GEL Engineering LLC

Environmental | Engineering | Surveying

Year 2012 – 2013 Report
Beaufort County Stormwater Quality Monitoring
Beaufort County, South Carolina

Submitted to:

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EXECUTIVE SUMMARY

The Beaufort County water quality monitoring program (WQMP) was developed to achieve the four primary goals identified in the 2006 Storm Water Management Plan (SWMP) and support the county's future implementation of this plan. The four primary goals are: 1) establish baseline water quality; 2) determine and track long-term trends to measure effectiveness of current best management practices (BMPs); 3) measure efficiency of selective BMPs, and; 4) determine runoff quality from single land use areas. Table 1 shows the recommended tributary sampling as indicated in the original SWMP and Table 2 shows the 2012-2013 sampling locations. GEL Engineering, LLC (GEL) was first selected by Beaufort County in 2007 to implement the water quality monitoring program for two years. In 2009, GEL was selected to continue the water quality monitoring program, for the potential of up to five years.

This report provides an overview of Year 6 and conducts a follow-up to the Post-Year 5 WQMP review. The activities and observations during Year 6 include the following:

- The concentrations of fecal coliform continue to exceed the state shellfish harvesting waters standard of 14 CFU/100 mL at all sample stations.
- No sample stations were added, nor was sampling discontinued at any of the existing sample stations during Year 6.
- During Year 5, the total phosphorus concentrations observed at sample station BECY-15 regularly exceeded the established "critical exceedance concentration". However, during Year 6, an increasing trend of total phosphorus concentrations was not observed, and the number of violations of the critical exceedance concentration reduced from seven in Year 5 to two in Year 6.
- The data collected in Year 6 did not regularly exceed action levels for parameters with critical exceedance concentrations, except for fecal coliform.

Following Year 5 of the WQMP, CDM Smith and GEL reviewed the water quality data since the inception of the WQMP (2007-2012). Several observations were noted during the Post-Year 5 WQMP review and follow-up investigations were completed during Year 6:

- The 2007-2012 WQMP review noted that given the dataset as a whole, the results signify 'good' water quality, as indicated by a lack of chronic or routine critical concentration exceedances. Some stations have concentrations of certain parameters that are higher in comparison to other stations, but these concentrations are typically below critical exceedance concentrations.
    - During Year 6 of the WQMP, the 2007-2012 trend of 'good' water quality continued. As noted above, the data collected during Year 6 did not

regularly exceed action levels for parameters with critical exceedance concentrations.

- The 2007-2012 WQMP review noted increasing trends for ammonia and Total Kjeldahl nitrogen (TKN) at BECY-1, BECY-2, and BECY-3. The increasing trend was due to several high concentrations observed during Year 5. However, the observed concentrations were below the critical exceedance concentrations.
    - Based on data collected during Year 6, a continued increasing trend of ammonia and TKN concentrations was not observed.
- Based on the WQMP review conducted at the end of Year 5, existing water quality sample stations require 3-4 years of data to determine baseline water quality.
    - Three sample sites, BECY-4r, BECY-15, and BECY-16, have at least three years of collected data. Therefore, if the County wishes, sampling at these sample stations can be discontinued. However, a water quality retrofit has recently been established at BECY-4r, so the County may wish to continue sampling at this location to gather data on the water quality impacts of this retrofit.

YEAR 2012-2013 REPORT

Beaufort County Water Quality Monitoring

Beaufort County, South Carolina

1.0 YEAR 6 WATER QUALITY MONITORING

GEL was retained to continue the water quality monitoring program (WQMP) that was initiated in June 2007. During Year 6, GEL:

- Continued monitoring all established stations in response to a qualified storm event;
- Reported sample values exceeding "action levels" to Beaufort County for those parameters with South Carolina Estuarine and Coastal Assessment Program (SCECAP) based "critical exceedance concentrations;"
- Routinely met with Beaufort County to review the latest data, and;
- Made adjustments to sample locations based on the monitoring results, data review, and monitoring program directives supplied by Beaufort County.

Table 2 summarizes the stations monitored during Year 6, including their name, watershed, receiving water body and classification, etc., and most importantly their purpose.

1.1 Sample Locations and Purpose

Since initiation of the WQMP, the selection and identification of appropriate sampling sites for grab sampling and automatic storm event sampling has been based on the water quality sensitivity analysis (modeling), the current level of service for water quality segments, and the existing and future land use classifications. During Year 6, five trending sites and six existing water quality stations were monitored. All sites monitored during Year 6 are displayed on Figure 1.

1.2 Qualifying Storm Events

During Year 6, GEL collected grab samples and conducted field measurements at all stations following a storm event that was greater in magnitude than 0.1 inches per hour and that occurred at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. During Year 6, nine sets of samples were collected following a qualifying rain event. Due to a lack of qualifying rain events and/or the timing of a qualifying rain event (weekend and holidays), 3 of the intended 12 sample sets were not obtained.

GEL also conducted monthly composite storm event sampling at two discrete auto sampler locations, provided that a storm event greater than 0.1 inches in magnitude per

hour had not occurred within 72 hours from a previously measurable (greater than 0.1 inch rainfall) storm event. Samples were collected with an automatic sampler that was established and secured in each of the locations. The automatic sampler collected an aliquot every two minutes for the first 30 minutes following a qualifying storm event for a "grab sample." In past years, the automatic sampler then collected a 15 minute aliquot for the next two and a half hours for a composite sample. However, based on recommendations from the Year 2 Annual Report, the composite auto sample was no longer collected beginning in September 2009. Instead, a second grab sample was collected directly from the water body when GEL personnel collected the initial grab from the automatic sampler (referred to as "Grab After" in Tables 3 through 26).

Beginning in April 2012, this sampling protocol was changed at BECY-9ra. The initial "grab sample" from the automatic sampler is still collected in the manner noted above. However, a composite sample is now collected, which is comprised of an aliquot collected every four hours for up to 16 hours (up to four aliquots). The purpose of this sampling is to determine if parameter concentrations differ over the extended time period from the initial grab sample. Additionally, at the time of sample pick-up by GEL personnel, a sample for fecal coliform analysis is still collected from the waterbody ("Grab After"). These data will be included in an analysis to investigate how fecal coliform concentrations may fluctuate after a rainfall event.

