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OAA Data Report OAR AOML-36



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## OCEANOGRAPHIC CONDITIONS IN THE GULF OF MEXICO AND STRAITS OF FLORIDA, FALL 1976

G.A. Berberian  
A.Y. Cantillo

Atlantic Oceanographic and Meteorological Laboratory  
Miami, Florida  
December 1999

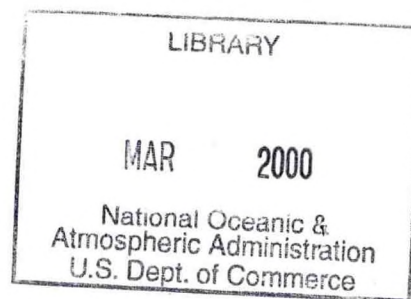
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# Oceanographic Conditions in the Gulf of Mexico and Straits of Florida Fall 1976

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## ABSTRACT

NOAA conducted an investigation in the Gulf of Mexico and the Straits of Florida of oceanographic conditions, and nutrients and trace metal levels in seawater during September and October 1976 aboard the NOAA ship RESEARCHER. This report lists the chemical data obtained from 118 stations. Collection and analyses methodologies are described and results described.

## 1. INTRODUCTION

The Atlantic Oceanographic and Meteorological Laboratory (AOML) of the National Oceanic and Atmospheric Administration (NOAA) conducted an investigation in the Gulf of Mexico and the Straits of Florida of oceanographic conditions, and nutrients and trace metal levels in seawater during September and October 1976. The primary objectives of the study were: 1) to define the circulation pattern and to determine the pathways of water transfer from the eastern to western Gulf and visa versa; 2) to determine the distribution and concentration of nutrients, trace metals, dissolved oxygen and salinity in these areas; and 3) to obtain data suitable for input into a numerical model of the Gulf of Mexico.

The following report lists the chemical data obtained from 118 stations by AOML staff and other personnel aboard the NOAA ship RESEARCHER. Collection and analyses methodologies are described and results described. Although methodologies have improved markedly over the past two decades, these data may be of historical interest. The data are listed in Appendix I.

## 2. METHODOLOGY

### 2.1. Navigation

Satellite navigation was the primary position determination system used aboard the RESEARCHER. In addition, Omega/Loran C were used to provide control between satellite positions through the operation. A smooth plot of the ship's track, including station positions, was computed by the ship's personnel using the most reliable fixes from the above mentioned systems. The CTD stations positions are accurate to within plus or minus one nautical mile. The station positions are shown in Figures 1 and 2 and the latitude, longitudes and sampling date and time are listed in Appendix I. Station 113 was not occupied due to proximity to Cuban territorial waters.

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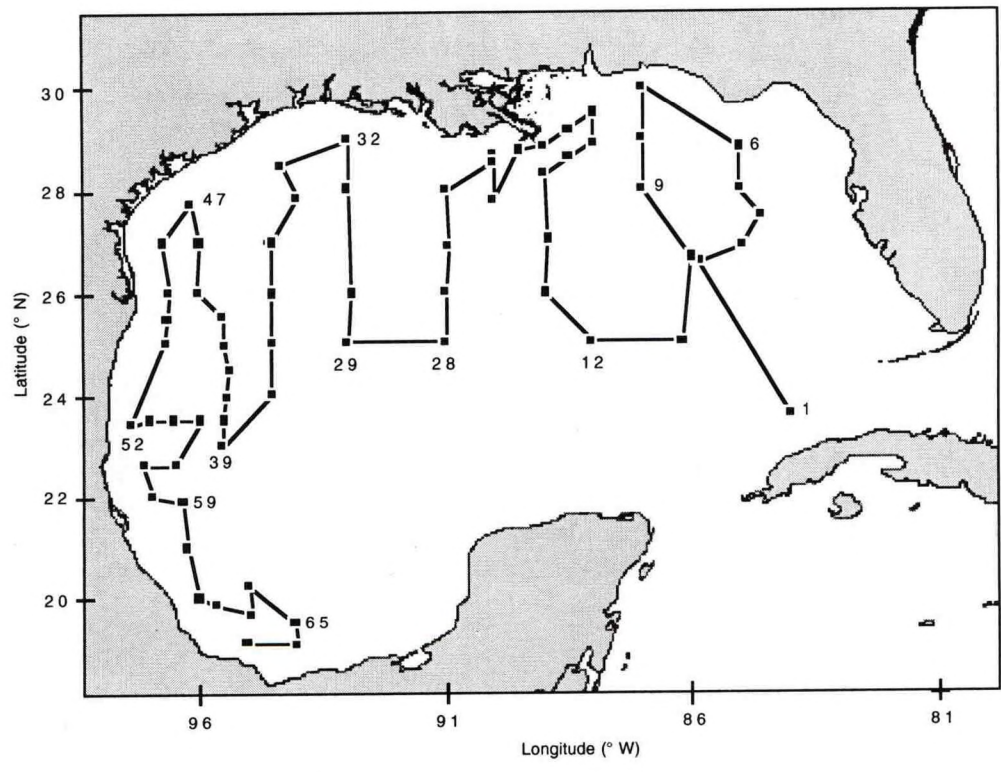


Figure 1. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise. Leg I, October 6 - 31.

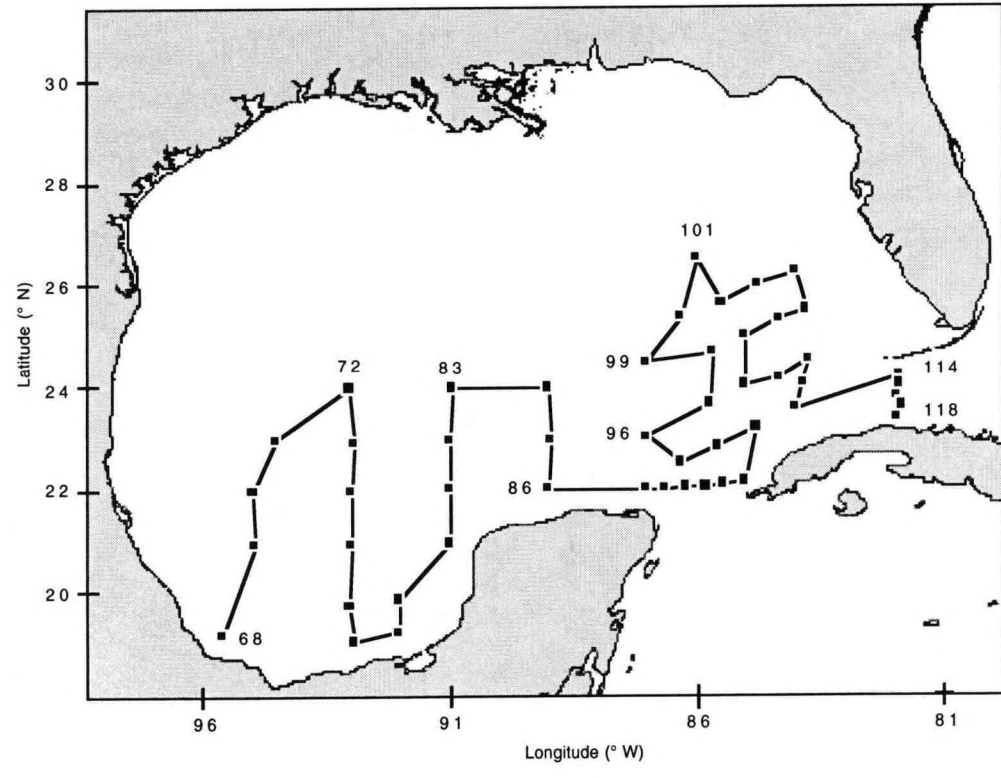


Figure 2. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise. Leg II, November 1 - 14.



Table 1. Samples drawn from Niskin bottles

Sample	Volume	Treatment	Container
Oxygen	250 mL	Manganous sulfate and alkali iodide reagents	Amber glass bottle with ground glass stopper
Trace metals	1000 mL	Filtered through Nuclepore filter and acidified with nitric acid	Acid cleaned 1-L linear-polyethylene bottles. Filter was frozen.
Nutrients	100 mL	Frozen	"Aged" 250-mL polyethylene bottles
Particulate organics	2 x 2000 mL	Frozen	Duplicate glass fiber filters
Salinity	500 mL	None	500-mL glass
Particulates	50 mL	Frozen	Millipore filters

## 2.2. Data collection and field procedures

During this cruise, except for stations 1 through 11, temperature and salinity were measured at each station by means of a Plessey 9040 CSTD with attached General Oceanics Rosette Multisamples using specially designed 2.5-L Niskins bottles. These bottles were made of polyvinyl chloride (PVC) and utilized metal-free "O" rings. Stations 1 through 11 were sampled using oceanographic casts with there Niskin bottles due to the malfunction of the CSTD.

At each CSTD station, continuous vertical profiles of temperature and salinity as well as water samples at discreet depths were obtained. In order to establish good field calibration for the CSTD on each cast, every other water sampling bottle was furnished with reversing thermometers. All seawater samples were collected at pre-determined depths based on the temperature profile recorded during the downcast. These depths were chosen to sample maximum and minimum physical and chemical properties of the water column as seen in historical oceanographic data.

Immediately after recovery of the CSTD and rosette sampler, the Niskin bottles were taken to a constant temperature wet laboratory onboard. Seawater samples for dissolved oxygen were drawn first in order to minimize atmospheric contamination and temperature-induced changes. These samples were collected in 250-mL amber glass bottles with ground glass stoppers and preserved with manganous sulfate and alkaline iodide reagents.

Trace metal samples were collected immediately after the dissolved oxygen sample after pressurizing the Niskin bottle with nitrogen gas. A Millipore filter holder with a 0.45  $\mu\text{m}$  pore size Nuclepore filter was attached to the stop cock of the Niskin bottle. All Nuclepore filters were pre-loaded into the acid-cleaned filter heads in an environmental chamber onboard ship using plastic tweezers. After allowing approximately 100 mL of seawater to flow in order to rinse the filtering assembly, the filtered seawater was collected directly into a 125-mL acid-

cleaned linear polyethylene bottle. The filtered seawater sample was acidified by adding 100  $\mu\text{L}$  of silica redistilled concentrated nitric acid and stored for analyses at AOML. After use the filter holders were rinsed several times with deionized distilled water and reloaded with new filters. Special precautions were taken to eliminate contamination of the trace metal samples arising from ship maneuvers or procedures while on station.

Nutrient samples were collected in "aged" 125-mL linear polyethylene bottles and stored in a refrigerator for analyses onboard ship within six to twelve hours or less after collection.

Salinity samples were collected last in "aged" 500-mL glass bottles with throw-away plastic screw caps and stored for several hours to allow temperature equilibration.

### 2.3. Laboratory analyses

#### 2.3.1. Dissolved oxygen

The oxygen samples were analyzed onboard shortly after collection using the modified Winkler titration method described by Strickland and Parsons (1968).

#### 2.3.2. Nutrients

Water samples were analyzed for dissolved nitrate ( $\text{NO}_3\text{-N}$ ), nitrite ( $\text{NO}_2\text{-N}$ ), orthophosphate ( $\text{PO}_4\text{-P}$ ), and silicate ( $\text{SiO}_3\text{-Si}$ ) with a four channel Technicon Autoanalyzer, generally within a period of six weeks after their collection.

The analytical procedures used in the analyses for nitrate and nitrite are described by Armstrong *et al.* (1967). The orthophosphate procedure is described by Grasshoff (1965), and the silicate procedure is described by Strickland and Parsons (1968). The water used for standardization, blank determinations, and wash between samples is filtered Gulf Stream sea water obtained from the surface of the Straits of Florida. The detection limits and precisions of analysis for the four nutrients are listed in Table 2.

Table 2. Operational characteristics of the nutrient analysis system.

Nutrient	Detection limits ( $\mu\text{g-at/L}$ )	Standard deviation ( $\mu\text{g-at/L}$ )	Coefficient of variation (95% confidence level)
$\text{NO}_3\text{-N}$	0.0 - 50.0	0.5	0.17% at 15.0 $\mu\text{g-at/L}$
$\text{NO}_2\text{-N}$	0.0 - 20.0	0.1	1.2% at 3.2 $\mu\text{g-at/L}$
$\text{PO}_4\text{-P}$	0.0 - 20.0	0.05	1.6% at 0.64 $\mu\text{g-at/L}$
$\text{SiO}_3\text{-Si}$	0.0 - 50.0	0.5	2.3% at 33.0 $\mu\text{g-at/L}$

### 2.3.3. Trace metals

The sea water samples were analyzed for total dissolved Fe, Mn, Cu, and Cd by the method of Segar and Cantillo (1976), using a Perkin-Elmer Atomic Absorption Spectrophotometer Model 503 equipped with a Heated Graphite Atomizer (HGA 2100). The analysis was generally completed within three months after collection of the samples. The samples collected on WCC 6 were not filtered, and the results obtained are a measure of the total metal in the sea water. The samples for cruises WCC 10, 11, and 12 were also analyzed for total dissolved Zn by the method of Segar and Cantillo (1976). The approximate detection limits of the dissolved trace metal analyses are as follows: Fe, 0.4 µg/kg; Mn, 0.3 µg/kg; Cu, 0.5 µg/kg; Cd, 0.01 µg/kg; and Zn, 0.01 µg/kg. The precision of trace metal analysis varied, but it was always better than ±15% for concentrations in excess of 10 times the detection limit.

### 2.3.4. Salinity

Salinity determination were done onboard using a Guildline Auto-Sal Model 8500 salinometer calibrated with Wormley standard seawater.

## 3. ACKNOWLEDGEMENTS

The authors express their thanks to the officers and crew of the NOAA Ship RESEARCHER under Capt. Robert Franklin for the long and diligent hours devoted to collecting these data; and to Dr. Leticia Rosales and Mr. Hugo Fernandez of the Centro de Ciencias del Mar y Limnología of the Universidad Nacional Autónoma de México for their participation in the collection and analysis of the chemistry samples. Our sincere thanks to Dr. Dave Behringer and Mr. Robert Starr of the Physical Oceanographic Laboratory of AOML for serving as chief scientist for Leg 1 and Leg 2 respectively. Thanks are also expressed to Mr. Antonio Mendez and Mr. Brenden Dwyer of the Ocean Chemistry Laboratory of AOML for their assistance in the sample analysis of trace metals. We thank Drs. Ed Johnson and Gunnar Lauenstein (NOS/NCCOS) for their assistance with the chart software.

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## APPENDIX I

### Chemistry data

#### Parameters and units

Depth	Depth (meters)
Temp.	Temperature (°C)
Salinity	Salinity (‰)
O <sub>2</sub>	Oxygen (mL/L)
Fe	Total dissolved iron (µg/L)
Mn	Total dissolved manganese (µg/L)
Cu	Total dissolved copper (µg/L)
Cd	Total dissolved cadmium (µg/L)
Zn	Total dissolved zinc (µg/L)
NO <sub>2</sub> <sup>-</sup>	Dissolved nitrite (µg-at/L)
NO <sub>3</sub> <sup>-</sup>	Dissolved nitrate (µg-at/L)
SiO <sub>3</sub> <sup>-2</sup>	Dissolved silicate (µg-at/L)
PO <sub>4</sub> <sup>-3</sup>	Dissolved phosphate (µg-at/L)

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data.

