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HYDROGRAPHIC DATA FROM THE NOAA SHIP RESEARCHER DURING THE OCTOBER 1977 OCEAN COLOR AND CIRCULATION CRUISE IN THE GULF OF MEXICO

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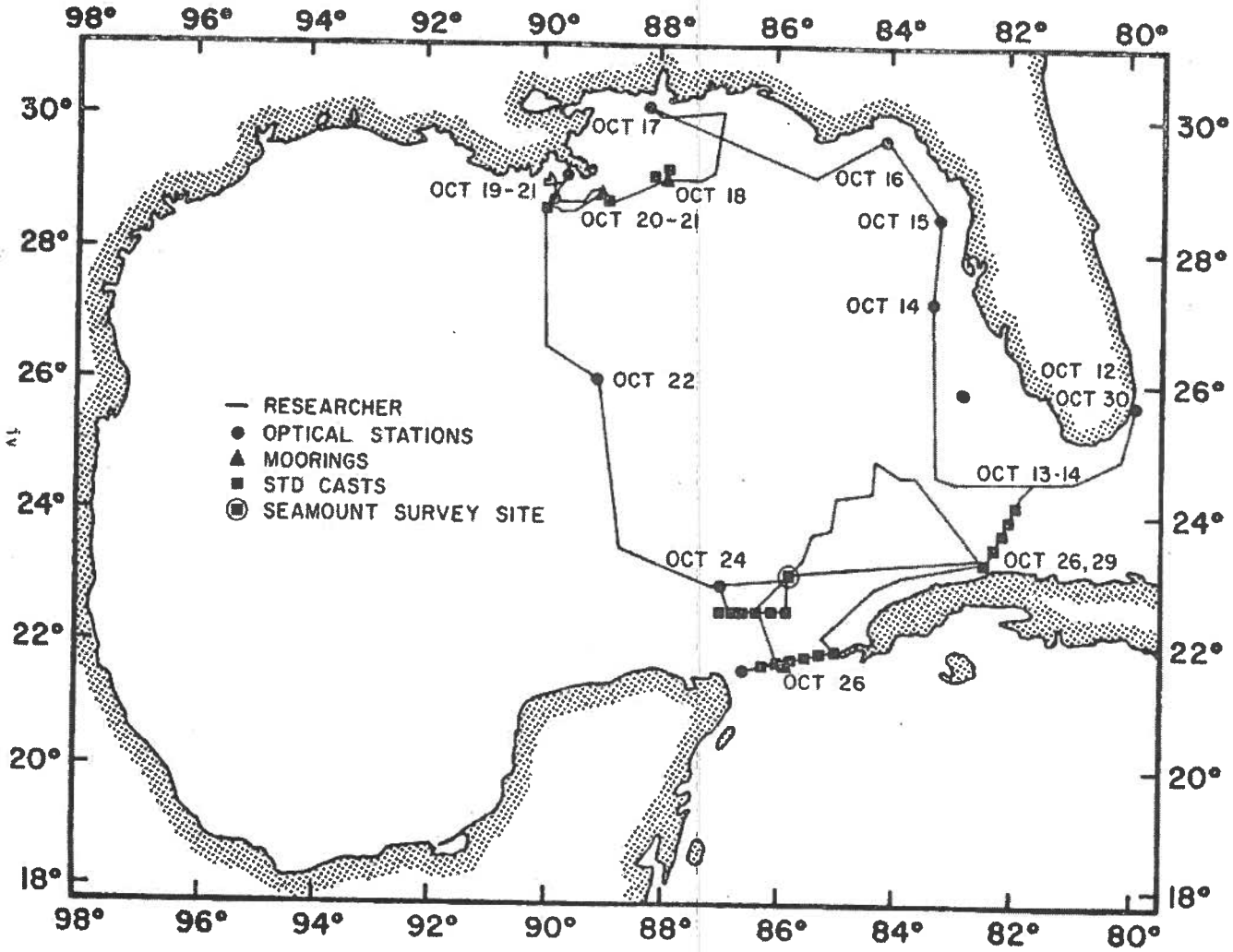
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RESEARCHER
OPTICAL STATIONS
MOORINGS
STD CASTS
SEAMOUNT SURVEY SITE

HYDROGRAPHIC DATA FROM THE NOAA SHIP RESEARCHER DURING THE OCTOBER 1977 OCEAN COLOR AND CIRCULATION CRUISE IN THE GULF OF MEXICO

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1. Introduction

The NOAA Ship RESEARCHER departed Miami on October 12, 1977 for eastern Gulf waters near the Dry Tortugas. The RESEARCHER rendezvoused with the R/V GYRE (Texas A&M University) and proceeded to the planned work area. The location of each work site was determined by overflights by NASA aircraft, which provided actual real-time images of the area, and/or by running preset tracklines while recording chlorophyll levels with a fluorometer. Each day the R/V GYRE was contacted and its similar information was reviewed. Based upon the data information gathered by both vessels, a general worksite was selected. A series of optical experiments was then planned, coordinating the positions and work schedules of the two research vessels for purposes of equipment calibration and data verification.

2. Cruise Summary

The primary purposes of this cruise were twofold:

1) A study of the eastern Gulf of Mexico region using light sensitive equipment was conducted to sample and identify certain optical pro perties of the Gulf waters; from the data amassed during this cruise, it is anticipated that an accurate basis for the study of remote sensing of ocean color can be derived.

2) A survey of the southeastern Gulf of Mexico waters was carried out in order to continue determination of the basic circulation pattern in this area, and to implant a current meter array 100 m above the sill of the Yucatan Strait.

Itinerary for this cruise is as follows:

OCT 12 RESEARCHER departs Miami on Ocean Color and Circulation Cruise; takes coastal route towards Dry Tortuga; dry run of typical Bio-Optical station conducted in afternoon.

OCT 13 Rendezvous with R/V GYRE; Dry Tortugas station abandoned due to passage of front.

OCT 14 Preliminary grid and overflights of Tampa Bay survey area followed by Bio-Optical station; rendezvous with GYRE.

OCT 15 Preliminary grid and low altitude overflights held. Rendezvous with GYRE; Bio-Optical station conducted east of Crystal River Florida. During the evening, the RESEARCHER hosted a discussion of the scientific complements of both ships.

OCT 16 Preliminary grid and overflights; Bio-Optical station occupied in Apalachee Bay. No rendezvous with GYRE. Began XBT survey of De Soto Canyon area this evening.

OCT 17 Completed XBT survey of De Soto Canyon, preliminary grid and overflights; Bio-Optical station completed. Location vicinity of Mobile Bay. During afternoon hours, light measurements by camera to a depth of 52 feet by a group of four RESEARCHER divers. Once underway to buoy sites, a more detailed XBT survey was conducted through the axis of De Soto Canyon area.

OCT 18 Completed XBT survey; arrived on OTEC buoy site (29°06.50'N and 87°55.12'W). Retrieved, serviced, and remoored this current meter array at 29°11.43'N; 87°38.16'W. Second current meter at 29°02.33'N and 88°06.78'W failed to surface upon command. Once underway, an XBT/STD survey was conducted enroute to work site.

OCT 19, 20, 21 Three full days of preliminary grids, optical stations and overflights whenever possible while in general vicinity of Southwest Pass, Louisiana. Rendezvous with GYRE once more. Hazy conditions encountered October 20 and exchange of personnel occurred with NASA/ERL launch followed by a second scientific conference aboard RESEARCHER. Underway to next station doing STD and a series of XBT's.

OCT 22 Arrival on optical station located at 26°N, 89°30'W. Completed Bio-Optical station; rendezvous with GYRE. Underway to next station; series of XBT's launched.

OCT 23 Enroute to station on Campeche Bank. XBT's launched and STD's taken today.

OCT 24 Occupation of Campeche Bank station (23°N, 88°W). Last full day of Bio-Optical sampling with R/V GYRE. Transfer of samples with GYRE that evening; underway due east towards Havana. A search pattern for the seamount in vicinity of 23°13'N, 85°42'W.

OCT 25 Completed unsuccessful search of seamount due to limited amount of time. Underway to Cuban waters.

OCT 26 Completed pick-up of Cuban observers at Havana. Underway to XBT/STD survey line across the Yucatan Strait.

OCT 27 Conducted XBT/STD survey across Yucatan Strait.

OCT 28 Conducted final Bio-Optical station and moored current meter array at 21°41.99'N, 85°52.81'W.

OCT 29 Debark Cuban observers. Completed XBT/STD transect of the Straits of Florida.

OCT 30 Arrived Miami.

Sixteen scientists were aboard for this cruise, each with a distinct and interrelated research interest. The circulation study of the Gulf of Mexico formed the background hydrographic measurements for the other disciplines. A brief report from each of the other investigators is as follows:

Optical Measurements for the Ocean Color Baseline Study: R. Austin, R. Smith, W. Wilson, G. Edwards, A. Chapin - Visibility Laboratory of the Scripps Institution of Oceanography.

The ocean color studies portion of this cruise was in support of the interests of the NIMBUS Experiment Team (NET) for the Coastal Zone Color Scanner (CZCS). Measurements of the biological properties and of the size distribution and nature of the particulate matter in the water column were obtained in conjunction with concomitant optical properties of the water and the resultant spectral signature of the radiance leaving the water surface. On some stations one or more aircraft carrying spectral scanners overflew the ship. On these occasions the optical properties of the atmosphere which effect the signal available to the airborne remote sensor were measured.

Ten optical remote sensing stations were taken. The first was for the purpose of checking out equipment operation and deployment procedures. Only limited quantities of data were acquired but the station objectives were met. On the other nine stations, all essential optical data were acquired.

The following instruments were used to obtain the data listed:

1.0 Spectroradiometer (submersible).
- 1.1 Downwelling spectral irradiance (370 to 700 nanometers) at two or more depths - nine stations.
- 1.2 Upwelling spectral radiance (370 - 700 nm) at two or more depths - nine stations.
- 1.3 Upwelling spectral irradiance (370 - 700 nm) at two or more depths - four stations.

2.0 ALSCAT (or Spectral Transmissometer).
- 2.1 Beam transmittance profiles (vertical) at one or more wavelengths - ten stations.
- 2.2 Spectral beam transmittance at one or more depths (ten wavelengths) - seven stations.
- 2.3 Volume scattering function at 3, 6, and 12 milliradians (one or more depths, ten wavelengths) - five stations.

3.0 General Angle Scattering Meter (GASM)
  3.1 Volume scattering function from 10° to 170° at three to six wavelengths and at one or more depths - three stations.
4.0 Irradiance Meter
  4.1 Vertical profiles of the irradiance at 518 nm were obtained to the bottom or to the 0.5% of surface light depth (for biological productivity studies) - ten stations.
5.0 Ultraviolet Spectroradiometer (UV-B)
  5.1 Measurements of the downwelling spectral irradiance were obtained from 250 to 450 nm at one or more depths - four stations.
6.0 Secchi Depths - seven stations.
7.0 Ocean Color: Munsell Scale determinations - ten stations.
8.0 Atmospheric Measurements - Hand Held Contrast Reduction Meter (HHCRM)
  8.1 Measurements of atmospheric beam transmittance, both radiance and downwelling irradiance were obtained at 16 wavelengths from 400 to 700 nm - six stations.

All instrument systems were maintained in a functional and calibrated condition during the cruise. Weather and sea conditions were excellent for the purposes of ocean color measurements at most stations. A variety of water colors, productivities, and suspended particulates were found in the coastal waters of the Gulf of Mexico providing an adequate range of these parameters for the objectives of remote sensing studies.

Productivity - Chlorophyll; the attenuation of visible light: C. S. Yentsch, C. M. Yentsch, P. Sherman - Bigelow Laboratory for Ocean Sciences.

One of the primary aims is to analyze substances in seawater responsible for the attenuation of visible light. The ocean is considered as an efficient absorber with an average reflection of about 5%. The factors for the selective absorption of light are:

$$A_{W\lambda} + (A_{phy} + A_p)\lambda + A_o$$

where (w) indicates water, (phy) phytoplankton, (p) particles and (o) dissolved organics.

To obtain spectra for phytoplankton and other particles, fluorescence and spectrophotometric techniques are utilized. Two to ten liters of water are filtered through a glass fiber filter which is fitted into the cell compartment of a spectrophotometer. The filter is scanned spectrally between 750 nm and 350 nm using a blank filter as the reference. On the same filter, fluorescence emission and excitation are measured. These filters are then subjected to extraction for the measurement of chlorophyll a, b, c, and phaeopigments.

In conjunction with these measurements, analyses are made on the water for major nutrients, trace metals, C-H-N ratio, particulate and organic carbon, and rates of carbon-14 incorporation. Dissolved organic substances are measured by light transmission at 350 nm in membrane-filtered water samples.

In the course of the cruise, we have encountered changes in chlorophyll of approximately three orders of magnitude. Dissolved organics were measured over a range of at least two orders of magnitude. Highest values were off the Mississippi Delta. Lowest values were in the Central Gulf. Ideally we, in conjunction with the Visibility Laboratory personnel, will attempt to correlate parameters of water color with chlorophyll content, suspended sediments, dissolved organics, and detritus.

Aircraft Operations: R. Svehla, NASA, Lewis Research Center

Program objectives were to overfly the RESEARCHER and GYRE at least once each cruise location through the Campeche Bank stations, ending overflights on October 25th. OCS overflights on the Lear Jet were conducted on October 14, 15, 16, 17, 19, and 21. Only the Campeche Bank area was missed due to cloudy skies. Data for all OCS channels were logged on tape for later use. A ground receiving station on the RESEARCHER was used to receive one channel of real time OCS data, which was displayed on dry silver paper. Solar radio-meter readings of the sun's disk were also obtained during the times of overflight. UHF radio communication was maintained with the aircraft for ranges in excess of 100 miles. VHF aircraft frequency communication was also maintained between the aircraft and both the RESEARCHER and GYRE.

Suspended Particulates: T. Nelsen, AOML

Measurements of suspended particulate matter (SPM) were made at 21 stations in the Gulf of Mexico, Yucatan Strait, and Straits of Florida. The shipboard measurements of SPM included concentration and particulate size distributions by Coulter Counter. At stations where comparative measurements were made there was good agreement between optical (ALSCAT) and SPM observations on relatively high and low concentration values. High powered RF sources such as shipboard radio transmitters proved to be debilitating noise sources for the Coulter Counter and hence coordination between radio transmissions and data collection was necessary.

Phytoplankton Communities: M. Ednoff, FSU

Samples were collected for continued investigations of phytoplankton community structure associated with the Gulf of Mexico Loop Current. Specifically, phytoplankton samples were collected at six or seven depths throughout the euphotic zone on two transects crossing from the waters outside the Loop Current through and into the waters of the current. Samples will be enumerated for species composition and correlated with

the other measurements sampled concurrently (Chl-a, nutrients, salinity, temperature, etc.) to determine if a zone of high productivity exists along the cyclonic edge of the current, and to investigate possible mechanisms responsible for this zone of higher productivity.

AOML Instrument Development: W. Krug, AOML

An AOML designed and built expendable bathythermograph digital data logger (XBT-DDL) was connected to the RESEARCHER's XBT system. Each XBT cast is automatically recorded on cassette tape; the system seemed to function properly. An Ebert 1/8 meter spectrometer was rigged from the starboard crane to record the upwelling light from the water surface. The unit was then placed on F-deck and the downwelling light from the sun was recorded. Five stations were taken in this manner. The data will be processed at AOML as there is no computer program presently available for the RESEARCHER's system.

Volume Scattering Measurements: K. Faller, NASA-ERL

Volume scattering function measurements were made on samples taken from five optical stations. These represented widely varying water types around the eastern Gulf of Mexico. The measurements were coordinated with Coulter Counter observations. The data appears to be of good quality with the exception of data taken at the first station due to an equipment malfunction which was rectified. Reproductibility tests indicated that results were repeatable with approximately 12% rms deviation.

3. Navigation

The primary navigation control aboard the RESEARCHER is provided by a Loran-C navigation system. A position is computed every ten minutes and is recorded on magnetic tape using a Honeywell 316/516 computer system. Loran-C positions can be computed at a greater rate if needed. Satellite navigation served as the supplementary navigation system which computes a position every 30 to 60 minutes, depending on the frequency of the satellite passes. The Loran-C fixes are compared to the satellite fixes for accuracy. A smooth plot of the ship's track during a particular cruise incorporates the most reliable positions from both systems.

With the Loran-C as the primary system and the satellite fix as a supplementary system, accuracy of any position is within ± .2 nautical miles.

4. Expendable Bathythermograph Data

The XBT profiles are digitized upon return to AOML and the greatest depth of each T^{o} isotherm is recorded along with the sea surface temperature (SST). XBT profiles whose traces are disrupted due to radio transmissions or broken wires are eliminated.

A check cycle tick mark is examined on each XBT trace as an indication that the XBT recorder was initialized before the probe was released. All profiles without such a tick mark are compared to their surrounding profiles for consistency. The XBT recorder can be calibrated by a comparison of sea surface temperatures from the XBT profile and a bucket sample taken at each XBT location.

5. Density Data

A Plessey Environmental Systems Model 9040 CSTD system was used in this study to collect density data. Incorporated into the CSTD system was a General Oceanic Rosette Sampler to collect bottle data to be used for calibration purposes. The sampling rate for the CSTD was approximately two scans/second. One scan of a Plessey 9040 CSTD consists of a measured value of conductivity, salinity, temperature and depth. The drop rate for the CSTD was 50 meters/minute through the thermocline, with a drop rate of 30 meters/minute from the surface to the mixed layer depth. The analysis of all temperature data collected by the Rosette Sampler incorporated the procedures outlined in Lafond (1951). Thermometer depths, computed on board the RESEARCHER, are accurate to within 3% of the depth. All salinity samples from the Rosette Sampler were analyzed by a Guildline Autosol 8400 and are accurate to ± .01 $^{o}/_{oo}$.

