ST. LOUIS BAY HYDROLOGY AND SELECTED CHEMISTRY WITH DATA APPENDIX

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St. Louis Bay Hydrology and Selected Chemistry
with
Data Appendix

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INTRODUCTION

Integral to ascertaining the character of an estuary is the knowledge of its waters with regard to circulation, water column structure and certain physical-chemical properties. Prompted by the need for a better understanding of the St Louis Bay estuary, a study of its hydrodynamics and select physical and chemical properties was undertaken in 1978. The data and results presented here are from that study for which the senior author served as principal investigator. A more detailed discussion of the study and results of the analyses of these and other data can be found in Eleuterius (1980a, 1980b) and other publications (Eleuterius and Otvos 1980, Eleuterius 1983, 1984). A tabular listing of the data is included in Appendix A. A listing of the FORTRAN program to read the data on the accompanying diskette and a list of the data files is included as Appendix B. The data diskette has been placed in a pocket on the inside of the back cover.

AREA DESCRIPTION

St. Louis Bay is a shallow mushroom-shaped basin (Figure 1) with approximate maximum, orthogonal, horizontal dimensions of 6.5 mi. (10.5 km) by 5.0 mi. (8.1 km). The Bay is connected to the Mississippi Sound by a relatively narrow pass of 1.9 mi. (3.0 km). Two rivers, Jourdan and Wolf, flow into the basin with average flows of approximately 830 ft^3s^{-1} and 706 ft^3s^{-1} (23.51 m^3s^{-1} and 20 m^3s^{-1}), respectively. The flow rate extremes for the Jourdon and

Wolf rivers based on limited historical records are 15,764 ft^3s^{-1} (446.8 m^3s^{-1}) and 13,409 ft^3s^{-1} (379.9 m^3s^{-1}) and 51.7 ft^3s^{-1} (0.15 m^3s^{-1}) and 44.2 ft^3s^{-1} (1.25 m^3s^{-1}) for the Jourdan and Wolf, respectively. There is only a general correlation between these two rivers with respect to either the onset or duration of high and low flows (Eleuterius 1979). The mouths of the two rivers are situated almost diametrically opposite each other in the upper region of the Bay. The mouth of Bayou Portage, which provides access to the west Harrison County Industrial Park, is located in the southeast region of the Bay.

The Bay is subject to a variable climatic system (Eleuterius and Beaugez 1979). The subtropical, anti-cyclonic Bermuda High affects the circulation and some properties of the Bay waters. As this atmospheric high intensifies during the spring, its boundaries extend into the Gulf of Mexico. This intrusion into the Gulf brings about a shift in the direction of the winds from north/northeast to south/ southeast.

The Bermuda High diminishes in strength in early fall, and its boundary of influence retreats from the Gulf of Mexico. Simultaneous with this southeastward withdrawal of the Bermuda High is a southward advance of the continental pressure systems over the Gulf. With this southward movement of the continental systems, the predominant winds become northerlies.

Westerly systems during winter influence the study area as cold fronts from the northwest move southward over the Gulf. When these cold fronts oppose strong maritime tropical air moving in the opposite direction, the fronts become almost stationary. Under these conditions, the Bay becomes subject to cyclogenesis resulting in low cloud ceilings and precipitation. On average, the speed of the spring and summer winds are much less than those of the fall and winter.

Because of the high heat-storage capacity of water and the size and close proximity of the Gulf of Mexico, the Gulf greatly influences the predominant year-round maritime subtropical climate of St. Louis Bay. Analysis of thirty years of records recorded for

Biloxi, Mississippi, by Eleuterius and Beaugez (1979) revealed that there is on average 52 days per year when air temperatures exceed 90°F. Although temperatures infrequently exceed 100°F, the average summer high temperature is 88.9°F. Southerly winds from over the Gulf waters during summer have and an ameliorating effect on the heat. Winds from over cooler marine waters effectively reduce the air temperature for a summer average of 81.5°F.

The winters are generally mild with an average of only eleven days per year when temperatures fall below 32°F. There is no record of sub-zero temperatures having ever occurred. The average temperature for the winter months is 54.5°F with an average minimum temperature of 46.3°F. The average dates of the first and last freezes are 12 December and 21 February, respectively. The average temperature for the year is 68.2°F.

The area has an average of 58.58 in. (148.68 cm) of rain per year. The wettest month is July with 7.33 in. (18.60 cm) of rain due primarily to the increased frequency of thundershowers. September and March are next in the amounts of precipitation with 6.5 in. (16.50 cm) and 6.1 in. (15.48 cm), respectively. The driest months are October and November when dry continental air masses push southward over the area resulting in clear skies and cool nights. Measurable snow has fallen only nine times in the past 97 years.

The tides are those of the nearby Gulf which have been modified by the geometry and bathymetry of Mississippi Sound before entering the Bay. The tides are primarily diurnal, i.e. usually only one high-water and one low-water per day. The three principal diurnal components of the Bay tides are K_1, O_1 and P_1 with periods of 23.93 hrs., 25.82 hrs. and 24.07 hrs., respectively. The semi-diurnal components become apparent in the tidal records during certain periods of the month. The two important semi-diurnal components for St. Louis Bay are M_2 and S_2 with periods of 12.42 hrs. and 12.00 hrs., respectively. The bathymetry and geometry of the Bay further modify the tides. The constricted entrance is responsible for an 85 minute lag in the time of high and low waters behind those of the contiguous Sound. The average diurnal tidal range is 1.6 ft.

The physical oceanography segment of the study focused on the temporal and spatial distribution of salinity, temperature, pH, dissolved oxygen, property inter-relationships, and the circulation Bay waters. Because wind stress was recognized as being an important driving force for Bay circulation, wind velocity measurements were made. The recoverable measurements of wind, current and certain other properties are either incorporated are referenced in this report.

METHODS AND MATERIALS

An anemometer station was erected at the Bay-Waveland Yacht Club which is located on the west side of the Bay. The Belfort type L anemometer was mounted on an aluminum mast which was, in turn, anchored by a concrete pad encasing its base and braced against the winds with three guy wires. Using a transit and by referencing USGS benchmarks, the anemometer was placed at an elevation of 10 meters above mean sea level. The instrument provided analog records of wind speed and direction. Except for a short period following damage by vandals, the anemometer worked satisfactorily for the project period.

Three Leupold-Stevens Type A Water Level analog recorders were installed around the Bay perimeter. One was installed at the Bay-Waveland Yacht Club. Another was placed on the pier at the residence of Mr. Randall Bowers on the east side of the Bay just north of the Highway 90 bridge. The third gauge was placed on a platform located in the north-central Bay. The elevations of the gauges located near the shoreline were determined by survey using the USGS benchmarks, but the elevation of the gauge located offshore in the north Bay could only be approximated. The analog records from these gauges were originally archived at Gulf Coast Research Laboratory.

There were two objectives for the selection of station sites: first, to have an aggregate of stations which would, collectively, provide representative data of the Bay's physical and chemical properties, and second, to have a station site configuration which would offer the best spatial resolution of the distribution of these properties. The twenty hydrographic stations established in St. Louis Bay (Figure 2) were occupied during each monthly survey. These twenty stations were numbered: 1, 4, 5, 6, 8, 9, 11, 13, 15, 16, 17, 18, 19, 21, 22, 23, 24, 273, 285, and 293. The last three stations in this list were added to augment an already established set of stations to provide better spatial coverage. Without these three stations, determining the spatial distribution of the various water properties over the Bay would have been hampered. The first two stations sampled during each survey, i.e. 15 and 16, were sampled again at the end of each survey to quantify the change that occurred over the sampling period. No current measurements were made during the second occupation of these two stations. Because of its shallow depth, it was not possible to sample Station 24 at low tide. Essential data were collected for this station by scientists aboard other vessels.

The following were measured at each station when possible: water temperature, salinity, pH, dissolved oxygen, water color, wet and dry bulb air temperature, wind-wave/swell height and direction, and current speed and direction. The first four properties, listed plus currents were measured at one-meter depth intervals through the water column beginning near the surface and continuing to within one-half meter of the bottom. The only exceptions to this procedure were with regard to the three additional stations where currents were not measured.

Water temperature (°C), conductivity (mmhos cm^{-1}), pH and dissolved oxygen (ppm) were measured with a Martek MKII. The accuracy of this instrument according to the manufacturer was: temperature, ±0.5°C; conductivity, ±0.2 mmho cm^{-1}; pH, ±0.1; and dissolved oxygen, ±0.5 ga l^{-1}. The instrument was calibrated prior to each cruise and checked for drift upon returning to the Laboratory. Current measurements were made with a Marsh-McBirney Model 727 electromagnetic meter. Prior to measuring currents, the vessel was tautly moored using three anchors. A three-point mooring configuration was attained by deploying one anchor from the bow and two from the stern at an approximately 45° angles to the keel. The numbers 12 to 20 were substituted for the Forel-Ule water color scales of 3 to 11 which provided a single, continuous numerical scale. Thus modified, the scale applies over the spectrum of oceanic-coastal water colors. All data obtained aboard the research vessel were entered directly into electronic data processing coding forms designed specifically for this study. Later, when the data became available, tide stage, water level, diurnal range, wind direction, and wind speed were entered for each station. All data were then encoded for computer-processing and verified. Dates of the hydrographic survey cruises in St. Louis Bay were: 15 December 1977; 18 January, 22 February, 22 March, 19 April, 17 May, 14 June, 19 July, 16 August, 20 September, 18 October, 15 November and 13 December 1978.

Certain properties, i.e. water temperature, salinity, pH, dissolved oxygen, and water color were analyzed for characterization of the Bay. For spatial analyses of these variables, isopleth charts for the surface and at one-meter intervals were produced and incorporated in the original report. Current vector charts showing direction and magnitude were also prepared for each cruise. Corresponding segments of the tidal record were reproduced and included in the report to help facilitate understanding of the hydrology. A finite-difference model applied to the Bay (Eleuterius 1980) showed the tidal circulation patterns with and without wind stress. Correlation and regression analyses among specific properties were carried out and the results discussed.

RESULTS AND DISCUSSION

Water Temperature

Some factors that appreciably affect the thermal structure and level of water temperature of St. Louis Bay are: direct solar radiation, reflected solar radiation, air temperature, evaporation, precipitation, influx of Mississippi Sound waters, discharges of rivers and bayous, direct runoff, and effluent discharges. The water column temperature structure is further modified by mixing caused by waves, currents, and diffusive processes.

Several trends in the areal distribution of water temperatures were apparent. East/west oriented temperature gradients were frequently present with the higher temperatures lying to the west. Occasionaly, a weaker gradient existed between Mallini Point and the Jourdan River. At still other times, a temperature gradient extended shoreward from the Bay's central north/south axis. The warmer water were always located close to the shore. When present, gradients in the northern part of the Bay between Grassy Point and Cutoff Bayou were almost always oriented toward the northwest.

In the immediate vicinity of the river mouths where the river outflows meet Bay waters, changes in temperature occurred over short distances. When gradients were present here during late fall, winter, and early spring, river waters were generally warmer than Bay waters. During the late spring and summer, particularly late summer, there was a reversal in this trend. Of the two rivers, stronger, sharper temperature gradients were associated with the Wolf River. To a lesser degree, Mallini Bayou also showed the same trend as the rivers during the cooler months.

A thermally-stratified water column was observed during some cruises. The Bay exhibited stratification on occasion regardless of the season. Analyses of the observed temperatures for each station were made with regard to the frequency and magnitude of temperature inversions. Differences less than 0.2°C were disregarded. Considering conditions at each station as a separate event, a total of 62 inversions were observed. All inversion occurred at stations located in the deeper waters of the navigation channels and outer Bay. No inversions were observed in the shallower waters. Where inversions occurred, the average difference in temperatures between surface and bottom waters was 0.72°C. Ninety percent of the inversions occurred in the months of June, August, September, October, December and January. The greatest temperture difference in a water column with an inverrion was 3.0°C.

The water column of the shallower regions of the Bay are predominantly homogeneous. The minimum temperature, 4.4°C, was observed in the surface waters in mid-winter and the maximum temperature, 31.7°C, was observed in the outer Bay during mid-summer.

Salinity

The salinity levels and spatial distribution of salinity in St. Louis Bay waters are affected by precipitation, evaporation, river and bayou outflows, direct runoff, influx of Mississippi Sound waters, and effluent discharges. The vertical salinity structure is further modified through mixing caused by waves, currents, and diffusive processes. The locations of the mouths of the Jourdan River and Wolf River on opposite sides of the upper Bay contribute to the complexity of the Bay circulation and thus the highly variable spatial distribution of salinity. On 18 January 1978, a tongue of lower-salinity water extended from Wolf River southwestward across the Bay to Cedar Point. This orientation of the Wolf River plume was also apparent during other cruises. For other sampling periods the plume of Wolf River water was deflected to the northwest. The Jourdan River has a profound influence on the hydrology with its outflow often dominating the central and western region of the Bay.

