22.5	2.98	260	25.1
AU5	5/19/2019	2.30	22.6	3.07	255	25.8
AU5	5/20/2019	2.36	22.8	2.83	254	24.4
AU5	5/21/2019	2.34	23.2	2.79	256	25.3
AU5	5/22/2019	2.40	23.5	2.77	257	25.2
AU5	5/23/2019	2.46	23.8	2.69	259	24.2
AU5	5/24/2019	2.47	24.0	2.65	263	23.4
AU5	5/25/2019	2.47	24.3	2.63	267	22.1
AU5	5/26/2019	2.46	24.5	2.62	273	21.9
AU5	5/27/2019	2.41	24.7	2.60	278	21.2
AU5	5/28/2019	2.37	24.9	2.58	283	20.9
AU5	5/29/2019	2.35	25.1	2.59	287	19.9
AU5	5/30/2019	2.36	25.2	2.58	292	19.1
AU5	5/31/2019	2.35	25.4	2.58	296	18.0
AU5	6/1/2019	2.32	25.6	2.56	300	17.6
AU5	6/2/2019	2.29	25.9	2.60	304	16.5
AU5	6/3/2019	2.28	26.1	2.57	308	16.5
AU5	6/4/2019	2.27	26.3	2.57	313	18.1
AU5	6/5/2019	2.24	26.3	2.48	318	17.4
AU5	6/6/2019	2.27	26.1	2.83	312	16.4
AU5	6/7/2019	2.30	26.3	2.65	311	15.7
AU5	6/8/2019	2.30	26.4	2.39	313	15.7
AU5	6/9/2019	2.31	26.6	2.43	316	18.3
AU5	6/10/2019	2.32	26.7	2.44	318	20.1
AU5	6/11/2019	2.29	26.5	2.52	321	22.3
AU5	6/12/2019	2.25	26.1	2.66	325	24.1
AU5	6/13/2019	2.26	26.0	2.77	328	25.0
AU5	6/14/2019	2.26	25.9	2.83	329	25.6
AU5	6/15/2019	2.24	26.0	2.83	330	24.7
AU5	6/16/2019	2.22	26.2	2.83	329	23.9
AU5	6/17/2019	2.20	26.0	2.78	328	22.8
AU5	6/18/2019	2.19	26.1	2.80	328	22.1
AU5	6/19/2019	2.18	26.4	2.84	326	21.6
AU5	6/20/2019	2.18	26.6	2.88	327	20.8
AU5	6/21/2019	2.20	26.7	2.93	329	20.9
AU5	6/22/2019	2.21	26.9	2.97	331	20.6
AU5	6/23/2019	2.18	27.0	2.97	335	19.7
AU5	6/24/2019	2.17	26.9	2.89	340	18.4
AU5	6/25/2019	2.18	26.7	2.89	343	17.7
AU5	6/26/2019	2.19	26.8	2.97	347	15.9
AU5	6/27/2019	2.16	27.0	3.02	349	15.2