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>					
Station 1													Date: 10/6/76				
			Lat (N): 23° 34.8'		Long (W): 84° 0.2'												
8	-	36.005	5.20	-	-	-	-	-	-	<0.10	<0.10	0.97	<0.05				
121	-	36.156	4.99	-	-	-	-	-	-	<0.10	0.21	<0.40	<0.05				
221	-	36.790	4.40	-	-	-	-	-	-	<0.10	1.51	0.46	<0.05				
263	28.56	36.871	4.19	-	-	-	-	-	-	<0.10	2.85	0.96	0.21				
465	-	36.112	4.03	-	-	-	-	-	-	0.11	11.23	4.49	0.67				
537	-	35.448	3.28	-	-	-	-	-	-	<0.10	27.59	11.32	1.30				
640	6.89	35.158	3.36	-	-	-	-	-	-	<0.10	37.78	16.34	1.64				
769	-	35.051	3.12	-	-	-	-	-	-	<0.10	46.47	20.66	1.88				
919	6.62	-	-	-	-	-	-	-	-	-	-	-	-				
2296	4.20	35.015	5.52	-	-	-	-	-	-	<0.10	25.67	21.52	1.31				
Station 2													Date: 10/6/76				
			Lat (N): 26° 35.0'		Long (W): 85° 51.3'												
5	-	36.051	5.12	-	-	-	-	-	-	<0.10	0.22	2.51	<0.05				
107	-	36.414	4.74	-	-	-	-	-	-	<0.10	1.20	<0.40	<0.05				
160	-	36.876	4.34	-	-	-	-	-	-	<0.10	2.76	0.90	0.15				
197	-	36.803	4.06	-	-	-	-	-	-	<0.10	4.66	1.05	0.22				
238	-	36.672	3.56	-	-	-	-	-	-	<0.10	7.60	1.53	0.37				
291	-	36.430	4.13	-	-	-	-	-	-	<0.10	9.40	2.20	0.42				
417	-	35.705	3.22	-	-	-	-	-	-	0.10	31.50	8.65	1.17				
555	-	35.196	2.92	-	-	-	-	-	-	0.34	45.80	14.16	1.58				
665	-	35.046	3.09	-	-	-	-	-	-	0.38	52.23	19.06	1.82				
795	6.43	35.123	3.41	-	-	-	-	-	-	<0.10	52.74	22.74	1.89				
1726	-	35.023	5.15	-	-	-	-	-	-	<0.10	27.49	23.66	1.33				
2523	4.24	35.021	5.17	-	-	-	-	-	-	<0.10	30.22	23.34	1.39				

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>					
Station 3													Date: 10/8/76				
			Lat (N): 26° 54.9		Long (W): 84° 59.3'												
16	-	36.415	5.12	-	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05			
64	-	35.964	4.63	-	-	-	-	-	-	-	<0.10	0.33	<0.40	0.15			
89	-	36.664	4.08	-	-	-	-	-	-	-	<0.10	4.26	0.97	0.22			
109	21.55	36.752	3.98	-	-	-	-	-	-	-	<0.10	5.43	1.49	0.22			
145	-	36.791	3.88	-	-	-	-	-	-	-	<0.10	6.73	0.97	0.31			
193	18.31	35.978	5.07	-	-	-	-	-	-	-	-	-	-	-			
301	-	35.830	3.57	-	-	-	-	-	-	-	<0.10	28.47	6.27	1.01			
453	12.40	35.205	2.96	-	-	-	-	-	-	-	<0.10	50.06	14.03	1.65			
559	-	35.028	3.02	-	-	-	-	-	-	-	<0.10	58.78	18.28	1.87			
687	7.40	35.119	3.40	-	-	-	-	-	-	-	<0.10	58.69	22.50	1.94			
827	-	35.094	3.83	-	-	-	-	-	-	-	<0.10	52.59	24.35	1.74			
829	5.51	35.095	3.88	-	-	-	-	-	-	-	<0.10	54.32	24.35	1.82			
Station 4													Date: 10/8/76				
			Lat (N): 27° 30.6'		Long (W): 84° 37.1'												
2	-	35.824	5.21	-	-	-	-	-	-	-	<0.10	<0.10	0.43	<0.05			
29	26.57	36.229	5.41	-	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05			
50	24.20	36.436	4.76	-	-	-	-	-	-	-	<0.10	0.47	0.47	<0.05			
67	21.49	36.343	4.13	-	-	-	-	-	-	-	<0.10	2.36	2.98	0.27			
107	18.03	36.361	3.20	-	-	-	-	-	-	-	<0.10	17.12	4.09	0.61			
167	-	35.902	3.04	-	-	-	-	-	-	-	0.60	25.19	7.82	0.89			

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)										
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>							
Station 5													Date: 10/9/76						
		Lat (N): 27° 59.5'		Long (W): 84° 59.9'															
2	-	35.508	5.23	-	-	-	-	-	-	-	<0.10	<0.10	0.69	<0.05					
29	-	36.053	5.28	-	-	-	-	-	-	-	<0.10	<0.10	1.20	<0.05					
63	20.98	36.338	4.47	-	-	-	-	-	-	-	<0.10	1.27	0.76	<0.05					
102	17.82	36.334	2.79	-	-	-	-	-	-	-	<0.10	18.33	4.22	0.59					
189	14.06	35.817	3.14	-	-	-	-	-	-	-	<0.10	31.46	7.53	1.02					
252	12.17	35.522	2.84	-	-	-	-	-	-	-	<0.10	41.46	11.35	1.31					
Station 6													Date: 10/9/76						
		Lat (N): 28° 49.6'		Long (W): 85° 0.1'															
5	-	34.743	5.05	-	-	-	-	-	-	-	<0.10	0.44	0.98	<0.05					
22	26.48	34.698	5.05	-	-	-	-	-	-	-	<0.10	0.22	1.41	<0.05					
37	23.38	36.117	4.89	-	-	-	-	-	-	-	<0.10	<0.10	2.49	<0.05					
46	21.43	36.190	3.91	-	-	-	-	-	-	-	0.46	1.72	4.41	0.17					
48	20.45	36.233	3.56	-	-	-	-	-	-	-	0.45	5.10	4.30	0.32					
Station 7													Date: 10/9/76						
		Lat (N): 30° 0.0'		Long (W): 86° 59.7'															
8	-	34.005	5.05	3.4	<0.75	6.0	0.12	11			<0.10	<0.10	1.50	<0.05					
16	25.28	34.009	5.13	53	4.6	9.0	0.62	28			<0.10	<0.10	1.50	<0.05					
27	-	35.121	4.48	24	0.75	6.7	0.08	12			0.36	0.34	2.95	<0.05					
33	23.58	36.022	4.14	3.4	0.75	6.3	0.16	13			0.73	2.49	4.47	0.15					
54	-	-	-	-	-	-	-	-			-	-	-	-					
70	19.49	36.333	3.35	7.6	<0.75	7.7	<0.08	13			<0.10	12.21	4.18	0.41					



Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)						Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>						
Station 8													Date: 10/10/76					
		Lat (N): 29° 0.0'		Long (W): 86° 59.9'														
4	-	36.059	5.08	45	2.1	6.0	0.27	13	<0.10	<0.10	<0.40	<0.05						
37	23.43	36.423	5.23	13	4.0	7.0	0.27	12	<0.10	<0.10	<0.40	<0.05						
74	19.21	36.411	3.23	31	1.8	11	0.12	12	<0.10	13.96	3.83	0.54						
466	8.03	34.958	2.91	6.2	<0.75	8.0	0.16	11	<0.10	61.90	18.03	1.86						
611	6.98	34.883	3.09	5.6	<0.75	6.7	0.19	14	<0.10	63.48	20.36	1.93						
692	6.52	34.875	3.25	5.5	<0.75	8.0	0.19	15	<0.10	62.77	21.29	1.95						
Station 9													Date: 10/10/76					
		Lat (N): 27° 59.8'		Long (W): 87° 0.1'														
3	-	35.027	5.20	-	-	-	-	-	<0.10	<0.10	1.17	<0.05						
42	23.70	36.479	5.04	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05						
50	-	36.492	4.35	-	-	-	-	-	0.15	0.71	0.95	<0.05						
76	-	36.428	3.44	-	-	-	-	-	<0.10	16.82	2.96	0.55						
180	-	35.749	3.28	-	-	-	-	-	-	-	-	-						
327	9.79	-	-	-	-	-	-	-	-	-	-	-						
448	-	35.052	-	-	-	-	-	-	-	-	-	-						
587	-	-	-	-	-	-	-	-	-	-	-	-						
1555	-	35.024	5.04	-	-	-	-	-	<0.10	43.03	22.35	1.47						
2511	4.25	35.020	5.17	-	-	-	-	-	<0.10	42.07	22.04	1.38						







Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)									
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>						
Station 13				Lat (N): 25° 59.2'	Long (W): 88° 56.8'													Date: 10/12/76
2	27.23	36.060	3.91	-	-	-	-	-	-	-	-	<0.10	0.92	<0.05				
99	25.91	36.287	4.39	-	-	-	-	-	-	-	-	<0.10	0.56	<0.05				
162	23.33	36.480	3.48	-	-	-	-	-	-	-	-	<0.10	0.92	0.13				
201	21.63	36.703	3.49	-	-	-	-	-	-	-	-	0.97	0.56	0.14				
255	19.71	36.919	3.62	-	-	-	-	-	-	-	-	1.63	0.99	0.32				
306	17.83	36.785	3.77	-	-	-	-	-	-	-	-	4.63	1.71	0.43				
449	13.89	35.019	2.84	-	-	-	-	-	-	-	-	12.91	6.51	0.89				
603	9.76	35.014	2.83	-	-	-	-	-	-	-	-	27.87	13.47	1.61				
712	7.79	35.112	2.97	-	-	-	-	-	-	-	-	32.45	18.19	1.88				
813	6.68	35.045	3.18	-	-	-	-	-	-	-	-	34.34	20.84	1.95				
1648	4.26	35.179	4.99	-	-	-	-	-	-	-	-	24.69	22.72	1.50				
2530	4.26	35.773	5.15	-	-	-	-	-	-	-	-	23.32	22.38	1.43				

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)				
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>	
Station 14													
			Lat (N): 27° 0.8'				Long (W): 88° 53.6'						Date: 10/12/76
5	27.29	36.110	4.81	-	-	-	-	-	-	-	0.29	<0.40	<0.05
108	25.64	36.306	4.65	-	-	-	-	-	-	-	<0.10	<0.40	<0.05
150	23.97	36.693	4.11	-	-	-	-	-	-	-	1.00	<0.40	0.12
192	21.87	36.913	3.74	-	-	-	-	-	-	-	2.38	0.67	0.21
236	19.42	36.680	3.61	-	-	-	-	-	-	-	4.67	1.39	0.36
277	18.26	36.544	3.62	-	-	-	-	-	-	-	6.34	2.02	0.45
420	13.55	35.735	3.12	-	-	-	-	-	-	-	18.62	7.69	1.11
583	9.39	35.155	2.84	-	-	-	-	-	-	-	29.28	14.74	1.63
701	7.83	35.047	2.92	-	-	-	-	-	-	-	29.77	18.36	1.60
805	6.41	35.119	3.20	-	-	-	-	-	-	-	28.59	21.93	1.55
1309	4.40	35.038	4.71	-	-	-	-	-	-	-	23.64	23.50	1.55
2272	4.21	35.018	5.17	-	-	-	-	-	-	-	19.63	22.69	1.39
Station 15													
			Lat (N): 28° 19.6'				Long (W): 89° 0.4'						Date: 10/13/76
4	25.48	36.128	4.91	-	-	-	-	-	-	-	<0.10	<0.40	<0.05
36	23.49	36.405	4.95	1.4	3.1	6.6	<0.08	11	11	<0.10	<0.10	<0.40	<0.05
58	20.57	36.500	4.00	30	5.2	5.9	0.16	14	14	-	1.56	0.89	0.24
60	20.34	36.523	3.96	11	2.2	7.2	<0.08	14	14	-	1.79	0.93	0.24
65	19.72	36.492	3.59	10	2.1	14	<0.08	13	13	<0.10	5.85	1.47	0.34
104	17.92	36.326	3.18	4.0	2.1	6.0	<0.08	14	14	<0.10	12.71	3.52	0.72
376	9.74	35.165	2.88	4.0	2.4	6.7	0.16	13	13	<0.10	30.91	13.88	1.75
692	6.14	35.117	3.35	2.0	2.0	12	0.17	12	12	<0.10	36.70	23.00	2.04
1057	4.63	35.052	4.45	2.7	1.4	6.3	0.16	15	15	<0.10	29.12	24.30	1.71
1059	4.63	35.035	4.48	-	-	-	-	-	-	<0.10	27.94	24.08	1.70

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)						Dissolved nutrients (µg-at/L)			
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>	
Station 16      Lat (N): 28° 38.0'      Long (W): 88° 29.4'      Date: 10/13/76													
7	26.15	36.120	3.54	44	2.8	5.9	<0.07	13	<0.10	<0.10	0.43	<0.05	
40	25.73	36.115	3.51	4.1	1.9	7.5	<0.07	10	<0.10	<0.10	<0.40	<0.05	
82	21.99	36.854	3.05	13	2.6	5.9	0.08	16	<0.10	4.11	0.86	0.26	
714	6.38	34.961	3.20	4.1	3.5	6.2	0.16	9.4	<0.10	40.71	22.03	2.06	
1137	4.56	-	4.56	2.8	3.4	6.6	0.19	13	<0.10	31.75	24.31	1.71	
1564	4.22	34.883	4.99	5.5	2.8	5.9	0.12	14	<0.10	27.76	23.87	1.51	
Station 17      Lat (N): 28° 54.7'      Long (W): 87° 59.8'      Date: 10/13/76													
7	25.88	36.227	4.81	12	2.0	5.3	0.18	18	<0.10	<0.10	<0.40	0.24	
35	24.82	36.042	4.79	9.2	2.0	6.5	0.11	30	<0.10	0.11	<0.40	<0.05	
61	21.27	36.526	4.43	8.3	2.0	6.5	0.22	2.7	<0.10	0.11	0.50	<0.05	
215	13.76	35.775	3.14	21	2.7	5.3	0.25	44	<0.10	22.91	7.25	1.12	
657	6.61	34.877	3.14	20	3.1	7.6	0.31	34	<0.10	41.45	22.10	2.07	
1584	4.22	34.972	4.94	6.7	3.7	6.2	0.29	16	<0.10	29.23	23.79	1.53	
Station 18      Lat (N): 29° 30.1'      Long (W): 87° 59.9'      Date: 10/13/76													
2	25.23	35.096	4.87	3.7	0.77	5.4	<0.07	7.0	<0.10	<0.10	1.88	<0.05	
8	25.17	35.095	4.86	5.3	1.3	7.1	0.18	11	<0.10	<0.10	1.73	<0.05	
14	25.18	35.090	4.89	6.3	1.9	7.1	0.07	8.8	<0.10	<0.10	1.77	<0.05	
19	25.18	35.091	4.78	9.4	0.97	5.6	0.07	11	<0.10	<0.10	1.59	<0.05	
26	24.73	35.124	4.87	2.5	1.8	5.9	<0.07	7.1	<0.10	<0.10	1.84	<0.05	
33	24.03	35.718	4.11	2.9	2.9	1.2	0.08	7.8	0.32	0.57	4.32	0.16	