Bay waters were highly variable both spatially and temporally. For the 13 cruises, the lowest overall salinity occurred on 14 June 1978. The 1.0 ppt isohaline was located below mid-Bay. The highest salinity recorded on that date was 5.3 ppt at a depth of 9.2 ft. in the outer Bay. October and November are usually the driest months of the year. The highest salinity levels occurred on 15 November 1978. The highest values for surface and bottom waters waters, i.e. 19.2 ppt and 19.3 ppt, were observed in the outer Bay. On this date the 14.0 ppt isohaline for surface waters was located at the mouths of the Jourdan and Wolf rivers. Salinities in the shallow, northern region of the Bay were even greater than 14.0 ppt on this date. Appreciably salinity-stratified water columns occurred at all stations during the study period. However, stratification occurred with less frequency and with weaker gradients in the shallower waters than in the deeper waters.

pH

The pH regime of St. Louis Bay waters is affected: change in water temperature, change in the CO_2 content of overlying air, by chemical reactions due to mixing of fresh and marine waters, by biological processes, and via effluent discharges. Comparison of pH charts with corresponding charts of salinity showed only a general relationship between the two. The degree of linear relationship between pH and salinity was determined through computation of a Pearson-Product-Moment Correlation Coefficient ($r=0.36$, significant at $\alpha=.05$) and graphical analysis via linear regression. In the graph of the regression line on which the individual pairs of values were plotted, the preponderance of near-surface mesurements lay above the regression line, values from depths of 1 m and 2 m were in close proximity to the regression line, and values from greater depths generally lay below the regression line.

Dissolved Oxygen

Dissolved oxygen in St. Louis Bay is directly affected by biological processes, chemical processes, wave action, mixing of waters and water temperature. Measurements for dissolved oxygen were made on 12 of the 13 cruises in St. Louis Bay. The dissolved-oxygen probe malfunctioned during the October cruise. The relationship of the spatial distribution of dissolved oxygen with other properties were qualitatively assessed via comparison of the relevant isopleth charts. From these visual comparisons, little relation to other properties were discernible with the exception of salinity. With salinity, there appeared to be only a weak correlation.

Dissolved-oxygen levels were high in winter with the low values during this period associated with the influx of river waters. The highest levels were observed in January when the lowest water temperatures were recorded. A gradient, with the lower values located in the upper Bay, persisted through February 1978. By the March sampling date this trend had reversed with the lower values located in the outer Bay. By the April cruise, the trend had again reversed with the 11.5 ppm isopleth located across the narrow neck of the outer Bay. There was an overall decline in dissolved-oxygen levels with the onset of spring and the subsequent rise in water temperatures. Dissolved oxygen reached its lowest levels in June, July, August and September.

The continuation in natural chemical and biological processes associated with warm weather combined with light winds and the reduced ability of warm waters to retain dissolved gases resulted in the low levels of dissolved oxygen for the four-month period. There were no dissolved oxygen data for October. By November, with the drop in water temperature, the decline in biological activity, and the increase in stronger and more sustained winds, dissolved-oxygen again approached its winter highs. Overall, the dissolved-oxygen levels for December 1978 were slightly higher than those for December 1977.

The lowest dissolved-oxygen reading recorded for surface waters, 5.6 ppm, was in the northeast region of the Bay in September. The lowest reading for subsurface waters, 4.2 ppm, was observed in the approach channel to the Jourdan River at a depth of 8 ft (2.4 m). The highest value observed, 14.4 ppm, for the surface waters in the outer Bay in Januarywith the maximum value recorded for subsurface waters, 14.1 ppm, occurring at a depth of 9.8 ft (3.0 m) on December 1978 at the mouth of the Jourdan River.

Water, when heated, loses its ability to retain oxygen in a dissolved state. The relationship between Bay water temperature and levels of dissolved oxygen were further investigated via correlation and regression analyses. A linear correlation coefficient of -0.8 (significant at α =.01) was obtained. From the plot of dissolved oxygen versus water temperature, the considerable scatter of the paired observations about the regression line indicated that factors other than water temperature were having an appreciable effect on dissolved oxygen.

Because of what appeared to be a general, but weak, correlation between the spatial distributions of dissolved oxygen and salinity from the isopleth charts, regression and correlation analyses were also applied to these two variables. The purpose of the analyses was to ascertain if there was a tendency by either river water or Sound waters to be consistently higher in dissolved oxygen. The large degree of scatter of paired observations about the regression line showed that no such tendency existed. This was further supported by the computed correlation coefficient of 0.04 (not significant at $\alpha = .05$).

Currents

Current measurements were made at most stations. With few exceptions, the highest current speeds at each station were associated with surface waters and decreased with depth. Because the current meter had become inoperative, there were no current measurements made for the July and August cruises. The strongest currents observed at any station during the cruises were in the outer Bay on December 1977 and April with speeds of 169 cm sec^{-1} and 124.3 cm sec^{-1}, respectively. However, except for these measurements and others made within the rivers, the highest values were normally 20-35 cm sec^{-1}. There were a number of occasions when a current shear was evident.

Application of a numerical, hydrodynamic model to St Louis Bay (Eleuterius 1980b) with the forcing limited to the prescribed tides just outside the Bay provided additional insight on the current regime. With the onset of flood tides, the intrusion of Sound waters is greatest east of the middle of the Bay entrance. The flow follows a path that slowly turns to the northwest about mid Bay. In the north Bay area between Marshy Point and Mallini Bayou, a weak anti-cyclonic circulation develops. Investigation of the effects of winds on the Bay circulation via the model showed that the shallow Bay responds rapidly to the winds which can become the dominate driving force.

SUMMARY

The complex hydrodynamics of the shallow St. Louis Bay are due, in part, to the Bay's configuration and the location of the mouth of the two rivers which empty into it. Forces driving the Bay circulation are the tides, winds, differences in density of waters, and river discharge. The Bay is predominantly well-mixed, but does assume the characteristics of a partially-mixed estuary in some areas. The salinity of the Bay remains largely below 20 ppt year round. Although the level of dissolved oxygen was highly

correlated with fluctuations in water temperature, it was also appreciably affected by chemical and biological processes. Dissolved oxygen levels were sufficient year round to support marine life. While pH followed salinity levels, it more affected by other factors. Current speeds were usually below 30 cm s^{-1}, but on occasion in some areas of the Bay speeds greater than 3 kt were measured.

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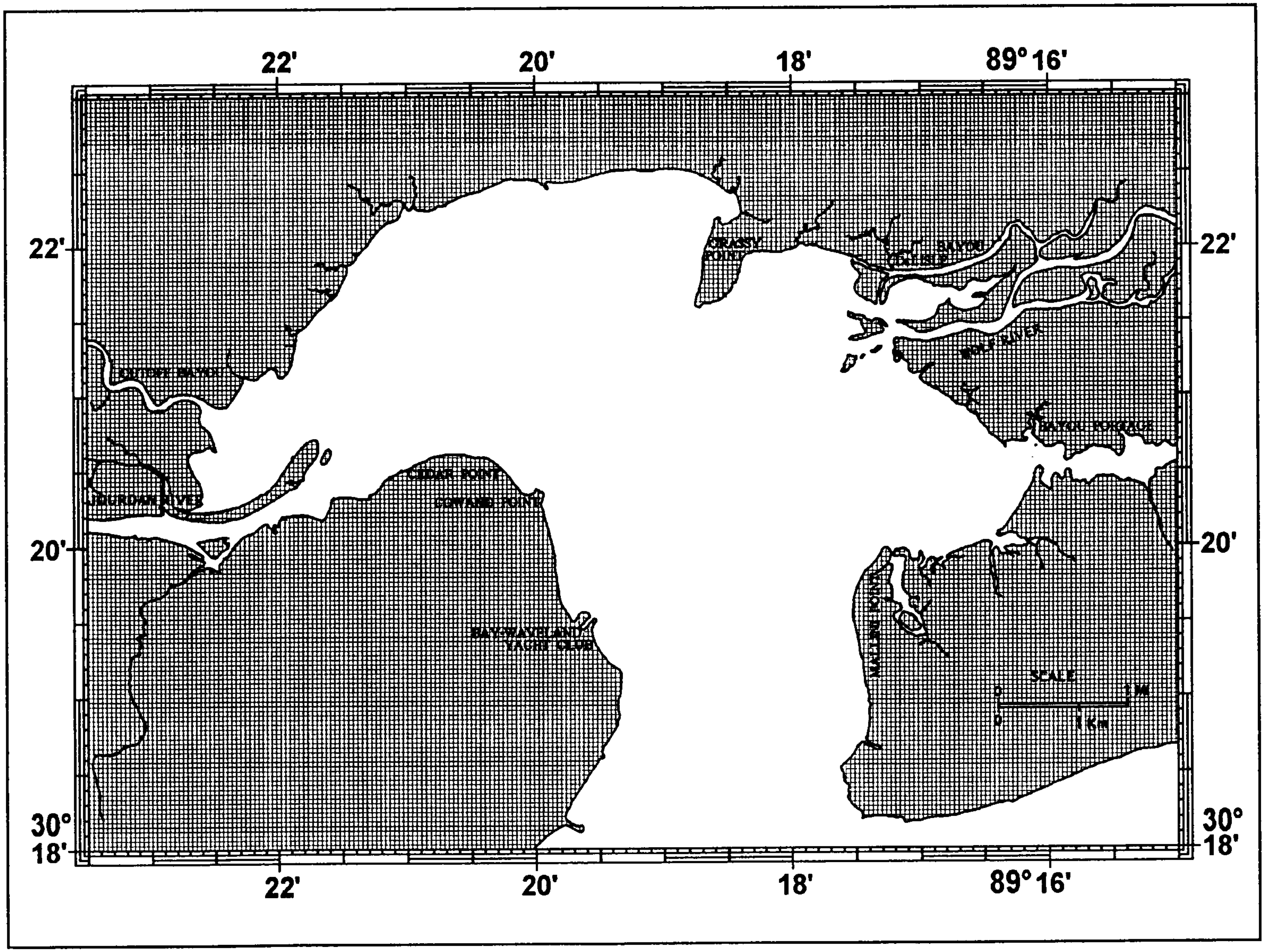

