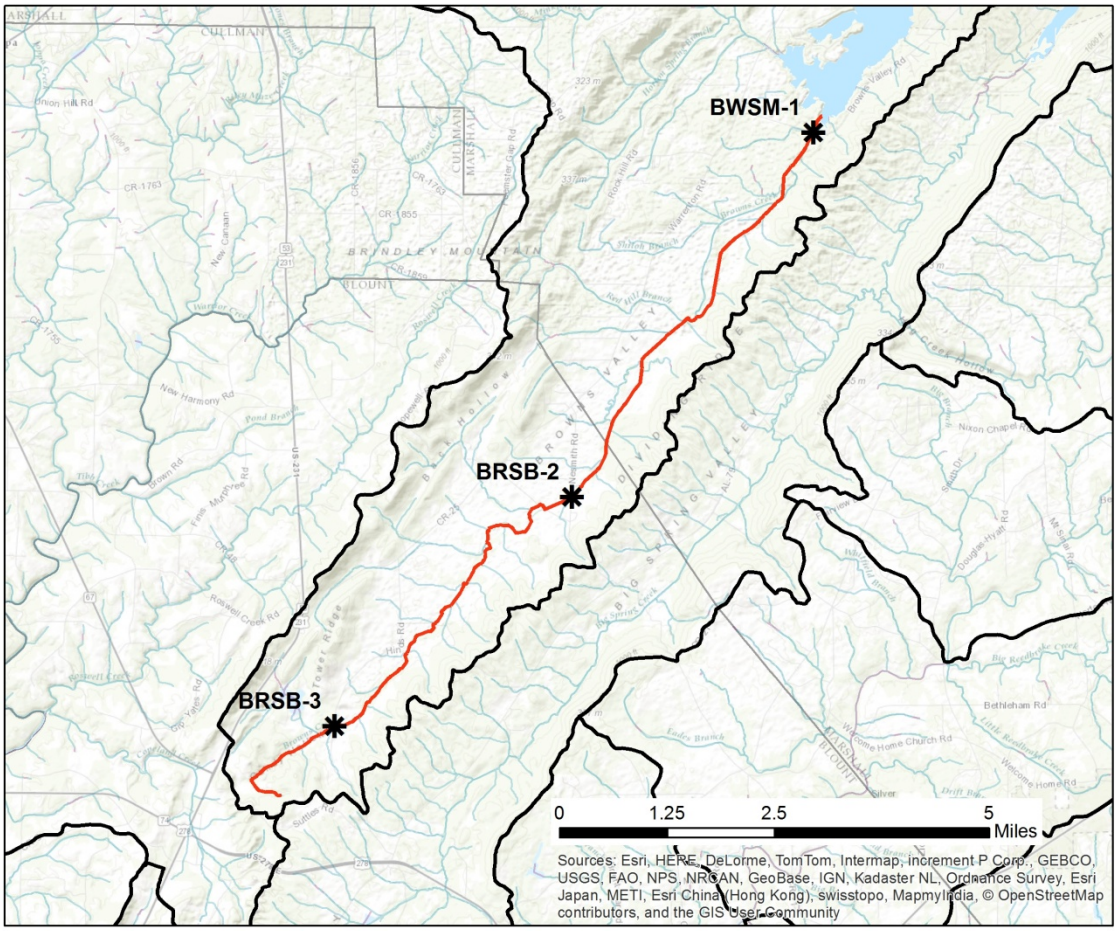
Draft
Delisting Decision
for
Browns Creek

Waterbody ID AL06030001-0904-102

Total Dissolved Solids

Alabama Department of Environmental Management
Water Quality Branch
Water Division
September 2015

Browns Creek Watershed in the Tennessee River Basin



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1.0 Executive Summary

The Browns Creek watershed is located in the Tennessee River Basin near the Blount County and Marshall County border. Browns Creek originates south of the City of Arab and flows northeast approximately twelve miles before intersecting Lake Guntersville.

In 2009, the Alabama Department of Environmental Management (ADEM) sampled several sites throughout the Tennessee River Basin as part of the Assessment of the Tennessee (TN) River Basin Project. The overall objective of this project was to assess the biological integrity of each sampling site with the hopes of estimating the overall water quality within the Tennessee River basin. The Browns Creek watershed was included in this project, and both biological and water quality monitoring was completed at station BRSB-2 during 2009. Based on the elevated total phosphorus concentrations, the single sample maximum total dissolved solids concentration of 1036 mg/L and the poor macroinvertebrate community score, assessment unit AL06030001-0904-102 of Browns Creek was added to the Department's 2012 §303(d) List with the causes of impairment being nutrients and total dissolved solids.

Table 1.1 2012 Alabama 303(d) List

Assessment Unit ID	Waterbody Name	Type	County	Uses	Causes	Sources	Date of Data	Size	Downstream / Upstream Locations
AL06030001-0904-102	Browns Creek	R	Marshall	F&W	Total Dissolved Solids, Nutrients	Agriculture, Mining	2009	11.86 miles	Guntersville Lake / its Source
AL06030001-0904-101	Browns Creek (Guntersville Lake)	L	Marshall	PWS/ S/F& W	Nutrients	Agriculture	2009	5176.9 acres	Embayed portion of Browns Creek

In 2013, as part of the 2013 §303(d) water quality monitoring project for TMDL development, the Department re-sampled Browns Creek at the following three stations on assessment unit AL06030001-0904-102: BRSB-3, BRSB-2, and BWSM-1. In-situ field parameter measurements and water quality samples were collected on a monthly basis from March – October. Also, benthic macro-invertebrate communities were re-sampled using ADEM's Intensive Multi-habitat Bioassessment methodology (WMB-1) at station BRSB-2.

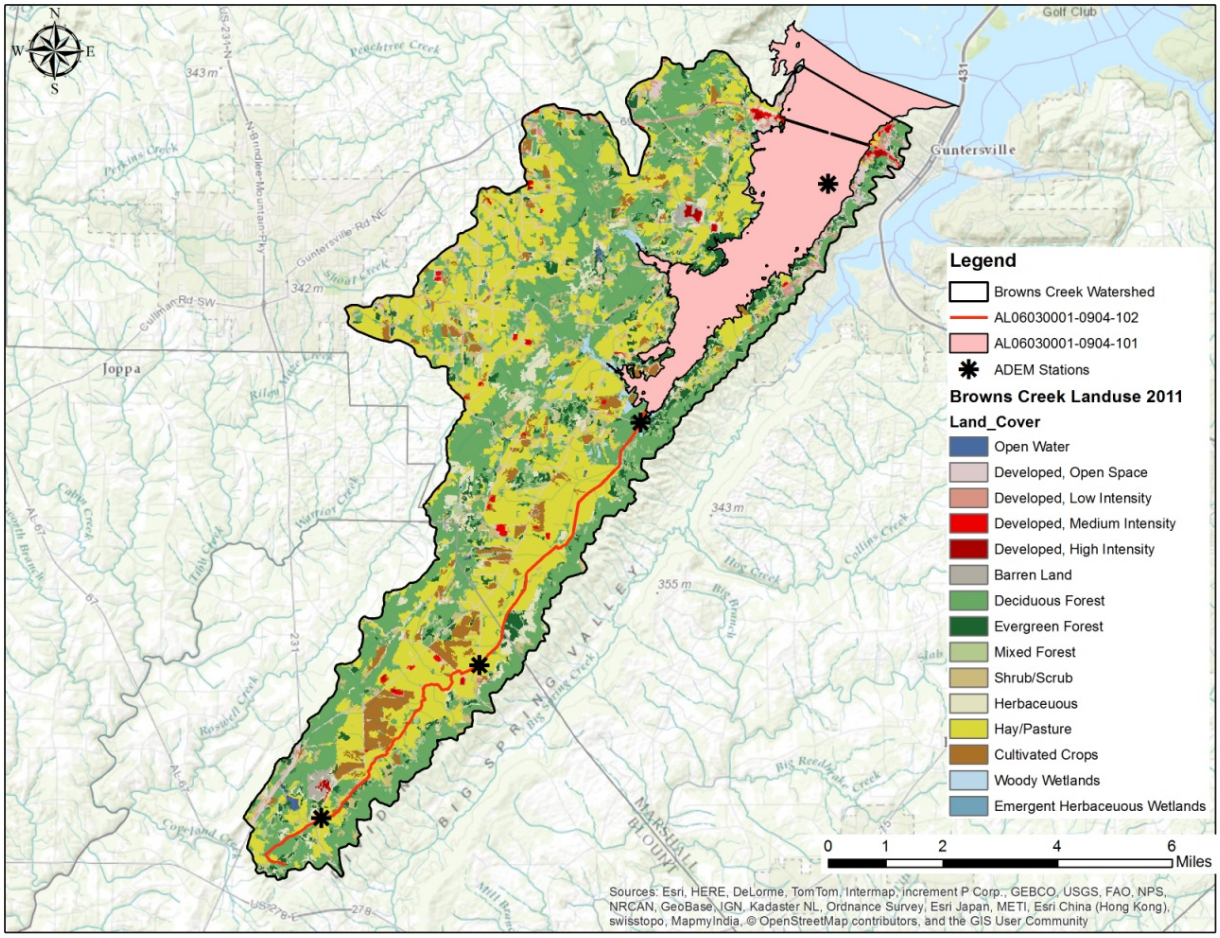
This report provides the results of the delisting analysis for only the total dissolved solids impairment. Based on the assessment of all the available physical, chemical and biological data for Browns Creek, the Department has determined that a total dissolved solids impairment does not currently exist. Therefore, ADEM will not develop a TMDL for total dissolved solids due to "more recent or accurate data," which is just cause for delisting a waterbody according to Title 40 of the Code of Federal Regulations (CFR), Part 130.7(b)(6)(iv).

2.0 Basis for §303(d) Listing

2.1 Browns Creek Background

The Browns Creek watershed is located in the Tennessee River Basin near the Blount County and Marshall County border. Based on the 2011 National Land Cover Database (NLCD), the predominant landuses in the watershed are forested (40%) and agriculture (33%); furthermore, less than 6% of the watershed has been developed. Browns Creek consists of two distinctly different waterbody types: a wadeable, free flowing stream and the tributary embayment segment of Lake Guntersville. Therefore, the Department has broken up Browns Creek into two separate assessment units to accurately represent the wadeable portion of Browns Creek (AL06030001-0904-102) and the reservoir embayment (AL06030001-0904-101). Please refer to the figure below for a depiction of Browns Creek watershed 2011 NLCD coverage and also the Department's assessment units.

Figure 2.1.1 Browns Creek 2011 National Land Cover Database Coverage



The free flowing, wadeable segment of Browns Creek (AL06030001-0904-102) originates south of the City of Arab and flows northeast approximately twelve miles before intersecting Lake Guntersville. This segment of Browns Creek is a riffle-run stream with the dominant substrate consisting primarily of gravel and sand. The use classification of the free flowing, wadeable segment of Browns Creek is Fish and Wildlife (F&W).

The Browns Creek tributary embayment segment is located west of the city of Guntersville. The embayment area consists of approximately 5177 acres. The use classification of the tributary embayment segment of Browns Creek is Public Water Supply/Swimming/Fish and Wildlife (PWS/S/F&W).

2.2 Rationale for Listing

Section 303(d) of the Clean Water Act (CWA), as amended by the Water Quality Act of 1987 and EPA's Water Quality Planning and Management Regulations [Title 40 of the Code of Federal Regulations (CFR), Part 130], requires states to identify waterbodies that are not meeting water quality standards applicable to their designated use classifications. The identified waters are prioritized based on severity of pollution with respect to designated use classifications and listed on each state's §303(d) List of Impaired Waters.

In 2009, the Alabama Department of Environmental Management (ADEM) sampled several sites throughout the Tennessee River Basin as part of the Assessment of the Tennessee (TN) River Basin Project. The overall objective of this project was to assess the biological integrity of each sampling site with the hopes of estimating the overall water quality within the Tennessee River basin. The Browns Creek watershed was included in this project, and both biological and water quality monitoring was completed at station BRSB-2 during 2009. The findings from this project, described in further detail below, served as the original basis for adding Browns Creek to Alabama's 2012 §303(d) List of Impaired Waters.

During 2009, in-situ field parameter measurements and water quality samples were collected on a monthly basis from March – October. Furthermore, in order to identify possible stressors on the biological communities, metal samples were collected on a semi-monthly basis and pesticides, semi-volatile organics and atrazine were collected on a quarterly basis.

The median total phosphorus concentration evaluated from the monthly samples dataset was 0.064 mg/L and the maximum observed total phosphorus concentration was 0.481 mg/L. Furthermore, the July monthly water quality sample yielded a maximum observed total dissolved solids concentration of 1036 mg/L. In addition to collecting water quality samples at station BRSB-2 in 2009, benthic macroinvertebrate communities were sampled using ADEM's Intensive Multi-habitat Bioassessment methodology (WMB-1). The WMB-I uses measures of taxonomic richness, community composition, and community tolerance to assess the overall health of the macroinvertebrate community. The results from the assessment were analyzed using the Department's 2008 macroinvertebrate index and the resulting final score indicated the community to be in poor condition. Based on the elevated total phosphorus

concentrations, the single sample maximum total dissolved solids concentration of 1036 mg/L and the poor macroinvertebrate community score, Browns Creek was added to the Department's 2012 §303(d) List with the causes of impairment being nutrients and total dissolved solids.

3.0 Technical Basis for Delisting Decision

3.1 Water Quality Target Identification

Total Dissolved Solids

ADEM's Water Quality Regulations do not provide numeric water quality criteria for total dissolved solids (TDS). Historically, in the absence of established numeric criteria, ADEM and/or EPA would use available data and information coupled with best professional judgment to determine overall use support for a given waterbody. Narrative criteria continues to serve as a regulatory basis for determining use support and making listing/delisting decisions of waters in regards to Alabama's §303(d) List. ADEM's Narrative Criteria, as shown in ADEM's Administrative Code, Rule 335-6-10-.06, are as follows:

335-6-10-.06 Minimum Conditions Applicable to All State Waters. *The following minimum conditions are applicable to all State waters, at all places and at all times, regardless of their uses:*

(a) State waters shall be free from substances attributable to sewage, industrial wastes or other wastes that settle to form bottom deposits which are unsightly, putrescent or interfere directly or indirectly with any classified water use.
(b) State waters shall be free from floating debris, oil, scum, and other floating materials attributable to sewage, industrial wastes or other wastes in amounts sufficient to be unsightly or which interfere directly or indirectly with any classified water use.
(c) State waters shall be free from substances attributable to sewage, industrial wastes or other wastes in concentrations or combinations, which are toxic or harmful to human, animal or aquatic life to the extent commensurate with the designated usage of such waters.

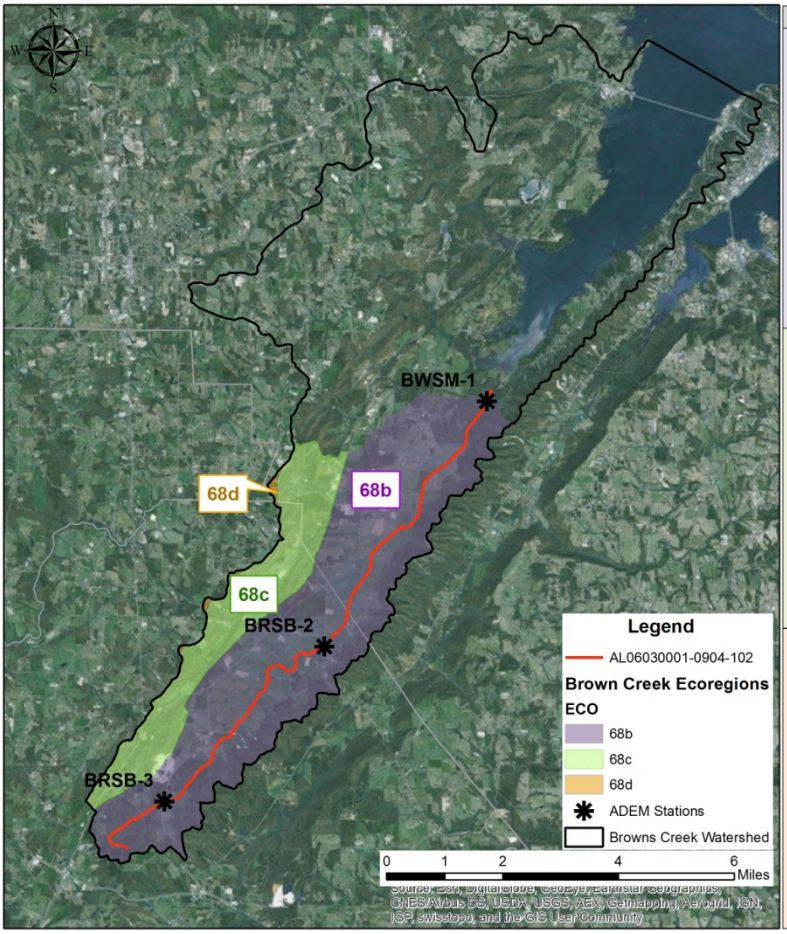
For purposes of evaluating attainment of the narrative criteria above, ADEM will use both EPA's national recommended water quality criteria and ADEM's ecoregional reference guidelines concentrations. EPA's recommended criteria are published in section 304(a) of the Clean Water Act and list guidelines for approximately 150 pollutants. In 2010, ADEM published ecoregional reference guidelines for a number of parameters and pollutants. Reference streams, also referred to as "reference reaches" or "ecoregional reference sites," are defined as relatively homogeneous areas of similar climate, land form, soil, natural vegetation, hydrology, and other ecologically relevant variables (USEPA, 2000b) which have remained comparatively undisturbed or minimally impacted by human activity over an extended period of time in relation to other

waters of the State. While not necessarily pristine or completely undisturbed by humans, reference streams do represent desirable chemical, physical and biological conditions for a given ecoregion that can be used for evaluation purposes.

In developing and establishing reference conditions from best available data, frequency distributions are recommended by the *Nutrient Criteria Technical Guidance Manual for Rivers and Streams* (USEPA, 2000b) as the preferred method for setting criteria. ADEM elected to use the 90th percentile of the data distributions from the selected eco-region reference sites for comparison to the recently collected total dissolved solids data from Browns Creek.

The reference streams selected for a particular analysis depends primarily on the number of available reference stations and associated data within a particular ecoregion. Therefore, the total number of reference sites selected and the aerial scale (i.e. Ecoregion Level III, Level IV) used to represent a reference condition will often vary on a case-by-case basis. The Browns Creek watershed, for the free-flowing segment AL06030001-0904-102, is comprised of three Level IV Eco-regions: 68b Sequatchie Valley (74.6%), 68c Plateau Escarpment (24.9%), and 68d Southern Table Plateaus (0.5%).