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub>	NO <sub>3</sub>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>					
Station 19													Date: 10/13/76				
		Lat (N): 29° 10.8'		Long (W): 88° 30.0'													
2	26.11	34.785	3.01	3.3	0.97	6.1	<0.07	7.6	<0.10	<0.10	0.62	0.19	<0.10	<0.10	0.61	<0.05	
22	26.04	36.020	3.17	1.6	<0.58	6.1	<0.07	7.7	<0.10	<0.10	0.76	1.34	0.26	0.76	1.34	0.14	
45	22.59	36.460	3.22	3.3	0.58	7.5	<0.07	8.9	<0.10	<0.10	6.54	2.70	<0.10	6.54	2.70	0.49	
72	19.49	36.466	3.33	3.3	1.1	7.4	0.20	8.9	<0.10	<0.10	13.07	5.86	<0.10	13.07	5.86	0.86	
97	16.68	36.172	3.15	2.4	1.2	7.5	0.07	8.8	<0.10	<0.10	19.23	7.64	<0.10	19.23	7.64	1.19	
146	13.93	35.799	3.12	5.3	1.2	6.8	0.07	8.6	<0.10	<0.10							
Station 20													Date: 10/14/76				
		Lat (N): 28° 51.9'		Long (W): 88° 59.9'													
2	25.60	35.945	4.87	3.1	<0.58	5.2	0.07	9.5	<0.10	<0.10	0.96	<0.05	<0.10	<0.10	0.48	<0.05	
25	24.73	36.044	4.86	3.1	1.7	5.2	0.14	9.9	<0.10	<0.10	<0.10	<0.05	<0.10	<0.10	<0.40	<0.05	
42	22.39	36.550	4.61	3.5	<0.58	6.1	0.18	8.9	<0.10	<0.10	7.37	2.87	<0.10	7.37	2.87	0.60	
79	18.68	36.422	3.33	3.8	1.2	5.8	0.36	12	<0.10	<0.10	11.04	4.67	<0.10	11.04	4.67	0.90	
135	15.63	36.048	3.72	-	-	-	-	-	<0.10	<0.10	19.82	9.26	<0.10	19.82	9.26	1.41	
207	12.46	35.568	2.99	13	1.1	8.5	0.07	7.2	<0.10	<0.10							
Station 21													Date: 10/14/76				
		Lat (N): 28° 45.7'		Long (W): 89° 30.5'													
2	25.38	33.449	4.82	1.2	0.97	6.5	0.11	19	0.19	0.19	0.26	0.86	0.26	0.26	0.48	0.12	
18	25.44	35.360	4.69	2.7	1.1	6.5	0.11	9.7	<0.10	<0.10	<0.10	<0.40	<0.10	<0.10	<0.40	<0.05	
28	24.33	36.040	4.79	1.9	0.77	5.2	0.11	7.7	<0.10	<0.10	0.18	0.48	<0.10	0.18	0.48	<0.05	
45	22.17	36.500	4.43	5.8	0.87	5.5	0.29	8.6	<0.10	<0.10	4.64	3.55	<0.10	4.64	3.55	0.45	
66	19.97	36.495	3.30	4.2	1.5	7.1	0.86	7.6	<0.10	<0.10	8.20	4.23	<0.10	8.20	4.23	0.68	
84	17.77	36.358	3.17	2.7	1.6	5.8	0.14	16	<0.10	<0.10							



Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)						Dissolved nutrients (µg-at/L)				
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>		
Station 22														
		Lat (N): 27° 48.0'	Long (W): 90° 0.1'											
2	26.81	36.014	4.81	3.8	3.9	5.1	1.7	10	<0.10	<0.10	0.58	<0.05		
52	23.83	36.168	5.39	1.7	2.0	6.5	0.50	13	<0.10	<0.10	<0.40	<0.05		
136	17.62	36.391	3.69	7.7	1.7	3.3	0.47	7.1	<0.10	6.35	2.44	0.55		
231	13.96	35.799	3.27	21	1.6	3.6	0.12	8.7	<0.10	14.70	6.41	1.10		
524	7.51	34.490	2.91	3.8	1.9	3.6	0.16	14	<0.10	31.79	18.50	2.04		
551	7.24	34.915	3.05	15	2.4	5.1	0.32	12	<0.10	32.25	19.84	2.01		
Station 23														
		Lat (N): 28° 40.0'	Long (W): 90° 0.1'											
2	25.55	35.050	4.81	2.1	3.7	3.2	<0.06	7.7	<0.10	<0.10	1.04	<0.05		
32	24.47	36.048	4.09	1.2	4.6	6.9	0.06	8.5	0.50	0.38	4.10	0.23		
37	22.77	36.202	3.83	15	2.3	4.0	0.09	8.0	<0.10	1.23	4.92	0.28		
50	20.00	36.401	3.15	15	2.4	3.6	0.13	9.3	<0.10	4.98	5.32	0.56		
75	17.24	36.262	3.10	15	2.5	3.3	0.40	9.8	<0.10	9.20	5.12	0.79		
Station 24														
		Lat (N): 28° 33.0'	Long (W): 90° 0.6'											
2	25.62	34.942	4.40	4.6	3.7	4.5	0.34	7.1	<0.10	<0.10	2.86	0.10		
13	25.93	35.204	4.55	15	4.6	3.2	<0.07	6.0	<0.10	<0.10	3.96	0.11		
23	25.80	35.661	4.71	9.6	3.1	5.0	0.19	7.4	<0.10	<0.10	1.72	<0.05		
32	24.91	35.829	4.89	1.2	3.4	4.3	<0.06	6.2	<0.10	<0.10	0.94	<0.05		
32	24.91	35.829	4.87	3.3	2.4	3.6	0.47	8.5	<0.10	<0.10	0.94	<0.05		







Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)							
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>				
Station 29													Date: 10/16/76			
			Lat (N): 25° 0.5'													
			Long (W): 92° 58.4'													
4	26.85	35.924	5.00	-	-	-	-	-	-	-	<0.10	<0.10	0.48	<0.05	<0.05	<0.05
39	25.27	35.974	5.00	-	-	-	-	-	-	-	<0.10	<0.10	0.41	<0.05	<0.05	<0.05
49	23.36	36.319	5.15	-	-	-	-	-	-	-	<0.10	<0.10	0.48	<0.05	<0.05	<0.05
80	19.59	36.296	3.87	-	-	-	-	-	-	-	<0.10	2.29	1.18	<0.05	<0.05	<0.05
97	18.34	36.224	2.94	-	-	-	-	-	-	-	<0.10	16.12	4.56	0.78	0.78	0.78
106	17.49	36.325	2.88	-	-	-	-	-	-	-	<0.10	14.82	3.90	0.76	0.76	0.76
177	13.88	35.843	2.99	-	-	-	-	-	-	-	<0.10	21.93	7.38	1.20	1.20	1.20
327	9.80	35.206	2.83	-	-	-	-	-	-	-	<0.10	35.27	13.71	1.74	1.74	1.74
435	7.92	34.986	2.88	-	-	-	-	-	-	-	<0.10	38.84	17.95	2.03	2.03	2.03
594	6.30	34.891	3.35	-	-	-	-	-	-	-	0.16	38.68	22.02	2.10	2.10	2.10
1507	4.23	34.974	5.02	-	-	-	-	-	-	-	<0.10	28.78	23.03	1.55	1.55	1.55
2508	4.25	34.979	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Station 30													Date: 10/16/76			
			Lat (N): 25° 58.6'													
			Long (W): 92° 53.9'													
2	26.55	35.958	4.95	-	-	-	-	-	-	-	<0.10	<0.10	0.66	0.12	0.12	0.12
40	24.16	35.981	4.94	-	-	-	-	-	-	-	<0.10	<0.10	0.50	<0.05	<0.05	<0.05
54	21.38	36.213	4.87	-	-	-	-	-	-	-	<0.10	<0.10	0.40	<0.05	<0.05	<0.05
66	19.82	36.279	4.11	-	-	-	-	-	-	-	<0.10	0.26	0.87	<0.05	<0.05	<0.05
91	17.71	36.329	2.83	-	-	-	-	-	-	-	0.10	8.57	3.21	0.63	0.63	0.63
189	13.85	35.735	3.04	-	-	-	-	-	-	-	0.28	16.01	7.46	1.03	1.03	1.03
345	9.39	35.175	2.83	-	-	-	-	-	-	-	0.22	25.82	13.51	1.55	1.55	1.55
419	8.06	-	2.83	-	-	-	-	-	-	-	0.29	29.25	16.82	1.67	1.67	1.67
548	6.60	35.118	3.20	-	-	-	-	-	-	-	0.11	30.85	20.21	1.87	1.87	1.87
1532	4.22	35.025	4.95	-	-	-	-	-	-	-	<0.10	23.00	21.87	1.50	1.50	1.50
2510	4.25	35.022	5.15	-	-	-	-	-	-	-	<0.10	22.96	21.84	1.45	1.45	1.45



Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)							
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>				
Station 34													Date: 10/18/76			
		Lat (N): 27° 52.5'		Long (W): 94° 0.4'												
7	25.58	35.599	4.81	-	-	-	-	-	-	<0.10	<0.10	1.73	<0.05			
18	25.60	35.599	4.26	-	-	-	-	-	-	<0.10	<0.10	1.80	<0.05			
31	25.60	35.609	4.89	-	-	-	-	-	-	<0.10	<0.10	1.88	<0.05			
57	19.57	36.355	3.05	-	-	-	-	-	-	<0.10	4.51	3.09	0.25			
101	16.45	36.141	2.81	-	-	-	-	-	-	<0.10	9.47	5.49	0.66			
146	14.43	35.862	2.83	-	-	-	-	-	-	0.15	12.73	5.22	0.85			
Station 35													Date: 10/18/76			
		Lat (N): 27° 0.2'		Long (W): 94° 30.1'												
3	25.76	35.803	4.89	-	-	-	-	-	-	<0.10	<0.10	1.21	<0.05			
40	26.14	35.984	4.86	-	-	-	-	-	-	<0.10	<0.10	1.04	<0.05			
63	23.34	36.269	5.05	-	-	-	-	-	-	<0.10	<0.10	1.73	<0.05			
113	19.80	36.266	3.88	-	-	-	-	-	-	0.30	0.68	1.14	<0.05			
115	19.71	36.301	3.51	-	-	-	-	-	-	0.30	2.73	1.83	0.20			
150	17.51	36.282	2.84	-	-	-	-	-	-	0.29	7.67	4.12	0.61			
230	13.68	35.756	2.81	-	-	-	-	-	-	-	12.27	7.79	1.09			
392	9.85	35.189	2.86	-	-	-	-	-	-	-	20.45	13.50	1.39			
525	7.85	34.974	2.86	-	-	-	-	-	-	0.11	25.58	17.97	1.79			
698	6.29	34.894	3.31	-	-	-	-	-	-	0.15	23.60	21.51	1.72			
902	5.11	34.918	4.01	-	-	-	-	-	-	0.43	19.55	23.44	1.58			





Table 1. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)									
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>						
Station 38													Date: 10/19/76					
		Lat (N): 24° 0.6'		Long (W): 94° 29.3'														
4	26.81	36.467	4.97	-	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05				
63	23.73	36.466	4.87	-	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05				
66	23.38	36.286	5.16	-	-	-	-	-	-	-	<0.10	<0.10	0.71	<0.05				
119	21.84	36.273	4.08	-	-	-	-	-	-	-	<0.10	0.54	2.47	<0.05				
146	19.89	36.366	3.30	-	-	-	-	-	-	-	<0.10	6.62	2.32	0.24				
176	17.84	36.168	2.83	-	-	-	-	-	-	-	<0.10	14.39	4.56	0.61				
261	13.90	35.762	2.80	-	-	-	-	-	-	-	<0.10	22.05	5.53	1.02				
409	9.76	35.204	2.60	-	-	-	-	-	-	0.16	32.48	13.61	1.58					
523	7.93	34.958	2.91	-	-	-	-	-	-	<0.10	36.05	17.13	1.74					
661	6.55	34.890	3.22	-	-	-	-	-	-	<0.10	37.01	20.24	1.74					
1583	4.23	34.977	4.95	-	-	-	-	-	-	<0.10	25.39	21.64	1.38					
2526	4.26	34.978	5.08	-	-	-	-	-	-	0.12	23.41	21.34	1.40					
Station 39													Date: 10/19/76					
		Lat (N): 23° 0.0'		Long (W): 95° 30.8'														
6	27.73	36.413	5.10	-	-	-	-	-	-	-	<0.10	<0.10	0.42	<0.05				
56	27.27	36.421	5.07	-	-	-	-	-	-	-	<0.10	<0.10	0.46	<0.05				
70	23.76	36.253	5.61	-	-	-	-	-	-	-	<0.10	<0.10	0.49	<0.05				
106	21.77	36.243	4.74	-	-	-	-	-	-	-	<0.10	<0.10	0.46	<0.05				
156	19.53	36.384	3.02	-	-	-	-	-	-	1.01	7.34	2.93	0.41					
186	16.94	36.148	2.78	-	-	-	-	-	-	<0.10	14.12	7.59	0.76					
218	13.81	35.800	2.80	-	-	-	-	-	-	-	18.42	11.35	1.00					
426	9.85	35.211	2.64	-	-	-	-	-	-	-	28.94	16.96	1.52					
541	7.96	34.984	2.81	-	-	-	-	-	-	<0.10	35.32	23.94	1.87					
664	6.57	34.905	3.07	-	-	-	-	-	-	0.80	33.11	20.17	1.79					
1589	4.21	34.972	4.92	-	-	-	-	-	-	<0.10	24.26	21.87	1.44					





Table 1. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)				Date: 10/20/76	
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>		
Station 42	Lat (N): 24° 27.2'			Long (W): 95° 24.2'										
3	26.81	36.451	4.89	-	-	-	-	-	-	<0.10	<0.10	0.42	<0.05	
64	24.59	36.254	5.44	-	-	-	-	-	-	<0.10	<0.10	0.46	<0.05	
67	23.61	36.247	5.31	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05	
100	21.40	35.983	-	-	-	-	-	-	-	<0.10	<0.10	0.49	<0.05	
154	19.01	36.367	2.69	-	-	-	-	-	-	<0.10	9.80	3.84	0.54	
171	17.09	36.289	2.72	-	-	-	-	-	-	<0.10	11.98	4.39	0.66	
278	12.72	35.795	2.78	-	-	-	-	-	-	<0.10	17.68	7.69	1.00	
463	8.09	35.199	2.67	-	-	-	-	-	-	<0.10	28.16	14.30	1.63	
596	7.43	34.984	2.78	-	-	-	-	-	-	<0.10	33.35	18.31	1.70	
724	6.14	34.900	3.22	-	-	-	-	-	-	<0.10	31.99	21.45	1.69	
1628	4.24	34.974	4.92	-	-	-	-	-	-	<0.10	21.82	22.59	1.21	
2526	4.26	34.977	4.91	-	-	-	-	-	-	<0.10	20.75	22.45	1.21	

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Station	Lat (N):	Long (W):	Dissolved trace metals		Dissolved nutrients	
			(µg/L)	(µg-at/L)	(µg-at/L)	(µg-at/L)
Station 43	Lat (N): 24° 59.3'	Long (W): 95° 29.7'				Date: 10/21/76
7	34.969	4.84	-	-	<0.10	0.67 <0.05
61	36.354	4.82	-	-	<0.10	0.57 <0.05
69	36.259	5.23	-	-	<0.10	<0.40 <0.05
99	36.257	4.68	-	-	<0.10	<0.40 <0.05
144	36.388	2.72	-	-	<0.10	20.83 3.35 0.47
170	36.292	2.77	-	-	<0.10	13.05 4.29 0.65
255	35.784	2.59	-	-	<0.10	20.10 8.06 1.00
408	35.181	2.72	-	-	<0.10	29.99 14.12 1.45
518	34.978	2.83	-	-	<0.10	32.53 17.94 1.61
657	34.891	3.14	-	-	<0.10	32.73 21.94 1.62
1585	34.973	4.92	-	-	<0.10	20.71 22.89 1.18
2524	34.980	5.05	-	-	0.21	21.52 22.31 1.20
Station 44	Lat (N): 25° 30.5'	Long (W): 95° 30.8'				Date: 10/21/76
4	35.599	4.94	-	-	<0.10	<0.10 <0.40 0.08
60	36.245	4.97	-	-	<0.10	<0.10 0.53 0.13
65	36.245	5.19	-	-	<0.10	<0.10 0.35 0.08
83	36.267	4.54	-	-	<0.10	<0.10 0.53 0.14
124	36.265	3.07	-	-	0.11	7.66 2.67 0.69
144	36.357	2.89	-	-	<0.10	8.28 4.31 0.35
235	36.285	2.93	-	-	0.68	19.14 7.09 0.94
406	35.780	2.61	-	-	0.19	31.63 14.04 1.49
527	35.202	2.81	-	-	0.10	36.41 17.92 1.66
693	34.975	3.22	-	-	<0.10	34.41 21.80 1.67
1030	34.885	4.23	-	-	<0.10	29.56 23.59 1.47
1360	34.938	4.78	-	-	<0.10	26.07 23.31 1.28

