CORPUS CHRISTI INNER HARBOR WATER QUALITY SURVEY

August 1982

LP-197

TEXAS DEPARTMENT OF WATER RESOURCES

JANUARY 1985

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August 1982

By

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and

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LP-197

Texas Department of Water Resources

January 1985

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Published and distributed
by the
Texas Department of Water Resources
Post Office Box 13087
Austin, Texas 78711

ABSTRACT

A water quality survey of the Corpus Christi Inner Harbor (Segment 2484) was conducted August 8-14, 1982 by the staff of the District 12 office of the Texas Department of Water Resources. The Corpus Christi Inner Harbor is a dredged, man-made, dead-end channel, approximately 8.6 miles in length. Water and sediment quality data were collected at 15 locations during this survey. Benthic macroinvertebrate data were collected at 6 of the 15 survey locations. Water quality data were also collected from all known and permitted discharges to the Corpus Christi Inner Harbor. Data from previous Texas Department of Water Resources studies of the Inner Harbor were compared to data collected during this survey. Water quality has improved in the Inner Harbor over the past 10 years. Sediments in the Inner Harbor, however, are still contaminated with heavy metals, organics and PCBs.

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Corpus Christi Inner Harbor Study

(Segment 2484)

August 8-14, 1982

INTRODUCTION

During the week of August 8-14, 1982 a special study of the Corpus Christi Inner Harbor was conducted by the staff of the Texas Department of Water Resources (TDWR) District 12 Office. The study was conducted as part of continuing surveillance of the Corpus Christi Inner Harbor, Segment 2484. Data collected will provide information for the Department's continuing effort to maintain and enhance the quality of Texas' surface water.

The actual on-water work was conducted August 10, 1982. We utilized fifteen survey stations for this project. Fourteen of these stations were located in the Inner Harbor. A reference station at Corpus Christi Ship Channel Marker 62 (2481.01) was used to obtain some background information on Corpus Christi Bay. A map depicting survey station locations is attached as Figure 1. These are the same fifteen stations used by District 12 in previous studies.

The Corpus Christi Inner Harbor has been the subject of several previous studies by the Department. A list of these studies follows:

1) IOM, April 11, 1969 to Joe Sorrels from Paul Kutchinski, Survey of Corpus Christi Ship Channel, February 5, 1969.

2) IOM, June 9, 1969 to Joe Sorrels from Paul Kutchinski, Corpus Christi Ship Channel Survey.

3) IOM, July 20, 1970 to Dick Whittington from Paul Kutchinski, Corpus Christi Ship Channel Survey.

4) IOM, February 8, 1971 to Dick Whittington from Paul Kutchinski, Corpus Christi Ship Channel Survey, October 27, 1970.

5) IOM, January 27, 1972 to Dick Whittington from Jim Bowman, Corpus Christi Ship Channel Survey, September 22, 1971.

6) IOM, March 5, 1974 to John Latchford from Paul Kutchinski, Corpus Christi Inner Harbor Survey (2484).

7) Water Quality Segment Report for Segment 2484, Corpus Christi Inner Harbor WQS-10 by Steve Warshaw, March 1975.

8) IOM, June 8, 1976 to John Latchford from Paul Kutchinski, Special Study, Corpus Christi Inner Harbor (2484).

The TDWR currently maintains surveillance of water and sediment quality conditions in the Inner Harbor at four locations. These four locations are part of the Statewide Monitoring Network and are described as follows:

Survey Station Number	S.M.S. No.	Description
2	2481.05	Corpus Christi Bay at Channel Marker 86
6	2484.01	Corpus Christi Inner Harbor at Avery Turning Basin
8	2484.02	Corpus Christi Inner Harbor at Navigation Boulevard Bridge
15	2484.03	Corpus Christi Inner Harbor at Viola Turning Basin

Data are collected quarterly at these monitoring stations and are available at the District 12 Office or the Department's Central Office in Austin, Texas.

METHODS

Samples for pesticides-in-water and sediment were analyzed by the Texas Department of Health (TDH) Lab in Austin, Texas. All other laboratory analyses for water chemical data, metals, sediment and bacteriological data were conducted by the Corpus Christi-Nueces County Health Department Lab in Corpus Christi, Texas.

The TDWR's 23-foot boat was used for on-water work. Water samples were collected at each survey station near mid-channel. Water chemistry and metals samples were collected at a depth of 38 feet at each station using a Kemmerer Sampler. Samples for chemical and metals analyses were collected at a depth of 1 foot by submerging the sample containers.

Sediment samples were collected with an Ekman Dredge. At each station a cross-section across the channel was made to collect the four sediment subsamples which were then composited. Benthic biological samples were collected as four grab samples and sieved through a 30-mesh sieve bucket. The resulting material was then narcotized and preserved. Benthic biological samples were examined, organisms present were identified, and $\bar{d}$ analyses were requested.

Field data profiles for temperature, pH, dissolved oxygen and conductivity were collected at each of the fifteen survey stations. Profiles were made early in the morning, midday, and near sunset. We used a Hydrolab 4000 Series for the collection of the field data. The unit was calibrated prior to the survey.

Bacteriological samples were collected at the fifteen survey stations in sterile bottles. These were carefully submerged to prevent contamination during sampling and were delivered to the lab within six hours after collection.

DESCRIPTION OF SURVEY AREA

The Corpus Christi Inner Harbor, Segment 2484 is located in the City of Corpus Christi, Nueces County, Texas. The Inner Harbor is also known as the Port of Corpus Christi, although that is only partially correct, and is operated by the Port of Corpus Christi Authority. The Inner Harbor is a dredged, man-made channel, approximately 8.6 miles in length from the U.S. 181 Harbor Bridge to its dead-end in Viola Turning Basin (Figure 1). No major rivers or creeks discharge into the Inner Harbor, but storm water runoff from the City of Corpus Christi and adjacent industries does enter the Harbor. Municipal and industrial wastewaters are discharged to the Harbor.

Segment 2484, Corpus Christi Inner Harbor is currently ranked 116, and is classified effluent limited in the TDWR 1982 Water Quality Inventory. In 1980, Segment 2484 was ranked 211 and was classified effluent limiting. The segment moved in ranking based upon several dissolved oxygen values above saturation in the past four years of data.

The Corpus Christi Ship Channel extends from the mouth of the Inner Harber to the Gulf of Mexico. The channel crosses Corpus Christi Bay, a primary bay system of the Nueces Estuary. In 1982, the Corpus Christi Inner Harbor was restored to a depth of 40 feet by maintenance dredging. The Corpus Christi Ship Channel is at its authorized depth of 45 feet from the Gulf to the Inner Harbor. Plans to deepen the Inner Harbor to 45 feet have been delayed due to environmental concerns over the disposal of the dredge material.

WASTE SOURCES IN THE SURVEY AREA

Point Sources - We sampled all permitted wastewater discharges to the Corpus Christi Inner Harbor. A total of nine industries and the City of Corpus Christi Broadway sewage treatment plant (STP) (WCO #10401-05) discharge wastewater to the Inner Harbor. The location of each of the wastewater discharges is shown in Figures 2 and 3. Results of the sampling are shown in Table 1, attached, which includes the laboratory analyses, volume of each discharge, effluent limitation (where applicable) and calculations of loadings from each discharge.

We compared data from Table 1 to data from Table 1A (TDWR Survey of the Corpus Christi Inner Harbor of August 20, 1973). During the

August 1973 survey, all wastewater discharges were sampled and loadings calculated. The 1973 survey included a total of 3414.36 lbs/day BOD_5 loading while BOD_5 loading in the 1982 survey was 1896.1 lbs/day. This is a reduction of approximately fifty-six percent.

The City of Corpus Christi's Broadway STP contributed the largest percentage of the total BOD_5, COD and NOD loading to the Inner Harbor. The STP effluent also contributed the largest amount of nutrients (ammonia, nitrates and phosphorus) to the Harbor. The Broadway STP contributed 63.6% of the BOD_5 loading (Table 1). A comparison to August 1973 data indicates Broadway STP was contributing 61.2% of the BOD_5 loading to the Inner Harbor in 1973. It is interesting to note that although the total BOD_5 loading was 56% less in the 1982 survey, the percentage of loading has varied little over the past nine years.

We determined COD loading for the Inner Harbor to be 14,260 lbs/day. This compares well with the 1973 survey in which 13,094 lbs/day was calculated.

The total oxygen demand loading (BOD_5 + COD + NOD = total oxygen demand) calculated was approximately 20,375 lbs/day. During the August 20, 1973 survey, this value was about 21,621 lbs/day. This is a reduction of about six percent over the past nine years.

As will be discussed in the field data section of this report, the dissolved oxygen concentrations determined during the survey were good throughout the water column. The August 1973 survey showed very low dissolved oxygen values in the Harbor below depths of 20 feet, especially at Stations 8 through 15.

Non-point Sources - The Corpus Christi Inner Harbor receives rainfall runoff from surrounding industries and the City of Corpus Christi. Prior to our collection of on-water samples on August 10, 1982, approximately 0.6 inches of rain fell in the survey area (see climatological data). This rainfall created flow in four drainage ditches to the Inner Harbor. On August 9, 1982, we inspected all ditches draining to the Inner Harbor and sampled those four discharging to the Inner Harbor. The location of each drainage ditch sample site is shown in Figures 1 and 4. The results of lab analyses are shown in Table 2.

Figure 4 can be used to compare the location of the ditches to other figures in this report. Lab analyses indicate typical quality for storm water runoff. The TSS concentrations were high, ranging from 125 to 606 mg/l. The COD values ranged from 69 to 189 mg/l. The lab reported interference with the BOD_5 analyses, therefore no BOD_5 data is available for these discharges. The runoff water also contained moderate amounts of nutrients (see Table 2).

RESULTS

Hydrological - The hydrology of the Inner Harbor is influenced by many factors including, but not limited to, channel configuration, depth and width, tides, wind, withdrawal of water, ship traffic, municipal and industrial discharges and rainfall runoff. To better understand the influence of these factors on the circulation and water exchange patterns of the Inner Harbor, an extensive monitoring effort is needed to define circulation patterns in the Inner Harbor. No hydrological measurements were made during this study. The general regime is outlined below:

The tidal fluctuations in the Inner Harbor are relatively small. Under typical conditions, diurnal tidal fluctuation is 6 to 8 inches, with strong winds it could be more or less depending upon wind direction. Rainfall runoff influences circulation and flushing of the Inner Harbor waters. These two factors play a major role in the hydrology of the Harbor. Progressing west from the Harbor Bridge, tidal exchange between the Inner Harbor and the Corpus Christi Bay System is reduced.

As shown in the field data section of this report, conductivity values indicate very little salinity stratification was found during this survey between top and bottom waters and from one station location to the next.

Climatological - The climatological data (see Table 3) for the survey was provided by the National Weather Service Office at the Corpus Christi International Airport, located about three miles south of the Inner Harbor (see map, Figure 1).

Two days prior to the actual on-water work, rainfall was recorded in the survey area. On August 8, 1982, the Weather Bureau recorded .52 inches of precipitation and on August 9, 1982, 0.11 inches occurred.

On August 10, 1982, we considered the weather excellent. The average temperature for the day was 84^{o}F, which compared favorably with the average temperature for the month--84.9^{o}F. The maximum temperature for the day was 92^{o}F and the low was 76^{o}F. Winds were out of the southeast at 10.3 mph. Highest winds were recorded at 17 mph. (Average wind velocity for the month of August was 12.2 mph out of the southeast.)

Field Measurements - On August 10, 1982, field measurements consisted of vertical profiles at each station three times during the day. The fifteen stations were visited for collection of field data as close as possible to the early morning, midday and sunset hours. This was done to determine daily fluctuations of temperature (^{o}C), pH, conductivity and dissolved oxygen. Vertical profiles included data at the surface (1 foot) and then at 10-feet intervals to 40 feet. All field data collected on August 10, 1982 are presented in Table 4.

Temperature of the water increased with time of day. Temperatures increased about 1°C from the early morning to sunset. Temperatures were lowest in the morning at Station 1 in Corpus Christi Bay and Station 2 at the mouth of the Inner Harbor. The Bay's larger surface area apparently accounts for these cooler temperatures.

A review of temperature data at all stations shows very little thermal stratification during the survey. In general, less than 0.5°C difference occurred between the surface water and bottom water (at 40 feet) for the stations in the Inner Harbor during the morning and midday sampling periods. Evening temperatures showed a slightly greater (about 1°C) difference between the warmer surface water and the bottom water. Also, the temperatures of the bottom water changed less than at other depths during the three sampling periods.

The pH of the water in the Inner Harbor was slightly lower than normal. The rainfall two days prior to data collection probably influenced the pH values detected. Generally, pH values in the Inner Harbor waters range from 8.0 to 8.4 during the summer months. This is supported by the field pH measurements collected during the 1973 survey and TDWR routine monitoring data. The actual pH range for the survey was from 7.6 to 8.0. The pH of the Inner Harbor waters increased slightly with time of day and decreased with depth. The amount of dissolved oxygen in the water may have influenced these changes. The pH standard for Segment 2484 is 6.5 to 9.0. No water quality standard violations for pH were detected.

Conductivity values were uniform throughout the survey area. A slight increase in conductivity occurred substantially with depth.

The dissolved oxygen standard for the Corpus Christi Inner Harbor is 3.0 mg/l in surface water (1 foot). Actual dissolved oxygen values in surface water ranged from a low of 3.8 mg/l at Station 4 at 1328 hours to 8.5 mg/l at Station 2 at 1905 hours. No water quality standard violations for dissolved oxygen were recorded.

Dissolved oxygen values for surface water at 20 feet and at 40 feet are shown on Figures 5, 6 and 7. Figure 5 depicts values found in the morning on August 10, while Figure 6 shows dissolved oxygen values at midday and Figure 7 has values recorded near sunset. These charts indicate that dissolved oxygen concentrations were uniform throughout the survey area. The stations which showed the largest difference between the morning sampling run and the sunset sampling run were Stations 2-5. The effluent from the Broadway STP is contributing to this fluctuation. The dissolved oxygen values in Figures 5, 6 and 7 may be compared to dissolved oxygen values found during the August 20, 1973 survey of the Harbor. Figure 8 depicts the dissolved oxygen values from the 1973 survey. Station locations are the same for both surveys. In 1973, the dissolved oxygen values were much higher in the surface water. In fact, all surface water samples were above saturation in 1973. Also, the water at depths of 20-30 feet was almost devoid of oxygen then, especially at Stations 8-15. This condition did not exist during the August 1982 survey indicating improved water quality in the Corpus Christi Inner Harbor, Segment 2484.

Laboratory Analyses of Water -

Chemical Analyses

Water samples were collected for chemical analyses at each of the 15 survey stations at the surface (1 foot) and at a depth of 38 feet. All samples were collected approximately mid-channel. The results of the laboratory analyses are shown in Table 5 and indicate uniformly good water quality for a dead-end industrial channel.

The levels of total organic carbon (TOC) in the water ranged from <5 mg/l to 6 mg/l. These values compare favorably with the surface water BOD_5 analyses which were 2 mg/l at all stations except Station 10 which had 3 mg/l. These values are normal for estuarine systems in District 12. A computer review of TOC values found at TDWR routine monitoring stations in the Corpus Christi Inner Harbor is attached as the Appendix. The data indicate that the average TOC value found in the Inner Harbor over the past years of sampling is higher than values found during this survey. The computer review of TOC data also shows that the TOC average increases from Monitoring Station 2481.05 at the mouth of the Inner Harbor (7.9 mg/l actual) to the dead-end turning basin, Viola Turning Basin, Station 2484.03 (12.3 mg/l actual).

The amount of total suspended solids (TSS) and volatile suspended solids (VSS) in the bottom water at Station 3 was unusually high compared to other survey locations. High VSS concentration (250 mg/l) does not seem to correlate with TOC concentration (5 mg/l) at this location.

Conductivity values determined by the laboratory are slightly lower than conductivity values recorded in the field. The lab data support the field data in that only a slight increase in values are found between samples collected near the surface as compared to values found at 38 feet. The conductivity values found throughout the survey area were quite uniform.

Chloride and sulfate data shown in Table 5 indicate a slight increase in values from surface water to bottom water. Past TDWR sampling at routine monitoring stations in the Inner Harbor has shown larger variation between conductivity, chloride, and sulfate values between the surface and bottom waters. Rainfall and storm water runoff are two of the controlling factors.

All laboratory pH analyses of the water samples collected for chemical analyses were within the water quality standards for Segment 2484 (6.5 to 9.0). The laboratory pH data shows that the surface water was slightly higher in pH than bottom water. This is attributed to the additional amount of dissolved oxygen in the surface water. The surface water pH values found during the August 1982 survey were slightly lower than those determined by the lab during the August 1973 survey. The bottom water lab pH data was slightly higher when the two surveys are compared. The laboratory pH values found during the 1982 survey indicate improved water quality.

Values of nutrients (phosphorus (T-P), ammonia, nitrates and nitrites) found at all survey stations were low. Data for T-P in surface water are graphed in Figure 9. The impact of the loading from the Broadway STP is seen in the peak at Station 3. The data in Figure 9 can be compared to the August 1973 survey in Figure 10, attached. The values of phosphorus were much lower in the August 1982 survey. These data again indicate improved water quality.

Concentrations of ammonia (NH_3-N) and nitrate nitrogen (NO_3-N) in both top and bottom water were fairly low. Concentrations of nitrite nitrogen (NO_2-N) were below laboratory detection limits (<0.03 mg/l) at all stations.

Chlorophyll-a concentrations were slightly higher at Stations 8-15, near the back of the Inner Harbor. Previous studies have also found these conditions. Pheophytin-a values were less than .005 mg/l at all stations.

Metals in Water

Samples for heavy metals in water were collected at each of the fifteen survey stations at 1 foot and 38 feet. Laboratory data are tabulated in Table 6. For comparison, values from stream monitoring stations throughout the State are summarized in Table 7.

Values of arsenic ranged from 12 ug/l at Station 8 (surface water) to less than 2 ug/l at Stations 1 and 13 (bottom water). Although arsenic was present in the water at most survey station locations, the values detected are not excessive. The USEPA Quality Criteria for Water recommends a maximum of 50 ug/l of arsenic for the protection of drinking water. The same limit is recommended for protection of marine aquatic life by the Canadian Environmental Studies Board (see Table 6).

Barium values found in the water were low. All values were below the USEPA and Canadian Environmental Studies Board criteria of 1,000 ug/l for protection of drinking water and marine aquatic life, respectively.

Cadmium concentrations in the Corpus Christi Inner Harbor waters were all below lab detection limits.

Copper is very toxic to fish, especially in fresh or soft water. The concentration of copper, the existing water quality conditions, and the type of fish or aquatic organism involved plays a role in determining what level of copper in water is acceptable. Concentrations of copper were below laboratory detection limits at Stations 11-15 (surface water). All other stations had detectable amounts of copper. Although detectable amounts were found at these station locations, the amounts detected were below levels that would be expected to harm marine life.

Chromium was detected at 48 ug/l in the surface water at Station 1. Lab analyses at all other locations indicate chromium levels below detection limits (20 ug/l). The source of the chromium at Station 1 is unknown.

We expected heavy metals concentration in the water at Station 1 (Corpus Christi Bay) would be lower than those stations in the Corpus Christi Inner Harbor; however, water at Station 1 had the highest concentrations of chromium, iron, manganese and zinc.

Values of iron in the bottom water were much higher at Stations 1-5 as compared to Stations 6-15. The 2200 ug/l value found at Station 1 is considered excessive. Further TDWR monitoring and sampling for iron in the bottom water at this location is planned.

Values of lead at survey stations in the Inner Harbor were at or below levels found at reference Station 1 in Corpus Christi Bay.

Manganese is naturally found in sea water. The USEPA and Canadian Environmental Studies Board limit of 100 ug/l is used to protect marine aquatic life and consumers of marine mollusks. All concentrations determined during this survey were below this level.

Mercury in the water was detected in the bottom water at Stations 2 and 10. At all other stations, the lab reported mercury below the detection limit of <1 ug/l. It should be noted that although the lab found 1 ug/l of mercury present, this was their reported detection limit, therefore no comparison was made with the USEPA criteria for protection of marine life (0.10 ug/l).

The August 1973 study of the Corpus Christi Inner Harbor also detected mercury in the water. In this study, a much lower detection limit was used and comparisons could be made of mercury limits from station to station. The 1973 study found mercury to peak in the surface water at Stations 3 and 6.

Concentrations of nickel and silver were below laboratory detection limits of 30 ug/l and 10 ug/l respectively, at all survey station locations.

Zinc concentrations at Station 1 were unusually high. The lab reported 720 ug/l of zinc in the surface water and 330 ug/l in the bottom water. These values are much higher than those found in the Inner Harbor. The USPHS recommends a maximum of 5000 ug/l zinc in drinking water. However, Canada's Environmental Studies Board recommends a limit of 100 ug/l for protection of marine aquatic life. During the August 1973 survey, values for zinc in the water were 100 ug/l or less at all stations. This data compares with values found during this survey at Stations 2-15.

Pesticides in Water

Pesticide analyses of water samples collected at Navigation Bridge (Station 8) are shown in Table 8. No pesticides or polychlorinated biphenyls (PCB's) were detected in the water.

Review of routine monitoring data indicates no pesticide contamination in the water at the Navigation Bridge monitoring station (2482.02). Pesticide concentrations in water have been below detection limits from 1977 to present.

Bacteriological

A summary of analyses for total and fecal coliforms, fecal streptococcus, and a fecal coliform/fecal streptococcus ratio is included in Table 9.

Segment 2484 is classified by the TDWR as water suitable for non-contact recreation, requiring a total coliform concentration of less than 1000 organisms per 100 ml of water (logarithmic mean of at least 5 samples collected within a 30-day period). Since the data we collected are based on one grab sample, direct comparison with TDWR standards cannot be made.

Bacteriological data indicate poor bacteriological conditions at Stations 3, 4, 5, 6 and 9 (see Table 9). Total coliform concentrations at these five stations ranged between 2200/100 ml and greater than 10,000/100 ml. Station 3 was located mid-channel directly opposite Broadway STP discharge. We observed a wind driven slick emanating from the discharge pipe and drainage ditch (DS-1) extending westerly approximately 2500 feet. Total coliform concentrations were high within this slick (at Stations 4 and 5) and began to decrease at Station 6 (Avery Turning Basin). These high total coliform counts are apparently indicative of incomplete disinfection practices at Broadway STP and storm water runoff being discharged.

High total coliform concentrations at Station 9 are most probably the result of storm water runoff entering the Harbor via drainage ditch DS-4 (see Non-point Source section for map showing location). A 0.6 inch rainfall was recorded in the two days prior to the survey.