Figure 3.1.1 Browns Creek Level IV Eco-regions



Eco	Description
68b	From the Tennessee border, the elongated Sequatchie Valley extends nearly one hundred miles southwest into Alabama. Structurally associated with an anticline, where erosion of broken rock scooped out the linear valley, it is composed mostly of Mississippian to Ordovician-age limestones, dolomites, and shales, with some low, cherty ridges. In the north, the open, rolling, valley floor, 600 feet in elevation, is nearly 1000 feet below the top of the Cumberland Plateau and Sand Mountain. South of Blountsville, the topography becomes more hilly and irregular with higher elevations. The Tennessee River flows through the Sequatchie Valley in Alabama, until it turns west near Guntersville and leaves the valley. Similar to parts of the Ridge and Valley, this is an agriculturally productive region, with areas of pasture, hay, soybeans, small grain, corn, and tobacco
68c	The Plateau Escarpment is characterized by steep, forested slopes and high velocity, high gradient streams. Local relief is often 1000 feet or more. The geologic strata include Mississippian-age limestone, sandstone, shale, and siltstone, and Pennsylvanian-age shale, siltstone, sandstone, and conglomerate. Streams have cut down into the limestone, but the gorge talus slopes are composed of colluvium with huge angular, slabby blocks of sandstone. Vegetation community types in the ravines and gorges include mixed oak and chestnut oak on the upper slopes, more mesic forests on the middle and lower slopes (beech-yellow poplar, sugar maple-basswoodash-buckeye), with some rare hemlock along rocky streamsides and river birch along floodplain terraces.
68d	The Southern Table Plateaus include Sand Mountain, Lookout Mountain, and Brindley Mountain. While it has some similarities to the Cumberland Plateau (68a) with its Pennsylvanian-age sandstone caprock, shale layers, and coal-bearing strata, this ecoregion is lower in elevation, has a slightly warmer climate, and has more agriculture. It is at higher elevations and has more gentle topography with less dissection than the more forested ecoregions of 68e and 68f. Although the Georgia portion is mostly forested, elevations decrease to the southwest in Alabama and there is more cropland and pasture. It is a major poultry production region in Alabama

The Department has a limited data set of eco-reference conditions available for the Level IV eco-regions 68b Sequatchie Valley and 68c Plateau Escarpment. Therefore, the total dissolved solids reference conditions utilized in this analysis will be adopted from the Level III eco-region 68 Southwestern Appalachians. The 90th percentile of the total dissolved solids data distribution calculated from this eco-region is 97.20 mg/L. Ambient total dissolved solids concentrations will be evaluated against the eco-reference concentration to determine if a total dissolved solids related impairment exists in Browns Creek.

The Level IV Eco-regions 68b Sequatchie Valley and 68c Plateau Escarpment are composed mostly of limestone and shale (Griffith, G.E. et al., 2001). The natural process of the water flowing through this strata, thereby dissolving and accumulating carbonate ions, can result in elevated levels of total dissolved solids, alkalinity, and water hardness. Therefore, careful consideration is needed when evaluating the Browns Creek water quality data against the Level III total dissolved solids eco-reference target of 97.20 mg/L because this particular target may not be representative of the natural conditions found in the Level IV Eco-regions 68b Sequatchie Valley and 68c Plateau Escarpment.

Macroinvertebrate Index Revision

In 2009, benthic macroinvertebrate communities were sampled on Browns Creek at station BRSB-2 using ADEM's Intensive Multi-habitat Bioassessment methodology (WMB-1). The results from this sampling effort were analyzed using the Department's 2008 macroinvertebrate index, resulting in a poor category score. The 2008 index was developed using primarily the 2005-2006 WMB-1 results along with additional historical data.

In 2012, the Department was able to update the macroinvertebrate index based upon the availability of additional data collected during the 2007-2011 sampling seasons, including the assessments completed in the Tennessee River basin in 2009. The additional data set allowed the Department to shift from using just two 2008 indices statewide (either high gradient or low gradient) and move up to five individual indices that are more reflective of the Level III Ecoregions found within the state.

3.2 Data Availability and Analysis

In 2013, as part of the 2013 §303(d) water quality monitoring project for TMDL development, the Department sampled Browns Creek at the following three stations: BRSB-3,BRSB-2, and BWSM-1. In-situ field parameter measurements and water quality samples were collected on a monthly basis from March – October. Also, benthic macroinvertebrate communities were re-sampled using ADEM's Intensive Multi-habitat Bioassessment methodology (WMB-1) at station BRSB-2.

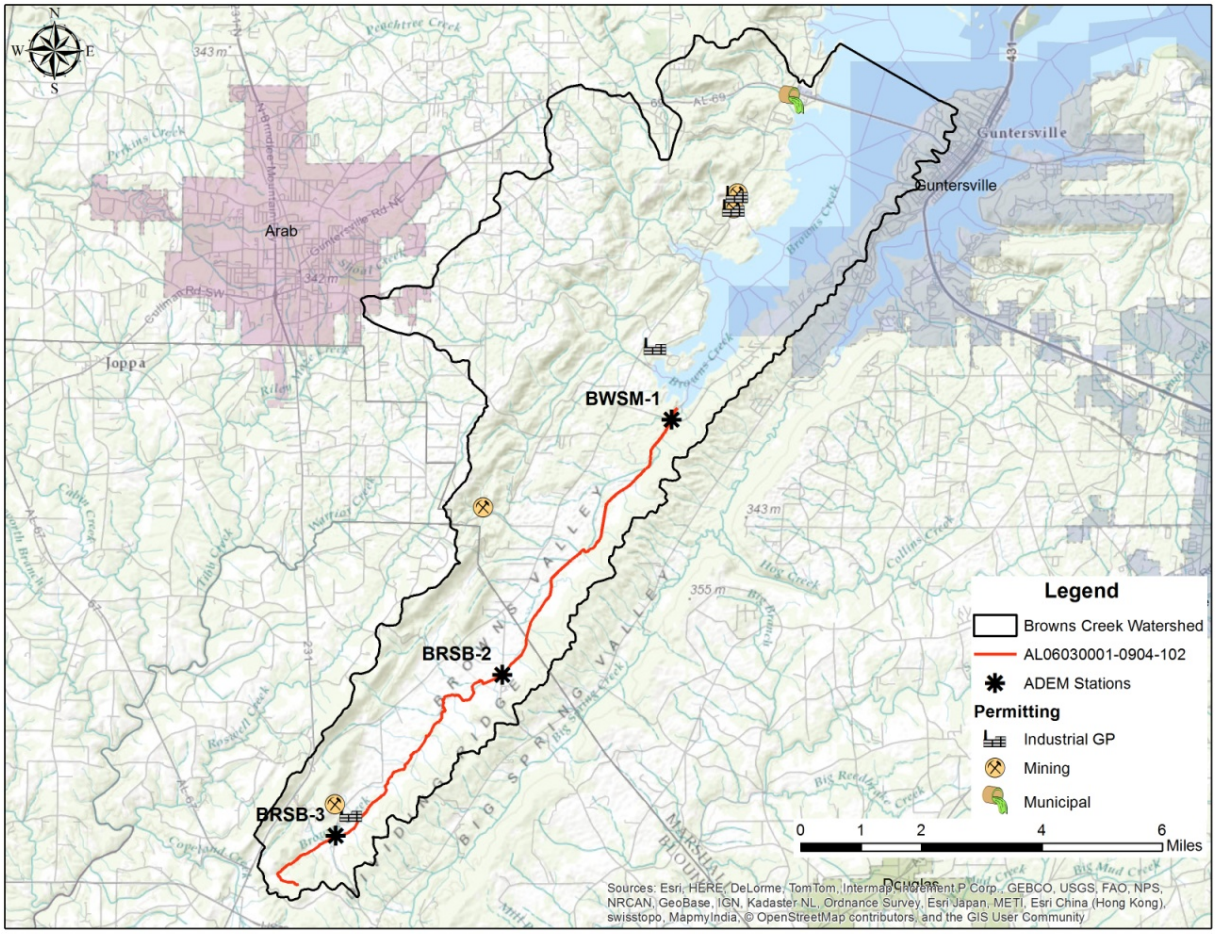
The source of data utilized in this evaluation of the total dissolved solids impairment on Browns Creek is from the Department's 2009 Assessment of the Tennessee (TN) River Basin Project and

also the 2013 §303(d) water quality monitoring. Please refer to Table 3.2.1 below for location descriptions of all the aforementioned sampling stations and to Figure 3.2.1 below for a map depicting the sampling station locations.

Table 3.2.1 ADEM Sampling Stations on Browns Creek

Station	Latitude	Longitude	Drainage Area (mi^2)	Year Sampled	Station Location Description
BRSB-3	34.1847	-86.4864	2.23	2013	Browns Ck at Rock Hollow Road Crossing
BRSB-2	34.2232	-86.4379	10.27	2009 & 2013	Browns Ck at Nesmith Road Crossing
BWSM-1	34.2844	-86.3883	20.76	2013	Browns Ck at Browns Valley Road

Figure 3.2.1 ADEM Sampling Locations for Browns Creek



Macroinvertebrate Assessment Analysis

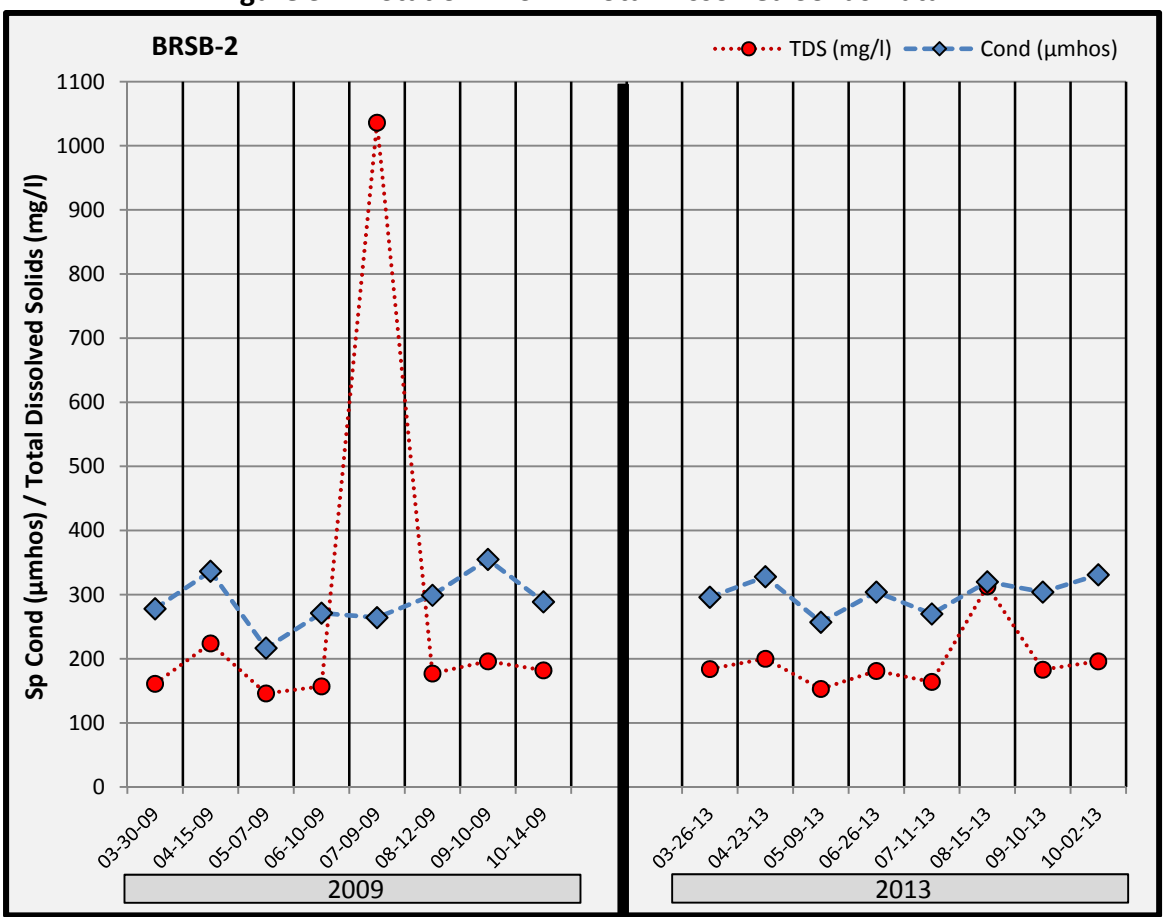
According to the Department's 2012 §303(d) List Fact Sheet, Browns Creek was originally added to the Department's 2012 §303(d) List as being impaired for total dissolved solids due to a poor macroinvertebrate assessment score and a maximum total dissolved solids concentration of 1036 mg/L collected on July 9, 2009, at station BRSB-2. The macroinvertebrate assessment considered in the §303(d) listing was conducted on June 4, 2009, at station BRSB-2. The

resulting WMB-I assessment rating based upon the 2008 macroinvertebrate index indicated the overall health of the macroinvertebrate community was in poor condition.

As a result of the Department revising the macroinvertebrate index due to the availability of additional data, the resulting score from the June 4, 2009, assessment on Browns Creek has been upgraded from a poor WMB-I assessment rating and is now considered a fair rating. Furthermore, on June 24, 2013, benthic macroinvertebrate communities were re-sampled at station BRSB-2 and the resulting assessment score was fair. Based on the results from the macroinvertebrate assessments conducted in 2009 and 2013, the overall health of the macroinvertebrate community in Browns Creek is in fair condition.

Total Dissolved Solids Analysis

Figure 3.2.2 Station BRSB-2 Total Dissolved Solids Data



A water quality sample collected at station BRSB-2 on July 9, 2009, and analyzed for total dissolved solids yielded a concentration of 1036 mg/L. When omitting this outlier TDS value of 1036 mg/L, the average TDS concentration at station BRSB-2 from the 2009 data set is 177 mg/L. The average TDS concentration from the 2013 data set is 197 mg/L. The figure above

illustrates the total dissolved solids and specific conductivity results at station BRSB-2 from the 2009 and 2013 sampling efforts, with the outlier TDS value of 1036 clearly visible.

Due to the fact that the TDS concentration of 1036 mg/L sampled on July 9, 2009, deviates significantly from the available data set, further examination is warranted in order to verify the authenticity of this outlier value. The total dissolved solids in a water quality sample is directly related to conductivity, and in some instances conductivity measurements can be used as a surrogate for TDS by multiplying the conductivity by an empirical factor. The Standard Methods for the Examination of Water and Wastewater specifies this empirical factor may range from 0.55 to 0.9 (Eaton, Andrew D. et al., 1999). Based on the available dataset for station BRSB-2, total dissolved solids concentrations are typically around 60% of conductivity measurements. At the time the outlier TDS sample was collected on July 9, 2009, the measured in-situ conductivity concentration was 264.2 µmhos. Obviously, the July 9, 2009, TDS concentration of 1036 mg/L does not adhere to the same general TDS and conductivity relationship like the rest of the dataset for Browns Creek.

Water hardness is also related to the amount of total dissolved solids in the water column. From the four water hardness samples collected at station BRSB-2 in 2009, the average hardness is 133.6 mg/L, with a range of 76.6 mg/L to 170.0 mg/L. From the sample collected on July 9, 2009 (with the TDS concentration of 1036 mg/L), a hardness measurement of 149.0 mg/L was recorded, which is in-line with the average range of water hardness values from BRSB-2. Due to the relationship between TDS and water hardness, one would expect the water hardness measurement from the July 9, 2009, sample to be elevated along with the measured TDS concentration from the sample.

Based on these two pieces of evidence, the total dissolved solids measurement of 1036 mg/L from the water quality sample collected on July 9, 2009, appears to be an erroneous value possibly due to a lab error and will therefore not be considered in the evaluation of the total dissolved solids data.

The box and whisker plot in Figure 3.2.3 below illustrates the results of the total dissolved solids data collected on Browns Creek during 2009 and 2013 (omitting the erroneous value of 1036 mg/L from station BRSB-2). The green horizontal bar represents the eco-reference value of 97.2 mg/L, adopted from the Level 3 eco-region 68 Southwestern Appalachians. From Figure 3.2.3 below, the total dissolved solids concentrations found in Browns Creek are slightly elevated above the eco-reference TDS target of 97.2 mg/L. Due to the geology of the Browns Creek watershed, comprised of limestone and shale strata typically found in the Level IV Eco-regions 68b Sequatchie Valley and 68c Plateau Escarpment, elevated levels of total dissolved solids, alkalinity, and water hardness are attributable to natural conditions of those eco-regions. Figure 3.2.4 below illustrates the elevated alkalinity concentrations found in Browns Creek as a result of the natural process of the stream flowing through the limestone strata and dissolving the carbonate ions.

Figure 3.2.3 Browns Creek Total Dissolved Solids Data

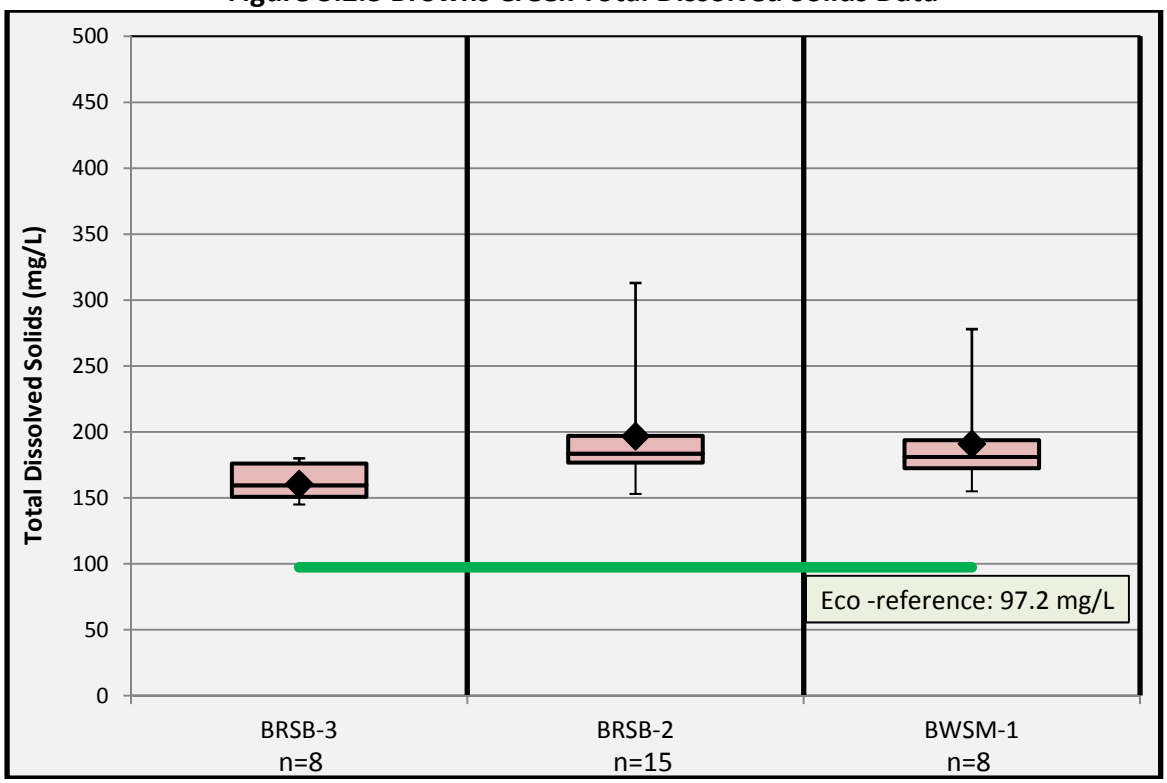
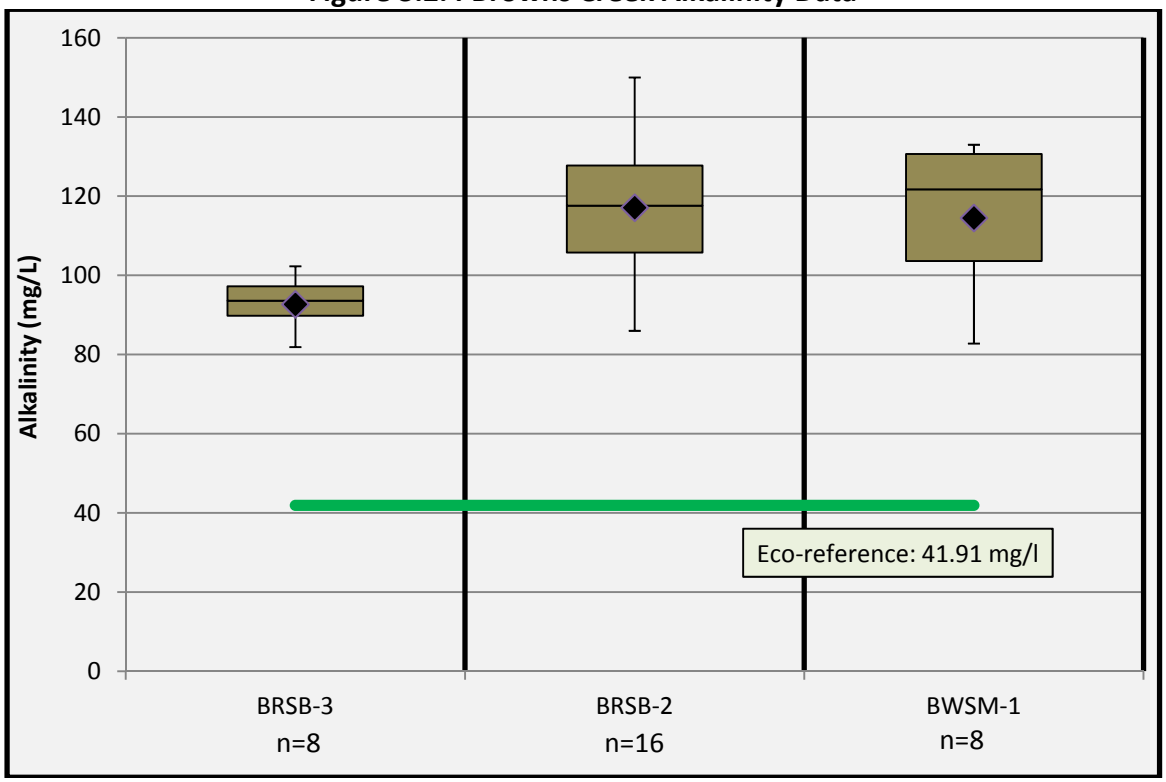


Figure 3.2.4 Browns Creek Alkalinity Data



4.0 Conclusion

In summary, the original listing decision for the total dissolved solids impairment on Browns Creek in 2012 was based on a likely erroneous TDS value and also a poor macroinvertebrate score which has since been upgraded to a fair score as a result of the Department updating the macroinvertebrate metric. Furthermore, the elevated total dissolved solids concentrations in the waterbody are attributable to the natural conditions of the eco-region comprised predominantly of a limestone strata. Considering the overall health of the macroinvertebrate communities in Browns Creek were found to be in fair condition, the Department does not believe the elevated total dissolved solids concentrations are having a negative impact on the biological communities in the waterbody.