AU5	6/28/2019	2.13	26.9	3.06	350	16.4
AU5	6/29/2019	2.10	26.7	3.08	354	15.6
AU5	6/30/2019	2.06	27.0	3.10	357	14.6
AU5	7/1/2019	2.05	27.1	3.12	359	14.1
AU5	7/2/2019	2.02	27.1	3.06	363	13.9
AU5	7/3/2019	2.01	27.0	3.04	367	13.7
AU5	7/4/2019	2.01	27.3	3.09	369	13.8
AU5	7/5/2019	2.02	27.5	3.10	369	14.9
AU5	7/6/2019	2.01	27.7	3.11	369	13.9
AU5	7/7/2019	1.98	27.9	3.11	369	14.3
AU5	7/8/2019	1.96	28.0	3.10	368	13.3
AU5	7/9/2019	1.94	28.3	3.10	369	13.5
AU5	7/10/2019	1.93	28.3	3.00	370	13.2
AU5	7/11/2019	1.88	28.3	2.95	370	12.9
AU5	7/12/2019	1.82	28.3	2.94	368	13.3
AU5	7/13/2019	1.86	27.7	3.17	364	13.2
AU5	7/14/2019	2.25	27.1	3.66	353	11.5
AU5	7/15/2019	2.36	27.0	2.99	349	8.3
AU5	7/16/2019	2.33	27.4	2.35	356	8.4
AU5	7/17/2019	2.27	27.7	2.07	358	7.5
AU5	7/18/2019	2.20	28.0	2.04	359	7.7
AU5	7/19/2019	2.15	28.2	2.09	362	7.7
AU5	7/20/2019	2.09	28.2	2.15	362	7.9
AU5	7/21/2019	2.05	28.1	2.24	361	7.8
AU5	7/22/2019	2.01	27.9	2.22	359	7.9
AU5	7/23/2019	1.96	27.9	1.99	362	8.0
AU5	7/24/2019	1.93	27.7	2.21	365	9.2
AU5	7/25/2019	1.88	27.7	2.37	364	10.2
AU5	7/26/2019	1.84	27.8	2.52	362	10.8
AU5	7/27/2019	1.82	27.8	2.64	357	11.9
AU5	7/28/2019	1.77	27.7	2.69	355	12.2
AU5	7/29/2019	1.70	27.8	2.67	354	12.1
AU5	7/30/2019	1.65	27.8	2.51	352	12.3
AU5	7/31/2019	1.61	27.8	2.30	351	12.4
AU5	8/1/2019	1.56	27.9	2.12	349	11.6
AU5	8/2/2019	1.49	28.1	1.94	346	9.4
AU5	8/3/2019	1.44	27.9	1.75	342	8.6
AU5	8/4/2019	1.39	27.9	1.46	341	8.3
AU5	8/5/2019	1.36	28.0	1.65	343	7.6

Site	Date	Depth (m)	Water temp (°C)	Dissolved oxygen (mg/l)	Specific conductance (µS/cm)	Turbidity (FNU)
AU6	1/18/2019	1.30	9.4	2.43	258	23.9
AU6	1/19/2019	1.29	9.5	3.26	258	26.5
AU6	1/20/2019	1.46	9.2	4.71	263	23.7
AU6	1/21/2019	1.49	8.4	6.74	274	24.4
AU6	1/22/2019	1.44	8.4	5.24	275	22.0
AU6	1/23/2019	1.42	8.8	4.24	279	21.6
AU6	1/24/2019	1.51	8.2	8.27	293	26.6
AU6	1/25/2019	1.57	8.0	7.70	291	24.9
AU6	1/26/2019	1.54	8.0	7.76	290	25.0
AU6	1/27/2019	1.48	8.2	7.10	289	24.8
AU6	1/28/2019	1.42	8.3	7.64	289	27.6
AU6	1/29/2019	1.46	8.4	7.23	289	26.9
AU6	1/30/2019	1.48	7.9	8.29	289	27.4
AU6	1/31/2019	1.43	7.9	7.27	289	25.0
AU6	2/1/2019	1.38	8.0	6.29	289	22.6
AU6	2/2/2019	1.35	8.2	4.52	290	21.6
AU6	2/3/2019	1.30	8.5	3.64	288	26.3
AU6	2/4/2019	1.27	8.5	5.31	276	25.4
AU6	2/5/2019	1.27	8.5	6.38	270	24.5
AU6	2/6/2019	1.27	8.7	5.72	270	27.2
AU6	2/7/2019	1.28	8.8	5.57	270	21.4
AU6	2/8/2019	1.38	9.0	3.88	270	20.6
AU6	2/9/2019	1.38	9.1	5.01	274	22.9
AU6	2/10/2019	1.29	8.9	6.75	279	19.8
AU6	2/11/2019	1.19	9.0	6.23	276	20.3
AU6	2/12/2019	1.22	9.2	4.62	275	23.5
AU6	2/13/2019	1.28	9.3	5.23	273	21.3
AU6	2/14/2019	1.19	9.1	6.71	274	20.5
AU6	2/15/2019	1.12	9.2	5.42	274	19.4
AU6	2/16/2019	1.10	9.4	4.47	273	19.2
AU6	2/17/2019	1.09	9.6	3.74	276	19.2
AU6	2/18/2019	1.19	9.8	2.86	282	18.9
AU6	2/19/2019	1.15	10.0	4.48	291	22.8
AU6	2/20/2019	1.12	9.8	6.41	294	27.6
AU6	2/21/2019	1.15	9.8	5.64	287	26.9
AU6	2/22/2019	1.19	9.7	5.95	267	27.5
AU6	2/23/2019	1.19	9.8	4.65	260	25.6
AU6	2/24/2019	1.31	9.9	3.70	258	25.9