Figure 1. Study Area: St. Louis Bay, Mississippi

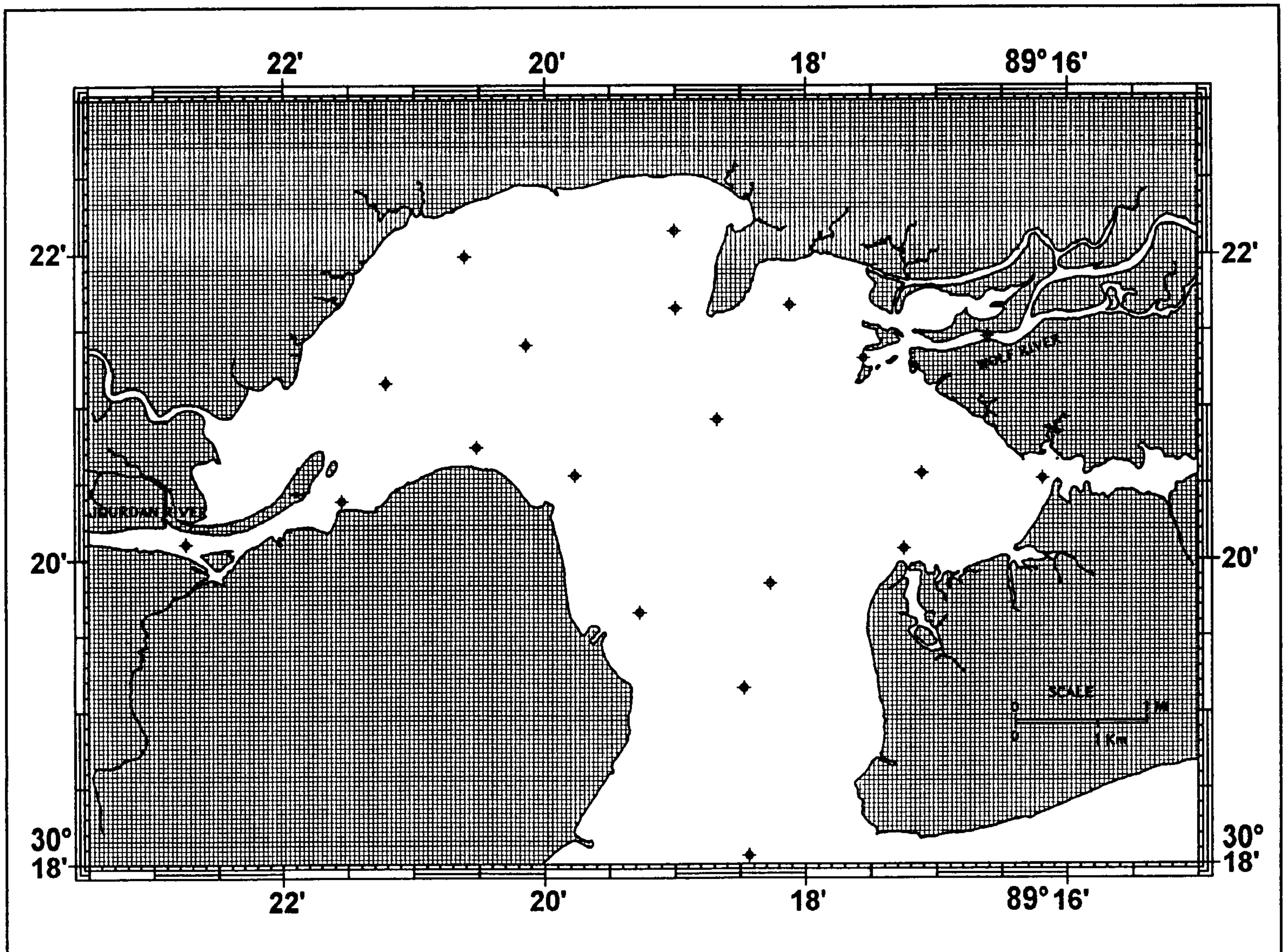

Figure 2. Station Locations: St. Louis Bay, Mississippi

APPENDIX A

Data Tables

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F		WIND		TIDE			WIND/SWELL WAVES		WATER COLOR	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (mg/l)	pH
					Dry Bulb	Wet Bulb	Dir. °	Speed mph	Height (ft)	Stage	Range (ft)	Dir. °	Height (ft.)	Forel-Ule						
30°20.5′	89°17.1′	12/15/77	8:43	5.3	53.3	52.1		5	2.0	3	1.2	240	.2	16	12.1	.0	11.5	4.6	9.5	8.28
																3.3	11.4	5.4	9.6	8.17
30°21.6′	89°18.1′	12/15/77	10:23	3.6	60.0	57.2		7	.0	3	1.2	250	.2	18	13.2	.0	12.6	3.2	8.8	7.99
																1.6	12.3	3.4	8.4	7.76
30°21.6′	89°19.0′	12/15/77	10:41	4.6	60.3	57.5		7	-.1	3	1.2	275	.1	18	13.6	.0	12.4	3.6	9.1	8.00
																2.6	12.4	3.6	9.4	7.97
30°21.3′	89°20.1′	12/15/77	12:01	5.3	59.9	56.8		13	-.1	1	1.6	325	.4	17	13.1	.0	12.7	3.7	10.2	8.00
																3.3	12.5	3.7	10.2	8.03
30°19.2′	89°18.5′	12/15/77	8:06	8.9	51.3	50.7	55	5	.3	3	1.2	195	.2	16	13.5	.0	10.9	4.8	10.1	8.12
																3.3	10.9	4.8	10.3	8.15
																6.6	10.7	7.8	9.8	8.04
30°20.5′	89°16.2′	12/15/77	8:59	5.0	54.3	48.0	5	4	.1	3	1.2	230	.0	16	12.7	.0	12.1	4.8	9.5	8.04
																3.0	11.9	4.9	8.7	8.03
30°20.1′	89°17.3′	12/15/77	9:17	5.3	55.8	50.0		6	.1	3	1.2	230	.1	17	12.6	.0	12.0	4.6	9.9	8.06
																3.3	11.6	5.4	9.5	8.05
30°21.5′	89°16.6′	12/15/77	9:47	18.0	59.1	56.5	30	6	.0	3	1.2		.0	16	12.9	.0	12.3	.2	9.5	8.03
																3.3	12.2	.2	8.9	7.85
																6.6	12.2	.2	8.9	7.74
																9.8	11.9	.7	8.8	7.61
																13.1	11.8	3.6	7.6	7.55
																16.3	11.4	5.2	8.4	7.67
30°21.3′	89°17.4′	12/15/77	9:37	4.6	57.3	55.8	40	7	.1	3	1.2	230	.1	18	12.6	.0	12.0	2.0	8.8	7.85
																2.6	12.0	1.7	9.2	7.80
30°22.1′	89°19.0′	12/15/77	10:49	3.6	61.0	58.0		7	-.1	3	1.2		.0	17	13.3	.0	12.7	3.9	9.1	8.07
																1.6	12.6	3.8	9.0	8.00
30°21.9′	89°20.6′	12/15/77	11:40	4.6	61.0	56.5		13	-.1	4	1.2	320	.3	18	13.6	.0	12.9	3.9	9.9	8.00
																2.6	12.8	4.0	9.4	7.91
30°21.2′	89°20.9′	12/15/77	11:31	4.3	62.1	57.5		15	-.1	4	1.2	320	.1	17	14.3	.0	13.0	3.5	8.8	7.90
																2.3	12.8	3.7	9.2	7.88
30°20.7′	89°20.5′	12/15/77	12:18	8.6	59.8	55.9		12	-.1	1	1.6	285	.4	20	13.6	.0	13.2	3.0	10.3	7.79
																3.3	13.1	3.0	10.0	7.73
																6.6	11.6	5.5	8.0	7.69
30°20.3′	89°21.5′	12/15/77	12:28	7.0	61.9	56.2		12	-.1	1	1.6	290	.1	18	13.2	.0	12.8	2.2	9.3	7.75
																3.3	12.7	2.2	9.1	7.67
																5.0	12.7	2.2	9.3	7.55
30°20.1′	89°22.7′	12/15/77	12:39	8.6	61.0	56.2		13	-.1	1	1.6	285	.3	18	13.3	.0	12.9	1.8	8.7	7.58
																3.3	12.7	1.9	8.5	7.52
																6.6	12.7	2.2	8.5	7.46
30°20.5′	89°19.8′	12/15/77	12:58	6.5	59.8	56.7		13	.0	1	1.6	215	.4	17	13.3	.0	12.7	3.9	9.7	7.91
																3.3	12.5	4.0	10.4	7.93
																4.5	12.4	3.9	10.1	7.94
30°19.4′	89°19.3′	12/15/77	13:14	3.6	58.8	56.8	130	10	.0	1	1.6	290	.3	17	13.3	.0	12.8	4.1	10.3	8.18
																1.6	12.8	4.0	10.4	8.18

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F		WIND		TIDE			WIND/SWELL WAVES		WATER COLOR	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (µga/l)	pH
					Dry Bulb	Wet Bulb	Dir. °	Speed mph	Height (ft)	Stage	Range (ft)	Dir. °	Height (ft.)	Forel-Ule						
30°19.2′	89°18.5′	12/15/77	13:40	9.5	62.8	57.1		9	.1	1	1.6	110	.3	17	12.9	.0	12.3	5.8	11.0	8.24
																3.3	12.0	5.8	11.1	8.23
																6.6	11.2	6.6	10.9	8.08
																7.5	11.0	7.8	10.4	8.01
30°19.2′	89°18.5′	1/18/78	8:58	8.6	34.0	32.6	35	13	-.7	1	1.9	210	1.1	18	5.5	.0	4.7	7.5	14.4	8.72
																3.3	4.7	7.7	14.3	8.82
																6.6	6.0	15.0	11.2	9.00
30°20.5′	89°17.1′	1/18/78	9:48	7.1	33.6	31.7	45	10	-.5	1	1.9	235	.8	18	5.4	.0	4.6	7.2	13.2	8.34
																3.3	5.3	12.9	12.2	8.40
																5.1	5.6	14.2	11.7	8.50
30°20.5′	89°16.2′	1/18/78	9:55	4.6	33.9	31.8	30	11	-.5	1	1.9	230	.3	19	6.2	.0	5.4	5.5	12.2	8.30
																2.6	5.6	6.7	11.1	8.19
30°21.3′	89°17.4′	1/18/78	10:09	4.6	35.2	33.0	30	12	-.5	1	1.9	240	.2	18	7.0	.0	6.0	2.7	11.6	8.28
																2.6	5.9	9.3	10.2	8.14
30°21.5′	89°16.6′	1/18/78	10:23	10.0	34.5	32.5	35	11	-.4	1	1.9	220	.2	19	6.7	.0	6.3	.6	10.5	8.59
																3.3	6.4	.6	10.4	8.47
																6.6	6.0	12.2	10.3	8.15
																8.2	5.9	13.2	10.5	8.41
30°21.6′	89°18.1′	1/18/78	10:47	3.0	36.0	33.9	35	15	-.3	1	1.9	210	.1	18	5.3	.0	4.4	6.0	11.6	8.45
																1.0	4.5	6.0	11.6	8.52
30°21.6′	89°19.0′	1/18/78	11:03	4.0	35.7	33.0	25	14	-.2	1	1.9	190	.3	19	5.4	.0	4.5	6.6	12.0	7.92
																2.0	4.5	6.6	11.9	8.14
30°22.1′	89°19.0′	1/18/78	11:23	3.6	36.0	33.2	15	10	-.1	1	1.9	165	.1	18	5.4	.0	4.7	6.9	10.2	8.41
																1.6	4.8	7.0	11.0	8.53
30°21.9′	89°20.6′	1/18/78	12:02	4.6	36.3	33.4	5	9	.0	1	1.9	180	.5	19	5.6	.0	4.6	6.6	12.2	8.57
																2.6	4.7	6.5	11.8	8.56
30°21.1′	89°21.2′	1/18/78	12:13	3.6	36.8	34.1	20	12	.0	1	1.9	195	.5	19	5.7	.0	4.8	5.2	11.9	8.54
																1.6	4.8	5.2	11.8	8.50
30°21.3′	89°20.1′	1/18/78	12:24	5.3	36.6	33.8	25	10	.1	1	1.9	90	.4	19	5.5	.0	4.6	6.8	12.4	8.65
																3.3	4.6	6.8	12.4	8.64
30°20.7′	89°20.5′	1/18/78	12:34	10.0	36.7	33.9	25	10	.1	1	1.9	215	.5	19	5.9	.0	5.0	4.1	11.4	8.75
																3.3	5.0	4.1	10.9	8.67
																6.6	5.0	10.4	10.5	8.49
																8.2	5.8	14.4	10.6	8.68
30°20.4′	89°21.5′	1/18/78	12:42	12.0	37.7	34.8	40	1	.1	1	1.9	230	.3	18	6.1	.0	5.3	2.8	12.1	8.50
																3.3	5.3	2.8	11.2	8.40
																6.6	5.2	3.1	11.2	8.35
																9.8	5.6	5.0	11.2	8.24
30°20.1′	89°22.7′	1/18/78	12:52	11.0	37.3	34.5	15	8	.1	1	1.9	250	.3	19	6.2	.0	5.4	2.0	10.9	8.42
																3.3	5.4	2.0	10.8	8.36
																6.6	5.2	2.5	10.8	8.30
																8.6	5.0	3.7	10.9	8.27
30°20.5′	89°19.8′	1/18/78	13:16	5.3	37.8	30.3	30	12	.1	1	1.9	225	1.0	19	5.2	.0	4.8	5.5	11.8	8.70
																3.3	4.8	5.5	12.0	8.64

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F Dry Bulb	AIR TEMP. °F Wet Bulb	WIND Dir. °	WIND Speed mph	TIDE Height (ft)	TIDE Stage	TIDE Range (ft)	WIND/SWELL WAVES Dir. °	WIND/SWELL WAVES Height (ft.)	WATER COLOR Forel-Ule	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (µga/l)	pH
30°19.4′	89°19.3′	1/18/78	13:29	4.5	37.8	34.5	45	15	.1	1	1.9	200	.8	19	5.2	.0	4.8	5.2	11.7	8.84
																2.5	4.8	5.2	11.8	8.77
30°19.2′	89°18.5′	1/18/78	13:49	8.8	38.1	34.9	35	13	.1	1	1.9	210	1.1	18	5.8	.0	5.0	12.5	12.3	8.55
																3.3	5.0	12.6	12.1	8.72
																6.6	5.1	13.4	12.1	8.77
30°21.6′	89°18.1′	2/22/78	10:50	2.5	39.1	33.5	255	0	-1.3	1	1.5		.0	17	7.5	.0	6.9	4.8	9.9	7.68
30°20.5′	89°17.1′	2/22/78	9:38	3.7	35.5	32.0	330	3	-1.6	1	1.5	75	.1	17	7.2	.0	5.8	3.4	10.3	7.78
																1.7	5.9	3.6	10.5	7.73
30°21.6′	89°19.0′	2/22/78	11:11	3.0	42.7	34.8	220	6	-1.2	1	1.5	110	.3	18	7.4	.0	6.5	4.6	11.4	7.76
30°21.3′	89°20.1′	2/22/78	12:48	4.0	44.0	38.8	230	9	-.9	1	1.5	315	.8	18	7.6	.0	7.1	4.0	11.7	7.94
																2.0	7.1	4.0	11.6	7.84
30°19.2′	89°18.5′	2/22/78	8:57	8.6	33.0	30.9	315	4	-1.7	1	1.5	160	.3	16	7.1	.0	6.3	3.6	11.6	7.99
																3.3	6.3	3.6	11.3	7.95
																6.6	6.2	4.1	11.3	7.93
30°20.5′	89°16.2′	2/22/78	9:49	5.3	36.3	32.8	315	1	-1.6	1	1.5	60	.2	17	6.1	.0	5.7	3.6	10.3	7.90
																3.3	5.6	3.4	10.3	8.02
30°20.1′	89°17.3′	2/22/78	17:05	2.0			245	14	-.8	3	1.5		.0			.0	7.9	4.1		
																2.0	7.8	4.2		
30°21.5′	89°16.6′	2/22/78	10:19	13.0	39.8	33.8	290	4	-1.5	1	1.5	130	.2	17	8.6	.0	7.8	.2	9.9	7.10
																3.3	7.8	.6	10.1	6.99
																6.6	7.7	2.0	10.2	6.99
																9.8	7.6	4.8	9.8	7.23
30°21.3′	89°17.4′	2/22/78	10:08	3.7	39.4	33.7	10	2	-1.5	1	1.5	60	.1	17	8.6	.0	7.8	.4	9.9	7.15
																1.7	7.8	.4	10.4	7.03
30°22.1′	89°19.0′	2/22/78	11:27	2.5	33.8	35.0	235	10	-1.2	1	1.5	85	.2	18	7.8	.0	7.2	5.0	11.0	7.94
30°21.9′	89°20.6′	2/22/78	12:13	3.7	48.2	37.5	235	10	-1.0	1	1.5	75	.9	18	8.6	.0	8.0	3.9	11.2	7.71
30°21.1′	89°21.2′	2/22/78	12:31	2.5	48.3	40.5	215	10	-.9	1	1.5	100	.1	18	9.2	.0	8.5	1.9	11.2	7.46
30°20.7′	89°20.5′	2/22/78	13:00	5.5	44.2	37.7	215	9	-.8	1	1.5	290	.6	17	8.6	.0	7.6	3.6	11.5	7.78
																3.3	7.5	3.7	11.7	7.77
30°20.4′	89°21.5′	2/22/78	13:07	10.0	46.8	38.9	220	11	-.8	1	1.5	340	.2	19	9.0	.0	8.5	1.8	11.8	7.57
																3.3	8.4	1.8	11.6	7.50
																6.6	7.7	3.2	11.8	7.56
																8.3	7.5	3.3	12.0	7.59
30°20.1′	89°22.7′	2/22/78	13:18	8.8	46.2	39.0	225	8	-.8	1	1.5	300	.2	17	9.9	.0	9.3	1.9	11.3	7.46
																3.3	9.2	1.8	11.4	7.44
																6.6	8.6	2.1	11.3	7.42
30°20.5′	89°19.8′	2/22/78	13:37	3.3	45.2	38.2	230	10	-.7	1	1.5	330	.4	18	8.4	.0	7.6	4.3	12.0	7.98
																1.3	7.6	4.3	11.8	7.98
30°19.4′	89°19.3′	2/22/78	13:47	2.5	44.5	38.6	230	10	-.7	1	1.5	240	.5	18	9.0	.0	8.2	3.9	11.7	7.95
30°19.2′	89°18.5′	2/22/78	14:12	8.6	43.0	37.5	225	11				5	1.2	18	8.4	.0	7.7	1.9	12.3	7.85
																3.3	7.7	1.9	12.4	7.82
																6.6	7.5	2.2	12.3	7.77
30°19.2′	89°18.5′	3/22/78	7:57	8.6	61.9	58.0	45	9	-.3	1	1.4	230	.4	18	16.6	.0	17.0	6.8	7.0	7.80
																3.3	17.0	6.9	7.3	7.78
																6.6	16.8	9.1	7.4	7.65