From examination of all available data, ADEM has determined that a water quality impairment due to total dissolved solids does not currently exist for Browns Creek. Therefore, ADEM will not develop a TMDL for total dissolved solids due to "more recent data," which is a just cause for delisting waterbodies according to Title 40 of the Code of Federal Regulations (CFR), Part 130.7(b)(6)(iv).

5.0 Public Participation

As part of the public participation process, this Delisting Decision (DD) will be placed on public notice and made available for review and comment. A public notice will be prepared and published in the major daily newspapers in Montgomery, Huntsville, Birmingham, and Mobile, as well as submitted to persons who have requested to be on ADEM's postal and electronic mailing distributions. In addition, the public notice and subject DD will be made available on ADEM's Website: www.adem.state.al.us. The public can also request hard or electronic copies of the DD by contacting Ms. Kimberly Minton at 334-271-7826 or kminton@adem.state.al.us. The public will be given an opportunity to review the DD and submit comments to the Department in writing. At the end of the comment period, all written comments received during the public notice period will become part of the administrative record. ADEM will consider all comments received by the public prior to final completion of this DD and subsequent submission to EPA Region 4 for final approval.

Appendix A
References

Alabama Department of Environmental Management. Administrative Code, 2002. Water Quality Program, Chapter 335-6-10, Water Quality Criteria, and Chapter 335-6-11 Use Classifications for Interstate and Intrastate Waters.

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Eaton, Andrew D, Lenore S. Clesceri, Arnold E. Greenberg, and Mary A. H. Franson. *Standard Methods for the Examination of Water and Wastewater*. Washington, DC: American Public Health Association, 1999.

Griffith, G.E., Omernik, J.M., Comstock, J.A., Lawrence, S., Martin, G., Goddard, A., Hulcher, V.J., and Foster, T., 2001, Ecoregions of Alabama and Georgia, (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,700,000)

United States Environmental Protection Agency. 1991. Guidance for Water Quality-Based Decisions: The TMDL Process, Office of Water, EPA 440/4-91-001.

United States Environmental Protection Agency 2000b. Nutrient Criteria Technical Guidance Manual: River and Streams. United States. Environmental Protection Agency, Office of Water. EPA 822-B-00-002.

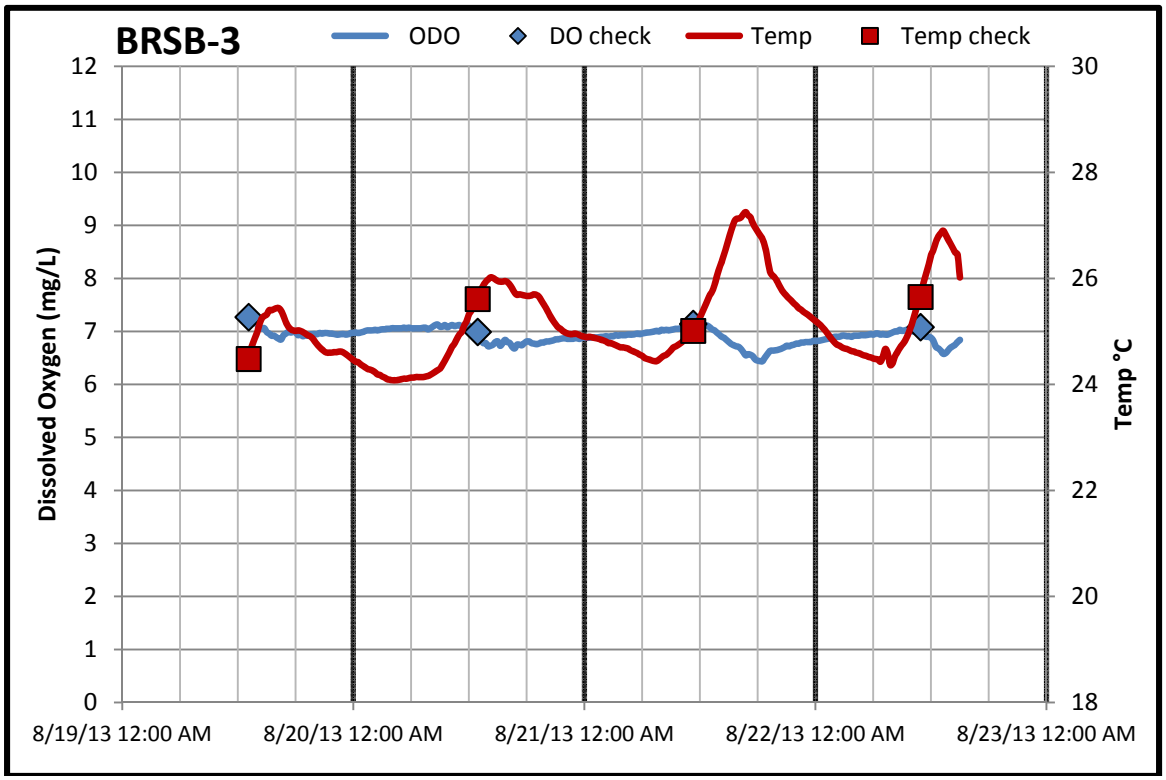
Appendix B
Water Quality Data

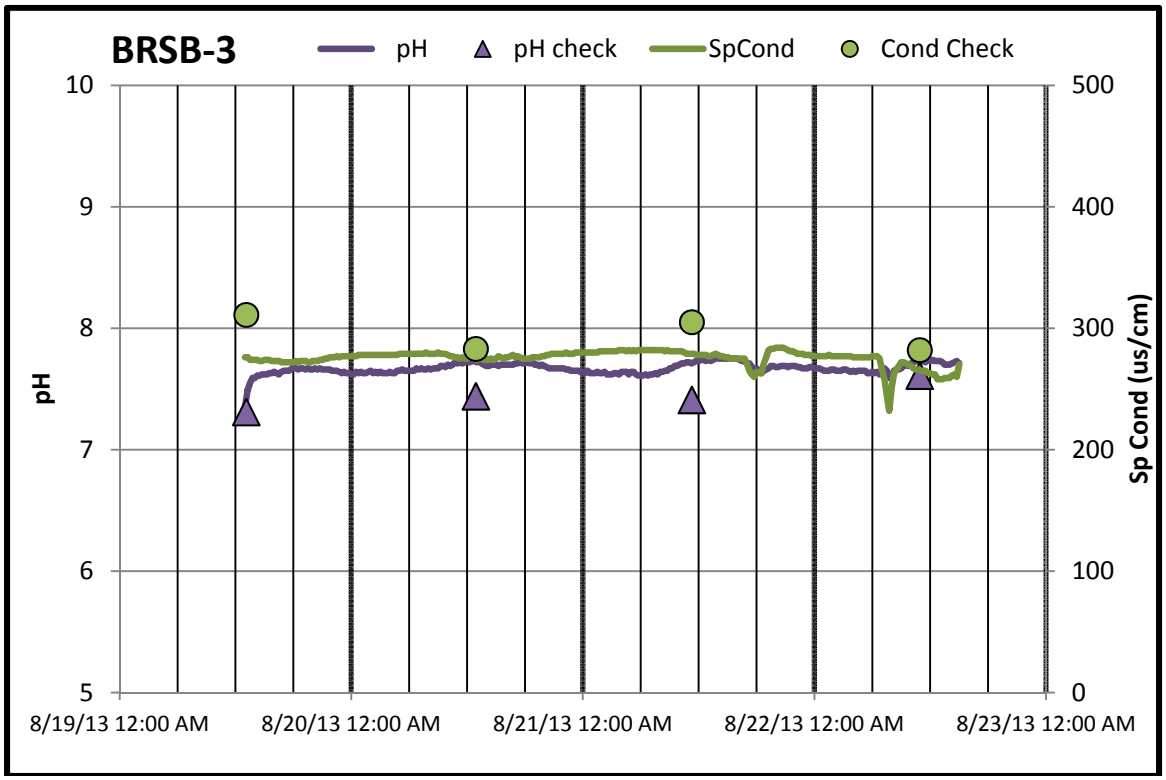
Station ID	Visit Date	Flow cfs	T H2O C	DO mgL	Cond µmhos	pH su	Turb NTU	TDS mgL	TSS mgL	Alk Tot mgL	Alk Tot dc	Hard mgL	Hard dc
BRSB-3	3/26/13 11:30 AM	10.3772	10.39	11	279	7.99	7.14	176	3	102.3			
BRSB-3	4/23/13 1:45 PM	5.8158	19.43	12.4	275	7.94	4.35	165	5	100			
BRSB-3	5/9/13 11:45 AM	11.5339	18.64	8.59	244	7.87	10.4	147	10	89.8			
BRSB-3	6/26/13 10:45 AM	2.8825	27.47	6.56	237	7.74	13.8	145	16	81.9			
BRSB-3	7/11/13 11:05 AM		24.96	7.08	270	7.75	15	180	62	94.2			
BRSB-3	8/15/13 11:30 AM	3.905	24.84	7	228	7.87	6.47	165	8	94.3			
BRSB-3	9/10/13 11:40 AM	1.9464	27.27	7.03	248	7.89	5.52	152	3	85.9			
BRSB-3	10/2/13 11:30 AM	1.5631	23.18	8.38	252	7.93	6.01	154	7	93.1	JQ4		
BRSB-2	3/30/09 1:50 PM	33.2	15.8	10.21	278	7.9	22.6	161	20	112		139	
BRSB-2	4/15/09 4:29 PM	33.1703	16.02	9.9	336.5	7.64	21.7	224	15	126			
BRSB-2	5/7/09 7:38 AM		17.38	7.88	216.7	7.45	68.7	146	65	85.98		76.6	
BRSB-2	6/4/09 11:07 AM	11.9316	21.43	8.28	287.2	7.92							
BRSB-2	6/10/09 3:46 PM	11.599	23.81	8.58	271.2	7.99	31.9	157	30	106			
BRSB-2	7/9/09 7:50 AM	5.9328	23.41	8.26	264.2	7.98	30.1	1036	17	150		149	
BRSB-2	8/12/09 2:14 PM	4.5733	28.11	7.73	299	7.75	14.2	177	12	126			
BRSB-2	9/10/09 7:57 AM	3.612	21.38	6.45	355	7.97	17.4	196	12	134		170	
BRSB-2	10/14/09 1:47 PM	84.78	18.89	7.42	288.8	7.52	48.1	182	36	117			
BRSB-2	10/22/09 1:42 PM	14.69	17.73	9.71	360.6	7.49	9.59						
BRSB-2	3/26/13 11:00 AM	40.4484	9.25	11.41	296	7.86	13.2	184	7	95.12			
BRSB-2	4/23/13 11:50 AM	21.461	16.8	12.4	328	7.94	7.4	200	7	108			
BRSB-2	5/9/13 11:00 AM	46.5844	16.89	9.39	257	7.65	13.1	153	13	98.2			
BRSB-2	6/26/13 10:00 AM	6.5158	23.98	8.54	304	7.79	8.44	181	7	126			
BRSB-2	7/11/13 10:40 AM		23.59	7.11	270	7.72	53.9	164	16	105			
BRSB-2	8/15/13 10:35 AM	12.8442	20.63	8.24	320	7.87	7.99	313	10	133			
BRSB-2	9/10/13 11:00 AM	4.4815	24	8.68	304	7.93	4.2	183	2	118.1			
BRSB-2	10/2/13 10:15 AM	2.5715	20.26	8.84	331	7.84	3.26	196	2	133.3			
BWSM-1	3/26/13 10:15 AM		8.26	10.89	271	7.82	17.2	168	10	82.79			
BWSM-1	4/23/13 10:20 AM	38.8795	15.54	8.8	291	7.62	9.72	174	7	110			
BWSM-1	5/9/13 10:00 AM		15.94	8.39	243	7.53	21	155	22	84.4			
BWSM-1	6/26/13 9:00 AM	11.1368	23.42	6.64	325	7.84	12.1	180	12	133			
BWSM-1	7/11/13 10:00 AM		23.76	6.36	261	7.83	57.4	182	61	114			
BWSM-1	8/15/13 9:50 AM	24.6237	21.22	7.21	324	7.76	11.4	278	9	130			
BWSM-1	9/10/13 10:15 AM	10.4984	22.95	6.72	324	7.58	4.85	199	4	129.4			
BWSM-1	10/2/13 9:30 AM	5.915	20.5	7.09	336	7.69	5.6	192	10	132.6			

Station ID	Visit Date	NH3 mgL	NH3 dc	NO3 NO2 N mgL	NO3 NO2 N dc	TKN mgL	TKN dc	DRP mgL	DRP dc	Total P mgL	Total P dc	CBOD-5 mgL	CBOD-5 dc	Alk Tot mgL	Station Visit Comments
BRSB-3	3/26/13 11:30 AM	0.029	< MDL .029	0.36		0.304		0.013		0.036		2	< MDL 2	102.3	
BRSB-3	4/23/13 1:45 PM	0.086		0.203		0.43		0.014		0.025		2	< MDL 2	100	
BRSB-3	5/9/13 11:45 AM	0.03		0.189		0.52		0.022		0.073	JQ	2	< MDL 2	89.8	
BRSB-3	6/26/13 10:45 AM	0.071		0.2		1.11		0.007	< MDL .007	0.043		2	< MDL 2	81.9	
BRSB-3	7/11/13 11:05 AM	0.01	JI	0.23		0.52	JQ	0.193		0.089		2.05		94.2	Flow meter malfunction prevented aquisition of flow measurement.
BRSB-3	8/15/13 11:30 AM	0.015	< MDL .015	0.135		0.689		0.008	JI	0.038		2	< MDL 2	94.3	Water looked clear, but we could only filter 250 ml of Chl-a sample.
BRSB-3	9/10/13 11:40 AM	0.015	< MDL .015	0.149		0.797		0.01		0.03		2	< MDL 2	85.9	
BRSB-3	10/2/13 11:30 AM	0.015	< MDL .015	0.041		0.631	JQ	0.011		0.039		2	< MDL 2	93.1	
BRSB-2	3/30/09 1:50 PM		Not Reported .1, RQ	0.003	< MDL .003, JH		Not Reported .2, RQ	0.15	JQ		Not Reported .01, RQ	1	< MDL 1, JQ1	112	Organic samples not run due to lab loading error.
BRSB-2	4/15/09 4:29 PM	0.014	< MDL .014	1.41		0.47		0.022		0.06		2	< MDL 2	126	
BRSB-2	5/7/09 7:38 AM		Not Reported .1, RQ		Not Reported .1, RQ1		Not Reported .1, RQ	0.289			Not Reported .01, RQ	1	< MDL 1	85.98	Water too swift for a mid-depth sonde reading.
BRSB-2	6/10/09 3:46 PM		Not Reported .1, RQ	4.723	JH		Not Reported .1, RQ	0.102			Not Reported .01, RQ	4.3		106	
BRSB-2	7/9/09 7:50 AM		Not Reported .1, RQ	2.33	JQ		Not Reported .1, RQ	0.039			Not Reported .01, RQ	1	< MDL 1	150	Cows in creek
BRSB-2	8/12/09 2:14 PM	0.034		0.828		0.822		0.0571	JQ	0.056		1	< MDL 1	126	
BRSB-2	9/10/09 7:57 AM	0.036		0.736		0.232		0.041		0.068		2	< MDL 2	134	
BRSB-2	10/14/09 1:47 PM	0.048		1.713		1.028		0.389		0.481		2	< MDL 2	117	
BRSB-2	3/26/13 11:00 AM	0.029	< MDL .029	1.3		0.284		0.016		0.04		2	< MDL 2	95.12	
BRSB-2	4/23/13 11:50 AM	0.078		1.4		0.219		0.016		0.026		2	< MDL 2	108	
BRSB-2	5/9/13 11:00 AM	0.04		1.38		0.43		0.027		0.075	JQ	2	< MDL 2	98.2	There is a partially-submerged cow carcass in the creek at this station. Samples were collected upstream of it.