AU6	2/25/2019	1.38	9.9	6.14	251	29.0
AU6	2/26/2019	1.38	9.4	7.42	249	29.8
AU6	2/27/2019	1.41	9.4	6.40	247	29.7
AU6	2/28/2019	1.45	9.5	6.99	245	31.9
AU6	3/1/2019	1.53	9.5	8.06	243	33.1
AU6	3/2/2019	1.60	9.6	8.96	240	36.9
AU6	3/3/2019	1.64	9.7	9.28	236	39.1
AU6	3/4/2019	1.79	9.5	9.49	233	40.2
AU6	3/5/2019	1.91	9.1	9.54	232	37.1
AU6	3/6/2019	2.00	9.0	9.59	230	37.3
AU6	3/7/2019	2.00	9.0	9.63	229	36.3
AU6	3/8/2019	2.01	9.4	9.59	231	35.3
AU6	3/9/2019	2.06	9.9	9.28	233	33.1
AU6	3/10/2019	2.19	10.3	9.01	234	31.4
AU6	3/11/2019	2.30	10.7	8.75	235	30.0
AU6	3/12/2019	2.36	11.2	8.45	236	28.8
AU6	3/13/2019	2.34	11.9	8.16	237	26.4
AU6	3/14/2019	2.42	12.6	7.92	237	25.3
AU6	3/15/2019	2.56	12.1	7.76	235	25.2
AU6	3/16/2019	2.61	12.0	7.72	234	25.4
AU6	3/17/2019	2.59	11.8	7.78	232	25.2
AU6	3/18/2019	2.58	11.3	7.89	229	25.2
AU6	3/19/2019	2.56	11.4	8.11	227	24.8
AU6	3/20/2019	2.52	11.6	8.29	225	24.3
AU6	3/21/2019	2.49	11.9	8.32	226	23.8
AU6	3/22/2019	2.47	12.4	8.25	227	23.4
AU6	3/23/2019	2.47	12.9	8.14	228	23.0
AU6	3/24/2019	2.45	13.2	7.96	232	22.8
AU6	3/25/2019	2.41	13.7	7.76	235	23.0
AU6	3/26/2019	2.44	14.1	7.58	239	23.7
AU6	3/27/2019	2.45	14.1	7.45	242	23.3
AU6	3/28/2019	2.42	14.4	7.18	246	24.5
AU6	3/29/2019	2.35	14.5	7.07	249	26.9
AU6	3/30/2019	2.28	14.7	6.98	253	29.1
AU6	3/31/2019	2.31	14.4	6.97	257	31.7
AU6	4/1/2019	2.26	14.1	7.11	261	35.5
AU6	4/2/2019	2.22	14.1	7.22	263	35.8
AU6	4/3/2019	2.18	14.0	7.30	264	38.3
AU6	4/4/2019	2.14	13.9	7.45	260	42.2
AU6	4/5/2019	2.13	14.1	6.99	262	37.9
AU6	4/6/2019	2.07	14.6	7.04	261	40.6