The computer processing techniques applied to the raw CSTD data are designed to eliminate scans which contain extraneous values of either parameter, whereby the entire scan is removed. Effects of shiproll are eliminated by producing a series monotonically increasing in depth by only accepting progressively greater values of depth. A low pass filter is then applied to the depth series (Scarlet, 1975).

The temperature probe of the Plessey 9040 CSTD has a slower response than the other probes in the instrument and for that reason a time lag correction must be applied to the temperature values. The time log involved is 0.35 seconds. The forward difference analogue which is used to correct the slow response is:

$$T = MT + \frac{MT}{dt} * t$$

where T = time log corrected temperature

MT = measured temperature

$d\frac{MT}{DT}$ = temperature difference between successive readings

t = time constant of probe (.35 sec.)

A subsequent salinity correction developed by Mosetti (1967) was applied to the values of salinity to compensate for the time lag of the temperature probe.

Bottle data collected by the Rosette Sampler were used to calibrate the density profiles. Offsets realized by a comparison between bottle data and those scans measured by the CSTD were applied to the final CSTD series to create a processed, calibrated series.

6. Nutrient Data

Nutrient samples for circulation studies were collected in 125 ml "aged" linear polyethaline bottles and frozen immediately after collection. They were kept at -15°C in a dark container and returned to AOML for analysis. Samples were analyzed on a multi-channel Technicon Model I Autoanalyzer using standard Technicon nutrient methodology. Detection limits are as follows:

Parameter	Detection Limit (μg-at/ℓ)	Coefficient of Variation (% at μg-at/ℓ)
NO_3-N	0.5	0.17 at 15.0
NO_2-N	0.1	1.2 at 3.2
PO_4-P	0.05	1.6 at 0.64

7. Suspended Particulate Data

Water sampling was accomplished with a remotely activitated Rosette sampling system which accommodates a suite of ten 10-liter Niskin bottles. After bottle closure at desired depths, the Rosette sampling system was brought back on board the vessel for subsampling.

For measurements of suspended particulate matter (SPM) concentrations duplicates were drawn from each Niskin sampler into volumetrically calibrated polyethylene bottles. These known volumes of sea water were then vacuum filtered through pre-weighed Nuclepore (47 mm diameter, 0.4 μ pore size) membrane filters. After filtering the sea water, each filter and its associated glass filter holder received a minimum of two washes with distilled water. This assured that any particles adhering to the glass filter funnel walls would be washed onto the filter and the filters would be purged of salts. The glass funnel was then removed and the filter edge received a final distilled water wash to purge it of any foreign material. The filters were then placed in covered petri-slides and stored for final weighing in the laboratory. In the laboratory the filters were dried at 50°C for at least four hours and allowed to cool overnight in a closed petri-slide before final weighing. All weights

were measured to the nearest 0.01 milligram on a Perkin-Elmer Model AM-2 digital micro-balance. Final SPM weights were then normalized to filtered water volume, and all concentration values were expressed in miligrams of SPM per liter of water (Mg/ℓ).

8. References

Lafond, E. C. (1951). Processing Oceanographic Data, U.S. Navy Hydrographic Office. Publication No. 614, U.S. Government Printing Office, Washington, D.C., 114 pp.

Mosetti, F. (1966). A new formula for the correction of sea water conductivity with salinity and temperature. Bolletino di Geofisica Teorica ed Applicata, Vol. 8, No. 31, pp. 213-217.

Scarlet, R. I. (1975). A data processing method for salinity temperature and depth profiles. Deep-Sea Research, 22, pp. 509-515.

Appendix A: Nutrient Data

Nutrient Data

Station/ Depth	NO_2-N	NO_3-N	SiO_3-Si	PO_4-P
11B2500	.00	35.47	20.03	1.34
11B2250	.00	26.43	19.21	1.34
11B2000	.00	26.43	18.89	1.34
11B1500	.00	24.43	19.27	1.34
11B1250	.00	29.64	21.55	1.39
11B1000	.00	23.07	15.73	1.00
11B 750	.00	41.96	20.55	1.94
11B 500	.00	41.34	14.17	1.79
11B 100	.00	10.87	1.69	.38
12 160	.00	11.98	1.80	.38
12 100	.12	4.76	.00	.10
12 75	.12	1.25	.00	.05
12 50	.00	.00	.00	.00
12 25	.00	.00	.00	.00
12 10	.00	.00	.00	.00
13 265	.03	23.56	5.33	.70
13 150	.03	9.27	.93	.24
13 100	.04	7.44	.93	.19
13 75	.06	.00	.00	.00
13 50	.00	.00	.00	.00
13 25	.00	.00	.00	.00
13 10	.00	.00	.00	.00
13 1	.00	.00	.00	.00
14 300	.00	34.82	7.57	1.16
14 240	.00	34.82	6.45	.96
14 150	.00	30.16	3.50	.65
14 90	.18	1.69	.00	.10
14 65	.00	.00	.00	.00
14 40	.00	.00	.00	.00
14 25	.00	.00	.00	.00
14 10	.00	.00	.00	.00
14 1	.00	.00	.00	.00
15 500	.00	26.57	10.40	1.00
15 245	.00	16.28	4.56	.63
15 150	.00	9.10	1.96	.32
15 90	.09	2.22	.66	.06
15 70	.00	.00	.00	.00
15 40	.00	.00	.00	.00
15 25	.00	.00	.00	.00
15 10	.00	.00	.00	.00
15 1	.00	.00	.00	.00
17 995	.00	30.77	16.74	1.07
17 750	.15	36.04	12.34	1.13
17 500	.00	22.25	5.66	.81
17 250	.00	6.89	1.05	.21
17 100	.07	.00	.00	.00
17 75	.15	.00	.00	.00

Nutrient Data

Station/ Depth		NO_2-N	NO_3-N	SiO_3-Si	PO_4-P
17	50	.00	.00	.00	.00
18	1450	.00	25.25	19.90	1.43
18	1250	.00	26.64	20.72	1.46
18	1000	.00	32.87	22.21	1.90
18	750	.00	35.62	16.73	2.05
18	500	.00	22.58	7.29	1.24
18	250	.00	5.64	.74	.25
18	100	.08	.13	.00	.00
18	75	.38	.25	.00	.00
18	50	.00	.00	.00	.00
19	1250	.00	26.27	19.32	1.36
19	1000	.00	32.47	21.15	1.75
19	750	.00	36.89	18.06	1.99
19	500	.00	26.87	8.23	1.44
19	250	.00	6.18	.68	.28
19	100	.18	.36	.00	.00
19	75	.00	.00	.00	.00
19	50	.00	.00	.00	.00
19	25	.00	.00	.00	.00
20	1988	.00	25.97	17.19	1.28
20	1734	.00	23.88	17.42	1.22
20	1500	.00	24.28	17.71	1.21
20	1250	.00	23.68	16.84	1.22
20	1000	.00	31.51	20.38	1.75
20	762	.00	23.92	11.37	1.15
20	500	.00	22.30	6.91	.93
20	184	.00	4.67	.34	.16
20	100	.00	.92	.00	.00
20	75	.00	.00	.00	.05
20	50	.00	.00	.00	.00
20	25	.00	.00	.00	.00
21	1334	.23	13.33	9.29	.53
21	1004	.00	32.87	19.26	1.65
21	616	.00	25.81	10.71	1.15
21	282	.00	16.21	3.81	.60
21	100	.00	1.31	.00	.04
21	75	.00	4.06	.00	.09
21	50	.00	.61	.00	.00
21	25	.00	.61	.00	.00
21	10	.00	.47	.00	.00
22	50	.07	2.38	.00	.05
22	50	.13	1.94	.00	.05
22	45	.05	3.56	.00	.10
22	45	.05	2.81	.00	.10
22	40	.03	1.07	.00	.05
22	40	.00	.95	.00	.00
22	30	.00	.12	.00	.00

Nutrient Data

Station/ Depth		NO_2-N	NO_3-N	SiO_3-Si	PO_4-P
22	30	.00	.12	.00	.00
22	20	.00	.00	.00	.00
22	20	.00	.45	.00	.00
22	10	.00	.00	.00	.00
23	1767	.00	6.24	3.44	.40
23	1500	.00	30.06	20.88	1.46
23	1250	.00	26.48	17.08	1.29
23	1000	.00	19.37	12.06	.99
23	750	.00	15.36	8.06	.70
23	500	.26	8.92	2.51	.53
23	250	.00	7.47	.79	.31
23	100	.00	1.26	.00	.05
23	75	.00	.00	.00	.00
23	50	.00	.00	.00	.00
23	25	.00	.00	.00	.00
23	10	.00	.00	.00	.00
24	500	.00	37.16	15.12	1.69
24	250	.00	30.06	11.71	1.27
24	150	.00	23.99	6.57	1.00
24	100	.00	17.43	3.63	.70
24	75	.00	5.82	1.07	.21
24	50	.00	.21	.00	.00
24	25	.00	.00	.00	.00
24	10	.00	.00	.00	.00
24	1	.00	.00	.00	.00
25	500	.00	36.89	14.05	1.68
25	250	.00	18.54	4.38	.70
25	150	.00	16.04	3.15	.58
25	100	.00	10.23	1.72	.37
25	75	.00	1.31	.00	.04
25	50	.00	1.36	.00	.00
25	25	.00	.59	.00	.00
25	10	.00	.00	.00	.00
25	1	.00	.00	.00	.00
26	587	.00	37.38	14.03	1.72
26	250	.00	17.26	3.38	.66
26	150	.00	9.05	.00	.29
26	100	.00	3.29	.00	.09
26	75	.00	1.61	.00	.03
26	50	.00	.00	.00	.00
26	25	.00	.00	.00	.00
26	10	.00	.00	.00	.00
26	1	.00	.00	.00	.00
27	1498	.00	28.75	19.94	1.44
27	1250	.00	31.97	20.58	1.51
27	1000	.00	38.25	20.97	1.79
27	750	.00	35.50	13.10	1.61
27	500	.00	25.00	6.40	1.04

Nutrient Data

Station/ Depth		NO_2-N	NO_3-N	SiO_3-Si	PO_4-P
27	250	.00	9.40	1.25	.31
27	100	.10	.75	.00	.00
27	75	.00	.00	.00	.00
27	50	.00	.00	.00	.00
27	25	.00	.00	.00	.00
27	10	.00	.00	.00	.00
28	1650	.00	21.40	20.36	1.30
28	1500	.00	24.20	22.40	1.42
28	1250	.00	20.57	17.02	1.08
28	1000	.00	29.89	22.60	1.68
28	750	.00	30.85	16.73	1.79
28	500	.00	21.52	8.58	1.24
28	250	.00	5.64	.64	.25
28	100	.00	.24	.00	.00
28	75	.00	.00	.00	.19
28	50	.00	.00	.00	.33
28	25	.00	.00	.00	.00
28	10	.00	.00	.00	.10
29	1734	.00	24.26	21.66	1.36
29	1500	.00	26.02	23.01	1.38
29	1250	.00	28.88	23.71	1.57
29	1000	.00	32.23	23.71	1.85
29	750	.00	29.13	16.73	1.50
29	500	.00	28.07	10.93	1.35
29	250	.00	9.59	1.52	.43
29	189	.00	6.04	.57	.27
29	100	.00	.59	.00	.00
29	75	.00	.00	.00	.00
29	50	.00	.00	.00	.00
29	25	.00	.00	.00	.00
30	1073	.00	33.00	24.60	1.89
30	911	.00	25.95	16.38	1.57
30	500	.00	30.76	15.04	1.59
30	250	.00	21.10	6.49	.89
30	140	.00	4.58	.28	.16
30	100	.00	1.43	.00	.00
30	75	.00	.27	.00	.00
30	50	.00	.00	.00	.00
30	25	.00	.00	.00	.00
30	10	.00	.00	.00	.00
30	1	.00	.00	.00	.00
31	640	.16	18.49	10.93	1.31
31	500	.00	35.88	18.74	1.85
31	250	.00	26.81	10.45	1.24
31	100	.10	4.75	.90	.16
31	75	.15	3.17	.00	.10
31	50	.00	.00	.00	.00

Nutrient Data

Station/ Depth		NO_2-N	NO_3-N	SiO_3-Si	PO_4-P
31	50	.00	.00	.00	.00
31	25	.00	.00	.00	.00
31	10	.00	.00	.00	.00
32	161	.03	26.04	11.30	1.15
32	100	.10	25.44	8.82	1.28
32	75	.00	15.27	4.55	.60
32	50	.00	21.40	6.77	.95
32	25	.00	.00	1.27	.00
32	10	.00	.00	.46	.00
32	1	.00	.00	.25	.00

Appendix B: Hydrographic Data

OCEAN COLOR & CIRCULATION STATION 1

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 25 22.0 N LONGITUDE 80 1.3 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.519	28.765								
10.	36.500	28.467	28.464	23.390	450.319	26.727	.036	36.505	28.452	.000
20.	36.501	28.234	28.229	23.467	443.026	26.808	.081	36.500	28.248	.000
30.	36.496	28.194	28.186	23.476	442.263	26.819	.125	36.498	28.194	4.482
40.	36.500	28.134	28.125	23.499	440.199	26.843	.169	36.501	28.108	3.470
50.	36.530	27.806	27.795	23.629	427.901	26.977	.213	36.528	27.771	6.304
60.	36.555	27.258	27.244	23.827	409.129	27.180	.255	36.557	27.266	8.782
70.	36.572	26.652	26.636	24.034	389.526	27.393	.295	36.581	26.567	10.186
80.	36.595	24.831	24.814	24.618	333.805	27.997	.331	36.598	24.810	13.924
100.	36.777	22.480	22.459	25.450	254.584	28.854	.388	36.777	22.431	14.234
122.	36.753	19.398	19.375	26.275	175.891	29.716	.434	36.753	19.398	14.028
140.	36.339	14.978	14.956	27.026	103.700	30.528	.458	36.270	14.736	14.328
160.	35.999	12.949	12.927	27.194	87.015	30.729	.476	35.998	12.945	6.472
180.	35.889	12.291	12.267	27.240	82.246	30.786	.493	35.888	12.296	3.989
200.	35.844	12.041	12.014	27.254	80.606	30.805	.509	35.848	11.976	2.842
220.	35.444	10.717	10.690	27.347	70.985	30.921	.524	35.652	10.650	4.943
240.	35.472	8.722	8.696	27.552	50.196	31.161	.536	35.449	8.703	6.627
260.	35.360	7.578	7.552	27.639	40.792	31.270	.545	35.380	7.543	5.606
280.	35.264	6.930	6.904	27.657	38.256	31.300	.553	35.262	6.932	-.372
300.	35.227	6.649	6.621	27.666	36.704	31.315	.561	35.220	6.652	1.395
320.	35.236	6.566	6.536	27.685	34.373	31.336	.568	35.229	6.561	2.214
340.	35.214	6.417	6.386	27.688	33.538	31.342	.575	21.133	3.859	******

OCEAN COLOR & CIRCULATION STATION 2

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 27 11.1 N LONGITUDE 83 20.4 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.179	26.689								
10.	36.217	26.672	26.669	23.760	414.966	27.116	.033	36.214	26.688	.000
20.	36.211	26.675	26.670	23.754	415.613	27.112	.075	36.212	26.673	.000
30.	36.490	26.035	26.028	24.167	376.355	27.530	.116	36.616	25.608	12.457
40.	37.083	24.280	24.272	25.153	282.428	28.533	.145	36.968	25.026	16.179

OCEAN COLOR & CIRCULATION STATION 2-1

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 27 10.6 N LONGITUDE 83 18.8 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.189	26.711								
10.	36.196	26.695	26.693	23.736	417.200	27.093	.033	36.192	26.699	.000
20.	36.199	26.701	26.696	23.737	417.217	27.095	.075	36.199	26.702	.000
30.	37.040	24.435	24.429	25.075	289.848	28.452	.114	36.810	25.073	15.938
40.	37.069	24.374	24.365	25.115	286.134	28.493	.143	36.959	25.102	16.105

OCEAN COLOR & CIRCULATION STATION 2-2

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 27 8.7 N LONGITUDE 83 18.0 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.106	26.560								
10.	36.105	26.499	26.497	23.730	417.775	27.089	.034	36.106	26.506	.000
20.	36.158	26.577	26.572	23.786	416.418	27.104	.075	36.167	26.591	.000
30.	36.897	24.666	24.659	24.897	306.793	28.272	.115	36.722	25.418	13.949

OCEAN COLOR & CIRCULATION STATION 2-3

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 27 7.9 N LONGITUDE 83 18.9 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.086	26.579								
10.	36.088	26.533	26.531	23.707	420.022	27.065	.034	36.090	26.533	.000
20.	36.098	26.500	26.495	23.725	418.383	27.085	.076	36.097	26.500	.000
30.	36.112	26.485	26.478	23.740	417.036	27.101	.117	36.349	26.069	9.116
40.	37.066	24.587	24.578	25.048	292.446	28.425	.150	36.952	25.274	15.756

OCEAN COLOR & CIRCULATION STATION 3

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 38.8 N LONGITUDE 83 4.9 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	35.082	24.336								
10.	35.079	24.295	24.293	23.634	426.915	27.021	.034	35.083	25.187	.000