Table 1. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)									
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>						
Station 45													Date: 10/21/76					
		Lat (N): 26° 1.3'			Long (W): 96° 1.5'													
4	25.98	36.232	4.86	4.9	3.2	10	0.47	6.8	<0.10	<0.10	0.46	<0.05						
59	23.91	36.231	4.81	4.1	1.5	7.7	1.4	5.3	<0.10	<0.10	<0.40	<0.05						
91	21.52	36.250	4.58	7.7	3.2	11	0.06	76	<0.10	<0.10	0.43	<0.05						
130	18.84	36.365	2.62	4.5	3.2	6.9	1.1	8.0	<0.10	13.91	3.77	0.54						
147	17.83	36.301	2.69	6.5	3.7	11	0.56	7.7	0.17	15.26	4.48	0.57						
243	13.83	36.232	-	-	-	-	-	-	-	-	-	-						
407	9.85	35.181	2.77	6.8	2.4	4.0	0.31	9.0	0.55	30.07	13.30	1.09						
544	7.93	34.982	2.75	0.91	2.0	2.5	0.32	23	<0.10	38.13	17.97	1.63						
680	6.39	34.986	3.12	0.91	2.2	2.5	0.48	6.7	0.11	38.79	21.30	1.67						
828	5.60	34.898	3.57	1.8	2.7	3.5	0.46	9.0	0.25	35.60	22.99	1.61						
979	5.08	34.918	4.00	7.7	3.1	3.0	0.46	14	0.30	32.33	24.16	1.38						
Station 46													Date: 10/21/76					
		Lat (N): 27° 0.6'			Long (W): 96° 0.2'													
2	25.76	36.265	4.86	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05						
64	23.32	36.241	5.28	11	4.8	10	0.44	12	<0.10	<0.10	<0.40	<0.05						
85	21.49	36.213	4.95	10	6.0	20	0.22	23	<0.10	<0.10	<0.40	<0.05						
144	18.71	36.335	2.70	10	3.4	26	0.16	11	0.43	14.44	3.98	0.48						
202	15.10	35.854	2.93	6.7	1.5	6.8	0.25	8.8	0.11	18.47	5.40	0.63						
259	13.77	35.764	2.88	4.9	6.1	23	0.75	8.0	0.36	23.78	7.50	0.94						
331	11.75	35.555	2.88	1.6	2.3	14	0.28	5.8	<0.10	27.27	9.02	1.09						
410	9.91	35.248	2.80	2.0	2.5	11	0.25	5.7	0.11	31.86	12.88	1.31						
554	7.90	34.970	2.81	6.9	4.1	17	0.34	18	0.12	38.49	18.10	1.62						
686	6.35	34.887	3.28	-	-	-	-	-	<0.10	38.44	21.33	1.80						
791	5.62	34.901	3.59	2.9	2.9	13	0.59	34	<0.10	37.44	23.20	1.61						

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>					
Station 47													Date: 10/22/76				
			Lat (N): 27° 45.4'	Long (W): 96° 9.4'													
29	25.70	36.110	4.82	21	2.0	2.0	0.13	5.5	<0.10	<0.10	0.75	<0.05					
56	23.66	36.107	4.89	15	1.2	<1.6	<0.06	5.7	<0.10	<0.10	0.83	<0.05					
62	21.78	36.236	4.70	11	3.9	15	1.2	7.6	<0.10	<0.10	0.90	<0.05					
62	21.78	36.265	4.66	24	3.2	6.4	0.16	5.3	<0.10	<0.10	1.08	<0.05					
67	21.60	36.265	4.54	13	3.0	14	0.59	5.3	<0.10	0.36	1.38	<0.05					
Station 48													Date: 10/22/76				
			Lat (N): 27° 0.0'	Long (W): 96° 42.7'													
2	25.32	35.942	4.47	1.2	1.7	1.6	<0.06	5.1	<0.10	<0.10	2.28	<0.05					
22	25.33	35.945	4.28	12	1.4	<1.6	0.28	4.4	<0.10	<0.10	2.24	<0.05					
48	24.08	35.953	4.71	19	1.8	<1.6	<0.06	4.7	<0.10	<0.10	2.24	<0.05					
60	20.30	36.309	3.35	2.4	1.3	1.8	<0.06	4.5	0.48	5.12	3.40	0.29					
70	19.74	36.336	2.96	15	1.5	<1.6	<0.06	4.9	0.27	9.79	3.75	0.45					
Station 49													Date: 10/22/76				
			Lat (N): 26° 0.7'	Long (W): 96° 35.2'													
4	25.85	35.739	4.70	13	<0.60	<1.8	<0.06	5.8	<0.10	<0.10	2.71	<0.05					
25	25.85	35.925	4.66	1.2	0.90	<1.8	0.09	4.5	<0.10	<0.10	1.68	<0.05					
43	24.99	36.078	4.73	1.2	2.0	1.8	<0.06	6.0	<0.10	<0.10	0.94	<0.05					
44	23.21	36.079	4.62	4.8	1.2	1.8	<0.06	4.4	<0.10	<0.10	0.90	<0.05					
45	23.00	36.080	4.78	4.5	0.80	<1.6	0.06	7.2	<0.10	<0.10	1.01	<0.05					
51	23.11	36.267	4.74	2.4	2.0	<1.6	<0.06	13	<0.10	<0.10	1.68	<0.05					

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub>	NO <sub>3</sub>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>					
Station 50													Date: 10/22/76				
		Lat (N): 25° 29.8'		Long (W): 96° 37.7'													
5	25.85	36.050	4.94	6.9	2.0	<1.8	0.31	5.6	<0.10	<0.10	0.87	<0.05					
18	25.86	36.050	4.87	2.5	2.3	<1.8	0.16	6.9	<0.10	<0.10	0.83	<0.05					
39	24.91	36.084	4.92	8.1	3.4	<1.8	0.22	11	<0.10	<0.10	0.87	<0.05					
42	23.92	36.224	5.05	3.1	<0.50	<1.8	0.25	5.5	<0.10	<0.10	0.72	<0.05					
62	21.96	36.481	4.02	41	0.92	1.9	<0.06	4.0	0.31	1.04	4.02	<0.05					
79	19.77	36.314	3.31	7.5	1.5	<1.8	<0.06	3.8	<0.10	6.70	2.94	0.26					
Station 51													Date: 10/23/76				
		Lat (N): 25° 0.4'		Long (W): 96° 39.8'													
3	25.79	35.970	-	-	-	-	-	-	<0.10	<0.10	1.81	<0.05					
47	25.77	35.944	4.79	5.0	1.5	1.2	<0.06	14	<0.10	<0.10	1.66	<0.05					
56	22.28	36.261	4.33	6.2	1.2	4.7	<0.06	16	<0.10	0.55	1.82	<0.05					
106	18.25	36.335	2.75	7.5	2.2	2.1	0.16	5.8	<0.10	15.92	3.89	0.50					
179	14.13	35.835	2.61	33	0.50	<1.8	0.16	15	<0.10	24.55	8.39	0.95					
Station 52													Date: 10/23/76				
		Lat (N): 23° 26.1'		Long (W): 97° 22.1'													
2	26.02	36.115	4.15	0.59	<0.53	<1.2	<0.06	3.9	<0.10	<0.10	1.38	<0.05					
30	26.05	36.235	3.60	5.9	<0.53	3.8	<0.06	5.0	<0.10	<0.10	0.55	<0.05					
62	25.53	36.285	4.45	8.8	<0.53	<1.5	<0.06	5.3	<0.10	0.77	0.77	<0.05					
73	23.30	36.271	4.78	2.9	<0.53	<1.0	<0.06	3.4	<0.10	0.93	0.66	<0.05					
83	22.31	36.264	4.74	4.7	<0.52	1.2	<0.06	5.8	<0.10	0.44	0.40	<0.05					
93	21.77	36.278	4.28	10	1.7	1.8	0.28	7.2	<0.10	<0.10	1.29	<0.05					



Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)					
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>		
Station 53														
		Lat (N): 23° 30.5'		Long (W): 96° 59.4'									Date: 10/23/76	
3	26.55	36.415	4.82	4.7	1.8	1.8	0.14	10	<0.10	<0.10	<0.40	<0.05		
58	24.06	36.350	5.08	6.7	1.8	1.8	0.13	8.0	<0.10	<0.10	<0.40	<0.05		
103	21.47	36.250	4.42	4.7	2.3	<1.4	0.16	9.2	0.12	<0.10	0.41	<0.05		
149	19.93	36.382	2.81	3.0	1.6	<1.4	0.16	9.9	-	6.93	3.42	0.44		
162	17.92	36.318	2.73	3.3	1.7	1.8	0.09	8.6	<0.10	15.17	4.19	0.82		
254	13.56	36.073	-	-	-	-	-	-	-	-	-	-		
413	9.96	35.212	2.62	15	1.4	2.2	0.17	1.7	0.86	39.17	14.84	1.03		
697	6.22	34.890	3.28	14	<0.53	1.8	0.16	1.7	-	40.45	24.06	1.53		
752	5.89	34.903	3.39	7.1	2.0	<1.4	0.22	2.3	<0.10	52.76	24.14	2.06		
1025	4.70	34.011	4.37	7.1	<0.53	<1.2	0.20	1.4	<0.10	37.78	24.96	1.59		
Station 54														
		Lat (N): 23° 30.5'		Long (W): 96° 29.7'									Date: 10/23/76	
5	26.59	36.247	5.15	3.0	1.6	3.4	0.14	5.0	<0.10	<0.10	0.40	<0.05		
58	24.70	36.464	4.78	11	1.3	3.4	0.21	11	<0.10	<0.10	<0.40	<0.05		
102	21.95	36.252	4.63	1.8	1.1	<1.4	<0.07	5.3	<0.10	<0.10	<0.40	<0.05		
165	19.24	-	3.65	-	-	-	-	-	0.14	2.69	2.72	0.12		
187	17.96	36.283	2.67	3.6	2.2	<1.4	0.18	8.2	0.15	14.96	4.34	0.78		
303	13.76	35.742	2.69	9.1	1.7	<1.4	<0.07	3.9	0.87	23.52	9.41	1.15		
462	9.90	35.211	2.54	18	3.5	3.1	0.28	12	-	36.94	15.65	1.69		
730	6.05	34.894	3.17	1.8	1.5	<1.4	0.18	3.2	-	42.35	24.71	1.98		
1389	4.23	34.970	4.86	10	2.2	5.8	0.24	10	-	25.17	25.09	1.62		
2056	4.21	34.975	5.05	6.0	1.8	7.3	0.16	5.4	0.22	26.26	24.79	1.66		

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)									
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>						
Station 55													Date: 10/23/76					
			Lat (N): 23° 29.2'			Long (W): 95° 55.6'												
4	26.29	35.736	4.68	3.5	1.6	2.3	<0.06	38	<0.10	<0.10	<0.40	<0.05						
106	21.41	36.257	4.18	10	3.5	2.6	0.19	6.4	<0.10	<0.10	0.84	<0.05						
148	19.26	36.454	2.73	7.1	1.8	1.8	0.07	10	<0.10	9.01	3.29	0.33						
176	17.73	36.307	2.73	16	2.3	1.8	0.49	9.2	<0.10	11.91	4.63	0.47						
315	13.80	35.782	2.67	8.2	1.6	1.8	0.14	24	0.10	25.02	10.41	1.03						
507	9.88	35.228	2.57	5.3	1.3	1.8	0.18	6.6	<0.10	38.60	15.51	1.40						
757	6.48	34.899	3.12	2.9	0.84	<1.2	0.14	5.0	<0.10	52.45	23.84	2.00						
1645	4.22	34.969	4.94	19	0.76	2.8	0.07	9.9	<0.10	34.54	25.32	1.45						
2521	4.24	34.975	5.07	1.2	0.61	<1.4	0.14	5.7	<0.10	31.68	25.43	1.39						
Station 56													Date: 10/24/76					
			Lat (N): 22° 39.1'			Long (W): 96° 27.2												
51	25.30	36.217	4.84	5.4	1.3	1.4	<0.06	3.8	<0.10	<0.10	0.96	<0.05						
79	22.04	36.245	4.50	3.0	1.6	<1.4	0.09	4.7	<0.10	<0.10	0.62	<0.05						
157	17.90	36.258	2.67	1.8	1.5	<1.4	<0.06	5.3	0.27	20.20	4.94	0.71						
388	9.78	35.215	2.61	2.4	1.0	3.0	0.16	3.9	0.47	46.57	15.08	1.66						
509	7.86	35.021	2.89	1.8	1.2	<1.4	0.09	6.0	0.13	50.43	19.20	1.83						
1401	4.22	34.967	4.97	9.4	1.3	<1.2	0.16	9.8	0.90	34.17	24.95	1.40						
2130	4.21	34.977	5.08	3.5	2.3	<1.2	<0.06	12	<0.10	33.87	25.10	1.36						

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>					
Station 57													Date: 10/24/76				
			Lat (N): 22° 39.2'		Long (W): 97° 6.2'												
2	26.02	-	2.91	-	-	-	-	-	-	-	<0.10	<0.10	1.64	<0.05			
56	22.83	36.252	2.49	19	2.2	<1.2	0.06	3.9	<0.10	<0.10	<0.10	<0.10	0.92	<0.05			
72	21.68	36.264	3.02	1.8	2.4	<1.2	0.06	5.5	0.19	<0.10	<0.10	<0.10	1.07	<0.05			
126	18.71	36.354	2.56	1.2	2.3	1.2	<0.06	3.4	<0.10	19.89	<0.10	<0.10	4.55	0.65			
138	17.93	36.260	2.64	5.9	1.5	<1.2	<0.06	3.1	<0.10	22.54	<0.10	<0.10	4.97	0.75			
251	13.91	35.782	2.75	0.61	2.1	3.4	0.13	3.9	<0.10	33.69	<0.10	<0.10	8.41	1.15			
394	9.85	35.191	2.59	1.2	2.2	<1.4	<0.06	3.5	<0.10	50.64	<0.10	<0.10	15.45	1.69			
706	6.15	34.894	3.26	1.8	1.8	<1.4	<0.06	3.6	0.10	54.44	<0.10	<0.10	24.43	1.95			
1064	4.62	34.942	4.39	4.2	2.0	<1.4	0.13	4.7	0.30	41.94	<0.10	<0.10	26.18	1.69			
1420	4.24	34.976	4.68	2.4	1.5	1.4	0.13	3.7	<0.10	37.99	<0.10	<0.10	25.37	1.49			
Station 58													Date: 10/24/76				
			Lat (N): 22° 0.1'		Long (W): 96° 54.4'												
4	26.09	35.921	4.89	8.8	5.8	1.2	<0.06	6.4	<0.10	<0.10	<0.10	<0.10	1.26	<0.05			
40	23.54	36.015	4.99	4.7	8.1	<1.0	<0.06	6.1	<0.10	<0.10	<0.10	<0.10	1.15	<0.05			
65	21.90	36.275	4.21	1.8	5.2	2.0	0.15	4.9	<0.10	<0.10	<0.10	<0.10	1.04	<0.05			
103	18.79	36.368	2.62	1.2	8.3	2.5	<0.06	4.2	0.53	15.33	<0.10	<0.10	4.15	0.51			
199	13.81	35.777	2.73	5.9	8.5	1.5	0.24	10	-	28.84	<0.10	<0.10	8.49	0.96			
364	9.88	35.220	2.57	9.4	7.9	1.2	0.23	6.5	0.19	52.09	<0.10	<0.10	15.07	1.77			
486	7.88	35.191	2.85	5.3	5.8	<1.2	0.15	6.3	0.43	48.24	<0.10	<0.10	16.50	1.66			
657	6.37	34.895	3.15	4.7	7.7	<1.2	0.12	3.5	0.24	56.65	<0.10	<0.10	23.55	2.01			
1181	4.37	34.959	4.65	1.2	6.4	<1.2	0.11	4.2	<0.10	44.79	<0.10	<0.10	25.11	1.63			
1758	4.20	34.972	4.95	2.3	8.1	1.2	0.15	4.4	<0.10	41.57	<0.10	<0.10	24.88	1.48			