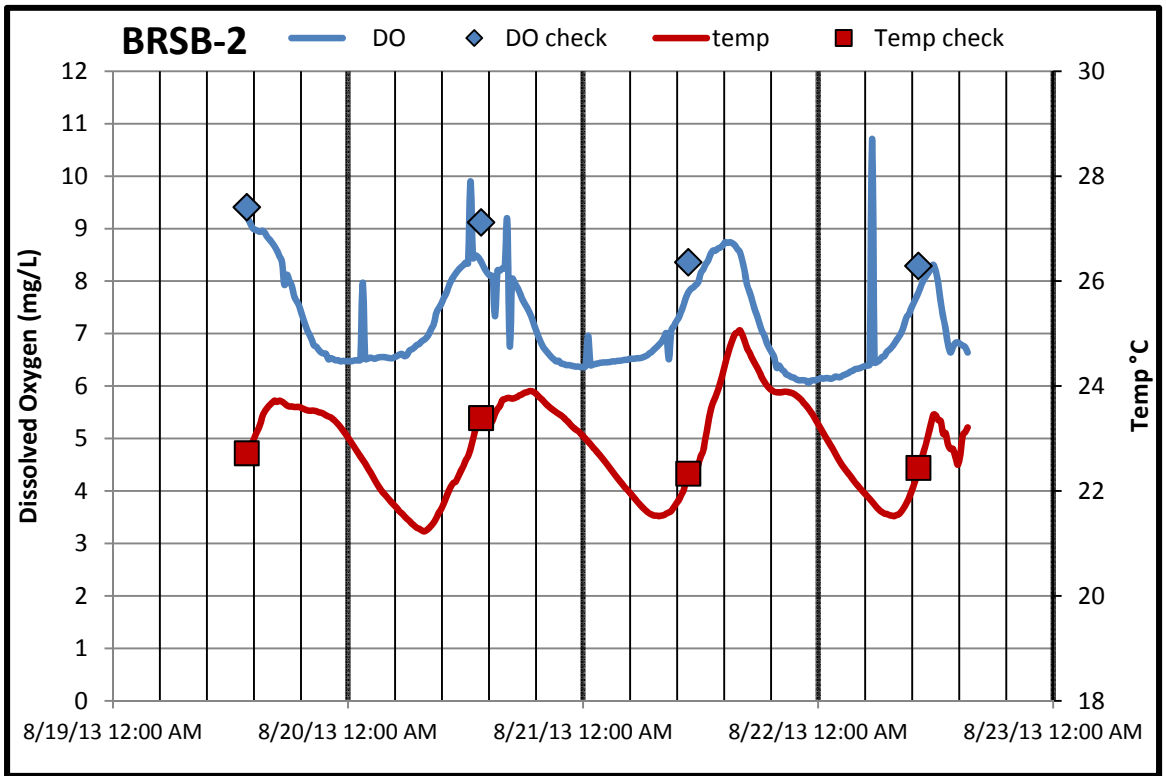
Station ID	Visit Date	NH3 mgL	NH3 dc	NO3 NO2 N mgL	NO3 NO2 N dc	TKN mgL	TKN dc	DRP mgL	DRP dc	Total P mgL	Total P dc	CBOD-5 mgL	CBOD-5 dc	Alk Tot mgL	Station Visit Comments
BRSB-2	6/26/13 10:00 AM	0.029	< MDL .029	1.2		0.56		0.016		0.039		2	< MDL 2	126	
BRSB-2	7/11/13 10:40 AM	0.03		0.634		1.3	JQ	0.019		0.39		2	< MDL 2	105	Heavy rain last night has caused high water and super turbidity. Flow conditions are hazardous.
BRSB-2	8/15/13 10:35 AM	0.015	< MDL .015	1.65		0.442		0.018		0.034		2	< MDL 2	133	
BRSB-2	9/10/13 11:00 AM	0.015	< MDL .015	0.846		0.445		0.016		0.03		2	< MDL 2	118.1	
BRSB-2	10/2/13 10:15 AM	0.015	< MDL .015	1.31		0.473	JQ	0.025		0.036		2	< MDL 2	133.3	Beavers have made a dam somewhere downstream of the bridge. Water is backed up, flow is very slow, and fresh beaver sticks (cane) are floating in large piles everywhere.
BWSM-1	3/26/13 10:15 AM	0.029	< MDL .029	1.42		0.442		0.025		0.059		2	< MDL 2	82.79	Downstream from the bridge, the creek is too deep for flow measurement today. Upstream from the bridge, the creek is filled with fallen trees and limbs. Flow measurement was not attempted. No indicators observed.
BWSM-1	4/23/13 10:20 AM	0.078		1.71		0.5		0.019		0.034		2	< MDL 2	110	
BWSM-1	5/9/13 10:00 AM	0.05		1.4		0.74		0.034		0.094	JQ	2	< MDL 2	84.4	Deep, turbid water filled with downed trees made flow measurement conditions hazardous.
BWSM-1	6/26/13 9:00 AM	0.063		2.04		0.628		0.027		0.047		2	< MDL 2	133	Creek is too deep to wade downstream of the bridge. Flow measurement was obtained upstream of the bridge, where the entire creek is choked with storm debris and millfoil. Silt on bottom is < 1 foot deep. Depth and flow measurements are estimates, using the doppler flow meter.
BWSM-1	7/11/13 10:00 AM	0.04		0.745		1.1	JQ	0.275		0.49		2.97		114	Creek is out of it's banks, very turbid, and choked with storm debris. No flow measurement possible.
BWSM-1	8/15/13 9:50 AM	0.015	< MDL .015	2.06		0.528		0.027		0.049		2	< MDL 2	130	Creek bottom is extremely silty and choked with dead trees and branches.
BWSM-1	9/10/13 10:15 AM	0.015	< MDL .015	2.26		0.404		0.025		0.039		2	< MDL 2	129.4	Creek bottom is very silty and choked with aquatic weeds and storm debris.
BWSM-1	10/2/13 9:30 AM	0.015	< MDL .015	2.33		0.409	JQ	0.024		0.042		2	< MDL 2	132.6	Creek is choked with storm debris, aquatic weeds, and filamentous algae. Flow measurement is an estimate using the Doppler flow meter.

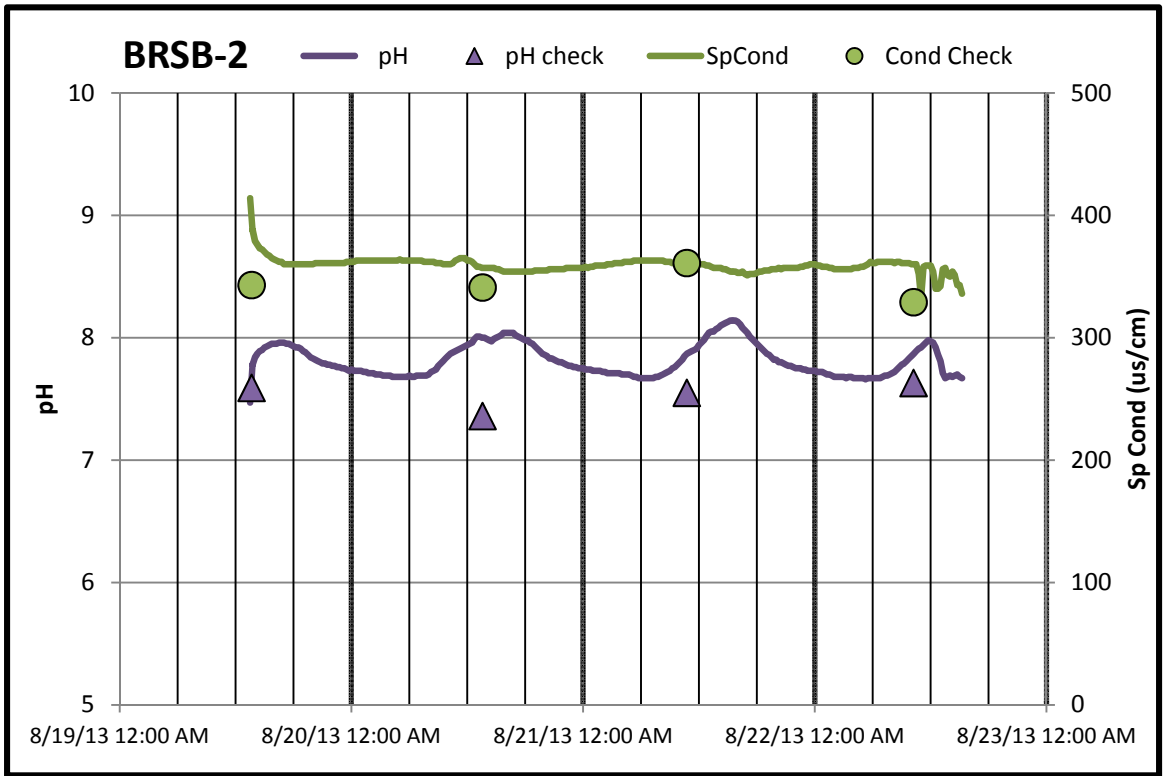
Station BRSB-3: 72hr Diurnal Study Results



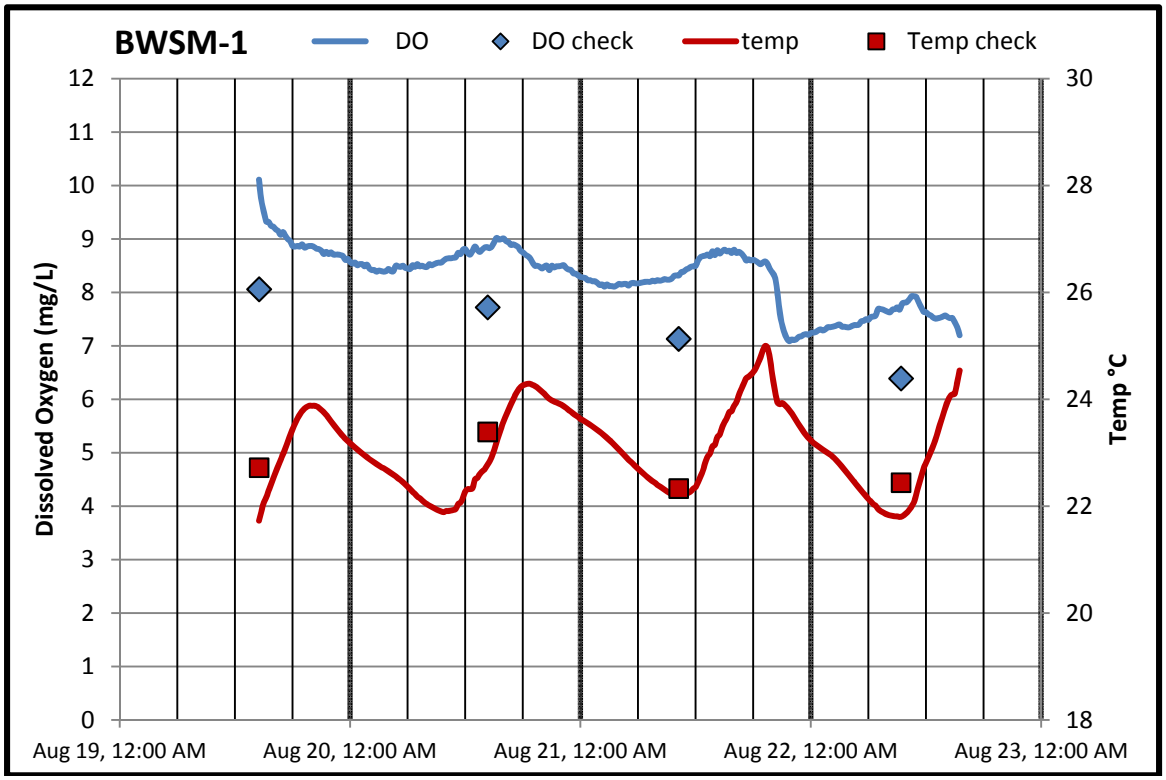


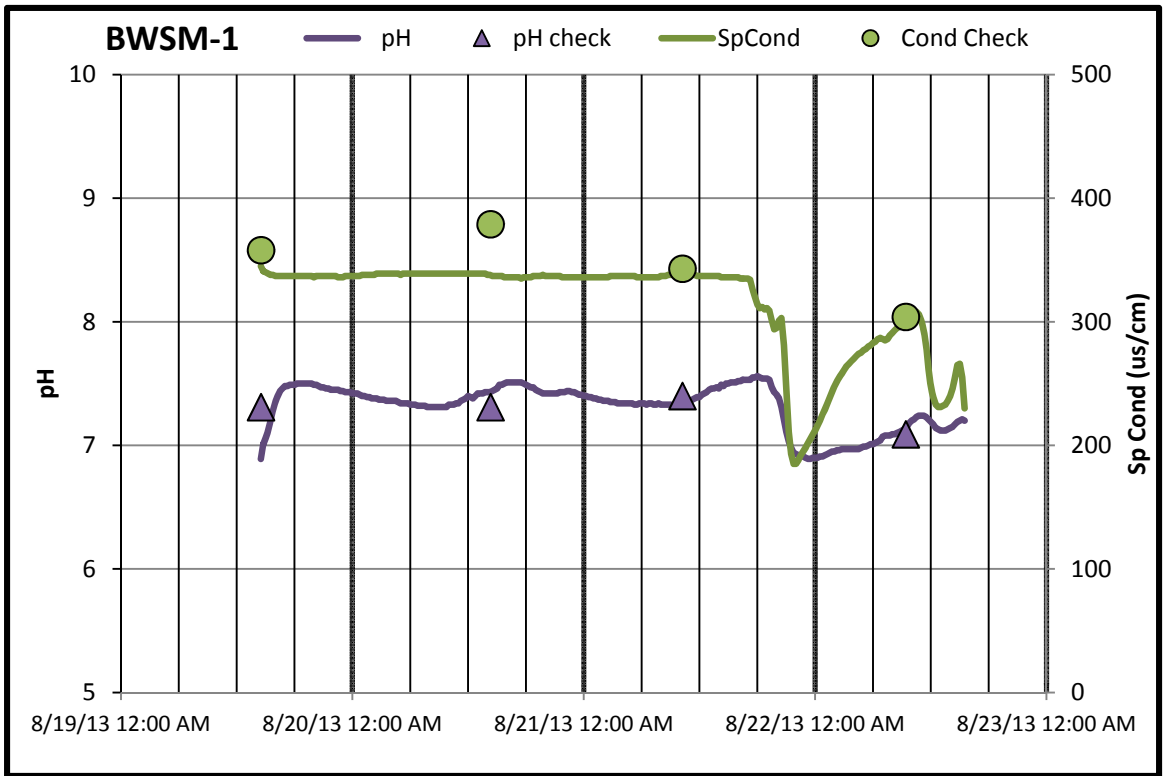
Station BRSB-2: 72hr Diurnal Study Results





Station BWSM-1: 72hr Diurnal Study Results





Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BRSB-2	19-08-2013 13:30:00	0.215	22.59	9.28	7.47	414
BRSB-2	19-08-2013 13:45:00	0.206	22.76	9.19	7.78	388
BRSB-2	19-08-2013 14:00:00	0.205	22.89	9.11	7.84	379
BRSB-2	19-08-2013 14:15:00	0.203	22.93	9.01	7.87	376
BRSB-2	19-08-2013 14:30:00	0.2	23.05	8.98	7.89	373
BRSB-2	19-08-2013 14:45:00	0.199	23.14	8.96	7.9	372
BRSB-2	19-08-2013 15:00:00	0.196	23.26	8.94	7.92	370
BRSB-2	19-08-2013 15:15:00	0.195	23.42	8.96	7.93	368
BRSB-2	19-08-2013 15:30:00	0.192	23.52	8.92	7.94	367
BRSB-2	19-08-2013 15:45:00	0.188	23.58	8.84	7.95	365
BRSB-2	19-08-2013 16:00:00	0.187	23.64	8.79	7.95	364
BRSB-2	19-08-2013 16:15:00	0.186	23.68	8.73	7.95	363
BRSB-2	19-08-2013 16:30:00	0.185	23.72	8.66	7.96	362
BRSB-2	19-08-2013 16:45:00	0.186	23.7	8.58	7.96	362
BRSB-2	19-08-2013 17:00:00	0.185	23.72	8.47	7.96	360
BRSB-2	19-08-2013 17:15:00	0.184	23.7	8.37	7.95	360
BRSB-2	19-08-2013 17:30:00	0.186	23.67	7.93	7.95	360
BRSB-2	19-08-2013 17:45:00	0.186	23.63	8.12	7.94	360
BRSB-2	19-08-2013 18:00:00	0.184	23.61	8.01	7.93	360
BRSB-2	19-08-2013 18:15:00	0.184	23.61	7.91	7.92	360
BRSB-2	19-08-2013 18:30:00	0.184	23.6	7.71	7.92	360
BRSB-2	19-08-2013 18:45:00	0.183	23.6	7.62	7.91	360
BRSB-2	19-08-2013 19:00:00	0.186	23.6	7.53	7.89	360
BRSB-2	19-08-2013 19:15:00	0.188	23.58	7.38	7.88	360
BRSB-2	19-08-2013 19:30:00	0.191	23.56	7.24	7.86	360
BRSB-2	19-08-2013 19:45:00	0.192	23.54	7.1	7.84	360
BRSB-2	19-08-2013 20:00:00	0.193	23.53	7	7.83	360
BRSB-2	19-08-2013 20:15:00	0.195	23.53	6.9	7.82	361
BRSB-2	19-08-2013 20:30:00	0.195	23.53	6.78	7.81	361
BRSB-2	19-08-2013 20:45:00	0.199	23.52	6.75	7.8	361
BRSB-2	19-08-2013 21:00:00	0.2	23.5	6.69	7.79	361
BRSB-2	19-08-2013 21:15:00	0.2	23.49	6.64	7.79	361
BRSB-2	19-08-2013 21:30:00	0.201	23.47	6.62	7.78	361
BRSB-2	19-08-2013 21:45:00	0.202	23.44	6.61	7.78	361
BRSB-2	19-08-2013 22:00:00	0.202	23.42	6.51	7.77	361
BRSB-2	19-08-2013 22:15:00	0.202	23.4	6.53	7.77	361
BRSB-2	19-08-2013 22:30:00	0.201	23.36	6.51	7.76	361
BRSB-2	19-08-2013 22:45:00	0.199	23.32	6.49	7.76	361
BRSB-2	19-08-2013 23:00:00	0.202	23.27	6.49	7.75	361
BRSB-2	19-08-2013 23:15:00	0.2	23.21	6.47	7.75	361
BRSB-2	19-08-2013 23:30:00	0.203	23.15	6.48	7.74	362
BRSB-2	19-08-2013 23:45:00	0.203	23.08	6.47	7.73	362
BRSB-2	20-08-2013 00:00:00	0.204	23.02	6.48	7.74	362
BRSB-2	20-08-2013 00:15:00	0.203	22.95	6.47	7.73	362
BRSB-2	20-08-2013 00:30:00	0.203	22.88	6.48	7.73	363
BRSB-2	20-08-2013 00:45:00	0.203	22.8	6.49	7.73	363
BRSB-2	20-08-2013 01:00:00	0.201	22.73	6.49	7.73	363