OCEAN COLOR & CIRCULATION STATION 3-1

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 39.3 N LONGITUDE 83 4.4 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	35.022	24.471								
10.	35.035	24.407	24.405	23.567	433.334	26.953	.044	35.035	24.407	.000

OCEAN COLOR & CIRCULATION STATION 4

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 29 30.1 N LONGITUDE 84 2.8 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	34.831	23.461								
10.	34.837	23.460	23.458	23.698	420.853	27.095	.042	34.837	23.460	.000

OCEAN COLOR & CIRCULATION STATION 4-1

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 29 38.6 N LONGITUDE 84 1.6 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	34.851	23.535								
10.	34.862	23.548	23.546	23.691	421.539	27.086	.034	34.851	23.507	.000

OCEAN COLOR & CIRCULATION STATION 5

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 30 9.3 N LONGITUDE 88 14.5 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
4.	34.205	24.229								

OCEAN COLOR & CIRCULATION STATION 5-1

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 30 9.8 N LONGITUDE 88 14.8 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	32.945	22.997								
12.	34.000	23.860	23.858	22.948	492.488	26.345	.010	34.000	23.860	.000

OCEAN COLOR & CIRCULATION STATION 5-2

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 30 10.4 N LONGITUDE 88 14.8 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	34.082	24.010								
10.	34.407	24.291	24.288	23.430	446.472	26.818	.019	34.583	23.903	.000

OCEAN COLOR & CIRCULATION STATION 6

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 40.1 N LONGITUDE 88 52.7 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	34.119	25.420								
10.	35.676	25.853	25.851	23.610	429.252	26.977	.038	35.656	25.931	.000
20.	36.116	26.281	26.277	23.807	410.546	27.169	.079	36.112	26.270	.000
30.	36.131	26.283	26.277	23.818	409.615	27.181	.120	36.130	26.283	7.758
40.	36.230	26.293	26.284	23.890	402.906	27.252	.161	36.215	26.286	4.265
50.	36.310	25.715	25.704	24.130	380.021	27.499	.201	36.298	25.577	9.180
60.	36.457	21.690	21.678	25.430	256.098	28.842	.233	36.459	22.189	18.458
70.	36.502	20.654	20.640	25.749	225.735	29.174	.257	36.499	20.721	19.440
80.	36.490	19.837	19.822	25.959	205.768	29.394	.279	36.494	19.828	12.773
100.	36.486	18.414	18.396	26.323	171.081	29.777	.316	36.477	18.423	9.223
120.	36.479	18.221	18.200	26.367	166.936	29.824	.350	36.479	18.230	3.528
140.	36.455	17.849	17.825	26.441	159.846	29.904	.383	36.459	17.863	4.358
160.	36.405	17.327	17.300	26.531	151.211	30.001	.414	36.410	17.335	4.776
180.	36.325	16.604	16.574	26.642	140.385	30.124	.443	36.331	16.628	5.286
200.	36.187	15.704	15.672	26.745	130.276	30.241	.473	36.187	15.704	5.117
242.	35.855	13.544	13.509	26.961	108.715	30.490	.521	35.855	13.544	8.579
260.	35.811	13.302	13.266	26.977	106.967	30.510	.540	35.817	13.335	8.350
280.	35.701	12.601	12.563	27.033	101.062	30.579	.561	35.704	12.611	3.939
300.	35.643	12.142	12.102	27.079	96.314	30.632	.581	35.640	12.129	3.432
320.	35.552	11.602	11.561	27.111	92.644	30.674	.600	35.542	11.587	2.783
340.	35.472	11.087	11.044	27.145	88.877	30.717	.618	35.465	11.079	3.074
360.	35.392	10.592	10.548	27.173	85.560	30.753	.635	35.395	10.590	3.043
380.	35.359	10.328	10.282	27.194	83.101	30.779	.652	35.358	10.320	2.306
400.	35.249	9.893	9.846	27.184	83.368	30.777	.669	35.249	9.888	-1.215
420.	35.191	9.458	9.411	27.212	79.999	30.813	.685	35.191	9.453	2.802
440.	35.160	9.175	9.126	27.234	77.219	30.841	.701	35.164	9.190	2.506
460.	35.113	8.842	8.792	27.251	74.898	30.865	.716	35.117	8.847	2.365
480.	35.078	8.481	8.429	27.282	71.285	30.902	.731	35.076	8.472	2.755
500.	35.048	8.203	8.151	27.301	68.759	30.926	.745	35.050	8.198	2.475
520.	35.018	7.849	7.796	27.330	65.896	30.963	.758	35.021	7.854	2.457
540.	35.001	7.605	7.550	27.353	62.186	30.990	.771	35.002	7.597	2.524
560.	34.988	7.333	7.278	27.383	58.800	31.025	.783	34.985	7.347	2.949
580.	34.970	7.077	7.021	27.405	55.739	31.052	.794	34.970	7.078	2.708
600.	34.965	6.944	6.886	27.419	53.699	31.069	.805	34.965	6.930	2.181
620.	34.959	6.671	6.613	27.452	49.710	31.107	.815	34.958	6.666	2.908
640.	34.959	6.442	6.383	27.484	45.886	31.143	.825	34.958	6.439	2.876
660.	34.962	6.310	6.250	27.503	43.562	31.165	.834	34.963	6.309	2.366
680.	34.963	6.240	6.178	27.513	41.773	31.177	.842	34.964	6.239	1.884
700.	34.965	6.163	6.100	27.525	40.074	31.191	.851	34.966	6.167	1.731
720.	34.967	6.092	6.027	27.536	38.403	31.203	.858	34.967	6.092	1.772
740.	34.972	6.025	5.959	27.548	36.638	31.217	.866	34.970	6.025	1.889
760.	34.973	5.930	5.862	27.561	34.707	31.232	.873	34.974	5.928	2.834
780.	34.974	5.877	5.808	27.569	33.611	31.241	.880	34.975	5.879	1.482
800.	34.981	5.755	5.684	27.590	30.641	31.264	.886	34.980	5.767	2.248
820.	34.984	5.697	5.625	27.599	29.133	31.275	.892	34.984	5.692	1.823
840.	34.987	5.604	5.530	27.613	27.128	31.291	.898	34.986	5.601	1.955
860.	34.990	5.531	5.456	27.625	25.301	31.305	.903	34.989	5.535	1.693
880.	34.995	5.462	5.385	27.637	23.507	31.318	.908	34.995	5.460	1.987
900.	34.996	5.412	5.334	27.644	22.195	31.326	.912	34.997	5.407	1.536
920.	35.001	5.336	5.257	27.657	20.274	31.341	.917	35.001	5.331	1.870
940.	35.008	5.242	5.162	27.674	17.877	31.360	.920	35.009	5.248	2.166

OCEAN COLOR & CIRCULATION STATION 7

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 49.2 N LONGITUDE 89 9.1 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	33.465	25.823								
10.	33.455	25.862	25.860	21.934	589.468	25.312	.024	33.455	25.862	.000
20.	35.255	26.187	26.183	23.188	469.634	26.555	.066	35.021	26.049	.000
30.	36.044	25.614	25.608	23.961	395.952	27.331	.110	36.039	25.455	22.240
40.	36.354	22.810	22.802	25.034	293.723	28.433	.194	36.360	22.932	21.678
50.	36.397	21.926	21.916	25.319	266.679	28.728	.172	36.389	21.888	17.831
60.	36.413	21.005	20.994	25.586	241.221	29.007	.197	36.402	20.980	11.863
70.	36.400	20.211	20.198	25.791	221.751	29.221	.220	36.405	20.215	10.683
80.	36.413	19.649	19.634	25.949	206.663	29.387	.241	36.391	19.622	9.293
100.	36.354	18.805	18.787	26.123	190.119	29.572	.281	36.356	18.800	6.741
120.	36.334	18.085	18.064	26.290	176.226	29.749	.317	36.337	18.087	6.368
140.	36.290	17.429	17.406	26.417	161.990	29.886	.351	36.284	17.413	5.567
160.	36.214	16.847	16.820	26.499	154.030	29.978	.382	36.217	16.853	4.980
180.	36.163	16.439	16.409	26.557	148.435	30.041	.413	36.166	16.448	3.770
200.	36.041	15.624	15.592	26.652	139.137	30.149	.442	36.037	15.614	4.853
220.	35.868	14.451	14.419	26.778	126.614	30.293	.488	35.868	14.451	5.661

OCEAN COLOR & CIRCULATION STATION 8

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 42.5 N LONGITUDE 89 45.9 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	35.904	25.942								
10.	35.899	25.942	25.939	23.750	415.854	27.116	.033	35.907	25.948	.000
20.	36.000	25.916	25.912	23.835	407.916	27.201	.075	35.982	25.924	.000
30.	36.135	26.131	26.124	23.869	404.783	27.233	.115	36.121	26.106	5.254
40.	36.133	26.121	26.112	23.871	404.718	27.235	.156	36.137	26.132	3.612
50.	36.166	24.053	24.043	24.528	342.060	27.915	.195	36.208	24.482	11.697
60.	36.357	21.613	21.601	25.376	261.287	28.789	.225	36.352	21.641	18.995
70.	36.419	19.989	19.976	25.865	214.704	29.298	.249	36.419	19.989	18.613

OCEAN COLOR & CIRCULATION STATION 8-1

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 42.7 N LONGITUDE 89 45.9 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	35.915	25.951								
10.	35.913	25.947	25.945	23.759	415.042	27.124	.041	35.921	25.928	.000
20.	36.026	25.905	25.901	23.857	405.742	27.224	.082	36.039	25.932	4.953
30.	36.158	26.071	26.064	23.890	402.733	27.245	.123	36.134	26.069	5.193
40.	36.171	26.126	26.116	23.898	402.118	27.242	.163	36.170	26.121	3.218
50.	36.420	23.636	23.625	24.843	312.003	28.233	.202	36.353	24.083	13.652
60.	36.429	21.425	21.413	25.483	251.066	28.898	.229	36.433	21.418	19.589

OCEAN COLOR & CIRCULATION STATION 8-2

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 42.7 N LONGITUDE 89 46.2 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	35.943	25.744								
10.	35.938	25.842	25.839	23.811	410.087	27.177	.042	35.930	25.841	.000
20.	36.032	25.911	25.907	23.860	405.493	27.226	.083	36.031	25.906	9.763
30.	36.156	26.114	26.107	23.890	402.736	27.254	.123	36.142	26.090	4.516
40.	36.185	26.147	26.138	23.901	401.766	27.266	.164	36.186	26.148	3.944
50.	36.452	22.900	22.890	25.082	289.270	28.440	.199	36.439	22.896	16.434
60.	36.458	20.999	20.987	25.645	235.655	29.065	.225	36.475	21.034	20.398
70.	36.459	20.281	20.268	25.817	219.283	29.246	.248	36.457	20.254	13.462

OCEAN COLOR & CIRCULATION STATION 8-3

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 43.0 N LONGITUDE 89 46.7 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.016	26.130								
10.	36.017	26.077	26.074	23.797	411.424	27.160	.041	36.020	26.077	.000
20.	36.021	26.004	26.000	23.823	409.048	27.148	.082	36.020	26.010	3.240
30.	36.091	26.118	26.111	23.840	407.556	27.204	.123	36.075	26.094	3.487
40.	36.124	26.108	26.098	23.868	404.961	27.233	.164	36.138	25.924	5.351
50.	36.445	23.086	23.076	25.023	294.820	28.419	.199	36.393	23.188	16.440
60.	36.470	20.922	20.910	25.652	234.953	29.073	.226	36.441	20.818	20.395
70.	36.477	20.241	20.228	25.842	216.937	29.271	.248	36.465	20.155	14.760

OCEAN COLOR & CIRCULATION STATION 8-4

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 43.3 N LONGITUDE 89 46.8 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.036	26.109								
10.	36.029	26.042	26.040	23.817	409.537	27.181	.041	36.029	26.059	.000
20.	36.033	26.030	26.026	23.824	408.930	27.149	.082	36.034	26.032	2.487
30.	36.047	26.040	26.034	23.831	408.401	27.196	.123	36.048	26.048	2.231
40.	36.130	26.144	26.135	23.861	405.631	27.226	.164	36.137	26.051	4.241
50.	36.433	23.382	23.372	24.928	303.961	28.320	.201	36.396	23.663	15.449
60.	36.489	20.946	20.935	25.660	234.235	29.040	.227	36.469	21.038	20.403
70.	36.407	20.075	20.062	25.832	217.781	29.264	.250	36.439	20.006	15.943

OCEAN COLOR & CIRCULATION STATION 8-5

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 41.2 N LONGITUDE 89 58.2 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	35.871	25.850								
10.	35.918	25.934	25.931	23.767	414.278	27.133	.008	35.918	25.934	.000
20.	36.076	26.214	26.210	23.798	411.388	27.161	.041	36.057	26.159	.080
30.	36.152	26.073	26.066	23.900	401.793	27.265	.082	36.143	26.071	5.796
40.	36.197	25.517	25.509	24.107	382.182	27.477	.121	36.256	25.137	10.644
50.	36.459	22.888	22.878	25.091	288.372	28.449	.154	36.447	22.949	16.814
60.	36.452	21.592	21.580	25.434	253.867	28.867	.181	36.455	22.153	15.772

OCEAN COLOR & CIRCULATION STATION 8-6

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 41.7 N LONGITUDE 89 44.4 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	35.883	25.892								
10.	35.920	25.897	25.895	23.780	412.997	27.146	.041	35.929	25.915	.000
20.	36.018	26.052	26.048	23.805	410.733	27.170	.083	36.022	26.056	3.688
30.	36.136	26.192	26.185	23.850	406.557	27.219	.123	36.118	26.145	4.195
40.	36.174	25.515	25.506	24.090	383.739	27.461	.163	36.210	25.393	9.195
50.	36.461	22.895	22.885	25.091	288.428	28.449	.197	36.443	23.009	16.969

OCEAN COLOR & CIRCULATION STATION 8-7

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 41.5 N LONGITUDE 89 44.3 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	34.450	25.526								
10.	35.603	25.904	25.902	23.765	414.487	27.131	.047	35.903	25.904	.000
20.	36.142	26.254	26.250	23.836	407.827	27.198	.088	36.106	26.196	.000
30.	36.149	26.186	26.179	23.862	405.397	27.226	.128	36.149	26.186	5.068
40.	36.202	25.788	25.779	24.027	389.815	27.395	.168	36.202	25.788	7.175
50.	36.481	22.393	22.383	25.250	273.236	28.643	.200	36.478	22.384	18.309
60.	36.482	21.092	21.080	25.615	238.513	29.034	.226	36.460	20.961	20.122

OCEAN COLOR & CIRCULATION STATION 8-8

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 42.3 N LONGITUDE 89 49.1 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	35.428	25.736								
10.	35.889	25.878	25.876	23.763	414.681	27.129	.034	35.882	25.879	.000
20.	35.975	25.991	25.987	23.792	411.957	27.158	.075	36.000	26.044	.000
30.	36.125	26.149	26.142	23.856	406.009	27.220	.116	36.123	26.119	5.128
40.	36.353	24.620	24.611	24.499	344.749	27.878	.155	36.315	24.573	12.915
50.	36.450	22.028	22.018	25.330	265.574	28.738	.185	36.447	22.119	18.637
60.	36.446	20.817	20.805	25.662	233.963	29.045	.210	36.433	20.838	16.762
70.	36.469	20.099	20.086	25.873	213.926	29.305	.232	36.427	20.083	11.478

OCEAN COLOR & CIRCULATION STATION 8-9

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 42.8 N LONGITUDE 89 49.1 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	35.179	25.733								
10.	35.922	25.950	25.948	23.765	414.485	27.130	.034	35.918	25.960	.000
20.	36.041	26.060	26.055	23.821	409.251	27.185	.075	36.023	26.020	.000
30.	36.149	25.979	25.972	23.927	399.184	27.293	.116	36.144	25.926	6.642
40.	36.374	24.417	24.408	24.576	337.406	27.957	.153	36.359	24.365	13.567
50.	36.459	21.994	21.984	25.387	264.014	28.755	.183	36.456	22.010	18.386
60.	36.508	20.889	20.877	25.690	231.370	29.111	.207	36.468	20.851	16.225

OCEAN COLOR & CIRCULATION STATION 10

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 28 37.9 N LONGITUDE 89 59.1 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	35.880	26.070								
10.	35.849	26.038	26.035	23.683	422.286	27.048	.042	35.851	26.036	.000
20.	35.834	26.034	26.030	23.672	423.421	27.038	.084	35.834	26.038	-2.295
30.	35.870	26.085	26.076	23.683	422.444	27.049	.127	35.896	26.114	1.688
40.	36.132	25.442	25.433	24.081	384.647	27.452	.168	36.168	25.543	9.914
50.	36.323	21.850	21.840	25.284	269.957	28.694	.201	36.287	22.133	18.921
60.	36.333	20.265	20.253	25.726	227.890	29.155	.226	36.339	20.256	19.998
70.	36.400	19.626	19.613	25.946	206.970	29.383	.248	36.379	19.552	13.674
80.	36.329	18.446	18.431	26.195	183.206	29.648	.267	36.327	18.584	10.175
100.	36.318	18.140	18.123	26.264	176.676	29.722	.303	36.320	18.129	5.975
120.	36.251	17.436	17.414	26.386	164.958	29.854	.337	36.256	17.417	5.587
140.	36.115	16.198	16.176	26.576	146.589	30.063	.368	36.126	16.262	6.656
160.	36.067	15.800	15.774	26.631	141.266	30.124	.397	36.066	15.802	3.758
180.	36.049	15.587	15.558	26.666	137.640	30.163	.425	36.049	15.587	3.022
200.	35.963	15.043	15.012	26.722	132.272	30.227	.452	35.938	14.953	3.787
220.	35.771	13.996	13.964	26.801	124.259	30.323	.477	35.787	14.033	4.59