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F		WIND		TIDE			WIND/SWELL WAVES		WATER COLOR	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (µga/l)	pH
					Dry Bulb	Wet Bulb	Dir. °	Speed mph	Height (ft)	Stage	Range (ft)	Dir. °	Height (ft.)	Forel-Ule						
30°20.5′	89°17.1′	3/22/78	8:32	5.3	62.3	57.4	55	10	-.2	1	1.4	250	.3	18	17.4	.0	17.1	6.9	9.0	7.80
																3.3	17.1	6.9	8.8	7.79
30°20.5′	89°16.2′	3/22/78	8:46	8.6	65.7	59.6	30	12	-.1	1	1.4	225	.1	17	17.7	.0	17.5	6.3	8.9	7.73
																3.3	17.4	6.3	8.9	7.71
																6.6	17.3	6.4	8.5	7.60
30°20.1′	89°17.3′	3/22/78	16:20	6.0			180	10	.5	3	1.4		.0			.0	19.6	7.0	9.3	
																6.0	19.2	7.2		
30°21.3′	89°17.4′	3/22/78	9:03	5.3	66.0	59.5	40	10	-.1	1	1.4	250	.1	18	17.4	.0	17.2	4.2	8.6	7.53
																3.3	17.3	5.4	8.6	7.41
30°21.5′	89°16.6′	3/22/78	9:14	13.0	69.0	58.0	30	10	.0	1	1.4	280	.1	15	17.2	.0	16.9	2.6	8.9	7.52
																3.3	16.9	2.9	8.7	7.31
																6.6	17.5	5.6	8.3	7.16
																9.8	17.7	6.3	8.1	7.23
30°20.9′	89°18.7′	3/22/78	9:32	5.3	69.1	58.2	20	8	.0	1	1.4	240	.2	16	17.9	.0	17.6	5.5	8.9	7.56
																3.3	17.5	5.6	8.9	7.54
30°21.6′	89°18.1′	3/22/78	9:42	4.0	68.4	60.2	15	6	.0	1	1.4	270	.1	16	18.3	.0	18.0	5.1	10.2	7.71
																2.0	17.9	5.1	8.7	7.52
30°21.6′	89°19.0′	3/22/78	9:58	5.3	70.0	60.0	360	2	.1	1	1.4	280	.1	15	18.2	.0	18.0	5.0	8.6	7.51
																3.3	17.8	5.0	8.5	7.44
30°22.1′	89°19.0′	3/22/78	10:09	4.0	69.8	61.0	360	2	.1	1	1.4	0	.0	18	18.5	.0	17.9	5.3	8.7	7.61
																2.0	17.9	5.3	8.7	7.50
30°21.9′	89°20.6′	3/22/78	10:25	4.5	68.5	60.1	140	9	.2	1	1.4	310	.2	17	18.5	.0	18.4	5.5	9.1	7.64
																2.5	18.3	5.5	9.0	7.70
30°21.1′	89°21.2′	3/22/78	10:35	4.6	67.8	60.0	140	9	.2	1	1.4	270	.1	16	18.7	.0	18.6	5.0	9.0	7.65
																2.6	18.2	5.1	9.0	7.58
30°21.3′	89°20.1′	3/22/78	10:48	5.3	67.6	60.9	140	11	.2	1	1.4	320	.2	16	18.8	.0	18.4	5.4	9.1	7.80
																3.3	17.8	5.4	9.0	7.68
30°20.7′	89°10.5′	3/22/78	11:00	9.5	68.7	60.5	140	11	.3	1	1.4	300	.3	15	19.1	.0	18.9	3.9	9.0	7.64
																3.3	18.1	4.4	9.1	7.55
																6.6	18.0	4.7	9.1	7.54
30°20.4′	89°21.5′	3/22/78	11:08	13.0	71.2	63.0	140	11	.3	1	1.4		.0	18	19.3	.0	19.0	3.5	9.0	7.19
																3.3	18.5	3.6	9.2	7.26
																6.6	18.5	3.8	9.1	7.23
																9.8	18.1	3.9	9.0	7.20
																11.5	17.9	4.4	8.3	7.14
30°20.1′	89°22.7′	3/22/78	11:26	10.0	79.4	60.8	145	12	.4	1	1.4		.0	18	19.5	.0	19.4	2.9	9.7	7.27
																3.3	18.5	3.0	9.8	7.63
																6.6	17.6	3.3	8.8	7.43
																8.0	17.4	3.7	8.4	7.29
30°20.5′	89°19.8′	3/22/78	11:44	5.3	67.8	61.0	150	13	.4	1	1.4	320	.6	16	18.8	.0	18.6	5.4	9.3	7.69
																3.3	18.6	5.4	9.2	7.66
30°19.4′	89°19.3′	3/22/78	11:59	5.3	66.9	59.8	150	14	.5	1	1.4	310	.4	16	18.7	.0	18.5	5.4	9.4	7.67
																3.3	18.4	5.4	9.2	7.61

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F Dry Bulb	AIR TEMP. °F Wet Bulb	WIND Dir. °	WIND Speed mph	TIDE Height (ft)	TIDE Stage	TIDE Range (ft)	WIND/SWELL WAVES Dir. °	WIND/SWELL WAVES Height (ft.)	WATER COLOR Forel-Ule	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (µga/l)	pH
30°19.2′	89°18.5′	3/22/78	12:17	8.6	67.0	60.5	170	12	.5	1	1.4	350	.5	16	18.8	.0	18.6	10.7	9.4	7.93
																3.3	18.5	10.8	9.3	7.94
																6.6	18.3	11.0	9.3	7.93
30°19.2′	89°18.5′	4/19/78	14:22	8.6	82.2	60.5	230	20	.4	3	1.6	90	1.5	15	24.2	.0	24.0	7.4	8.0	7.69
																3.3	24.0	7.4	8.1	7.69
																6.6	24.0	7.4	8.3	7.68
30°17.9′	89°18.2′	4/19/78	16:39	8.6	76.6	63.9	290	16	.0	3	1.6	30	1.8	17	24.3	.0	24.0	8.3	6.7	7.83
																3.3	24.1	8.3	6.8	7.82
																6.6	24.1	8.3	7.0	7.81
30°19.4′	89°19.3′	4/19/78	13:53	4.0	81.6	59.0	285	17	.5	3	1.6	110	.3	15	24.4	.0	24.3	5.8	7.7	7.71
																2.0	24.3	5.8	8.0	7.68
30°20.5′	89°19.8′	4/19/78	13:39	5.3	81.2	62.2	265	16	.5	3	1.6	110	.8	18	24.5	.0	24.3	4.1	7.2	7.62
																3.3	24.3	4.1	7.2	7.64
30°19.8′	89°18.3′	4/19/78	14:05	7.5	85.5	63.5	245	20	.4	3	1.6	120	1.2	19	24.5	.0	24.3	5.3	7.9	7.68
																3.3	24.3	5.4	8.1	7.60
																5.5	24.2	5.4	8.3	7.58
30°20.5′	89°17.1′	4/19/78	9:41	5.0	75.8	70.8	255	16	.9	1	1.4	25	1.0	19	23.5	.0	23.4	4.3	9.1	7.58
																3.0	23.3	4.3	9.2	7.53
30°21.6′	89°18.1′	4/19/78	11:07	5.3	80.0	63.6	275	10	1.0	3	1.6	85	1.0	18	23.7	.0	23.6	2.4	7.8	7.78
																3.3	26.6	2.4	7.9	7.70
30°21.6′	89°19.0′	4/19/78	11:24	5.3	79.5	65.5	290	19	1.0	3	1.6	90	1.5	18	24.1	.0	24.0	3.1	7.6	7.75
																3.3	24.0	3.1	7.6	7.68
30°21.3′	89°20.1′	4/19/78	12:39	5.0	82.3	61.5	260	16	.7	3	1.6	100	1.5	18	24.0	.0	23.9	3.2	7.1	7.83
																3.0	23.9	3.2	7.2	7.70
30°19.2′	89°18.5′	4/19/78	8:47	8.6	76.3	68.9	210	10	.7	1	1.4	20	1.2	18	23.4	.0	23.4	7.7	11.9	7.64
																3.3	23.3	7.7	11.8	7.59
																6.6	23.4	7.9	11.6	7.55
30°20.5′	89°16.2′	4/19/78	9:49	8.6	76.3	70.2	240	15	1.0	1	1.4	60	.8	19	23.2	.0	23.0	3.9	9.1	7.75
																3.3	23.0	4.0	9.2	7.64
																6.6	23.0	4.8	9.1	7.54
30°20.1′	89°17.3′	4/19/78	10:05	5.3	78.2	63.0	260	16	1.0	1	1.4	95	1.0	18	22.3	.0	23.2	4.6	8.7	7.65
																3.0	23.2	4.6	8.8	7.66
30°21.5′	89°16.6′	4/19/78	10:34	11.0	75.0	63.3	265	16	1.1	3	1.6	115	.3	18	22.6	.0	22.6	.3	8.1	7.89
																3.3	22.5	.2	8.2	7.83
																6.6	22.2	.5	8.2	7.53
																9.8	22.2	1.4	8.2	7.39
30°21.3′	89°17.4′	4/19/78	10:21	5.8	76.2	64.3	255	16	1.1	1	1.4	90	1.2	18	23.6	.0	23.5	3.4	8.3	7.63
																2.8	23.4	3.4	8.4	7.58
30°22.1′	89°19.0′	4/19/78	11:45	5.3	79.5	62.4	285	20	.9	3	1.6	90	.9	18	24.3	.0	24.2	2.7	7.4	7.71
																3.3	24.2	2.8	7.5	7.66
30°21.9′	89°20.6′	4/19/78	12:18	4.5	80.7	61.2	290	18	.8	3	1.6	120	1.2	18	23.9	.0	24.0	2.0	7.1	7.84
																2.5	24.0	2.0	7.2	7.76
30°21.1′	89°21.2′	4/19/78	12:30	5.3	81.2	61.8	285	15	.8	3	1.6	105	1.2	18	24.2	.0	24.0	2.3	7.0	7.86
																3.3	24.0	2.3	7.1	7.78