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BRSB-2	20-08-2013 01:15:00	0.199	22.66	6.5	7.72	363
BRSB-2	20-08-2013 01:30:00	0.2	22.59	7.97	7.72	363
BRSB-2	20-08-2013 01:45:00	0.199	22.52	6.52	7.71	363
BRSB-2	20-08-2013 02:00:00	0.197	22.44	6.52	7.71	363
BRSB-2	20-08-2013 02:15:00	0.194	22.37	6.54	7.71	363
BRSB-2	20-08-2013 02:30:00	0.196	22.28	6.53	7.7	363
BRSB-2	20-08-2013 02:45:00	0.194	22.2	6.52	7.7	363
BRSB-2	20-08-2013 03:00:00	0.193	22.12	6.54	7.7	363
BRSB-2	20-08-2013 03:15:00	0.194	22.05	6.55	7.69	363
BRSB-2	20-08-2013 03:30:00	0.193	21.98	6.55	7.69	363
BRSB-2	20-08-2013 03:45:00	0.192	21.93	6.55	7.69	363
BRSB-2	20-08-2013 04:00:00	0.192	21.88	6.54	7.69	363
BRSB-2	20-08-2013 04:15:00	0.189	21.82	6.53	7.68	363
BRSB-2	20-08-2013 04:30:00	0.19	21.77	6.53	7.68	363
BRSB-2	20-08-2013 04:45:00	0.191	21.72	6.55	7.68	363
BRSB-2	20-08-2013 05:00:00	0.192	21.67	6.57	7.68	364
BRSB-2	20-08-2013 05:15:00	0.19	21.61	6.6	7.68	363
BRSB-2	20-08-2013 05:30:00	0.191	21.57	6.61	7.68	363
BRSB-2	20-08-2013 05:45:00	0.192	21.52	6.57	7.68	363
BRSB-2	20-08-2013 06:00:00	0.193	21.47	6.59	7.69	363
BRSB-2	20-08-2013 06:15:00	0.195	21.43	6.67	7.68	363
BRSB-2	20-08-2013 06:30:00	0.205	21.38	6.7	7.68	363
BRSB-2	20-08-2013 06:45:00	0.214	21.34	6.73	7.69	363
BRSB-2	20-08-2013 07:00:00	0.219	21.3	6.78	7.69	363
BRSB-2	20-08-2013 07:15:00	0.218	21.28	6.8	7.69	363
BRSB-2	20-08-2013 07:30:00	0.217	21.25	6.85	7.69	362
BRSB-2	20-08-2013 07:45:00	0.216	21.23	6.88	7.69	362
BRSB-2	20-08-2013 08:00:00	0.217	21.25	6.92	7.7	362
BRSB-2	20-08-2013 08:15:00	0.215	21.29	6.99	7.72	362
BRSB-2	20-08-2013 08:30:00	0.215	21.34	7.09	7.73	362
BRSB-2	20-08-2013 08:45:00	0.215	21.4	7.18	7.74	361
BRSB-2	20-08-2013 09:00:00	0.215	21.48	7.39	7.77	361
BRSB-2	20-08-2013 09:15:00	0.215	21.58	7.48	7.79	361
BRSB-2	20-08-2013 09:30:00	0.216	21.65	7.56	7.81	360
BRSB-2	20-08-2013 09:45:00	0.216	21.76	7.67	7.83	360
BRSB-2	20-08-2013 10:00:00	0.217	21.87	7.76	7.85	360
BRSB-2	20-08-2013 10:15:00	0.218	21.98	7.89	7.87	360
BRSB-2	20-08-2013 10:30:00	0.22	22.09	8	7.88	361
BRSB-2	20-08-2013 10:45:00	0.222	22.15	8.08	7.89	363
BRSB-2	20-08-2013 11:00:00	0.221	22.18	8.15	7.9	364
BRSB-2	20-08-2013 11:15:00	0.221	22.27	8.21	7.91	365
BRSB-2	20-08-2013 11:30:00	0.22	22.38	8.26	7.92	365
BRSB-2	20-08-2013 11:45:00	0.22	22.46	8.3	7.93	365
BRSB-2	20-08-2013 12:00:00	0.221	22.58	8.35	7.94	363
BRSB-2	20-08-2013 12:15:00	0.22	22.66	8.34	7.95	363
BRSB-2	20-08-2013 12:30:00	0.218	22.8	9.9	7.96	362
BRSB-2	20-08-2013 12:45:00	0.213	22.98	8.44	7.99	360
BRSB-2	20-08-2013 13:00:00	0.211	23.17	8.49	8.01	358
BRSB-2	20-08-2013 13:15:00	0.209	23.22	8.46	8.01	358
BRSB-2	20-08-2013 13:30:00	0.209	23.26	8.4	8	357

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BRSB-2	20-08-2013 14:00:00	0.207	23.23	8.22	7.99	357
BRSB-2	20-08-2013 14:15:00	0.203	23.25	8.15	7.98	357
BRSB-2	20-08-2013 14:30:00	0.204	23.27	8.1	7.97	357
BRSB-2	20-08-2013 14:45:00	0.201	23.34	8.09	7.99	357
BRSB-2	20-08-2013 15:00:00	0.201	23.47	7.33	8	356
BRSB-2	20-08-2013 15:15:00	0.2	23.56	8.2	8.01	356
BRSB-2	20-08-2013 15:30:00	0.198	23.62	8.2	8.02	355
BRSB-2	20-08-2013 15:45:00	0.197	23.73	8.24	8.04	354
BRSB-2	20-08-2013 16:00:00	0.196	23.75	8.25	8.04	354
BRSB-2	20-08-2013 16:15:00	0.195	23.77	9.16	8.04	354
BRSB-2	20-08-2013 16:30:00	0.198	23.77	6.77	8.04	354
BRSB-2	20-08-2013 16:45:00	0.195	23.76	8.04	8.04	354
BRSB-2	20-08-2013 17:00:00	0.196	23.77	7.97	8.02	354
BRSB-2	20-08-2013 17:15:00	0.196	23.79	7.89	8.01	354
BRSB-2	20-08-2013 17:30:00	0.197	23.82	7.79	8	354
BRSB-2	20-08-2013 17:45:00	0.196	23.84	7.67	7.99	354
BRSB-2	20-08-2013 18:00:00	0.195	23.87	7.58	7.98	354
BRSB-2	20-08-2013 18:15:00	0.193	23.88	7.5	7.98	354
BRSB-2	20-08-2013 18:30:00	0.194	23.9	7.41	7.96	354
BRSB-2	20-08-2013 18:45:00	0.197	23.9	7.3	7.95	354
BRSB-2	20-08-2013 19:00:00	0.198	23.88	7.16	7.93	355
BRSB-2	20-08-2013 19:15:00	0.202	23.84	7.03	7.91	355
BRSB-2	20-08-2013 19:30:00	0.201	23.79	6.91	7.89	355
BRSB-2	20-08-2013 19:45:00	0.198	23.75	6.8	7.87	355
BRSB-2	20-08-2013 20:00:00	0.202	23.7	6.72	7.86	355
BRSB-2	20-08-2013 20:15:00	0.202	23.65	6.66	7.85	355
BRSB-2	20-08-2013 20:30:00	0.205	23.61	6.61	7.83	356
BRSB-2	20-08-2013 20:45:00	0.207	23.57	6.55	7.83	356
BRSB-2	20-08-2013 21:00:00	0.209	23.53	6.51	7.82	356
BRSB-2	20-08-2013 21:15:00	0.208	23.5	6.47	7.81	356
BRSB-2	20-08-2013 21:30:00	0.208	23.47	6.48	7.8	356
BRSB-2	20-08-2013 21:45:00	0.21	23.44	6.43	7.8	356
BRSB-2	20-08-2013 22:00:00	0.21	23.4	6.42	7.79	356
BRSB-2	20-08-2013 22:15:00	0.212	23.35	6.4	7.78	357
BRSB-2	20-08-2013 22:30:00	0.212	23.31	6.4	7.77	357
BRSB-2	20-08-2013 22:45:00	0.213	23.25	6.39	7.77	357
BRSB-2	20-08-2013 23:00:00	0.214	23.21	6.38	7.76	357
BRSB-2	20-08-2013 23:15:00	0.214	23.17	6.37	7.76	357
BRSB-2	20-08-2013 23:30:00	0.214	23.14	6.37	7.75	357
BRSB-2	20-08-2013 23:45:00	0.212	23.09	6.36	7.75	357
BRSB-2	21-08-2013 00:00:00	0.212	23.04	6.36	7.75	357
BRSB-2	21-08-2013 00:15:00	0.21	22.99	6.38	7.74	358
BRSB-2	21-08-2013 00:30:00	0.208	22.94	6.96	7.74	357
BRSB-2	21-08-2013 00:45:00	0.208	22.89	6.4	7.74	358
BRSB-2	21-08-2013 01:00:00	0.206	22.83	6.41	7.73	358
BRSB-2	21-08-2013 01:15:00	0.208	22.78	6.42	7.73	359
BRSB-2	21-08-2013 01:30:00	0.206	22.72	6.43	7.73	359
BRSB-2	21-08-2013 01:45:00	0.205	22.67	6.44	7.73	359
BRSB-2	21-08-2013 02:00:00	0.205	22.61	6.45	7.72	359
BRSB-2	21-08-2013 02:15:00	0.206	22.55	6.45	7.72	359

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BRSB-2	21-08-2013 02:45:00	0.206	22.43	6.46	7.71	360
BRSB-2	21-08-2013 03:00:00	0.205	22.37	6.47	7.71	360
BRSB-2	21-08-2013 03:15:00	0.203	22.3	6.47	7.71	361
BRSB-2	21-08-2013 03:30:00	0.201	22.24	6.48	7.71	361
BRSB-2	21-08-2013 03:45:00	0.2	22.19	6.48	7.71	361
BRSB-2	21-08-2013 04:00:00	0.201	22.13	6.49	7.7	361
BRSB-2	21-08-2013 04:15:00	0.199	22.07	6.5	7.7	362
BRSB-2	21-08-2013 04:30:00	0.199	22.02	6.5	7.7	362
BRSB-2	21-08-2013 04:45:00	0.2	21.97	6.52	7.7	362
BRSB-2	21-08-2013 05:00:00	0.2	21.91	6.52	7.69	362
BRSB-2	21-08-2013 05:15:00	0.204	21.86	6.52	7.68	363
BRSB-2	21-08-2013 05:30:00	0.204	21.8	6.53	7.68	363
BRSB-2	21-08-2013 05:45:00	0.203	21.75	6.53	7.67	363
BRSB-2	21-08-2013 06:00:00	0.206	21.7	6.54	7.67	363
BRSB-2	21-08-2013 06:15:00	0.207	21.65	6.56	7.67	363
BRSB-2	21-08-2013 06:30:00	0.21	21.61	6.58	7.67	363
BRSB-2	21-08-2013 06:45:00	0.213	21.57	6.62	7.67	363
BRSB-2	21-08-2013 07:00:00	0.214	21.55	6.65	7.67	363
BRSB-2	21-08-2013 07:15:00	0.218	21.53	6.7	7.67	363
BRSB-2	21-08-2013 07:30:00	0.22	21.53	6.74	7.68	363
BRSB-2	21-08-2013 07:45:00	0.224	21.52	6.79	7.68	363
BRSB-2	21-08-2013 08:00:00	0.224	21.53	6.84	7.69	363
BRSB-2	21-08-2013 08:15:00	0.225	21.54	6.92	7.7	363
BRSB-2	21-08-2013 08:30:00	0.228	21.57	7	7.71	362
BRSB-2	21-08-2013 08:45:00	0.228	21.59	6.51	7.72	362
BRSB-2	21-08-2013 09:00:00	0.229	21.62	7.06	7.73	362
BRSB-2	21-08-2013 09:15:00	0.23	21.69	7.14	7.75	361
BRSB-2	21-08-2013 09:30:00	0.23	21.76	7.23	7.76	361
BRSB-2	21-08-2013 09:45:00	0.229	21.82	7.3	7.78	361
BRSB-2	21-08-2013 10:00:00	0.229	21.92	7.42	7.8	360
BRSB-2	21-08-2013 10:15:00	0.228	22.01	7.54	7.82	360
BRSB-2	21-08-2013 10:30:00	0.229	22.16	7.69	7.85	360
BRSB-2	21-08-2013 10:45:00	0.23	22.25	7.79	7.87	359
BRSB-2	21-08-2013 11:00:00	0.23	22.32	7.85	7.88	359
BRSB-2	21-08-2013 11:15:00	0.229	22.38	7.88	7.89	360
BRSB-2	21-08-2013 11:30:00	0.23	22.46	7.93	7.9	360
BRSB-2	21-08-2013 11:45:00	0.227	22.5	7.98	7.91	360
BRSB-2	21-08-2013 12:00:00	0.228	22.66	8.15	7.94	360
BRSB-2	21-08-2013 12:15:00	0.227	22.76	8.22	7.96	360
BRSB-2	21-08-2013 12:30:00	0.225	23.03	8.32	7.98	360
BRSB-2	21-08-2013 12:45:00	0.221	23.27	8.39	8.01	359
BRSB-2	21-08-2013 13:00:00	0.221	23.53	8.51	8.04	359
BRSB-2	21-08-2013 13:15:00	0.22	23.68	8.58	8.05	358
BRSB-2	21-08-2013 13:30:00	0.221	23.79	8.58	8.05	357
BRSB-2	21-08-2013 13:45:00	0.217	23.93	8.62	8.07	357
BRSB-2	21-08-2013 14:00:00	0.214	24.05	8.64	8.08	357
BRSB-2	21-08-2013 14:15:00	0.213	24.23	8.68	8.1	357
BRSB-2	21-08-2013 14:30:00	0.211	24.43	8.74	8.11	356
BRSB-2	21-08-2013 14:45:00	0.207	24.6	8.73	8.12	356
BRSB-2	21-08-2013 15:00:00	0.203	24.75	8.74	8.13	355

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BRSB-2	21-08-2013 15:30:00	0.201	24.99	8.68	8.14	354
BRSB-2	21-08-2013 15:45:00	0.2	25.02	8.61	8.14	354
BRSB-2	21-08-2013 16:00:00	0.201	25.06	8.55	8.13	353
BRSB-2	21-08-2013 16:15:00	0.2	24.97	8.39	8.11	353
BRSB-2	21-08-2013 16:30:00	0.199	24.85	8.17	8.08	354
BRSB-2	21-08-2013 16:45:00	0.204	24.71	7.91	8.06	352
BRSB-2	21-08-2013 17:00:00	0.207	24.63	7.79	8.04	351
BRSB-2	21-08-2013 17:15:00	0.21	24.52	7.63	8.01	352
BRSB-2	21-08-2013 17:30:00	0.213	24.44	7.47	7.99	352
BRSB-2	21-08-2013 17:45:00	0.214	24.36	7.34	7.97	352
BRSB-2	21-08-2013 18:00:00	0.218	24.26	7.19	7.95	353
BRSB-2	21-08-2013 18:15:00	0.221	24.16	7.05	7.93	354
BRSB-2	21-08-2013 18:30:00	0.225	24.08	6.96	7.91	354
BRSB-2	21-08-2013 18:45:00	0.225	24.01	6.82	7.89	355
BRSB-2	21-08-2013 19:00:00	0.226	23.96	6.72	7.87	355
BRSB-2	21-08-2013 19:15:00	0.233	23.92	6.64	7.86	355
BRSB-2	21-08-2013 19:30:00	0.234	23.89	6.55	7.84	356
BRSB-2	21-08-2013 19:45:00	0.233	23.88	6.35	7.82	356
BRSB-2	21-08-2013 20:00:00	0.234	23.88	6.39	7.82	356
BRSB-2	21-08-2013 20:15:00	0.234	23.88	6.32	7.8	357
BRSB-2	21-08-2013 20:30:00	0.236	23.89	6.28	7.8	356
BRSB-2	21-08-2013 20:45:00	0.236	23.89	6.22	7.79	357
BRSB-2	21-08-2013 21:00:00	0.238	23.88	6.2	7.78	357
BRSB-2	21-08-2013 21:15:00	0.236	23.87	6.17	7.77	357
BRSB-2	21-08-2013 21:30:00	0.237	23.85	6.16	7.77	357
BRSB-2	21-08-2013 21:45:00	0.235	23.82	6.13	7.76	357
BRSB-2	21-08-2013 22:00:00	0.237	23.78	6.11	7.75	357
BRSB-2	21-08-2013 22:15:00	0.233	23.74	6.11	7.75	357
BRSB-2	21-08-2013 22:30:00	0.232	23.68	6.11	7.75	358
BRSB-2	21-08-2013 22:45:00	0.232	23.63	6.1	7.74	358
BRSB-2	21-08-2013 23:00:00	0.227	23.57	6.06	7.74	359
BRSB-2	21-08-2013 23:15:00	0.225	23.51	6.1	7.73	359
BRSB-2	21-08-2013 23:30:00	0.227	23.43	6.11	7.73	360
BRSB-2	21-08-2013 23:45:00	0.224	23.35	6.11	7.73	360
BRSB-2	22-08-2013 00:00:00	0.225	23.27	6.13	7.73	360
BRSB-2	22-08-2013 00:15:00	0.229	23.19	6.15	7.72	359
BRSB-2	22-08-2013 00:30:00	0.227	23.11	6.14	7.72	359
BRSB-2	22-08-2013 00:45:00	0.227	23.03	6.15	7.72	358
BRSB-2	22-08-2013 01:00:00	0.229	22.95	6.15	7.71	358
BRSB-2	22-08-2013 01:15:00	0.228	22.87	6.14	7.7	358
BRSB-2	22-08-2013 01:30:00	0.227	22.8	6.15	7.7	357
BRSB-2	22-08-2013 01:45:00	0.226	22.7	6.18	7.69	357
BRSB-2	22-08-2013 02:00:00	0.225	22.62	6.17	7.68	356
BRSB-2	22-08-2013 02:15:00	0.223	22.55	6.17	7.68	356
BRSB-2	22-08-2013 02:30:00	0.22	22.48	6.2	7.68	356
BRSB-2	22-08-2013 02:45:00	0.219	22.41	6.22	7.68	356
BRSB-2	22-08-2013 03:00:00	0.216	22.35	6.24	7.68	356
BRSB-2	22-08-2013 03:15:00	0.216	22.29	6.27	7.67	356
BRSB-2	22-08-2013 03:30:00	0.211	22.23	6.29	7.68	356
BRSB-2	22-08-2013 03:45:00	0.213	22.16	6.32	7.68	356

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BRSB-2	22-08-2013 04:15:00	0.211	22.05	6.34	7.67	357
BRSB-2	22-08-2013 04:30:00	0.212	22	6.36	7.67	357
BRSB-2	22-08-2013 04:45:00	0.211	21.95	6.38	7.67	358
BRSB-2	22-08-2013 05:00:00	0.209	21.9	6.39	7.67	358
BRSB-2	22-08-2013 05:15:00	0.208	21.85	6.41	7.66	359
BRSB-2	22-08-2013 05:30:00	0.209	21.79	10.71	7.67	360
BRSB-2	22-08-2013 05:45:00	0.21	21.74	6.45	7.67	362
BRSB-2	22-08-2013 06:00:00	0.211	21.68	6.46	7.67	361
BRSB-2	22-08-2013 06:15:00	0.214	21.63	6.49	7.67	361
BRSB-2	22-08-2013 06:30:00	0.216	21.6	6.55	7.67	362
BRSB-2	22-08-2013 06:45:00	0.217	21.57	6.57	7.67	362
BRSB-2	22-08-2013 07:00:00	0.217	21.56	6.65	7.68	362
BRSB-2	22-08-2013 07:15:00	0.217	21.54	6.69	7.69	362
BRSB-2	22-08-2013 07:30:00	0.217	21.53	6.74	7.69	362
BRSB-2	22-08-2013 07:45:00	0.218	21.52	6.8	7.7	362
BRSB-2	22-08-2013 08:00:00	0.22	21.54	6.88	7.71	362
BRSB-2	22-08-2013 08:15:00	0.22	21.56	6.94	7.72	361
BRSB-2	22-08-2013 08:30:00	0.219	21.61	7.03	7.74	362
BRSB-2	22-08-2013 08:45:00	0.219	21.68	7.15	7.76	362
BRSB-2	22-08-2013 09:00:00	0.219	21.76	7.31	7.78	361
BRSB-2	22-08-2013 09:15:00	0.219	21.87	7.37	7.79	361
BRSB-2	22-08-2013 09:30:00	0.219	21.97	7.49	7.81	361
BRSB-2	22-08-2013 09:45:00	0.221	22.11	7.58	7.83	361
BRSB-2	22-08-2013 10:00:00	0.222	22.25	7.69	7.85	360
BRSB-2	22-08-2013 10:15:00	0.221	22.4	7.79	7.87	360
BRSB-2	22-08-2013 10:30:00	0.223	22.58	7.91	7.89	360
BRSB-2	22-08-2013 10:45:00	0.235	22.74	8.02	7.91	352
BRSB-2	22-08-2013 11:00:00	0.248	22.89	8.09	7.92	333
BRSB-2	22-08-2013 11:15:00	0.248	23.08	8.16	7.94	358
BRSB-2	22-08-2013 11:30:00	0.244	23.28	8.23	7.96	359
BRSB-2	22-08-2013 11:45:00	0.239	23.45	8.31	7.98	359
BRSB-2	22-08-2013 12:00:00	0.234	23.44	8.19	7.97	359
BRSB-2	22-08-2013 12:15:00	0.244	23.35	7.96	7.96	354
BRSB-2	22-08-2013 12:30:00	0.264	23.33	7.6	7.92	340
BRSB-2	22-08-2013 12:45:00	0.268	23.09	7.32	7.86	340
BRSB-2	22-08-2013 13:00:00	0.276	23.1	7.09	7.81	342
BRSB-2	22-08-2013 13:15:00	0.299	22.88	6.78	7.71	356
BRSB-2	22-08-2013 13:30:00	0.323	22.8	6.64	7.67	357
BRSB-2	22-08-2013 13:45:00	0.355	22.8	6.74	7.68	351
BRSB-2	22-08-2013 14:00:00	0.402	22.65	6.82	7.69	350
BRSB-2	22-08-2013 14:15:00	0.466	22.5	6.83	7.68	354
BRSB-2	22-08-2013 14:30:00	0.528	22.69	6.8	7.69	351
BRSB-2	22-08-2013 14:45:00	0.579	23.06	6.77	7.7	343
BRSB-2	22-08-2013 15:00:00	0.586	23.12	6.74	7.68	343
BRSB-2	22-08-2013 15:15:00	0.557	23.21	6.64	7.67	336
BRSB-3	19-08-2013 13:00:00	0.218	24.5	7.27	7.36	276
BRSB-3	19-08-2013 13:15:00	0.218	24.63	7.21	7.49	276
BRSB-3	19-08-2013 13:30:00	0.218	24.74	7.2	7.55	274
BRSB-3	19-08-2013 13:45:00	0.218	24.87	7.2	7.59	274
BRSB-3	19-08-2013 14:00:00	0.218	24.98	7.13	7.59	274