Fecal coliform to fecal streptococcus (FC/FS) ratios are used to identify the source of bacteriological contamination. Current interpretive use of this ratio is depicted in Table 10. Based on this methodology, domestic wastes were indicated at Stations 3, 4, 5, 6 and 9. FC/FS ratios verify the bacteriological contamination source in the Harbor as the Broadway STP. Animal wastes were present at Station 12 and combined domestic and animal wastes were present at all other stations.

Laboratory Analyses of Sediments -

General

The quality of the sediments in the bottom of the Corpus Christi Inner Harbor have been the subject of continuing concern. The Corpus Christi Inner Harbor, as with all man-made, dead-end channels, requires periodic maintenance dredging to keep the Harbor at its authorized depth. Figure 11 shows the schedule of maintenance dredging and virgin cuts in the Corpus Christi Inner Harbor since 1960. The disposal of

these sediments from maintenance dredging and deepening of the Harbor with virgin cuts continues to be an issue for environmental concern. The Harbor has very limited circulation and therefore any contamination from discharges, spills, rainfall runoff, or other sources are concentrated in the sediments. The sediments in the Corpus Christi Inner Harbor represent a history of past discharges made to the Harbor.

In 1982 prior to this study (see Figure 11), maintenance dredging was completed of the entire length of the Inner Harbor. This dredged material was disposed of in a manner which did not allow contaminated sediments to be discharged into Nueces Bay or other open waters. Decant-water from the dredge material disposal sites went back to the Harbor. After this maintenance and over-dredging to restore the Inner Harbor to a depth of 40 feet was completed, we expected the sediment quality would be typical of uncontaminated clay. As shown in Figures 12, 13 and 14 for cadmium, mercury and zinc, this was not the case. The data indicate that the sediments in the bottom of the Inner Harbor are still contaminated with heavy metals, organics and PCBs. In any future dredging, these contaminated sediments must be disposed of in a manner that will not cause the water and sediment quality degradation of any surrounding bay systems.

Heavy Metals, T-P, Volatile Solids and Oil and Grease

Composited samples of sediment were collected at each survey station. Laboratory results are shown in Table 11.

Figures 15-28 depict sediment quality found during the survey for each of the parameters shown in Table 11. Figures 3 and 4 show the location of the wastewater and storm water discharges into the Corpus Christi Inner Harbor during the survey of August 8-14, 1982. These charts can be overlaid on the parameter charts to depict wastewater sources in the survey area.

After we reviewed the sediment data, several common peaks in the various parameter values were found. These peaks occurred between Stations 3-4, 8-9 and 13-14. The peaks were usually the greatest at Stations 8-9.

Arsenic in the sediment was the highest at Stations 8 and 9. The lab reported values of 3.5 and 4.5 mg/kg, respectively. The USEPA dredge disposal screening criteria for arsenic is 5.0 mg/kg.

Cadmium values as shown in Figure 17 exceeded the USEPA screening levels for open water disposal of dredge spoil from Stations 4-15. The highest cadmium level was at Station 8 (17 mg/kg of cadmium).

Lead in the sediment exceeded the USEPA level at Stations 6-10. The maximum amount detected was at Station 9 (170 mg/kg lead).

Mercury concentrations detected during the August 1982 survey were considerably lower than those detected during the August 1973 study (Figure 13). Maintenance dredging of the Inner Harbor in 1981-1982 (prior to the study) may have removed most of the mercury-contaminated sediment. No known source has contributed mercury to the Inner Harbor since the dredging. The USEPA screening level of 1.0 mg/kg was exceeded only at Station 8. The lab detected 1.1 mg/kg of mercury in the sediment.

Zinc concentrations found in the sediment of the Corpus Christi Inner Harbor are exceptionally high. The USEPA screening level for zinc is 75 mg/kg. Station 9 had zinc concentrations of 2100 mg/kg in the sediment. The source of the zinc apparently is the wastewater discharge of ASARCO, Inc. opposite Station 9. Zinc concentrations in the sediment have not changed much between the August 1982 and August 1973 surveys. Data is compared in Figure 15. Highest zinc values for both surveys were at Station 9.

The T-P concentration in sediment was highest near the discharge of the City of Corpus Christi Broadway STP at Station 3. The Broadway STP was discharging 340 pounds of T-P per day, as compared to 373 total pounds of T-P in all other permitted discharges.

Oil and grease concentration in the sediment is depicted in Figure 29. The peaks in the data at Stations 5 and 8 correlate well with drainage ditch data (see Figure 5, Non-point Sources overlay). Urban and industrial storm water runoff are major sources of oil and grease in the sediment other than oil spills.

Pesticide in Sediment

Pesticide analyses of sediment samples collected at Navigation Bridge (Station 8) are shown in Table 12. No pesticides were detected in the sediment. Review of routine monitoring data indicate no pesticide contamination in the sediments at this location during the last four years.

Polychlorinated biphenyls (PCBs) were detected in the sediment sample at Station 8 at a concentration of 83 ug/kg (detection limit is 30 ug/kg).

PCBs are relatively non-biodegradable and are fat-soluble, thus they tend to accumulate in fatty tissues of organisms. Review of routine monitoring data indicate persistent PCB contamination of Inner Harbor sediments at Station 8. We have detected PCBs in every sediment sample collected at this location over the past six years. PCB concentrations have ranged between 43 ug/kg and 417 ug/kg.

Possible sources of PCBs in the Corpus Christi Inner Harbor include, but are not limited to :

1) Release of domestic and industrial wastewater;

2) Spills;

3) Improper disposal of solid wastes containing transformers, capacitors, hydraulic fluids, etc.

In 1970, the USEPA eliminated all uses of active or inactive ingredients of PCBs as a pesticide. PCBs are now used principally in transformers.

Recent maintenance dredging (1980-1981) of the entire reach of the Corpus Christi Inner Harbor was expected to reduce concentrations of contaminants (i.e., heavy metals, pesticides, PCBs, etc.) in the sediments. The heavy metals-in-sediment data discussed earlier in this report and PCB data indicate this reduction of pollutants has not occurred.

Biological Analyses -

Benthos

We collected benthic macroinvertebrate data at six of the survey stations (see Table 13). A total of eighteen species were identified, representing four phyla of the animal kingdom. Eight species of polychaete annelids and five species of mollusks were identified, as well as two nemertean worms and three arthropod crustaceans.

The majority of these species (13) were collected at the Corpus Christi Bay Station at Corpus Christi Ship Channel Marker 62 (2481.01). Number of species then drops progressing into the Corpus Christi Inner Harbor. Only four species were collected within the confines of the Corpus Christi Inner Harbor. This condition correlates well with past benthic macroinvertebrate data collected in the bay and harbor.

Benthic macroinvertebrate diversity at the Corpus Christi Bay Ship Channel Marker 62 monitoring station is consistently good, with the exception of samples collected after maintenance dredging (see SMN data files). Benthic macroinvertebrate diversity in the Corpus Christi Inner Harbor however has been consistently poor (see SMN data files). Over the past six years, we have monitored benthic macroinvertebrate populations at the Corpus Christi Inner Harbor Navigation lift bridge (2484.02). Samples collected in 1976, 1977 and 1978 yielded no benthic macroinvertebrates. Samples collected in 1979 and 1980 contained two species of polychaete annelids, *Streblospio benedicti* and *Capitella capitata* and one bivalve mollusk, *Mulinia lateralis*. No benthos data were collected in 1981 at this sampling station. In 1982, as can be seen in Table 13, no benthic macroinvertebrate organisms were collected at the Navigation bridge sampling station, but four species were collected at two other Corpus Christi Inner Harbor sampling points. These were the polychaetes *Streblospio benedicti* and *Paraprionospio pinnata*, and the bivalves *Mulinia lateralis* and *Chione sp.* These four organisms are quite common to the Corpus Christi Bay system, in fact *Paraprionospio pinnata* and

Mulinia lateralis are probably the two most common organisms collected in several of the bay systems along this portion of the Texas coast. *Streblospio benedicti* on the other hand is quite common to ecotonal areas where fresh and salt waters merge. It is also abundant in estuarine areas with organic loading (i.e., sewage treatment plant outfalls and storm drains, etc.).

The paucity of benthic biota in the Corpus Christi Inner Harbor reflects the conditions existing there. These include, but are not limited to, limited water circulation, periodic maintenance and dredging operations, ship traffic, organic decomposition, low dissolved oxygen concentrations and channel depth. Heavy metals concentrations in the sediments also may act to curtail establishment of many benthic species.

Review of Monitoring Data - We requested a selective data computer report of routine TDWR monitoring data for Station 2 (2481.05), Station 6 (2484.01), Station 8 (2484.02), and Station 15 (2484.03) (see the Appendix). We requested data which included those parameters used to determine compliance with existing water quality standards for Segment 2484, Corpus Christi Inner Harbor.

Survey Station 2, CMS #2481.05, water quality standards are those for Corpus Christi Bay (Segment 2484). Corpus Christi Bay has a dissolved oxygen standard of not less than 5.0 mg/l. A review of the data for this station (in the Appendix) indicated no violations for dissolved oxygen at depths of 1 foot. The dissolved oxygen falls below the standard only at depths below 10 feet, however, these are not considered water quality standard violations.

The Corpus Christi Inner Harbor has a dissolved oxygen standard of not less than 3.0 mg/l for surface water. A review of data provided in the selective data retrieval for dissolved oxygen shows that only one dissolved oxygen violation has occurred. This dissolved oxygen violation occurred on August 1, 1974 at Station 2484.03 (Survey Station 15). Since that time we have not been aware of any dissolved oxygen violation of surface water standards at any of the routine monitoring stations or special studies stations.

The dissolved oxygen data indicate a trend of lower dissolved oxygen values present in the bottom waters. Although this condition was found during the survey of August 8-14, 1982, the magnitude of the dissolved oxygen decline is not as great as in the past. Review of dissolved oxygen data also indicate some very high dissolved oxygen values for surface water. There is no standard for maximum dissolved oxygen, but values in excess of 100% saturation are not considered good.

Dissolved oxygen saturation will vary with temperature and salinity of the water. Generally, values above 10 mg/l are in excess of 100% saturation for the waters in the Inner Harbor. Our data indicate values as high as 16.9 mg/l have been found in the Inner Harbor. Data show that the average dissolved oxygen for the stations in the selective data report ranged from 6.5 mg/l to 6.9 mg/l. This

average for dissolved oxygen indicated good water quality. The Inner Harbor (Port of Corpus Christi) has been called one of the cleanest ports in the world. This dissolved oxygen average for an industrial, man-made, dead-end channel helps support that statement.

All values for pH at Stations 2, 6, 8 and 15 at all depths are within water quality standards of 6.5 to 9.0 for Segment 2481 and 2484.

A review of temperature data for Stations 2, 6, 8 and 15 does not show any temperature violations for water quality standards. The water quality standard for temperature is 95^{0}F (35^{0}C) for Segments 2484 and 2481.

Data for total coliforms (TOC), total phosphorus, ammonia nitrogen and nitrate nitrogen are also contained in the selective data retrieval. These numbers were used to compare with data collected during this survey.

CONCLUSIONS AND RECOMMENDATION

Water quality in the Corpus Christi Inner Harbor, Segment 2484, has improved since the study of August 10, 1973 was conducted. The improved water quality is attributed to reduced loading to the Inner Harbor from wastewater sources and removal of some contaminated sediments in the bottom of the harbor. Sediments in the Inner Harbor are still contaminated with heavy metals, organics and PCBs. Due to the contaminated nature of the sediments in the Inner Harbor, District 12 recommends that during future dredging of the Inner Harbor the TDWR require that dredged material be contained in leveed settling lagoons, with decantation back to the Inner Harbor.

TABLES and FIGURES

Table 1. Discharges into Corpus Christi Inner Harbor. August 10, 1982.

Discharger	Permit No.		Flow (mgd)	BOD_5 (lbs/day)	% of Total BOD_5	COD (lbs/day)	% of Total COD	NOD (lbs/day)	% of Total NOD	Total (lbs/day, BOD_5 & COD & NOD)	% of Comb. Total	Ammonia (lbs/day)	Nitrate (lbs/day)
City of Corpus Christi, Broadway STP	10401-05	P	10.0	3753									
		E	8.5	1205	63.6	7727	54.2	3555	81.6	12487	61.3	780	213
Southwestern Refining Co., Inc.	00457-1	P	Report	584		4379							
		E	1.32	99	5.2	561	3.9	2.5	.1	662.5	3.3	0.5	198
Champlin Petroleum Co.	00467-1	P	8.0	2193		17123							
		E	2.578	172	9.1	2472	17.3	392	9	3036	14.9	86	8.4
American Chrome & Chemicals, Inc.	00349	P	Report										
		E	7.5	62.6	3.3	1438.6	10.1	142.6	3.3	1643.8	8.1	31.2	11.3
Coastal States Petroleum Co.	0465	P	Report	752		8492							
		E	2.29	248	13.1	1356	9.5	252.6	5.8	1856.6	9	55	573
Asarco, Inc.	00531	P	1.5										
		E	.636			133	.9						
Corpus Christi Petrochemical Co.	2075	P	Report	240		2556							
		E	.411	58	3	264	1.9	7.2	.2	329.2	1.6	1.6	22.3
El Paso Products Co.	02318	P	Report	22		121							
		E	.0009	.2	--	3.4	--	3	--			.66	<.0002
Sabre Refining Co.	1909	P	Report	282		2490							
		E	.0528	1.3	.1	35	.2	.6	--	36.9	.2	.14	.9
KOCH Refining Co.	00531	P		932		6681						392	
		E	.852	50	2.6	270	1.9	3.2	--	323.2	1.6	.7	.4
TOTAL		P			875.8			41842				392	
		E		1896.1		14260		4358.7		20375.2		955.8	
Past Survey Data	1968 thru 1970			27690 (approx. value)									
	Aug. 1973 Survey			3414.6		13094.39				21621		5113.4	

P = Permitted
E = Effluent measured value
*Permit Violations

Table 1. Discharges into Corpus Christi Inner Harbor. August 10, 1982. (CONTINUED)

Discharger	Permit No.		Nitrite (lbs/day)	T-PO_4 (lbs/day)	TSS (lbs/day)	Lab pH	Cl_2 Res. (mg/l)	Temp. °F
City of Corpus Christi, Broadway STP	10401-05	P			3753	6.0-9.0	1.0	
		E	42	340	2127	7.2	1.7	83
Southwestern Refining Co., Inc.	00457-1	P			584	6.0-9.0		98
		E	.5	3.6	* 704.5	7.6		85
Champlin Petroleum Co.	00467-1	P			1925	6.0-9.0		
		E	1.1	16.1	215	7.4		86
American Chrome & Chemicals, Inc.	00349	P				6.0-9.0		107
		E	5	5	1313.5	7.8		82.3
Coastal States Petroleum Co.	0465	P			895	6.0-9.0		
		E	5.2	6.3	497	7.5		
Asarco, Inc.	00531	P						100
		E						87.8
Corpus Christi Petrochemical Co.	2075	P			313	6.0-9.0		
		E	1.85	1.2	41	8.2		
El Paso Products Co.	02318	P			49	6.0-9.0		
		E	.11	.025	2	7.3		
Sabre Refining Co.	1909	P			191	6.0-9.0		
		E	.4	.14	<5	7.8		
KOCH Refining Co.	00531	P			641	6.0-9.0		105
		E	< .2	.9	71	7.5		87.8
TOTAL		P			8351			
		E	56.2	373.3	4971			

Table 1A. Discharges to Corpus Christi Inner Harbor. August 20, 1973.

	C.C. Broadway STP WCO 10401-05		Nueces Bay Boulevard Ditch		Southwestern WCO 00457		Champlin WCO 00467		Oak Park Avenue Ditch	
	Permitted	Effluent	Permitted	Effluent	Permitted	Effluent	Permitted	Effluent	Permitted	Effluent
Sample Type		Grab		Grab		Grab		Grab		Grab
Time		1500		1445		1400		1045		1000
Flow, Sewage, MGD	15.00	10.0	No. meas. Flow			None		None		
Flow, Industrial, MGD			No. meas. Flow		3.0	0.5	0.773	0.79		0.2
pH		7.2		8.4	6.0-9.5	8.4	5.5-9.5	8.75		8.7
Conductivity		2368		7840	60	3780		4420		2400
Total Suspended Solids, mg/l	30	28		11		48		21		<10
Fixed Suspended Solids		2		9		7		7		
Volatile Suspended Solids		26		2	50	41		14		
Total Residue										
Settleable Matter										
Hardness		296		1080		431		500		275
BOD	30	25		3.5	35	25	30	15		3.5
COD		90		50	180	120	300	65		<20
Temperature ^{o}F		87		89	95	89	105	86		87
D.O. mg/l		2.7		6.9	$\geq$ 2.0	7.9	$\geq$ 2.0	5.5		5.7
Turbidity, JTU		40		10		100		40		12
P. Alkalinity		0		2		0		0		0
T. Alkalinity		176		196		150		98		86
Chlorides, mg/l		470		1770		680		1020		570
Sulphates		152		482		420		273		64
T-PO_4		23.8		3.9		1.1		0.96		0.39
NH_3-N		11		0.1		17.8		0.6		0.1
NO_2-N		2.3		0.08		2.6		<0.05		<0.05
NO_3-N		< 0.3		1.0		0.3		<0.3		<0.3
Cadmium, mg/l	*0.02	< 0.01		< 0.01	* .02	<0.01	* .02	<0.01		<0.01
Mercury	*0.005	0.001		0.0007	* .005	0.0006	* .005	0.0006		0.0006
Selenium	*0.02	< 0.001		0.001	* .02	0.013	* .02	0.006		<0.001
Zinc	*5.0	0.1		0.1	* 5.0	0.1	*5.0	0.1		<0.1
Oil & Grease										
Total Coliform		130		9100						3000
Fecal Coliform		10		560						150
Chlorine Residual					*5.0	0.6				
Chromium	1.0									
COD Load lbs./day		7506.00				500.40		428.26		
NH_3 Load lbs./day		4183.34				338.47		18.03		
BOD_5 Load lbs./day	3753.00	2085.00			875.7	104.25	193.40	98.83		5.84
% of Total		61.2				3.05		2.90		
BOD_{ult} Load lbs./day		2606.25				30.31		123.54		

*Permit Violation

Table 1A. Discharges to Corpus Christi Inner Harbor. August 20, 1973. (CONTINUED)

	ASARCO WCO 00314		PPG Industries WCO 00349-01		Coastal States WCO 00465		Drain Ditch at Heldenfels		Howell Hydrocarbon WCO 01037	
	Permitted	Effluent	Permitted	Effluent	Permitted	Effluent	Permitted	Effluent	Permitted	Effluent
Sample Type		Grab		Grab		Grab		Grab		Grab
Time		1030		0915		0930		1115		1000
Flow, Sewage, MGD			< 0.1%			None		--		None
Flow, Industrial, MGD	1.5	1.1	100	81.0	6.5	1.9		0.972	Variable/rain	<10 gpm
pH	6.0-10.5	9.5		7.6	5.5-9.5	8.0		7.2		7.2
Conductivity		6110		60,368		4290		4758		2080
Total Suspended Solids, mg/l	30	<10	No. specs.	53		17		14		26
Fixed Suspended Solids				33		2		9		7
Volatile Suspended Solids				20		15		5		19
Total Residue			52,000							
Settleable Matter										
Hardness		2180		5320		390		465		215
BOD		3.0		3	40	15		9.5		30
COD	160	<20		35	300	60		60		225
Temperature ^{o}F	110	92	107	102	100	87		88		87
D.O., mg/l		0.0		5.7	≥2.0	5.9		5.9		0.9
Turbidity JTU		5		50		35		58		120
P. Alkalinity		10		0		0		0		0
T. Alkalinity		26		156		22		46		80
Chlorides, mg/l	4000	130	29,000	15,700	20,000	780		920		456
Sulphates	6000	2300	3,000	2,150	2,500	432		432		93
T-PO_4		1.1		0.23		6.3		5.9		0.67
NH_3-N		0.7		1.6		7.0		6.7		0.2
NO_2-N		<0.05		<0.05		1.55		1.45		<0.05
NO_3-N		<0.3		0.3		52		47		<0.3
Cadmium	0.35	0.025	*.02	<0.01	*.02	<0.01		<0.01	*.02	<0.01
Mercury	0.005	0.0026	*.005	0.033	*.005	0.008		0.0016	*.005	<0.005
Selenium	0.10	0.53	*.02	0.003	*.02	0.084		0.074	*.02	<0.001
Zinc	6.0	0.3	*5.0	<0.01	*5.0	<0.1		<0.1	*5.0	0.3
Oil & Grease								4.4	None	23.5&60.8
Total Coliform							confluent non-coli			
Fecal Coliform								<2		
Chlorine Residual										
Chromium										
COD Load lbs./day		<183.48				950.76				
NH_3 Load lbs./day		29.28				505.80				
BOD_5 Load lbs./day		27.52	None	Net	2168.4	237.69		(77.01)		<3.6
% of Total		0.80				6.96				
BOD_{ult} Load lbs./day		34.40				297.11				<4.5

(includes Coastal States, Howell discharges)

*Permit Violation

Table 1A. Discharges to Corpus Christi Inner Harbor. August 20, 1973. (CONTINUED)

	CPC International - WCO 00358						Suntide WCO 00531		TOTALS	
	Page 1		Page 2		Page 4					
	Permitted	Effluent	Permitted	Effluent	Permitted	Effluent	Permitted	Effluent	Permitted	Effluent
Sample Type		Grab		Grab		Grab		Grab		
Time		1545		1350		1415		0930		
Flow, Sewage, MGD	None	None	None	None	0.075	0.085	2%		<16.149	10.085
Flow, Industrial, MGD	7.5	5.35	0.5	0.382	None	None	3.7	1.008	123.473	92.044
pH		7.4	5.0-8.0	7.7		7.5	5.5-9.5	7.2		
Conductivity		47,880		2877		1001		2304		
Total Suspended Solids, mg/l		46	50	278	30	15	50	61		
Fixed Suspended Solids		32		29		2		34		
Volatile Suspended Solids		14		249		13		27		
Total Residue			8000							
Settleable Matter			7							
Hardness		4370		85		202		225		
BOD		8.5	50	125	30	12	50	8.5		
COD		40	75	410		<20	290	50		
Temperature ^{o}F	105	97	100	107		91	105	86		
D.O. mg/l		6.5		2.7		3.7		6.1		
Turbidity JTU		15		325		60		90		
P. Alkalinity		0		0		0		0		
T. Alkalinity		120		462		120		82		
Chlorides mg/l		12,520	4000	435		171	20,000	390		
Sulphates		1900	1000	267		74	3,000	266		
$T\text{-}PO_4$		0.46		100		1.1		5.2		
$NH_3\text{-}N$		< 0.1		0.7		<0.1		0.2		
$NO_2\text{-}N$		< 0.05		< 0.05		0.06		< 0.05		
$NO_3\text{-}N$		< 0.3		< 0.3		0.4		4.7		
Cadmium, mg/l	*0.02	0.05	*0.02	< 0.01	*0.02	--	*0.02	< 0.01		
Mercury	*0.005	0.006	*0.005	0.0036	*0.005	0.0016	*0.005	0.0016		
Selenium	*0.02	0.001	*0.02	< 0.001	*0.02	0.01	*0.02	0.018		
Zinc	*5.0	0.2	*5.0	0.2	*5.0	<0.02	*5.0	0.2		
Oil & Grease										
Total Coliform						2				
Fecal Coliform						278				
Chlorine Residual					≥1.0	2.1				
Chromium										
COD Load lbs./day		1784.76		1306.21		<14.18		420.31		13094.39
NH_3 Load lbs./day		<20.35		10.17		<0.3		7.67		5113.41
BOD_5 Load lbs./day		379.26	208.5	398.24	18.77	8.51	1542.9	71.46	8760.67	3414.36
% of Total		11.12		11.67		0.24		2.09		100.03
BOD_{ult} Load lbs./day		474.07		497.80		10.63		89.32		4267.95