OCEAN COLOR & CIRCULATION STATION 11-1

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 26 1.8 N LONGITUDE 89 3.8 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVQ. X 1000
0.	36.343	26.771								
20.	36.341	26.735	26.730	23.833	408.042	27.140	.074	36.341	26.735	.000
30.	36.343	26.728	26.721	23.837	407.812	27.194	.114	36.343	26.728	.000
40.	36.344	26.709	26.700	23.844	407.275	27.202	.155	36.353	26.641	.000
50.	36.355	23.383	23.373	24.869	309.573	28.262	.191	36.357	23.314	15.094
60.	36.289	22.069	22.057	25.196	278.405	28.605	.220	36.293	22.090	17.466
70.	36.336	21.437	21.423	25.407	258.319	28.824	.247	36.294	21.893	9.345

OCEAN COLOR & CIRCULATION STATION 11-2

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 26 .9 N LONGITUDE 89 3.9 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVQ. X 1000
0.	36.332	26.851								
10.	36.345	26.797	26.785	23.818	409.293	27.174	.041	36.346	26.788	.000
20.	36.345	26.722	26.718	23.840	407.808	27.197	.082	36.345	26.725	3.579
30.	36.345	26.691	26.684	23.850	406.548	27.208	.123	36.344	26.689	2.808
40.	36.341	26.636	26.627	23.864	405.304	27.223	.163	36.368	26.140	6.025
50.	36.358	23.529	23.519	24.828	313.425	28.220	.198	36.371	23.579	15.941
60.	36.284	22.197	22.175	25.150	281.053	28.566	.227	36.291	22.207	16.473
70.	36.290	21.401	21.387	25.384	260.541	28.801	.255	36.301	21.473	11.532
80.	36.306	20.310	20.295	25.692	231.165	29.123	.280	36.301	20.379	11.143
100.	36.337	19.335	19.317	26.009	201.074	29.441	.322	36.386	19.302	9.214
120.	36.317	18.141	18.120	26.263	176.778	29.722	.360	36.327	18.177	7.675
140.	36.347	17.213	17.189	26.437	160.041	29.909	.394	36.259	17.243	6.614
160.	36.118	16.255	16.230	26.584	147.622	30.042	.424	36.118	16.255	5.942
180.	35.599	15.391	15.363	26.672	137.190	30.172	.452	35.995	15.357	5.269
200.	35.272	14.508	14.478	26.769	127.608	30.282	.479	35.873	14.529	4.734
220.	35.763	13.861	13.829	26.823	122.061	30.348	.504	35.779	13.883	4.295
240.	35.672	13.262	13.229	26.878	116.479	30.412	.528	35.677	13.269	3.413
260.	35.573	12.626	12.593	26.929	111.151	30.474	.550	35.573	12.628	3.927
280.	35.446	11.896	11.860	26.974	106.304	30.531	.572	35.455	11.915	3.619
300.	35.375	11.350	11.312	27.022	101.178	30.589	.593	35.377	11.372	3.254
320.	35.311	10.946	10.906	27.030	99.084	30.614	.613	35.308	10.970	2.398
340.	35.236	10.515	10.474	27.065	95.068	30.647	.632	35.242	10.517	2.868
360.	35.177	10.022	9.980	27.106	91.453	30.647	.651	35.174	10.021	3.021
380.	35.128	9.623	9.580	27.132	88.268	30.731	.669	35.122	9.624	2.762
400.	35.072	9.232	9.187	27.157	85.298	30.762	.687	35.074	9.247	2.632
420.	35.032	8.904	8.858	27.178	82.578	30.796	.703	35.032	8.900	2.554
440.	34.992	8.616	8.569	27.193	80.547	30.810	.720	34.994	8.614	2.269
460.	34.972	8.313	8.265	27.228	76.845	30.866	.735	34.965	8.311	2.520
480.	34.946	8.026	7.977	27.243	74.388	30.872	.751	34.937	8.020	2.403
500.	34.915	7.764	7.714	27.263	71.789	30.897	.765	34.918	7.772	2.479
520.	34.890	7.551	7.489	27.281	69.564	30.919	.778	34.900	7.536	2.427
540.	34.870	7.226	7.173	27.305	66.182	30.954	.793	34.874	7.229	2.570
560.	34.863	7.011	6.957	27.330	63.880	30.979	.806	34.863	7.011	2.483
580.	34.860	6.841	6.786	27.351	60.429	31.003	.818	34.859	6.833	2.435
600.	34.851	6.633	6.577	27.374	57.861	31.030	.830	34.859	6.645	2.418
620.	34.860	6.499	6.441	27.398	54.544	31.057	.841	34.859	6.495	2.343
640.	34.854	6.333	6.275	27.418	51.788	31.041	.852	34.863	6.325	2.672
660.	34.861	6.145	6.086	27.445	48.531	31.111	.862	34.862	6.164	2.357
680.	34.867	6.036	5.976	27.464	46.045	31.132	.871	34.865	6.042	2.276
700.	34.868	5.909	5.847	27.482	43.655	31.153	.880	34.871	5.912	2.024
720.	34.874	5.801	5.738	27.500	41.268	31.173	.889	34.875	5.802	2.172
740.	34.882	5.719	5.654	27.516	39.033	31.191	.897	34.882	5.714	2.076
760.	34.888	5.614	5.548	27.534	36.623	31.211	.904	34.887	5.610	2.119
780.	34.896	5.494	5.427	27.555	33.856	31.235	.911	34.894	5.499	2.356
800.	34.896	5.374	5.305	27.572	31.508	31.254	.919	34.898	5.379	2.222
820.	34.905	5.283	5.213	27.588	29.472	31.270	.924	34.904	5.287	2.046
840.	34.907	5.225	5.154	27.596	27.810	31.281	.930	34.907	5.226	1.657
860.	34.911	5.159	5.087	27.607	26.122	31.294	.935	34.911	5.160	1.772
880.	34.913	5.087	5.013	27.617	24.455	31.305	.940	34.916	5.086	1.855
900.	34.923	5.000	4.925	27.635	21.961	31.326	.945	34.922	5.041	2.028
920.	34.927	4.927	4.851	27.647	20.156	31.339	.949	34.926	4.929	1.894
940.	34.930	4.879	4.802	27.655	18.698	31.348	.953	34.930	4.877	1.570
960.	34.935	4.806	4.727	27.667	16.824	31.362	.956	34.934	4.809	1.804

OCEAN COLOR & CIRCULATION STATION 11-4

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 26 .7 N LONGITUDE 89 5.5 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVQ. X 1000
0.	36.294	26.665								
10.	36.309	26.669	26.667	23.830	408.227	27.187	.041	36.310	26.666	.000
20.	36.309	26.649	26.644	23.836	407.761	27.194	.082	36.305	26.638	2.178
30.	36.293	26.526	26.519	23.864	405.258	27.223	.122	36.297	26.535	2.891
40.	36.287	26.482	26.473	23.873	404.496	27.233	.163	36.287	26.480	3.100
50.	36.358	23.794	23.784	24.750	320.876	28.139	.201	36.343	24.350	13.106
60.	36.270	22.371	22.349	25.096	287.930	28.502	.231	36.273	22.411	17.125
70.	36.242	21.145	21.132	25.418	257.289	28.838	.259	36.251	21.176	14.285
80.	36.286	20.350	20.335	25.667	233.582	29.047	.283	36.275	20.349	11.983
100.	36.339	19.342	19.324	25.973	204.418	29.416	.327	36.320	19.302	8.670
120.	36.279	18.366	18.348	26.177	180.949	29.633	.366	36.281	18.385	7.079

OCEAN COLOR & CIRCULATION STATION 12

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 22 29.7 N LONGITUDE 86 59.6 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVQ. X 1000
0.	36.321	27.413								
10.	36.252	27.412	27.410	23.548	435.181	26.848	.043	36.257	27.412	.000
20.	36.278	27.354	27.349	23.586	431.696	26.936	.087	36.271	27.368	-2.158
30.	36.289	27.333	27.326	23.602	430.247	26.943	.130	36.288	27.335	3.427
40.	36.250	27.224	27.214	23.608	429.764	26.982	.173	36.297	26.730	7.394
50.	36.258	23.062	23.052	24.888	307.690	28.285	.208	36.266	23.041	17.722
60.	36.294	22.108	22.096	25.189	279.189	28.597	.237	36.298	22.056	18.427
70.	36.351	21.177	21.163	25.492	250.282	28.911	.264	36.343	21.180	11.894
80.	36.388	20.649	20.634	25.664	233.906	29.080	.288	36.365	20.679	10.227
100.	36.399	19.934	19.916	25.863	214.948	29.299	.333	36.405	19.911	7.490
120.	36.355	18.186	18.122	26.290	174.201	29.750	.410	36.342	18.044	8.018
140.	36.292	17.241	17.214	26.427	161.046	29.849	.491	36.242	17.241	8.403

OCEAN COLOR & CIRCULATION STATION 13

LOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 22 29.3 N LONGITUDE 86 48.5 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.355	27.421								
10.	36.354	27.406	27.403	23.628	427.515	28.977	.043	36.351	27.403	.000
20.	36.353	27.363	27.358	23.641	426.466	28.941	.085	36.353	27.364	2.206
30.	36.351	27.356	27.349	23.641	426.528	28.942	.128	36.353	27.358	2.139
40.	36.430	27.382	27.372	23.692	421.765	27.043	.171	36.421	27.273	4.895
50.	36.262	24.001	23.909	24.616	333.671	28.013	.218	36.308	24.624	18.894
60.	36.251	22.470	22.458	25.053	292.882	28.448	.242	36.252	22.571	17.754
70.	36.299	21.177	21.164	25.452	254.835	28.872	.269	36.293	21.206	15.368
80.	36.297	20.752	20.737	25.567	243.154	28.942	.293	36.294	20.695	11.600
100.	36.358	19.542	19.524	25.836	208.040	29.276	.338	36.353	19.557	9.191
120.	36.390	19.258	19.237	26.034	198.708	29.479	.379	36.388	19.258	5.886
140.	36.333	18.366	18.343	26.218	181.105	29.675	.417	36.339	18.377	6.774
160.	36.128	17.962	17.934	26.315	171.794	29.778	.452	36.329	17.946	4.077
180.	36.278	17.294	17.263	26.437	160.111	29.909	.485	36.272	17.301	5.522
200.	36.217	16.875	16.842	26.495	154.478	29.974	.517	36.213	16.801	3.923
220.	36.049	15.816	15.781	26.614	142.720	30.109	.547	36.059	15.868	5.757
240.	35.957	15.140	15.112	26.694	134.624	30.149	.574	35.955	15.133	4.476
260.	35.860	14.503	14.464	26.761	128.023	30.277	.601	35.860	14.504	4.086

OCEAN COLOR & CIRCULATION STATION 14

LOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 22 29.9 N LONGITUDE 86 37.4 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.431	27.385								
10.	36.427	27.396	27.395	23.685	422.113	27.033	.042	36.427	27.399	.000
20.	36.429	27.396	27.391	23.687	422.031	27.036	.084	36.430	27.397	-.543
30.	36.445	27.375	27.368	23.706	420.318	27.056	.127	36.445	27.373	2.453
40.	36.464	27.353	27.344	23.727	418.427	27.078	.168	36.461	27.327	3.415
50.	36.354	25.956	25.945	24.089	383.005	27.445	.209	36.343	25.759	10.286
60.	36.250	23.336	23.324	24.803	315.908	28.198	.244	36.248	23.437	15.853
70.	36.293	21.796	21.784	25.252	273.005	28.663	.273	36.259	21.777	16.409
80.	36.271	20.956	20.943	25.497	249.823	28.919	.290	36.276	20.936	13.282
100.	36.232	19.681	19.663	25.878	213.835	29.318	.345	36.327	19.680	9.645
120.	36.134	18.931	18.904	26.075	196.717	29.524	.388	36.329	18.911	7.012
140.	36.217	18.222	18.189	26.238	179.145	29.697	.424	36.324	18.255	8.333
160.	36.239	17.389	17.362	26.388	164.771	29.859	.458	36.242	17.429	5.885
180.	36.187	16.635	16.605	26.516	152.576	29.948	.490	36.188	16.836	5.739
200.	36.101	15.967	15.935	26.619	142.381	30.111	.519	36.100	15.976	5.049
220.	35.996	15.272	15.187	26.703	134.077	30.246	.550	35.990	15.222	4.670
240.	35.880	14.671	14.585	26.757	128.543	30.271	.573	35.890	14.619	4.265
260.	35.789	13.957	13.919	26.814	122.518	30.340	.598	35.783	13.974	3.805
280.	35.698	13.422	13.382	26.865	117.509	30.348	.622	35.695	13.415	3.564
300.	35.650	13.083	13.041	26.919	112.611	30.462	.645	35.659	13.043	3.584

OCEAN COLOR & CIRCULATION STATION 15

LOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 22 29.8 N LONGITUDE 86 24.4 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.384	27.316								
10.	36.457	27.319	27.316	23.734	417.479	27.083	.042	36.458	27.319	.000
20.	36.451	27.323	27.318	23.727	418.183	27.077	.083	36.450	27.318	-1.314
30.	36.432	27.294	27.287	23.722	418.773	27.073	.125	36.430	27.295	-1.463
40.	36.410	27.273	27.263	23.717	419.423	27.065	.167	36.410	27.270	-1.668
50.	36.231	23.832	23.821	24.443	351.128	28.031	.207	36.267	24.449	13.603
60.	36.042	22.958	22.946	24.937	303.113	28.336	.239	36.282	22.973	17.167
70.	36.209	21.946	21.934	25.246	273.745	28.650	.267	36.305	21.979	13.858
80.	36.422	21.477	21.461	25.387	260.355	28.803	.294	36.321	21.425	10.653
100.	36.329	20.156	20.147	25.740	225.803	29.181	.342	36.312	20.066	9.377
120.	36.309	18.648	18.637	26.128	189.620	29.581	.384	36.307	18.661	9.380
140.	36.296	17.986	17.964	26.285	174.704	29.740	.420	36.287	17.938	6.981
160.	36.217	16.933	16.906	26.481	155.778	29.958	.453	36.208	16.915	6.807
180.	36.080	15.935	15.906	26.610	143.202	30.102	.483	36.085	15.955	5.714
200.	36.000	15.385	15.356	26.674	136.925	30.175	.511	36.004	15.386	4.122
220.	35.869	14.531	14.503	26.762	128.165	30.270	.537	35.888	14.525	4.659
240.	35.784	14.005	13.970	26.800	123.436	30.332	.563	35.789	14.021	3.799
260.	35.711	13.547	13.510	26.846	119.287	30.379	.587	35.714	13.553	3.249
280.	35.636	13.012	12.973	26.901	113.885	30.440	.610	35.631	13.014	3.462
300.	35.509	12.278	12.238	26.968	108.807	30.499	.632	35.511	12.308	3.569
320.	35.458	11.876	11.836	26.985	106.833	30.543	.654	35.458	11.886	3.263
340.	35.444	11.774	11.729	26.995	103.529	30.556	.675	35.444	11.771	1.766
360.	35.410	11.565	11.519	27.009	101.912	30.574	.695	35.411	11.577	1.788
380.	35.374	11.264	11.216	27.037	98.796	30.607	.715	35.360	11.233	2.598
400.	35.260	10.635	10.586	27.069	96.009	30.651	.735	35.274	10.646	3.927
420.	35.171	9.913	9.864	27.119	89.174	30.714	.753	35.174	9.934	3.605
440.	35.174	9.853	9.802	27.132	87.639	30.728	.771	35.172	9.842	1.911
460.	35.145	9.637	9.584	27.146	85.759	30.746	.788	35.145	9.633	2.065
480.	35.120	9.411	9.357	27.165	83.442	30.769	.805	35.120	9.425	2.084
500.	35.073	8.946	8.893	27.204	78.881	30.816	.822	35.073	8.948	3.472

OCEAN COLOR & CIRCULATION STATION 16

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 22 54.3 N LONGITUDE 86 54.6 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.326	26.841								
10.	36.312	26.757	26.754	23.805	410.697	27.140	.033	36.313	26.761	.000
20.	36.284	26.743	26.738	23.789	412.290	27.145	.074	36.286	26.742	.000
30.	36.277	26.753	26.746	23.780	413.295	27.137	.115	36.278	26.752	-2.179
40.	36.305	26.744	26.735	23.803	411.155	27.161	.157	36.283	26.251	6.138
50.	36.308	23.619	23.608	24.764	319.598	28.144	.192	36.303	23.712	15.167
60.	36.311	22.748	22.735	25.020	295.230	28.421	.223	36.316	22.755	16.148
70.	36.316	22.054	22.040	25.221	276.130	28.630	.251	36.320	21.887	11.428
80.	36.360	21.022	21.007	25.541	245.652	28.962	.277	36.362	21.042	11.183
100.	36.372	20.856	20.836	25.596	240.509	29.020	.326	36.374	20.846	3.496
120.	36.367	19.811	19.788	25.872	214.189	29.310	.371	36.363	19.834	7.992
140.	36.359	19.226	19.201	26.019	200.208	29.465	.413	36.365	19.243	6.184
160.	36.375	18.924	18.896	26.109	191.635	29.560	.452	36.373	18.922	4.689
184.	36.340	18.155	18.124	26.276	175.592	29.737	.489	36.335	18.181	6.251
200.	36.240	17.212	17.179	26.431	160.590	29.906	.523	36.252	17.228	6.487
220.	36.088	16.065	16.030	26.586	145.464	30.074	.553	36.099	16.089	6.170
240.	35.908	14.812	14.776	26.730	131.224	30.241	.581	35.912	14.869	5.760
260.	35.492	14.208	14.169	26.849	119.551	30.369	.607	35.892	14.208	5.928
280.	35.776	13.976	13.935	26.809	123.118	30.333	.631	35.776	13.976	4.486
300.	35.700	13.500	13.457	26.850	118.786	30.383	.655	35.713	13.536	3.390
320.	35.630	13.053	13.008	26.888	114.815	30.428	.678	35.624	13.033	3.018
340.	35.515	12.113	12.068	26.985	104.729	30.541	.700	35.503	12.098	4.882