1.3 Sampling/Analytical/QA-QC Procedures

All sampling events were conducted following GEL's Standard Operating Procedures, United States Environmental Protection Agency (EPA) and South Carolina Department of Health and Environmental Control (SCDHEC) approved sampling and analytical protocols, and appropriate safety measures. The table below identifies each parameter analyzed, the method allowable maximum holding time, sample preservative and the analytical method:

Parameter	Holding Time	Sample Preservative	Analytical Method
Fecal Coliform bacteria (FCB)	24 Hours	$Na_2S_2O_3$	Idexx Colilert-18/ATP
Total suspended solids (TSS)	7 Days	4°C	EPA 160.2
Salinity	28 Days	4°C	EPA 120.1
Biochemical oxygen demand (BOD)	48 Hours	4°C	EPA 405.1
Ammonia nitrogen (NH3-N)	28 Days	4°C, H_2SO_4 (pH<2)	EPA 350.1

Parameter	Holding Time	Sample Preservative	Analytical Method
Nitrite and nitrate nitrogen (NO_3 + NO_2)	28 Days	4°C, H_2SO_4 (pH<2)	EPA 353.1
Total Kjeldahl nitrogen (TKN)	28 Days	4°C, H_2SO_4 (pH<2)	EPA 351.2
Total phosphorus (TP)	28 Days	4°C, H_2SO_4 (pH<2)	EPA 365.4
Chlorophyll-a (chl-a)	48 Hours	4°C	SM10200H
Total organic carbon (TOC) - quarterly	28 Days	4°C, H_2SO_4 (pH<2), zero headspace	EPA 415.1
Metals (cadmium, chromium, copper, iron, lead, manganese, mercury, nickel and zinc) — quarterly	6 Months	4°C, HNO_3 (pH<2)	6010B

Analysis of pH, temperature, dissolved oxygen, turbidity and conductivity was performed in the field using a calibrated Series 4a DataSonde, manufactured by Hydrolab. This allowed parameters with a short holding time to be analyzed in-situ at the time of sampling at each sample location, thus providing more accurate results. Ambient weather conditions noted during each monitoring event included precipitation over the previous 24 hours. In addition, tide levels were noted during the time of sampling at each location. Each of these field parameters was recorded on a Field Data Information Sheet.

While grab samples collected using the auto samplers was described in Section 1.2 of this report, discrete grab samples were collected by lowering a new sampling container directly into the surface water and next transferred to the appropriate laboratory sample containers that have been pre-labeled and containing the appropriate sample preservative. Sampling personnel wore new laboratory-quality, PVC gloves during all sample collection activities, and changed gloves, at a minimum, between each monitoring location. Each sample container was identified with a laboratory label that was completed during collection, and each label included the following information:

- The address and telephone number of GEL;
- A specific client code for the project;
- The parameter to be analyzed from that container;
- The sample identification number/name, and;
- The date and time of sample collection.

A chain of custody form (COC) was completed and maintained throughout sampling and transportation to the laboratory. Samples were transported to GEL Laboratories, LLC, or the designated subcontracted laboratory for analysis. A sufficient amount of freezer packs and/or ice was maintained in the cooler to ensure that the samples remain at the recommended temperature (4° C). The analytical results were submitted to the County, along with Critical Exceedances, on a monthly basis. (The COC and analytical certificates were not submitted to the County and are not included within this report, but may be supplied upon request.)

2.0 ADJUSTMENTS MADE DURING YEAR 6

During Year 6, no sample stations were added or removed from the WQMP. However, during Year 6, open water sampling was conducted for an evaluation of copper, as described below.

2.1 Open Water Copper Sampling

Port Royal Sound (Broad River) is on the 303(d) impaired water list due to elevated copper concentrations. However, no samples have been collected in association with this listing in a number of years and a Total Maximum Daily Load analysis is scheduled to be completed in 2021. As such, the Beaufort County Stormwater Utility (SW Utility) desired to learn if the impairment still existed in this waterbody. If the impairment did not currently exist, the waterbody could be removed from the 303(d) list by creating and implementing a Quality Assurance Program Plan (QAPP).

The QAPP would require collecting quarterly data for three years (12 samples) to demonstrate copper concentrations are below the established regulatory limit (3 micrograms per liter). To be removed from the 303(d) list, no greater than one of the 12 samples could exceed the regulatory limit. However, prior to writing and implementing a QAPP, GEL recommended that the SW Utility first collect an open water sample to determine the current concentration of copper and whether it would be likely the waterbody could be removed from the 303(d) list.

Samples were collected from two locations in the Broad River in April 2013. The two samples and their duplicates exceeded the established regulatory limit (concentrations ranged from 7.69 to 9.65 micrograms per liter). Based on these results, the SW Utility elected not to pursue writing and implementing a QAPP.

3.0 YEAR 6 DATA ANALYSIS

3.1 Year 6 Existing Water Quality

As noted in the Storm Water Management Plan, sample stations with results above the applicable water quality standards should receive a higher priority for implementing

future BMPs. Certain parameters are internally tracked for exceedances, which include BOD, copper, dissolved oxygen, fecal coliform, pH, total phosphorus, and TKN. The established critical exceedance concentrations, as determined by Beaufort County, are based on the SCECAP standards, which are noted on the attached Tables for each specific parameter.

During Year 6, the following observations were noted:

- All stations were observed to have average fecal coliform concentrations greater than the state shellfish harvesting standard of 14 CFU/100 ml.
- Copper was detected at concentrations greater than the established critical exceedance concentration at several sample stations. However, the copper exceedances were neither widespread nor consistent.
- During Year 5, total phosphorus concentrations at sample station BECY-15 regularly exceeded the critical exceedance concentration of 0.98 milligrams per liter (mg/L). However, during Year 6, an increasing trend of total phosphorus concentrations was not observed. The number of violations of the critical exceedance concentrations reduced from seven in Year 5 to two in Year 6, and the average concentration during Year 6 was below the critical exceedence concentration.
- Certain sample stations continue to have higher than average concentrations of various parameters, such as BOD and fecal coliform at BECY-17 and fecal coliform at BECY-8r. However, aside from fecal coliform, the observed concentrations do not routinely exceed the established critical exceedance concentrations.

Aside from these observations and typical seasonal fluctuations, sample stations in Year 6 did not experience widespread or routine results greater than the established critical exceedance concentrations.

As previously noted, GEL no longer collects a composite sample from the automatic sampler at sample location BECY-17. At this location the grab sample from the automatic sampler is collected, along with a second grab sample directly from the waterbody at the time of sample pick-up. An analysis of the fecal coliform concentrations from this sampling protocol was conducted to investigate if a correlation existed between the lapsed time between samples and the fecal coliform concentrations. This analysis did not reveal any trends based on lapsed time between the samples and the fecal coliform concentrations. As noted in the Year 5 Annual Report, it is assumed that the fecal coliform concentrations are affected by a number of variables that may overshadow the time between sample collections, such as the duration, intensity, and overall amount of rainfall that triggers a sample collection, as

well as seasonal impacts.