*Permit Violation

Loading Calculation

$BOD_{ult} = BOD_5 \div 0.8$
$= 3414.36 \div 0.8$
$= 4267.95$ lbs./day

$COD_{PART} = (0.5)(COD_{EFFLUENT})$
$= (0.5)(13,094.39)$
$= 6547.20$

$NOD = (4.56)(NH_3\text{-}N_{EFFLUENT})$
$= 5113.41$

TOTAL OXYGEN = 15,928.56 lbs./day
DEMAND (approximate)

TABLE 2

DRAINAGE DITCHES' WATER QUALITY
CORPUS CHRISTI INNER HARBOR STUDY
(Samples Collected August 9, 1982)

PARAMETER	DITCH 1 SEE MAP DS1	DITCH 2 SEE MAP DS2	DITCH 3 SEE MAP DS3	DITCH 4 SEE MAP DS4
pH (units)	7.4	7.3	7.2	7.2
T-Phosphorus (mg/l as P)	1.1	0.89	0.73	2.0
O-Phosphorus (mg/l as P)	0.22	0.23	0.28	0.21
Ammonia-N (mg/l as N	0.30	0.26	0.13	0.13
Nitrate-N (mg/l as N)	0.87	0.45	0.57	0.90
Nitrite-N (mg/l as N)	0.09	0.05	0.08	0.05
TSS (mg/l)	200	210	125	606
COD (mg/l)	189	153	69	158
BOD_5 (mg/l)	*	*	*	*

*Interference

AUG 1982 12924
CORPUS CHRISTI, TEXAS
INTERNATIONAL AIRPORT

TABLE 3

ISSN 0198-4977

LOCAL CLIMATOLOGICAL DATA

Monthly Summary

NATIONAL WEATHER SERVICE OFC

LATITUDE 27° 46' N LONGITUDE 97° 30' W ELEVATION (GROUND) 41 FEET TIME ZONE CENTRAL WBAN #12924

CORPUS CHRISTI, TEXAS

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65°F HEATING (SEASON BEGINS WITH JUL)	COOLING (SEASON BEGINS WITH JAN)	WEATHER TYPES 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	SNOW ICE PELLETS OR ICE ON GROUND AT 06AM INCHES	PRECIPITATION WATER EQUIVALENT (INCHES)	SNOW, ICE PELLETS (INCHES)	AVERAGE STATION PRESSURE IN INCHES ELEV. 44 FEET ABOVE M.S.L.	WIND (M.P.H.) RESULTANT DIR.	RESULTANT SPEED	AVERAGE SPEED	FASTEST MILE SPEED	FASTEST MILE DIRECTION	SUNSHINE MINUTES	SUNSHINE PERCENT OF TOTAL POSSIBLE	SKY COVER (TENTHS) SUNRISE TO SUNSET	SKY COVER (TENTHS) MIDNIGHT TO MIDNIGHT	DATE
	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	97	76	87	2	74	0	22		0	0	0	29.94	15	15.0	15.4	24	14	742	92	2	1	1
2	96	75	86	0	73	0	21		0	0	0	29.90	15	12.9	13.7	21	13	806	100	3	2	2
3	95	76	86	0	74	0	21		0	0	0	29.91	15	17.5	18.0	24	16	733	91	4	3	3
4	96	77	87	1	73	0	22		0	0	0	29.94	16	16.5	16.8	24	14	775	97	1	0	4
5	95	73	84	-2	72	0	19		0	0	0	29.99	13	9.9	10.6	16	13	801	100	1	1	5
6	97	72*	85	-1	70	0	20		0	0	0	29.96	11	3.9	8.3	17	12	646	81	5	3	6
7	89	74	82	-4	71	0	17	1 8	0	T	0	29.90	16	6.1	9.2	16	14	89	11	9	7	7
8	92	74	83	-3	73	0	18	3 8	0	.52	0	29.88	17	7.6	8.6	23	14	24	3	10	9	8
9	83	74	79*	-7	73	0	14	3	0	.11	0	29.92	15	7.2	7.9	21	12	16	2	10	8	9
10	92	76	84	-2	75	0	19		0	0	0	29.96	12	10.3	10.8	17	14	303	38	7	6	10
11	95	76	86	1	75	0	21		0	0	0	29.99	14	11.7	12.1	21	13	676	85	4	4	11
12	96	76	86	1	75	0	21		0	0	0	29.98	15	12.8	13.7	23	13	763	96	4	3	12
13	96	75	86	1	74	0	21		0	0	0	29.93	16	13.5	14.1	21	18	772	98	4	2	13
14	96	76	86	1	74	0	21		0	0	0	29.88	16	15.2	15.7	25	15	739	94	2	2	14
15	95	76	86	1	74	0	21		0	0	0	29.89	16	15.7	16.5	24	14	788	100	2	1	15
16	96	73	85	0	72	0	20		0	0	0	29.91	15	11.0	12.1	17	13	757	96	5	3	16
17	98*	75	87	2	73	0	22		0	0	0	29.88	15	5.9	9.2	17	13	722	92	5	4	17
18	94	74	84	-1	74	0	19		0	0	0	29.87	09	5.4	9.1	17	11	447	57	7	6	18
19	96	76	86	1	74	0	21		0	0	0	29.93	10	6.2	9.1	18	11	520	67	3	4	19
20	94	74	84	-1	74	0	19		0	.01	0	30.00	08	6.0	8.9	14	09	341	44	7	5	20
21	94	75	85	0	73	0	20	3	0	0	0	30.00	11	6.5	9.1	20	14	592	76	5	5	21
22	94	73	84	-1	72	0	19		0	0	0	29.97	15	9.5	10.5	18*	15	714	92	5	3	22
23	96	75	86	1	72	0	21		0	0	0	29.95	17	15.7	16.3	26	15	730	94	0	0	23
24	96	76	86	1	72	0	21		0	0	0	29.96	16	16.3	16.7	25	15	725	94	0	0	24
25	94	75	85	1	75	0	20		0	T	0	29.97	15	13.2	14.0	21	18	437	57	7	5	25
26	97	79	88*	4	75	0	23		0	0	0	29.93	15	14.6	15.0	23	15	559	72	3	4	26
27	95	75	85	1	74	0	20		0	0	0	29.89	15	14.9	15.7	23	13	764	99	2	1	27
28	97	76	87	3	73	0	22		0	0	0	29.95	14	12.1	12.7	18	14	730	95	2	1	28
29	95	74	85	1	71	0	20		0	0	0	29.98	11	9.6	10.2	18	12	734	96	2	1	29
30	95	76	86	2	73	0	21		0	0	0	29.97	13	9.7	9.8	20	13	733	96	3	2	30
31	95	76	86	2	73	0	21		0	0	0	29.99	14	9.8	10.1	21	13	707	93	3	2	31
	SUM	SUM				TOTAL	TOTAL	NUMBER OF DAYS		TOTAL	TOTAL	FOR THE MONTH:						TOTAL	%	SUM	SUM	
	2936	2328				0	627			.64	0	29.94	15	10.5	12.2	26	15	18885	POS	127	98	
	AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION		DEP.						DATE: 23		POSSIBLE	MONTH	AVG.	AVG.	
	94.7	75.1	84.9	-0.2	73	0	4	.01 INCH.	3	-2.56								24375	77	4.1	3.2	

NUMBER OF DAYS				SEASON TO DATE		SNOW, ICE PELLETS		GREATEST IN 24 HOURS AND DATES			GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE
MAXIMUM TEMP.		MINIMUM TEMP.		TOTAL	TOTAL	> 1.0 INCH	0	PRECIPITATION		SNOW, ICE PELLETS	
≥ 90°	≤ 32°	≤ 32°	≤ 0°	0	2624	THUNDERSTORMS	3				
DEP.	DEP.	HEAVY FOG	0	.63	8- 9	0	0				
29	0	0	0	0	28	CLEAR	15	PARTLY CLOUDY	13	CLOUDY	3

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT.
• ALSO ON EARLIER DATE(S).
HEAVY FOG: VISIBILITY 1/4 MILE OR LESS.
BLANK ENTRIES DENOTE MISSING DATA.

DATA IN COLS 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS AT 3-HOUR INTERVALS. RESULTANT WIND IS THE VECTOR SUM OF WIND SPEEDS AND DIRECTIONS DIVIDED BY THE NUMBER OF OBSERVATIONS. ONE OF THREE WIND SPEEDS IS GIVEN UNDER FASTEST MILE: FASTEST MILE - HIGHEST RECORDED SPEED FOR WHICH A MILE OF WIND PASSES STATION (DIRECTION IN COMPASS POINTS). FASTEST OBSERVED ONE MINUTE WIND - HIGHEST ONE MINUTE SPEED (DIRECTION IN TENS OF DEGREES). PEAK GUST - HIGHEST INSTANTANEOUS WIND SPEED (A / APPEARS IN THE DIRECTION COLUMN). ERRORS WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL PUBLICATION.

I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, AND IS COMPILED FROM RECORDS ON FILE AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA, 28801.

L. Ray Hoxit

ACTING DIRECTOR
NATIONAL CLIMATIC CENTER

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE / NATIONAL CLIMATIC CENTER ASHEVILLE, NORTH CAROLINA

OBSERVATIONS AT 3-HOUR INTERVALS

AUG 1982 12924
CORPUS CHRISTI, TEXAS

HOUR L.S.T.	SKY COVER (TENTHS)	CEILING IN HUNDREDS OF FEET	VISIBILITY: WHOLE MILES	VISIBILITY: 16THS MILE	WEATHER	TEMPERATURE: AIR °F	TEMPERATURE: WET BULB °F	TEMPERATURE: DEW POINT °F	REL HUMIDITY %	WIND: DIRECTION	WIND: SPEED (KNOTS)
DAY 01											
00	0	UNL	10			80	77	76	88	15	11
03	0	UNL	10			78	77	76	94	17	9
06	1	UNL	10			77	76	75	94	17	9
09	4	UNL	12			87	78	74	65	17	14
12	3	UNL	15			94	80	74	52	14	16
15	0	UNL	15			96	76	68	40	14	15
18	0	UNL	12			90	77	71	54	15	18
21	0	UNL	10			82	77	75	79	14	15
DAY 02											
00	0	UNL	10			80	76	75	85	15	9
03	0	UNL	10			77	75	74	91	15	6
06	0	UNL	10			76	74	73	90	14	7
09	4	UNL	15			88	79	75	65	20	11
12	4	UNL	15			95	78	71	46	14	12
15	3	UNL	15			94	78	71	47	14	17
18	3	UNL	15			89	78	73	59	13	18
21	0	UNL	15			83	77	75	77	14	15
DAY 03											
00	0	UNL	10			81	77	75	82	16	14
03	0	UNL	10			79	76	75	88	17	10
06	1	UNL	7			77	75	74	91	13	7
09	8	21	12			88	78	74	63	17	19
12	7	34	12			92	78	73	54	14	19
15	2	UNL	10			94	79	73	51	16	21
18	5	UNL	10			88	77	73	61	14	19
21	5	UNL	10			83	77	75	77	14	16
DAY 04											
00	0	UNL	10			81	77	76	85	15	12
03	0	UNL	10			79	77	76	91	16	10
06	0	UNL	7			77	76	75	94	15	9
09	3	UNL	12			88	78	74	63	17	17
12	0	UNL	12			95	77	70	44	17	18
15	0	UNL	12			93	76	68	44	15	18
18	0	UNL	10			88	77	72	59	14	20
21	0	UNL	8			81	76	74	79	15	13
DAY 05											
00	0	UNL	7			78	75	74	88	14	8
03	0	UNL	7			75	74	73	94	14	4
06	0	UNL	7			73	72	72	97	14	6
09	6	20	10			86	78	75	70	17	10
12	2	UNL	12			94	79	73	51	09	10
15	0	UNL	12			95	77	69	43	12	13
18	0	UNL	10			91	75	68	47	13	14
21	5	UNL	8			81	75	73	77	12	9
DAY 06											
00	0	UNL	7			76	73	71	85	13	5
03	0	UNL	7			74	71	70	87	25	6
06	3	UNL	7			73	71	70	90	00	0
09	7	250	7			86	77	74	68	27	3
12	5	UNL	8			92	78	73	54	01	10
15	8	UNL	7			96	75	65	36	09	11
18	2	UNL	8			90	75	69	50	12	15
21	0	UNL	7			81	74	71	72	15	8
DAY 07											
00	0	UNL	7			78	74	72	82	17	8
03	5	UNL	7			74	71	69	84	19	7
06	8	100	4		F	75	72	70	85	29	5
09	10	100	3		RW	80	75	73	79	28	4
12	10	90	5		W	85	76	72	65	21	4
15	10	90	6		W	86	77	74	68	12	12
18	5	UNL	6		W	87	75	70	57	13	14
21	5	UNL	8			80	73	70	72	14	10
DAY 08											
00	8	90	7			80	76	75	85	14	9
03	8	70	7			80	76	75	85	20	6
06	10	70	6		W	78	73	71	79	18	5
09	9	80	6		W	83	76	73	72	18	7
12	10	70	7			90	77	71	54	24	6
15	10	35	1		TRW	74	72	71	90	16	8
18	10	70	7		R	80	77	76	88	15	11
21	10	250	10			77	74	73	88	15	8
DAY 09											
00	5	UNL	10			76	74	73	90	13	6
03	3	UNL	10			75	74	73	94	14	5
06	8	75	7			76	75	74	94	00	0
09	10	70	7			79	77	76	91	14	4
12	10	40	5		TRW	74	73	72	94	18	11
15	10	40	7			78	74	73	85	17	15
18	10	250	10			80	74	72	77	17	6
21	8	250	10			76	74	73	90	11	8
DAY 10											
00	7	70	10			77	75	74	91	11	7
03	7	250	7			76	75	75	97	09	5
06	9	100	7			77	76	75	94	09	6
09	8	80	8			82	79	78	88	11	7
12	7	250	10			87	78	75	68	11	12
15	7	250	15			92	79	74	56	13	15
18	5	UNL	15			88	79	75	65	14	14
21	4	UNL	10			81	77	76	85	13	9
DAY 11											
00	3	UNL	8			80	78	77	91	13	9
03	5	UNL	8			80	78	77	91	14	6
06	7	120	8			77	76	75	94	14	7
09	5	UNL	15			86	79	77	75	17	10
12	5	UNL	15			93	79	73	52	16	10
15	4	UNL	15			94	78	71	47	13	18
18	3	UNL	15			89	78	74	61	13	14
21	3	UNL	15			82	78	77	85	15	10
DAY 12											
00	3	UNL	10			80	78	77	91	14	8
03	3	UNL	8			78	77	76	94	17	7
06	1	UNL	10			77	76	75	94	17	5
09	5	UNL	15			86	78	75	70	19	15
12	4	UNL	15			94	78	72	49	16	8
15	3	UNL	15			94	78	72	49	13	20
18	5	UNL	15			89	78	74	61	14	19
21	3	UNL	15			82	78	76	82	15	13
DAY 13											
00	3	UNL	15			80	77	76	88	17	9
03	0	UNL	15			78	76	75	91	18	8
06	3	UNL	10			75	74	74	97	12	3
09	5	UNL	12			87	79	76	70	18	14
12	3	UNL	15			94	80	74	52	16	15
15	3	UNL	15			95	78	71	46	14	17
18	3	UNL	15			88	77	73	61	14	17
21	0	UNL	15			82	76	74	77	15	15
DAY 14											
00	0	UNL	15			79	76	75	88	17	9
03	2	UNL	15			76	75	74	94	16	7
06	1	UNL	12			77	75	74	91	17	8
09	2	UNL	12			88	77	73	61	18	18
12	2	UNL	15			94	80	74	52	15	16
15	0	UNL	12			95	80	74	51	14	17
18	3	UNL	10			89	78	73	59	14	17
21	3	UNL	10			82	77	75	79	16	17
DAY 15											
00	0	UNL	10			80	76	75	85	17	12
03	0	UNL	10			78	76	75	91	18	10
06	0	UNL	10			77	76	75	94	17	8
09	1	UNL	15			87	78	74	65	19	17
12	4	UNL	15			94	79	73	51	15	16
15	0	UNL	15			95	78	71	46	14	17
18	0	UNL	10			89	76	71	55	14	21
21	0	UNL	10			81	76	74	79	16	14
DAY 16											
00	2	UNL	10			79	76	75	88	16	10
03	0	UNL	10			75	73	72	90	19	6
06	4	UNL	10			73	72	72	97	14	5
09	7	250	15			87	78	74	65	20	11
12	5	UNL	15			95	77	70	44	15	10
15	4	UNL	15			95	76	68	41	13	14
18	3	UNL	15			90	75	69	50	13	15
21	0	UNL	15			83	77	74	74	15	13
DAY 17											
00	0	UNL	15			80	76	74	82	19	6
03	3	UNL	10			77	75	74	91	19	5
06	5	UNL	10			76	74	73	90	29	3
09	7	250	15			86	78	75	70	25	7
12	9	UNL	15			94	76	68	43	11	8
15	5	UNL	15			96	79	72	46	10	11
18	2	UNL	15			91	78	72	54	13	15
21	0	UNL	15			82	76	74	77	16	9
DAY 18											
00	0	UNL	10			79	75	74	85	19	5
03	3	UNL	10			77	74	73	88	28	3
06	4	UNL	10			76	73	71	85	31	4
09	5	UNL	15			85	78	76	75	02	9
12	5	UNL	15			93	79	73	52	08	9
15	8	UNL	15			94	78	72	49	10	14
18	2	UNL	15			86	78	75	70	09	11
21	3	UNL	15			83	77	75	77	11	8

WEATHER CODES

+	TORNADO	ZL	FREEZING DRIZZLE	IPW	ICE PELLET SHOWERS
T	THUNDERSTORM	S	SNOW	A	HAIL
Q	SQUALL	SW	SNOW SHOWERS	F	FOG
R	RAIN	SG	SNOW GRAINS	IF	ICE FOG
RW	RAIN SHOWERS	SP	SNOW PELLETS	GF	GROUND FOG
ZR	FREEZING RAIN	IC	ICE CRYSTALS	BD	BLOWING DUST
L	DRIZZLE	IP	ICE PELLETS		

BN	BLOWING SAND
BS	BLOWING SNOW
BY	BLOWING SPRAY
K	SMOKE
H	HAZE
D	DUST

CEILING: UNL INDICATES UNLIMITED
WIND DIRECTION: DIRECTIONS ARE THOSE FROM WHICH THE WIND BLOWS, INDICATED IN TENS OF DEGREES FROM TRUE NORTH: I.E., 09 FOR EAST, 18 FOR SOUTH, 27 FOR WEST. AN ENTRY OF 00 INDICATES CALM
SPEED: THE FASTEST OBSERVED AVERAGE ONE-MINUTE VALUE, EXPRESSED IN KNOTS (MPH=KNOTS X 1.151.