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F Dry Bulb	AIR TEMP. °F Wet Bulb	WIND Dir. °	WIND Speed mph	TIDE Height (ft)	TIDE Stage	TIDE Range (ft)	WIND/SWELL WAVES Dir. °	WIND/SWELL WAVES Height (ft.)	WATER COLOR Forel-Ule	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (mg/l)	pH
30°20.7′	89°20.5′	4/19/78	12:51	8.6	81.3	62.8	275	14	.7	3	1.6	90	1.0	17	24.1	.0	24.0	3.0	7.0	7.78
																3.3	24.0	3.1	7.1	7.70
																6.6	23.9	3.5	7.2	7.64
30°20.4′	89°21.5′	4/19/78	13:03	12.0	81.5	61.9	250	18	.7	3	1.6	80	.7	18	23.7	.0	23.6	2.1	7.0	7.76
																3.3	23.6	2.2	7.2	7.70
																6.6	23.6	2.3	7.2	7.63
																9.8	23.6	2.5	7.3	7.51
30°20.1′	89°22.7′	4/19/78	13:16	10.0	87.0	63.2	275	8	.6	3	1.6	95	.5	16	23.2	.0	22.9	1.5	7.1	7.60
																3.3	22.9	1.5	7.2	7.53
																6.6	22.9	1.5	7.3	7.50
																8.0	22.9	1.5	7.3	7.44
30°19.2′	89°18.5′	5/17/78	7:14	10.0	71.3	70.0	80	9	.8	1	1.5	220	.4	16	23.8	.0	23.5	3.7	8.3	7.80
																3.3	23.5	3.7	8.3	7.80
																6.6	23.5	3.7	8.5	7.80
																8.2	23.5	3.7	8.4	7.80
30°20.5′	89°17.1′	5/17/78	7:50	8.6	74.0	71.8	70	9	.8	1	1.5	260	.1	17	24.2	.0	23.7	1.6	8.5	7.81
																3.3	23.6	1.6	8.3	7.56
																6.6	23.5	2.9	7.3	7.45
30°20.5′	89°16.2′	5/17/78	7:59	5.3	76.7	74.0	80	9	.8	1	1.5	280	.0	18	24.0	.0	23.6	1.6	9.4	7.73
																3.3	23.3	2.7	7.2	7.40
30°20.1′	89°17.3′	5/17/78	8:13	7.5	77.0	73.5	110	11	.9	1	1.5	260	.2	16	23.6	.0	23.1	1.6	8.5	7.63
																3.3	23.1	2.2	8.3	7.54
																5.5	23.2	2.9	7.4	7.37
30°21.5′	89°16.6′	5/17/78	8:39	17.0	79.0	73.0	90	11	.9	1	1.5	290	.1	17	23.7	.0	23.3	.2	8.1	7.27
																3.3	23.1	.2	8.0	7.04
																6.6	23.2	.5	7.8	6.93
																9.8	23.2	.8	7.7	6.95
																13.1	23.2	.9	7.2	6.95
30°21.3′	89°17.4′	5/17/78	8:29	8.0	78.9	73.4	95	12	.9	1	1.5	280	.2	18	23.7	.0	23.5	.5	8.7	7.60
																3.3	23.4	.5	8.3	7.38
																6.0	23.4	1.2	7.3	7.12
30°21.6′	89°18.1′	5/17/78	9:19	6.0	73.0	76.0	105	12	1.1	1	1.5	295	.4	19	24.0	.0	23.7	.7	8.2	7.29
																3.3	23.6	.7	8.1	7.20
30°21.6′	89°19.0′	5/17/78	9:29	6.5	76.5	74.9	105	11	1.1	1	1.5	315	.4	18	24.2	.0	23.8	1.5	8.6	7.47
																3.3	23.8	1.9	8.3	7.37
																4.5	23.8	1.9	8.2	7.36
30°22.1′	89°19.0′	5/17/78	9:41	5.3	76.1	73.1	110	12	1.1	1	1.5	310	.2	18	24.3	.0	24.0	1.0	8.9	7.41
																3.3	23.9	1.0	8.6	7.34
30°21.9′	89°20.6′	5/17/78	10:55	6.0	70.1	68.0	80	22	1.2	3	1.2	300	.9	19	24.2	.0	23.8	1.1	8.8	7.57
																3.3	23.8	1.1	8.8	7.51
30°21.1′	89°21.2′	5/17/78	11:02	6.0	69.0	68.0	60	13	1.2	3	1.2	250	1.2	18	24.3	.0	23.8	.6	9.1	7.39
																3.3	23.9	.6	8.8	7.45
30°21.3′	89°20.1′	5/17/78	11:11	7.0	72.9	69.0	120	21	1.2	3	1.2	290	.9	18	24.2	.0	23.8	1.2	8.7	7.56
																3.3	23.8	1.2	8.6	7.45
																5.0	23.8	1.2	8.5	7.42

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F Dry Bulb	AIR TEMP. °F Wet Bulb	WIND Dir. °	WIND Speed mph	TIDE Height (ft)	TIDE Stage	TIDE Range (ft)	WIND/SWELL WAVES Dir. °	WIND/SWELL WAVES Height (ft.)	WATER COLOR Forel-Ule	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (μga/l)	pH
30°20.7′	89°20.5′	5/17/78	11:23	7.0	67.5	68.0	115	15	1.3	3	1.2	270	1.0	18	24.4	.0	24.0	1.8	9.1	7.50
																3.3	24.0	1.8	8.5	7.43
																5.0	24.0	1.8	8.5	7.41
30°20.4′	89°21.5′	5/17/78	11:33	15.0	67.8	68.0	90	14	1.3	3	1.2	250	.1	19	24.1	.0	23.7	4.0	8.2	7.23
																3.3	23.8	4.0	8.0	7.17
																6.6	23.8	4.1	7.9	7.13
																9.8	23.8	4.0	7.9	7.12
																13.1	23.9	7.9	7.5	7.07
30°20.1′	89°22.7′	5/17/78	11:46	12.0	68.9	67.3	105	14	1.3	3	1.2	240	.1	19	23.8	.0	23.6	.3	7.8	6.96
																3.3	23.6	.2	7.6	6.90
																6.6	23.6	.2	7.5	6.89
																9.8	23.6	.2	7.5	6.88
30°21.5′	89°19.8′	5/17/78	12:09	5.3	68.2	68.0	355	12	1.3	3	1.2	190	.5	17	24.2	.0	23.8	2.6	9.0	7.72
																3.3	23.8	2.6	8.9	7.73
30°19.4′	89°19.3′	5/17/78	12:22	5.3	68.3	68.3	325	26	1.3	3	1.2	160	.9	17	24.0	.0	23.7	2.9	8.0	7.63
																3.3	23.7	2.9	7.9	7.62
30°19.2′	89°18.5′	5/17/78	13:20	9.5	65.5	65.5	10	8	.9	3	1.2	180	.8	18	23.7	.0	23.2	2.8	9.0	7.87
																3.3	23.3	2.7	8.8	7.86
																6.6	23.3	2.7	8.7	7.86
																8.0	23.3	2.7	8.7	7.86
30°17.9′	89°18.2′	5/17/78	14:20	8.6	68.0	67.1	15	8	.6	3	1.2	170	.1	17	23.7	.0	23.3	3.5	8.7	7.86
																3.3	23.4	3.7	8.4	7.87
																6.6	23.4	3.9	8.4	7.87
30°19.2′	89°18.5′	6/14/78	7:58	11.0	76.4	67.9			.9	1	1.3	210	.8	15	27.8	.0	27.5	2.8	7.8	7.26
																3.3	27.6	2.8	7.6	7.28
																6.6	28.0	4.4	6.9	7.28
																9.2	28.1	5.3	6.6	7.29
30°20.5′	89°17.1′	6/14/78	8:52	8.6	80.0	69.8	10	9	1.0	1	1.3	200	.3	19	27.1	.0	26.8	.9	7.4	7.22
																3.3	26.8	.9	7.1	7.21
																6.6	28.3	5.1	4.5	7.21
30°20.5′	89°16.2′	6/14/78	9:07	9.0	86.7	71.0	15	10	1.0	1	1.3	250	.2	18	28.0	.0	27.9	.7	7.4	7.09
																3.3	27.9	.7	7.4	7.10
																6.6	28.2	3.5	4.3	7.10
30°20.1′	89°17.3′	6/14/78	9:20	7.0	8.3	70.0	20	10	1.0	1	1.3	180	.2	19	28.0	.0	27.7	.9	8.3	7.08
																3.3	27.6	1.0	7.2	7.08
																5.0	27.6	1.4	6.3	7.07
30°21.3′	89°17.4′	6/14/78	9:39	5.5	85.0	70.0	360	10	1.0	1	1.3	240	.2	18	26.5	.0	26.3	.2	8.2	7.04
																3.3	26.2	.2	7.9	7.04
30°21.5′	89°16.6′	6/14/78	9:52	14.0	85.0	70.0	10	10	1.0	1	1.3	200	.1	16	27.3	.0	27.0	.3	7.6	7.05
																3.3	27.0	.3	7.1	7.05
																6.6	26.6	.3	6.3	7.05
																9.8	26.9	1.4	5.4	7.06
																13.1	27.6	2.6	4.8	7.07
30°21.6′	89°18.1′	6/14/78	10:36	5.3	85.4	70.2	355	10	1.0	2	1.3	205	.4	18	27.9	.0	27.6	.4	7.7	7.04
																3.3	27.7	.3	7.5	7.02

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F Dry Bulb	AIR TEMP. °F Wet Bulb	WIND Dir. °	WIND Speed mph	TIDE Height (ft)	TIDE Stage	TIDE Range (ft)	WIND/SWELL WAVES Dir. °	WIND/SWELL WAVES Height (ft.)	WATER COLOR Forel-Ule	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (mg/l)	pH
30°21.6′	89°19.0′	6/14/78	10:54	6.0	83.5	69.5	15	11	1.0	3	1.3	210	.2	17	28.1	.0	27.9	.5	7.9	7.01
																3.3	27.8	.6	7.6	7.01
30°22.1′	89°19.0′	6/14/78	11:08	5.3	84.0	69.0	5	10	1.0	3	1.3	210	.1	18	28.2	.0	28.2	.6	8.0	7.00
																3.3	28.2	.6	8.1	7.01
30°21.9′	89°20.6′	6/14/78	12:05	5.3	86.7	69.5	20	6	.9	3	1.3	245	.1	19	28.8	.0	28.6	.5	8.4	7.00
																3.3	28.3	.5	8.3	7.00
30°21.1′	89°21.2′	6/14/78	12:22	5.1	85.5	68.0	320	4	.9	3	1.3	180	.1	16	29.1	.0	29.2	.3	8.3	7.00
																3.1	28.5	.3	8.0	7.02
30°21.3′	89°20.1′	6/14/78	12:38	5.5	85.8	67.1	360	3	.8	3	1.3	185	.2	18	29.3	.0	28.7	.7	8.3	7.02
																3.3	28.5	1.0	8.2	7.00
30°20.7′	89°20.5′	6/14/78	12:50	10.0	86.2	68.0	340	7	.8	3	1.3	190	.2	18	29.6	.0	29.6	.3	7.7	7.02
																3.3	27.8	.4	6.9	7.04
																6.6	27.3	1.0	6.0	7.06
																8.0	28.3	2.8	4.2	7.08
30°20.4′	89°21.5′	6/14/78	13:05	13.0	88.0	69.5	10	6	.8	3	1.3	210	.1	18	29.3	.0	29.2	.2	7.5	7.04
																3.3	28.5	.2	7.0	6.87
																6.6	27.1	.2	7.1	7.00
																9.8	26.7	.2	7.0	7.03
30°20.1′	89°22.7′	6/14/78	13:14	12.0	88.6	68.5	360	6	.7	3	1.3		.1	18	29.8	.0	29.6	.2	7.1	7.02
																3.3	29.5	.2	7.1	7.02
																6.6	27.7	.2	6.7	7.03
																9.7	27.2	.2	6.6	7.04
30°20.5′	89°19.8′	6/14/78	13:33	5.3	88.5	69.0	360	7	.7	3	1.3		.0	17	30.4	.0	30.2	.7	8.9	6.99
																3.3	27.9	1.0	8.2	7.01
30°19.4′	89°19.3′	6/14/78	13:45	5.3	87.0	68.0	360	6	.6	3	1.3		.0	17		.0	31.2	1.3	9.1	6.98
																3.3	29.6	1.7	8.9	7.01
30°19.8′	89°18.3′	6/14/78	14:00	8.6	87.3	69.1	340	6	.6	3	1.3	215	.3	16	29.5	.0	29.5	.8	7.8	6.98
																3.3	28.8	1.7	8.4	7.02
																6.6	28.4	5.0	5.6	7.02
30°19.2′	89°18.5′	6/14/78	14:07	8.6	85.0	69.8	320	6	.6	3	1.3	180	.2	17	30.4	6.0	30.3	1.0	8.4	6.97
																3.3	29.0	2.8	9.1	6.97
																6.6	28.0	5.3	7.5	7.00
30°17.9′	89°18.2′	6/14/78	15:19	7.0	88.0	70.3	15	7	.4	3	1.3	165	.0	17	30.0	.0	29.9	2.6	8.9	6.99
																3.3	28.7	7.1	7.9	7.01
																5.0	28.4	7.7	7.6	7.02
30°19.2′	89°18.5′	7/19/78	7:25	10.0	85.2	78.1	275	5	1.2	3	2.4	360	.7	16	30.6	.0	31.7	13.1	6.6	8.50
																3.3	31.6	13.2	6.5	8.43
																6.6	31.6	13.4	6.5	8.42
																8.0	31.5	13.5	6.6	8.42
30°20.5′	89°17.1′	7/19/78	8:43	7.6	84.0	78.5	225	7	.9	3	2.4	50	.1	16	31.1	.0	31.5	10.9	6.8	8.17
																3.3	31.5	11.1	6.6	8.19
																5.6	31.4	11.3	6.4	8.21
30°20.5′	89°16.2′	7/19/78	8:48	9.6	84.8	77.8	200	5	.9	3	2.4	70	.2	16	30.2	.0	31.2	9.6	7.4	7.99
																3.3	31.2	9.6	7.1	7.95
																6.6	31.2	10.1	6.3	7.92