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)							Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>							
Station 59													Date: 10/24/76						
			Lat (N): 21° 55.1'		Long (W): 96° 18.3'														
5	26.68	36.337	4.65	4.4	5.4	2.1	<0.06	-	<0.10	<0.10	0.55	<0.05							
57	23.76	36.345	4.76	6.9	5.2	6.4	0.7	-	<0.10	<0.10	0.63	<0.05							
80	21.38	36.255	4.25	5.0	5.2	2.1	<0.06	-	0.12	0.41	1.04	<0.05							
122	18.36	36.340	2.64	20	4.3	2.9	0.21	-	0.29	19.70	4.45	0.60							
224	13.66	35.733	2.69	4.4	6.9	2.1	0.12	-	0.28	37.07	9.50	1.26							
374	9.85	35.200	2.62	39	5.7	1.2	0.37	-	<0.10	55.23	15.32	1.84							
501	7.83	35.003	2.77	4.7	8.4	<1.0	0.18	-	0.15	60.09	19.51	1.99							
643	6.36	34.912	3.10	1.2	7.1	3.4	0.18	-	0.28	57.03	22.98	1.97							
1447	4.24	-	-	-	-	-	-	-	-	-	-	-							
2349	4.23	34.978	5.05	2.9	6.5	2.2	0.06	-	<0.10	41.65	24.58	1.71							
Station 60													Date: 10/25/76						
			Lat (N): 20° 59.8'		Long (W): 96° 12.3'														
3	26.56	36.390	4.79	2.2	3.9	4.4	0.26	-	<0.10	<0.10	0.59	<0.05							
50	23.20	36.268	5.26	10	-	1.7	0.06	-	<0.10	<0.10	0.93	<0.05							
83	21.95	36.247	4.57	4.3	-	3.9	0.06	-	<0.10	<0.10	0.48	<0.05							
132	18.68	36.303	2.44	2.7	-	2.4	0.37	-	-	20.59	5.64	0.65							
243	13.95	35.760	2.67	-	-	-	-	-	0.14	25.73	8.76	0.92							
581	7.92	35.787	3.44	2.5	4.9	2.9	0.52	-	-	36.63	8.76	1.29							
779	6.14	-	-	-	-	-	-	-	-	-	-	-							
1206	4.46	34.953	4.54	3.7	3.7	2.5	0.23	-	<0.10	47.37	24.92	1.79							
1779	4.21	34.972	4.97	3.7	7.5	2.1	0.21	-	<0.10	44.11	24.40	1.43							

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>					
Station 61													Date: 10/25/76				
		Lat (N): 19° 59.6'		Long (W): 96° 0.4'													
4	26.56	36.332	4.74	8.8	4.2	3.0	0.16	18	<0.10	<0.10	0.41	<0.05					
42	24.27	36.270	5.10	7.2	9.1	2.1	0.23	14	<0.10	<0.10	<0.40	<0.05					
80	21.56	36.249	4.39	8.0	8.6	2.4	0.30	12	<0.10	<0.10	0.56	<0.05					
130	18.80	36.368	2.69	4.8	6.2	2.4	0.23	10	0.12	13.67	8.26	0.44					
147	17.59	36.293	2.73	2.7	-	1.5	0.19	9.2	0.13	16.10	4.59	0.49					
240	13.85	35.768	2.70	3.2	-	1.9	0.06	7.8	0.14	31.37	8.40	1.07					
379	9.92	35.200	2.59	5.4	-	1.9	0.29	8.5	<0.10	56.78	15.23	1.88					
663	6.34	34.896	3.14	1.6	-	1.5	0.26	8.3	<0.10	61.89	22.97	2.12					
1220	4.29	34.960	4.76	6.5	-	1.7	0.42	9.4	<0.10	43.21	24.55	1.52					
1760	4.20	34.971	5.00	3.8	-	1.9	0.05	-	<0.10	40.63	24.40	1.37					
Station 62													Date: 10/25/76				
		Lat (N): 19° 49.3'		Long (W): 95° 35.7'													
2	27.01	36.320	4.65	0.59	2.8	4.8	<0.06	11	<0.10	<0.10	0.63	<0.05					
46	23.59	36.266	5.19	1.2	3.1	1.2	<0.06	5.1	<0.10	<0.10	<0.40	<0.05					
73	21.83	36.242	4.55	0.59	2.3	1.2	<0.06	5.3	<0.10	<0.10	0.44	<0.05					
127	19.01	36.378	2.72	2.3	4.2	1.2	0.15	4.5	<0.10	18.28	4.15	0.48					
141	17.99	36.283	2.73	2.4	6.2	2.1	<0.06	6.9	<0.10	23.78	4.66	0.69					
238	13.76	35.761	2.69	4.0	4.6	1.8	0.5	5.0	<0.10	37.63	8.76	1.23					
384	9.79	35.190	2.59	1.6	4.6	1.8	0.18	6.5	<0.10	56.47	15.56	1.84					
633	6.44	34.898	3.12	3.2	5.8	3.0	0.06	10	<0.10	62.48	23.70	1.99					
1355	4.22	34.967	4.87	5.9	5.5	2.4	<0.06	6.5	<0.10	42.80	25.04	1.31					
2069	4.20	34.974	5.05	4.8	7.3	3.0	0.23	13	<0.10	42.85	24.93	1.47					

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub>	NO <sub>3</sub>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>					
Station 63													Date: 10/26/76				
		Lat (N): 20° 12.9'		Long (W): 94° 57.0'													
7	27.12	36.382	4.79	-	-	-	-	-	-	-	<0.10	<0.10	0.56	<0.05			
40	25.39	36.372	4.52	-	-	-	-	-	-	-	<0.10	<0.10	0.43	<0.05			
72	21.82	36.261	4.70	-	-	-	-	-	-	-	<0.10	<0.10	0.80	<0.05			
117	19.15	36.365	2.77	-	-	-	-	-	-	-	0.14	3.51	3.47	0.52			
137	17.88	36.364	2.67	-	-	-	-	-	-	-	0.19	4.64	3.80	0.67			
232	13.91	35.836	2.75	-	-	-	-	-	-	-	-	8.01	7.41	1.14			
400	9.96	35.217	2.61	-	-	-	-	-	-	-	-	11.59	13.92	1.65			
766	5.81	34.893	3.49	-	-	-	-	-	-	-	-	13.69	22.65	1.79			
1639	4.14	34.968	5.07	-	-	-	-	-	-	-	-	10.05	22.65	1.45			
2500	4.17	34.973	5.07	-	-	-	-	-	-	-	-	9.99	22.38	1.43			
Station 64													Date: 10/26/76				
		Lat (N): 19° 38.8'		Long (W): 94° 54.3'													
4	26.93	36.282	4.74	-	-	-	-	-	-	-	<0.10	<0.10	0.40	<0.05			
24	23.40	36.293	5.00	-	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05			
57	21.95	36.247	4.68	-	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05			
220	13.83	35.793	2.75	-	-	-	-	-	-	-	<0.10	8.24	7.74	1.14			
516	8.00	34.992	2.70	-	-	-	-	-	-	-	-	14.00	18.11	1.93			
699	6.07	34.892	3.31	-	-	-	-	-	-	-	-	13.41	22.44	1.95			
1556	4.20	34.968	4.97	-	-	-	-	-	-	-	-	9.43	22.71	1.45			
2427	4.24	34.973	5.07	-	-	-	-	-	-	-	-	8.86	23.05	1.03			

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>					
Station 65													Date: 10/26/76				
		Lat (N): 19° 29.0'		Long (W): 94° 2.2'													
5	27.22	35.428	4.70	-	-	-	-	-	-	-	<0.10	<0.10	3.14	<0.05			
43	23.42	36.149	4.73	-	-	-	-	-	-	-	<0.10	<0.10	1.00	<0.05			
62	21.50	36.245	4.58	-	-	-	-	-	-	-	<0.10	<0.10	0.87	<0.05			
115	18.44	36.348	2.65	-	-	-	-	-	-	-	0.24	4.61	4.63	0.62			
125	17.61	36.254	2.72	-	-	-	-	-	-	-	0.12	5.40	5.08	0.69			
221	13.83	35.754	2.30	-	-	-	-	-	-	-	<0.10	8.51	8.64	1.18			
312	11.39	35.395	2.57	-	-	-	-	-	-	-	<0.10	11.28	12.21	1.44			
702	6.22	34.896	2.93	-	-	-	-	-	-	-	<0.10	14.23	22.85	1.92			
898	5.21	34.913	3.26	-	-	-	-	-	-	-	<0.10	12.81	24.03	1.84			
1090	4.55	-	-	-	-	-	-	-	-	-	<0.10	10.92	24.31	1.53			
Station 66													Date: 10/26/76				
		Lat (N): 18° 59.9'		Long (W): 94° 0.4'													
4	26.71	35.045	5.28	7.1	4.6	1.6	<0.06	64	<0.10	<0.10	<0.10	5.48	<0.05				
29	26.72	36.250	5.27	4.7	3.5	2.4	<0.06	5.6	<0.10	<0.10	<0.10	0.50	<0.05				
64	21.92	36.260	4.33	2.3	8.1	2.4	<0.06	7.2	<0.10	<0.10	<0.10	0.70	<0.05				
99	19.63	36.389	2.72	1.2	3.3	4.9	<0.06	4.7	<0.10	<0.10	3.84	3.15	0.51				
278	11.91	35.482	2.52	8.8	3.6	1.9	0.15	5.0	<0.10	<0.10	10.96	10.75	1.44				
630	6.66	34.903	3.04	2.3	3.5	3.0	0.18	15	<0.10	<0.10	14.92	21.94	1.98				

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)						Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>						
Station 67													Date: 10/27/76					
		Lat (N): 19° 4.4'		Long (W): 94° 59.7'														
2	26.63	36.310	5.25	-	-	-	-	-	-	-	-	<0.10	0.42	<0.05				
60	22.07	36.238	5.30	14	3.9	3.8	0.18	11				<0.10	<0.40	<0.05				
70	21.37	36.247	4.80	4.2	3.7	2.0	0.3	12				<0.10	0.47	<0.05				
101	19.58	36.335	2.78	6.7	6.1	2.5	0.21	19				<0.10	7.53	3.86	0.53			
145	17.21	36.233	2.91	15	4.9	1.8	0.21	11				<0.10	10.54	4.02	0.77			
233	13.63	35.202	3.15	3.3	5.2	3.0	0.3	13				0.21	16.38	6.98	1.10			
391	9.80	35.751	2.83	7.5	6.1	2.2	0.15	8.3				0.17	26.37	11.82	1.54			
664	6.42	34.896	3.28	7.5	5.7	2.4	0.27	5.0				-	24.55	17.94	1.26			
1087	4.65	34.938	4.39	8.3	3.7	3.0	0.12	6.3				0.14	23.45	19.67	1.40			
1506	4.22	34.967	5.00	3.3	4.3	1.6	<0.06	18				-	21.24	19.04	1.29			
Station 68													Date: 10/31/76					
		Lat (N): 19° 10.7'		Long (W): 95° 33.7'														
85	22.38	36.237	4.38	-	-	-	-	-				<0.10	0.39	1.08	<0.05			
166	17.78	36.278	2.70	-	-	-	-	-				<0.10	9.21	3.81	0.65			
419	9.93	35.230	2.60	-	-	-	-	-				0.12	22.10	11.79	1.35			
544	7.91	35.028	2.70	-	-	-	-	-				-	24.20	15.04	1.60			
820	5.83	34.893	3.44	-	-	-	-	-				<0.10	26.29	19.13	1.71			
950	5.13	34.909	3.89	-	-	-	-	-				<0.10	24.68	20.05	1.65			



Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)				Dissolved nutrients (µg-at/L)			
				Fe	Mn	Cu	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>
Station 69											
			Lat (N): 20° 56.8'				Long (W): 94° 56.7'				Date: 10/31/76
6	26.72	36.395	4.94	-	-	-	-	<0.10	<0.10	<0.40	<0.05
62	23.05	36.248	5.28	-	-	-	-	<0.10	<0.10	<0.40	<0.05
78	22.00	36.257	4.67	-	-	-	-	<0.10	<0.10	<0.40	<0.05
122	19.26	36.378	2.84	-	-	-	-	<0.10	4.88	2.84	0.34
139	18.16	36.315	2.65	-	-	-	-	<0.10	5.76	3.59	0.39
235	13.80	35.787	2.74	-	-	-	-	<0.10	12.59	6.72	0.98
395	9.75	35.208	2.58	-	-	-	-	0.10	21.52	11.85	1.38
723	5.94	34.892	3.78	-	-	-	-	0.13	23.93	18.87	1.73
1507	4.22	34.967	4.94	-	-	-	-	0.17	16.05	19.16	1.24
2515	4.25	35.068	4.81	-	-	-	-	0.28	15.37	17.72	1.14
Station 70											
			Lat (N): 22° 0.1'				Long (W): 94° 59.6'				Date: 11/1/76
2	26.85	36.465	4.73	-	-	-	-	<0.10	<0.10	<0.40	<0.05
61	22.43	36.316	5.13	-	-	-	-	<0.10	<0.10	<0.40	<0.05
67	21.51	36.349	4.30	-	-	-	-	<0.10	<0.10	0.51	<0.05
102	18.32	36.357	2.78	-	-	-	-	<0.10	6.74	3.28	0.48
107	17.80	36.255	2.73	-	-	-	-	<0.10	7.96	3.79	0.63
202	13.73	35.690	2.70	-	-	-	-	<0.10	14.73	7.12	1.05
350	9.93	35.213	2.60	-	-	-	-	<0.10	20.60	11.66	1.45
670	6.07	34.896	3.30	-	-	-	-	<0.10	24.25	18.82	1.60
1490	4.23	34.970	4.93	-	-	-	-	<0.10	16.79	19.22	1.27
2526	4.25	34.984	5.23	-	-	-	-	<0.10	14.87	18.99	1.18