As noted in Section 1.2, a new sampling protocol was initiated at sample station BECY-9ra, specifically to address how time elapsed between samples affects fecal coliform concentrations. The review of the data did not indicate obvious trends between fecal coliform concentrations and the lapsed time between the initial grab sample, a longer duration (up to 16 hours) composite sample, and the final grab sample. As noted for BECY-17, the results are likely influenced by a number of variables, such as the duration, intensity, and overall amount of rainfall, as well as seasonal impacts.

4.0 2007-2012 WATER QUALITY MONITORING PROGRAM REVIEW FOLLOW-UP

At the conclusion of Year 5 of the WQMP, Beaufort County requested a more thorough review of the data and an overall evaluation of the WQMP. As part of this effort, the County contracted with Mr. Rich Wagner of CDM Smith to review the data with respect to the goals of the monitoring program as stated in the 2006 SWMP, which was also completed by CDM Smith. Several observations were noted in the Year 5 Annual Report and the following sections are a follow-up to those observations.

4.1 2007 – 2012 Water Quality Data Evaluation Follow-Up

As previously indicated, two of the primary goals of the County's WQMP are: 1) establish and evaluate baseline existing water quality and, 2) track long-term trends to evaluate BMP effectiveness.

The purpose of the existing water quality sample stations is to establish baseline water quality in developed areas where the SWMP suggested water quality controls would be effective in improving water quality. To determine the effectiveness of a future water quality control retrofit, the existing water quality has to be established for comparison to the water quality after the retrofit. Importantly, if no retrofit is established, the collected data only served to establish the water quality during the sampling of that station.

Based on CDM Smith's review of the existing water quality data, it appears that 3-4 years of data is sufficient to establish the existing water quality. After the collection of 3-4 years of data, these sample stations can be discontinued or relocated to another location. As such, data has been collected at sample stations BECY-4r, BECY-15, and BECY-16 for at least 3 years. Therefore, if the County wishes, sampling at these locations can be discontinued. However, a water quality retrofit has recently been established at BECY-4r, so the County may wish to continue sampling at this location to gather data on the water quality impacts of this retrofit.

As part of the Post-Year 5 WQMP review, the data was evaluated to determine the quality of the water at the sample stations. Given the dataset as a whole, the results

indicate “good” water quality. This indication of “good” water quality is based upon a lack of chronic or routine critical exceedance concentrations in sample results. Some stations, such as Southside, have concentrations of certain parameters (nitrogen species, phosphorus, chlorophyll-a, dissolved oxygen) that are higher in comparison to the other sample stations. However, these results are in comparison to the other sample stations, and it is important to note that the observed concentrations did not routinely exceed the critical exceedance concentrations. During Year 6 of the WQMP, the 2007-2012 trend of ‘good’ water quality continued.

The second type of data collected as part of the WQMP is to track long-term trends to evaluate BMP effectiveness. Typically, to make a full evaluation of the water quality for a long-term trend analysis, at least 10 years of data is necessary. However, a preliminary analysis was completed at the end of Year 5 to determine if any statistically significant trends were observed. The review indicated that very few significant trends were observed during the five years of collected data, which indicates that little significant change has occurred in the water quality at each station.

One trend observed in Year 5 was increasing concentrations for ammonia and TKN at sample stations BECY-1, BECY-2, and BECY-3. Interestingly, the increasing concentrations are a result of several high measurements in Year 5. If the trend analysis at these stations did not include data from Year 5, no significant trends would have been observed. However, it is important to note that the observed concentrations did not exceed the critical exceedance concentration values. Data collected during Year 6 did not indicate a trend of increasing ammonia and TKN concentrations at sample stations BECY-1, BECY-2, and BECY-3.

5.0 CONCLUSIONS AND RECOMMENDATIONS

GEL was retained to continue the WQMP during year 2012-2013, while integrating improvements over the existing sampling and analysis program. The activities and observations during Year 6 include the following:

- The concentrations of fecal coliform continue to exceed the state shellfish harvesting waters standard of 14 CFU/100 mL at all sample stations.
- No sample stations were added, nor was sampling discontinued at any of the existing sample stations during Year 6.
- During Year 5, the total phosphorus concentrations observed at sample station BECY-15 regularly exceeded the established critical exceedance concentration. However, during Year 6, an increasing trend of total phosphorus concentrations was not observed, and the number of violations of the critical exceedance concentration reduced from seven in Year 5 to two in Year 6.

- The data collected in Year 6 did not regularly exceed action levels for parameters with critical exceedance concentrations, except for fecal coliform.

Following Year 5 of the WQMP, CDM Smith and GEL reviewed the water quality data since the inception of the WQMP (2007-2012). Several observations were noted during the Post-Year 5 WQMP review and follow-up investigations were completed during Year 6:

- The 2007-2012 WQMP review noted that given the dataset as a whole, the results signify 'good' water quality, as indicated by a lack of chronic or routine critical concentration exceedances. Some stations have concentrations of certain parameters that are higher in comparison to other stations, but these concentrations are typically below critical exceedance concentrations.
    - During Year 6 of the WQMP, the 2007-2012 trend of 'good' water quality continued. As noted above, the data collected during Year 6 did not regularly exceed action levels for parameters with critical exceedance concentrations.
- The 2007-2012 WQMP review noted increasing trends for ammonia and TKN at BECY-1, BECY-2, and BECY-3. The increasing trend was due to several high concentrations observed during Year 5. However, the observed concentrations were below the critical exceedance concentrations.
    - Based on data collected during Year 6, a continued increasing trend of ammonia and TKN concentrations was not observed.
- Based on the WQMP review conducted at the end of Year 5, existing water quality sample stations require 3-4 years of data to determine baseline water quality.
    - Three sample sites, BECY-4r, BECY-15, and BECY-16, have at least three years of collected data. Therefore, if the County wishes, sampling at these sample stations can be discontinued. However, a water quality retrofit has recently been established at BECY-4r, so the County may wish to continue sampling at this location to gather data on the water quality impacts of this retrofit.

6.0 REFERENCES

Beaufort County Storm Water Management Plan, February 20, 2006, Thomas & Hutton Engineering Co. and Camp Dresser McKee Inc.

Beaufort County Monitoring Program Review, March 24, 2008, Camp Dresser and McKee Inc.

Beaufort County Monitoring Program Review, December 4, 2012, CDM Smith.

South Carolina Department of Health and Environmental Control, April 25, 2008, Water Classifications and Standards Regulation 61-68: Bureau of Water.

South Carolina Department of Health and Environmental Control, Shellfish Sanitation Program Water Monitoring, Assessment and Protection Division, Environmental Quality Control-Bureau of Water, Annual Update, July 2006, Update.

USEPA, 2005. Microbial Source Tracking Guide Document. Office of Research and Development, Washington, DC, EPA/600/R-05/064.

USEPA, 2006, Water Quality Standards Database.