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F Dry Bulb	AIR TEMP. °F Wet Bulb	WIND Dir. °	WIND Speed mph	TIDE Height (ft)	TIDE Stage	TIDE Range (ft)	WIND/SWELL WAVES Dir. °	WIND/SWELL WAVES Height (ft.)	WATER COLOR Forel-Ule	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (μga/l)	pH
30°20.1′	89°17.3′	7/19/78	9:00	5.3	84.5	77.8	195	8	.8	3	2.4	40	.1	15	30.5	.0	31.2	10.5	7.7	8.24
																3.3	31.0	10.5	7.3	8.24
30°21.3′	89°17.4′	7/19/78	9:26	7.5	86.2	78.5	165	11	.7	3	2.4	20	.3	17	30.8	.0	31.5	9.3	6.5	8.02
																3.3	31.4	9.5	6.3	7.97
																5.5	31.6	11.3	5.7	7.96
30°21.5′	89°16.6′	7/19/78	9:41	21.0	88.0	78.5	160	12	.6	3	2.4		.0	17	30.9	.0	31.7	9.1	6.4	7.78
																3.3	31.3	9.4	6.2	7.78
																6.6	31.1	9.7	5.8	7.75
																9.8	31.1	9.9	5.5	7.72
																13.1	31.1	10.0	5.5	7.70
																16.4	31.1	10.1	5.3	7.69
																19.4	31.1	10.1	5.4	7.67
30°21.6′	89°18.1′	7/19/78	10:11	4.0	76.2	78.5	175	10	.5	3	2.4	350	.2	15	30.9	.0	31.7	9.1	6.1	7.76
																2.0	31.5	9.6	5.6	7.65
30°21.6′	89°19.0′	7/19/78	10:21	5.8	87.1	79.0	150	14	.4	3	2.4	340	.4	16	31.0	.0	32.0	9.4	7.6	7.84
																3.3	31.7	9.4	6.9	7.94
30°22.1′	89°19.0′	7/19/78	10:27	5.3	88.0	79.0	160	12	.4	3	2.4	340	.3	16	31.3	.0	32.2	8.9	7.2	7.66
																3.3	32.1	9.0	6.5	7.69
30°21.9′	89°20.6′	7/19/78	10:43	6.0	88.9	79.3	165	11	.4	3	2.4	320	.4	17	31.5	.0	32.8	7.4	7.9	8.15
																3.3	32.0	8.2	6.8	7.87
30°21.1′	89°21.2′	7/19/78	10:55	5.3	88.5	78.3	195	8	.2	3	2.4	20	.4	17	32.0	.0	32.7	6.6	7.2	7.84
																3.3	32.7	7.0	6.1	7.64
30°21.3′	89°20.1′	7/19/78	11:03	6.0	88.0	79.9	150	12	.2	3	2.4	330	.5	18	31.9	.0	32.8	8.0	7.9	7.88
																3.3	32.1	8.0	6.1	7.76
																4.0	32.0	9.5	6.1	7.71
30°20.7′	89°20.5′	7/19/78	11:15	12.0	87.1	77.9	155	12	.1	3	2.4	290	.4	16	31.5	.0	32.5	6.7	7.1	7.70
																3.3	32.1	10.0	5.3	7.50
																6.6	32.1	12.0	5.1	7.68
																9.6	32.1	12.4	5.5	7.74
30°20.4′	89°21.5′	7/19/78	11:28	12.0	88.7	79.1	155	11	.0	3	2.4	325	.2	16	32.0	.0	32.7	5.8	8.0	7.85
																3.3	32.7	5.8	7.4	7.66
																6.6	32.4	7.9	5.5	7.43
																9.8	32.2	8.6	5.0	7.39
30°20.1′	89°22.7′	7/19/78	11:39	11.0	88.3	79.9	160	12	.0	3	2.4	330	.1	16	31.6	.0	32.4	3.6	7.5	7.70
																3.3	32.3	3.6	7.2	7.50
																6.6	31.4	5.3	6.3	7.44
																9.8	32.1	8.1	4.8	7.31
30°20.5′	89°19.8′	7/19/78	12:01	5.5	87.2	79.9	150	10	-.1	3	2.4	320	.5	16	31.8	.0	32.7	8.9	7.5	7.95
																3.3	32.2	11.5	7.8	8.12
30°19.4′	89°19.3′	7/19/78	12:07	5.5	85.1	79.5	140	13	-.2	3	2.4	340	.4	15	32.0	.0	32.8	12.9	7.9	8.20
																3.3	32.7	13.0	7.4	8.29
30°19.2′	89°18.5′	7/19/78	12:45	10.0	88.3	79.9	160	10	-.4	3	2.4	155	.4	16	32.0	.0	33.0	13.7	7.5	8.40
																3.3	32.9	13.6	7.4	8.39
																6.6	32.3	13.7	7.4	8.41
																8.0	32.0	14.0	6.7	8.35

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F		WIND		TIDE			WIND/SWELL WAVES		WATER COLOR	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (µga/l)	pH
					Dry Bulb	Wet Bulb	Dir. °	Speed mph	Height (ft)	Stage	Range (ft)	Dir. °	Height (ft.)	Forel-Ule						
30°17.9′	89°18.2′	7/19/78	13:45	8.9	88.9	81.0	160	12	-.7	3	2.4	360	.7	16	31.8	.0	32.8	13.8	7.9	8.67
																3.3	32.8	13.7	7.4	8.63
																6.6	32.2	14.1	7.0	8.58
30°19.2′	89°18.5′	8/16/78	7:07	10.0	81.5	78.5	285	6	1.1	1	2.1	125	.3	18	29.2	.0	29.4	12.5	7.3	8.53
																3.3	29.4	12.4	7.1	8.54
																6.6	29.8	13.8	6.7	8.53
																8.0	29.8	14.1	6.6	8.56
30°20.5′	89°17.1′	8/16/78	7:47	8.6	82.3	78.5	300	7	1.2	1	2.1	115	.2	18	28.8	.0	29.0	6.9	8.8	8.51
																3.3	29.2	9.8	8.3	8.51
																6.6	29.6	11.9	7.7	8.40
30°20.5′	89°16.2′	8/16/78	7:54	9.6	83.0	78.9	320	8	1.2	1	2.1	85	.1	18	29.3	.0	29.5	7.5	7.8	8.18
																3.3	29.5	7.4	7.5	8.13
																6.6	29.8	9.3	6.5	8.06
30°20.1′	89°17.3′	8/16/78	8:03	5.3	81.4	78.3	315	9	1.3	1	2.1	130	.0	18	28.7	.0	29.2	8.6	7.9	8.36
																3.3	29.3	9.4	7.4	8.31
30°21.3′	89°17.4′	8/16/78	8:18	7.2	83.4	78.5	285	7	1.3	1	2.1	115	.2	19	27.4	.0	27.1	.5	7.4	8.10
																3.3	28.8	5.0	6.5	7.58
																5.2	29.6	11.1	7.2	8.07
30°21.5′	89°16.6′	8/16/78	8:34	18.0	84.1	78.2	300	6	1.3	1	2.1	80	.0	19	26.7	.0	26.6	.2	7.5	6.82
																3.3	26.7	.3	7.2	6.90
																6.6	28.3	6.3	6.5	6.73
																9.8	29.3	8.3	6.5	6.92
																13.1	29.4	9.5	6.5	7.10
																16.4	29.5	9.8	6.5	7.23
30°21.6′	89°18.1′	8/16/78	9:04	5.3	84.0	77.8	290	5	1.3	2	2.1	70	.2	19	29.8	.0	30.0	3.8	8.3	8.21
																3.3	29.6	8.6	7.4	8.06
30°21.6′	89°19.0′	8/16/78	9:11	4.8	86.0	78.3	275	4	1.3	2	2.1		.3	18	29.4	.0	29.7	4.7	8.0	8.14
																3.3	29.8	8.6	7.9	8.28
30°22.1′	89°19.0′	8/16/78	9:24	5.3	87.0	79.2	270	3	1.3	2	2.1	60	.2	18	29.9	.0	30.5	6.2	7.1	7.96
																3.3	30.3	6.8	6.5	7.88
30°21.9′	89°20.6′	8/16/78	9:50	5.3	82.0	78.2	120	7	1.2	3	2.0		.0	18	30.2	.0	30.5	7.6	8.6	8.47
																3.3	30.3	7.9	7.9	8.42
30°21.1′	89°21.2′	8/16/78	10:01	5.3	86.5	77.3	120	6	1.2	3	2.0	50	.1	19	30.5	.0	30.6	7.1	8.2	8.39
																3.3	30.6	7.1	8.0	8.34
30°21.3′	89°20.1′	8/16/78	10:10	6.0	87.6	78.0	135	7	1.2	3	2.0		.0	18	30.5	.0	30.9	6.7	8.8	8.48
																3.3	29.7	10.8	7.9	8.57
30°20.7′	89°20.5′	8/16/78	10:18	11.0	85.7	79.1	130	8	1.2	3	2.0	295	.2	19	30.2	.0	30.0	7.5	7.8	8.34
																3.3	30.0	7.0	7.7	8.29
																6.6	30.0	11.6	7.1	8.24
																8.6	29.9	12.0	7.0	8.33
30°20.4′	89°21.5′	8/16/78	10:29	13.0	87.1	77.6	120	9	1.2	3	2.0		.0	20	30.4	.0	30.4	5.6	7.2	8.11
																3.3	29.8	5.7	7.0	8.07
																6.6	30.0	6.7	6.4	7.95
																9.8	29.7	8.5	6.0	7.91

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F		WIND		TIDE			WIND/SWELL WAVES		WATER COLOR	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (µga/l)	pH
					Dry Bulb	Wet Bulb	Dir. °	Speed mph	Height (ft)	Stage	Range (ft)	Dir. °	Height (ft.)	Forel-Ule						
30°20.1′	89°22.7′	8/16/78	10:35	12.0	86.0	77.0	135	8	1.2	3	2.0		.0	20	30.2	.0	29.4	4.7	7.7	8.19
																3.3	29.3	4.7	7.1	8.08
																6.6	29.2	6.0	6.5	7.99
																9.8	29.5	7.1	6.4	7.91
30°20.5′	89°19.8′	8/16/78	10:57	5.3	85.4	80.0	130	9	1.2	3	2.0	300	.5	19	30.8	.0	31.5	7.1	8.5	8.22
																3.3	30.1	8.5	8.1	8.30
30°19.4′	89°19.3′	8/16/78	11:04	6.3	81.4	79.9	135	10	1.1	3	2.0	330	.5	18	30.5	.0	30.8	9.0	8.7	8.45
																3.3	30.7	9.4	8.1	8.47
30°19.2′	89°18.5′	8/16/78	11:43	10.0	87.0	78.7	150	12	1.1	3	2.0	350	.8	17	31.1	.0	31.1	11.9	8.4	8.75
																3.3	30.7	12.8	7.5	8.70
																6.6	30.1	13.5	7.0	8.68
30°17.9′	89°18.2′	8/16/78	12:27	8.0	86.8	79.9	155	11	1.0	3	2.0	360	.7	15	30.9	.0	31.6	13.1	8.9	8.90
																3.3	31.4	13.1	8.6	8.93
																6.0	30.1	13.9	7.5	8.93
30°19.2′	89°18.5′	9/20/78	7:30	10.0	78.2	74.9	30	11	.9	3	1.5	250	.2	16	27.8	.0	28.8	11.1	7.6	7.95
																3.3	28.8	11.0	7.6	7.93
																6.6	29.0	11.5	7.5	7.95
																8.1	29.1	12.7	7.4	8.06
30°20.5′	89°17.1′	9/20/78	7:59	7.0	81.0	76.0	45	14	.7	3	1.5	230	.3	17	28.8	.0	29.2	12.9	8.5	8.01
																3.3	29.2	13.0	7.2	7.98
																5.0	29.2	13.0	7.2	7.96
30°20.5′	89°16.2′	9/20/78	8:14	8.6	84.2	78.0	35	13	.7	3	1.5	225	.1	18	29.0	.0	29.5	12.0	8.0	7.81
																3.3	29.5	12.0	7.2	7.81
																6.6	29.7	13.0	6.9	7.85
30°20.1′	89°17.3′	9/20/78	8:27	5.8	82.5	77.2	40	14	.6	3	1.5	220	.3	16	28.1	.0	29.4	12.9	7.7	8.06
																3.3	29.4	12.8	7.5	8.04
30°21.3′	89°17.4′	9/20/78	8:42	6.8	83.4	77.0	40	14	.6	3	1.5	260	.1	16	28.9	.0	29.1	7.7	7.4	7.59
																3.3	29.2	8.4	7.0	7.57
																4.8	29.7	12.5	6.8	7.81
30°21.5′	89°16.6′	9/20/78	8:52	21.0	86.5	77.3	40	12	.6	3	1.5	270	.1	19	28.3	.0	28.5	1.9	7.5	7.64
																3.3	28.3	3.9	6.7	7.53
																6.6	28.5	7.2	6.3	7.42
																9.8	29.5	9.4	6.1	7.36
																13.1	29.9	10.3	6.7	.37
																16.4	30.0	10.7	6.0	7.38
																19.1	30.3	11.6	5.9	7.43
30°21.6′	89°18.1′	9/20/78	9:24	5.3	84.3	76.2	50	11	.5	3	1.5	240	.3	15	29.4	.0	29.6	10.0	5.6	7.55
																3.3	29.6	10.2	5.5	7.52
30°21.6′	89°19.0′	9/20/78	9:33	5.3	85.8	77.5	45	12	.5	3	1.5	260	.5	16	29.4	.0	29.3	9.8	8.1	7.85
																3.3	29.2	9.8	7.5	7.83
30°22.1′	89°19.0′	9/20/78	9:41	4.9	87.4	77.0	45	12	.5	3	1.5	245	.4	17	29.6	.0	29.2	9.7	7.8	7.73
																2.9	29.2	9.7	7.2	7.70
30°21.9′	89°20.6′	9/20/78	10:07	5.3	89.0	77.8	95	16	.5	3	1.5	270	.3	15	29.8	.0	29.5	9.2	8.0	7.88
																3.3	29.5	9.2	7.7	7.78