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BRSB-3	19-08-2013 14:30:00	0.218	25.25	7.06	7.61	273
BRSB-3	19-08-2013 14:45:00	0.218	25.29	7.06	7.62	273
BRSB-3	19-08-2013 15:00:00	0.218	25.32	6.99	7.62	274
BRSB-3	19-08-2013 15:15:00	0.218	25.4	6.96	7.62	274
BRSB-3	19-08-2013 15:30:00	0.218	25.4	6.92	7.63	274
BRSB-3	19-08-2013 15:45:00	0.218	25.42	6.92	7.63	273
BRSB-3	19-08-2013 16:00:00	0.218	25.44	6.89	7.64	273
BRSB-3	19-08-2013 16:15:00	0.218	25.44	6.86	7.63	273
BRSB-3	19-08-2013 16:30:00	0.218	25.39	6.85	7.62	273
BRSB-3	19-08-2013 16:45:00	0.218	25.29	6.93	7.64	272
BRSB-3	19-08-2013 17:00:00	0.218	25.17	6.96	7.65	272
BRSB-3	19-08-2013 17:15:00	0.218	25.09	6.99	7.65	272
BRSB-3	19-08-2013 17:30:00	0.218	25.04	6.98	7.65	272
BRSB-3	19-08-2013 17:45:00	0.218	25.02	6.99	7.66	272
BRSB-3	19-08-2013 18:00:00	0.218	25.01	6.99	7.68	272
BRSB-3	19-08-2013 18:15:00	0.218	25.02	6.93	7.67	273
BRSB-3	19-08-2013 18:30:00	0.218	25.01	6.95	7.66	272
BRSB-3	19-08-2013 18:45:00	0.218	24.99	6.91	7.67	273
BRSB-3	19-08-2013 19:00:00	0.218	24.96	6.93	7.67	273
BRSB-3	19-08-2013 19:15:00	0.218	24.93	6.92	7.66	273
BRSB-3	19-08-2013 19:30:00	0.218	24.91	6.94	7.67	272
BRSB-3	19-08-2013 19:45:00	0.218	24.87	6.95	7.66	272
BRSB-3	19-08-2013 20:00:00	0.218	24.81	6.95	7.66	273
BRSB-3	19-08-2013 20:15:00	0.218	24.75	6.95	7.67	273
BRSB-3	19-08-2013 20:30:00	0.218	24.7	6.97	7.66	273
BRSB-3	19-08-2013 20:45:00	0.218	24.66	6.96	7.67	274
BRSB-3	19-08-2013 21:00:00	0.218	24.62	6.97	7.66	274
BRSB-3	19-08-2013 21:15:00	0.218	24.6	6.97	7.66	275
BRSB-3	19-08-2013 21:30:00	0.218	24.6	6.96	7.66	275
BRSB-3	19-08-2013 21:45:00	0.218	24.6	6.96	7.66	276
BRSB-3	19-08-2013 22:00:00	0.218	24.61	6.95	7.65	276
BRSB-3	19-08-2013 22:15:00	0.218	24.61	6.94	7.65	276
BRSB-3	19-08-2013 22:30:00	0.218	24.62	6.94	7.65	277
BRSB-3	19-08-2013 22:45:00	0.218	24.62	6.95	7.64	276
BRSB-3	19-08-2013 23:00:00	0.218	24.6	6.95	7.63	277
BRSB-3	19-08-2013 23:15:00	0.218	24.57	6.94	7.64	277
BRSB-3	19-08-2013 23:30:00	0.218	24.53	6.95	7.63	277
BRSB-3	19-08-2013 23:45:00	0.218	24.5	6.97	7.63	277
BRSB-3	20-08-2013 00:00:00	0.218	24.46	6.97	7.62	277
BRSB-3	20-08-2013 00:15:00	0.218	24.43	6.98	7.62	277
BRSB-3	20-08-2013 00:30:00	0.218	24.42	6.97	7.64	277
BRSB-3	20-08-2013 00:45:00	0.218	24.38	6.98	7.63	278
BRSB-3	20-08-2013 01:00:00	0.218	24.35	6.99	7.64	278
BRSB-3	20-08-2013 01:15:00	0.218	24.32	7.01	7.63	278
BRSB-3	20-08-2013 01:30:00	0.218	24.29	7.02	7.63	278
BRSB-3	20-08-2013 01:45:00	0.218	24.28	7.02	7.64	278
BRSB-3	20-08-2013 02:00:00	0.218	24.26	7.02	7.65	278
BRSB-3	20-08-2013 02:15:00	0.218	24.23	7.03	7.63	278
BRSB-3	20-08-2013 02:30:00	0.218	24.19	7.02	7.64	278
BRSB-3	20-08-2013 02:45:00	0.218	24.18	7.03	7.63	278

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BRSB-3	20-08-2013 03:15:00	0.218	24.13	7.04	7.63	278
BRSB-3	20-08-2013 03:30:00	0.218	24.1	7.05	7.63	278
BRSB-3	20-08-2013 03:45:00	0.218	24.09	7.05	7.63	278
BRSB-3	20-08-2013 04:00:00	0.218	24.08	7.06	7.64	278
BRSB-3	20-08-2013 04:15:00	0.218	24.08	7.06	7.63	278
BRSB-3	20-08-2013 04:30:00	0.218	24.08	7.06	7.63	278
BRSB-3	20-08-2013 04:45:00	0.218	24.09	7.06	7.65	278
BRSB-3	20-08-2013 05:00:00	0.218	24.1	7.06	7.65	279
BRSB-3	20-08-2013 05:15:00	0.218	24.11	7.07	7.66	279
BRSB-3	20-08-2013 05:30:00	0.218	24.11	7.06	7.65	279
BRSB-3	20-08-2013 05:45:00	0.218	24.12	7.07	7.65	279
BRSB-3	20-08-2013 06:00:00	0.218	24.13	7.06	7.65	279
BRSB-3	20-08-2013 06:15:00	0.218	24.13	7.06	7.65	279
BRSB-3	20-08-2013 06:30:00	0.218	24.14	7.06	7.65	279
BRSB-3	20-08-2013 06:45:00	0.218	24.14	7.06	7.67	279
BRSB-3	20-08-2013 07:00:00	0.218	24.14	7.06	7.66	279
BRSB-3	20-08-2013 07:15:00	0.218	24.14	7.07	7.67	279
BRSB-3	20-08-2013 07:30:00	0.218	24.15	7.07	7.66	279
BRSB-3	20-08-2013 07:45:00	0.218	24.16	7.04	7.66	280
BRSB-3	20-08-2013 08:00:00	0.218	24.18	7.06	7.67	279
BRSB-3	20-08-2013 08:15:00	0.218	24.21	7.09	7.66	279
BRSB-3	20-08-2013 08:30:00	0.218	24.24	7.12	7.67	279
BRSB-3	20-08-2013 08:45:00	0.218	24.27	7.13	7.67	279
BRSB-3	20-08-2013 09:00:00	0.218	24.3	7.09	7.67	280
BRSB-3	20-08-2013 09:15:00	0.218	24.37	7.09	7.69	279
BRSB-3	20-08-2013 09:30:00	0.218	24.45	7.12	7.69	279
BRSB-3	20-08-2013 09:45:00	0.218	24.53	7.08	7.68	279
BRSB-3	20-08-2013 10:00:00	0.218	24.62	7.1	7.7	278
BRSB-3	20-08-2013 10:15:00	0.218	24.71	7.12	7.69	277
BRSB-3	20-08-2013 10:30:00	0.218	24.77	7.1	7.7	277
BRSB-3	20-08-2013 10:45:00	0.218	24.86	7.11	7.72	276
BRSB-3	20-08-2013 11:00:00	0.218	24.94	7.12	7.71	276
BRSB-3	20-08-2013 11:15:00	0.218	24.99	7.09	7.72	275
BRSB-3	20-08-2013 11:30:00	0.218	25.11	7.09	7.71	276
BRSB-3	20-08-2013 11:45:00	0.218	25.19	7.1	7.72	275
BRSB-3	20-08-2013 12:00:00	0.218	25.32	7.11	7.74	275
BRSB-3	20-08-2013 12:15:00	0.218	25.39	7.03	7.72	276
BRSB-3	20-08-2013 12:30:00	0.218	25.46	7	7.73	276
BRSB-3	20-08-2013 12:45:00	0.218	25.59	7.04	7.73	275
BRSB-3	20-08-2013 13:00:00	0.218	25.7	6.97	7.72	274
BRSB-3	20-08-2013 13:15:00	0.218	25.79	6.84	7.73	275
BRSB-3	20-08-2013 13:30:00	0.218	25.87	6.78	7.71	275
BRSB-3	20-08-2013 13:45:00	0.218	25.94	6.78	7.7	274
BRSB-3	20-08-2013 14:00:00	0.218	25.98	6.72	7.69	275
BRSB-3	20-08-2013 14:15:00	0.218	26.02	6.73	7.69	274
BRSB-3	20-08-2013 14:30:00	0.218	26.01	6.75	7.7	275
BRSB-3	20-08-2013 14:45:00	0.218	25.98	6.8	7.7	274
BRSB-3	20-08-2013 15:00:00	0.218	25.95	6.81	7.7	275
BRSB-3	20-08-2013 15:15:00	0.218	25.94	6.73	7.69	277
BRSB-3	20-08-2013 15:30:00	0.218	25.94	6.78	7.7	276

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BRSB-3	20-08-2013 16:00:00	0.218	25.93	6.8	7.7	276
BRSB-3	20-08-2013 16:15:00	0.218	25.88	6.78	7.7	276
BRSB-3	20-08-2013 16:30:00	0.218	25.81	6.71	7.7	277
BRSB-3	20-08-2013 16:45:00	0.218	25.73	6.68	7.7	278
BRSB-3	20-08-2013 17:00:00	0.218	25.69	6.75	7.71	276
BRSB-3	20-08-2013 17:15:00	0.218	25.7	6.75	7.71	277
BRSB-3	20-08-2013 17:30:00	0.218	25.69	6.74	7.72	276
BRSB-3	20-08-2013 17:45:00	0.218	25.68	6.78	7.71	275
BRSB-3	20-08-2013 18:00:00	0.218	25.67	6.81	7.71	275
BRSB-3	20-08-2013 18:15:00	0.218	25.67	6.81	7.73	275
BRSB-3	20-08-2013 18:30:00	0.218	25.68	6.78	7.71	275
BRSB-3	20-08-2013 18:45:00	0.218	25.7	6.77	7.72	276
BRSB-3	20-08-2013 19:00:00	0.218	25.69	6.76	7.7	276
BRSB-3	20-08-2013 19:15:00	0.218	25.66	6.77	7.7	276
BRSB-3	20-08-2013 19:30:00	0.218	25.59	6.79	7.69	276
BRSB-3	20-08-2013 19:45:00	0.218	25.52	6.79	7.7	277
BRSB-3	20-08-2013 20:00:00	0.218	25.44	6.81	7.69	277
BRSB-3	20-08-2013 20:15:00	0.218	25.36	6.81	7.68	278
BRSB-3	20-08-2013 20:30:00	0.218	25.27	6.82	7.67	278
BRSB-3	20-08-2013 20:45:00	0.218	25.2	6.83	7.67	279
BRSB-3	20-08-2013 21:00:00	0.218	25.14	6.85	7.67	279
BRSB-3	20-08-2013 21:15:00	0.218	25.08	6.85	7.67	279
BRSB-3	20-08-2013 21:30:00	0.218	25.05	6.86	7.67	279
BRSB-3	20-08-2013 21:45:00	0.218	25.01	6.87	7.67	279
BRSB-3	20-08-2013 22:00:00	0.218	24.98	6.87	7.67	279
BRSB-3	20-08-2013 22:15:00	0.218	24.96	6.86	7.66	280
BRSB-3	20-08-2013 22:30:00	0.218	24.95	6.86	7.66	279
BRSB-3	20-08-2013 22:45:00	0.218	24.95	6.86	7.65	279
BRSB-3	20-08-2013 23:00:00	0.218	24.96	6.87	7.65	279
BRSB-3	20-08-2013 23:15:00	0.218	24.95	6.87	7.65	280
BRSB-3	20-08-2013 23:30:00	0.218	24.93	6.86	7.65	280
BRSB-3	20-08-2013 23:45:00	0.218	24.91	6.88	7.64	280
BRSB-3	21-08-2013 00:00:00	0.218	24.9	6.88	7.64	280
BRSB-3	21-08-2013 00:15:00	0.218	24.89	6.88	7.63	280
BRSB-3	21-08-2013 00:30:00	0.218	24.9	6.88	7.65	280
BRSB-3	21-08-2013 00:45:00	0.218	24.89	6.89	7.63	280
BRSB-3	21-08-2013 01:00:00	0.218	24.88	6.89	7.63	280
BRSB-3	21-08-2013 01:15:00	0.218	24.87	6.89	7.63	280
BRSB-3	21-08-2013 01:30:00	0.218	24.86	6.89	7.64	280
BRSB-3	21-08-2013 01:45:00	0.218	24.84	6.9	7.63	281
BRSB-3	21-08-2013 02:00:00	0.218	24.83	6.9	7.63	281
BRSB-3	21-08-2013 02:15:00	0.218	24.81	6.91	7.64	281
BRSB-3	21-08-2013 02:30:00	0.218	24.78	6.9	7.62	281
BRSB-3	21-08-2013 02:45:00	0.218	24.78	6.91	7.62	281
BRSB-3	21-08-2013 03:00:00	0.218	24.76	6.91	7.62	281
BRSB-3	21-08-2013 03:15:00	0.218	24.74	6.93	7.63	281
BRSB-3	21-08-2013 03:30:00	0.218	24.72	6.92	7.63	281
BRSB-3	21-08-2013 03:45:00	0.218	24.7	6.93	7.62	282
BRSB-3	21-08-2013 04:00:00	0.218	24.7	6.93	7.64	282
BRSB-3	21-08-2013 04:15:00	0.218	24.69	6.93	7.64	282

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BRSB-3	21-08-2013 04:45:00	0.218	24.65	6.94	7.62	282
BRSB-3	21-08-2013 05:00:00	0.218	24.63	6.94	7.64	281
BRSB-3	21-08-2013 05:15:00	0.218	24.61	6.95	7.64	282
BRSB-3	21-08-2013 05:30:00	0.218	24.59	6.96	7.62	281
BRSB-3	21-08-2013 05:45:00	0.218	24.56	6.95	7.61	282
BRSB-3	21-08-2013 06:00:00	0.218	24.54	6.96	7.61	282
BRSB-3	21-08-2013 06:15:00	0.218	24.5	6.97	7.61	282
BRSB-3	21-08-2013 06:30:00	0.218	24.48	6.98	7.62	282
BRSB-3	21-08-2013 06:45:00	0.218	24.47	6.98	7.61	282
BRSB-3	21-08-2013 07:00:00	0.218	24.45	6.99	7.62	282
BRSB-3	21-08-2013 07:15:00	0.218	24.44	7	7.62	282
BRSB-3	21-08-2013 07:30:00	0.218	24.44	7.01	7.63	282
BRSB-3	21-08-2013 07:45:00	0.218	24.47	7	7.62	282
BRSB-3	21-08-2013 08:00:00	0.218	24.51	7.03	7.64	282
BRSB-3	21-08-2013 08:15:00	0.218	24.54	7.02	7.64	282
BRSB-3	21-08-2013 08:30:00	0.218	24.56	7.03	7.65	281
BRSB-3	21-08-2013 08:45:00	0.218	24.6	7.02	7.65	282
BRSB-3	21-08-2013 09:00:00	0.218	24.65	7.03	7.67	281
BRSB-3	21-08-2013 09:15:00	0.218	24.7	7.04	7.67	281
BRSB-3	21-08-2013 09:30:00	0.218	24.72	7.05	7.69	281
BRSB-3	21-08-2013 09:45:00	0.218	24.75	7.05	7.69	281
BRSB-3	21-08-2013 10:00:00	0.218	24.78	7.06	7.7	281
BRSB-3	21-08-2013 10:15:00	0.218	24.82	7.09	7.71	281
BRSB-3	21-08-2013 10:30:00	0.218	24.88	7.1	7.71	280
BRSB-3	21-08-2013 10:45:00	0.218	24.93	7.1	7.72	279
BRSB-3	21-08-2013 11:00:00	0.218	24.97	7.08	7.72	279
BRSB-3	21-08-2013 11:15:00	0.218	25.02	7.08	7.71	279
BRSB-3	21-08-2013 11:30:00	0.218	25.08	7.08	7.72	279
BRSB-3	21-08-2013 11:45:00	0.218	25.16	7.09	7.73	278
BRSB-3	21-08-2013 12:00:00	0.218	25.27	7.11	7.73	278
BRSB-3	21-08-2013 12:15:00	0.218	25.37	7.09	7.74	278
BRSB-3	21-08-2013 12:30:00	0.218	25.46	7.11	7.74	278
BRSB-3	21-08-2013 12:45:00	0.218	25.58	7.11	7.73	278
BRSB-3	21-08-2013 13:00:00	0.218	25.68	7.08	7.75	277
BRSB-3	21-08-2013 13:15:00	0.218	25.75	7.04	7.73	277
BRSB-3	21-08-2013 13:30:00	0.218	25.87	7.02	7.74	278
BRSB-3	21-08-2013 13:45:00	0.218	26.04	6.98	7.76	279
BRSB-3	21-08-2013 14:00:00	0.218	26.19	6.94	7.75	278
BRSB-3	21-08-2013 14:15:00	0.218	26.31	6.9	7.75	277
BRSB-3	21-08-2013 14:30:00	0.218	26.46	6.88	7.75	277
BRSB-3	21-08-2013 14:45:00	0.218	26.61	6.84	7.75	276
BRSB-3	21-08-2013 15:00:00	0.218	26.75	6.8	7.75	276
BRSB-3	21-08-2013 15:15:00	0.218	26.91	6.76	7.75	275
BRSB-3	21-08-2013 15:30:00	0.218	27.05	6.74	7.75	275
BRSB-3	21-08-2013 15:45:00	0.218	27.12	6.72	7.75	275
BRSB-3	21-08-2013 16:00:00	0.218	27.13	6.71	7.75	275
BRSB-3	21-08-2013 16:15:00	0.218	27.15	6.67	7.74	275
BRSB-3	21-08-2013 16:30:00	0.218	27.21	6.61	7.73	275
BRSB-3	21-08-2013 16:45:00	0.218	27.25	6.55	7.73	275
BRSB-3	21-08-2013 17:00:00	0.218	27.19	6.57	7.71	271