AU6	4/7/2019	1.98	14.9	7.28	261	44.3
AU6	4/8/2019	1.88	15.0	7.32	262	46.4
AU6	4/9/2019	1.83	15.0	7.28	265	46.7
AU6	4/10/2019	1.76	15.4	7.26	284	45.8
AU6	4/11/2019	1.68	15.8	7.15	292	45.3
AU6	4/12/2019	1.67	16.1	7.16	281	44.1
AU6	4/13/2019	1.59	16.4	6.98	283	42.8
AU6	4/14/2019	1.64	16.5	6.96	285	42.4
AU6	4/15/2019	1.70	16.3	6.54	281	43.4
AU6	4/16/2019	1.67	16.3	6.06	277	41.5
AU6	4/17/2019	1.60	16.6	5.89	274	43.5
AU6	4/18/2019	1.53	16.9	6.35	259	45.0
AU6	4/19/2019	1.61	16.9	6.67	249	43.4
AU6	4/20/2019	1.65	17.0	6.33	244	45.5
AU6	4/21/2019	1.67	17.0	6.05	246	44.3
AU6	4/22/2019	1.67	17.2	5.92	248	45.5
AU6	4/23/2019	1.65	17.6	6.26	254	46.3
AU6	4/24/2019	1.61	17.8	6.27	250	47.9
AU6	4/25/2019	1.61	18.1	6.45	241	45.8
AU6	4/26/2019	1.70	18.3	6.34	239	43.3
AU6	4/27/2019	1.70	18.4	6.29	240	42.6
AU6	4/28/2019	1.71	18.7	6.21	243	41.8
AU6	4/29/2019	1.73	19.1	6.28	245	45.7
AU6	4/30/2019	1.74	19.4	6.19	244	43.9
AU6	5/1/2019	1.74	19.9	6.14	248	37.1
AU6	5/2/2019	1.75	20.2	6.02	259	35.7
AU6	5/3/2019	1.72	20.4	5.98	267	33.0
AU6	5/4/2019	1.72	20.5	6.08	272	30.2
AU6	5/5/2019	1.77	20.7	5.83	279	28.6
AU6	5/6/2019	1.80	20.9	5.80	281	29.0
AU6	5/7/2019	1.81	21.2	5.76	293	28.5
AU6	5/8/2019	1.77	21.2	5.80	306	29.2
AU6	5/9/2019	1.82	21.2	5.88	301	30.7
AU6	5/10/2019	1.95	21.0	6.06	285	32.6
AU6	5/11/2019	1.98	21.1	5.48	279	35.0
AU6	5/12/2019	2.02	21.2	5.30	269	34.2
AU6	5/13/2019	2.08	21.4	4.91	268	34.3
AU6	5/14/2019	2.09	21.4	4.92	266	33.7

Site	Date	Depth (m)	Water temp (°C)	Dissolved oxygen (mg/l)	Specific conductance (µS/cm)	Turbidity (FNU)
T3	1/18/2019	1.65	10.9	0.51	287	2.4
T3	1/19/2019	1.65	11.0	0.08	289	1.9
T3	1/20/2019	1.83	11.0	0.06	289	2.4
T3	1/21/2019	1.86	10.4	0.05	289	2.2
T3	1/22/2019	1.80	10.5	-0.08	291	1.9
T3	1/23/2019	1.78	10.6	-0.09	291	1.2
T3	1/24/2019	1.86	10.4	0.01	289	1.4
T3	1/25/2019	1.92	10.0	0.01	290	1.3
T3	1/26/2019	1.88	10.0	-0.02	291	1.2
T3	1/27/2019	1.82	10.1	-0.11	292	1.4
T3	1/28/2019	1.75	10.3	-0.01	291	1.5
T3	1/29/2019	1.79	10.4	-0.10	292	1.7
T3	1/30/2019	1.81	10.1	0.25	291	1.0
T3	1/31/2019	1.76	9.8	0.36	290	1.0
T3	2/1/2019	1.72	10.0	-0.05	297	1.8
T3	2/2/2019	1.69	10.2	-0.11	298	2.4
T3	2/3/2019	1.63	10.3	-0.11	291	1.9
T3	2/4/2019	1.60	10.4	-0.12	283	1.8
T3	2/5/2019	1.60	10.4	-0.12	282	1.9
T3	2/6/2019	1.59	10.6	-0.12	295	2.1
T3	2/7/2019	1.60	10.7	-0.12	295	4.0
T3	2/8/2019	1.71	10.8	-0.12	286	6.4
T3	2/9/2019	1.72	11.1	-0.12	284	6.7
T3	2/10/2019	1.63	11.3	-0.12	286	9.2
T3	2/11/2019	1.53	11.5	-0.12	289	5.9
T3	2/12/2019	1.55	11.6	-0.12	294	4.3
T3	2/13/2019	1.61	11.8	-0.12	297	5.1
T3	2/14/2019	1.52	12.0	-0.11	299	6.1
T3	2/15/2019	1.46	12.1	-0.11	296	5.2
T3	2/16/2019	1.43	12.2	-0.11	297	5.4
T3	2/17/2019	1.43	12.3	-0.11	300	4.8
T3	2/18/2019	1.54	12.4	-0.11	299	4.2
T3	2/19/2019	1.49	12.6	-0.11	298	3.0
T3	2/20/2019	1.48	12.7	-0.11	299	2.4
T3	2/21/2019	1.52	12.8	-0.11	303	2.5
T3	2/22/2019	1.54	12.9	-0.11	309	2.1
T3	2/23/2019	1.55	13.0	-0.11	303	2.3
T3	2/24/2019	1.68	13.0	-0.11	296	3.0