OBSERVATIONS AT 3-HOUR INTERVALS

AUG 1982 12924
CORPUS CHRISTI, TEXAS

HOUR L.S.T.	SKY COVER (TENTHS)	CEILING IN HUNDREDS OF FEET	VISIBILITY WHOLE MILES	VISIBILITY 16THS MILE	WEATHER	TEMPERATURE AIR OF	TEMPERATURE WET BULB OF	TEMPERATURE DEW POINT OF	REL HUMIDITY %	WIND DIRECTION	WIND SPEED (KNOTS)
DAY 19											
00	9	90	10			81	77	76	85	13	7
03	7	90	10			78	74	73	85	26	4
06	5	UNL	10			79	75	74	85	00	0
09	4	UNL	10			86	79	76	72	03	8
12	4	UNL	12			93	78	72	51	05	9
15	4	UNL	10			95	79	72	47	10	11
18	0	UNL	12			89	77	72	57	12	15
21	0	UNL	12			82	76	74	77	14	9
DAY 20											
00	0	UNL	10			78	75	74	88	14	5
03	0	UNL	10			76	73	72	87	18	3
06	5	UNL	10			76	74	73	90	02	6
09	10	35	7		R	81	77	76	85	02	9
12	8	250	10			90	79	74	59	04	9
15	9	90	12			92	78	73	54	09	12
18	5	UNL	12			88	77	73	61	10	11
21	2	UNL	12			81	77	75	82	14	7
DAY 21											
00	2	UNL	10			79	76	75	88	13	6
03	5	UNL	10			77	74	72	85	27	3
06	8	250	10		T	77	74	73	88	02	6
09	6	250	10			85	78	75	72	10	6
12	4	UNL	15			92	77	71	50	05	8
15	3	UNL	15			92	77	70	49	11	13
18	7	UNL	15			87	76	72	61	13	14
21	2	UNL	15			80	75	73	79	14	7
DAY 22											
00	2	UNL	10			77	74	73	88	16	5
03	2	UNL	10			75	73	72	90	22	6
06	5	UNL	10			73	72	71	93	18	3
09	6	250	15			85	76	72	65	17	8
12	7	30	15			89	77	72	57	14	12
15	5	UNL	15			92	78	72	52	12	14
18	4	UNL	15			87	76	71	59	14	15
21	0	UNL	15			81	76	74	79	15	10
DAY 23											
00	0	UNL	10			80	76	74	82	17	10
03	0	UNL	10			79	75	74	85	17	8
06	3	UNL	10			76	74	73	90	18	6
09	0	UNL	10			87	78	74	65	19	16
12	0	UNL	12			95	77	69	43	18	18
15	0	UNL	10			95	79	72	47	15	19
18	0	UNL	10			88	76	71	57	15	21
21	0	UNL	10			81	75	72	74	16	15
DAY 24											
00	0	UNL	10			81	75	73	77	16	14
03	0	UNL	10			78	74	72	82	16	11
06	0	UNL	10			77	73	71	82	18	8
09	2	UNL	10			87	78	74	65	17	16
12	0	UNL	10			93	77	71	49	17	17
15	0	UNL	10			94	77	70	46	15	18
18	0	UNL	10			88	77	72	59	14	19
21	0	UNL	10			82	76	73	74	15	13
DAY 25											
00	0	UNL	10			81	76	74	79	16	11
03	0	UNL	10			78	75	74	88	14	8
06	2	UNL	10			77	75	74	91	13	8
09	7	15	12			83	78	76	80	18	12
12	5	UNL	15			93	80	75	56	14	14
15	8	40	15			87	78	74	65	18	18
18	7	250	15			87	78	75	68	14	16
21	3	UNL	15			82	78	76	82	14	10
DAY 26											
00	6	250	10			82	78	76	82	14	9
03	10	90	10			82	78	76	82	16	10
06	10	90	10			79	77	76	91	13	6
09	8	100	12			86	79	76	72	16	12
12	3	UNL	15			94	80	74	52	17	16
15	0	UNL	15			95	79	72	47	16	17
18	0	UNL	15			88	78	74	63	14	20
21	1	UNL	15			82	77	75	79	14	14
DAY 27											
00	1	UNL	15			81	77	75	82	15	11
03	1	UNL	15			79	76	75	88	17	8
06	3	UNL	15			76	74	73	90	15	7
09	2	UNL	15			87	77	73	63	18	18
12	3	UNL	15			94	79	73	51	16	15
15	2	UNL	15			94	80	74	52	13	15
18	0	UNL	15			88	78	74	63	13	20
21	0	UNL	15			82	77	75	79	15	15
DAY 28											
00	0	UNL	15			81	77	76	85	15	10
03	0	UNL	15			79	76	75	88	14	7
06	1	UNL	15			77	75	74	91	15	6
09	6	25	15			88	78	74	63	17	15
12	3	UNL	15			95	76	68	41	15	12
15	2	UNL	15			95	77	69	43	12	15
18	0	UNL	15			89	78	73	59	13	14
21	0	UNL	15			83	77	74	74	13	9
DAY 29											
00	0	UNL	15			79	76	75	88	14	7
03	0	UNL	15			77	74	73	88	14	5
06	2	UNL	15			74	73	72	94	07	5
09	6	20	15			85	77	74	70	13	6
12	2	UNL	15			93	74	65	40	09	10
15	2	UNL	15			93	75	67	43	10	13
18	0	UNL	15			88	76	70	55	12	16
21	0	UNL	15			81	75	72	74	13	9
DAY 30											
00	0	UNL	15			81	77	75	82	14	10
03	0	UNL	15			77	75	74	91	15	5
06	1	UNL	15			77	75	74	91	00	0
09	3	UNL	12			86	77	73	65	00	0
12	6	34	15			93	79	74	54	13	11
15	3	UNL	15			94	78	72	49	12	14
18	3	UNL	15			88	76	71	57	13	16
21	1	UNL	15			82	76	74	77	13	12
DAY 31											
00	0	UNL	15			80	76	74	82	14	8
03	0	UNL	15			78	74	73	85	11	5
06	1	UNL	15			77	74	73	88	00	0
09	6	21	15			87	78	74	65	13	6
12	4	UNL	15			92	78	72	52	16	12
15	4	UNL	15			94	79	73	51	13	13
18	1	UNL	15			88	77	72	59	14	16
21	0	UNL	15			83	76	73	72	12	10

CORPUS CHRISTI TEXAS 82 08

SUMMARY BY HOURS

HOUR L.S.T.	AVERAGES SKY COVER (TENTHS)	AVERAGES STATION PRESSURE (INCHES)	AVERAGES TEMPERATURE AIR TEMP OF	AVERAGES TEMPERATURE WET BULB OF	AVERAGES TEMPERATURE DEW POINT OF	AVERAGES REL HUMIDITY %	AVERAGES WIND SPEED (MPH)	RESULTANT WIND DIRECTION	RESULTANT WIND SPEED (MPH)
00	2	29.95	80	76	75	85	10.0	15	9.6
03	2	29.93	77	75	74	89	7.5	17	6.3
06	4	29.94	76	74	73	91	5.9	15	3.8
09	6	29.98	86	78	75	70	12.2	17	9.2
12	5	29.97	92	78	72	53	13.8	14	10.7
15	4	29.92	93	77	71	51	17.3	13	16.0
18	3	29.89	88	77	72	60	18.2	13	17.8
21	2	29.93	81	76	74	78	13.0	14	12.7

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

AUG 1982 12924
CORPUS CHRISTI, TEXAS

DATE	A.M. HOUR ENDING AT												P.M. HOUR ENDING AT												DATE
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
1																									1
2																									2
3																									3
4																									4
5																									5
6																									6
7									T	T															7
8															.37	.07	.02	.06	T	T	T				8
9											T	.01	.10	T	T	T	T								9
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MAXIMUM SHORT DURATION PRECIPITATION

TIME PERIOD (MINUTES)	5	10	15	20	30	45	60	80	100	120	150	180
PRECIPITATION (INCHES)	00.12	00.20	00.24	00.29	00.33	00.35	00.42	00.43	00.45	00.46	00.47	00.49
ENDED: DATE	08	08	08	08	08	08	08	08	08	08	08	08
ENDED: TIME	1450	1455	1500	1505	1515	1515	1515	1535	1555	1615	1645	1715

THE PRECIPITATION AMOUNTS FOR THE INDICATED TIME INTERVALS MAY OCCUR AT ANY TIME DURING THE MONTH. THE TIME INDICATED IS THE ENDING TIME OF THE INTERVAL. DATE AND TIME ARE NOT ENTERED FOR TRACE AMOUNTS.

SUBSCRIPTION PRICE AND ORDERING INFORMATION AVAILABLE FROM:
THE NATIONAL CLIMATIC CENTER, FEDERAL BUILDING, ASHEVILLE N.C. 28801
ATTN: PUBLICATIONS

CORPUS CHRISTI, TEXAS
USCOMM - NOAA - ASHEVILLE, NC 300

U.S. DEPARTMENT OF COMMERCE
NATIONAL CLIMATIC CENTER
FEDERAL BUILDING
ASHEVILLE, N.C. 28801

AN EQUAL OPPORTUNITY EMPLOYER

Table 4. Physical and Chemical Field Measurements.

Corpus Christi Inner Harbor, August 10, 1982.

Station No.	Depth ft.	Time	Temp. (°C)	D.O. (mg/l)	pH (units)	Cond. (µmhos/cm)	Time	Temp. (°C)	D.O. (mg/l)	pH (units)	Cond. (µmhos/cm)	Time	Temp. (°C)	D.O. (mg/l)	pH (units)	Cond. (umhos/cm)
1	1	0834	27.7	6.2	7.9	57700	1354	28.1	6.4	7.9	58000	1923	28.5	7.4	8.0	57500
	10	0834	27.7	6.1	7.9	57900	1354	28.0	6.1	7.9	58000	1923	28.5	6.6	8.0	57500
	20	0834	27.7	5.3	7.9	58000	1354	27.9	5.8	7.9	58000	1923	28.3	5.7	7.9	57600
	30	0834	27.8	5.7	7.9	58400	1354	27.8	5.4	7.9	58000	1923	28.1	5.7	8.0	57900
	40	0834	27.9	4.7	7.8	60300	1354	27.9	4.8	7.9	58900	1923	28.1	5.0	7.9	59200
2	1	0815	27.9	6.0	7.9	55400	1340	28.0	5.7	7.8	56300	1905	28.6	8.5	8.0	53200
	10	0815	28.1	4.9	7.9	55900	1340	28.0	5.3	7.9	56600	1905	28.4	6.6	8.0	55100
	20	0815	28.3	4.6	7.9	56400	1340	28.2	4.1	7.8	58900	1905	28.4	4.0	7.8	57400
	30	0815	28.4	4.0	7.8	58300	1340	28.2	4.0	7.8	59000	1905	28.3	4.0	7.8	57900
	40	0815	28.3	3.3	7.7	58500	1340	28.2	4.1	7.8	59200	1905	28.2	3.7	7.8	59300
3	1	0810	28.1	5.1	7.8	55600	1333	28.4	4.9	7.8	56200	1900	28.6	6.8	8.0	54600
	10	0810	28.2	4.8	7.9	55800	1333	28.4	4.6	7.8	56300	1900	28.7	5.3	7.9	55500
	20	0810	28.3	4.1	7.8	56300	1333	28.4	4.4	7.8	56300	1900	28.6	3.7	7.8	56700
	30	0810	28.4	3.6	7.8	58200	1333	28.4	3.8	7.8	57700	1900	28.4	3.3	7.8	57700
	40	0810	28.3	3.6	7.8	59900	1333	28.3	3.6	7.8	59000	1900	28.3	3.4	7.8	58700
4	1	0804	28.2	4.3	7.9	55300	1328	28.4	3.8	7.8	56600	1855	28.9	6.2	7.9	54300
	10	0804	28.4	4.1	7.9	55600	1328	28.5	3.8	7.8	56700	1855	28.8	5.4	7.9	55900
	20	0804	28.4	3.9	7.9	56200	1328	28.5	3.2	7.8	58100	1855	28.7	4.2	7.8	56400
	30	0804	28.4	3.4	7.8	58000	1328	28.3	3.0	7.8	58100	1855	28.5	3.4	7.8	57600
	40	0804	28.3	3.2	7.8	59300	1328	28.3	3.2	7.8	58400	1855	28.3	3.0	7.8	58600
5	1	0800	28.2	4.7	7.8	55000	1323	28.4	4.1	7.8	56300	1850	29.2	6.0	7.9	55300
	10	0800	28.4	4.1	7.9	55800	1323	28.5	3.9	7.8	56600	1850	28.9	5.4	7.9	55800
	20	0800	28.5	3.7	7.8	56900	1323	28.4	3.5	7.8	57200	1850	28.7	4.3	7.9	56400
	30	0800	28.4	3.5	7.8	58100	1323	28.4	3.4	7.8	57700	1850	28.5	3.4	7.8	57400
	40	0800	28.3	3.4	7.8	59400	1323	28.3	3.4	7.8	57700	1850	28.4	2.8	7.8	58600
6	1	0755	28.1	4.7	7.9	55100	1320	28.4	4.9	7.8	57000	1846	29.1	5.4	7.9	55500
	10	0755	28.2	4.5	7.9	55300	1320	28.4	3.7	7.8	57200	1846	29.0	5.3	7.9	55900
	20	0755	28.4	4.0	7.9	56800	1320	28.4	3.6	7.8	57200	1846	28.6	3.6	7.8	56600
	30	0755	28.4	3.2	7.8	58500	1320	28.4	3.6	7.8	57300	1846	28.5	3.3	7.8	57200
	40	0755	28.2	2.9	7.8	59300	1320	28.4	3.4	7.8	57500	1846	28.4	3.1	7.8	57900
7	1	0750	28.2	5.5	7.9	55300	1314	28.6	5.3	7.9	55700	1841	29.0	5.9	7.9	56000
	10	0750	28.3	4.7	7.9	55500	1314	28.6	4.8	7.8	55800	1841	28.9	4.9	7.9	55900
	20	0750	28.6	3.4	7.8	56700	1314	28.5	3.7	7.8	56000	1841	28.9	4.4	7.9	56200
	30	0750	28.5	3.2	7.8	58500	1314	28.5	3.2	7.8	57200	1841	28.6	3.1	7.8	56900
	40	0750	28.3	2.9	7.8	59300	1314	28.3	2.8	7.7	58400	1841	28.4	2.6	7.8	58600

Table 4 (Continued)

Station No.	Depth ft.	Time	Temp. (°C)	D.O. (mg/l)	pH (units)	Cond. (µmhos/cm)	Time	Temp. (°C)	D.O. (mg/l)	pH (units)	Cond. (µmhos/cm)	Time	Temp. (°C)	D.O. (mg/l)	pH (units)	Cond. (µmhos/cm)
8	1	0744	28.4	4.7	7.8	55700	1306	28.7	5.4	7.9	55700	1835	29.2	6.4	8.0	55900
	10	0744	28.6	4.0	7.8	55800	1306	28.6	4.3	7.8	55800	1835	29.0	4.9	7.9	56000
	20	0744	28.6	3.5	7.8	56200	1306	28.5	3.4	7.8	56600	1835	28.7	3.4	7.8	56200
	30	0744	28.6	3.0	7.8	57700	1306	28.5	2.9	7.8	57400	1835	28.6	3.0	7.8	56800
	40	0744	28.3	2.7	7.7	58900	1306	28.4	2.6	7.7	58200	1835	28.5	2.4	7.8	58300
9	1	0739	28.2	4.9	7.8	54900	1303	28.7	4.7	7.8	55900	1831	29.1	5.9	8.0	55000
	10	0739	28.6	3.6	7.8	55900	1303	28.7	3.8	7.8	56200	1831	29.1	5.6	7.9	55700
	20	0739	28.7	3.0	7.8	57100	1303	28.6	3.3	7.8	56600	1831	29.0	3.5	7.8	56300
	30	0739	28.5	2.9	7.8	58400	1303	28.6	3.1	7.8	56900	1831	28.6	2.7	7.8	57200
	40	0739	28.4	2.7	7.7	59000	1303	28.5	2.7	7.7	58200	1831	28.5	2.5	7.8	57900
10	1	0733	28.4	4.6	7.8	55400	1300	28.6	4.5	7.9	55700	1826	29.1	5.8	7.9	55500
	10	0733	28.6	4.0	7.8	55500	1300	28.6	3.8	7.8	55700	1826	29.0	4.9	7.9	55700
	20	0733	28.5	3.7	7.8	55600	1300	28.5	3.2	7.8	56000	1826	28.9	4.1	7.9	55900
	30	0733	28.6	2.8	7.8	56800	1300	28.5	2.6	7.7	57300	1826	28.7	2.8	7.8	56900
	40	0733	28.4	2.5	7.7	58700	1300	28.5	2.4	7.7	58000	1826	28.6	2.3	7.8	57700
11	1	0727	28.5	4.8	7.8	55200	1253	28.7	4.3	7.9	55500	1822	29.1	5.5	7.9	55300
	10	0727	28.5	4.1	7.8	55300	1253	28.7	3.6	7.8	56000	1822	29.1	5.2	7.9	55600
	20	0727	28.5	3.3	7.8	55800	1253	28.6	3.0	7.8	56500	1822	29.0	4.4	7.9	56000
	30	0727	28.7	2.6	7.7	57400	1253	28.6	2.8	7.8	56800	1822	28.8	2.8	7.8	56700
	40	0727	28.4	2.1	7.7	58400	1253	28.6	2.2	7.7	58000	1822	28.7	2.2	7.7	57800
12	1	0723	28.5	4.9	7.8	55100	1248	28.6	4.7	7.9	55500	1817	29.2	4.9	7.9	55600
	10	0723	28.5	4.2	7.8	55100	1248	28.8	4.0	7.8	55500	1817	29.1	4.6	7.9	55800
	20	0723	28.8	2.8	7.7	56400	1248	28.7	3.2	7.8	55800	1817	29.0	3.4	7.8	56100
	30	0723	28.7	2.4	7.7	57500	1248	28.6	2.8	7.8	56500	1817	28.8	2.7	7.8	56700
	40	0723	28.6	2.3	7.7	57900	1248	28.6	2.1	7.7	57500	1817	28.7	2.0	7.8	57000
13	1	0717	28.3	5.3	7.8	54600	1242	28.6	4.8	7.9	54700	1813	29.2	5.1	7.9	55500
	10	0717	28.4	4.3	7.8	55100	1242	28.6	3.6	7.8	55600	1813	29.2	4.8	7.9	55600
	20	0717	28.5	3.6	7.7	55900	1242	28.7	3.0	7.8	56200	1813	29.1	4.4	7.9	55700
	30	0717	28.7	2.6	7.7	57100	1242	28.7	2.7	7.8	56500	1813	28.8	2.8	7.8	56100
	40	0717	28.6	2.0	7.6	58200	1242	28.6	2.3	7.7	57400	1813	28.7	1.8	7.7	57300
14	1	0711	28.4	5.1	7.7	55000	1239	28.6	5.3	7.9	55100	1809	29.3	6.0	7.9	55300
	10	0711	28.4	4.8	7.7	54800	1239	28.6	4.7	7.9	55500	1809	29.2	5.4	7.9	55400
	20	0711	28.8	2.8	7.6	56500	1239	28.6	3.7	7.8	55800	1809	28.9	3.8	7.9	55900
	30	0711	28.7	2.6	7.6	57000	1239	28.7	2.8	7.8	56600	1809	28.7	2.7	7.8	56500
	40	0711	28.6	2.0	7.6	57900	1239	28.6	1.6	7.7	57700	1809	28.7	2.1	7.8	57200
15	1	0654	28.4	6.6	7.7	55000	1228	28.7	4.3	7.8	55800	1802	29.2	5.7	8.0	55500
	10	0654	28.4	5.1	7.6	55500	1228	28.7	4.2	7.9	55800	1802	29.2	5.7	7.9	55600
	20	0654	28.5	4.1	7.6	55900	1228	28.7	3.3	7.8	55900	1802	29.1	5.4	8.0	55600
	30	0654	28.6	3.3	7.6	56200	1228	28.7	3.2	7.8	56000	1802	29.0	3.2	7.8	56200
	40	0654	28.7	2.2	7.6	57100	1228	28.7	2.8	7.8	56500	1802	28.7	2.8	7.8	56500

Table 5. Chemical Analysis of Water. Corpus Christi Inner Harbor. August 10, 1982.

Time	Station No.	Depth Ft.	TOC (mg/l as C)	TSS (mg/l)	VSS (mg/l)	Cond. (μmhos/cm)	Chloride (mg/l)	Sulphate (mg/l)	T. Alk. (mg/l as $CaCO_3$)	pH (units)	T-Phos. (mg/l as P)	O-Phos. (mg/l as P)	NH_3-N (mg/l as N)	NO_3-N (mg/l as N)	NO_2-N (mg/l as N)	BOD_5 (mg/l)	Chlorophyll A (mg/l)	Pheophytin A (mg/l)
0834	1	1	5	28	<10	50500	18200	2700	119	8.0	0.07	<0.01	<0.05	<0.03	<0.03	2	<0.005	<0.005
0835	1	38	5	148	32	51700	19100	2700	144	7.8	0.20	<0.01	0.06	0.05	<0.03			
0905	2	1	6	33	10	46600	17100	2600	144	8.1	0.09	0.02	0.08	0.05	<0.03	2	<0.005	<0.005
0907	2	38	<5	76	21	50700	18900	2800	146	8.0	0.14	0.03	0.17	0.08	<0.03			
0920	3	1	5	22	<10	48500	17700	2600	136	8.0	0.10	0.06	0.22	0.10	<0.03	2	<0.005	<0.005
0925	3	38	<5	330	250	49800	19000	2600	141	8.0	0.16	0.07	0.20	0.05	<0.03			
1000	4	1	<5	10	<10	47600	17700	2600	143	8.1	0.08	0.06	0.22	0.12	<0.03	2	<0.005	<0.005
1005	4	38	5	44	<10	49600	18700	2700	146	8.0	0.12	0.04	0.21	0.07	<0.03			
1025	5	1	5	25	<10	48600	18200	2800	141	8.0	0.06	0.05	0.20	0.12	<0.03	2	<0.005	<0.005
1030	5	38	<5	34	<10	50500	18700	2700	157	7.9	0.11	0.04	0.19	<0.03	<0.03			
1055	6	1	<5	16	<10	48600	17700	2500	147	8.0	0.07	0.03	0.20	0.19	<0.03	2	<0.005	<0.005
1100	6	38	6	25	<10	50600	18900	2700	146	7.9	0.07	0.05	0.22	0.05	<0.03			
1130	7	1	<5	15	<10	47700	17400	2600	141	8.1	0.06	0.04	0.18	0.10	<0.03	2	<0.005	<0.005
1135	7	38	5	18	<10	49600	18700	2700	141	8.1	0.07	0.04	0.21	0.04	<0.03			
1210	8	1	6	21	<10	46600	16900	2600	151	8.0	0.08	0.03	0.18	0.87	<0.03	2	0.006	<0.005
1215	8	38	<5	24	<10	49000	18500	2700	146	7.9	0.07	0.05	0.22	0.07	<0.03			
1420	9	1	<5	21	12	47000	18200	2700	146	8.2	0.05	<0.01	0.11	0.16	<0.03	2	0.01	<0.005
1425	9	38	5	37	16	50600	18700	2700	141	7.9	0.07	0.04	0.20	0.06	<0.03			
1440	10	1	<5	31	14	49100	17800	2500	136	8.1	0.05	0.02	0.11	0.18	<0.03	3	0.01	<0.005
1445	10	38	6	25	<10	50600	18500	2600	300	8.0	0.08	0.05	0.21	0.08	<0.03			
1450	11	1	6	24	<10	48700	17700	2700	136	8.0	0.06	0.04	0.13	0.12	<0.03	2	0.008	<0.005
1455	11	38	5	28	<10	51200	18600	2700	168	7.9	0.06	0.05	0.23	0.04	<0.03			
1510	12	1	5	29	<10	48700	18000	2700	114	8.0	0.06	0.02	0.12	0.09	<0.03	2	0.006	<0.005
1515	12	38	5	47	14	50600	18700	2700	141	7.9	0.06	0.05	0.22	0.04	<0.03			
1530	13	1	5	41	11	48600	17900	2000	141	8.0	0.06	0.03	0.13	0.07	<0.03	2	0.01	<0.005
1535	13	38	<5	15	10	49800	18600	2500	141	7.9	0.07	0.06	0.24	0.04	<0.03			
1550	14	1	6	11	<10	48000	18000	2600	138	8.0	0.06	0.04	0.12	0.05	<0.03	2	0.008	<0.005
1555	14	38	<5	14	<10	48700	18000	2700	138	8.0	0.08	0.05	0.19	0.05	<0.03			
1610	15	1	5	17	15	48700	17900	2600	141	8.0	0.06	0.03	0.12	0.04	<0.03	2	0.009	<0.005
1615	15	38	<5	28	11	49100	18000	2700	146	7.9	0.08	0.06	0.24	0.04	<0.03			

Table 6. Metals in water, Corpus Christi Inner Harbor. August 10, 1982.