Station	Sample Method	Watershed	Hydrologic Basin	RWB	Classification	Purpose
BECY-1	Grab	May River	Stoney Creek	May River	ORW	Trend Analysis
BECY-2	Grab	May River	Tose Dhu Creek	May River	ORW	Trend Analysis
BECY-3	Grab	Colleton River	Okatie West	Okatie River	ORW	Trend Analysis
BECY-4r	Grab	Colleton River	Berkley Creek	Okatie River	ORW	Existing Water Quality
BECY-8r	Grab	Beaufort River	Battery Creek North	Battery Creek	SFH	Trend Analysis
BECY-9ra	Auto	Beaufort River	Battery Creek West	Battery Creek	SFH	Trend Analysis
BECY-15	Grab	Beaufort River	Salt Creek	Beaufort River	-	Existing Water Quality
BECY-16	Grab	Colleton River	Berkley Creek	Okatie River	ORW	Existing Water Quality
BECY-17	Auto	-	-	-	-	Existing Water Quality
BECY-18	Grab	Beaufort River	Battery Creek	Battery Creek	SFH	Existing Water Quality
BECY-19	Grab	Beaufort River	Battery Creek	Battery Creek	SFH	Existing Water Quality

becy-15
becy-17
becy-9ra
becy-8r
becy-19
becy-18
becy-3
becy-4r
becy-16
becy-1
becy-2
Morgan River
Broad River
Okatie River
Colleton River
Beaufort River
Port Royal Sound
May River
Battery Creek
Salt Creek
Albergotis Creek
Rock Springs Creek
Lucy Point Creek
Village Creek
Tabernacle Creek
Factory Creek
Stoney Creek
Rose Dhu Creek

2012-2013 Stormwater Sample Locations
Beaufort County, South Carolina

Legend

Sample Sites

N

0 3,000 6,000
Feet

GEL Engineering LLC

Table 1
Recommended Tributary Sample Locations

Watershed	Hydrologic Basin	% Urban - Future Land Use	% Impervious - Future Land Use	Future Increase in % Urban	Future Increase in % Impervious	Sampling Method	Purpose
Beaufort River	Southside	92%	51%	2%	1%	Automatic	High Density Residential Runoff
Beaufort River	Albergotti Creek	93%	67%	0%	0%	Automatic	Industrial Runoff
Colleton River	Camp St. Marys	48%	8%	16%	2%	Automatic	Low Density Residential Runoff
Morgan River	Rock Springs Creek	96%	22%	7%	2%	Automatic	Medium Density Residential Runoff
Beaufort River	Burton Hill	71%	43%	19%	13%	Grab	Existing Quality[1]
Beaufort River	Grober Hill	53%	25%	12%	3%	Grab	Existing Quality[1]
Beaufort River	Salt Creek	75%	27%	35%	13%	Grab	Existing Quality
Beaufort River	Salt Creek South	78%	30%	41%	11%	Grab	Existing Quality[1]
Beaufort River	Shanklin Road	81%	49%	31%	21%	Grab	Existing Quality[1]
Colleton River	Berkeley Creek	67%	18%	15%	5%	Grab	Existing Quality
Morgan River	Factory Creek	84%	25%	15%	5%	Grab	Existing Quality[1]
Morgan River	Lucy Point	95%	21%	6%	1%	Grab	Existing Quality
Beaufort River	Battery Creek North	90%	67%	55%	43%	Grab	Trend Analysis[1]
Beaufort River	Battery Creek West	82%	28%	50%	10%	Grab	Trend Analysis[1]
Colleton River	Okatie West	83%	25%	58%	19%	Grab	Trend Analysis
May River	Rose Dhu Creek	91%	22%	54%	13%	Grab	Trend Analysis
May River	Stoney Creek	72%	12%	51%	8%	Grab	Trend Analysis
Morgan River	Coffin Creek	87%	22%	59%	14%	Grab	Trend Analysis

[1] Sampling station is downstream of potential regional detention site, and therefore may provide data for prioritizing the construction of ponds and evaluating benefits (if pond is built)

[2] Location was inadvertently listed as "Coffin Creek" in the Beaufort County Stormwater Master Plan, Thomas & Hutton and CDM, 2006.

Table 2
Revised Tributary Sample Locations

Station	Sample Meth	Watershed	Hydrologic Basin	RWB	Classification	Purpose
BECY-1	Grab	May River	Stoney Creek	May River	Outstanding Resource Waters	Trend Analysis
BECY-2	Grab	May River	Tose Dhu Creek	May River	Outstanding Resource Waters	Trend Analysis
BECY-3	Grab	Colleton River	Okatie West	Okatie River	Outstanding Resource Waters	Trend Analysis
BECY-4r	Grab	Colleton River	Okatie East	Okatie River	Outstanding Resource Waters	Existing Water Quality
BECY-8r	Grab	Beaufort River	Battery Creek North	Battery Creek	Shellfish Harvesting	Trend Analysis
BECY-9ra	Auto	Beaufort River	Battery Creek West	Battery Creek	Shellfish Harvesting	Trend Analysis
BECY-15	Grab	Beaufort River	Salt Creek	Beaufort River	Class SA	Existing Water Quality
BECY-16	Grab	Colleton River	Okatie West	Okatie River	Outstanding Resource Waters	Existing Water Quality
BECY-17a	Auto	Beaufort River	Battery Creek West	Battery Creek	N/A	Existing Water Quality
BECY-18	Grab	Beaufort River	Battery Creek	Battery Creek	Shellfish Harvesting	Existing Water Quality
BECY-19	Grab	Beaufort River	Battery Creek	Battery Creek	Shellfish Harvesting	Existing Water Quality

Table 3

Year 6 Data Summary - Ammonia-Nitrogen (NH3)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		0.198		0.294	0.559	0.221	0.280		0.572
BECY-9ra Comp		0.257		0.192	0.489	0.198	0.234		1.660
BECY-17a After	0.101	0.102		0.179	0.977	0.233	0.475	0.728	1.530
BECY-17a Grab	0.302	0.316		0.178	0.322	0.867	0.284	0.191	0.917
BECY-1	0.103	0.180	0.290	0.272	0.312		0.363	0.361	0.329
BECY-2	0.082	0.198	0.244	0.246	0.333		0.210	0.270	0.255
BECY-3	0.069	0.158	0.290	0.364	0.287		0.200	0.291	
BECY-4r	0.206	0.141	0.523	0.322	0.327		0.309	0.181	0.214
BECY-8r	0.299	0.246	0.145	0.222	0.337	0.569	1.070	0.178	0.241
BECY-15	0.145	0.267	0.229	0.306	0.360	0.442	0.333	0.274	1.160
BECY-16	0.288	0.243	0.215	0.274	0.404		0.197	0.247	0.236
BECY-18	0.148	0.342	0.284	0.177	0.486	0.350	0.833	0.070	0.495
BECY-19	0.113	0.050	0.428	0.176	0.242	0.310	0.359	0.062	0.168