<b>T3</b>	2/25/2019	1.76	13.1	-0.11	294	3.2
<b>T3</b>	2/26/2019	1.76	13.3	-0.11	300	2.8
<b>T3</b>	2/27/2019	1.80	13.4	-0.11	306	2.4
<b>T3</b>	2/28/2019	1.83	13.4	-0.11	312	2.3
<b>T3</b>	3/1/2019	1.90	13.5	-0.11	318	1.9
<b>T3</b>	3/2/2019	1.95	12.8	0.34	296	9.2
<b>T3</b>	3/3/2019	1.97	11.7	4.65	251	21.9
<b>T3</b>	3/4/2019	2.10	11.2	6.58	245	23.7
<b>T3</b>	3/5/2019	2.21	10.1	7.67	241	27.1
<b>T3</b>	3/6/2019	2.27	9.5	8.63	237	30.4
<b>T3</b>	3/7/2019	2.23	9.3	9.07	234	32.0
<b>T3</b>	3/8/2019	2.21	9.3	9.37	233	34.0
<b>T3</b>	3/9/2019	2.22	9.4	9.57	235	37.6
<b>T3</b>	3/10/2019	2.31	9.6	9.55	237	39.5
<b>T3</b>	3/11/2019	2.40	9.6	9.50	239	38.6
<b>T3</b>	3/12/2019	2.44	9.8	9.40	240	37.9
<b>T3</b>	3/13/2019	2.38	10.1	9.22	239	40.9
<b>T3</b>	3/14/2019	2.44	10.6	9.21	235	37.2
<b>T3</b>	3/15/2019	2.56	10.4	9.18	230	38.8
<b>T3</b>	3/16/2019	2.60	10.3	9.10	228	37.9
<b>T3</b>	3/17/2019	2.59	10.6	9.06	226	35.5
<b>T3</b>	3/18/2019	2.57	10.6	8.95	225	35.0
<b>T3</b>	3/19/2019	2.56	11.1	8.90	226	34.4
<b>T3</b>	3/20/2019	2.52	11.5	8.70	225	35.0
<b>T3</b>	3/21/2019	2.50	11.9	8.78	227	31.2
<b>T3</b>	3/22/2019	2.48	12.3	8.78	233	33.1
<b>T3</b>	3/23/2019	2.48	12.7	8.73	239	32.6
<b>T3</b>	3/24/2019	2.46	12.9	8.58	243	34.2
<b>T3</b>	3/25/2019	2.43	13.2	8.37	246	38.7
<b>T3</b>	3/26/2019	2.47	13.5	8.05	247	41.8
<b>T3</b>	3/27/2019	2.48	13.4	8.10	252	44.8
<b>T3</b>	3/28/2019	2.45	13.6	8.16	257	45.5
<b>T3</b>	3/29/2019	2.38	13.9	8.10	260	45.6
<b>T3</b>	3/30/2019	2.31	14.2	7.94	263	49.3
<b>T3</b>	3/31/2019	2.36	13.9	8.11	267	52.7
<b>T3</b>	4/1/2019	2.33	13.7	8.15	268	53.3
<b>T3</b>	4/2/2019	2.30	13.6	8.05	268	51.7
<b>T3</b>	4/3/2019	2.28	13.6	7.90	267	50.7
<b>T3</b>	4/4/2019	2.24	13.7	7.89	263	50.4
<b>T3</b>	4/5/2019	2.21	13.8	7.74	263	51.7
<b>T3</b>	4/6/2019	2.16	14.0	7.25	262	51.3