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BRSB-3	21-08-2013 17:30:00	0.218	27.03	6.53	7.68	262
BRSB-3	21-08-2013 17:45:00	0.218	26.96	6.47	7.67	260
BRSB-3	21-08-2013 18:00:00	0.218	26.88	6.45	7.67	264
BRSB-3	21-08-2013 18:15:00	0.218	26.81	6.44	7.65	263
BRSB-3	21-08-2013 18:30:00	0.218	26.74	6.44	7.63	263
BRSB-3	21-08-2013 18:45:00	0.218	26.6	6.51	7.65	271
BRSB-3	21-08-2013 19:00:00	0.218	26.39	6.57	7.66	276
BRSB-3	21-08-2013 19:15:00	0.218	26.14	6.63	7.67	282
BRSB-3	21-08-2013 19:30:00	0.218	26.06	6.64	7.69	283
BRSB-3	21-08-2013 19:45:00	0.218	26.02	6.64	7.69	283
BRSB-3	21-08-2013 20:00:00	0.218	25.95	6.65	7.68	284
BRSB-3	21-08-2013 20:15:00	0.218	25.86	6.66	7.68	284
BRSB-3	21-08-2013 20:30:00	0.218	25.78	6.68	7.69	284
BRSB-3	21-08-2013 20:45:00	0.218	25.72	6.7	7.69	284
BRSB-3	21-08-2013 21:00:00	0.218	25.67	6.73	7.69	283
BRSB-3	21-08-2013 21:15:00	0.218	25.62	6.72	7.68	282
BRSB-3	21-08-2013 21:30:00	0.218	25.58	6.74	7.69	281
BRSB-3	21-08-2013 21:45:00	0.218	25.53	6.75	7.69	281
BRSB-3	21-08-2013 22:00:00	0.218	25.49	6.77	7.69	280
BRSB-3	21-08-2013 22:15:00	0.218	25.44	6.77	7.68	279
BRSB-3	21-08-2013 22:30:00	0.218	25.41	6.79	7.68	279
BRSB-3	21-08-2013 22:45:00	0.218	25.37	6.79	7.67	279
BRSB-3	21-08-2013 23:00:00	0.218	25.34	6.8	7.67	278
BRSB-3	21-08-2013 23:15:00	0.218	25.31	6.8	7.67	278
BRSB-3	21-08-2013 23:30:00	0.218	25.27	6.8	7.68	278
BRSB-3	21-08-2013 23:45:00	0.218	25.23	6.82	7.68	277
BRSB-3	22-08-2013 00:00:00	0.218	25.2	6.82	7.67	277
BRSB-3	22-08-2013 00:15:00	0.218	25.16	6.82	7.67	277
BRSB-3	22-08-2013 00:30:00	0.218	25.12	6.83	7.67	277
BRSB-3	22-08-2013 00:45:00	0.218	25.07	6.84	7.66	277
BRSB-3	22-08-2013 01:00:00	0.218	25.02	6.85	7.65	277
BRSB-3	22-08-2013 01:15:00	0.218	24.96	6.86	7.65	277
BRSB-3	22-08-2013 01:30:00	0.218	24.9	6.87	7.65	278
BRSB-3	22-08-2013 01:45:00	0.218	24.84	6.89	7.66	277
BRSB-3	22-08-2013 02:00:00	0.218	24.79	6.9	7.66	277
BRSB-3	22-08-2013 02:15:00	0.218	24.75	6.9	7.65	277
BRSB-3	22-08-2013 02:30:00	0.218	24.73	6.9	7.65	277
BRSB-3	22-08-2013 02:45:00	0.218	24.7	6.92	7.65	277
BRSB-3	22-08-2013 03:00:00	0.218	24.68	6.92	7.66	277
BRSB-3	22-08-2013 03:15:00	0.218	24.67	6.91	7.66	277
BRSB-3	22-08-2013 03:30:00	0.218	24.65	6.91	7.65	277
BRSB-3	22-08-2013 03:45:00	0.218	24.63	6.9	7.64	277
BRSB-3	22-08-2013 04:00:00	0.218	24.62	6.92	7.65	276
BRSB-3	22-08-2013 04:15:00	0.218	24.6	6.92	7.64	276
BRSB-3	22-08-2013 04:30:00	0.218	24.59	6.92	7.65	276
BRSB-3	22-08-2013 04:45:00	0.218	24.57	6.93	7.65	276
BRSB-3	22-08-2013 05:00:00	0.218	24.55	6.93	7.65	276
BRSB-3	22-08-2013 05:15:00	0.218	24.54	6.93	7.65	276
BRSB-3	22-08-2013 05:30:00	0.218	24.52	6.94	7.63	276
BRSB-3	22-08-2013 05:45:00	0.218	24.51	6.95	7.63	276

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BRSB-3	22-08-2013 06:15:00	0.218	24.48	6.96	7.63	277
BRSB-3	22-08-2013 06:30:00	0.218	24.47	6.96	7.64	277
BRSB-3	22-08-2013 06:45:00	0.218	24.43	6.94	7.62	275
BRSB-3	22-08-2013 07:00:00	0.218	24.53	6.95	7.64	266
BRSB-3	22-08-2013 07:15:00	0.218	24.67	6.94	7.67	258
BRSB-3	22-08-2013 07:30:00	0.218	24.58	6.94	7.65	245
BRSB-3	22-08-2013 07:45:00	0.218	24.37	6.96	7.59	232
BRSB-3	22-08-2013 08:00:00	0.218	24.4	6.98	7.6	251
BRSB-3	22-08-2013 08:15:00	0.218	24.53	7	7.65	263
BRSB-3	22-08-2013 08:30:00	0.218	24.61	7	7.66	266
BRSB-3	22-08-2013 08:45:00	0.218	24.69	7.03	7.66	269
BRSB-3	22-08-2013 09:00:00	0.218	24.75	7.01	7.67	272
BRSB-3	22-08-2013 09:15:00	0.218	24.81	7.02	7.69	272
BRSB-3	22-08-2013 09:30:00	0.218	24.9	7.03	7.7	271
BRSB-3	22-08-2013 09:45:00	0.218	25.01	7.01	7.69	270
BRSB-3	22-08-2013 10:00:00	0.218	25.14	7	7.71	269
BRSB-3	22-08-2013 10:15:00	0.218	25.28	7	7.72	267
BRSB-3	22-08-2013 10:30:00	0.218	25.45	7.01	7.73	266
BRSB-3	22-08-2013 10:45:00	0.218	25.61	7	7.73	266
BRSB-3	22-08-2013 11:00:00	0.218	25.75	6.98	7.73	265
BRSB-3	22-08-2013 11:15:00	0.218	25.93	6.92	7.73	265
BRSB-3	22-08-2013 11:30:00	0.218	26.11	6.9	7.72	265
BRSB-3	22-08-2013 11:45:00	0.218	26.25	6.9	7.74	263
BRSB-3	22-08-2013 12:00:00	0.218	26.44	6.88	7.73	263
BRSB-3	22-08-2013 12:15:00	0.218	26.54	6.82	7.74	262
BRSB-3	22-08-2013 12:30:00	0.218	26.69	6.71	7.73	262
BRSB-3	22-08-2013 12:45:00	0.218	26.79	6.68	7.73	258
BRSB-3	22-08-2013 13:00:00	0.218	26.85	6.64	7.73	258
BRSB-3	22-08-2013 13:15:00	0.218	26.9	6.58	7.72	258
BRSB-3	22-08-2013 13:30:00	0.218	26.83	6.59	7.7	259
BRSB-3	22-08-2013 13:45:00	0.218	26.74	6.64	7.7	259
BRSB-3	22-08-2013 14:00:00	0.218	26.66	6.69	7.7	259
BRSB-3	22-08-2013 14:15:00	0.218	26.58	6.72	7.71	261
BRSB-3	22-08-2013 14:30:00	0.218	26.49	6.75	7.72	262
BRSB-3	22-08-2013 14:45:00	0.218	26.45	6.8	7.73	260
BRSB-3	22-08-2013 15:00:00	0.218	26.02	6.84	7.71	270
BWSM-1	19-08-2013 14:30:00	0.14	21.73	10.11	6.89	345
BWSM-1	19-08-2013 14:45:00	0.138	21.9	9.72	7.01	341
BWSM-1	19-08-2013 15:00:00	0.136	22.07	9.52	7.06	340
BWSM-1	19-08-2013 15:15:00	0.134	22.16	9.33	7.12	339
BWSM-1	19-08-2013 15:30:00	0.131	22.29	9.32	7.2	338
BWSM-1	19-08-2013 15:45:00	0.128	22.41	9.25	7.28	338
BWSM-1	19-08-2013 16:00:00	0.127	22.53	9.23	7.35	337
BWSM-1	19-08-2013 16:15:00	0.125	22.64	9.18	7.4	337
BWSM-1	19-08-2013 16:30:00	0.124	22.76	9.15	7.44	337
BWSM-1	19-08-2013 16:45:00	0.123	22.86	9.08	7.46	337
BWSM-1	19-08-2013 17:00:00	0.12	22.98	9.13	7.48	337
BWSM-1	19-08-2013 17:15:00	0.121	23.08	9.06	7.48	337
BWSM-1	19-08-2013 17:30:00	0.121	23.21	9	7.49	337
BWSM-1	19-08-2013 17:45:00	0.121	23.33	8.96	7.49	337

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BWSM-1	19-08-2013 18:15:00	0.119	23.54	8.86	7.5	337
BWSM-1	19-08-2013 18:30:00	0.12	23.64	8.87	7.5	337
BWSM-1	19-08-2013 18:45:00	0.121	23.72	8.86	7.5	337
BWSM-1	19-08-2013 19:00:00	0.121	23.78	8.9	7.5	337
BWSM-1	19-08-2013 19:15:00	0.123	23.83	8.84	7.5	337
BWSM-1	19-08-2013 19:30:00	0.124	23.86	8.86	7.5	337
BWSM-1	19-08-2013 19:45:00	0.125	23.88	8.87	7.5	337
BWSM-1	19-08-2013 20:00:00	0.125	23.88	8.87	7.49	336
BWSM-1	19-08-2013 20:15:00	0.126	23.88	8.85	7.49	337
BWSM-1	19-08-2013 20:30:00	0.127	23.87	8.82	7.48	337
BWSM-1	19-08-2013 20:45:00	0.13	23.84	8.81	7.47	337
BWSM-1	19-08-2013 21:00:00	0.13	23.8	8.78	7.47	337
BWSM-1	19-08-2013 21:15:00	0.13	23.76	8.72	7.46	337
BWSM-1	19-08-2013 21:30:00	0.131	23.71	8.76	7.46	337
BWSM-1	19-08-2013 21:45:00	0.131	23.65	8.72	7.45	337
BWSM-1	19-08-2013 22:00:00	0.131	23.59	8.75	7.45	337
BWSM-1	19-08-2013 22:15:00	0.13	23.53	8.71	7.45	337
BWSM-1	19-08-2013 22:30:00	0.13	23.47	8.71	7.45	336
BWSM-1	19-08-2013 22:45:00	0.13	23.42	8.71	7.44	336
BWSM-1	19-08-2013 23:00:00	0.131	23.36	8.7	7.44	336
BWSM-1	19-08-2013 23:15:00	0.131	23.31	8.68	7.43	337
BWSM-1	19-08-2013 23:30:00	0.132	23.26	8.61	7.43	337
BWSM-1	19-08-2013 23:45:00	0.134	23.22	8.63	7.43	337
BWSM-1	20-08-2013 00:00:00	0.134	23.18	8.57	7.42	337
BWSM-1	20-08-2013 00:15:00	0.134	23.14	8.54	7.42	337
BWSM-1	20-08-2013 00:30:00	0.134	23.1	8.56	7.42	337
BWSM-1	20-08-2013 00:45:00	0.134	23.06	8.51	7.41	337
BWSM-1	20-08-2013 01:00:00	0.135	23.02	8.53	7.4	338
BWSM-1	20-08-2013 01:15:00	0.136	22.99	8.53	7.4	338
BWSM-1	20-08-2013 01:30:00	0.138	22.95	8.49	7.39	338
BWSM-1	20-08-2013 01:45:00	0.139	22.92	8.52	7.39	338
BWSM-1	20-08-2013 02:00:00	0.138	22.88	8.45	7.38	338
BWSM-1	20-08-2013 02:15:00	0.141	22.85	8.42	7.38	338
BWSM-1	20-08-2013 02:30:00	0.143	22.82	8.42	7.38	339
BWSM-1	20-08-2013 02:45:00	0.145	22.79	8.39	7.37	339
BWSM-1	20-08-2013 03:00:00	0.147	22.76	8.41	7.37	339
BWSM-1	20-08-2013 03:15:00	0.148	22.73	8.4	7.37	339
BWSM-1	20-08-2013 03:30:00	0.149	22.71	8.39	7.36	339
BWSM-1	20-08-2013 03:45:00	0.151	22.68	8.4	7.36	339
BWSM-1	20-08-2013 04:00:00	0.152	22.65	8.44	7.36	339
BWSM-1	20-08-2013 04:15:00	0.154	22.62	8.4	7.36	339
BWSM-1	20-08-2013 04:30:00	0.156	22.59	8.4	7.36	339
BWSM-1	20-08-2013 04:45:00	0.159	22.56	8.5	7.35	339
BWSM-1	20-08-2013 05:00:00	0.161	22.52	8.49	7.34	338
BWSM-1	20-08-2013 05:15:00	0.164	22.49	8.48	7.34	339
BWSM-1	20-08-2013 05:30:00	0.166	22.45	8.5	7.34	339
BWSM-1	20-08-2013 05:45:00	0.17	22.41	8.46	7.34	339
BWSM-1	20-08-2013 06:00:00	0.174	22.36	8.45	7.33	339
BWSM-1	20-08-2013 06:15:00	0.177	22.32	8.44	7.33	339
BWSM-1	20-08-2013 06:30:00	0.181	22.27	8.51	7.33	339

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BWSM-1	20-08-2013 07:00:00	0.191	22.18	8.53	7.32	339
BWSM-1	20-08-2013 07:15:00	0.194	22.15	8.49	7.32	339
BWSM-1	20-08-2013 07:30:00	0.197	22.11	8.5	7.32	339
BWSM-1	20-08-2013 07:45:00	0.199	22.07	8.48	7.31	339
BWSM-1	20-08-2013 08:00:00	0.201	22.04	8.48	7.31	339
BWSM-1	20-08-2013 08:15:00	0.203	22.01	8.53	7.31	339
BWSM-1	20-08-2013 08:30:00	0.204	21.99	8.51	7.31	339
BWSM-1	20-08-2013 08:45:00	0.206	21.96	8.53	7.31	339
BWSM-1	20-08-2013 09:00:00	0.206	21.94	8.55	7.31	339
BWSM-1	20-08-2013 09:15:00	0.206	21.92	8.56	7.31	339
BWSM-1	20-08-2013 09:30:00	0.207	21.9	8.56	7.31	339
BWSM-1	20-08-2013 09:45:00	0.206	21.89	8.6	7.31	339
BWSM-1	20-08-2013 10:00:00	0.204	21.91	8.63	7.33	339
BWSM-1	20-08-2013 10:15:00	0.205	21.91	8.64	7.33	339
BWSM-1	20-08-2013 10:30:00	0.205	21.92	8.64	7.33	339
BWSM-1	20-08-2013 10:45:00	0.204	21.93	8.65	7.34	339
BWSM-1	20-08-2013 11:00:00	0.203	21.95	8.66	7.34	339
BWSM-1	20-08-2013 11:15:00	0.201	22.04	8.74	7.36	339
BWSM-1	20-08-2013 11:30:00	0.199	22.07	8.72	7.37	339
BWSM-1	20-08-2013 11:45:00	0.198	22.16	8.8	7.38	339
BWSM-1	20-08-2013 12:00:00	0.196	22.28	8.81	7.4	339
BWSM-1	20-08-2013 12:15:00	0.195	22.32	8.74	7.39	339
BWSM-1	20-08-2013 12:30:00	0.192	22.32	8.71	7.38	339
BWSM-1	20-08-2013 12:45:00	0.188	22.34	8.78	7.4	339
BWSM-1	20-08-2013 13:00:00	0.186	22.5	8.86	7.42	339
BWSM-1	20-08-2013 13:15:00	0.185	22.53	8.8	7.42	339
BWSM-1	20-08-2013 13:30:00	0.182	22.6	8.76	7.42	339
BWSM-1	20-08-2013 13:45:00	0.182	22.65	8.8	7.43	339
BWSM-1	20-08-2013 14:00:00	0.179	22.69	8.84	7.43	338
BWSM-1	20-08-2013 14:15:00	0.176	22.76	8.85	7.43	338
BWSM-1	20-08-2013 14:30:00	0.133	22.83	8.83	7.44	337
BWSM-1	20-08-2013 14:45:00	0.131	22.92	8.86	7.45	337
BWSM-1	20-08-2013 15:00:00	0.129	23.05	8.94	7.46	337
BWSM-1	20-08-2013 15:15:00	0.129	23.2	9.02	7.49	337
BWSM-1	20-08-2013 15:30:00	0.126	23.33	8.99	7.49	337
BWSM-1	20-08-2013 15:45:00	0.124	23.47	9	7.5	336
BWSM-1	20-08-2013 16:00:00	0.123	23.6	9.01	7.51	336
BWSM-1	20-08-2013 16:15:00	0.123	23.7	8.96	7.51	336
BWSM-1	20-08-2013 16:30:00	0.123	23.81	8.94	7.51	336
BWSM-1	20-08-2013 16:45:00	0.122	23.91	8.89	7.51	336
BWSM-1	20-08-2013 17:00:00	0.12	24	8.9	7.51	336
BWSM-1	20-08-2013 17:15:00	0.121	24.1	8.88	7.51	336
BWSM-1	20-08-2013 17:30:00	0.12	24.17	8.85	7.51	335
BWSM-1	20-08-2013 17:45:00	0.12	24.23	8.78	7.5	336
BWSM-1	20-08-2013 18:00:00	0.119	24.26	8.75	7.49	336
BWSM-1	20-08-2013 18:15:00	0.117	24.28	8.71	7.48	336
BWSM-1	20-08-2013 18:30:00	0.118	24.29	8.68	7.47	336
BWSM-1	20-08-2013 18:45:00	0.119	24.29	8.64	7.47	337
BWSM-1	20-08-2013 19:00:00	0.122	24.27	8.56	7.45	337
BWSM-1	20-08-2013 19:15:00	0.122	24.25	8.5	7.44	337