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in mg/L

Table 4

Year 6 Data Summary - Biochemical Oxygen Demand* (BOD5)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		2.30		3.21	4.07	6.51	1.31		5.69
BECY-9ra Comp		3.38		3.46	3.89	6.73	1.51		8.60
BECY-17a After	8.62	2.18		24.50	6.42	4.11	4.54	1.91	16.10
BECY-17a Grab	3.33	4.98		8.40	7.19	9.28	6.45	4.06	11.40
BECY-1	2.15	2.36	2.77	3.43	1.89		2.01	4.01	1.64
BECY-2	1.49	1.79	2.82	2.19	2.37		1.36	2.35	3.01
BECY-3	1.42	4.08	2.51	3.77	2.36		3.12	3.37	
BECY-4r	4.67	2.48	3.50	3.83	3.48		1.48	3.54	3.36
BECY-8r	3.64	2.20	4.05	3.32	4.80	6.13	1.58	3.91	3.51
BECY-15	5.67	2.48	2.74	2.91	3.88	2.41	1.42	4.35	12.00
BECY-16	1.38	3.46	2.75	3.22	4.47		2.08	3.08	2.88
BECY-18	4.33	1.84	2.80	3.86	2.13	8.36	1.46	2.98	1.91
BECY-19	2.68	1.66	4.19	4.86	1.25	16.30	1.00	1.94	2.01

*BOD is internally tracked for Critical Exceedances Concentration Information. Values greater than 56 mg/L are reported monthly to Beaufort County. Critical Exceedance Concentration information is based on South Carolina Estuarine and Coastal Assessment Program Standards.

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in mg/L

Table 5
Year 6 Data Summary - Cadmium (Total)

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		0.18		0.11					1.10
BECY-9ra Comp		0.57		0.54					0.11
BECY-17a After	0.367			0.11				0.36	
BECY-17a Grab	0.23			1.93				0.11	
BECY-1	2.2*		0.11					0.89	
BECY-2	2.2*		0.11					0.11	
BECY-3	2.2*		0.11					0.11	
BECY-4r	0.55*		0.11					0.39	
BECY-8r	0.55*		0.11					2.35	
BECY-15	0.11		0.11					0.11	
BECY-16	4.4*		0.11					0.412	
BECY-18	2.2*		0.11					1.05	
BECY-19	2.2*		0.11					0.506	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler
Results reported in μg/L
* Elevated values due to higher minimal detection limit . Cd was not detected in any of the samples.

Table 6

Year 6 Data Summary - Chlorophyll-a

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		4.8		3.0	3.3	2.9	17.6		5.0
BECY-9ra Comp		0.4		5.3	8.3	4.6	3.9		1.8
BECY-17a After	2.5	0.7		1.0	1.0	5.8	4.9		15.6
BECY-17a Grab	1.3	0.9		0.9	0.7	1.0	4.6		10.4
BECY-1	3.6	2.8	3.9	3.9	14.2		10.2		5.4
BECY-2	2.6	5.4	6.4	9.6	17.8		5.4		6.0
BECY-3	2.5	3.9	10.8	16.6	14.2		17.9		
BECY-4r	2.8	3.4	4.6	8.5	19.7		2.5		4.1
BECY-8r	17.2	5.3	3.0	0.5	4.9	1.1	2.2		3.8
BECY-15	1.8	1.8	1.7	1.6	1.6	28.3	0.5		2.4
BECY-16	3.1	8.2	7.0	12.6	11.4		16.2		15.3
BECY-18	1.5	1.4	2.1	7.5	1.3	9.8	4.2		0.6
BECY-19	1.6	1.8	0.7	2.0	1.4	0.2	0.1		7.2

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in μg/L

Table 7

Year 6 Data Summary - Chromium (Total)

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		2.0		3.0					2.0
BECY-9ra Comp		2.0		2.3					2.0
BECY-17a After	2.0			2.0				2.0	
BECY-17a Grab	2.0			2.0				2.0	
BECY-1	2.0		2.0					2.5	
BECY-2	2.0		2.0					2.5	
BECY-3	2.0		2.5					3.2	
BECY-4r	2.0		2.0					2.0	
BECY-8r	2.0		2.0					2.1	
BECY-15	2.0		2.0					2.0	
BECY-16	2.0		2.0					2.0	
BECY-18	2.0		2.0					2.0	
BECY-19	2.0		2.0					2.0	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in μg/L

Table 8

Year 6 Data Summary - Conductivity

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		1789		135	693	525	228		290
BECY-9ra Comp		2494		174	592	260	223		671
BECY-17a After	68	24		248	154	3170	7393	316	319
BECY-17a Grab	437	63		20	82	299	241	53	135
BECY-1	42977	1614	305	345	651		342	249	7980
BECY-2	43036	12750	1198	104	8046		30613	423	25300
BECY-3	44327	19994	1327	893	25244		1791	337	
BECY-4r	7778	117	112	89	128		17	75	114
BECY-8r	10407	318	294	160	591	369	1107	87	81
BECY-15	144	98	133	129	107	163	156	88	214
BECY-16	22821	175	116	116	176		475	86	281
BECY-18	30516	343	482	227	1286	25496	34009	323	578
BECY-19	37604	148	190	113	276	184	388	58	1300

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in µS/cm

** Field Instrument Malfunction

Table 9

Year 6 Data Summary - Copper*

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		2.35		**6.20**					**6.52**
BECY-9ra Comp		3.13		**5.65**					**8.80**
BECY-17a Grab After	4.18			3.22				2.79	
BECY-17a Grab	2.87			4.75				2.75	
BECY-1	**6.56**		1.79					2.46	
BECY-2	**6.72**		3.76					**10.50**	
BECY-3	**6.80**		3.37					2.65	
BECY-4r	2.22		1.98					2.31	
BECY-8r	4.45		3.00					**9.88**	
BECY-15	1.57		2.34					3.13	
BECY-16	3.8		2.31					2.06	
BECY-18	**6.18**		2.68					4.78	
BECY-19	**7.01**		**5.09**					3.66	

*Copper is internally tracked for Critical Exceedances Concentration Information. Values greater than 5 ug/L are reported monthly to Beaufort County.
BOLD = Concentration exceeds the Critical Exceedance Concentration.
'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler
Results reported in µg/L