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F Dry Bulb	AIR TEMP. °F Wet Bulb	WIND Dir. °	WIND Speed mph	TIDE Height (ft)	TIDE Stage	TIDE Range (ft)	WIND/SWELL WAVES Dir. °	WIND/SWELL WAVES Height (ft.)	WATER COLOR Forel-Ule	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (µga/l)	pH
30°21.1′	89°21.2′	9/20/78	10:16	5.3	75.1	77.0	75	15	.5	4	1.5	260	.9	17	29.9	.0	29.6	8.2	7.5	7.54
																3.3	29.5	8.3	6.8	7.50
30°21.3′	89°20.1′	9/20/78	10:25	5.3	86.0	77.0	75	13	.5	4	1.5	280	.8	17	29.8	.0	29.4	9.6	6.8	7.89
																3.3	29.4	9.6	7.3	7.84
30°20.7′	89°20.5′	9/20/78	10:35	10.0	85.0	76.8	80	14	.5	4	1.5	270	1.1	18	29.6	.0	29.8	7.4	7.8	7.61
																3.3	29.6	7.4	6.8	7.49
																6.6	29.6	8.5	5.8	7.42
																8.0	29.6	9.4	5.4	7.39
30°20.4′	89°21.5′	9/20/78	10:52	13.0	85.1	76.5	95	16	.6	1	1.5	225	.4	17	29.9	.0	29.8	6.6	7.6	7.58
																3.3	29.6	6.6	6.8	7.46
																6.6	29.5	6.8	6.2	7.39
																9.8	29.5	7.0	5.7	7.34
																11.0	29.4	7.2	5.4	7.32
30°20.1′	89°22.7′	9/20/78	11:04	11.0	85.9	76.8	95	15	.6	1	1.5	270	.3	17	29.5	.0	29.6	6.2	5.8	7.42
																3.3	29.6	6.2	5.6	7.37
																6.6	29.5	6.3	5.3	7.31
																8.6	29.5	6.5	5.1	7.27
30°20.5′	89°19.8′	9/20/78	11:23	5.3	85.7	77.3	95	14	.6	1	1.5	290	.7	18	29.5	.0	29.8	9.0	6.4	7.48
																3.3	29.8	9.0	6.3	7.45
30°19.4′	89°19.3′	9/20/78	11:33	5.3	84.0	77.5	85	13	.7	1	1.5	285	.7	17	29.4	.0	29.7	11.3	7.5	7.79
																3.3	29.7	11.3	6.9	7.78
30°19.2′	89°18.5′	9/20/78	12:14	10.0	85.0	77.1	110	14	.8	1	1.5	270	.3	16	29.5	.0	29.4	11.0	8.3	7.98
																3.3	29.4	11.1	8.1	7.96
																6.6	29.3	11.2	7.9	7.96
																8.1	29.5	14.7	7.0	7.99
30°17.9′	89°18.2′	9/20/78	12:51	8.6	84.9	79.5	0	0				260	.9	17	29.8	.0	29.7	12.9	8.1	8.05
																3.3	29.5	13.1	7.9	8.08
																6.6	29.3	15.7	7.6	8.10
30°19.2′	89°18.5′	10/18/78	7:25	9.6	54.9	50.8	25	11	.4	3	1.1	210	.7	16	17.1	.0	17.7	13.6		8.24
																3.3	17.7	13.6		8.25
																6.6	17.9	13.9		8.28
																7.6	18.1	14.3		8.30
30°20.5′	89°17.1′	10/18/78	8:17	7.7	61.7	56.6	35	9	.3	4	1.1	245	.4	15	17.4	.0	17.6	13.4		8.09
																3.3	17.5	13.5		8.09
																5.7	17.6	13.5		8.08
30°20.5′	89°16.2′	10/18/78	8:30	8.4	63.8	57.0	30	9	.4	1	1.6	250	.2	17	18.4	.0	18.6	13.1		8.05
																3.3	18.6	13.1		8.05
																6.4	19.1	14.0		8.03
30°20.1′	89°17.3′	10/18/78	8:43	6.1	64.8	58.2	30	9	.4	1	1.6	230	.6	16	17.7	.0	17.3	13.0		8.21
																3.3	17.3	13.0		8.22
																4.1	17.2	13.0		8.22
30°21.3′	89°17.4′	10/18/78	9:00	5.3	66.6	59.8	45	8	.4	1	1.6	275	.3	14	18.4	.0	18.1	9.8		7.73
																3.3	18.1	10.4		7.71

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F Dry Bulb	AIR TEMP. °F Wet Bulb	WIND Dir. °	WIND Speed mph	TIDE Height (ft)	TIDE Stage	TIDE Range (ft)	WIND/SWELL WAVES Dir. °	WIND/SWELL WAVES Height (ft.)	WATER COLOR Forel-Ule	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (µga/l)	pH
30°21.5′	89°16.6′	10/18/78	9:14	15.0	67.6	60.0	30	9	.5	1	1.6	255	.2	14	19.2	.0	18.8	7.6		7.37
																3.3	18.7	9.8		7.83
																6.6	19.4	13.1		7.99
																9.8	19.5	13.7		8.08
																13.1	19.6	13.7		8.09
30°21.6′	89°18.1′	10/18/78	9:47	5.3	71.0	62.5	70	18	.6	1	1.6	260	.8	15	18.9	.0	17.9	12.9		7.94
																3.3	17.9	12.9		7.94
30°21.6′	89°19.0′	10/18/78	9:58	5.3	69.5	61.5	65	19	.6	1	1.6	270	1.0	15	18.7	.0	17.7	12.2		8.17
																3.3	17.6	12.2		8.17
30°22.1′	89°19.0′	10/18/78	10:10	4.5	72.5	63.1	70	17	.6	1	1.6	265	.5	18	18.9	.0	17.7	11.7		7.96
																2.5	17.7	11.7		7.95
30°21.9′	89°20.6′	10/18/78	10:24	5.3	70.8	62.5	75	20	.7	1	1.6	275	.5	16	18.8	.0	17.8	11.2		7.92
																3.3	17.8	11.3		7.84
30°21.1′	89°21.2′	10/18/78	10:35	5.0	69.0	63.4	75	20	.7	1	1.6	280	1.2	18	19.1	.0	17.6	11.5		8.04
																3.0	17.6	11.5		8.04
30°21.3′	89°20.1′	10/18/78	10:50	5.5	71.5	64.0	75	17	.7	1	1.6	295	1.2	16	18.3	.0	17.9	12.6		8.35
																3.3	17.9	12.7		8.34
30°20.7′	89°20.5′	10/18/78	11:00	9.6	69.8	63.4	70	20	.7	1	1.6	270	1.2	19	18.8	.0	18.2	11.8		7.81
																3.3	18.2	12.2		7.89
																6.6	18.1	12.4		7.96
																7.6	17.9	12.6		8.08
30°20.4′	89°21.5′	10/18/78	11:16	13.0	72.1	63.0	75	18	.8	1	1.6	275	.2	18	19.8	.0	19.3	9.2		7.78
																3.3	19.2	9.2		7.77
																6.6	18.6	9.5		7.75
																9.8	18.8	10.5		7.68
																11.4	18.6	10.6		7.61
30°20.1′	89°22.7′	10/18/78	11:31	11.0	72.3	63.2	90	18	.8	1	1.6	275	.4	17	19.7	.0	19.2	8.6		7.75
																3.3	19.2	8.7		7.72
																6.6	19.0	8.7		7.67
																8.8	18.7	8.9		7.59
30°20.5′	89°19.8′	10/18/78	11:53	5.3	69.5	63.0	95	15	.8	1	1.6	275	1.2	16	18.8	.0	18.2	13.5		8.35
																3.3	18.2	13.5		8.35
30°19.4′	89°19.3′	10/18/78	12:05	5.3	69.0	62.3	95	15	.9	1	1.6	280	.6	16	19.2	.0	18.7	12.8		8.19
																3.3	18.6	12.9		8.15
30°19.2′	89°18.5′	10/18/78	12:55	10.0	70.7	63.3	80	9	.9	1	1.6	285	.4	18	19.5	.0	19.0	14.3		8.49
																3.3	18.9	14.3		8.49
																6.6	18.8	14.5		8.50
																8.2	18.8	14.7		8.52
30°17.9′	89°18.2′	10/18/78	13:36	8.6	69.2	64.1	110	13	1.0	1	1.6	280	1.0	18	20.1	.0	19.2	14.7		8.57
																3.3	19.1	14.8		8.56
																6.6	19.0	14.8		8.55
30°19.2′	89°18.5′	11/15/78	9:38	8.6	73.8	71.0	100	11	-.1	1	2.4	270	.3	14	20.9	.0	20.3	16.5	10.1	7.19
																3.3	20.3	16.6	9.5	7.19
																6.6	20.2	17.0	9.5	7.21

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F Dry Bulb	AIR TEMP. °F Wet Bulb	WIND Dir. °	WIND Speed mph	TIDE Height (ft)	TIDE Stage	TIDE Range (ft)	WIND/SWELL WAVES Dir. °	WIND/SWELL WAVES Height (ft.)	WATER COLOR Forel-Ule	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (mg/l)	pH
30°20.5′	89°17.1′	11/15/78	10:09	5.3	73.8	71.0	110	12	-.1	1	2.4	300	.4	16	21.0	.0	20.5	17.6	10.5	7.32
																3.3	20.5	17.5	10.4	7.32
30°20.5′	89°16.2′	11/15/78	10:23	7.0	74.5	71.5	114	12	.0	1	2.4	265	.3	16	21.1	.0	20.6	17.2	10.0	7.26
																3.3	20.5	17.2	9.6	7.26
																5.0	20.4	17.3	9.3	7.23
30°20.1′	89°17.3′	11/15/78	10:39	5.3	74.0	71.3	113	11	.0	1	2.4	265	.2	16	21.3	.0	20.7	17.7	9.7	7.32
																3.3	20.7	17.7	9.4	7.32
30°21.3′	89°17.4′	11/15/78	10:59	6.3	75.1	72.2	110	11	.1	1	2.4	300	.1	16	21.6	.0	21.0	14.4	9.7	7.01
																3.3	20.7	15.7	10.0	7.01
30°21.5′	89°16.6′	11/15/78	11:08	15.0	76.5	72.3	97	12	.1	1	2.4	275	.1	16	21.5	.0	20.5	11.4	8.7	6.75
																3.3	20.2	13.8	8.9	6.67
																6.6	20.3	15.3	8.7	6.73
																9.8	20.3	15.6	8.3	6.79
																13.1	20.3	16.3	8.3	6.90
30°21.6′	89°18.1′	11/15/78	11:42	5.0	74.5	71.6	115	12	.2	1	2.4	300	.4	16	21.7	.0	21.2	15.9	10.0	7.04
																3.0	21.1	16.0	9.8	7.04
30°21.6′	89°19.0′	11/15/78	11:58	5.0	73.8	71.2	114	12	.2	1	2.4	320	.7	16	21.5	.0	21.0	16.0	11.0	7.15
																3.0	21.0	16.1	10.4	7.15
30°22.1′	89°19.0′	11/15/78	12:02	4.0	75.8	72.2	115	12	.2	1	2.4	310	.5	17	22.0	.0	21.3	15.9	10.9	7.15
																2.0	21.3	15.9	10.5	7.15
30°21.9′	89°20.6′	11/15/78	12:15	5.0	74.4	72.4	116	12	.3	1	2.4	300	.7	16	21.9	.0	21.4	15.2	10.7	7.73
																3.0	21.4	15.2	10.2	7.70
30°21.1′	89°21.2′	11/15/78	12:25	4.0	75.7	73.5	117	13	.3	1	2.4	300	.5	18	22.0	.0	21.5	14.5	10.0	7.58
																2.0	21.4	14.5	10.2	7.53
30°21.3′	89°20.1′	11/15/78	12:34	5.1	74.9	72.3	117	13	.3	1	2.4	315	.7	17	21.8	.0	21.2	15.4	10.8	7.92
																3.1	21.2	15.4	10.8	7.92
30°20.7′	89°20.5′	11/15/78	12:43	8.6	73.9	72.0	117	13	.4	1	2.4	290	.5	19	22.0	.0	21.5	14.8	10.5	7.75
																3.3	21.5	14.8	10.9	7.73
																6.6	21.4	14.9	10.9	7.74
30°20.4′	89°21.5′	11/15/78	12:54	13.0	76.7	73.0	117	13	.4	1	2.4	310	.1	16	22.2	.0	21.4	13.2	11.2	7.58
																3.3	21.3	13.3	10.8	7.57
																6.6	21.4	13.4	10.1	7.53
																9.8	21.1	13.5	9.8	7.53
																11.4	21.1	13.5	10.4	7.52
30°20.1′	89°22.7′	11/15/78	13:06	11.0	77.8	73.9	116	13	.4	1	2.4	315	.1	16	21.8	.0	21.3	12.4	11.2	7.67
																3.3	21.3	12.4	11.2	7.64
																6.6	20.8	12.5	10.7	7.58
																8.8	20.5	12.6	10.4	7.53
30°20.5′	89°19.8′	11/15/78	13:29	5.3	74.3	71.3	118	11	.5	1	2.4	310	.5	16	22.0	.0	21.6	15.5	10.8	7.81
																3.3	21.5	15.5	10.3	7.80
30°19.4′	89°19.3′	11/15/78	13:39	4.8	74.0	71.7	116	12	.5	1	2.4	300	.4	15	22.5	.0	21.8	16.7	10.3	7.91
																2.8	21.8	16.7	10.7	7.90
30°19.2′	89°18.5′	11/15/78	14:12	9.6	74.5	71.8	118	11	.7	1	2.4	320	.3	14	21.7	.0	21.2	19.2	10.8	8.06
																3.3	21.2	19.0	10.7	8.07
																6.6	21.0	19.3	10.6	8.07