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)									
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>						
Station 71													Date: 11/1/76					
		Lat (N): 22° 59.7'		Long (W): 94° 31.2'														
2	26.53	36.367	4.41	-	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05				
66	23.26	36.257	2.71	-	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05				
94	20.84	36.251	4.43	-	-	-	-	-	-	-	<0.10	<0.10	0.40	<0.05				
130	18.44	36.379	3.59	-	-	-	-	-	-	-	<0.10	6.61	3.25	0.54				
137	18.04	36.296	2.70	-	-	-	-	-	-	-	<0.10	7.50	3.60	0.60				
239	13.72	35.936	2.78	-	-	-	-	-	-	-	<0.10	11.33	5.55	0.79				
413	9.98	35.201	2.60	-	-	-	-	-	-	-	<0.10	22.35	12.07	1.40				
766	6.03	34.893	3.28	-	-	-	-	-	-	-	<0.10	23.89	18.96	1.62				
1485	4.27	34.963	4.85	-	-	-	-	-	-	-	<0.10	15.91	19.47	1.28				
2534	4.26	35.356	3.91	-	-	-	-	-	-	-	<0.10	13.08	13.46	1.03				
Station 72													Date: 11/2/76					
		Lat (N): 23° 59.6'		Long (W): 93° 1.1'														
2	25.96	36.398	4.85	-	-	-	-	-	-	-	<0.10	<0.10	0.42	<0.05				
70	23.46	36.395	4.93	-	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05				
104	22.07	36.246	4.54	-	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05				
162	19.01	36.398	2.73	-	-	-	-	-	-	-	<0.10	6.63	3.54	0.51				
172	18.22	36.318	2.73	-	-	-	-	-	-	-	<0.10	13.04	6.72	0.95				
289	13.68	35.762	2.68	-	-	-	-	-	-	-	0.10	4.52	3.04	0.19				
448	10.05	35.177	2.57	-	-	-	-	-	-	-	0.29	18.83	12.08	1.05				
759	6.19	34.893	3.31	-	-	-	-	-	-	-	<0.10	24.91	18.71	1.43				
1491	4.28	-	-	-	-	-	-	-	-	-	-	-	-	-				
2511	4.26	36.952	5.04	-	-	-	-	-	-	-	<0.10	16.34	19.13	1.15				



Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)						Dissolved nutrients (µg-at/L)				
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub>	NO <sub>3</sub>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>		
Station 75														
		Lat (N): 20° 55.8'		Long (W): 92° 59.8'										Date: 11/2/76
2	26.97	35.060	4.90	-	-	-	-	-	-	<0.10	<0.10	3.82	<0.05	
57	22.75	36.247	5.09	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05	
70	21.97	36.240	4.54	-	-	-	-	-	-	<0.10	<0.10	0.43	<0.05	
126	18.21	36.328	2.54	-	-	-	-	-	-	<0.10	9.48	4.20	0.50	
132	17.59	36.257	3.07	-	-	-	-	-	-	<0.10	10.95	3.91	0.66	
236	13.67	35.822	2.71	-	-	-	-	-	-	<0.10	17.22	6.29	0.92	
423	9.99	35.219	2.60	-	-	-	-	-	-	<0.10	25.05	11.28	1.37	
779	5.88	34.897	3.34	-	-	-	-	-	-	<0.10	28.43	18.32	1.60	
2516	4.27	34.972	5.04	-	-	-	-	-	-	<0.10	19.62	18.51	1.21	
Station 76														
		Lat (N): 19° 45.4'		Long (W): 93° 0.2'										Date: 11/3/76
3	26.26	34.372	4.91	-	-	-	-	-	-	<0.10	<0.10	6.84	<0.05	
57	23.14	36.252	5.32	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05	
78	22.15	36.273	4.23	-	-	-	-	-	-	<0.10	0.45	1.01	<0.05	
128	18.98	36.365	2.58	-	-	-	-	-	-	0.12	9.62	3.28	0.55	
148	17.62	36.244	2.68	-	-	-	-	-	-	<0.10	12.16	3.83	0.67	
402	10.00	35.216	2.50	-	-	-	-	-	-	<0.10	27.89	11.60	1.39	
549	7.80	34.994	2.71	-	-	-	-	-	-	<0.10	30.86	14.95	1.55	
767	5.97	34.902	3.41	-	-	-	-	-	-	<0.10	30.10	18.60	1.61	
942	5.03	34.927	4.04	-	-	-	-	-	-	0.15	24.05	19.37	1.34	

Table 1. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)									
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>						
Station 77													Date: 11/3/76					
		Lat (N): 19° 2.9'		Long (W): 92° 55.0'														
2	26.60	34.569	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	26.74	34.580	4.80	2.8	1.5	0.12	6.8	<0.10	<0.10	9.03	<0.05	<0.10	9.03	<0.05	<0.10	9.03	<0.05	<0.05
55	26.00	36.247	4.67	8.3	6.6	0.12	7.8	<0.10	<0.10	0.86	<0.05	<0.10	0.86	<0.05	<0.10	0.86	<0.05	<0.05
80	22.65	36.263	4.54	7.6	3.0	0.24	18	<0.10	<0.10	1.52	<0.05	<0.10	0.35	<0.05	<0.10	1.52	<0.05	<0.05
134	19.64	36.346	2.96	48	2.0	0.18	6.7	<0.10	<0.10	3.38	<0.05	<0.10	6.98	<0.05	<0.10	3.38	<0.05	<0.05
155	18.37	36.310	2.67	34	5.6	0.39	13	<0.10	<0.10	5.10	<0.05	<0.10	11.28	<0.05	<0.10	5.10	<0.05	<0.05
Station 78													Date: 11/3/76					
		Lat (N): 19° 15.0'		Long (W): 91° 59.8'														
5	27.07	35.998	4.73	2.8	3.1	0.27	5.5	<0.10	<0.10	5.92	<0.05	<0.10	<0.10	<0.05	<0.10	5.92	<0.05	<0.05
15	27.08	35.999	4.57	3.4	6.3	<0.06	7.8	<0.10	<0.10	5.78	<0.05	<0.10	<0.10	<0.05	<0.10	5.78	<0.05	<0.05
20	27.10	36.031	4.30	4.1	5.3	<0.06	5.7	0.13	0.13	6.06	<0.05	<0.10	<0.10	<0.05	<0.10	6.06	<0.05	<0.05
Station 79													Date: 11/4/76					
		Lat (N): 19° 52.3'		Long (W): 92° 0.6'														
6	26.85	35.568	5.04	5.3	6.5	0.27	15	<0.10	<0.10	3.27	0.15	<0.10	<0.10	0.15	<0.10	3.27	0.15	0.15
51	26.76	36.165	4.64	4.7	4.9	0.18	19	<0.10	<0.10	1.44	0.10	<0.10	<0.10	0.10	<0.10	1.44	0.10	0.10
61	25.34	36.163	4.48	12	8.9	0.15	18	0.22	0.22	1.96	0.10	0.22	0.21	0.10	0.22	1.96	0.10	0.10
66	23.70	36.198	4.46	7.3	3.0	0.18	16	0.26	0.26	2.88	0.19	0.26	0.61	0.19	0.26	2.88	0.19	0.19
75	22.86	36.251	4.33	8.0	2.6	0.15	18	<0.10	<0.10	3.49	0.17	<0.10	0.98	0.17	<0.10	3.49	0.17	0.17
77	-	36.248	4.31	7.3	2.6	0.06	14	<0.10	<0.10	3.57	0.24	<0.10	0.94	0.24	<0.10	3.57	0.24	0.24
Station 80													Date: 11/4/76					
		Lat (N): 20° 59.4'		Long (W): 91° 0.4'														
5	25.84	36.572	4.83	3.3	3.2	0.06	13	<0.10	<0.10	0.56	0.13	<0.10	0.19	0.13	<0.10	0.56	0.13	0.13
10	25.85	36.571	4.73	2.7	3.9	0.06	12	<0.10	<0.10	0.53	<0.05	<0.10	<0.10	<0.05	<0.10	0.53	<0.05	<0.05
15	25.85	36.571	4.75	3.3	2.8	0.12	11	<0.10	<0.10	0.73	0.17	<0.10	<0.10	0.17	<0.10	0.73	0.17	0.17
23	25.85	36.571	4.78	2.0	3.2	0.15	11	<0.10	<0.10	0.63	0.22	<0.10	<0.10	0.22	<0.10	0.63	0.22	0.22

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)						Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>						
Station 81													Date: 11/4/76					
		Lat (N): 22° 1.2'		Long (W): 90° 58.2'														
5	25.81	36.498	4.59	14	14	<1.5	0.18	13	<0.10	<0.10	0.43	0.14						
8	25.81	36.498	4.57	13	4.4	2.2	0.18	8.2	<0.10	<0.10	0.69	<0.05						
15	25.82	36.497	4.57	8.9	3.7	3.0	0.12	11	<0.10	<0.10	0.49	<0.05						
25	25.81	35.008	-	-	-	-	-	-	-	-	-	-						
35	25.81	36.499	4.67	5.2	4.5	5.6	0.27	11	<0.10	<0.10	0.59	0.13						
40	25.82	36.498	4.73	5.9	4.4	<1.5	0.18	12	<0.10	<0.10	0.43	0.19						
Station 82													Date: 11/4/76					
		Lat (N): 22° 59.9'		Long (W): 90° 59.9'														
2	25.90	-	4.85	-	-	-	-	-	<0.10	<0.10	0.16	<0.40	<0.05					
67	23.27	36.397	4.78	-	-	-	-	-	<0.10	<0.10	0.16	<0.40	<0.05					
71	22.43	36.358	4.62	-	-	-	-	-	<0.10	<0.10	0.43	<0.05						
124	18.69	36.412	2.88	-	-	-	-	-	<0.10	<0.10	6.46	3.22	0.55					
130	18.26	36.322	3.02	-	-	-	-	-	0.17	0.17	5.42	3.66	0.40					
228	13.64	35.758	2.76	-	-	-	-	-	0.10	0.10	14.13	7.56	1.10					
373	10.05	35.199	2.62	-	-	-	-	-	<0.10	<0.10	25.48	13.23	1.64					
732	6.06	35.203	2.58	-	-	-	-	-	<0.10	<0.10	25.71	13.23	1.63					
1483	4.29	34.966	4.82	-	-	-	-	-	<0.10	<0.10	19.96	21.57	1.46					
2514	4.26	34.979	5.07	-	-	-	-	-	<0.10	<0.10	19.63	21.38	1.33					

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>					
Station 83													Date: 11/5/76				
			Lat (N): 23° 58.8'			Long (W): 90° 56.4'											
2	25.35	36.335	5.06	-	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05			
76	22.79	36.445	4.52	-	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05			
80	22.36	36.271	4.56	-	-	-	-	-	-	-	<0.10	<0.10	0.49	<0.05			
130	19.21	36.367	2.81	-	-	-	-	-	-	-	0.23	4.14	3.13	0.48			
148	18.06	36.284	2.83	-	-	-	-	-	-	-	0.74	6.12	4.19	0.65			
441	10.00	35.207	2.71	-	-	-	-	-	-	-	<0.10	19.71	13.25	1.55			
731	6.31	34.898	3.20	-	-	-	-	-	-	-	<0.10	25.13	20.46	1.95			
1490	4.27	34.968	4.88	-	-	-	-	-	-	-	<0.10	15.87	21.54	1.33			
2516	4.26	34.974	5.13	-	-	-	-	-	-	-	<0.10	15.43	21.06	1.46			
Station 84													Date: 11/5/76				
			Lat (N): 23° 59.9'			Long (W): 88° 59.7'											
2	24.62	36.211	4.30	-	-	-	-	-	-	-	<0.10	<0.10	1.94	0.11			
68	22.92	36.208	4.94	-	-	-	-	-	-	-	<0.10	<0.10	0.50	<0.05			
73	22.32	36.256	4.30	-	-	-	-	-	-	-	<0.10	<0.10	0.69	<0.05			
117	19.05	36.371	2.65	-	-	-	-	-	-	-	<0.10	5.58	3.29	0.59			
139	17.79	36.269	2.67	-	-	-	-	-	-	-	<0.10	7.58	3.91	0.78			
234	13.74	35.769	2.73	-	-	-	-	-	-	-	<0.10	11.40	7.20	1.11			
390	9.92	-	2.67	-	-	-	-	-	-	-	<0.10	20.23	13.62	1.72			
758	6.09	34.893	3.33	-	-	-	-	-	-	-	<0.10	23.70	20.67	1.99			
1491	4.29	34.964	4.82	-	-	-	-	-	-	-	0.10	15.52	21.28	1.55			
2517	4.27	34.975	5.02	-	-	-	-	-	-	-	<0.10	14.21	20.96	1.46			

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)				
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub>	NO <sub>3</sub>	SiO <sub>3</sub> <sup>2-</sup>	PO <sub>4</sub> <sup>3-</sup>	
Station 85													
		Lat (N): 22° 59.9'	Long (W): 88° 56.0'										Date: 11/6/76
7	25.74	36.349	4.60	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05
19	25.75	36.348	4.73	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05
38	25.76	36.348	4.80	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05
68	22.96	36.305	4.67	-	-	-	-	-	-	<0.10	<0.10	0.44	0.23
73	22.70	36.345	4.06	-	-	-	-	-	-	<0.10	<0.10	1.41	0.18
Station 86													
		Lat (N): 22° 0.3'	Long (W): 89° 0.0'										Date: 11/6/76
5	24.71	36.318	4.88	7.4	5.8	<1.5	0.26	9.2	<0.10	0.20	0.56	<0.05	<0.05
18	24.69	36.317	5.33	14	2.9	3.0	0.09	18	<0.10	<0.10	0.43	<0.05	<0.05
27	24.61	36.316	4.94	16	4.1	<1.5	0.18	14	<0.10	<0.10	0.50	<0.05	<0.05
36	24.03	36.299	4.28	6.7	3.4	3.0	<0.06	8.8	<0.10	<0.10	1.58	<0.05	<0.05
Station 87													
		Lat (N): 22° 1.0'	Long (W): 87° 0.7'										Date: 11/6/76
4	24.92	36.171	5.06	59	2.9	2.0	<0.09	13	<0.10	<0.10	0.67	<0.05	<0.05
12	24.47	36.184	4.83	10	2.9	<1.4	0.17	20	<0.10	<0.10	0.67	<0.05	<0.05
26	24.25	36.230	4.86	9.0	3.1	<1.4	0.17	23	<0.10	<0.10	0.80	<0.05	<0.05
Station 88													
		Lat (N): 22° 2.9'	Long (W): 86° 36.5'										Date: 11/6/76
4	26.84	36.038	4.75	7.1	3.5	2.0	0.13	7.0	<0.10	<0.10	0.74	<0.05	<0.05
21	26.16	36.045	4.59	32	3.4	<1.4	0.17	19	<0.10	<0.10	0.67	<0.05	<0.05
43	23.26	36.449	4.12	3.9	1.8	<1.4	0.22	19	0.15	1.08	0.91	0.10	0.10
56	21.37	36.503	3.96	34	2.3	3.7	0.22	12	0.50	1.80	1.28	0.21	0.21
73	20.31	36.501	3.62	2.6	1.4	<1.4	0.13	16	0.53	2.31	1.42	0.21	0.21
75	20.28	36.571	3.54	7.7	1.6	<1.4	0.09	10	0.48	2.61	1.77	0.24	0.24



Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)									
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>						
Station 89													Date: 11/7/76					
		Lat (N): 22° 3.4'				Long (W): 86° 12.0'												
2	27.52	36.110	4.65	-	-	-	-	-	-	-	<0.10	0.57	<0.10	0.50	0.10	0.15	0.16	
111	23.72	36.769	3.80	16	-	4.3	<0.08	11	-	<0.10	1.06	0.50	<0.10	0.50	0.10	0.15	0.16	
145	21.77	36.847	3.80	5.7	-	5.9	0.33	5.6	-	<0.10	2.08	0.64	<0.10	0.67	0.16	0.39	1.78	
153	21.36	36.827	3.75	42	-	4.3	<0.08	9.1	-	<0.10	1.96	0.67	<0.10	1.67	0.39	1.78	2.03	
227	17.93	36.472	3.72	13	-	7.8	0.33	6.1	-	<0.10	4.76	1.67	<0.10	13.12	1.78	2.03	2.09	
548	8.53	35.086	2.91	5.7	-	4.7	0.24	16	-	<0.10	26.91	13.12	<0.10	15.78	2.03	2.09	1.89	
566	7.89	34.922	2.91	7.9	-	4.7	<0.08	7.6	-	<0.10	30.03	15.78	<0.10	18.89	2.09	1.89	1.89	
713	6.38	34.840	3.28	8.6	-	4.7	<0.08	7.6	-	<0.10	29.76	18.89	<0.10	20.09	1.89	1.89	1.89	
895	5.46	34.880	3.94	13	-	5.5	<0.08	13	-	<0.10	27.40	20.09	<0.10	20.09	1.89	1.89	1.89	
Station 90													Date: 11/7/76					
		Lat (N): 22° 5.3'				Long (W): 85° 48.2'												
2	27.51	36.108	4.96	-	-	-	-	-	-	-	<0.10	0.50	<0.10	0.40	0.17	0.13	0.11	0.12
134	23.77	36.649	4.25	47	-	5.1	<0.08	8.1	-	<0.10	0.60	0.40	<0.10	0.63	0.13	0.11	0.12	1.50
167	22.19	36.874	3.85	7.6	-	4.3	0.41	6.4	-	<0.10	1.81	0.63	<0.10	11.97	1.50	2.00	1.45	1.31
186	21.19	36.863	3.80	9.4	-	5.1	<0.08	7.4	-	<0.10	1.69	0.63	<0.10	17.72	2.00	1.45	1.31	1.31
275	17.94	36.469	3.81	3.5	-	5.1	0.28	7.8	-	<0.10	1.56	1.59	<0.10	19.27	1.45	1.31	1.31	1.31
594	9.93	35.145	2.91	3.5	-	4.7	<0.08	5.9	-	0.29	21.48	11.97	<0.10	17.72	2.00	1.45	1.31	1.31
790	6.74	34.841	3.17	1.2	-	5.1	<0.08	6.4	-	<0.10	30.99	17.72	<0.10	19.27	1.45	1.31	1.31	1.31
1498	4.28	34.966	4.94	25	-	4.3	<0.08	6.1	-	<0.10	20.02	19.27	<0.10	17.95	1.31	1.31	1.31	1.31
1920	4.20	34.973	5.74	24	-	5.9	<0.08	65	-	<0.10	19.33	17.95	<0.10	17.95	1.31	1.31	1.31	1.31

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)						Dissolved nutrients (µg-at/L)				
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub>	NO <sub>3</sub>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>		
Station 91														
		Lat (N): 22° 6.4'		Long (W): 85° 24.3'										Date: 11/7/76
2	27.72	36.989	4.90	-	-	-	-	-	-	<0.10	<0.10	0.57	<0.05	
142	24.48	36.769	4.07	11	-	3.1	<0.08	5.8	<0.10	<0.10	0.84	0.40	0.13	
300	17.99	36.425	3.72	4.5	-	3.3	0.16	8.1	<0.10	<0.10	5.68	2.12	0.51	
626	10.01	35.187	2.91	4.5	-	2.6	<0.08	5.6	<0.10	<0.10	23.04	11.54	1.71	
832	6.71	34.893	3.12	9.0	-	8.5	0.28	10	<0.10	<0.10	31.75	17.34	2.00	
2140	4.18	34.998	5.41	18	-	6.4	0.61	6.4	0.20	0.20	18.69	16.10	1.28	
Station 92														
		Lat (N): 22° 10.2'		Long (W): 84° 59.8'										Date: 11/7/76
2	27.40	36.104	4.83	-	-	-	-	-	-	<0.10	<0.10	0.63	<0.05	
108	25.73	36.219	-	10	1.5	7.5	0.17	7.2	<0.10	<0.10	<0.10	0.47	<0.05	
142	24.12	36.727	4.10	28	2.1	10	0.13	10	<0.10	<0.10	0.88	0.43	0.13	
202	21.71	36.853	3.80	5.7	9.0	10	0.17	17	<0.10	<0.10	2.03	0.70	0.12	
252	19.95	36.681	3.72	4.3	2.6	8.5	0.09	12	<0.10	<0.10	3.21	1.35	<0.05	
489	13.83	35.776	3.26	15	3.3	10	0.26	14	<0.10	<0.10	15.99	5.80	1.04	
632	9.88	35.191	2.84	11	4.1	7.5	0.22	12	0.40	0.40	27.11	11.70	1.65	
836	6.41	34.873	3.85	5.0	1.2	4.0	0.17	7.7	<0.10	<0.10	33.49	18.65	1.97	
1497	4.29	34.966	5.02	5.7	4.7	3.5	<0.09	9.6	<0.10	<0.10	20.33	17.88	1.31	
1790	4.21	34.975	5.27	6.4	3.5	2.5	0.17	6.9	<0.10	<0.10	20.12	17.25	1.40	

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)							Dissolved nutrients (µg-at/L)							
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub>	NO <sub>3</sub>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>						
Station 93													Date: 11/7/76					
			Lat (N): 23° 13.5'				Long (W): 84° 46.6'											
2	26.81	36.085	4.85	-	-	-	-	-	-	-	<0.10	<0.10	0.53	<0.05				
141	25.55	36.243	4.51	-	-	-	-	-	-	-	<0.10	<0.10	0.14	0.53	<0.05			
171	24.29	36.750	4.04	-	-	-	-	-	-	-	<0.10	<0.10	1.29	0.50	0.11			
221	21.72	36.853	3.68	-	-	-	-	-	-	-	<0.10	<0.10	3.15	0.84	0.17			
249	20.06	36.720	3.59	-	-	-	-	-	-	-	<0.10	<0.10	4.47	1.35	0.32			
455	13.55	35.779	3.26	-	-	-	-	-	-	-	<0.10	<0.10	17.92	6.10	1.10			
599	10.05	35.178	2.83	-	-	-	-	-	-	-	<0.10	<0.10	30.70	11.89	1.74			
839	6.43	34.876	3.20	-	-	-	-	-	-	-	0.14	34.61	18.60	2.03				
1985	4.20	34.976	5.15	-	-	-	-	-	-	-	<0.10	22.96	18.72	1.45				
Station 94													Date: 11/8/76					
			Lat (N): 22° 51.7'				Long (W): 85° 33.4'											
2	26.66	36.105	4.65	-	-	-	-	-	-	-	<0.10	<0.10	0.41	<0.05				
181	23.78	36.708	4.07	-	-	-	-	-	-	-	<0.10	<0.10	1.02	<0.40	<0.05			
225	21.69	36.907	3.73	-	-	-	-	-	-	-	<0.10	<0.10	2.72	0.47	0.19			
470	13.68	35.765	3.26	-	-	-	-	-	-	-	<0.10	<0.10	2.78	6.12	1.11			
644	9.89	35.339	3.01	-	-	-	-	-	-	-	<0.10	<0.10	19.40	12.95	1.75			
887	6.35	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
2027	4.22	34.978	5.06	-	-	-	-	-	-	-	<0.10	23.71	20.16	1.23				

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>					
Station 95													Date: 11/8/76				
		Lat (N): 22° 32.8'		Long (W): 86° 18.6'													
2	27.41	36.000	4.70	-	-	-	-	-	-	-	<0.10	0.48	0.48	<0.05			
66	26.39	36.032	5.03	-	-	-	-	-	-	-	<0.10	0.41	0.41	<0.05			
115	23.99	36.749	4.12	-	-	-	-	-	-	-	<0.10	1.41	<0.40	0.19			
153	21.67	36.895	3.91	-	-	-	-	-	-	-	0.17	3.56	0.52	0.22			
234	17.91	36.452	3.70	-	-	-	-	-	-	-	<0.10	9.06	1.93	0.48			
395	13.50	35.691	3.26	-	-	-	-	-	-	-	<0.10	22.08	7.31	1.03			
542	9.84	35.142	2.89	-	-	-	-	-	-	-	<0.10	32.25	13.38	1.48			
791	6.37	34.872	3.31	-	-	-	-	-	-	-	<0.10	37.79	20.56	1.79			
884	5.67	-	-	-	-	-	-	-	-	-	-	-	-	-			
946	5.17	34.915	4.19	-	-	-	-	-	-	-	<0.10	33.62	22.74	1.62			
Station 96													Date: 11/8/76				
		Lat (N): 23° 0.8'		Long (W): 87° 0.2'													
86	21.86	36.021	4.91	-	-	-	-	-	-	-	<0.10	0.48	0.48	<0.05			
152	19.00	36.342	4.28	-	-	-	-	-	-	-	0.37	0.46	0.89	<0.05			
231	13.84	36.467	3.47	-	-	-	-	-	-	-	1.24	7.12	2.84	0.27			
329	10.47	35.780	3.25	-	-	-	-	-	-	-	<0.10	19.73	7.11	0.82			

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)						Dissolved nutrients (µg-at/L)			
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub>	NO <sub>3</sub>	SiO <sub>3</sub> -2	PO <sub>4</sub> -3	
Station 97													
				Lat (N): 23° 39.3'	Long (W): 85° 40.9'								Date: 11/9/76
2	26.53	36.109	4.80	-	-	-	-	-	-	<0.10	<0.10	0.59	<0.05
128	25.76	36.284	4.40	-	-	-	-	-	-	<0.10	<0.10	0.52	<0.05
128	25.76	36.758	3.99	-	-	-	-	-	-	<0.10	<0.10	0.44	0.12
220	22.25	36.884	3.78	-	-	-	-	-	-	<0.10	0.24	0.63	<0.05
331	18.14	36.465	3.72	-	-	-	-	-	-	<0.10	5.78	2.20	0.23
481	13.79	35.828	3.26	-	-	-	-	-	-	0.46	12.63	6.33	0.47
601	18.23	35.214	2.86	-	-	-	-	-	-	0.45	25.07	13.04	1.18
954	5.89	34.848	3.52	-	-	-	-	-	-	0.11	29.59	20.78	1.38
1546	4.27	-	-	-	-	-	-	-	-	-	-	-	-
2494	4.26	35.022	5.01	-	-	-	-	-	-	0.16	22.57	21.47	1.06
Station 98													
				Lat (N): 24° 40.1'	Long (W): 85° 38.5'								Date: 11/9/76
2	26.66	36.095	4.70	-	-	-	-	-	-	<0.10	0.31	0.41	<0.05
130	25.90	36.253	4.44	-	-	-	-	-	-	<0.10	0.76	<0.40	<0.05
177	24.12	36.702	4.04	-	-	-	-	-	-	<0.10	1.58	<0.40	0.11
232	21.53	36.887	3.85	-	-	-	-	-	-	0.10	2.72	0.56	0.15
340	18.05	36.444	3.62	-	-	-	-	-	-	-	7.09	2.17	0.42
498	13.78	35.742	3.20	-	-	-	-	-	-	-	17.37	6.81	0.85
665	9.89	35.144	2.92	-	-	-	-	-	-	<0.10	31.74	13.72	1.54
955	6.29	34.866	3.31	-	-	-	-	-	-	0.19	36.24	21.47	1.80
1505	4.33	35.488	4.07	-	-	-	-	-	-	<0.10	20.48	14.64	1.06
2509	4.26	34.973	5.19	-	-	-	-	-	-	-	22.91	22.47	1.15

Table 1. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)						Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>						
Station 99													Date: 11/10/76					
		Lat (N): 24° 29.5'		Long (W): 87° 0.7'														
2	26.58	36.107	4.78	-	-	-	-	-	-	-	<0.10	<0.10	0.45	<0.05				
116	25.95	36.247	4.40	-	-	-	-	-	-	-	<0.10	<0.10	0.41	<0.05				
165	23.70	36.760	4.02	-	-	-	-	-	-	-	0.17	1.15	0.45	0.10				
198	21.94	36.888	3.78	-	-	-	-	-	-	-	-	1.99	0.76	0.11				
298	17.85	36.445	3.62	-	-	-	-	-	-	-	-	6.28	2.32	0.31				
447	13.70	35.797	3.30	-	-	-	-	-	-	-	-	17.85	6.40	0.85				
621	9.92	35.179	2.89	-	-	-	-	-	-	-	-	31.04	13.24	1.48				
802	6.53	34.840	3.22	-	-	-	-	-	-	-	-	36.03	21.41	1.72				
1567	4.22	34.966	4.93	-	-	-	-	-	-	-	-	25.89	23.15	1.28				
1637	4.22	34.970	5.24	-	-	-	-	-	-	-	<0.10	24.61	23.47	1.27				
Station 100													Date: 11/10/76					
		Lat (N): 25° 20.4'		Long (W): 86° 19.8'														
2	26.52	36.107	4.78	-	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05				
131	25.59	36.260	4.51	-	-	-	-	-	-	-	<0.10	<0.10	0.50	<0.05				
160	24.31	36.822	4.02	-	-	-	-	-	-	-	<0.10	0.92	<0.40	<0.05				
208	22.16	36.877	3.67	-	-	-	-	-	-	-	0.14	1.04	0.76	<0.05				
364	17.98	36.434	3.65	-	-	-	-	-	-	-	<0.10	7.14	2.14	0.30				
492	13.80	35.804	3.25	-	-	-	-	-	-	-	<0.10	18.55	6.29	0.81				
646	9.94	35.187	2.83	-	-	-	-	-	-	-	0.15	28.98	13.65	1.41				
904	6.38	34.871	3.25	-	-	-	-	-	-	-	<0.10	36.33	21.65	1.64				
1530	4.29	36.946	4.86	-	-	-	-	-	-	-	-	25.51	23.02	1.16				
2518	4.26	36.957	5.19	-	-	-	-	-	-	-	-	25.30	22.63	1.26				

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>					
Station 101													Date: 11/10/76				
			Lat (N): 26° 31.3'			Long (W): 85° 59.7'											
2	24.25	36.124	4.83	-	-	-	-	-	-	-	<0.10	<0.10	0.66	<0.05			
48	22.93	36.154	4.82	-	-	-	-	-	-	-	<0.10	<0.10	0.62	0.49			
91	20.46	37.110	3.26	-	-	-	-	-	-	-	<0.10	8.60	3.07	0.43			
134	17.46	36.210	3.02	-	-	-	-	-	-	-	<0.10	14.17	4.68	0.63			
182	14.41	35.740	3.01	-	-	-	-	-	-	-	<0.10	21.36	7.33	0.93			
352	9.87	35.220	2.76	-	-	-	-	-	-	-	<0.10	32.59	12.92	1.49			
473	8.14	35.116	3.28	-	-	-	-	-	-	-	<0.10	32.40	15.81	1.52			
649	6.45	35.104	3.49	-	-	-	-	-	-	-	<0.10	32.04	17.57	1.49			
1496	4.32	-	4.83	-	-	-	-	-	-	-	-	-	-	-			
2525	4.24	34.978	5.14	-	-	-	-	-	-	-	0.21	23.81	21.55	1.23			
Station 102													Date: 11/11/76				
			Lat (N): 25° 39.5'			Long (W): 85° 29.7'											
2	26.48	36.125	4.82	-	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05			
128	25.85	36.330	4.48	-	-	-	-	-	-	-	<0.10	0.44	<0.40	<0.05			
155	24.40	36.797	3.98	-	-	-	-	-	-	-	<0.10	1.98	0.42	<0.05			
196	21.58	36.875	3.88	-	-	-	-	-	-	-	<0.10	2.75	0.42	0.13			
290	18.05	36.481	3.64	-	-	-	-	-	-	-	<0.10	8.49	1.97	0.36			
431	13.84	35.809	3.23	-	-	-	-	-	-	-	<0.10	19.64	6.00	0.87			
600	9.76	35.252	3.15	-	-	-	-	-	-	-	<0.10	30.30	12.44	1.34			
780	6.67	34.843	3.17	-	-	-	-	-	-	-	<0.10	38.94	20.45	1.76			
1510	4.25	35.687	4.44	-	-	-	-	-	-	-	<0.10	15.70	11.09	0.71			
2511	4.25	34.973	5.09	-	-	-	-	-	-	-	<0.10	26.37	22.09	1.21			