Station No.	Depth ft.	Arsenic (ug/l)	Barium (ug/l)	Cadmium (ug/l)	Copper (ug/l)	Chromium (ug/l)	Iron (ug/l)	Lead (ug/l)	Manganese (ug/l)	Mercury (ug/l)	Nickel (ug/l)	Silver (ug/l)	Zinc (ug/l)
1	1	3	100	< 5	10	48	500	80	20	< 1	<30	< 10	720
1	38	<2	80	< 5	30	< 20	2200	100	90	< 1	<30	< 10	330
2	1	6	130	< 5	10	< 20	410	60	< 10	< 1	<30	< 10	10
2	38	4	< 100	< 10	34	< 20	960	< 50	60	1	<30	< 10	96
3	1	8	< 100	< 10	13	< 20	140	< 50	14	< 1	<30	< 10	21
3	38	8	< 100	< 10	26	< 20	1100	< 50	78	< 1	<30	< 10	59
4	1	7	< 100	< 10	34	< 20	140	< 50	20	< 1	<30	< 10	20
4	38	8	< 100	< 10	35	< 20	650	< 50	46	< 1	<30	< 10	53
5	1	7	< 100	< 10	20	< 20	170	< 50	18	< 1	<30	< 10	26
5	38	10	< 100	< 10	25	< 20	540	< 50	48	< 1	<30	< 10	52
6	1	6	< 100	< 10	11	< 20	130	< 50	13	< 1	<30	< 10	27
6	38	5	< 100	< 10	30	< 20	280	< 50	29	< 1	<30	< 10	53
7	1	8	< 100	< 10	13	< 20	160	< 50	16	< 1	<30	< 10	32
7	38	10	< 100	< 10	27	< 20	390	< 50	38	< 1	<30	< 10	59
8	1	12	< 100	< 10	13	< 20	160	< 50	20	< 1	<30	< 10	36
8	38	9	< 100	< 10	29	< 20	260	< 50	37	< 1	<30	< 10	61
9	1	10	< 100	< 10	12	< 20	120	70	14	< 1	<30	< 10	32
9	38	7	< 100	< 10	36	< 20	180	100	31	< 1	<30	< 10	75
10	1	8	100	< 10	10	< 20	110	90	21	< 1	<30	< 10	37
10	38	8	< 100	< 10	22	< 20	140	50	31	1	<30	< 10	55
11	1	4	130	< 5	< 10	< 20	160	< 50	21	< 1	<30	< 10	26
11	38	6	< 100	< 5	25	< 20	160	< 50	35	< 1	<30	< 10	78
12	1	6	< 100	< 5	< 10	< 20	150	< 50	17	< 1	<30	< 10	25
12	38	3	< 100	< 5	25	< 20	120	70	43	< 1	<30	< 10	51
13	1	3	< 100	< 5	< 10	< 20	190	< 50	18	< 1	<30	< 10	20
13	38	<2	< 100	< 5	30	< 20	140	70	35	< 1	<30	< 10	49
14	1	5	< 100	< 5	< 10	< 20	120	50	27	< 1	<30	< 10	17
14	38	2	< 100	< 5	20	< 20	140	60	54	< 1	<30	< 10	43
15	1	2	< 100	< 5	< 10	< 20	140	50	30	< 1	<30	< 10	20
15	38	3	< 100	< 5	20	< 20	120	50	78	< 1	<30	< 10	47
USEPA - Quality Criteria for Water:													
Criterion for domestic water supply (health).		50	1000	10	1000	50	300	50	50	2.0		50	5000
Criterion for protection of freshwater aquatic life.					.1 x LC_{50}	100	1000	.1 x LC_{50}		.05	.1 x LC_{50}	.1 x LC_{50}	.1 x LC_{50}
Criterion for protection of marine aquatic life.				5	(bioassay)			(bioassay)	100	.10	(bioassay)	(bioassay)	(bioassay)
Environmental Studies Board of Canada:													
Guidelines for protection of marine aquatic life.		50	1000	5	50	100	300	50	100	.10	100	5	100

TABLE 7

Summary of metals in water data from Texas Department of Water Resources monitoring stations in estuaries including bays and tidal segments of rivers and in the Gulf. Period covered is January 1975 through January 1979. Data from the Basic Water Monitoring Program Stations and other monthly stations in the Houston Ship Channel and Sea Rim State Park are excluded from this table. This table is an addendum to Table 3 in Report No. SR-4.

Metal	Number of Determinations	Usual Limit of Detection ug/l	% Determinations Below Limit of Detection
Arsenic	48	10	60
Cadmium	64	10	64
Chromium (Total)	61	20	36
Copper	61	20	30
Iron	70	25	3
Lead	61	50	67
Manganese	62	20	5
Mercury	70	0.2	63
Nickel	47	20	32
Selenium	43	2	98
Silver	40	10	48
Zinc	50	20	46

TABLE 8

PESTICIDES IN WATER
CORPUS CHRISTI INNER HARBOR STUDY
AUGUST 10, 1982

PARAMETER (ug/l)	STATION 8 CMS 2484.02 NAVIGATION BLVD.
2,4-D	<20
2, 4, 5-T	<5
Silvex	<5
Heptachlor	<0.02
Heptachlor Epoxide	<0.06
Lindane	<0.03
Malathion	<0.4
Methoxychlor	<0.5
Parathion	<0.25
PCB	<1

TABLE 9

BACTERIOLOGICAL DATA
CORPUS CHRISTI INNER HARBOR STUDY
AUGUST 10, 1982

SURVEY STATION NUMBER*	TOTAL COLIFORM #/100 ml	FECAL COLIFORM #/100 ml	FECAL STREP. #/100 ml	FECAL COLIFORM/ FECAL STREP. RATIO
1	<10	<10	<10	<1.00
2	750	90	70	1.29
3	>10,000	>10,000	150	66.60
4	>10,000	>10,000	520	19.23
5	6,400	6,300	260	24.23
6	3,300	3,200	570	5.61
7	110	110	100	1.10
8	680	680	630	1.08
9	2,200	2,200	240	9.17
10	580	530	140	3.79
11	110	100	90	1.11
12	40	30	1,100	0.03
13	20	20	<10	<2.00
14	20	20	<10	<2.00
15	50	10	10	1.00

*See Map-Figure 1

TABLE 10

INTERPRETATION OF FC/FS RATIOS

CORPUS CHRISTI INNER HARBOR STUDY

AUGUST 10, 1982

Domestic Wastes (predominantly human)	>4.0
Animal Wastes	<0.7
Combined Domestic and Animal Wastes	0.7 to 4.0

Table 11. Chemical analysis of sediment. Corpus Christi Inner Harbor. August 10, 1982.

Station	Depth ft.	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Manganese (mg/kg)	Nickel (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)	T-PO_4 (mg/kg as P)	Volatile Solids (mg/kg)	Oil & Grease (mg/kg)
1	46	1.0	120	0.3	5.3	4.3	20	0.09	360	4.3	<0.5	53	450	68200	600
2	46	1.6	130	0.7	5.9	7.3	24	0.12	410	3.1	<0.5	81	460	88200	1800
3	46	0.9	440	1.5	12	20	33	0.40	730	5.9	<0.5	140	1100	84600	1200
4	46	1.0	410	5.4	22	39	4.7	0.34	480	6.0	1.2	290	680	84600	2300
5	46	1.5	200	4.9	20	39	5	0.37	430	5.2	0.9	370	380	75400	3400
6	46	1.4	180	7.4	22	33	56	0.49	500	4.4	0.9	520	460	84400	2300
7	46	2.3	170	12	25	31	61	0.55	290	3.7	0.5	520	470	70300	830
8	46	3.5	240	17	39	32	153	1.1	286	3.6	<0.5	1100	360	50400	2700
9	46	4.2	140	12	34	16	170	0.95	290	2.2	<0.5	2100	270	29300	1700
10	46	1.7	140	11	21	14	64	0.67	160	2.3	<0.5	640	180	63600	1700
11	46	1.7	110	9.3	16	11	45	0.61	510	2.9	<0.5	510	310	57400	1000
12	46	1.7	85	5.7	12	7.6	23	0.21	210	2.0	<0.5	280	200	23300	840
13	46	1.8	150	11	16	12	34	0.33	280	3.0	<0.5	430	330	48600	1600
14	46	1.4	76	8.6	15	12	36	0.40	220	3.1	<0.5	750	250	52000	1400
15	46	0.9	53	4.0	8.5	4.8	15	0.09	150	2.5	<0.5	230	230	17450	890
U.S. EPA Screening Levels		5		2	50	100	50	1		50		75			

TABLE 12

CORPUS CHRISTI INNER HARBOR STUDY
August 10, 1982

Pesticide in Sediment

Parameter (ug/kg)	Station 8 CMS 2484.02 Navigation Blvd.
Aldrin	<0.5
Chlordane	<10
DDD	<8.0
DDE	<6.5
DDT	<8.0
Diazinon	<5.0
Dieldrin	<2.0
Endrin	<3.0
Heptachlor	<0.5
Heptachlor Epoxide	<1.0
Lindane	<1.0
Methoxychlor	<10
Methyl Parathion	<3.0
Parathion	<3.0
Toxaphene	<50
PCB	83

TABLE 13

BENTHIC MACROINVERTEBRATE DATA
CORPUS CHRISTI INNER HARBOR SPECIAL STUDY
AUGUST 10, 1982

	C.C. BAY @ Δ 62 STA. 1	C.C. BAY @ Δ 86 STA. 2	CCIH @ AVERY STA. 6	CCIH @ NAVIGATION STA. 8	CCIH @ TULE LAKE STA. 13	CCIH @ VIOLA STA. 15
Mollusks						
Nuculana acuta	3	-	-	*	*	-
Mulinia lateralis	-	-	-	*	*	1
Chione sp.	-	-	-	*	*	1
Anachis semiplicata	1	-	-	*	*	
Anachis obesa	3	-	-	*	*	-
Arthopods						
Cyclaspis varians	3	-	-	*	*	-
Listriella sp.	4	-	-	*	*	-
Menippe mercenaria	1	-	-	*	*	-
Annelids						
Gyptis vittata	7	1	-	*	*	-
Nereis succinea	4	-	-	*	*	-
Minuspio cirrifera	2	-	-	*	*	-
Streblospio benedicti	-	-	26	*	*	32
Paraprionospio pinnata	1	6	2	*	*	-
Haploscoloplos fragilis	2	-	-	*	*	-
Tharyx setigera	2	-	-	*	*	-
Cossura delta	-	2	-	*	*	-
Nemerteans						
Cerebratulus sp.	-	1	-	*	*	-
Nemertean	3	5	-	*	*	-
Total # Individuals	36	15	28	0	0	34
Total # Species	13	5	2	0	0	3

*No organisms found.

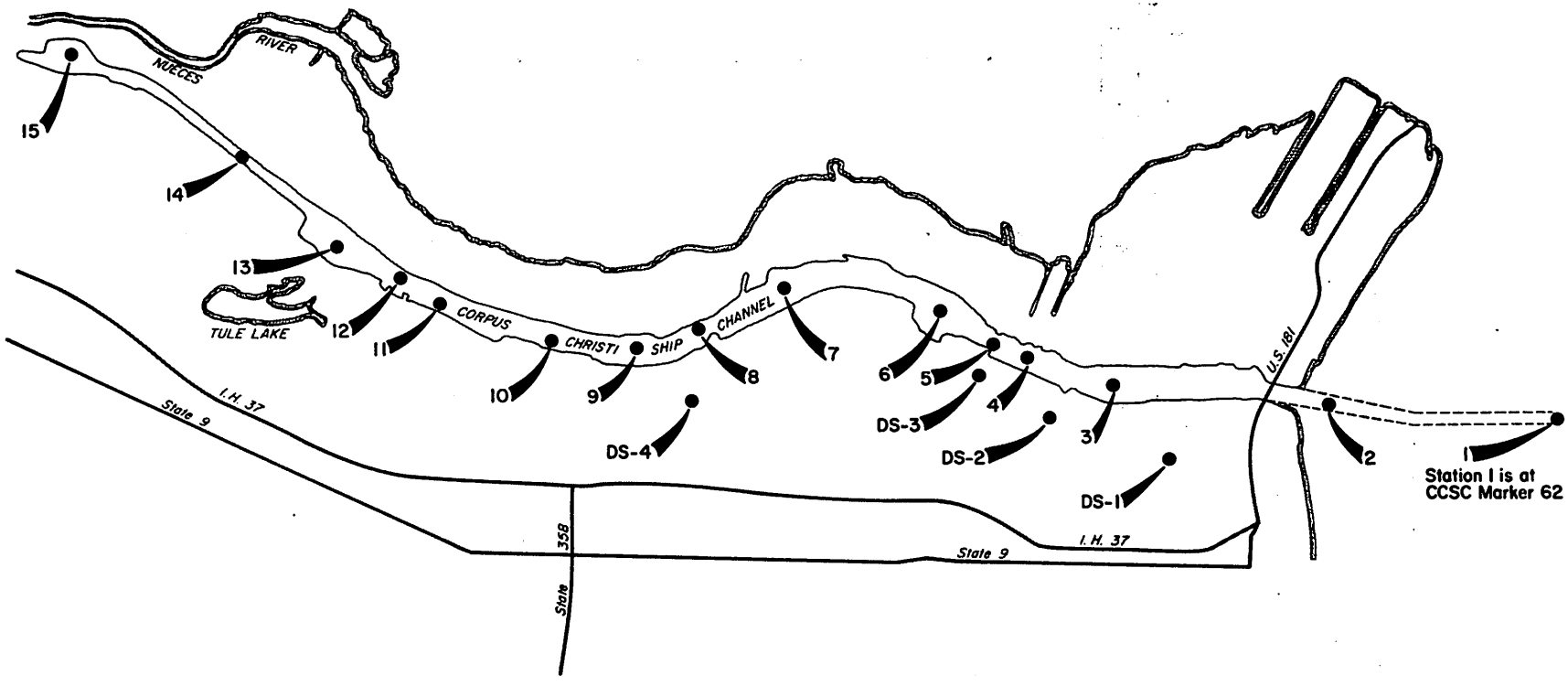

Figure 1
Survey Station Location in
Corpus Christi Inner Harbor, August 1982

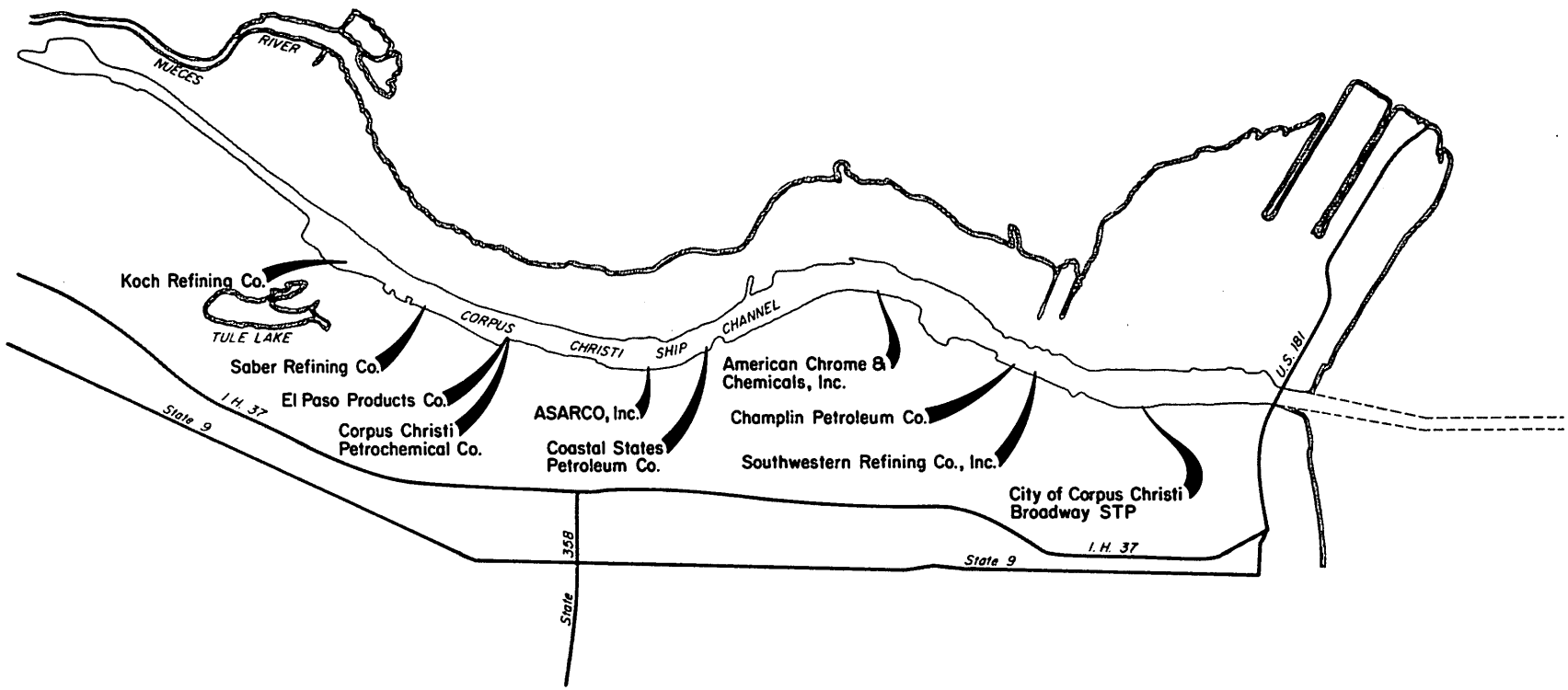

Figure 2
Location of Wastewater Discharges to
Corpus Christi Inner Harbor, August 1982

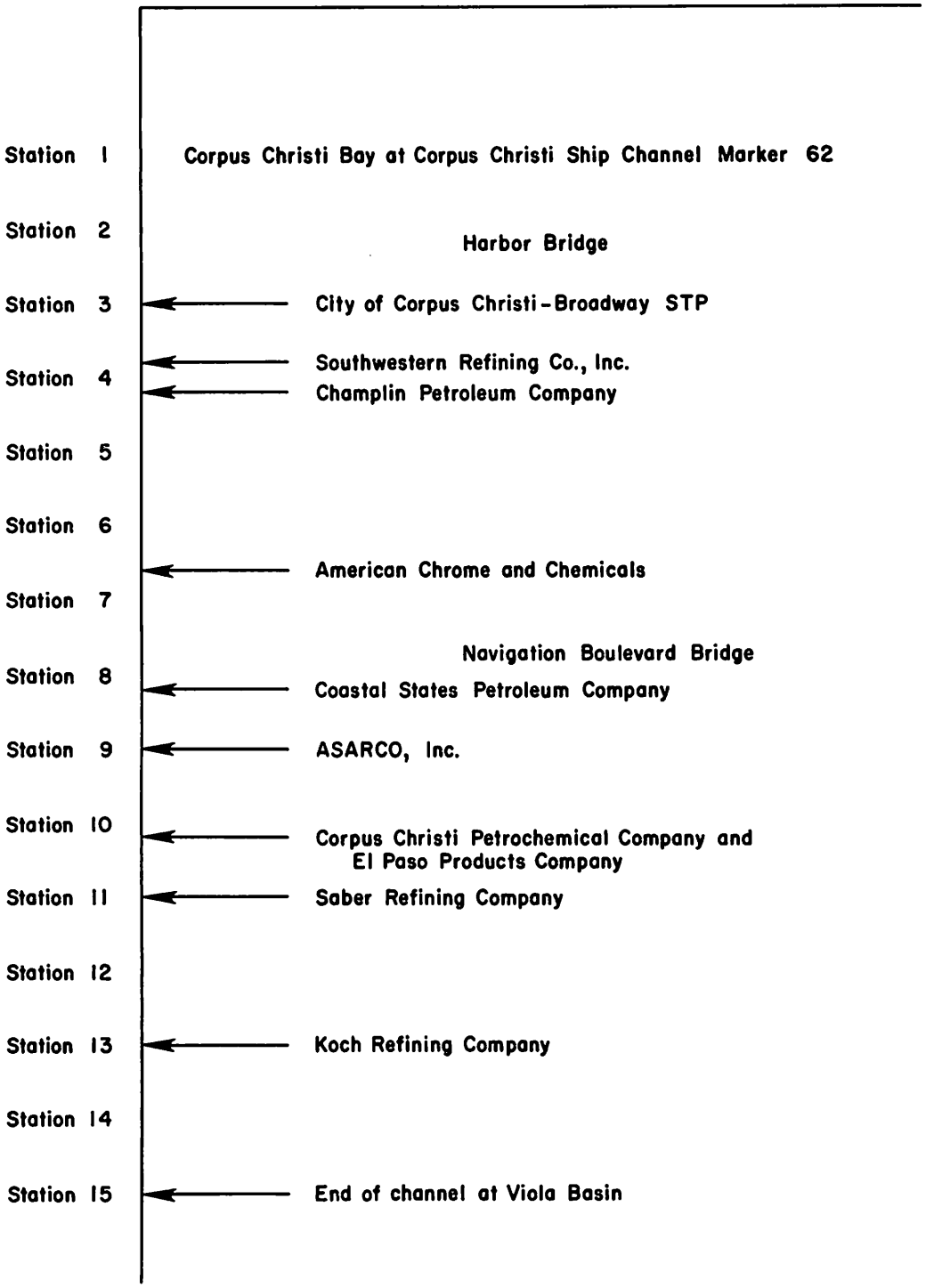

Figure 3
Municipal and Industrial Discharges to
Corpus Christi Inner Harbor August, 1982