OCEAN COLOR & CIRCULATION STATION 16-1

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 22 54.2 N LONGITUDE 87 .1 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.381	26.880								
10.	36.365	26.809	26.807	23.827	408.526	27.182	.033	36.374	26.833	.000
20.	36.375	26.766	26.740	23.849	406.545	27.205	.073	36.375	26.763	.000
30.	36.395	26.753	26.746	23.868	404.839	27.225	.114	36.393	26.756	3.181
40.	36.410	26.730	26.721	23.892	402.714	27.249	.154	36.403	26.403	5.769
50.	36.442	23.361	23.351	24.941	302.892	28.334	.189	36.423	23.315	16.110
60.	36.316	22.524	22.512	25.088	288.760	28.491	.219	36.328	22.522	16.798
70.	36.340	22.077	22.063	25.233	276.085	28.642	.247	36.332	21.873	9.148

OCEAN COLOR & CIRCULATION STATION 17

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 21 40.8 N LONGITUDE 85 1.8 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.286	28.839								
10.	36.184	28.489	28.487	23.115	476.578	26.454	.038	36.153	28.494	.000
20.	36.158	28.449	28.445	23.138	474.863	26.478	.086	36.158	28.451	.000
30.	36.166	28.420	28.412	23.154	473.033	26.496	.133	36.166	28.424	2.047
40.	36.169	28.402	28.393	23.162	472.418	26.504	.180	36.168	28.403	2.471
50.	36.165	28.386	28.374	23.165	472.303	26.508	.228	36.166	28.386	1.970
60.	36.173	28.386	28.372	23.170	471.869	26.515	.275	36.172	28.383	1.848
70.	36.180	28.376	28.360	23.179	471.198	26.524	.322	36.177	28.375	1.917
80.	36.177	28.325	28.306	23.194	469.869	26.540	.369	36.178	28.277	3.520
100.	36.223	27.089	27.066	23.631	428.300	26.990	.459	36.225	27.141	9.028
120.	36.365	26.170	26.143	24.030	390.351	27.349	.545	36.367	26.169	10.654
140.	36.713	24.594	24.564	24.779	319.036	28.143	.612	36.499	24.636	13.242
160.	36.877	23.539	23.505	25.218	277.249	28.614	.671	36.872	23.506	10.465
180.	36.915	22.223	22.187	25.628	238.205	29.039	.722	36.915	22.220	9.930
200.	36.889	21.420	21.381	25.834	218.563	29.245	.767	36.893	21.437	7.658
220.	36.847	20.784	20.742	25.977	204.913	29.408	.810	36.844	20.810	5.818
240.	36.762	19.987	19.942	26.126	190.566	29.566	.849	36.760	19.996	6.164
260.	36.691	19.446	19.398	26.215	181.988	29.663	.887	36.691	19.439	4.466
280.	36.600	18.702	18.652	26.337	170.134	29.796	.922	36.602	18.708	5.498
300.	36.534	18.229	18.176	26.406	163.407	29.872	.955	36.530	18.212	4.386
322.	36.480	17.890	17.834	26.450	159.154	29.920	.991	36.480	17.890	3.310
340.	36.431	17.560	17.502	26.494	154.839	29.969	1.019	36.430	17.561	3.443
360.	36.369	17.198	17.137	26.534	150.803	30.015	1.058	36.367	17.189	3.924
380.	36.265	16.607	16.544	26.595	144.605	30.085	1.079	36.265	16.618	3.897
402.	36.228	16.364	16.298	26.625	141.625	30.119	1.111	36.228	16.364	3.215
420.	36.139	15.883	15.816	26.667	137.196	30.169	1.136	36.140	15.876	3.532
440.	36.045	15.304	15.235	26.727	131.030	30.237	1.162	36.045	15.308	3.848
460.	35.923	14.625	14.546	26.783	125.024	30.304	1.188	35.924	14.629	3.929
480.	35.835	14.046	14.015	26.831	119.910	30.360	1.212	35.821	14.020	3.734
500.	35.763	13.699	13.626	26.858	116.901	30.393	1.236	35.762	13.692	2.475
520.	35.621	12.879	12.806	26.916	110.396	30.464	1.259	35.625	12.906	3.927
540.	35.586	12.630	12.555	26.939	107.781	30.492	1.281	35.586	12.622	2.724
560.	35.545	12.352	12.276	26.962	105.052	30.520	1.302	35.542	12.341	2.491
580.	35.437	11.717	11.641	27.001	100.432	30.569	1.323	35.437	11.723	3.320
600.	35.395	11.415	11.337	27.025	97.598	30.598	1.342	35.396	11.424	2.607
620.	35.349	11.124	11.045	27.043	95.189	30.622	1.362	35.356	11.176	2.178
640.	35.303	10.765	10.686	27.072	91.665	30.657	1.380	35.304	10.781	2.490
660.	35.283	10.616	10.535	27.086	90.122	30.672	1.399	35.280	10.602	1.990
680.	35.203	10.081	10.000	27.116	85.995	30.713	1.416	35.207	10.086	3.171
700.	35.176	9.835	9.753	27.137	83.297	30.739	1.433	35.173	9.798	2.600
720.	35.031	8.866	8.786	27.184	76.874	30.802	1.449	35.035	8.859	3.881
740.	34.997	8.322	8.243	27.242	70.032	30.870	1.464	34.998	8.336	3.872
760.	34.967	7.983	7.903	27.271	66.282	30.905	1.477	34.966	7.989	2.490
780.	34.901	7.362	7.284	27.310	60.449	30.956	1.490	34.900	7.356	3.453
800.	34.906	7.273	7.194	27.327	58.799	30.974	1.502	34.906	7.275	2.138
820.	34.906	7.237	7.155	27.332	57.807	30.980	1.514	34.906	7.229	1.390
840.	34.903	7.052	6.970	27.356	54.710	31.008	1.525	34.903	7.044	2.614
860.	34.910	6.928	6.844	27.378	51.858	31.033	1.535	34.913	6.931	2.489
880.	34.915	6.723	6.638	27.410	47.936	31.069	1.545	34.914	6.733	2.819
900.	34.899	6.425	6.340	27.438	44.163	31.102	1.554	34.911	6.428	3.322
920.	34.916	6.121	6.036	27.492	37.870	31.162	1.562	34.917	6.115	3.948
940.	34.930	5.760	5.676	27.549	31.094	31.225	1.569	34.931	5.763	3.944
960.	34.952	5.504	5.420	27.598	25.267	31.279	1.575	34.949	5.505	3.947
980.	34.950	5.440	5.354	27.605	23.960	31.287	1.580	34.950	5.311	2.656

OCEAN COLOR & CIRCULATION STATION 18

NOAA SHIP RESEARCHER PP-17-RE-77 LATITUDE 21 48.9 N LONGITUDE 85 14.7 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANDM	SIGMA-P	DYN HGT.	ΔVSALIN	ΔVTEMP	AVG. X 1000
0.	36.263	28.626								
10.	36.263	28.571	28.568	23.177	470.613	26.515	.019	36.264	28.577	.000
20.	36.262	28.527	28.523	23.191	469.453	26.530	.066	36.262	28.528	.000
30.	36.261	28.505	28.498	23.197	468.980	26.537	.113	36.261	28.502	2.517
40.	36.267	28.463	28.453	23.216	467.288	26.547	.160	36.267	28.465	2.417
50.	36.267	28.446	28.432	23.221	466.874	26.564	.206	36.267	28.450	2.445
60.	36.268	28.433	28.419	23.226	466.534	26.570	.253	36.267	28.435	1.740
70.	36.263	28.413	28.396	23.229	466.369	26.574	.300	36.264	28.393	2.206
80.	36.269	27.686	27.666	23.473	443.135	26.825	.345	36.270	27.747	7.476
100.	36.342	26.812	26.789	23.810	411.226	27.171	.431	36.344	26.832	9.248
140.	36.668	25.07	25.045	24.598	336.289	27.978	.582	36.673	25.044	12.271
160.	36.790	23.796	23.762	25.077	290.756	28.470	.645	36.792	23.825	10.540
180.	36.882	22.919	22.882	25.406	259.462	28.819	.700	36.885	22.958	8.904
200.	36.914	21.995	21.955	25.694	231.939	29.109	.750	36.915	22.021	8.424
220.	36.494	21.186	21.143	25.902	212.143	29.327	.794	36.894	21.191	7.246
240.	36.828	20.637	20.591	26.002	202.561	29.434	.835	36.828	20.632	5.865
260.	36.707	19.710	19.662	26.154	187.548	29.602	.874	36.708	19.711	6.200
280.	36.607	18.942	18.892	26.281	175.607	29.736	.911	36.610	18.956	5.515
300.	36.557	18.492	18.439	26.358	168.116	29.820	.945	36.550	18.469	4.447
320.	36.431	17.716	17.661	26.455	158.539	29.928	.978	36.433	17.731	4.910
340.	36.331	17.129	17.072	26.522	151.936	30.003	1.009	36.331	17.123	4.240
360.	36.255	16.674	16.614	26.572	146.846	30.061	1.039	36.259	16.683	3.597
380.	36.191	16.292	16.230	26.612	142.766	30.107	1.067	36.191	16.283	3.328
400.	36.112	15.843	15.779	26.656	138.291	30.157	1.095	36.111	15.836	3.445
420.	35.991	15.180	15.115	26.713	132.345	30.224	1.123	35.996	15.201	3.837
440.	35.915	14.706	14.639	26.759	127.468	30.278	1.149	35.909	14.660	3.586
460.	35.884	14.425	14.356	26.797	123.502	30.320	1.174	35.890	14.457	2.990
480.	35.707	13.590	13.521	26.837	118.897	30.374	1.194	35.709	13.598	3.497
500.	35.626	13.092	13.021	26.877	114.472	30.422	1.221	35.622	13.060	3.446
520.	35.516	12.431	12.360	26.924	109.106	30.480	1.243	35.522	12.439	3.598
540.	35.494	12.252	12.179	26.942	107.050	30.501	1.265	35.497	12.265	2.075
560.	35.403	11.722	11.649	26.974	103.214	30.542	1.286	35.400	11.679	3.280
580.	35.358	11.254	11.180	27.026	97.447	30.602	1.306	35.356	11.251	3.540
600.	35.302	10.904	10.829	27.047	94.780	30.629	1.325	35.310	10.925	2.619
620.	35.194	10.275	10.200	27.075	90.970	30.668	1.344	35.200	10.298	2.900
640.	35.125	9.765	9.688	27.109	86.705	30.711	1.362	35.129	9.788	3.258
660.	35.060	9.354	9.278	27.134	83.365	30.743	1.379	35.073	9.381	2.581
680.	35.007	8.928	8.852	27.155	80.428	30.771	1.394	35.014	8.931	2.888
700.	34.960	8.458	8.383	27.196	75.334	30.822	1.411	34.964	8.466	3.166
720.	34.939	8.213	8.137	27.213	72.898	30.843	1.425	34.939	8.218	2.383
740.	34.939	8.131	8.053	27.222	71.575	30.854	1.440	34.934	8.133	1.645
760.	34.911	7.921	7.842	27.236	68.481	30.872	1.454	34.912	7.932	2.045
780.	34.908	7.845	7.764	27.245	68.043	30.883	1.468	34.909	7.848	1.683
800.	34.888	7.668	7.586	27.256	66.309	30.897	1.481	34.889	7.665	1.922
820.	34.871	7.358	7.275	27.287	62.253	30.934	1.494	34.872	7.373	2.900
840.	34.831	6.776	6.697	27.337	55.836	30.945	1.506	34.835	6.805	3.869
860.	34.838	6.585	6.504	27.367	52.137	31.026	1.517	34.838	6.576	3.043
880.	34.869	6.458	6.376	27.411	47.288	31.074	1.527	34.871	6.454	3.304
900.	34.872	6.284	6.181	27.438	43.794	31.105	1.536	34.871	6.279	2.587
920.	34.868	6.140	6.075	27.440	42.003	31.118	1.544	34.868	6.163	1.912
940.	34.861	5.987	5.902	27.466	39.507	31.139	1.553	34.863	5.981	2.408
960.	34.895	5.860	5.773	27.505	36.986	31.180	1.560	34.889	5.845	3.160
980.	34.884	5.659	5.572	27.534	31.234	31.213	1.567	34.895	5.660	2.812
1000.	34.905	5.458	5.371	27.567	27.055	31.250	1.573	34.905	5.481	2.893

OCEAN COLOR & CIRCULATION STATION 19

NOAA SHIP RESEARCHER PP-17-RE-77 LATITUDE 21 46.5 N LONGITUDE 85 30.9 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANDM	SIGMA-P	DYN HGT.	ΔVSALIN	ΔVTEMP	AVG. X 1000
0.	36.175	28.477								
10.	36.175	28.466	28.463	23.185	473.347	26.485	.019	36.164	28.414	.000
20.	36.138	28.216	28.211	23.200	468.534	26.543	.066	36.140	28.222	.000
30.	36.136	28.174	28.167	23.212	467.470	26.556	.113	36.138	28.179	3.854
40.	36.158	28.177	28.168	23.226	466.749	26.571	.159	36.158	28.184	2.664
50.	36.211	28.242	28.230	23.246	464.492	26.591	.206	36.211	28.245	2.049
60.	36.209	28.204	28.190	23.258	463.538	26.603	.252	36.213	28.171	3.437
70.	36.258	27.818	27.801	23.420	448.155	26.770	.298	36.252	27.835	6.375
80.	36.277	27.649	27.630	23.490	441.511	26.843	.342	36.280	27.653	7.326
100.	36.328	27.271	27.248	23.652	426.324	27.009	.429	36.336	27.246	6.539
120.	36.498	26.242	26.214	24.107	383.075	27.474	.510	36.508	26.288	10.276
140.	36.800	24.302	24.272	24.933	304.339	28.320	.581	36.781	24.359	13.930
160.	36.873	23.240	23.207	25.303	269.162	28.702	.637	36.869	23.271	9.733
180.	36.924	22.524	22.487	25.549	245.766	28.957	.689	36.927	22.529	7.948
200.	36.915	21.954	21.913	25.704	230.993	29.119	.736	36.917	21.982	6.042
220.	36.892	21.256	21.212	25.881	214.119	29.305	.781	36.890	21.252	6.722
240.	36.775	20.252	20.206	26.065	196.431	29.502	.822	36.782	20.292	6.650
260.	36.681	19.516	19.468	26.189	184.494	29.636	.860	36.685	19.534	5.641
280.	36.563	18.659	18.609	26.320	171.792	29.779	.896	36.566	18.686	5.663
300.	36.497	18.139	18.087	26.401	163.925	29.867	.929	36.497	18.149	4.969
320.	36.480	17.819	17.763	26.437	160.357	29.908	.962	36.439	17.811	3.380
340.	36.373	17.322	17.264	26.507	153.437	29.986	.993	36.356	17.284	4.088
360.	36.227	16.564	16.504	26.577	146.338	30.067	1.023	36.221	16.526	4.483
380.	36.132	15.957	15.896	26.645	139.415	30.144	1.051	36.125	15.943	4.244
400.	36.036	15.268	15.206	26.705	133.204	30.215	1.079	36.012	15.307	3.913
420.	35.466	14.488	14.425	26.769	126.506	30.290	1.105	35.865	14.480	4.534
440.	35.767	13.847	13.823	26.821	120.928	30.352	1.129	35.763	13.871	3.728
460.	35.638	13.169	13.104	26.870	115.473	30.413	1.153	35.646	13.194	3.497
480.	35.566	12.667	12.601	26.916	110.513	30.467	1.176	35.564	12.654	3.520
500.	35.467	12.097	12.031	26.951	106.370	30.512	1.197	35.471	12.104	3.196
520.	35.454	11.935	11.866	26.972	104.011	30.536	1.218	35.444	11.892	2.326
542.	35.396	11.655	11.584	26.981	102.637	30.549	1.241	35.396	11.655	2.146
820.	34.845	6.888	6.610	27.360	53.830	31.019	1.517	34.846	6.693	10.648
840.	34.850	6.492	6.413	27.390	50.185	31.053	1.528	34.849	6.489	2.866
860.	34.850	6.330	6.250	27.412	47.295	31.078	1.537	34.852	6.335	2.547
880.	34.857	6.197	6.116	27.435	44.336	31.103	1.547	34.857	6.201	2.416
900.	34.865	6.048	5.962	27.461	41.009	31.133	1.555	34.865	6.054	2.630
920.	34.876	5.764	5.682	27.506	35.643	31.182	1.563	34.874	5.773	3.472
940.	34.885	5.621	5.538	27.530	32.447	31.210	1.570	34.882	5.632	2.560
960.	34.888	5.524	5.440	27.545	30.385	31.226	1.576	34.887	5.523	2.229
980.	34.898	5.375	5.290	27.571	26.947	31.255	1.582	34.899	5.370	2.759
1000.	34.912	5.200	5.115	27.603	22.897	31.291	1.587	34.912	5.202	2.909