Table 10

Year 6 Data Summary - Dissolved Oxygen* (DO)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		9.10		7.1	5.90	3.60	8.70		*
BECY-9ra Comp		7.20		7.4	6.30	3.40	6.60		*
BECY-17a After	7.1	5.3		7.7	7.8	**2.3**	6.3	5.8	*
BECY-17a Grab	12.2	7.1		3.3	5.9	**2**	**2.6**	4	*
BECY-1	11.00	-	6.90	8.00	5.60		6.50	6.10	*
BECY-2	11.10	-	8.00	7.10	4.80		7.10	5.80	*
BECY-3	12.10	-	9.10	8.20	3.99		6.60	6.30	
BECY-4r	13.30	7.10	5.80	5.80	6.30		7.10	4.30	*
BECY-8r	13.10	6.80	5.40	7.60	3.10	**2.90**	4.30	4.80	*
BECY-15	5.9	8.1	5.6	8.2	5.2	3.5	5.2	4.8	*
BECY-16	9	8.2	7.4	7.7	4.9	3.8	6.9	4.4	*
BECY-18	13.2	8.2	8.3	7.8	5.6	5.4	5.3	6.4	*
BECY-19	9.8	7.5	6	7	5.1		6.1	4.5	*

*DO is internally tracked for Critical Exceedances Concentration Information. Values less than 3.0 are reported monthly to Beaufort County.
Critical Exceedance Concentration information is based on South Carolina Estuarine and Coastal Assessment Program Standards.
BOLD = Concentration exceeds the Critical Exceedance Concentration.

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

** DO field instrument malfunction

Results reported in mg/L

Table 11

Year 6 Data Summary - Fecal Coliform*

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After		**820**		**320**	**492**	**316**	**264**		**5510**
BECY-9ra Grab		**1508**		**220**	**820**	**886**	**366**		**1196**
BECY-9ra Comp		**2142**		**102**	**856**	**598**	**264**		**8720**
BECY-17a After	**1768**	**370**		**736**	**>48392**	**103**	**103**	**48392**	**4890**
BECY-17a Grab	**1678**	**172**		**268**	**25994**	**19328**	**5510**	**15402**	**31062**
BECY-1	**199**	**4611**	**798**	**1597**	**1187**		**496**	**2755**	**1918**
BECY-2	**216**	**3255**	**305**	**384**	**379**		**63**	**4884**	**414**
BECY-3	**98**	**988**	**594**	**857**	**884**		**74**	**3873**	
BECY-4r	**836**	**2755**	**670**	**1334**	**2851**		**767**	**5172**	**9804**
BECY-8r	**3030**	**506**	**1935**	**216**	**12997**	**>24196**	**1918**	**19608**	**>48392**
BECY-15	**1725**	**2143**	**573**	**860**	**5794**	**1296**	**1291**	**24196**	**24196**
BECY-16	**1314**	**1081**	**199**	**631**	**1274**		**253**	**4352**	**1169**
BECY-18	**1050**	**2987**	**1296**	**771**	**6488**	**10462**	**1291**	**>24196**	**9768**
BECY-19	**364**	**471**	**135**	**839**	**384**	**86**	**52**	**9208**	**1515**

*FC is tracked for Critical Exceedances Concentration Information.Values greater than 14 cfu/100 mL are reported monthly to Beaufort County.
BOLD = Concentration exceeds the Critical Exceedance Concentration.
Critical Exceedance Concentration information is based on South Carolina Estuarine and Coastal Assessment Program Standards.
'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler
Results reported in Colony Forming Units (CFU)/100 mL

Table 12

Year 6 Data Summary - Iron (Total)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		1310		1100					2370
BECY-9ra Comp		2050		1180					1970
BECY-17a After	285			127				124	
BECY-17a Grab	211			56				288	
BECY-1	1050		1790					1840	
BECY-2	1060		1450					1980	
BECY-3	1170		2820					2020	
BECY-4r	2000		1490					658	
BECY-8r	651		414					560	
BECY-15	5560		2150					1340	
BECY-16	1230		1030					1050	
BECY-18	1060		840					577	
BECY-19	1490		2640					344	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in μg/L

Table 13

Year 6 Data Summary - Lead (Total)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		1.25		1.05					1.14
BECY-9ra Comp		1.93		1.08					0.76
BECY-17a After	1.98			0.723				0.707	
BECY-17a Grab	0.876			0.5				2.21	
BECY-1	0.50		1.15					1.74	
BECY-2	0.50		0.50					1.01	
BECY-3	0.50		1.44					1.82	
BECY-4r	0.50		1.02					0.52	
BECY-8r	0.73		0.50					2.04	
BECY-15	1.05		1.38					1.73	
BECY-16	0.5		0.5					0.911	
BECY-18	0.616		0.787					1.97	
BECY-19	0.5		0.905					0.84	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in μg/L

Table 14

Year 6 Data Summary - Manganese (Total)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		90.40		30.70					229.00
BECY-9ra Comp		120.00		39.60					266.00
BECY-17a After	20.9			10.4				8.16	
BECY-17a Grab	10.8			4.64				20.4	
BECY-1	35.90		93.70					56.20	
BECY-2	19.20		54.10					56.20	
BECY-3	20.80		113.00					42.40	
BECY-4r	250.00		63.10					21.40	
BECY-8r	45.20		38.80					15.00	
BECY-15	337		126					56.8	
BECY-16	201		49.1					37.8	
BECY-18	42.7		45.8					25.7	
BECY-19	21.5		58					8.53	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in µg/L

Table 15

Year 6 Data Summary - Mercury (Total)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		0.067		0.067					0.067
BECY-9ra Comp		0.067		0.067					0.067
BECY-17a After	0.117			0.067				0.067	
BECY-17a Grab	0.082			0.067				0.067	
BECY-1	0.067		0.067					0.067	
BECY-2	0.067		0.067					0.067	
BECY-3	0.067		0.067					0.067	
BECY-4r	0.067		0.067					0.067	
BECY-8r	0.089		0.067					0.067	
BECY-15	0.085		0.067					0.067	
BECY-16	0.067		0.067					0.067	
BECY-18	0.067		0.067					0.067	
BECY-19	0.103		0.067					0.067	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in μg/L

Table 16
Year 6 Data Summary - Nickel (Total)

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		2.52		1.35					12.60
BECY-9ra Comp		3.53		7.10					4.77
BECY-17a After	1.30			0.587				0.779	
BECY-17a Grab	0.967			0.613				0.685	
BECY-1	12.40		1.18					1.2	
BECY-2	13.00		1.25					0.94	
BECY-3	13.30		2.03					1.10	
BECY-4r	3.20		1.18					0.70	
BECY-8r	4.36		1.30					2.45	
BECY-15	0.999		1.49					1.01	
BECY-16	7.61		0.7					0.789	
BECY-18	10.1		1.86					1.86	
BECY-19	12.7		2.18					0.811	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler
Results reported in μg/L