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)						Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>						
Station 103													Date: 11/11/76					
		Lat (N): 25° 59.7'		Long (W): 84° 45.2'														
2	26.50	36.090	4.78	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05					
76	24.91	36.253	4.82	-	-	-	-	-	-	<0.10	<0.10	<0.40	0.45					
167	17.72	36.292	2.80	-	-	-	-	-	-	<0.10	15.94	3.99	0.61					
421	10.03	35.176	2.86	-	-	-	-	-	-	<0.10	33.63	12.92	1.42					
551	8.14	34.923	2.91	-	-	-	-	-	-	<0.10	39.64	17.76	1.69					
650	6.50	34.868	3.23	-	-	-	-	-	-	<0.10	39.69	20.10	1.76					
832	5.44	34.903	3.80	-	-	-	-	-	-	<0.10	35.69	22.37	1.60					
Station 104													Date: 11/11/76					
		Lat (N): 26° 14.6'		Long (W): 83° 59.7'														
3	23.22	35.929	4.93	-	-	-	-	-	-	<0.10	<0.10	0.67	<0.05					
58	22.69	36.245	4.72	-	-	-	-	-	-	<0.10	<0.10	<0.40	<0.05					
65	20.94	36.351	3.68	-	-	-	-	-	-	<0.10	3.33	2.78	0.20					
93	17.53	36.261	2.92	-	-	-	-	-	-	<0.10	14.74	5.33	0.65					
111	15.72	36.056	3.18	-	-	-	-	-	-	0.12	16.77	5.33	0.74					
126	15.13	35.945	2.99	-	-	-	-	-	-	11.00	19.63	6.51	0.83					
Station 105													Date: 11/11/76					
		Lat (N): 25° 29.7'		Long (W): 83° 45.5'														
2	24.49	36.084	4.78	-	-	-	-	-	-	<0.10	<0.10	0.47	<0.05					
20	24.45	36.082	4.77	-	-	-	-	-	-	<0.10	<0.10	0.51	<0.05					
45	24.43	36.085	4.80	-	-	-	-	-	-	<0.10	<0.10	0.43	<0.05					
69	23.26	36.093	4.73	-	-	-	-	-	-	<0.10	<0.10	0.43	<0.05					
71	22.53	36.348	4.30	-	-	-	-	-	-	0.18	0.50	0.98	<0.05					
90	21.66	36.359	3.98	-	-	-	-	-	-	0.27	2.07	1.59	0.13					



Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)									
				Fe	Mn	Cu	Zn	Cd	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>						
Station 106													Date: 11/12/76					
		Lat (N): 25° 18.7'		Long (W): 84° 19.4'														
4	26.24	36.080	4.78	-	-	-	-	-	-	-	<0.10	<0.10	0.55	<0.05				
51	24.33	36.175	4.86	-	-	-	-	-	-	-	<0.10	<0.10	0.43	<0.05				
74	23.98	36.108	4.80	-	-	-	-	-	-	-	<0.10	<0.10	0.70	<0.05				
106	22.85	36.761	3.86	-	-	-	-	-	-	-	<0.10	3.65	0.70	0.13				
176	17.42	36.295	3.17	-	-	-	-	-	-	-	<0.10	14.76	3.93	0.55				
243	15.64	36.088	3.22	-	-	-	-	-	-	-	<0.10	17.99	5.43	0.68				
Station 107													Date: 11/12/76					
		Lat (N): 25° 0.1'		Long (W): 84° 59.3'														
2	26.55	35.883	4.64	-	-	-	-	-	-	-	<0.10	<0.10	0.45	<0.05				
123	25.42	36.289	4.36	-	-	-	-	-	-	-	<0.10	0.17	0.57	<0.05				
146	24.16	36.668	3.99	-	-	-	-	-	-	-	<0.10	0.65	0.45	<0.05				
196	21.72	36.869	3.83	-	-	-	-	-	-	-	<0.10	1.13	0.61	0.10				
305	18.01	36.427	3.57	-	-	-	-	-	-	-	<0.10	6.47	2.60	0.45				
416	13.56	35.808	3.22	-	-	-	-	-	-	-	0.14	14.36	7.08	0.91				
558	9.75	35.145	2.88	-	-	-	-	-	-	-	-	25.90	14.17	1.53				
784	6.64	34.841	3.15	-	-	-	-	-	-	-	<0.10	32.77	21.78	1.90				
1609	4.24	34.986	5.72	-	-	-	-	-	-	-	<0.10	22.29	22.53	1.38				
2519	4.26	34.977	5.14	-	-	-	-	-	-	-	<0.10	22.29	21.86	1.36				

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)						Dissolved nutrients (µg-at/L)				
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>		
Station 108														
		Lat (N): 24° 1.4'		Long (W): 84° 59.8'										Date: 11/12/76
2	26.31	36.138	4.85	-	-	-	-	-	-	<0.10	<0.10	0.58	1.13	
138	25.41	36.355	4.28	-	-	-	-	-	-	<0.10	<0.10	0.45	<0.05	
165	24.20	36.791	3.99	-	-	-	-	-	-	<0.10	<0.10	0.62	<0.05	
222	21.46	36.859	3.68	-	-	-	-	-	-	<0.10	1.31	0.86	0.14	
299	18.16	36.480	3.86	-	-	-	-	-	-	<0.10	3.43	1.83	0.27	
446	13.67	35.735	2.86	-	-	-	-	-	-	-	8.43	7.40	0.76	
575	10.08	35.162	3.25	-	-	-	-	-	-	0.11	22.25	11.28	1.36	
814	6.40	34.871	3.25	-	-	-	-	-	-	<0.10	27.41	22.75	1.78	
1547	4.23	35.349	4.61	-	-	-	-	-	-	<0.10	13.52	17.75	<0.05	
2516	4.27	34.971	5.99	-	-	-	-	-	-	<0.10	18.54	23.59	1.31	
Station 109														
		Lat (N): 24° 9.5'		Long (W): 84° 20.0'										Date: 11/12/76
2	25.66	35.954	4.82	-	-	-	-	-	-	<0.10	<0.10	0.58	<0.05	
73	23.03	36.164	5.35	-	-	-	-	-	-	0.50	2.47	4.84	0.32	
87	22.49	36.682	3.81	-	-	-	-	-	-	<0.10	1.17	1.04	<0.05	
131	19.32	36.433	3.26	-	-	-	-	-	-	0.35	3.70	2.78	0.36	
147	18.27	36.361	3.78	-	-	-	-	-	-	0.16	2.96	2.69	0.27	
236	13.82	35.815	2.88	-	-	-	-	-	-	0.26	10.14	6.86	0.78	
325	9.96	35.211	2.78	-	-	-	-	-	-	<0.10	21.46	12.89	1.46	
599	6.55	34.783	3.17	-	-	-	-	-	-	0.46	24.48	20.12	1.53	
1514	4.24	34.965	4.94	-	-	-	-	-	-	<0.10	17.39	21.96	1.26	
2513	4.25	34.972	5.06	-	-	-	-	-	-	0.11	15.67	23.65	1.02	

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)					Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>					
Station 110													Date: 11/13/76				
		Lat (N): 24° 31.7'		Long (W): 83° 44.0'													
2	24.61	35.787	4.86	-	-	-	-	-	-	-	<0.10	<0.10	0.42	<0.05			
39	23.89	35.982	4.83	-	-	-	-	-	-	-	<0.10	<0.10	0.54	<0.05			
74	21.72	36.547	3.78	-	-	-	-	-	-	-	<0.10	1.02	1.26	0.12			
106	19.20	36.353	3.13	-	-	-	-	-	-	-	0.49	3.99	3.33	0.40			
134	17.85	36.243	3.31	-	-	-	-	-	-	-	0.22	6.09	3.74	0.57			
183	13.62	35.768	3.07	-	-	-	-	-	-	-	<0.10	12.57	7.04	0.92			
298	9.93	35.146	2.80	-	-	-	-	-	-	-	<0.10	23.20	13.74	1.56			
428	8.03	34.950	2.84	-	-	-	-	-	-	-	<0.10	26.79	17.45	1.72			
625	6.23	35.457	3.31	-	-	-	-	-	-	-	<0.10	11.19	10.83	0.87			
835	5.50	34.899	3.75	-	-	-	-	-	-	-	<0.10	24.32	22.56	1.63			
Station 111													Date: 11/13/76				
		Lat (N): 24° 4.3'		Long (W): 83° 51.1'													
2	24.36	36.020	4.86	-	-	-	-	-	-	-	<0.10	<0.10	0.42	<0.05			
68	24.09	36.335	4.57	-	-	-	-	-	-	-	<0.10	<0.10	0.40	0.05			
80	22.04	36.384	4.14	-	-	-	-	-	-	-	0.14	0.45	1.01	<0.05			
99	19.83	36.246	3.52	-	-	-	-	-	-	-	<0.10	2.96	2.23	0.24			
122	17.54	36.273	3.09	-	-	-	-	-	-	-	<0.10	7.51	4.27	0.56			
172	13.85	35.736	3.09	-	-	-	-	-	-	-	<0.10	12.86	8.42	0.95			
235	9.87	35.174	2.84	-	-	-	-	-	-	-	<0.10	22.79	14.18	1.43			
490	6.36	34.868	3.28	-	-	-	-	-	-	-	<0.10	27.23	22.23	1.66			
1497	4.22	34.968	5.07	-	-	-	-	-	-	-	<0.10	17.28	22.43	1.23			
1659	4.23	34.970	5.24	-	-	-	-	-	-	-	<0.10	17.31	22.58	1.22			



Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)						Dissolved nutrients (µg-at/L)							
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>					
Station 115													Date: 11/14/76				
		Lat (N): 24° 2.2'		Long (W): 81° 54.4'													
2	26.55	36.131	4.70	8.8	3.9	17	<0.08	6.9	<0.10	<0.10	0.43	<0.05					
47	26.05	36.161	4.73	13	4.9	16	<0.08	19	<0.10	<0.10	0.40	<0.05					
109	22.30	36.555	3.72	4	3.8	14	<0.08	8.0	<0.10	<0.10	2.53	<0.05					
132	19.87	36.601	3.46	10	3.8	12	<0.08	6.5	<0.10	<0.10	5.46	0.27					
181	17.61	36.287	3.36	7.7	4.7	15	<0.08	16	<0.10	<0.10	9.95	3.19	0.52				
280	13.59	35.807	3.10	15	4.7	15	<0.08	7.6	<0.10	<0.10	14.79	6.58	0.75				
397	9.87	35.166	2.81	3.8	5.0	49	0.13	7.1	<0.10	<0.10	27.89	13.53	1.43				
520	7.90	34.956	2.83	20	4.1	16	<0.08	6.9	<0.10	<0.10	32.67	17.68	1.60				
620	6.68	34.874	3.07	3.8	5.1	11	0.21	5.2	<0.10	<0.10	33.14	20.24	1.69				
936	5.28	35.030	3.75	5.4	5.0	13	<0.08	11	<0.10	<0.10	27.78	20.69	1.45				
Station 116													Date: 11/14/76				
		Lat (N): 23° 47.6'		Long (W): 81° 56.0'													
2	26.66	36.137	4.57	-	-	-	-	-	<0.10	<0.10	0.56	<0.05					
84	26.67	36.336	4.28	8.0	3.5	7.5	<0.07	13	<0.10	<0.10	0.35	0.43	<0.05				
111	24.52	36.594	3.91	12	6.5	3	0.17	12	<0.10	<0.10	2.08	0.73	<0.05				
150	21.60	36.793	3.64	6.4	2.7	15	<0.07	12	<0.10	<0.10	4.16	0.94	0.14				
216	17.88	36.368	3.28	20	2.5	15	0.21	13	<0.10	<0.10	10.56	3.09	0.36				
310	14.17	35.817	3.09	58	2.3	11	0.14	11	<0.10	<0.10	18.63	6.52	0.88				
468	9.74	35.168	2.76	50	29	14	0.17	17	0.30	0.30	30.48	13.61	1.41				
812	5.89	34.873	3.33	18	6.2	15	0.14	27	0.11	0.11	35.64	21.63	1.65				
1182	4.51	34.931	4.31	22	14	24	0.21	39	<0.10	<0.10	28.79	22.80	1.38				
1559	4.24	34.967	5.01	12	3.9	17	0.21	14	<0.10	<0.10	25.20	22.02	1.21				

Table I. NOAA ship RESEARCHER 1976 Gulf of Mexico cruise data (cont.).

Depth (m)	Temperature (°C)	Salinity (‰)	O <sub>2</sub> (mL/L)	Dissolved trace metals (µg/L)							Dissolved nutrients (µg-at/L)								
				Fe	Mn	Cu	Cd	Zn	NO <sub>2</sub> <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SiO <sub>3</sub> <sup>-2</sup>	PO <sub>4</sub> <sup>-3</sup>							
Station 117													Date: 11/14/76						
		Lat (N): 23° 36.5'		Long (W): 81° 48.1'															
99	26.04	36.357	4.30	2.4	<0.43	2.2	<0.07	6.2	<0.10	<0.10	<0.10	<0.10	<0.40	<0.05					
140	23.78	36.749	3.93	3.2	19	2.6	<0.07	10	<0.10	<0.10	<0.10	1.70	0.69	<0.05					
190	21.40	36.815	3.62	8.2	4.6	3.0	<0.07	7.8	<0.10	<0.10	<0.10	4.28	0.99	0.21					
265	17.81	35.730	3.17	5.4	3.5	2.4	<0.07	5.3	<0.10	<0.10	<0.10	20.19	6.94	0.91					
378	13.86	35.745	3.15	6.4	3.7	1.8	<0.09	4.9	<0.10	<0.10	<0.10	19.57	6.69	0.91					
525	9.86	35.147	2.86	35	7.2	4.2	0.40	33	<0.10	<0.10	<0.10	31.43	13.38	1.44					
760	6.42	34.870	3.22	16	5.3	4.2	0.28	18	<0.10	<0.10	<0.10	36.00	20.31	1.71					
1525	4.20	34.969	5.04	13	4.7	7.2	0.21	13	<0.10	<0.10	<0.10	25.55	21.25	1.25					
1680	4.18	35.335	4.31	11	8.0	4.8	0.34	18	<0.10	<0.10	<0.10	21.22	15.63	0.75					
Station 118													Date: 11/14/76						
		Lat (N): 23° 23.7'		Long (W): 81° 56.3'															
2	26.40	36.117	4.59	4.8	5.5	3.0	0.17	7.8	<0.10	<0.10	<0.10	<0.10	0.43	<0.05					
87	26.22	36.163	4.17	3.2	3.3	2.2	<0.07	5.6	<0.10	<0.10	<0.10	<0.10	0.43	<0.05					
130	24.48	36.720	4.06	11	3.5	2.2	<0.07	16	<0.10	<0.10	<0.10	1.15	0.64	<0.05					
160	22.66	36.841	3.78	3.2	2.8	1.5	<0.07	7.2	<0.10	<0.10	<0.10	2.83	0.60	0.11					
283	18.07	36.461	3.57	3.2	3.3	2.2	0.19	7.4	<0.10	<0.10	<0.10	6.90	2.33	0.36					
399	14.12	36.629	3.60	3.2	3.0	1.8	<0.07	5.8	<0.10	<0.10	<0.10	6.41	1.48	0.24					
560	10.08	35.186	2.83	21	3.3	3.7	<0.07	4.6	<0.10	<0.10	<0.10	31.72	16.38	<1.28					
831	6.4	34.873	3.25	15	3.6	4.8	<0.07	14	<0.10	<0.10	<0.10	36.75	21.58	1.59					
1506	4.24	35.371	4.64	5.6	5.4	6.7	0.24	8.6	<0.10	<0.10	<0.10	19.69	15.90	0.93					
1643	4.18	34.973	5.22	4.8	5.5	3.0	0.17	7.8	<0.10	<0.10	<0.10	25.08	21.01	0.95					