OCEAN COLOR & CIRCULATION STATION 20

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 21 45.5 N LONGITUDE 85 44.7 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.112	28.485								
22.	36.106	28.486	28.480	23.087	479.382	26.427	.010	36.106	28.486	.000
30.	36.156	28.475	28.468	23.128	475.563	26.469	.048	36.151	28.472	.000
40.	36.181	28.439	28.430	23.159	472.756	26.500	.095	36.184	28.442	4.148
50.	36.218	28.235	28.223	23.254	463.722	26.599	.142	36.219	28.219	5.789
60.	36.244	27.844	27.830	23.402	449.718	26.751	.188	36.247	27.866	7.613
70.	36.261	27.536	27.522	23.514	439.101	26.867	.232	36.262	27.595	7.408
80.	36.280	27.258	27.239	23.620	429.127	26.976	.276	36.285	27.309	7.158
100.	36.366	26.431	26.408	23.948	397.953	27.314	.359	36.361	26.500	8.771
120.	36.513	25.253	25.226	24.427	352.453	27.804	.435	36.513	25.250	11.867
140.	36.776	23.898	23.869	25.036	294.480	28.427	.500	36.769	23.973	11.859
160.	36.879	22.943	22.910	25.394	260.396	28.796	.556	36.874	22.948	9.634
180.	36.921	21.928	21.892	25.716	229.768	29.130	.605	36.913	21.919	8.883
200.	36.857	20.952	20.913	25.938	208.523	29.365	.649	36.849	20.943	7.395
220.	36.752	20.052	20.011	26.102	192.840	29.540	.689	36.748	20.041	6.415
240.	36.590	18.892	18.849	26.281	175.436	29.735	.726	36.592	18.904	6.488
260.	36.511	18.331	18.285	26.363	167.523	29.825	.760	36.519	18.374	4.480
280.	36.491	18.102	18.053	26.405	163.466	29.871	.793	36.492	18.105	3.715
300.	36.398	17.499	17.448	26.477	156.351	29.952	.825	36.393	17.515	4.234
320.	36.350	17.243	17.189	26.508	153.259	29.987	.856	36.354	17.263	2.862
340.	36.266	16.739	16.682	26.565	147.618	30.051	.886	36.264	16.728	3.928
360.	36.188	16.280	16.222	26.613	142.705	30.107	.915	36.177	16.229	3.631
380.	36.080	15.603	15.543	26.686	135.310	30.190	.943	36.073	15.587	4.192
400.	35.984	15.072	15.010	26.731	130.568	30.244	.969	35.980	15.046	3.656
420.	35.863	14.374	14.311	26.792	124.236	30.315	.995	35.866	14.383	3.885
440.	35.750	13.741	13.678	26.838	119.156	30.372	1.019	35.756	13.758	3.806
460.	35.679	13.309	13.243	26.874	115.269	30.414	1.043	35.678	13.308	3.034
480.	35.509	12.388	12.322	26.927	109.186	30.482	1.065	35.501	12.328	4.889
500.	35.400	11.652	11.587	26.985	102.734	30.552	1.086	35.395	11.633	3.773
520.	35.285	10.921	10.857	27.030	97.331	30.610	1.106	35.291	10.965	3.500
540.	35.119	9.815	9.752	27.095	89.552	30.694	1.125	35.118	9.810	4.446
560.	35.106	9.624	9.559	27.118	86.869	30.720	1.142	35.101	9.601	2.482
580.	35.063	9.285	9.219	27.141	83.940	30.749	1.159	35.059	9.270	2.559
600.	35.019	8.958	8.892	27.159	81.410	30.774	1.176	35.022	8.958	2.425
620.	34.970	8.526	8.460	27.189	77.531	30.812	1.192	34.973	8.533	2.903
640.	34.948	8.270	8.203	27.212	74.618	30.840	1.207	34.949	8.275	2.489

OCEAN COLOR & CIRCULATION STATION 21

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 21 38.8 N LONGITUDE 86 14.9 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.112	28.180								
10.	36.163	28.116	28.114	23.252	463.459	26.595	.037	36.163	28.105	.000
20.	36.207	27.843	27.838	23.375	451.812	26.721	.083	36.211	27.810	.000
30.	36.246	27.576	27.569	23.491	440.873	26.840	.127	36.245	27.581	7.554
40.	36.241	27.570	27.560	23.489	441.159	26.839	.172	36.242	27.562	5.079
50.	36.242	27.520	27.508	23.506	439.643	26.858	.216	36.243	27.519	2.767
60.	36.237	27.468	27.454	23.519	438.516	26.872	.260	36.234	27.331	4.583
70.	36.261	26.366	26.350	23.890	403.204	27.254	.301	36.300	26.161	10.750
80.	36.383	24.533	24.515	24.548	340.415	27.931	.337	36.387	24.521	15.384
100.	36.623	22.440	22.420	25.344	264.617	28.750	.398	36.612	22.429	13.780
120.	36.704	21.814	21.790	25.583	241.997	28.996	.448	36.703	21.819	7.681
140.	36.451	20.837	20.810	25.813	220.082	29.238	.495	36.657	20.836	7.404
160.	36.572	19.172	19.143	26.195	183.485	29.642	.535	36.553	19.172	9.816
180.	36.354	17.690	17.659	26.404	163.323	29.871	.570	36.387	17.862	7.104
200.	36.212	16.607	16.574	26.555	148.667	30.038	.601	36.225	16.670	6.390
220.	36.049	15.704	15.669	26.639	140.310	30.136	.630	36.088	15.812	4.805
240.	36.035	15.411	15.374	26.695	134.851	30.196	.658	36.035	15.415	3.551
260.	35.493	14.555	14.516	26.775	126.760	30.290	.684	35.901	14.599	4.460
280.	35.745	13.724	13.684	26.838	120.234	30.366	.709	35.745	13.721	4.183
300.	35.639	13.058	13.017	26.893	114.933	30.433	.732	35.639	13.064	3.750
320.	35.532	12.411	12.368	26.940	109.423	30.490	.754	35.524	12.370	3.611
340.	35.437	11.801	11.757	26.985	104.580	30.545	.776	35.440	11.806	3.435
360.	35.435	11.734	11.688	26.996	103.248	30.558	.796	35.435	11.734	1.663
380.	35.400	11.493	11.444	27.014	101.077	30.581	.817	35.398	11.495	2.132
400.	35.294	10.744	10.695	27.069	94.976	30.649	.837	35.273	10.675	3.818
420.	35.132	9.650	9.602	27.134	87.958	30.732	.854	35.125	9.619	4.330
440.	35.070	9.207	9.158	27.159	84.398	30.766	.872	35.076	9.219	2.995
460.	35.045	8.907	8.856	27.188	80.967	30.801	.888	35.045	8.901	2.754
480.	35.034	8.728	8.676	27.208	78.576	30.824	.904	35.032	8.726	2.906
500.	35.007	8.505	8.452	27.222	76.567	30.843	.920	35.011	8.518	2.147
520.	34.979	8.186	8.132	27.249	73.204	30.876	.935	34.972	8.135	2.437
540.	34.950	7.783	7.728	27.287	68.717	30.921	.949	34.951	7.797	3.082
560.	34.951	7.735	7.678	27.295	67.486	30.930	.963	34.951	7.731	1.693
580.	34.934	7.469	7.411	27.320	64.299	30.961	.976	34.933	7.464	2.638
600.	34.929	7.256	7.197	27.347	61.019	30.992	.988	34.929	7.253	2.714
620.	34.927	7.145	7.085	27.361	59.098	31.008	1.000	34.929	7.146	2.003
640.	34.928	7.057	6.995	27.374	57.265	31.023	1.012	34.924	7.015	2.649
660.	34.908	6.639	6.577	27.416	52.134	31.073	1.023	34.905	6.658	3.121
680.	34.904	6.477	6.413	27.436	49.567	31.096	1.033	34.907	6.486	2.580
700.	34.910	6.318	6.254	27.461	46.403	31.124	1.043	34.908	6.322	2.511
720.	34.909	6.060	5.996	27.494	42.348	31.162	1.052	34.908	6.061	3.053
740.	34.913	5.955	5.888	27.511	40.027	31.181	1.060	34.912	5.952	2.157
760.	34.912	5.747	5.680	27.536	36.716	31.210	1.067	34.912	5.745	2.717
780.	34.916	5.598	5.530	27.558	33.802	31.236	1.074	34.916	5.597	2.488
800.	34.923	5.481	5.412	27.578	31.134	31.258	1.081	34.924	5.479	2.354
820.	34.928	5.291	5.221	27.605	27.659	31.289	1.087	34.929	5.296	2.700
840.	34.933	5.251	5.180	27.614	26.242	31.298	1.092	34.933	5.251	1.475
860.	34.935	5.146	5.074	27.628	24.097	31.315	1.097	34.938	5.149	2.095
880.	34.951	4.976	4.903	27.660	20.103	31.350	1.102	34.949	5.001	2.688
900.	34.955	4.932	4.857	27.669	18.692	31.360	1.106	34.955	4.932	1.908

OCEAN COLOR & CIRCULATION STATION 22

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 21 35.6 N LONGITUDE 86 20.8 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.182	27.886								
10.	36.140	27.758	27.756	23.352	453.901	26.648	.027	36.142	27.784	.000
20.	36.163	27.442	27.438	23.472	442.587	26.822	.072	36.151	27.490	.000
30.	36.184	27.287	27.280	23.538	436.372	26.890	.116	36.178	27.298	6.737
40.	36.234	26.250	26.241	23.906	401.317	27.269	.159	36.289	26.603	12.594
50.	36.435	22.165	22.155	25.280	270.356	28.686	.190	36.433	22.118	20.621

OCEAN COLOR & CIRCULATION STATION 23

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 21 43.2 N LONGITUDE 86 .6 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVQ. X 1000
0.	36.153	28.975								
12.	36.152	28.970	28.967	22.960	491.392	26.295	.010	36.152	28.970	.000
20.	36.161	28.893	28.888	22.992	488.379	26.329	.049	36.160	28.907	.000
30.	36.158	28.878	28.871	22.995	488.263	26.332	.098	36.159	28.876	3.149
40.	36.160	28.850	28.841	23.006	487.316	26.344	.147	36.163	28.846	2.507
50.	36.169	28.772	28.760	23.039	484.291	26.379	.195	36.171	28.762	3.495
60.	36.215	27.947	27.933	23.346	455.044	26.694	.242	36.211	27.887	9.223
70.	36.297	26.782	26.766	23.785	413.205	27.145	.286	36.280	26.833	13.126
80.	36.354	26.126	26.108	24.036	389.377	27.403	.326	36.359	26.167	12.714
100.	36.555	25.158	25.136	24.488	346.409	27.865	.401	36.538	25.202	10.268
120.	36.795	23.700	23.674	25.109	287.320	28.501	.466	36.782	23.778	12.201
140.	36.921	22.330	22.302	25.602	240.802	29.009	.518	36.911	22.312	11.278
160.	36.911	21.338	21.307	25.873	219.614	29.292	.563	36.894	21.268	8.270
180.	36.793	20.393	20.358	26.041	198.498	29.473	.604	36.790	20.394	6.277
200.	36.720	19.746	19.709	26.158	187.296	29.599	.643	36.724	19.771	5.359
220.	36.586	18.758	18.719	26.312	172.441	29.767	.678	36.594	18.787	6.232
240.	36.520	18.400	18.358	26.352	168.531	29.813	.712	36.520	18.400	3.652
260.	36.444	17.925	17.880	26.414	162.482	29.882	.744	36.447	17.941	3.876
280.	36.362	17.351	17.304	26.491	154.951	29.967	.778	36.374	17.445	4.381
300.	36.175	16.285	16.236	26.602	143.895	30.093	.808	36.187	16.367	5.388
320.	35.952	14.979	14.930	26.728	131.183	30.239	.836	35.951	14.978	5.877
340.	35.753	13.759	13.709	26.838	119.885	30.367	.861	35.752	13.766	5.290
360.	35.721	13.529	13.478	26.862	117.318	30.395	.884	35.721	13.526	2.443
380.	35.604	12.857	12.804	26.910	112.051	30.455	.908	35.607	12.871	3.514
400.	35.459	12.009	11.957	26.961	106.329	30.520	.929	35.469	12.066	3.787
420.	35.393	11.574	11.524	26.993	102.747	30.569	.950	35.392	11.560	3.159
440.	35.289	10.877	10.823	27.041	97.274	30.620	.970	35.290	10.888	3.533
460.	35.222	10.406	10.350	27.074	93.647	30.660	.989	35.223	10.407	3.049
480.	35.169	10.011	9.954	27.101	90.120	30.695	1.008	35.165	9.992	2.777
500.	35.087	9.420	9.364	27.137	85.764	30.741	1.025	35.085	9.415	3.196
520.	35.039	9.017	8.959	27.165	82.257	30.777	1.042	35.040	9.036	2.750
540.	35.014	8.780	8.722	27.184	79.937	30.800	1.058	35.015	8.780	2.467
560.	34.979	8.496	8.436	27.201	77.450	30.823	1.074	34.979	8.475	2.820
580.	34.978	8.236	8.177	27.241	72.982	30.867	1.089	34.976	8.237	3.032
600.	34.971	8.020	7.957	27.268	69.661	30.889	1.103	34.972	8.013	2.890
620.	34.956	7.732	7.669	27.298	66.007	30.934	1.117	34.955	7.739	2.754
640.	34.942	7.553	7.488	27.314	63.766	30.954	1.130	34.944	7.561	2.251
660.	34.876	6.945	6.882	27.349	59.009	31.001	1.142	34.873	6.982	2.964
680.	34.845	6.553	6.490	27.379	55.094	31.037	1.154	34.845	6.551	3.260
700.	34.844	6.353	6.289	27.404	51.808	31.067	1.164	34.845	6.361	2.618
720.	34.870	6.149	6.124	27.447	47.029	31.113	1.174	34.869	6.209	3.197
740.	34.876	5.909	5.843	27.487	42.168	31.159	1.183	34.876	5.911	3.452
760.	34.881	5.849	5.782	27.507	38.698	31.179	1.192	34.890	5.850	2.190
780.	34.898	5.814	5.745	27.517	38.199	31.190	1.199	34.898	5.813	1.714
800.	34.894	5.648	5.578	27.534	35.657	31.211	1.207	34.894	5.634	2.359
820.	34.904	5.489	5.418	27.562	32.146	31.242	1.213	34.905	5.490	2.678
840.	34.916	5.459	5.386	27.575	30.345	31.256	1.220	34.916	5.458	1.837
860.	34.926	5.349	5.275	27.597	27.550	31.280	1.225	34.926	5.357	2.317
880.	34.937	5.305	5.229	27.607	25.952	31.291	1.231	34.932	5.300	1.804
900.	34.933	5.193	5.117	27.624	23.527	31.311	1.236	34.937	5.196	2.135
920.	34.944	5.065	4.988	27.644	20.771	31.333	1.240	34.944	5.070	2.405
940.	34.950	4.968	4.890	27.661	18.423	31.352	1.244	34.950	4.976	2.114
960.	34.954	4.924	4.844	27.669	16.971	31.361	1.248	34.953	4.925	1.534
980.	34.955	4.857	4.775	27.678	15.454	31.371	1.251	34.956	4.860	1.658
1000.	34.958	4.788	4.706	27.687	13.778	31.383	1.254	34.960	4.792	1.795

OCEAN COLOR & CIRCULATION STATION 24

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 22 30.3 N LONGITUDE 86 15.8 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVQ. X 1000
0.	36.354	27.414								
10.	36.354	27.419	27.417	23.623	428.027	26.972	.026	36.355	27.418	.000
20.	36.377	27.179	27.174	23.718	419.078	27.070	.068	36.370	27.214	.000
30.	36.385	26.908	26.901	23.811	410.278	27.166	.110	36.383	26.897	6.804
40.	36.409	26.701	26.692	23.896	402.344	27.253	.150	36.409	26.713	6.827
50.	36.370	25.564	25.553	24.223	371.206	27.583	.190	36.369	25.543	10.043
60.	36.297	23.431	23.419	24.811	315.178	28.204	.224	36.300	23.376	15.056
70.	36.104	21.920	21.906	25.250	273.335	28.641	.253	36.300	21.970	15.482
80.	35.334	20.949	20.933	25.541	245.599	28.944	.279	36.320	20.968	12.986
100.	36.306	19.375	19.357	25.940	207.617	29.382	.324	36.302	19.386	9.962
120.	36.320	18.407	18.385	26.198	182.996	29.653	.363	36.321	18.461	7.834
140.	36.321	17.763	17.739	26.359	167.559	29.824	.398	36.334	17.801	6.543
160.	36.234	17.013	16.986	26.476	156.288	29.942	.431	36.238	17.020	5.368
180.	36.105	16.056	16.027	26.601	144.127	30.061	.461	36.101	16.042	5.594
200.	36.027	15.498	15.467	26.669	137.407	30.168	.489	36.027	15.498	4.315
220.	35.890	14.644	14.611	26.753	129.023	30.266	.515	35.892	14.657	4.471
240.	35.782	13.997	13.962	26.809	123.315	30.332	.541	35.788	14.018	3.855
260.	35.726	13.607	13.571	26.848	119.378	30.377	.565	35.726	13.616	3.079
280.	35.630	13.019	12.980	26.895	114.417	30.438	.588	35.631	13.018	3.598
300.	35.554	12.506	12.465	26.938	109.821	30.486	.611	35.555	12.520	3.306
320.	35.507	12.197	12.154	26.963	107.106	30.517	.632	35.506	12.179	2.772
340.	35.405	11.516	11.472	27.013	101.636	30.579	.653	35.408	11.560	3.378
360.	35.345	11.103	11.058	27.044	98.207	30.616	.674	35.351	11.150	2.935
380.	35.284	10.702	10.656	27.069	95.224	30.649	.693	35.283	10.705	2.773
400.	35.203	10.234	10.046	27.107	90.898	30.696	.712	35.207	10.162	3.196
420.	35.154	9.763	9.715	27.131	87.898	30.728	.729	35.152	9.767	2.653
440.	35.108	9.412	9.362	27.155	85.025	30.758	.747	35.108	9.408	2.673
460.	35.074	9.111	9.060	27.178	82.172	30.787	.763	35.074	9.115	2.484
480.	35.054	8.850	8.798	27.204	79.070	30.818	.780	35.054	8.858	2.639
500.	35.080	8.780	8.725	27.236	75.629	30.851	.795	35.080	8.780	2.877