Table 17

Year 6 Data Summary - Nitrate-Nitrite (NOx)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		0.038		0.090	0.298	0.108	0.056		0.109
BECY-9ra Comp		0.048		0.075	0.155	0.092	0.046		0.148
BECY-17a After	0.104	0.090		0.107	1.700	0.017	0.017	0.237	0.017
BECY-17a Grab	0.219	0.320		0.176	0.243	0.188	0.018	0.043	0.338
BECY-1	0.019	0.023	0.017	0.017	0.032		0.040	0.017	0.128
BECY-2	0.019	0.051	0.017	0.032	0.039		0.017	0.104	0.0503
BECY-3	0.019	0.034	0.017	0.020	0.074		0.017	0.024	
BECY-4r	0.039	0.025	0.017	0.017	0.057		0.094	0.017	0.035
BECY-8r	0.073	0.073	0.030	0.101	0.045	0.243	0.095	0.228	0.131
BECY-15	0.017	0.635	0.036	0.017	0.020	0.059	0.061	0.017	0.199
BECY-16	0.041	0.041	0.017	0.017	0.147		0.077	0.023	0.067
BECY-18	0.064	0.204	0.245	0.105	0.573	0.537	0.128	0.157	0.356
BECY-19	0.076	0.188	0.075	0.112	0.227	0.241	0.167	0.083	0.076

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler
Results reported in mg/L

Table 18

Year 6 Data Summary - pH*

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		8.1		8.0	8.9	8.5	8.2		7.2
BECY-9ra Comp		8.3		7.9	8.8	8.5	8.1		7.6
BECY-17a After	7.5	7.8		7.2	7.2	8.0	7.6	6.9	6.7
BECY-17a Grab	7.6	8.0		7.4	7.6	8.1	7.7	7.1	7.5
BECY-1	8.2	7.8	7.7	7.9	7.5		8.0	6.9	7.5
BECY-2	8.2	8.0	8.1	8.0	7.5		8.4	7.6	7.0
BECY-3	8.3	7.6	7.6	7.6	7.0		8.1	7.3	
BECY-4r	7.9	7.2	7.4	7.5	8.0		7.4	7.0	8.1
BECY-8r	7.6	7.0	7.2	7.5	8.0	8.3	7.9	6.4	7.7
BECY-15	7.4	6.1	6.9	6.4	7.9	8.3	8.2	6.0	8.3
BECY-16	7.9	7.5	7.5	7.6	6.9		8.1	7.0	7.9
BECY-18	8.1	7.4	7.9	7.7	7.4	8.1	8.1	7.2	7.8
BECY-19	7.9	7.3	7.2	7.5	7.6	7.7	7.9	7.1	8.1

*pH is internally tracked for Critical Exceedances Concentration Information. Values <6.0 and >9.0 are reported monthly to Beaufort County.
Critical Exceedance Concentration information is based on South Carolina Estuarine and Coastal Assessment Program Standards.
BOLD = Concentration exceeds the Critical Exceedance Concentration.
'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler
Results reported in pH Standard Units
** Field Instrument Malfunction

Table 19

Year 6 Data Summary - Phosphorus* (Total)

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		0.470		0.152	0.398	0.156	0.449		0.639
BECY-9ra Comp		0.141		0.136	0.274	0.194	0.204		0.327
BECY-17a After	0.617	0.097		0.126	0.273	0.313	0.153	0.205	0.675
BECY-17a Grab	0.282	0.212		0.104	0.373	0.415	0.278	0.311	0.484
BECY-1	0.064	0.159	0.135	0.179	0.123		0.110	0.212	0.287
BECY-2	0.048	0.106	0.165	0.224	0.142		0.104	0.409	0.225
BECY-3	0.047	0.127	0.219	0.331	0.101		0.115	0.313	
BECY-4r	0.240	0.126	0.095	0.146	0.116		0.119	0.114	0.225
BECY-8r	0.143	0.168	0.060	0.069	0.419	0.252	0.322	0.194	0.256
BECY-15	**1.610**	0.663	0.552	0.459	0.444	0.958	0.821	0.386	**1.590**
BECY-16	0.142	0.091	0.077	0.098	0.146		0.150	0.222	0.165
BECY-18	0.116	0.167	0.143	0.205	0.425	0.384	0.161	0.233	0.377
BECY-19	0.072	0.151	0.139	0.102	0.076	0.082	0.053	0.088	0.159

*Phosphorus is tracked for Critical Exceedances Concentration Information. Values greater than 0.98 mg/L are reported monthly to Beaufort County. Critical Exceedance Concentration information is based on South Carolina Estuarine and Coastal Assessment Program Standards.

BOLD = Concentration exceeds the Critical Exceedance Concentration.

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in mg/L

Table 20

Year 6 Data Summary - Salinity

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		1.1		1.0	1.0	1.0	1.0		12.5
BECY-9ra Comp		1.7		1.0	1.0	1.0	1.0		3.1
BECY-17a After	1.0	1.0		1.0	8.5	2.1	6.3	1.0	22.6
BECY-17a Grab	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0
BECY-1	33.0	1.0	1.0	1.0	1.0		15.7	1.0	4.4
BECY-2	33.8	8.7	1.0	1.0	4.6		23.4	1.0	16.0
BECY-3	34.2	14.5	1.0	1.0	16.2		24.5	1.0	
BECY-4r	1.7	1.0	1.0	1.0	1.0		1.0	1.0	1.0
BECY-8r	7.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
BECY-15	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
BECY-16	17.3	1.0	1.0	1.0	1.0		1.0	1.0	1.0
BECY-18	24.7	1.0	1.0	1.0	1.0	19.6	25.6	1.0	1.0
BECY-19	26.6	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in parts per thousand

Table 21

Year 6 Data Summary - Temperature

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	41256.0	41312.0	41352.0	41369.0	41431.0	41443.0	41477.0	41501.0	41534.0
BECY-9ra Grab After									
BECY-9ra Grab		11.9		10.6	24.1	24.7	25.5		23.7
BECY-9ra Comp		11.5		103.0	24.1	24.4	25.6		23.9
BECY-17a After	10.9	13.6		11.9	23.6	24.8	25.8	24.3	24.4
BECY-17a Grab	9.0	12.6		10.8	24.2	24.5	26.2	23.1	23.8
BECY-1	13.7	12.8	16.8	11.4	23.5		27.2	24.3	24.5
BECY-2	14.1	13.6	17.8	13.6	25.6		28.8	26.8	26.0
BECY-3	13.5	13.2	17.3	11.8	26.0		28.6	24.7	
BECY-4r	11.3	12.3	16.0	12.1	23.6		24.7	24.9	24.0
BECY-8r	12.1	13.1	15.5	13.1	25.3	24.8	26.7	26.1	24.6
BECY-15	11.3	11.9	15.7	12.0	23.4	23.1	23.7	24.0	22.7
BECY-16	11.4	13.6	17.8	12.5	24.9		26.0	25.6	25.1
BECY-18	11.7	12.2	15.2	11.3	23.2	26.6	26.7	23.6	24.1
BECY-19	13.0	14.8	16.4	13.2	22.5	23.5	24.2	24.7	25.0