<b>T3</b>	4/7/2019	2.11	14.5	6.52	265	51.9
<b>T3</b>	4/8/2019	2.03	14.7	5.51	266	55.4
<b>T3</b>	4/9/2019	2.00	14.8	5.10	269	55.9
<b>T3</b>	4/10/2019	1.96	14.9	1.67	284	73.3
<b>T3</b>	4/11/2019	1.91	15.3	1.19	296	91.7
<b>T3</b>	4/12/2019	1.91	15.5	0.35	303	73.5
<b>T3</b>	4/13/2019	1.84	15.7	0.12	307	49.2
<b>T3</b>	4/14/2019	1.89	16.0	0.06	301	51.9
<b>T3</b>	4/15/2019	1.97	16.2	0.29	317	44.8
<b>T3</b>	4/16/2019	1.95	16.3	0.26	312	53.1
<b>T3</b>	4/17/2019	1.89	16.4	0.03	322	40.9
<b>T3</b>	4/18/2019	1.83	16.6	0.01	325	28.5
<b>T3</b>	4/19/2019	1.91	16.8	0.69	306	38.3
<b>T3</b>	4/20/2019	1.96	16.7	1.02	294	56.8
<b>T3</b>	4/21/2019	1.98	16.7	0.82	284	56.3
<b>T3</b>	4/22/2019	1.98	16.7	-0.03	302	36.7
<b>T3</b>	4/23/2019	1.96	16.8	-0.08	322	16.4
<b>T3</b>	4/24/2019	1.91	16.9	-0.08	343	10.5
<b>T3</b>	4/25/2019	1.89	16.9	-0.08	357	7.6
<b>T3</b>	4/26/2019	1.97	17.0	-0.08	367	8.8
<b>T3</b>	4/27/2019	1.97	17.1	-0.08	388	7.1
<b>T3</b>	4/28/2019	1.96	17.3	-0.08	401	7.0
<b>T3</b>	4/29/2019	1.98	17.4	-0.08	418	6.3
<b>T3</b>	4/30/2019	1.98	17.6	-0.08	419	9.0
<b>T3</b>	5/1/2019	1.98	17.7	-0.08	414	8.2
<b>T3</b>	5/2/2019	1.98	17.9	-0.08	417	7.8
<b>T3</b>	5/3/2019	1.96	18.1	-0.08	414	7.2
<b>T3</b>	5/4/2019	1.95	18.3	-0.08	436	6.2
<b>T3</b>	5/5/2019	1.99	18.8	-0.07	442	7.9
<b>T3</b>	5/6/2019	2.01	19.3	-0.07	431	15.0
<b>T3</b>	5/7/2019	2.01	19.6	-0.07	416	20.7
<b>T3</b>	5/8/2019	1.97	19.7	-0.07	430	12.1
<b>T3</b>	5/9/2019	2.01	19.9	-0.07	427	12.9
<b>T3</b>	5/10/2019	2.12	20.7	2.86	331	28.1
<b>T3</b>	5/11/2019	2.10	20.9	3.22	287	37.2
<b>T3</b>	5/12/2019	2.12	21.0	3.42	274	40.2
<b>T3</b>	5/13/2019	2.16	21.1	3.09	271	40.4
<b>T3</b>	5/14/2019	2.19	21.0	2.86	266	40.2
<b>T3</b>	5/15/2019	2.20	21.1	3.20	260	47.7
<b>T3</b>	5/16/2019	2.21	21.3	2.93	256	44.6
<b>T3</b>	5/17/2019	2.19	21.5	3.17	258	45.7