OCEAN COLOR & CIRCULATION STATION 25

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 22 30.8 N LONGITUDE 86 4.6 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVQ. X 1000
0.	36.252	28.172								
10.	36.250	28.013	28.011	23.351	453.962	26.695	.046	36.259	28.034	.000
20.	36.314	27.593	27.589	23.540	436.047	26.888	.090	36.312	27.609	7.690
30.	36.386	27.135	27.128	23.739	417.167	27.092	.130	36.829	27.132	13.221
40.	36.396	26.987	26.978	23.794	412.061	27.149	.171	36.389	26.811	8.759
50.	36.474	25.480	25.469	24.327	361.229	27.698	.210	36.474	25.544	7.559
60.	36.543	24.737	24.724	24.607	334.615	27.986	.245	36.527	24.708	13.547
70.	36.488	23.910	23.895	24.814	314.990	28.202	.277	36.490	23.887	11.169
80.	36.530	22.352	22.336	25.299	268.793	28.704	.307	36.527	22.484	12.600
100.	36.678	19.884	19.865	26.090	193.442	29.524	.352	36.668	19.881	14.121
120.	36.669	18.960	18.938	26.324	171.112	29.771	.388	36.660	18.923	7.722
140.	36.460	17.959	17.934	26.494	154.856	29.955	.420	36.551	17.945	6.787
160.	36.237	16.361	16.335	26.632	141.355	30.116	.450	36.237	16.361	6.595
180.	36.074	15.576	15.548	26.687	135.804	30.188	.478	36.079	15.608	3.758

OCEAN COLOR & CIRCULATION STATION 26

I.OAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 22 30.8 N LONGITUDE 85 51.9 W

DEPTH	CALIBRATION	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN. HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.220	28.676								
10.	36.219	28.625	28.622	23.126	475.509	26.463	.038	36.221	28.624	.000
20.	36.224	28.620	28.622	23.129	475.322	26.467	.086	36.224	28.616	.000
30.	36.226	28.588	28.581	23.143	474.108	26.483	.133	36.229	28.588	2.250
40.	36.284	28.016	28.006	23.376	451.999	26.721	.180	36.266	28.123	6.914
50.	36.281	27.906	27.892	23.418	448.114	26.765	.225	36.298	27.860	8.435
60.	36.474	26.501	26.487	24.007	391.944	27.348	.267	36.459	26.518	12.676
70.	36.474	26.305	26.289	24.070	386.004	27.434	.306	36.485	26.201	12.772
80.	36.451	25.531	25.514	24.370	357.530	27.741	.343	36.549	25.571	9.414
100.	36.714	24.668	24.646	24.758	320.476	28.139	.412	36.737	24.577	10.408
120.	36.944	22.015	21.991	25.709	230.020	29.119	.465	36.946	22.074	14.693
140.	36.916	21.239	21.212	25.904	211.483	29.324	.510	36.924	21.316	6.924
160.	36.795	20.114	20.044	26.118	191.095	29.542	.549	36.784	20.044	7.487
180.	36.622	18.549	18.517	26.317	171.821	29.773	.586	36.533	18.549	7.155
220.	36.360	17.408	17.370	26.476	156.385	29.949	.651	36.377	17.467	6.828
240.	36.327	17.111	17.070	26.523	151.855	30.000	.681	36.327	17.111	3.846
260.	36.204	16.368	16.325	26.605	143.757	30.043	.711	36.200	16.355	4.829
280.	36.040	15.396	15.352	26.702	134.008	30.205	.739	36.036	15.346	4.057
300.	35.882	14.486	14.443	26.781	125.930	30.298	.765	35.877	14.474	4.533
320.	35.768	13.810	13.764	26.838	120.017	30.346	.769	35.756	13.761	3.908
340.	35.614	12.935	12.888	26.899	113.847	30.442	.813	35.615	12.931	4.049
360.	35.505	12.260	12.211	26.949	108.117	30.503	.835	35.503	12.251	3.621
380.	35.365	11.366	11.314	27.011	101.306	30.580	.856	35.377	11.428	3.042
400.	35.274	10.759	10.710	27.051	96.720	30.631	.876	35.274	10.748	3.511
420.	35.205	10.256	10.208	27.088	92.492	30.676	.894	35.205	10.242	3.190
440.	35.158	9.907	9.856	27.111	89.660	30.706	.914	35.158	9.906	2.475
460.	35.118	9.531	9.478	27.143	85.979	30.744	.930	35.116	9.539	2.852
480.	35.071	9.101	9.047	27.177	81.939	30.786	.947	35.065	9.047	3.113

OCEAN COLOR & CIRCULATION STATION 27

I.OAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 23 13.8 N LONGITUDE 82 24.0 W

DEPTH	CALIBRATION	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN. HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.208	27.907								
10.	36.225	27.921	27.919	23.162	452.911	26.747	.045	36.213	27.919	.000
20.	36.260	27.916	27.911	23.394	449.085	26.739	.090	36.265	27.918	3.414
30.	36.264	27.922	27.915	23.392	450.312	26.738	.135	36.265	27.920	2.587
40.	36.264	27.922	27.913	23.397	450.444	26.736	.180	36.265	27.921	.653
50.	36.263	27.916	27.906	23.392	450.510	26.740	.225	36.263	27.920	.640
60.	36.260	27.837	27.823	23.416	448.992	26.765	.270	36.240	27.857	2.330
70.	36.259	27.826	27.812	23.418	448.278	26.768	.315	36.259	27.821	2.700
80.	36.262	27.746	27.727	23.448	445.610	26.744	.360	36.256	27.732	3.156
100.	36.294	26.870	26.847	23.755	416.405	27.117	.446	36.295	26.866	8.680
120.	36.402	25.985	25.958	24.116	382.160	27.407	.526	36.405	25.976	9.412
140.	36.625	24.893	24.862	24.622	334.002	28.004	.590	36.610	24.968	10.711
160.	36.792	23.690	23.656	25.109	287.650	28.504	.661	36.794	23.654	11.318
180.	36.904	22.649	22.612	25.501	250.322	28.918	.715	36.905	22.603	9.524
200.	36.897	21.567	21.527	25.799	221.981	29.218	.762	36.897	21.631	8.344
220.	36.850	20.948	20.905	25.934	208.984	29.362	.805	36.839	20.949	6.200
240.	36.786	20.126	20.077	26.089	194.162	29.527	.845	36.768	20.134	8.087
260.	36.682	19.530	19.482	26.186	184.779	29.633	.884	36.678	19.445	5.154
280.	36.576	18.763	18.713	26.305	173.232	29.763	.919	36.577	18.758	5.348
300.	36.458	17.931	17.879	26.423	161.697	29.892	.952	36.456	17.928	5.405
320.	36.368	17.330	17.275	26.501	153.996	29.979	.984	36.368	17.330	4.885
340.	36.308	16.887	16.830	26.538	150.280	30.021	1.014	36.306	16.848	3.272
360.	36.224	16.523	16.464	26.584	145.624	30.075	1.044	36.219	16.496	3.612
380.	36.179	15.749	15.688	26.652	138.659	30.154	1.072	36.081	15.745	4.240
400.	36.125	15.367	15.304	26.697	134.811	30.206	1.099	36.024	15.367	3.314
420.	35.971	15.046	14.981	26.727	130.893	30.240	1.124	35.973	15.048	2.043
440.	35.922	14.763	14.695	26.752	128.196	30.270	1.152	35.918	14.739	2.458
460.	35.851	14.349	14.280	26.787	124.428	30.312	1.177	35.852	14.355	2.970
480.	35.749	13.776	13.706	26.830	119.684	30.364	1.201	35.753	13.791	3.455
500.	35.706	13.475	13.403	26.868	116.414	30.389	1.225	35.703	13.465	2.860
520.	35.617	12.955	12.882	26.898	112.195	30.445	1.248	35.618	12.960	3.228
540.	35.560	12.596	12.522	26.926	108.983	30.479	1.270	35.557	12.592	2.744
560.	35.515	12.304	12.226	26.946	106.484	30.505	1.292	35.511	12.293	2.458
580.	35.467	12.014	11.937	26.967	104.003	30.531	1.313	35.465	12.006	2.420
600.	35.416	11.689	11.611	26.989	101.262	30.559	1.333	35.416	11.689	2.470
620.	35.394	11.486	11.406	27.003	99.459	30.576	1.353	35.382	11.487	2.145
640.	35.320	11.055	10.974	27.033	95.786	30.614	1.373	35.317	11.061	2.715
660.	35.276	10.767	10.685	27.051	93.400	30.637	1.392	35.275	10.760	2.480
680.	35.245	10.509	10.426	27.073	90.653	30.664	1.410	35.241	10.491	2.690
700.	35.178	10.054	9.970	27.101	87.052	30.699	1.428	35.175	10.043	2.868
720.	35.141	9.762	9.677	27.122	84.272	30.726	1.445	35.141	9.748	2.440
740.	35.085	9.368	9.283	27.144	81.173	30.755	1.461	35.085	9.367	2.534
760.	35.030	8.896	8.811	27.178	76.829	30.797	1.477	35.029	8.893	3.185
780.	35.027	8.769	8.683	27.196	74.549	30.817	1.492	35.024	8.765	2.183
800.	34.978	8.414	8.327	27.213	71.850	30.841	1.507	34.981	8.413	2.604
820.	34.955	8.099	8.012	27.244	67.917	30.878	1.521	34.959	8.127	2.796
840.	34.925	7.763	7.676	27.270	64.362	30.910	1.534	34.925	7.761	2.936
860.	34.888	7.314	7.228	27.305	59.634	30.953	1.547	34.885	7.314	3.196
880.	34.891	7.188	7.080	27.330	56.491	30.981	1.558	34.891	7.142	2.831
900.	34.885	6.804	6.717	27.376	50.904	31.034	1.569	34.885	6.792	3.432
920.	34.879	6.356	6.270	27.432	44.095	31.098	1.578	34.879	6.352	3.940
940.	34.888	6.110	6.024	27.471	39.351	31.141	1.587	34.888	6.107	3.281
960.	34.895	5.977	5.890	27.494	36.330	31.167	1.594	34.895	5.974	2.518
980.	34.901	5.802	5.714	27.521	32.829	31.197	1.601	34.901	5.801	2.724
1000.	34.909	5.652	5.563	27.545	29.621	31.225	1.607	34.908	5.651	2.610

OCEAN COLOR & CIRCULATION STATION 28

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 23 29.2 N LONGITUDE 82 14.4 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.204	28.020								
10.	36.204	28.016	28.013	23.316	457.372	26.649	.027	36.204	28.018	.000
20.	36.208	28.010	28.005	23.321	456.977	26.665	.073	36.211	28.007	.000
30.	36.255	27.900	27.893	23.392	450.327	26.738	.119	36.249	27.917	4.093
40.	36.268	27.860	27.851	23.415	448.272	26.762	.164	36.267	27.862	4.712
50.	36.279	27.866	27.854	23.421	447.773	26.769	.208	36.278	27.862	3.217
60.	36.274	27.824	27.810	23.431	446.918	26.780	.253	36.276	27.823	2.372
70.	36.272	27.803	27.786	23.437	446.546	26.787	.298	36.273	27.803	2.128
80.	36.284	27.802	27.783	23.446	445.747	26.797	.342	36.284	27.796	2.073
100.	36.334	27.215	27.192	23.674	424.276	27.031	.430	36.343	27.232	7.461
120.	36.457	26.435	26.408	24.016	391.757	27.342	.511	36.463	26.412	9.260
140.	36.684	25.097	25.066	24.604	335.766	27.944	.584	36.690	25.058	11.989
160.	36.852	24.115	24.081	25.028	295.429	28.418	.648	36.856	24.143	9.881
180.	36.991	22.643	22.606	25.566	244.182	28.972	.702	36.991	22.654	11.457
200.	36.928	21.885	21.825	25.739	227.683	29.145	.749	36.929	21.849	6.682
220.	36.824	20.789	20.747	25.957	206.753	29.387	.792	36.822	20.792	7.220
240.	36.743	19.996	19.954	26.109	192.194	29.549	.832	36.743	19.996	6.167
260.	36.625	19.110	19.063	26.252	178.385	29.704	.869	36.630	19.140	5.886
280.	36.532	18.389	18.340	26.385	167.402	29.827	.904	36.530	18.409	5.262
300.	36.435	17.777	17.725	26.443	159.742	29.914	.936	36.430	17.768	4.599
320.	36.311	17.086	17.033	26.517	152.404	29.998	.968	36.314	17.100	4.353
340.	36.198	16.420	16.365	26.588	145.234	30.079	.997	36.200	16.424	4.352
360.	36.119	15.928	15.871	26.642	139.809	30.140	1.026	36.111	15.884	3.771
380.	35.998	15.222	15.163	26.708	132.933	30.218	1.053	35.999	15.225	4.129
400.	35.891	14.631	14.570	26.757	127.768	30.276	1.079	35.891	14.620	3.687
420.	35.802	14.089	14.027	26.805	122.717	30.333	1.104	35.802	14.092	3.465
440.	35.725	13.619	13.556	26.844	118.473	30.379	1.128	35.719	13.597	3.913
460.	35.616	12.973	12.909	26.893	113.118	30.439	1.152	35.614	12.967	3.609
480.	35.550	12.557	12.492	26.926	109.474	30.478	1.174	35.549	12.554	3.012
500.	35.491	12.194	12.132	26.950	106.600	30.509	1.195	35.492	12.190	2.750
520.	35.436	11.835	11.767	26.979	103.243	30.544	1.216	35.440	11.843	2.725
540.	35.400	11.584	11.514	26.997	101.027	30.567	1.237	35.402	11.582	2.405
560.	35.359	11.296	11.223	27.018	98.368	30.594	1.257	35.358	11.293	2.419
580.	35.311	10.976	10.905	27.040	95.721	30.621	1.276	35.312	10.982	2.495
600.	35.254	10.613	10.539	27.063	92.843	30.650	1.295	35.258	10.610	2.686
620.	35.202	10.215	10.141	27.092	89.307	30.685	1.313	35.201	10.207	2.820
640.	35.150	9.879	9.803	27.116	86.257	30.715	1.331	35.159	9.877	2.466
660.	35.117	9.550	9.473	27.138	83.241	30.745	1.348	35.116	9.548	2.555
680.	35.086	9.307	9.224	27.155	81.042	30.765	1.364	35.082	9.266	2.296
700.	35.050	9.073	8.984	27.172	78.666	30.787	1.380	35.058	9.009	2.243
720.	35.011	8.727	8.648	27.190	76.044	30.811	1.395	35.013	8.738	2.376
740.	35.002	8.534	8.454	27.214	73.116	30.838	1.410	34.999	8.528	2.516
760.	34.967	8.242	8.161	27.231	70.527	30.861	1.425	34.968	8.236	2.517
780.	34.941	7.963	7.881	27.253	67.540	30.888	1.439	34.937	7.942	2.514
800.	34.907	7.672	7.590	27.272	64.816	30.912	1.452	34.910	7.670	2.458
820.	34.921	7.592	7.509	27.292	62.283	30.935	1.464	34.921	7.577	2.424
840.	34.899	7.318	7.234	27.315	59.148	30.963	1.477	34.901	7.306	2.442
860.	34.873	6.946	6.862	27.344	55.185	30.948	1.488	34.872	6.965	2.922
880.	34.877	6.634	6.550	27.393	49.356	31.053	1.498	34.878	6.647	3.575
900.	34.876	6.475	6.390	27.416	46.383	31.079	1.508	34.881	6.475	2.742
920.	34.888	6.361	6.275	27.438	43.561	31.106	1.517	34.888	6.350	2.463
940.	34.887	6.134	6.047	27.467	39.759	31.137	1.525	34.888	6.131	2.872
960.	34.897	6.002	5.915	27.492	36.671	31.164	1.533	34.895	5.998	2.507
980.	34.903	5.834	5.746	27.518	33.195	31.194	1.540	34.902	5.840	2.801
1000.	34.911	5.686	5.598	27.543	29.919	31.222	1.546	34.911	5.689	2.472