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in °C

** Field Instrument Malfunction

Table 22

Year 6 Data Summary - Total Kheldahl Nitrogen* (TKN)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		1.44		0.67	1.76	0.75	1.10		2.12
BECY-9ra Comp		1.22		0.65	0.96	1.44	0.64		3.45
BECY-17a After	2.61	0.565		0.808	2.61	0.147	**8.08**	0.36	3.62
BECY-17a Grab	0.84	0.968		0.528	1.06	3	**8.19**	0.94	2.54
BECY-1	0.17	0.92	0.93	1.20	0.91		1.04	0.59	1.19
BECY-2	0.17	0.34	0.80	1.37	0.94		1.00	1.13	1.10
BECY-3	0.17	1.05	1.43	1.93	1.04		1.24	1.15	
BECY-4r	0.56	0.86	0.95	1.35	0.95		**6.57**	0.97	0.92
BECY-8r	0.54	0.42	0.56	0.55	1.16	1.61	5.15	0.42	1.00
BECY-15	1.35	1.18	0.976	0.698	1.05	1.25	0.863	0.944	3.12
BECY-16	0.451	0.796	0.515	0.87	1.26		1.28	1.18	1.2
BECY-18	0.165	0.851	0.862	0.932	1.08	1.42	0.861	0.708	1.24
BECY-19	0.165	0.452	0.951	1.09	0.475	0.474	**8.69**	0.353	0.411

*TKN is internally tracked for Critical Exceedances Concentration Information. Values greater than 5.8 mg/L are reported monthly to Beaufort County.
Critical Exceedance Concentration information is based on South Carolina Estuarine and Coastal Assessment Program Standards.
'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler
Results reported in mg/L

Table 23

Year 6 Data Summary - Total Organic Carbon (TOC)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		14.1		9.5					8.5
BECY-9ra Comp		17.4		13.4					21.8
BECY-17a After	8.6			10.2				7.4	
BECY-17a Grab	6.4			8.4				5.1	
BECY-1	1.0		23.6					18.0	
BECY-2	1.0		16.7					14.6	
BECY-3	1.0		18.2					18.4	
BECY-4r	12.7		58.0					16.8	
BECY-8r	4.7		12.8					12.3	
BECY-15	13.1		18.8					27.7	
BECY-16	4.4		15.6					20.2	
BECY-18	1.7		21.9					24.6	
BECY-19	0.9		18.0					7.5	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in mg/L

Table 24

Year 6 Data Summary - Total Suspended Solids (TSS)

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		54.9		14.4	72.4	42.8	94.6		29.5
BECY-9ra Comp		82.4		19.7	24.8	26.6	13.1		10.4
BECY-17a After	89.2	19.4		5.8	12.9	3.2	52.4	67.4	37.1
BECY-17a Grab	17.6	17.2		4.7	19.4	8.2	17.2	28.1	8.4
BECY-1	9.7	38.4	20.6	31.6	34.2		20.7	53.1	33.4
BECY-2	8.1	16.9	15.2	32.8	13.7		39.0	63.3	15.2
BECY-3	11.6	61.3	97.4	153.0	28.8		84.4	96.8	
BECY-4r	14.0	16.4	8.4	19.0	30.0		11.3	18.8	92.8
BECY-8r	15.6	32.8	4.9	4.0	9.3	3.6	3.6	11.5	8.8
BECY-15	22.4	57.9	29.6	12.6	30.4	25.6	28.8	25.7	226.0
BECY-16	10.8	20.0	6.0	12.2	18.2		11.4	18.7	22.2
BECY-18	39.8	2.8	2.6	4.5	1.9	12.0	12.0	16.6	2.0
BECY-19	23.6	9.4	12.6	5.5	3.2	4.4	2.5	7.7	5.6

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in mg/L

Table 25

Year 6 Data Summary - Turbidity

Station	Dec-12	Feb-13	Mar-13	Apr-13	Jun-13	Jun-13	Jul-13	Aug-13	Sep-13
	12/13/2012	2/7/2013	3/19/2013	4/5/2013	6/6/2013	6/18/2013	7/22/2013	8/15/2013	9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		40.8		22.2	36.1	14.6	87.3		*
BECY-9ra Comp		61.4		28.1	35.6	17.1	26.8		*
BECY-17a After	25.4	10.9		14.4	*	14.0	32.9	147.0	*
BECY-17a Grab	17.6	18.0		160.0	*	16.2	19.0	13.1	*
									*
BECY-1	12.3	38.7	34.6	52.0	*		30.8	60.6	*
BECY-2	13.2	17.0	24.8	43.0	*		23.7	48.5	*
BECY-3	13.3	30.9	60.5	168.5	*		30.4	69.0	*
BECY-4r	25.3	20.2	22.1	130.0	*		32.8	23.9	*
BECY-8r	20.6	14.7	12.7	17.4	24.4	13.3	25.4	40.1	*
BECY-15	47.2	41.0	36.6	26.5	27.4	58.6	51.3	34.8	*
BECY-16	15.9	21.5	24.2	26.1	*		29.2	27.8	*
BECY-18	17.2	10.5	11.6	16.8	*	18.3	23.6	27.8	*
BECY-19	16.1	17.3	12.9	19.7	*	16.4	21.2	15.8	*

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in Nephelometric Turbidty Units

* Field Instrument Malfunction

Table 26

Year 6 Data Summary - Zinc (Total)

Station	Dec-12 12/13/2012	Feb-13 2/7/2013	Mar-13 3/19/2013	Apr-13 4/5/2013	Jun-13 6/6/2013	Jun-13 6/18/2013	Jul-13 7/22/2013	Aug-13 8/15/2013	Sep-13 9/17/2013
BECY-9ra Grab After									
BECY-9ra Grab		12.9		17.9					20.0
BECY-9ra Comp		36.3		37.3					18.5
BECY-17a After	42.2			14.1				14.7	
BECY-17a Grab	17.0			25.7				15.6	
BECY-1	10.1		5.0					6.8	
BECY-2	10.4		3.5					6.2	
BECY-3	14.1		5.9					6.5	
BECY-4r	7.4		5.7					6.4	
BECY-8r	25.2		29.5					42.2	
BECY-15	3.7		11.0					14.6	
BECY-16	7.2		3.7					4.8	
BECY-18	47.6		19.8					55.3	
BECY-19	14.4		19.2					13.9	

'Grab After' refers to a sample collected from water source at the time of sample pick-up from automatic sampler

Results reported in μg/L