<b>T3</b>	5/18/2019	2.17	21.8	2.95	258	44.3
<b>T3</b>	5/19/2019	2.24	22.0	3.58	255	42.9
<b>T3</b>	5/20/2019	2.27	22.2	3.87	261	41.1
<b>T3</b>	5/21/2019	2.24	22.5	3.58	267	42.1
<b>T3</b>	5/22/2019	2.29	22.8	3.19	271	39.7
<b>T3</b>	5/23/2019	2.35	23.2	2.99	280	39.4
<b>T3</b>	5/24/2019	2.35	23.5	2.95	290	40.6
<b>T3</b>	5/25/2019	2.35	23.8	2.82	302	40.6
<b>T3</b>	5/26/2019	2.35	24.0	2.86	308	41.6
<b>T3</b>	5/27/2019	2.30	24.3	2.58	308	39.7
<b>T3</b>	5/28/2019	2.27	24.6	2.10	309	37.7
<b>T3</b>	5/29/2019	2.24	24.8	1.95	314	41.3
<b>T3</b>	5/30/2019	2.25	24.9	2.06	320	37.2
<b>T3</b>	5/31/2019	2.25	25.1	2.08	319	35.9
<b>T3</b>	6/1/2019	2.22	25.3	2.14	321	33.9
<b>T3</b>	6/2/2019	2.21	25.6	1.80	326	34.6
<b>T3</b>	6/3/2019	2.21	25.9	1.89	333	36.2
<b>T3</b>	6/4/2019	2.20	25.9	1.96	341	37.8
<b>T3</b>	6/5/2019	2.17	26.0	1.80	345	39.5
<b>T3</b>	6/6/2019	2.20	25.9	3.58	337	43.1
<b>T3</b>	6/7/2019	2.20	25.9	3.99	343	49.7
<b>T3</b>	6/8/2019	2.20	25.9	3.96	342	61.4
<b>T3</b>	6/9/2019	2.22	26.0	3.43	339	65.8
<b>T3</b>	6/10/2019	2.25	26.1	2.54	341	66.1
<b>T3</b>	6/11/2019	2.23	26.0	3.14	346	65.8
<b>T3</b>	6/12/2019	2.20	25.7	3.56	352	69.2
<b>T3</b>	6/13/2019	2.21	25.6	3.46	351	68.6
<b>T3</b>	6/14/2019	2.21	25.5	2.91	348	68.7
<b>T3</b>	6/15/2019	2.19	25.7	3.73	339	69.1
<b>T3</b>	6/16/2019	2.17	25.9	3.22	331	61.9
<b>T3</b>	6/17/2019	2.15	25.8	3.82	332	62.3
<b>T3</b>	6/18/2019	2.14	25.8	4.09	331	60.5
<b>T3</b>	6/19/2019	2.13	26.0	4.10	335	61.3
<b>T3</b>	6/20/2019	2.13	26.1	3.28	341	59.1
<b>T3</b>	6/21/2019	2.15	26.3	3.86	344	57.6
<b>T3</b>	6/22/2019	2.16	26.4	3.79	351	56.7
<b>T3</b>	6/23/2019	2.13	26.6	3.21	361	53.0
<b>T3</b>	6/24/2019	2.13	26.6	3.56	367	49.0
<b>T3</b>	6/25/2019	2.15	26.4	2.58	374	46.6
<b>T3</b>	6/26/2019	2.16	26.5	2.41	377	44.6
<b>T3</b>	6/27/2019	2.15	26.3	0.67	395	39.9