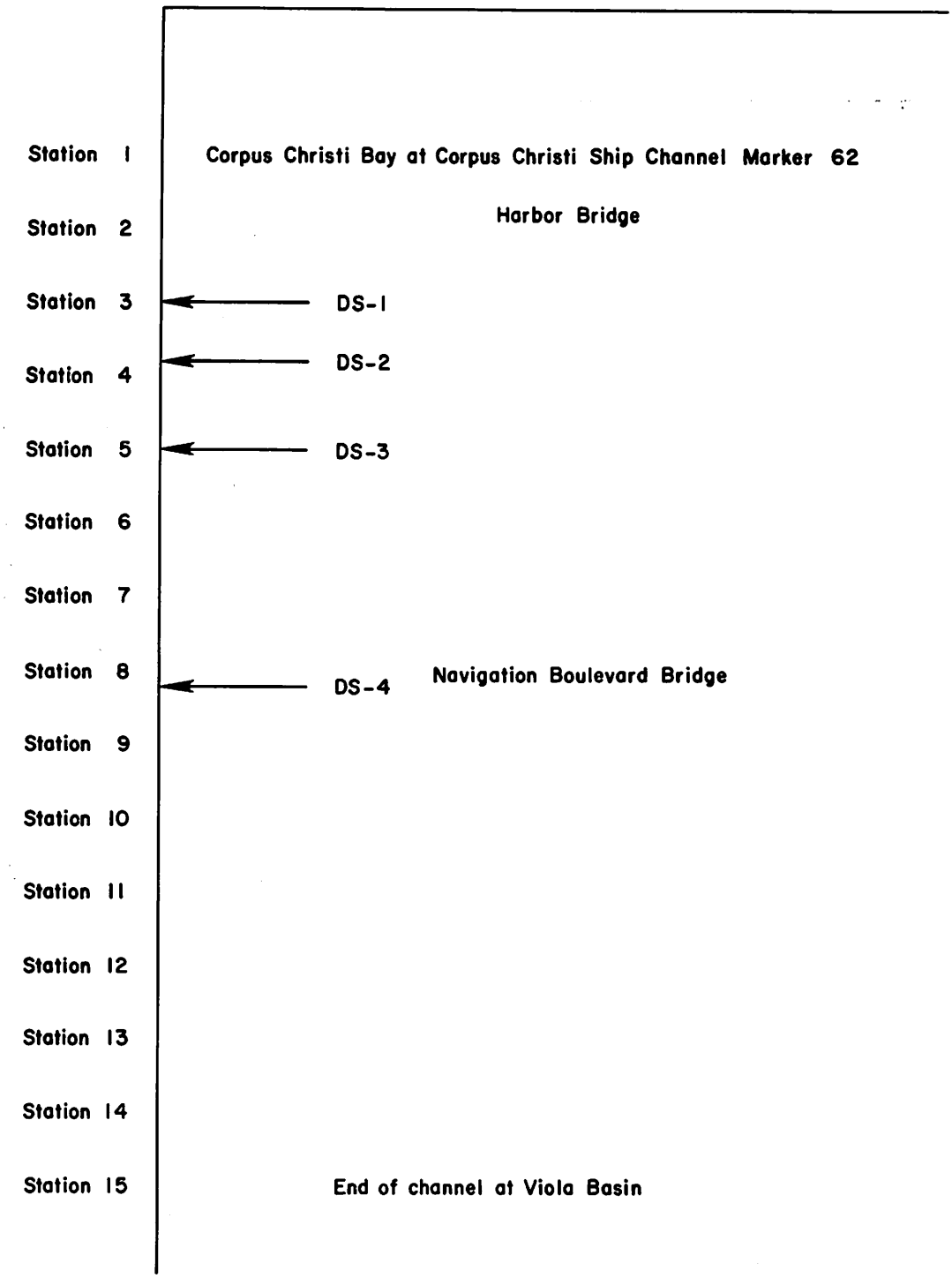

Figure 4

Non-Point Sources Location of Drainage Ditches Discharging to Corpus Christi Inner Harbor August, 1982