GULF COAST RESEARCH LABORATORY
ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F Dry Bulb	AIR TEMP. °F Wet Bulb	WIND Dir. °	WIND Speed mph	TIDE Height (ft)	TIDE Stage	TIDE Range (ft)	WIND/SWELL WAVES Dir. °	WIND/SWELL WAVES Height (ft.)	WATER COLOR Forel-Ule	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (µga/l)	pH
30°17.9′	89°18.2′	11/15/78	14:48	8.6	73.6	71.8	105	10	.8	1	2.4	310	.4	15	21.4	.0	21.0	19.6	10.4	8.08
																3.3	21.0	19.6	10.5	8.08
																6.6	20.9	19.8	10.9	8.09
30°19.2′	89°18.5′	12/13/78	8:35	11.0	44.5	42.0	20	6	-1.3	4	1.9	195	.0	17	8.6	.0	8.0	7.9	10.6	7.96
																3.3	9.1	8.7	10.1	7.91
																6.6	9.7	9.9	9.9	7.90
30°20.5′	89°17.1′	12/13/78	10:26	5.3	55.0	49.6	320	4	-1.0	1	2.0		.0	15	10.2	.0	8.8	9.6	10.8	8.31
																3.3	8.3	9.7	10.9	8.20
30°20.5′	89°16.2′	12/13/78	10:35	7.0	52.8	48.0	320	3	-1.0	1	2.0	80	.1	14	10.8	.0	10.0	10.7	11.2	8.39
																3.3	9.3	10.8	12.0	8.30
																5.0	10.1	11.5	11.8	8.26
30°20.1′	89°17.3′	12/13/78	10:54	4.3	53.5	46.3	60	2	-.9	1	2.0	85	.1	15	9.8	.0	8.6	9.6	10.4	8.30
																2.3	8.7	9.7	10.5	8.18
30°21.3′	89°17.4′	12/13/78	11:08	5.8	53.0	47.0	95	4	-.9	1	2.0	55	.1	17	10.8	.0	9.8	3.7	9.0	8.24
																3.3	9.7	6.1	9.5	7.90
30°21.5′	89°16.6′	12/13/78	11:22	15.0	59.1	48.6	135	6	-.8	1	2.0		.0	18	10.6	.0	9.3	1.5	9.0	8.31
																3.3	9.3	6.1	9.1	7.84
																6.6	9.7	9.8	9.4	7.74
																9.8	9.7	10.1	9.0	7.78
																13.1	9.7	10.2	9.2	7.81
30°21.6′	89°18.1′	12/13/78	11:51	3.0	50.3	55.9	140	10	-.7	1	2.0	25	.2	19	11.2	.0	9.9	7.9	10.5	8.42
																1.0	9.7	8.5	10.7	8.21
30°21.6′	89°19.0′	12/13/78	12:03	4.0	52.7	48.6	148	11	-.7	1	2.0	340	.2	17	11.1	.0	10.1	7.3	9.6	8.07
																2.0	9.5	7.7	9.7	7.98
30°22.1′	89°19.0′	12/13/78	12:16	3.0	56.0	50.0	140	9	-.6	1	2.0	340	.2	17	11.2	.0	10.4	8.2	9.6	8.06
30°21.9′	89°20.6′	12/13/78	12:37	4.0	60.0	50.0	145	10	-.5	1	2.0	20	.3	16	10.2	.0	9.7	8.5	10.8	8.49
																2.0	9.4	8.6	10.7	8.31
30°21.1′	89°21.2′	12/13/78	12:52	4.0	60.0	49.5	145	9	-.5	1	2.0	130	.3	19	11.9	.0	11.1	5.5	11.1	7.99
																2.0	9.5	8.1	10.1	8.06
30°21.3′	89°20.1′	12/13/78	13:01	4.2	64.9	56.1	145	9	-.5	1	2.0	85	.4	16	10.8	.0	9.9	6.5	10.2	8.02
																2.2	9.1	8.3	10.2	7.99
30°20.7′	89°20.5′	12/13/78	13:16	8.6	63.3	52.6	158	10	-.4	1	2.0		.1	19	11.8	.0	9.9	8.3	10.2	8.21
																3.3	9.5	8.9	10.1	8.16
																6.6	10.0	9.9	9.1	8.05
30°20.4′	89°21.5′	12/13/78	13:28	12.0	61.5	50.8	175	8	-.3	1	2.0	315	.2	14	13.6	.0	12.9	3.6	9.9	8.21
																3.3	12.1	4.3	11.1	7.95
																6.6	10.1	5.4	13.1	7.79
																9.8	9.9	6.8	14.1	7.70
30°20.1′	89°22.7′	12/13/78	13:42	10.0	61.3	49.2	185	9	-.3	1	2.0	100	.1	18	12.8	.0	12.1	2.8	7.6	7.56
																3.3	11.7	2.9	7.6	7.57
																6.6	10.2	4.7	8.4	7.48
																8.2	9.8	5.8	8.6	7.42
30°20.5′	89°19.8′	12/13/78	14:08	5.3	59.0	49.5	190	10	-.2	1	2.0	325	.2	17	10.6	.0	9.7	7.6	10.0	8.09
																3.3	9.9	9.4	9.5	8.02

GULF COAST RESEARCH LABORATORY

ST. LOUIS BAY, MISSISSIPPI

LATITUDE N	LONGITUDE W	DATE	TIME (CST)	DEPTH TO BOTTOM (ft)	AIR TEMP. °F Dry Bulb	Wet Bulb	WIND Dir. °	Speed mph	TIDE Height (ft)	Stage	Range (ft)	WIND/SWELL WAVES Dir. °	Height (ft.)	WATER COLOR Forel-Ule	SURFACE BUCKET TEMP. °C	SAMPLE DEPTH (ft)	WATER TEMP. °C	SALINITY (ppt)	DISSOLVED OXYGEN (µga/l)	pH
30°19.4′	89°19.3′	12/13/78	14:18	4.3	57.2	48.0	195	9	-.1	1	2.0	340	.4	15	11.1	.0	10.4	6.8	9.9	8.49
																2.3	9.9	9.3	9.9	8.17
30°19.2′	89°18.5′	12/13/78	14:58	8.8	58.4	53.0	195	9	.0	1	2.0	360	.5	14	11.4	.0	10.5	10.4	10.3	8.24
																3.3	10.4	10.4	10.6	8.26
																6.6	10.3	10.4	10.6	8.30
30°17.9′	89°18.2′	12/13/78	15:29	7.3	56.1	52.8	200	9	.1	1	2.0	20	.5	15	11.5	.0	10.9	10.2	10.1	8.30
																3.3	10.7	10.3	10.1	8.32
																5.3	10.4	10.8	10.2	8.34

APPENDIX B

Fortran Program for Reading and Printing Data Files

```
      PROGRAM BSLST2
C*****READS AND PRINTS 1977-78 BAY ST. LOUIS DATA FILES (BSxxxxxx.DTA)
C     REVISED 8/30/94
      CHARACTER STA*3,FILIN*14
      INTEGER WDIR,WVDIR,STG,WSPD
      REAL LATM,LONM
      DIMENSION D(20),TEMP(20),SAL(20),DO(20),PH(20)
      LNCNT = 0
      WRITE (*,105)
  105 FORMAT (' ENTER NAME OF INPUT FILE'/'     (x:xxxxxxxx.xxx) )'\)
      READ (*,'(A)') FILIN
      OPEN (2,FILE=FILIN)
      OPEN (3,FILE='PRN')
   50 READ (2,20,END=99) STA,MO,IDAY,IYEAR,IHR,MN,LATD,LATM,LONGD,LONM,
     1DEPBT,DRYB,WETB,WDIR,WSPD,THT,STG,RNG,BKTT,WVDIR,WVHT,IWCLR,NOBS
   20 FORMAT (A3,6I2,F4.1,I3,F4.1,F5.1,2F4.1,I3,I2,F4.1,I2,2F4.1,I3,
     1F4.1,2I2)
      LNCNT = LNCNT + 12 + NOBS
      IF (LNCNT .GE. 59) GO TO 21
      GO TO 25
   21 WRITE (3,22)
   22 FORMAT ('1')
      LNCNT = 12 + NOBS
   25 WRITE (3,31)
   31 FORMAT ('+',62('=')/,1X,
     1'STATION     DATE        TIME     LATITUDE   LONGITUDE    DEPTH')
      WRITE (3,32)
   32 FORMAT (1X,
     1'                        CST                              BOTTOM')
      WRITE (3,33) STA,MO,IDAY,IYEAR,IHR,MN,LATD,CHAR(248),LATM,
     1CHAR(39),LONGD,CHAR(248),LONM,CHAR(39),DEPBT
   33 FORMAT (3X,A3,5X,2(I2,'/'),I2,4X,I2,':',I2,4X,I2,A1,F4.1,A1,4X,
     1I2,A1,F4.1,A1,4X,F5.1/)
      WRITE (3,34)
   34 FORMAT (1X,
     1'AIR-TEMP.  --WIND--  ----TIDE-----  SURFACE  WIND/SWELL  WATER')
      WRITE (3,35)
   35 FORMAT (1X,
     1'DRY   WET  DIR  SPD   HT  STG  RNG   TEMP.   ---WAVES--  COLOR')
      WRITE (3,36)
   36 FORMAT (1X,
     1'                                             DIR     HT')
      WRITE (3,37) DRYB,WETB,WDIR,WSPD,THT,STG,RNG,BKTT,WVDIR,WVHT,IWCLR
   37 FORMAT (1X,F4.1,1X,F4.1,2X,I3,2X,I2,2X,F4.1,2X,I2,2X,F4.1,3X,
     1F4.1,4X,I3,3X,F4.1,4X,I2/)
      WRITE (3,38)
   38 FORMAT (1X,
     1'DEPTH  TEMP.  SAL.   D.O.     pH')
      DO 100 N = 1,NOBS
      READ (2,40) D(N),TEMP(N),SAL(N),DO(N),PH(N)
   40 FORMAT (4F4.1,F5.2)
```

```
      WRITE (3,45)D(N),TEMP(N),SAL(N),DO(N),PH(N)
  45  FORMAT(1X,4(F4.1,3X),F5.2)
 100  CONTINUE
      WRITE (3,'(/)')
      GO TO 50
  99  END
```

```
 Volume in drive A has no label
 Volume Serial Number is 3746-0FFE
 Directory of A:\

BSLST2   EXE     52678 08-30-94   6:24p
BSLST2   FOR      2132 08-30-94   6:23p
BS121577 DTA      2359 09-07-94   9:07a
BS011878 DTA      2242 09-07-94   9:07a
BS022278 DTA      2129 09-07-94   9:08a
BS032278 DTA      2476 09-07-94   9:08a
BS041978 DTA      2616 09-07-94   9:08a
BS051778 DTA      2660 09-07-94   9:09a
BS061478 DTA      2731 09-07-94   9:09a
BS071978 DTA      2683 09-07-94   9:09a
BS081678 DTA      2614 09-07-94   9:10a
BS092078 DTA      2683 09-07-94   9:10a
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The Department of the Interior Mission

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The Minerals Management Service Mission

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The MMS **Minerals Revenue Management** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.