OCEAN COLOR & CIRCULATION STATION 29

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 23 39.7 N LONGITUDE 82 11.4 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. X 1000
0.	36.200	28.244								
20.	36.185	28.147	28.142	23.254	463.394	26.547	.037	36.188	28.167	.000
30.	36.147	28.159	28.152	23.256	463.352	26.549	.083	36.188	28.162	.000
40.	36.186	28.160	28.150	23.258	463.842	26.611	.130	36.188	28.161	1.144
50.	36.147	28.166	28.154	23.254	463.787	26.509	.176	36.188	28.164	.837
60.	36.215	28.105	28.091	23.294	460.010	26.641	.222	36.220	28.059	3.834
70.	36.268	27.714	27.698	23.462	448.484	26.613	.267	36.267	27.719	7.880
80.	36.274	27.492	27.474	23.544	434.401	26.848	.312	36.279	27.505	7.420
100.	36.464	26.739	26.716	23.848	407.848	27.211	.397	36.923	26.760	13.243
120.	36.642	26.150	26.123	24.110	382.744	27.479	.471	36.467	26.131	-5.824
140.	36.613	25.318	25.287	24.482	347.386	27.860	.545	36.602	25.356	9.133
160.	36.779	24.047	24.013	24.992	298.812	28.344	.609	36.780	24.044	11.376
180.	36.803	22.717	22.680	25.470	253.296	28.876	.665	36.893	22.746	10.651
200.	36.847	21.436	21.395	25.798	221.935	29.219	.711	36.848	21.437	9.062
220.	36.812	20.848	20.805	25.922	210.106	29.341	.755	36.815	20.922	5.382
240.	36.720	19.764	19.725	26.152	188.036	29.595	.795	36.722	19.813	7.492
260.	36.594	18.800	18.754	26.308	172.946	29.764	.831	36.595	18.795	6.455
280.	36.491	18.055	18.006	26.417	162.317	29.883	.864	36.488	18.043	5.211
300.	36.412	17.517	17.466	26.489	155.243	29.963	.896	36.409	17.519	4.182
320.	36.274	16.785	16.732	26.561	148.030	30.046	.926	36.275	16.784	4.523
340.	36.116	15.855	15.800	26.656	138.439	30.155	.955	36.126	15.885	4.825
360.	36.019	15.223	15.167	26.720	131.915	30.229	.982	36.018	15.257	3.846
380.	35.926	14.655	14.598	26.779	125.888	30.296	1.008	35.918	14.642	3.950
400.	35.862	14.332	14.273	26.800	123.531	30.323	1.033	35.863	14.331	2.899
420.	35.757	13.760	13.699	26.840	119.159	30.372	1.057	35.758	13.759	3.347
440.	35.652	13.154	13.092	26.884	114.282	30.426	1.080	35.657	13.170	3.437
460.	35.596	12.776	12.713	26.918	110.932	30.467	1.103	35.599	12.787	2.989
480.	35.501	12.117	12.053	26.974	104.467	30.533	1.124	35.501	12.130	3.829
500.	35.415	11.536	11.474	27.017	99.535	30.586	1.145	35.415	11.549	3.497
520.	35.369	11.203	11.137	27.044	96.344	30.619	1.164	35.368	11.201	2.417
540.	35.321	10.864	10.796	27.069	93.369	30.650	1.183	35.312	10.825	2.687
560.	35.174	10.020	9.954	27.103	88.400	30.699	1.201	35.175	10.030	3.243
580.	35.134	9.693	9.615	27.130	85.542	30.731	1.219	35.133	9.686	2.731
600.	35.087	9.347	9.279	27.149	82.954	30.757	1.236	35.088	9.338	2.625
620.	35.047	8.980	8.911	27.177	79.364	30.792	1.252	35.048	8.991	2.715
640.	35.024	8.662	8.592	27.211	75.388	30.831	1.267	35.024	8.661	3.078
660.	34.986	8.355	8.285	27.229	72.837	30.855	1.282	34.987	8.363	2.325
680.	34.954	8.075	8.004	27.249	70.108	30.880	1.296	34.957	8.063	2.964
700.	34.955	7.920	7.847	27.271	67.358	30.905	1.310	34.954	7.913	2.370
720.	34.933	7.677	7.604	27.289	64.763	30.928	1.323	34.933	7.674	2.382
740.	34.916	7.444	7.370	27.310	61.992	30.954	1.336	34.917	7.446	2.452
760.	34.901	7.238	7.163	27.328	59.435	30.976	1.348	34.902	7.243	2.276
780.	34.896	7.045	6.969	27.351	56.446	31.002	1.360	34.896	7.041	2.606
800.	34.889	6.810	6.733	27.378	52.945	31.034	1.371	34.888	6.816	2.673
820.	34.897	6.577	6.499	27.417	48.358	31.077	1.381	34.896	6.586	3.193
840.	34.897	6.399	6.320	27.440	45.291	31.104	1.390	34.895	6.389	2.679
860.	34.902	6.231	6.152	27.466	41.955	31.133	1.399	34.902	6.234	2.656
880.	34.906	6.063	5.983	27.491	38.750	31.161	1.407	34.906	6.063	2.669
900.	34.915	5.934	5.853	27.515	35.730	31.188	1.414	34.914	5.938	2.474
920.	34.919	5.848	5.765	27.529	33.688	31.204	1.421	34.919	5.847	2.090
940.	34.922	5.743	5.660	27.544	31.443	31.221	1.428	34.922	5.738	2.132
960.	34.929	5.606	5.521	27.567	28.421	31.247	1.434	34.929	5.600	2.518
980.	34.936	5.485	5.399	27.588	25.639	31.270	1.439	34.936	5.482	2.961
1000.	34.942	5.368	5.282	27.606	23.065	31.291	1.444	34.942	5.369	2.286

OCEAN COLOR & CIRCULATION STATION 10

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 24 1.8 N LONGITUDE 82 29.7 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. V 100M
0.	36.179	28.373								
10.	36.181	28.367	28.365	23.183	470.050	26.523	.009	36.181	28.367	.000
20.	36.193	28.232	28.227	23.236	465.056	26.579	.056	36.194	28.231	.000
30.	36.191	28.206	28.199	23.244	464.483	26.587	.102	36.191	28.212	3.852
40.	36.198	28.181	28.171	23.257	463.311	26.602	.149	36.197	28.180	2.308
50.	36.211	28.136	28.124	23.281	461.151	26.627	.195	36.219	28.106	3.773
60.	36.275	27.701	27.687	23.472	443.029	26.822	.240	36.276	27.756	6.474
70.	36.310	27.414	27.398	23.592	431.708	26.945	.284	36.317	27.443	8.413
80.	36.399	26.829	26.810	23.847	407.454	27.206	.327	36.389	26.886	9.433
100.	36.659	25.221	25.199	24.547	340.778	27.923	.402	36.656	25.220	13.292
120.	36.540	23.484	23.459	24.979	299.641	28.375	.466	36.554	23.364	10.403
140.	36.448	22.299	22.271	25.631	237.622	29.039	.518	36.937	22.265	12.131
160.	36.416	21.126	21.095	25.935	208.625	29.357	.562	36.921	21.143	9.480
180.	36.424	18.772	18.739	26.185	184.417	29.638	.602	36.418	18.725	7.498
200.	36.356	17.730	17.696	26.393	164.424	29.860	.636	36.351	17.753	6.885
220.	36.209	16.646	16.610	26.544	149.727	30.027	.668	36.209	16.646	6.549
240.	36.071	15.771	15.733	26.641	140.078	30.138	.697	36.084	15.825	5.854
260.	35.925	14.843	14.804	26.737	130.501	30.248	.724	35.929	14.854	5.017
280.	35.827	14.182	14.140	26.805	123.697	30.326	.749	35.823	14.170	4.128
300.	35.676	13.294	13.251	26.874	116.375	30.410	.773	35.677	13.303	4.254
320.	35.547	12.499	12.456	26.934	110.030	30.483	.796	35.552	12.522	4.000
340.	35.469	11.956	11.911	26.980	105.110	30.538	.817	35.472	11.954	3.580
360.	35.374	11.280	11.235	27.033	99.415	30.602	.838	35.375	11.298	3.613
380.	35.282	10.654	10.608	27.076	94.523	30.657	.857	35.280	10.653	3.461
400.	35.204	10.186	10.139	27.098	91.746	30.687	.876	35.202	10.173	2.414
420.	35.127	9.636	9.588	27.132	87.724	30.731	.894	35.124	9.630	3.403
440.	35.091	9.327	9.277	27.155	84.852	30.760	.911	35.091	9.327	2.416
460.	35.092	9.148	9.096	27.186	81.437	30.794	.928	35.092	9.138	2.880
480.	35.077	8.954	8.901	27.205	79.046	30.817	.944	35.077	8.947	2.286
500.	35.061	8.781	8.726	27.228	77.089	30.836	.959	35.059	8.777	1.961
520.	35.048	8.664	8.607	27.229	75.726	30.847	.974	35.047	8.656	1.679
540.	35.028	8.463	8.405	27.245	73.628	30.867	.989	35.028	8.464	2.001
560.	35.035	8.267	8.208	27.257	71.808	30.883	1.004	35.006	8.256	2.204
580.	34.990	8.052	7.992	27.278	69.185	30.908	1.018	34.990	8.047	2.296
600.	34.940	7.633	7.573	27.302	65.928	30.939	1.032	34.935	7.601	2.708
620.	34.888	7.141	7.081	27.332	61.876	30.979	1.044	34.890	7.151	2.956
640.	34.895	7.025	6.963	27.353	59.194	31.003	1.056	34.894	7.014	2.441
660.	34.887	6.790	6.727	27.380	55.456	31.039	1.068	34.889	6.785	2.755
680.	34.893	6.641	6.577	27.405	52.802	31.062	1.079	34.893	6.638	2.522
700.	34.896	6.556	6.491	27.418	50.900	31.077	1.089	34.896	6.560	1.858
720.	34.897	6.464	6.397	27.431	49.036	31.092	1.099	34.894	6.461	1.846
740.	34.890	6.363	6.295	27.446	46.945	31.109	1.109	34.894	6.358	2.201
760.	34.904	6.246	6.216	27.461	44.946	31.125	1.118	34.903	6.243	1.886
780.	34.906	6.123	6.052	27.484	41.946	31.141	1.127	34.906	6.122	2.551
800.	34.922	5.970	5.898	27.516	38.102	31.167	1.135	34.918	5.979	2.731
820.	34.926	5.865	5.792	27.532	35.431	31.205	1.142	34.926	5.844	2.369
840.	34.928	5.781	5.706	27.544	34.007	31.219	1.149	34.929	5.781	1.892
860.	34.928	5.713	5.637	27.553	32.569	31.229	1.156	34.928	5.711	1.483
880.	34.932	5.621	5.543	27.568	30.400	31.246	1.162	34.934	5.617	2.105

OCEAN COLOR & CIRCULATION STATION 11

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 24 11.9 N LONGITUDE 81 54.4 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. V 100M
0.	43.944	27.290								
20.	38.687	27.281	27.276	25.426	256.439	28.767	.010	38.167	27.272	.000
30.	36.122	27.122	27.115	23.544	435.783	26.886	.052	36.121	27.110	.000
40.	36.164	26.852	26.842	23.663	424.534	27.020	.094	36.163	26.809	******
50.	36.177	26.687	26.676	23.725	418.716	27.085	.138	36.178	26.694	6.560
60.	36.198	26.520	26.506	23.794	412.234	27.156	.176	36.196	26.515	5.828
70.	36.237	25.222	25.207	24.228	370.897	27.604	.219	36.218	25.286	10.889
80.	36.261	23.542	23.525	24.751	321.036	28.145	.254	36.281	23.505	15.282
100.	36.707	22.794	22.773	25.307	266.243	28.708	.312	36.676	22.706	11.427
120.	36.214	19.733	19.711	25.776	223.311	29.215	.362	36.256	19.990	10.261
140.	36.190	18.092	18.067	26.178	184.844	29.639	.403	36.171	17.977	10.491
160.	35.921	16.109	16.084	26.447	158.758	29.937	.436	35.920	16.110	7.834
180.	35.716	15.094	15.066	26.520	151.472	30.026	.467	35.716	15.094	4.339
200.	35.458	13.965	13.936	26.566	146.595	30.040	.497	35.456	13.959	3.211
220.	35.354	13.266	13.235	26.631	140.013	30.106	.526	35.349	13.256	4.038
240.	35.243	12.579	12.547	26.683	134.567	30.230	.553	35.248	12.547	3.792
260.	35.132	11.817	11.784	26.744	128.148	30.304	.579	35.133	11.839	3.421
280.	35.049	11.244	11.209	26.788	123.493	30.358	.605	35.048	11.248	3.442
300.	34.970	10.702	10.665	26.825	119.411	30.404	.629	34.971	10.693	3.290
320.	34.917	10.241	10.204	26.864	115.033	30.452	.652	34.918	10.235	3.236
340.	34.848	9.744	9.705	26.896	111.363	30.493	.675	34.853	9.754	2.929
360.	34.807	9.418	9.377	26.919	108.598	30.522	.697	34.807	9.403	2.531
380.	34.809	9.346	9.303	26.932	106.967	30.537	.718	34.807	9.344	1.440
400.	34.785	9.187	9.142	26.939	105.806	30.547	.740	34.787	9.191	1.425
420.	34.760	8.954	8.908	26.958	103.478	30.571	.760	34.761	8.961	2.182
440.	34.727	8.659	8.612	26.979	100.836	30.597	.781	34.727	8.658	2.468
460.	34.705	8.462	8.413	26.992	98.464	30.615	.801	34.706	8.477	1.857
480.	34.688	8.264	8.214	27.010	96.744	30.636	.821	34.688	8.282	2.414
500.	34.659	7.946	7.897	27.035	93.590	30.667	.840	34.660	7.937	2.737
520.	34.605	7.548	7.496	27.051	91.138	30.691	.858	34.617	7.574	2.455
540.	34.561	7.128	7.076	27.076	87.739	30.724	.876	34.561	7.134	2.835
560.	34.590	7.025	6.971	27.113	83.638	30.763	.893	34.584	7.007	3.025
580.	34.573	6.818	6.763	27.129	81.414	30.743	.909	34.574	6.812	2.413
600.	34.585	6.743	6.686	27.148	78.993	30.804	.925	34.584	6.740	2.157
620.	34.583	6.596	6.538	27.167	76.967	30.825	.941	34.708	6.839	4.460

OCEAN COLOR & CIRCULATION STATION 12

NOAA SHIP RESEARCHER RP-17-RE-77 LATITUDE 24 22.5 N LONGITUDE 81 59.8 W

DEPTH	SALINITY	TEMPERATURE	POTEMP	SIGMA-T	SVANOM	SIGMA-P	DYN HGT.	AVSALIN	AVTEMP	AVG. V 100M
0.	35.825	26.114								
10.	35.831	26.121	26.118	23.643	426.124	27.067	.009	35.831	26.121	.000
20.	35.828	26.127	26.123	23.639	426.596	27.064	.051	35.834	26.130	.000
30.	35.858	26.166	26.159	23.850	425.608	27.015	.094	35.852	26.133	1.917
40.	35.822	25.866	25.857	23.716	419.442	27.085	.136	35.829	25.854	4.555
50.	35.784	25.437	25.426	23.793	412.223	27.167	.178	35.734	25.348	6.156
60.	35.673	24.738	24.725	23.950	397.263	27.333	.218	35.706	24.761	7.594
72.	35.807	24.089	24.073	24.246	369.111	27.635	.263	35.807	24.089	10.292
80.	35.652	14.081	14.070	26.691	135.540	30.208	.283	35.652	14.081	26.299
100.	35.433	12.875	12.861	26.771	127.535	30.309	.310	35.437	12.923	24.703
120.	35.363	12.535	12.519	26.785	126.017	30.328	.335	35.354	12.469	2.627
140.	35.006	10.678	10.661	26.857	118.914	30.433	.359	35.000	10.645	4.197
160.	34.829	9.654	9.636	26.896	114.038	30.491	.382	34.832	9.653	3.301

Appendix C: Suspended Sediment Data

OCEAN COLOR CRUISE

CAST 2

DEPTH (m)	CONCENTRATION (mg/l)
1	0.17
10	0.95
30	1.76
40	0.58

CAST 2C

DEPTH (m)	CONCENTRATION (mg/l)
26	0.27
35	0.91
38	0.93

CAST 3A

DEPTH (m)	CONCENTRATION (mg/l)
1	0.54
5	0.75
10	0.58

CAST 4A

1	1.05
6	0.41
12	0.63

CAST 5A

1	0.83
6	0.79
8	0.81
10	0.78
12	1.20
14	1.87

CAST 6

1	0.57
55	0.50
300	0.27
500	1.47
750	0.22
950	0.79

CAST 7

2	0.94
30	0.83
60	0.55
100	0.31
150	1.24
225	0.45

CAST 8D

1	1.88
20	0.21
30	0.22
45	1.46
47	0.23
49	0.21
70	0.09

CAST 8F

1	1.76

CAST 8G

1	1.64

CAST 9A

1	1.54
6	1.60
10	0.82
14	1.02

CAST 9B

2	1.37
8	0.67
13	0.80
15	1.86

CAST 10

1	0.45
38	0.27
75	0.91
125	0.69
225	1.04

CAST 11D

1	0.13
45	0.28
49	0.26
52	0.28
120	0.29

CAST 18

204	0.52

CAST 19

187	0.27

CAST 23

164	0.22

CAST 28

179	0.44

CAST 30

140	0.30