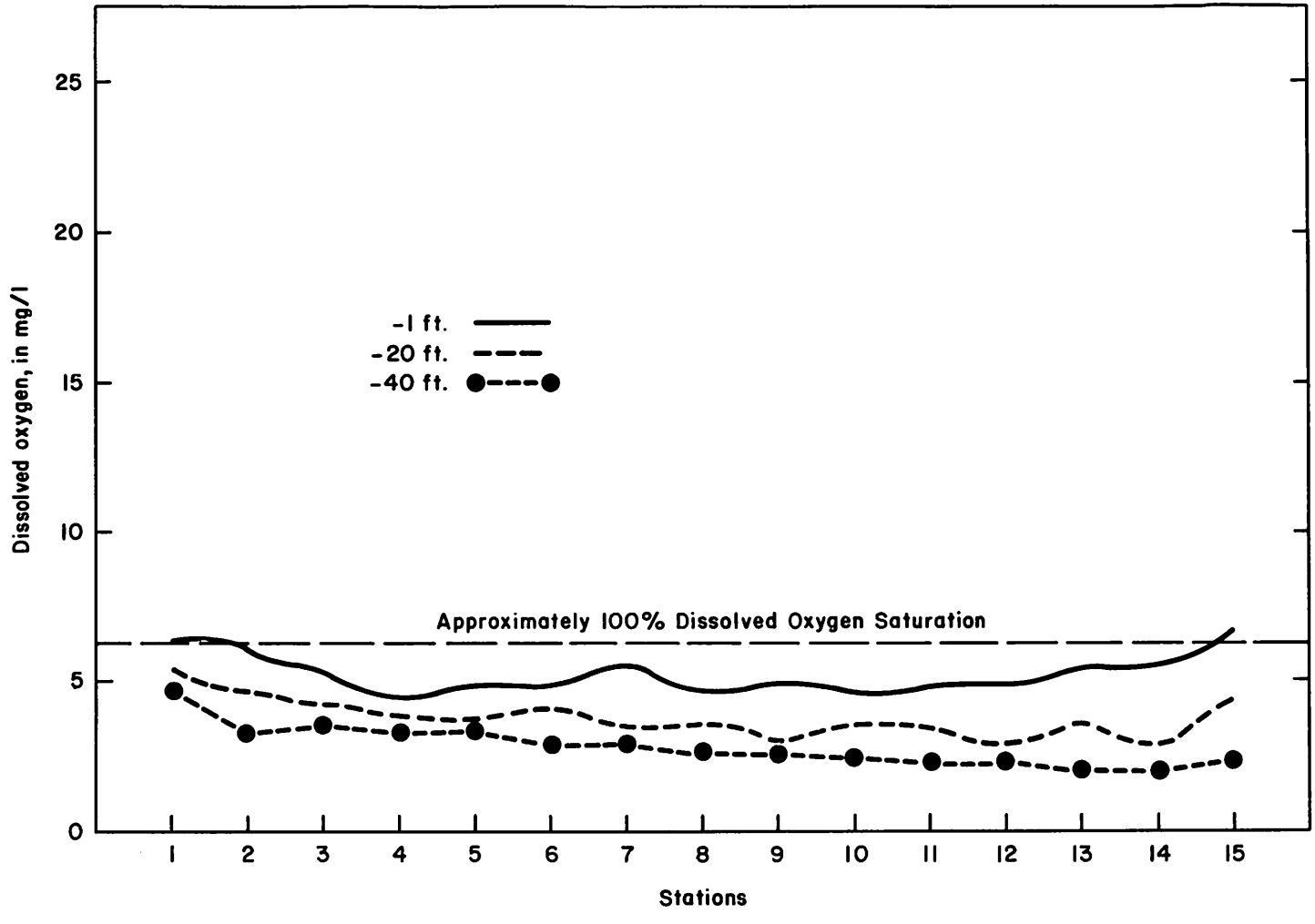

Figure 5

Dissolved Oxygen Samples Taken Before Noon, August 1982

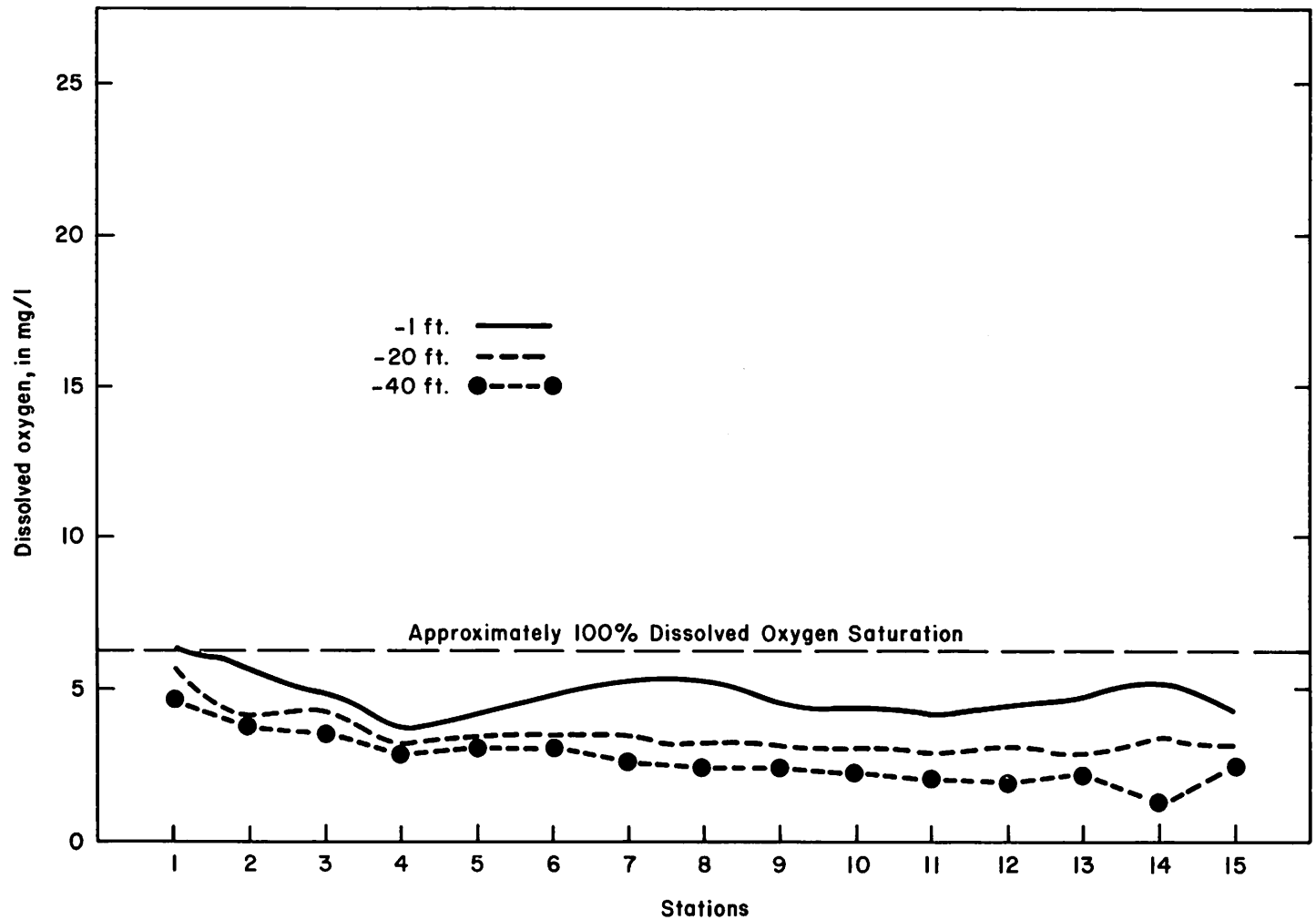

Figure 6

Dissolved Oxygen Samples Taken at Midday, August 1982

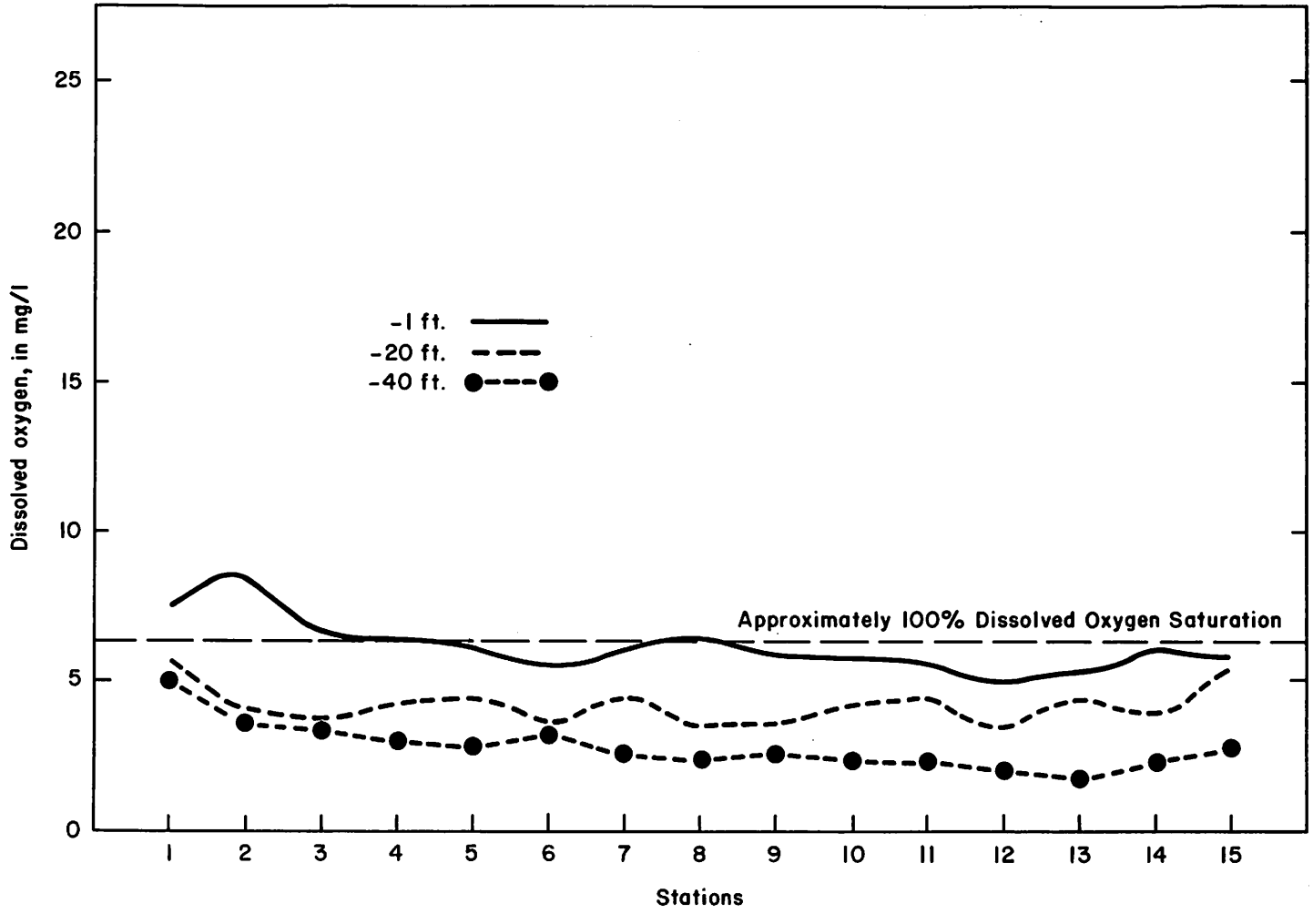

Figure 7

Dissolved Oxygen Samples Taken at Sunset, August 1982

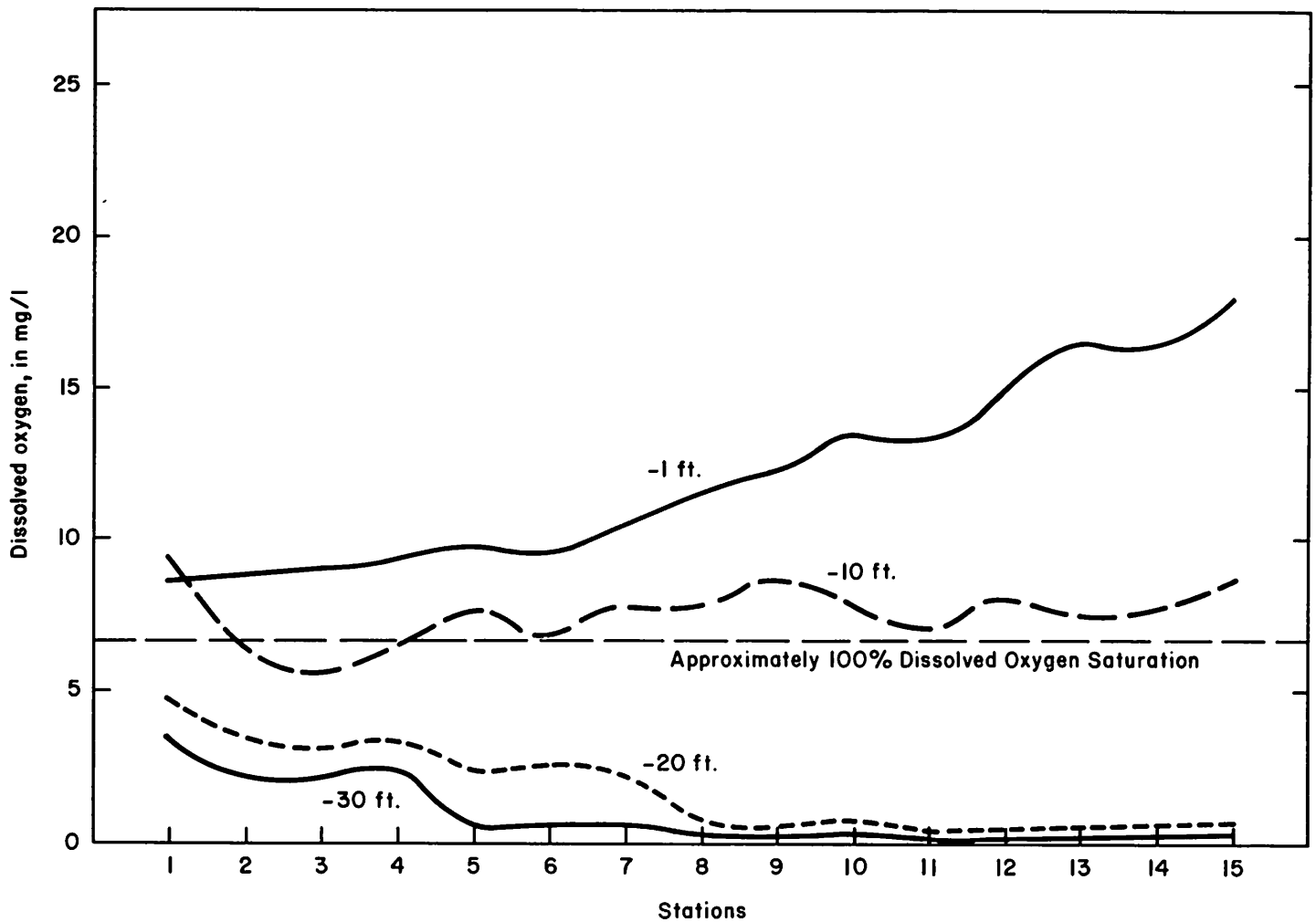

Figure 8

Dissolved Oxygen, August 20, 1973,
Photic Zone Approximately 0 to 4 Feet

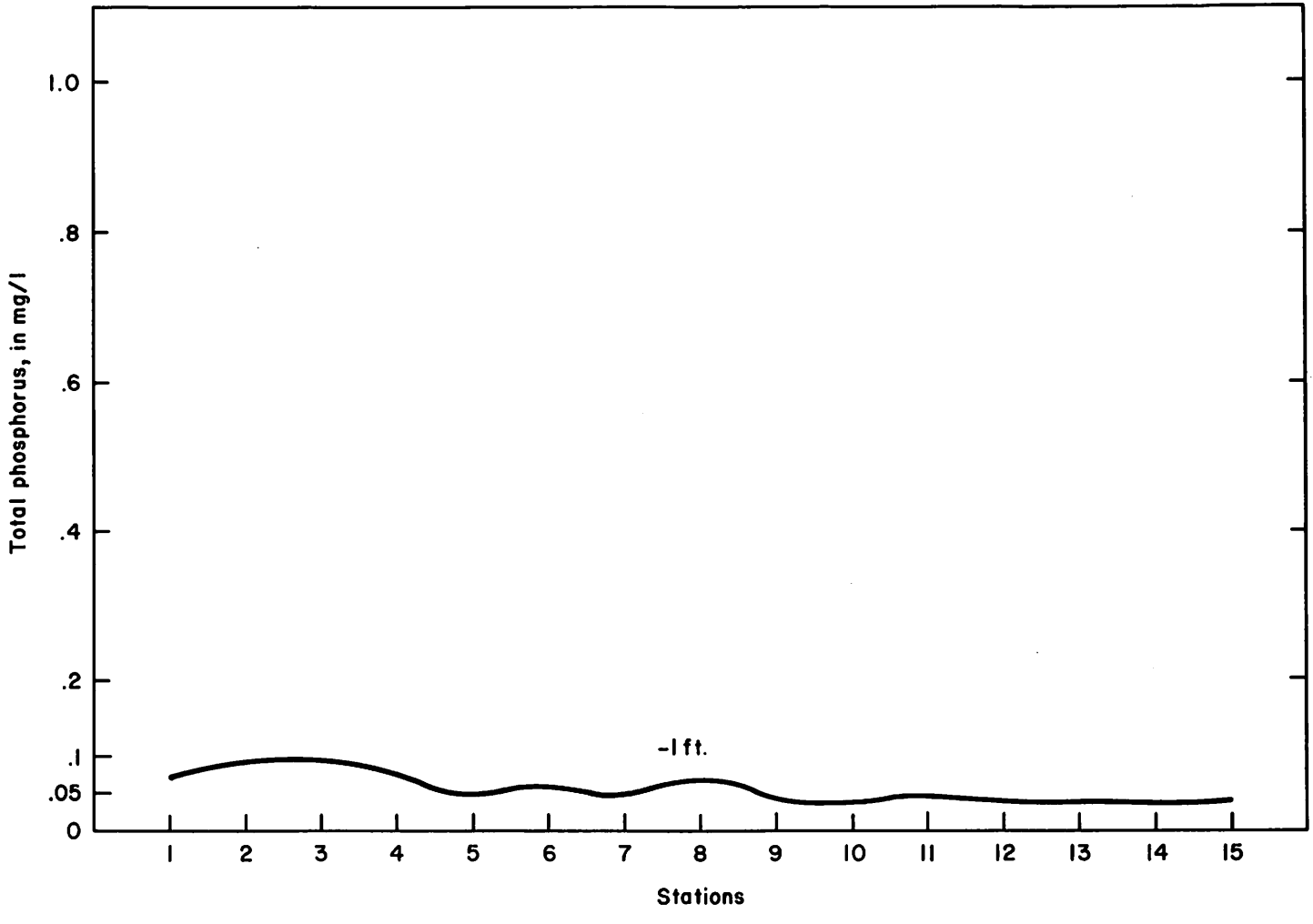

Figure 9
Total Phosphorus, August 1982

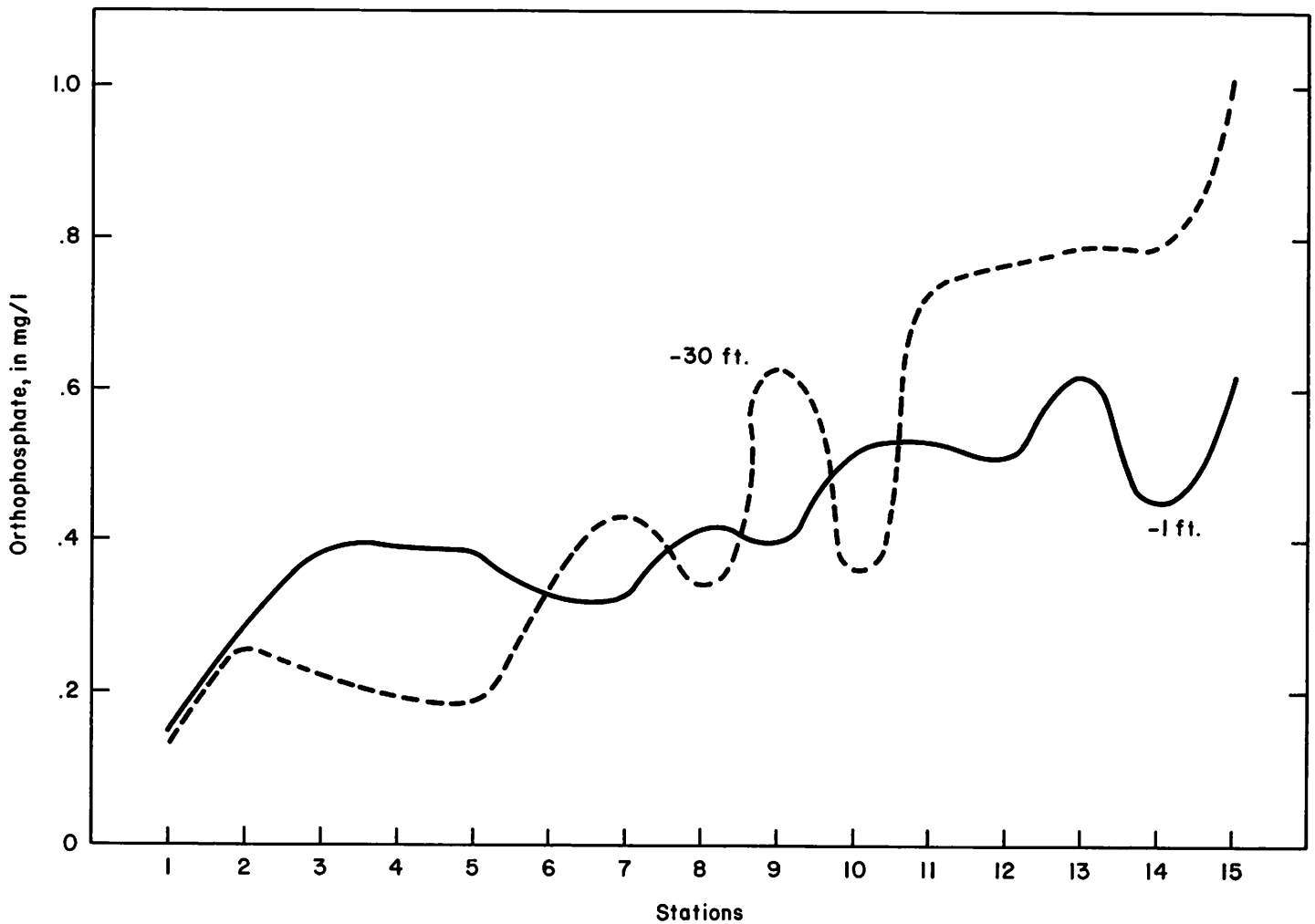

Figure 10
Orthophosphate, August 20, 1973

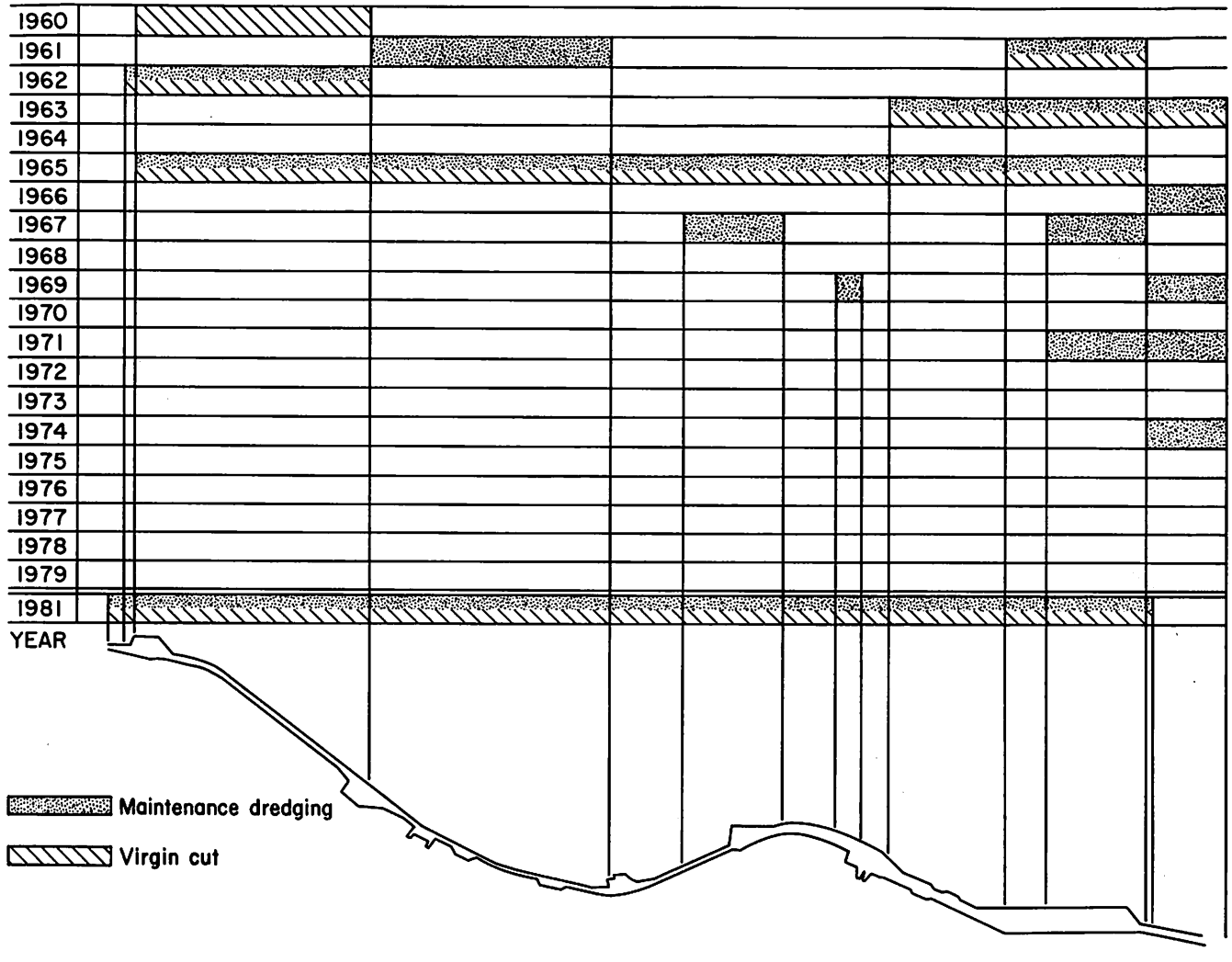

Figure 11

Dredging in Corpus Christi Inner Harbor, 1960-81

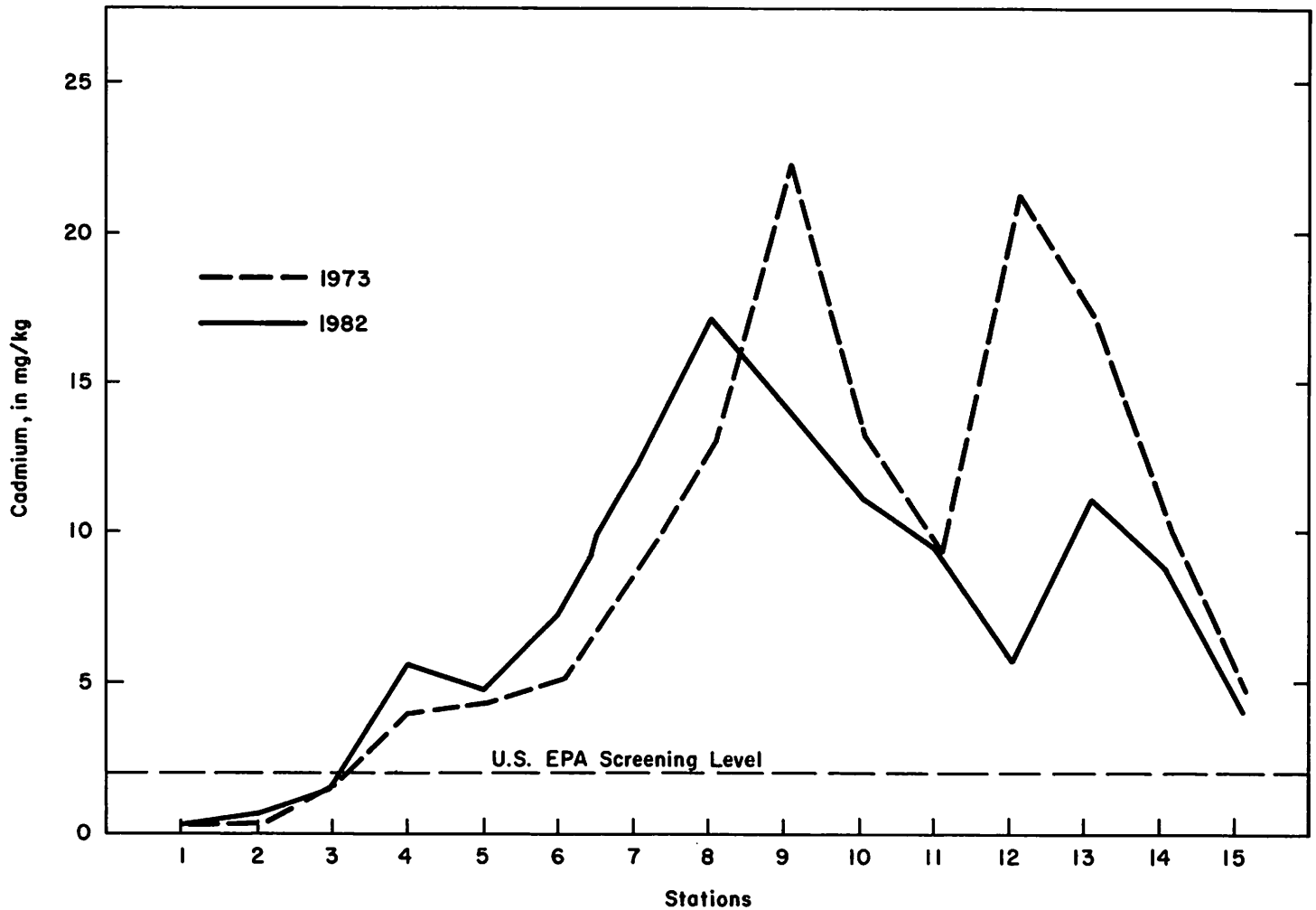

Figure 12

Cadmium in Sediment, August 20, 1973 vs. August 1982