<b>T3</b>	6/28/2019	2.13	26.6	1.64	377	43.7
<b>T3</b>	6/29/2019	2.11	26.3	2.63	366	45.5
<b>T3</b>	6/30/2019	2.08	26.1	0.63	389	37.8
<b>T3</b>	7/1/2019	2.07	26.1	0.26	380	33.5
<b>T3</b>	7/2/2019	2.05	26.2	0.08	387	36.5
<b>T3</b>	7/3/2019	2.04	26.4	0.33	397	34.9
<b>T3</b>	7/4/2019	2.04	26.5	0.48	400	36.8
<b>T3</b>	7/5/2019	2.06	26.6	0.70	400	34.5
<b>T3</b>	7/6/2019	2.05	26.7	0.51	399	30.0
<b>T3</b>	7/7/2019	2.03	26.9	0.39	398	30.3
<b>T3</b>	7/8/2019	2.01	27.0	0.18	401	31.9
<b>T3</b>	7/9/2019	2.00	27.1	0.12	397	28.9
<b>T3</b>	7/10/2019	1.99	27.2	0.04	396	27.3
<b>T3</b>	7/11/2019	1.95	27.3	-0.02	402	27.9
<b>T3</b>	7/12/2019	1.90	27.5	-0.02	391	27.7
<b>T3</b>	7/13/2019	1.92	27.5	1.03	380	25.6
<b>T3</b>	7/14/2019	2.18	27.1	2.17	361	30.3
<b>T3</b>	7/15/2019	2.27	28.0	2.27	375	33.0
<b>T3</b>	7/16/2019	2.26	28.3	2.06	381	30.9
<b>T3</b>	7/17/2019	2.23	28.1	1.03	380	26.7
<b>T3</b>	7/18/2019	2.18	28.2	1.15	379	30.2
<b>T3</b>	7/19/2019	2.15	28.2	1.13	389	24.9
<b>T3</b>	7/20/2019	2.11	28.2	0.49	392	23.7
<b>T3</b>	7/21/2019	2.09	28.2	0.76	384	23.7
<b>T3</b>	7/22/2019	2.07	27.8	0.62	386	19.9
<b>T3</b>	7/23/2019	2.04	27.6	-0.01	401	14.4
<b>T3</b>	7/24/2019	2.03	27.4	0.57	393	16.4
<b>T3</b>	7/25/2019	2.00	27.1	0.80	389	18.2
<b>T3</b>	7/26/2019	1.99	26.8	0.00	393	15.4
<b>T3</b>	7/27/2019	1.98	26.7	-0.02	403	13.6
<b>T3</b>	7/28/2019	1.94	26.6	-0.02	412	14.5
<b>T3</b>	7/29/2019	1.89	26.5	-0.02	404	19.7
<b>T3</b>	7/30/2019	1.86	26.4	-0.02	406	15.0
<b>T3</b>	7/31/2019	1.84	26.3	-0.02	430	9.4
<b>T3</b>	8/1/2019	1.80	26.2	-0.02	431	7.9
<b>T3</b>	8/2/2019	1.75	26.2	-0.02	437	7.8
<b>T3</b>	8/3/2019	1.70	26.2	0.03	428	9.9
<b>T3</b>	8/4/2019	1.66	26.1	-0.02	444	6.3
<b>T3</b>	8/5/2019	1.64	26.0	-0.02	455	6.2

**Appendix 2.** Photographs of monitoring activities.



Fig A1. During sonde deployment at site AU6 on 6 November 2019, Will DeGravelles points towards the high-water mark left on the tree during the flood earlier in the year.





Fig A2. Swamp privet (*Forestiera acuminata*) often forms a dense tangle of branches making access to the backswamp monitoring stations difficult.





Fig A3. Backswamp monitoring station AU2S on 12 December 2019.





Fig A4. Banding and tagging trees to measure growth rates on 12 December 2019.



Fig A5. Overbank flooding along the Florida Gas Canal on 5 August 2019.





Fig A6. Fire ants cling to anything they can find during high water in 2019.



Fig A7. Water coming over bank near the old Cannon Bayou channel on 18 January 2019.





Fig A8. Turbid river water in the Florida Gas Canal meets blackwater in the backswamp on a rainy 3 January 2019.



Fig A9. Turbid water from the Florida Gas Canal snakes its way into the backswamp through an old distributary channel near the AU1 monitoring station on 3 January 2019.





Fig A10, Before and after comparison of the YSI Exo2 water quality sondes deployed at the seven backswamp monitoring stations.