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BWSM-1	20-08-2013 19:45:00	0.12	24.18	8.48	7.42	338
BWSM-1	20-08-2013 20:00:00	0.122	24.14	8.45	7.42	337
BWSM-1	20-08-2013 20:15:00	0.124	24.1	8.49	7.42	337
BWSM-1	20-08-2013 20:30:00	0.126	24.05	8.5	7.42	337
BWSM-1	20-08-2013 20:45:00	0.127	24.01	8.42	7.42	337
BWSM-1	20-08-2013 21:00:00	0.129	23.98	8.5	7.42	337
BWSM-1	20-08-2013 21:15:00	0.129	23.96	8.47	7.42	337
BWSM-1	20-08-2013 21:30:00	0.13	23.94	8.49	7.43	337
BWSM-1	20-08-2013 21:45:00	0.131	23.92	8.49	7.43	336
BWSM-1	20-08-2013 22:00:00	0.131	23.9	8.5	7.43	336
BWSM-1	20-08-2013 22:15:00	0.132	23.87	8.51	7.44	336
BWSM-1	20-08-2013 22:30:00	0.132	23.84	8.46	7.44	336
BWSM-1	20-08-2013 22:45:00	0.133	23.8	8.43	7.43	336
BWSM-1	20-08-2013 23:00:00	0.134	23.77	8.42	7.43	336
BWSM-1	20-08-2013 23:15:00	0.134	23.73	8.36	7.42	336
BWSM-1	20-08-2013 23:30:00	0.133	23.7	8.35	7.41	336
BWSM-1	20-08-2013 23:45:00	0.132	23.67	8.32	7.41	336
BWSM-1	21-08-2013 00:00:00	0.131	23.63	8.29	7.4	336
BWSM-1	21-08-2013 00:15:00	0.13	23.61	8.28	7.4	336
BWSM-1	21-08-2013 00:30:00	0.128	23.58	8.27	7.39	336
BWSM-1	21-08-2013 00:45:00	0.127	23.55	8.23	7.39	336
BWSM-1	21-08-2013 01:00:00	0.128	23.52	8.23	7.38	336
BWSM-1	21-08-2013 01:15:00	0.127	23.49	8.21	7.38	336
BWSM-1	21-08-2013 01:30:00	0.128	23.46	8.21	7.37	336
BWSM-1	21-08-2013 01:45:00	0.127	23.43	8.18	7.37	336
BWSM-1	21-08-2013 02:00:00	0.126	23.39	8.14	7.36	336
BWSM-1	21-08-2013 02:15:00	0.127	23.36	8.15	7.36	336
BWSM-1	21-08-2013 02:30:00	0.128	23.32	8.11	7.36	336
BWSM-1	21-08-2013 02:45:00	0.127	23.28	8.15	7.35	337
BWSM-1	21-08-2013 03:00:00	0.126	23.24	8.12	7.35	337
BWSM-1	21-08-2013 03:15:00	0.126	23.2	8.12	7.35	337
BWSM-1	21-08-2013 03:30:00	0.126	23.15	8.11	7.34	337
BWSM-1	21-08-2013 03:45:00	0.125	23.11	8.13	7.34	337
BWSM-1	21-08-2013 04:00:00	0.125	23.06	8.16	7.34	337
BWSM-1	21-08-2013 04:15:00	0.125	23.01	8.15	7.34	337
BWSM-1	21-08-2013 04:30:00	0.126	22.97	8.16	7.34	337
BWSM-1	21-08-2013 04:45:00	0.128	22.92	8.16	7.34	337
BWSM-1	21-08-2013 05:00:00	0.129	22.87	8.13	7.34	337
BWSM-1	21-08-2013 05:15:00	0.131	22.83	8.17	7.33	337
BWSM-1	21-08-2013 05:30:00	0.132	22.79	8.18	7.33	336
BWSM-1	21-08-2013 05:45:00	0.133	22.74	8.17	7.34	336
BWSM-1	21-08-2013 06:00:00	0.134	22.7	8.17	7.34	336
BWSM-1	21-08-2013 06:15:00	0.136	22.66	8.18	7.34	336
BWSM-1	21-08-2013 06:30:00	0.138	22.62	8.19	7.33	336
BWSM-1	21-08-2013 06:45:00	0.139	22.58	8.2	7.34	336
BWSM-1	21-08-2013 07:00:00	0.14	22.54	8.2	7.34	336
BWSM-1	21-08-2013 07:15:00	0.143	22.5	8.2	7.33	336
BWSM-1	21-08-2013 07:30:00	0.143	22.47	8.22	7.33	336
BWSM-1	21-08-2013 07:45:00	0.145	22.44	8.21	7.34	336
BWSM-1	21-08-2013 08:00:00	0.146	22.4	8.23	7.33	337

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BWSM-1	21-08-2013 08:30:00	0.147	22.34	8.23	7.33	337
BWSM-1	21-08-2013 08:45:00	0.148	22.31	8.25	7.33	338
BWSM-1	21-08-2013 09:00:00	0.148	22.28	8.24	7.33	338
BWSM-1	21-08-2013 09:15:00	0.15	22.25	8.24	7.32	338
BWSM-1	21-08-2013 09:30:00	0.151	22.23	8.26	7.32	338
BWSM-1	21-08-2013 09:45:00	0.15	22.22	8.31	7.33	338
BWSM-1	21-08-2013 10:00:00	0.149	22.22	8.32	7.34	338
BWSM-1	21-08-2013 10:15:00	0.148	22.22	8.32	7.33	338
BWSM-1	21-08-2013 10:30:00	0.15	22.21	8.38	7.34	338
BWSM-1	21-08-2013 10:45:00	0.152	22.21	8.39	7.35	338
BWSM-1	21-08-2013 11:00:00	0.151	22.23	8.43	7.36	338
BWSM-1	21-08-2013 11:15:00	0.15	22.25	8.45	7.37	338
BWSM-1	21-08-2013 11:30:00	0.147	22.28	8.48	7.38	338
BWSM-1	21-08-2013 11:45:00	0.147	22.33	8.49	7.39	337
BWSM-1	21-08-2013 12:00:00	0.148	22.36	8.5	7.39	337
BWSM-1	21-08-2013 12:15:00	0.146	22.45	8.6	7.41	337
BWSM-1	21-08-2013 12:30:00	0.143	22.56	8.66	7.42	337
BWSM-1	21-08-2013 12:45:00	0.14	22.66	8.68	7.43	337
BWSM-1	21-08-2013 13:00:00	0.14	22.82	8.69	7.45	337
BWSM-1	21-08-2013 13:15:00	0.139	22.93	8.71	7.46	337
BWSM-1	21-08-2013 13:30:00	0.14	22.99	8.68	7.46	337
BWSM-1	21-08-2013 13:45:00	0.137	23.12	8.77	7.47	337
BWSM-1	21-08-2013 14:00:00	0.136	23.15	8.7	7.46	337
BWSM-1	21-08-2013 14:15:00	0.136	23.29	8.79	7.49	336
BWSM-1	21-08-2013 14:30:00	0.136	23.34	8.73	7.48	336
BWSM-1	21-08-2013 14:45:00	0.133	23.47	8.77	7.5	336
BWSM-1	21-08-2013 15:00:00	0.13	23.57	8.8	7.5	336
BWSM-1	21-08-2013 15:15:00	0.13	23.65	8.77	7.51	336
BWSM-1	21-08-2013 15:30:00	0.131	23.76	8.78	7.51	336
BWSM-1	21-08-2013 15:45:00	0.13	23.78	8.74	7.51	336
BWSM-1	21-08-2013 16:00:00	0.13	23.88	8.8	7.52	336
BWSM-1	21-08-2013 16:15:00	0.13	23.95	8.74	7.52	335
BWSM-1	21-08-2013 16:30:00	0.129	24.08	8.76	7.53	335
BWSM-1	21-08-2013 16:45:00	0.134	24.19	8.73	7.53	335
BWSM-1	21-08-2013 17:00:00	0.14	24.29	8.68	7.53	335
BWSM-1	21-08-2013 17:15:00	0.149	24.39	8.6	7.53	334
BWSM-1	21-08-2013 17:30:00	0.163	24.42	8.62	7.55	326
BWSM-1	21-08-2013 17:45:00	0.169	24.46	8.6	7.55	320
BWSM-1	21-08-2013 18:00:00	0.176	24.51	8.61	7.56	314
BWSM-1	21-08-2013 18:15:00	0.178	24.58	8.59	7.55	311
BWSM-1	21-08-2013 18:30:00	0.183	24.68	8.56	7.54	312
BWSM-1	21-08-2013 18:45:00	0.188	24.78	8.53	7.54	310
BWSM-1	21-08-2013 19:00:00	0.197	24.92	8.56	7.54	311
BWSM-1	21-08-2013 19:15:00	0.214	25	8.58	7.53	309
BWSM-1	21-08-2013 19:30:00	0.238	24.96	8.53	7.47	301
BWSM-1	21-08-2013 19:45:00	0.268	24.75	8.43	7.43	294
BWSM-1	21-08-2013 20:00:00	0.293	24.43	8.37	7.41	295
BWSM-1	21-08-2013 20:15:00	0.315	24.17	8.29	7.38	301
BWSM-1	21-08-2013 20:30:00	0.331	23.95	8.02	7.31	303
BWSM-1	21-08-2013 20:45:00	0.342	23.91	7.63	7.21	281

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BWSM-1	21-08-2013 21:15:00	0.352	23.9	7.24	7.03	211
BWSM-1	21-08-2013 21:30:00	0.354	23.85	7.14	6.98	193
BWSM-1	21-08-2013 21:45:00	0.351	23.8	7.09	6.94	185
BWSM-1	21-08-2013 22:00:00	0.348	23.74	7.12	6.93	185
BWSM-1	21-08-2013 22:15:00	0.343	23.67	7.11	6.92	188
BWSM-1	21-08-2013 22:30:00	0.338	23.6	7.13	6.92	192
BWSM-1	21-08-2013 22:45:00	0.332	23.52	7.17	6.91	195
BWSM-1	21-08-2013 23:00:00	0.325	23.46	7.18	6.9	198
BWSM-1	21-08-2013 23:15:00	0.32	23.39	7.21	6.89	202
BWSM-1	21-08-2013 23:30:00	0.315	23.33	7.22	6.89	205
BWSM-1	21-08-2013 23:45:00	0.309	23.28	7.21	6.9	209
BWSM-1	22-08-2013 00:00:00	0.305	23.23	7.24	6.9	212
BWSM-1	22-08-2013 00:15:00	0.302	23.19	7.25	6.9	216
BWSM-1	22-08-2013 00:30:00	0.296	23.15	7.26	6.91	220
BWSM-1	22-08-2013 00:45:00	0.292	23.12	7.29	6.91	225
BWSM-1	22-08-2013 01:00:00	0.286	23.09	7.31	6.92	229
BWSM-1	22-08-2013 01:15:00	0.281	23.06	7.29	6.93	234
BWSM-1	22-08-2013 01:30:00	0.275	23.03	7.31	6.94	239
BWSM-1	22-08-2013 01:45:00	0.269	23	7.35	6.95	243
BWSM-1	22-08-2013 02:00:00	0.262	22.97	7.35	6.95	248
BWSM-1	22-08-2013 02:15:00	0.256	22.93	7.36	6.96	252
BWSM-1	22-08-2013 02:30:00	0.25	22.89	7.37	6.96	255
BWSM-1	22-08-2013 02:45:00	0.245	22.84	7.39	6.97	258
BWSM-1	22-08-2013 03:00:00	0.24	22.79	7.4	6.97	261
BWSM-1	22-08-2013 03:15:00	0.235	22.74	7.36	6.97	264
BWSM-1	22-08-2013 03:30:00	0.229	22.68	7.36	6.97	266
BWSM-1	22-08-2013 03:45:00	0.225	22.63	7.35	6.97	268
BWSM-1	22-08-2013 04:00:00	0.222	22.57	7.35	6.97	270
BWSM-1	22-08-2013 04:15:00	0.217	22.51	7.37	6.97	272
BWSM-1	22-08-2013 04:30:00	0.216	22.46	7.39	6.97	274
BWSM-1	22-08-2013 04:45:00	0.212	22.4	7.39	6.98	275
BWSM-1	22-08-2013 05:00:00	0.21	22.35	7.4	6.99	277
BWSM-1	22-08-2013 05:15:00	0.208	22.29	7.46	6.99	278
BWSM-1	22-08-2013 05:30:00	0.204	22.24	7.47	7	280
BWSM-1	22-08-2013 05:45:00	0.204	22.19	7.5	7.01	281
BWSM-1	22-08-2013 06:00:00	0.203	22.13	7.49	7.01	283
BWSM-1	22-08-2013 06:15:00	0.202	22.09	7.54	7.02	284
BWSM-1	22-08-2013 06:30:00	0.202	22.04	7.55	7.03	286
BWSM-1	22-08-2013 06:45:00	0.199	22.01	7.57	7.04	287
BWSM-1	22-08-2013 07:00:00	0.204	21.95	7.69	7.07	286
BWSM-1	22-08-2013 07:15:00	0.205	21.91	7.69	7.08	285
BWSM-1	22-08-2013 07:30:00	0.205	21.89	7.68	7.08	286
BWSM-1	22-08-2013 07:45:00	0.203	21.86	7.66	7.08	289
BWSM-1	22-08-2013 08:00:00	0.203	21.84	7.64	7.09	291
BWSM-1	22-08-2013 08:15:00	0.207	21.83	7.63	7.09	293
BWSM-1	22-08-2013 08:30:00	0.208	21.82	7.68	7.1	295
BWSM-1	22-08-2013 08:45:00	0.211	21.81	7.69	7.11	296
BWSM-1	22-08-2013 09:00:00	0.215	21.81	7.72	7.12	297
BWSM-1	22-08-2013 09:15:00	0.225	21.8	7.68	7.13	299
BWSM-1	22-08-2013 09:30:00	0.236	21.81	7.79	7.15	301

Station ID	Date/Time	Depth Mtr	T H2O C	DO (mg/L)	pH	Cond (umhos/cm)
BWSM-1	22-08-2013 10:00:00	0.256	21.88	7.82	7.2	305
BWSM-1	22-08-2013 10:15:00	0.263	21.93	7.87	7.21	307
BWSM-1	22-08-2013 10:30:00	0.268	22	7.93	7.23	308
BWSM-1	22-08-2013 10:45:00	0.274	22.08	7.93	7.24	306
BWSM-1	22-08-2013 11:00:00	0.277	22.23	7.91	7.24	301
BWSM-1	22-08-2013 11:15:00	0.278	22.41	7.81	7.24	294
BWSM-1	22-08-2013 11:30:00	0.279	22.55	7.72	7.23	280
BWSM-1	22-08-2013 11:45:00	0.281	22.71	7.64	7.21	263
BWSM-1	22-08-2013 12:00:00	0.287	22.81	7.63	7.19	248
BWSM-1	22-08-2013 12:15:00	0.288	22.92	7.59	7.17	239
BWSM-1	22-08-2013 12:30:00	0.287	23.02	7.57	7.14	233
BWSM-1	22-08-2013 12:45:00	0.287	23.13	7.53	7.13	231
BWSM-1	22-08-2013 13:00:00	0.289	23.26	7.51	7.12	231
BWSM-1	22-08-2013 13:15:00	0.29	23.41	7.52	7.12	232
BWSM-1	22-08-2013 13:30:00	0.289	23.56	7.53	7.12	233
BWSM-1	22-08-2013 13:45:00	0.298	23.7	7.55	7.13	236
BWSM-1	22-08-2013 14:00:00	0.318	23.84	7.57	7.14	240
BWSM-1	22-08-2013 14:15:00	0.339	23.96	7.54	7.15	246
BWSM-1	22-08-2013 14:30:00	0.364	24.06	7.52	7.17	255
BWSM-1	22-08-2013 14:45:00	0.382	24.09	7.52	7.19	265
BWSM-1	22-08-2013 15:00:00	0.398	24.11	7.44	7.2	266
BWSM-1	22-08-2013 15:15:00	0.406	24.32	7.35	7.21	255
BWSM-1	22-08-2013 15:30:00	0.411	24.54	7.2	7.2	230

Appendix C

Habitat Assessment, Macroinvertebrate Assessment, and Physical Characteristics

BRSB-2 - June 4, 2009

Table 3. Results of the habitat assessment conducted on Browns Ck at BRSB-2, June 4, 2009. Macroinvertebrates were also collected.

Habitat Assessment	%Maximum Score	Rating
RR		
Instream Habitat Quality	73	Optimal >70
Sediment Deposition	63	Sub-optimal (59-70)
Sinuosity	88	Optimal >84
Bank and Vegetative Stability	60	Sub-optimal (60-74)
Riparian Buffer	30	Poor <50
Habitat Assessment Score	**151**	
% Maximum Score	**63**	Sub-optimal (59-70)

Macroinvertebrate Assessment	Results	Scores
Taxa richness measures		(0-100)
# EPT taxa	10	26
Taxonomic composition measures		
% Non-insect taxa	19	18
% Dominant taxon	13	98
% EPC taxa	25	60
Functional feeding group measures		
% Predators	3	7
Tolerance measures		
% Taxa as Tolerant	31	52
WMB-I Assessment Score	---	**44**
WMB-I Assessment Rating		**Fair (39-58)**

Table 2. Physical characteristics of Browns Ck at BRSB-2, June 04, 2009.

Physical Characteristics	
Canopy Cover	Open
Width (ft)	25.0
Depth (Ft)	
Riffle	0.5
Run	1.5
Pool	3.0
% of Reach	
Riffle	5
Run	70
Pool	25
% Substrate	
Bedrock	0
Boulder	2
Clay	5
Cobble	17
Mud/Muck	0
Gravel	35
Sand	35
Silt	3
Organic Matter	3

BRSB-2 - October 22, 2009

Table 3. Results of the habitat assessment conducted on Browns Ck at BRSB-2, 10/22/2009.

Habitat Assessment	%Maximum Score	Rating
RR		
Instream Habitat Quality	56	Marginal (41-58)
Sediment Deposition	40	Poor <41
Sinuosity	78	Sub-optimal (65-84)
Bank and Vegetative Stability	41	Marginal (35-59)
Riparian Buffer	23	Poor <50
Habitat Assessment Score	**110**	
% Maximum Score	**46**	Marginal (41-58)

Macroinvertebrates Not Collected

Table 2. Physical characteristics of Browns Ck at BRSB-2, October 22, 2009.

Physical Characteristics	
Canopy Cover	Open
Width (ft)	25.0
Depth (Ft)	
Riffle	0.3
Run	1.2
Pool	1.5
% of Reach	
Riffle	20
Run	60
Pool	20
% Substrate	
Bedrock	1
Boulder	1
Clay	5
Cobble	15
Mud/Muck	0
Gravel	15
Sand	55
Silt	5
Organic Matter	3

BRSB-2 - June 24, 2013

Table 3. Results of the habitat assessment conducted on Browns Ck at BRSB-2, June 24, 2013. Macroinvertebrates were also collected.

Habitat Assessment	%Maximum Score	Rating
RR		
Instream Habitat Quality	63	Sub-optimal (59-70)
Sediment Deposition	52	Marginal (41-58)
Sinuosity	88	Optimal >84
Bank and Vegetative Stability	54	Marginal (35-59)
Riparian Buffer	23	Poor <50
Habitat Assessment Score	**126**	
% Maximum Score	**52**	Marginal (41-58)

Macroinvertebrate Assessment		
	Results	**Scores (0-100)**
Taxa richness measures		
# EPT taxa	12	35
Taxonomic composition measures		
% Non-insect taxa	17	29
% Dominant taxon	22	72
% EPC taxa	25	47
Functional feeding group measures		
% Predators	4	10
Tolerance measures		
% Taxa as Tolerant	31	53
WMB-I Assessment Score	**---**	**41**
WMB-I Assessment Rating		**Fair (39-58)**

Table 2. Physical characteristics of Browns Ck at BRSB-2, June 24, 2013.

Physical Characteristics	
Canopy Cover	Mostly Open
Width (ft)	20.0
Depth (Ft)	
Riffle	0.5
Run	1.3
Pool	3.0
% of Reach	
Riffle	45
Run	10
Pool	45
% Substrate	
Bedrock	0
Boulder	8
Clay	0
Cobble	25
Mud/Muck	0
Gravel	50
Hard Pan Clay	5
Sand	5
Silt	5
Organic Matter	2

Appendix D
Station Pictures

BRSB-3 Downstream September 10th, 2013

BRSB-3 Upstream September 10th, 2013

BRSB-2 Downstream September 10th, 2013

BRSB-2 Upstream September 10th, 2013

BWSM-1 Downstream September 10th, 2013

BWSM-1 Upstream September 10th, 2013