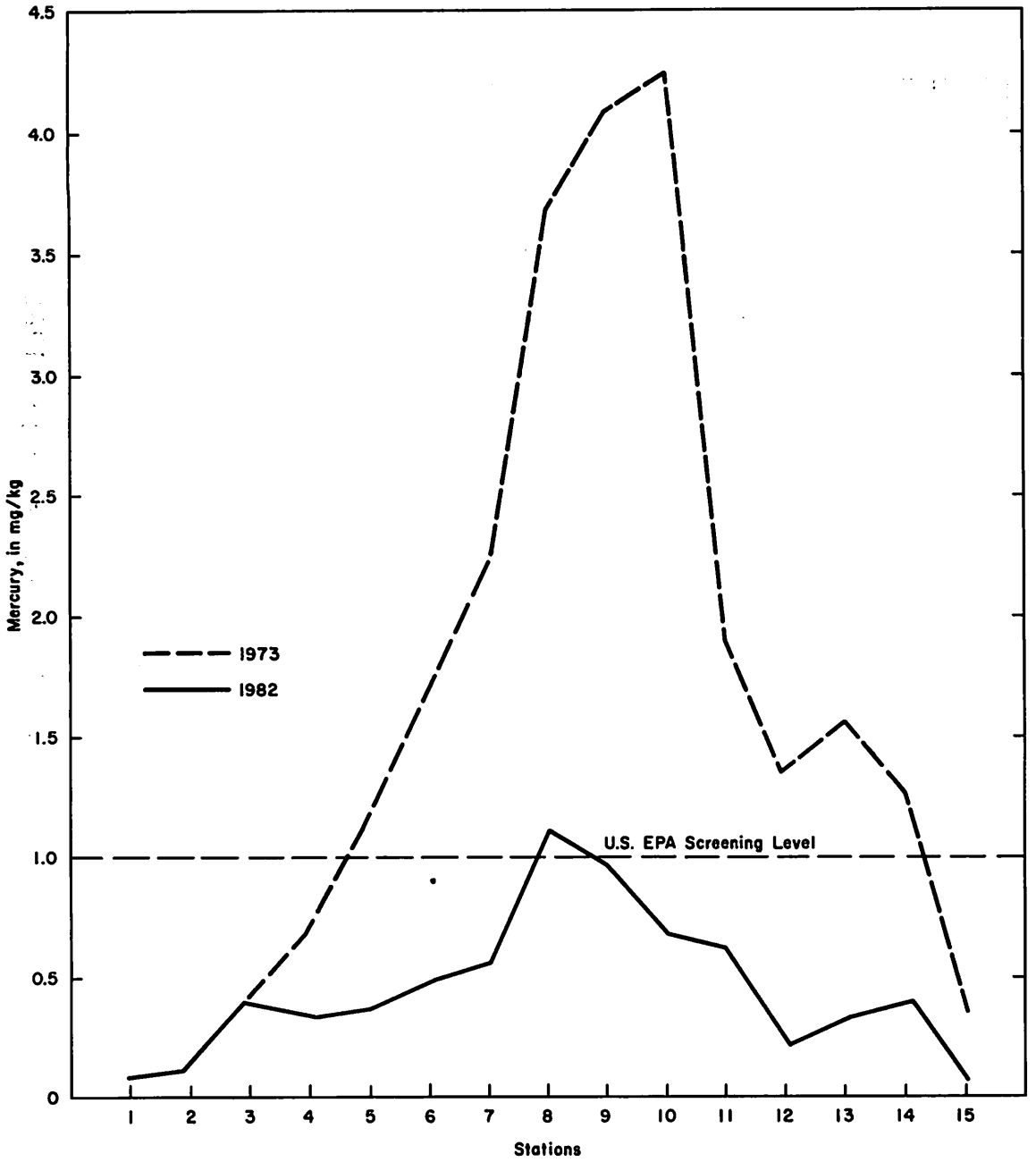

Figure 13

Mercury in Sediment, August 20, 1973 vs. August 1982

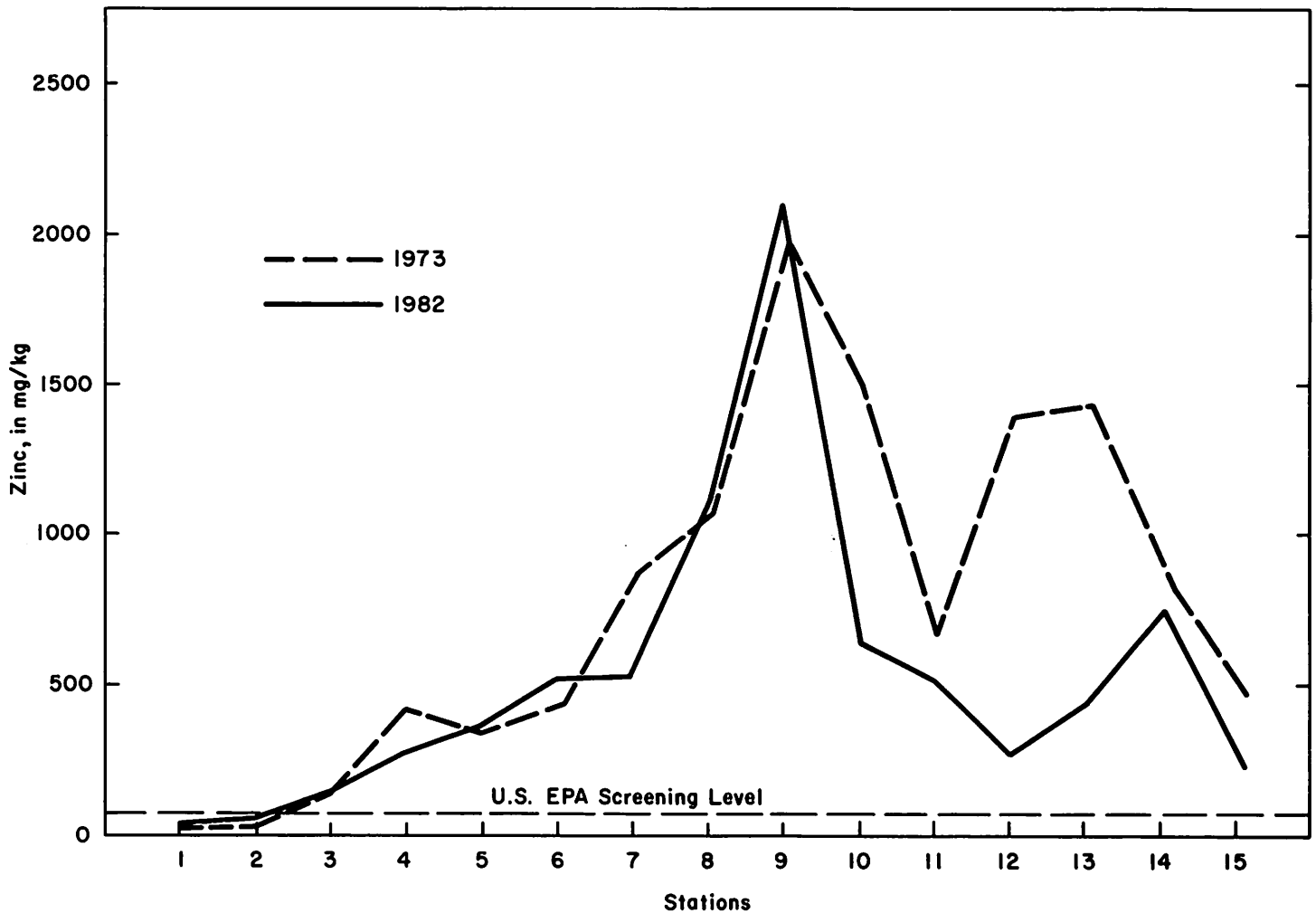

Figure 14

Zinc in Sediment, August 20, 1973 vs. August 1982

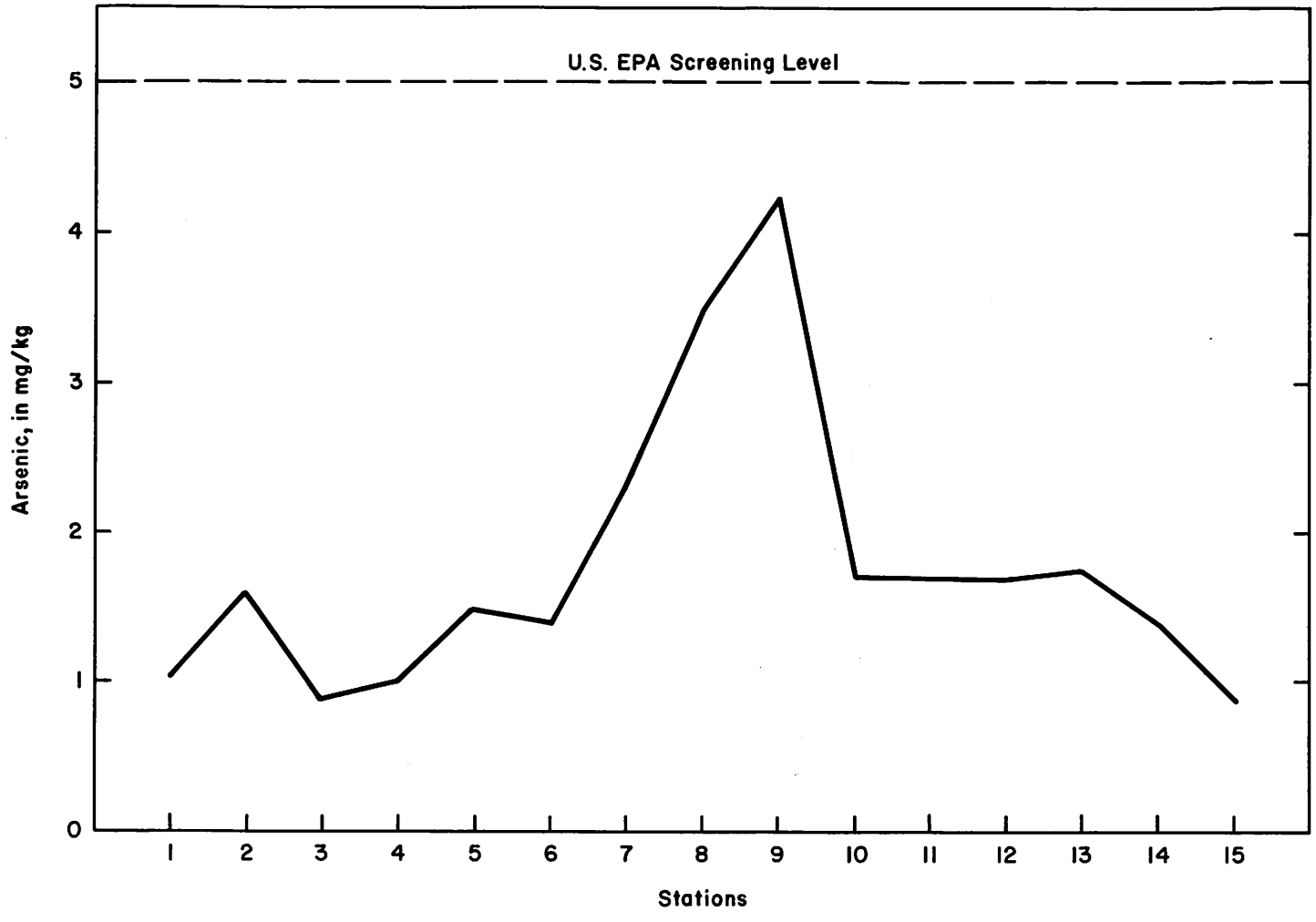

Figure 15
Arsenic in Sediment, August 1982

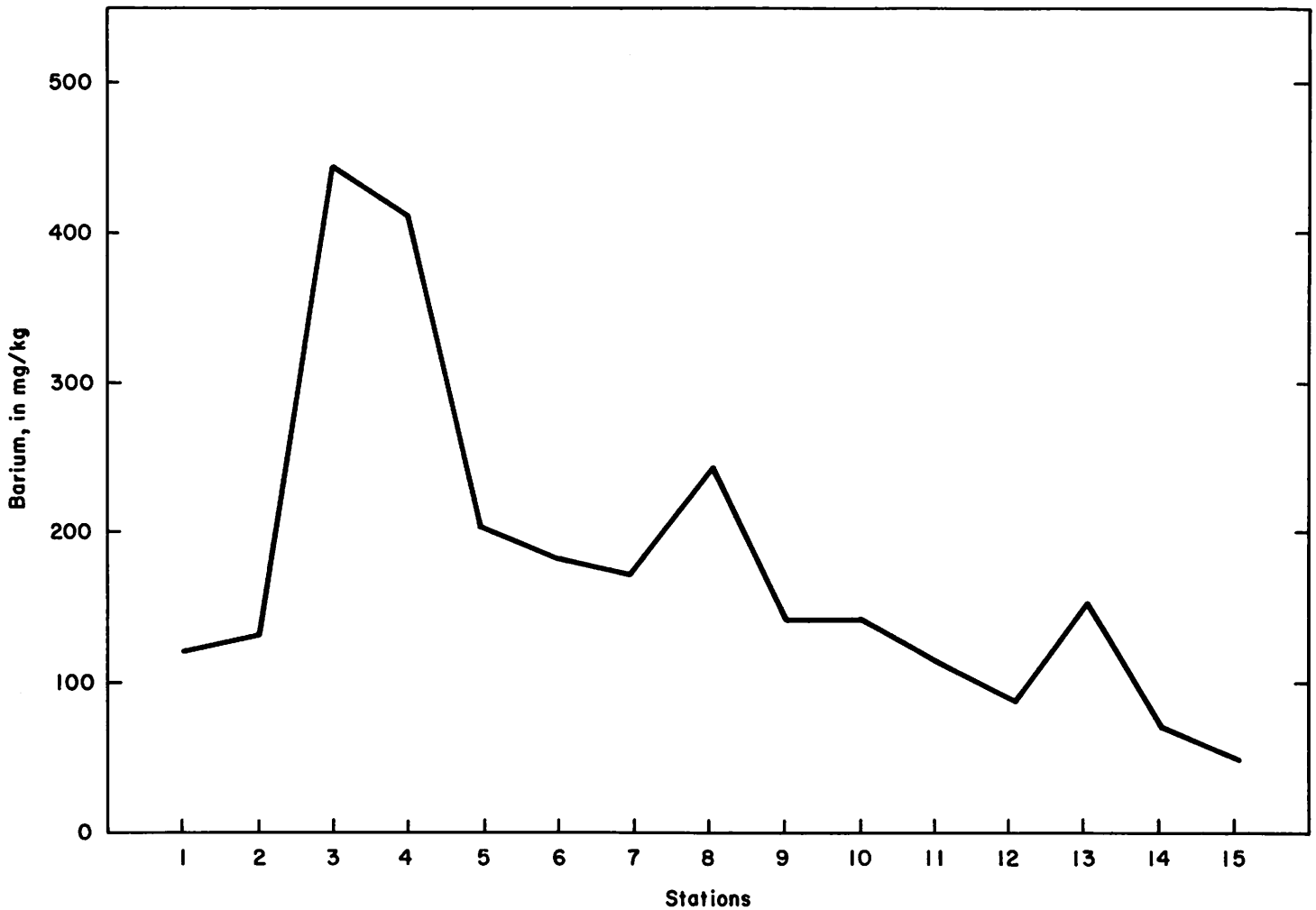

Figure 16

Barium in Sediment, August 1982

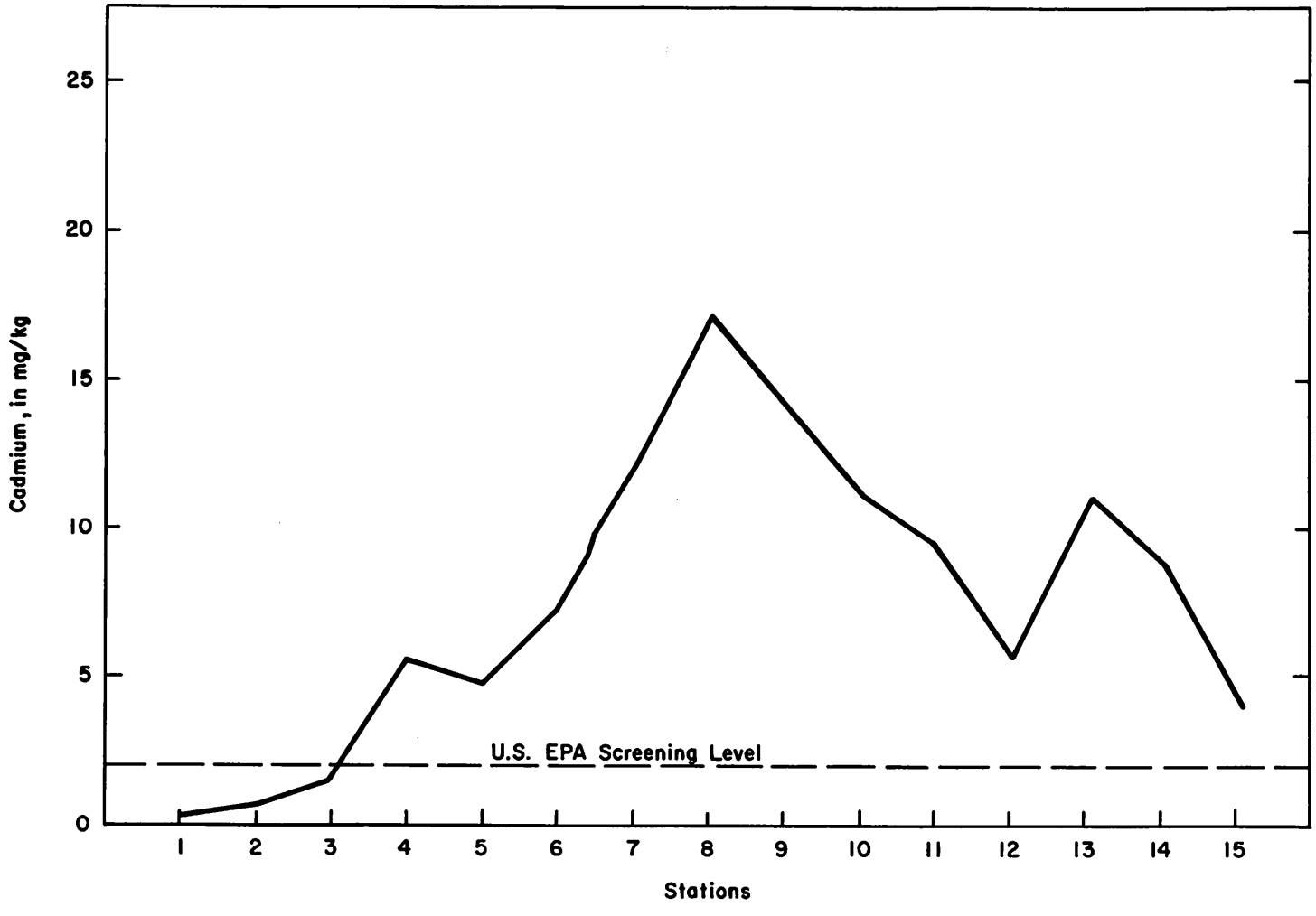

Figure 17
Cadmium in Sediment, August 1982

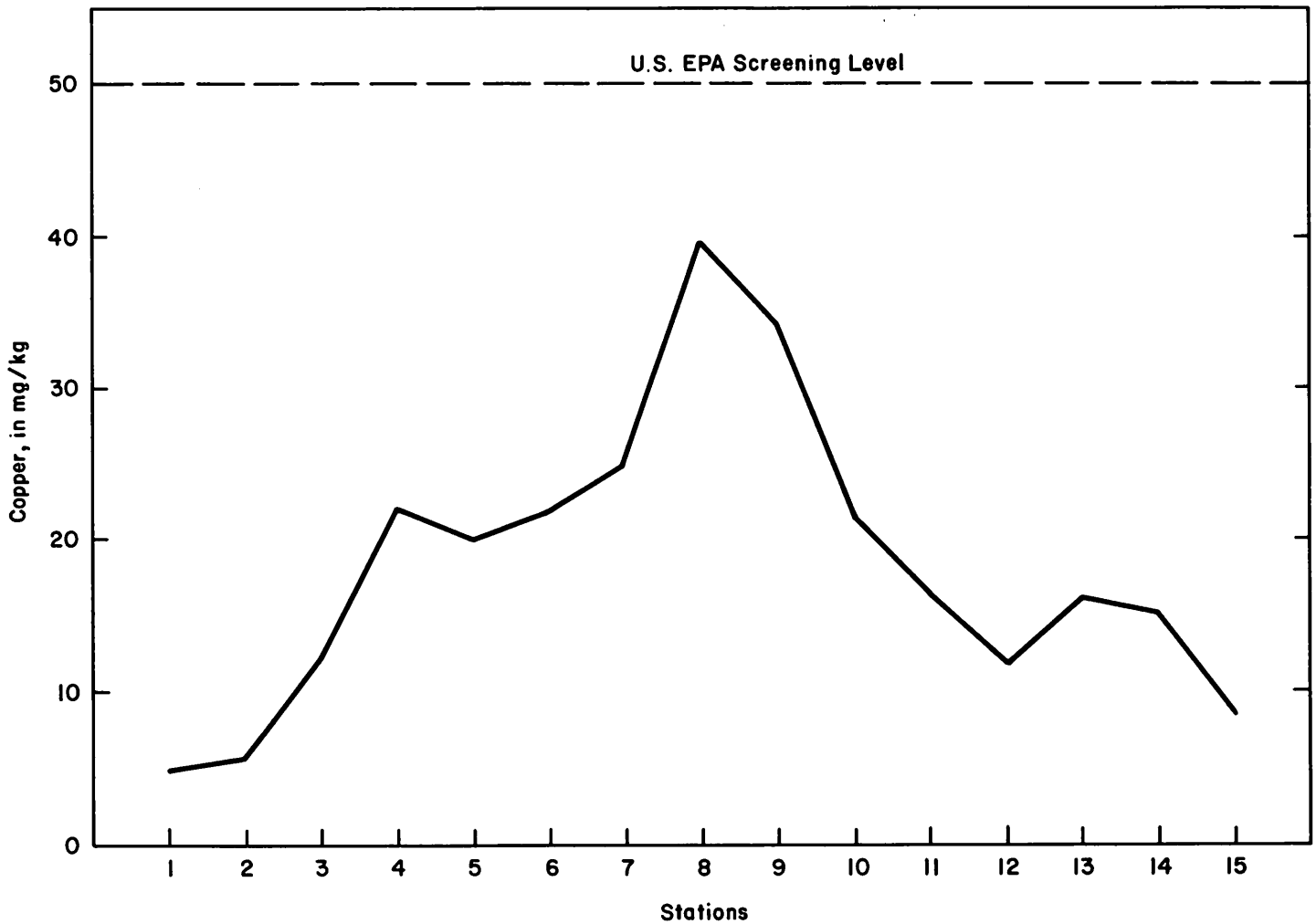

Figure 18
Copper in Sediment, August 1982

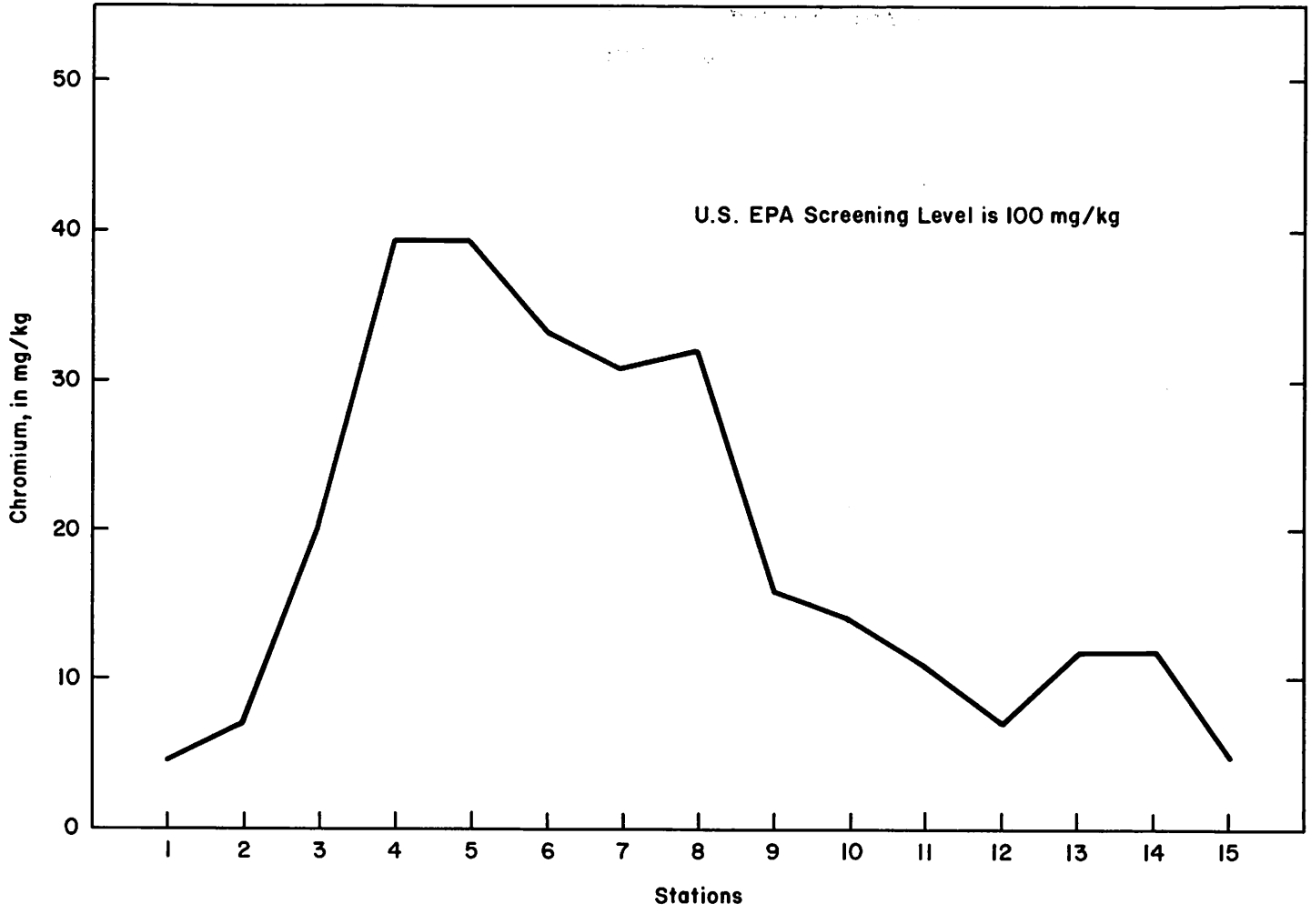

Figure 19
Chromium in Sediment, August 1982

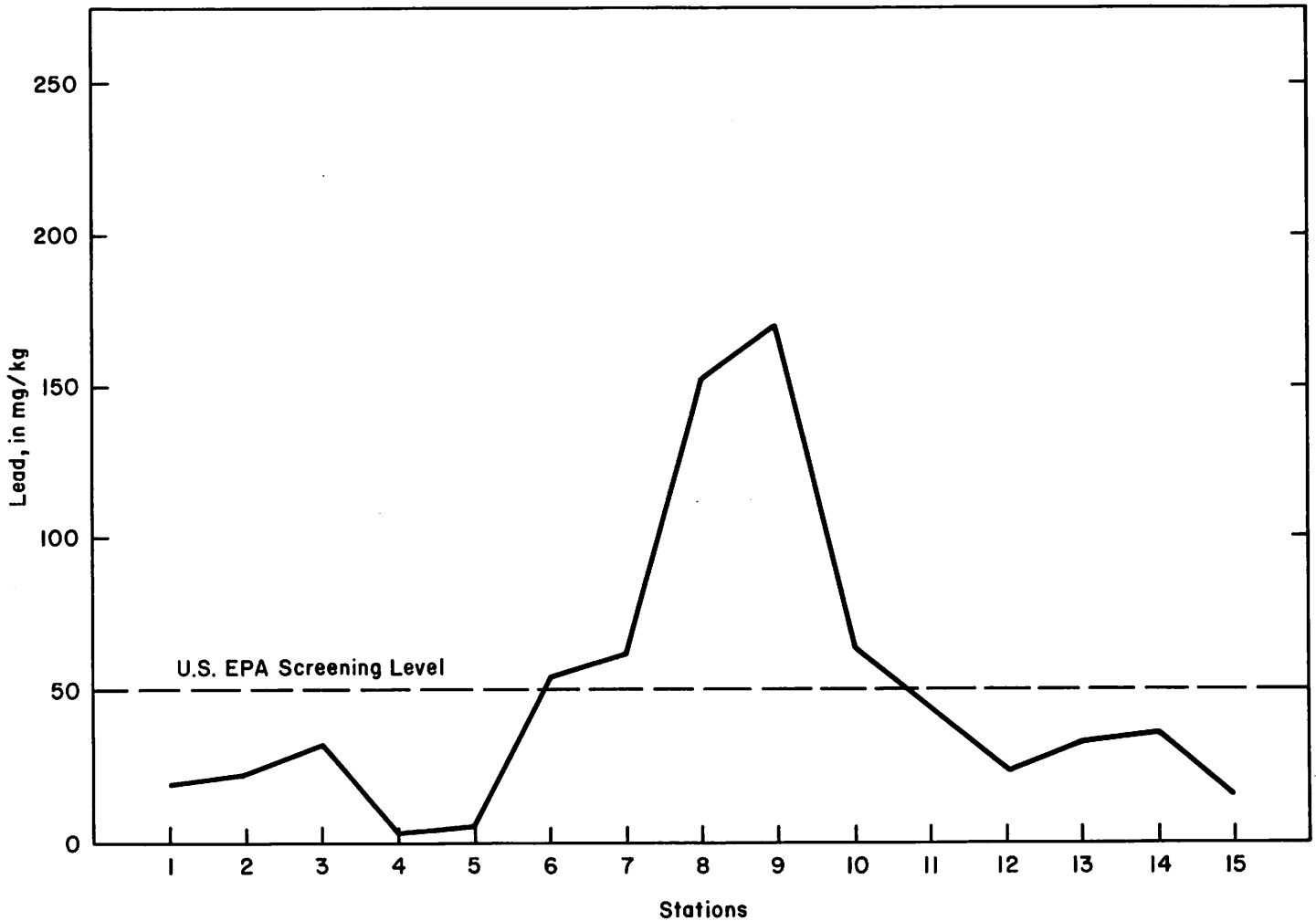

Figure 20

Lead in Sediment, August 1982

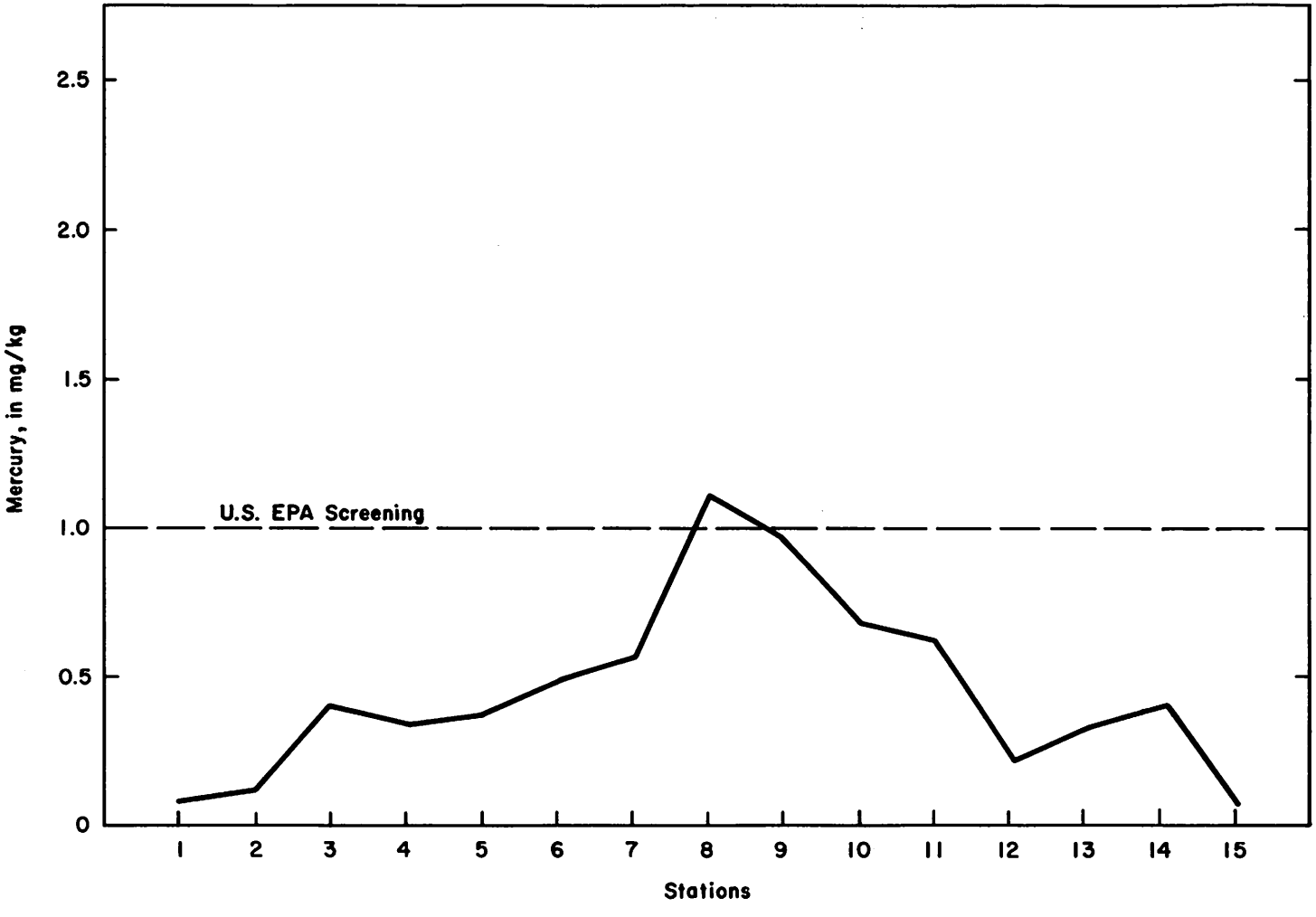

Figure 21

Mercury in Sediment, August 1982

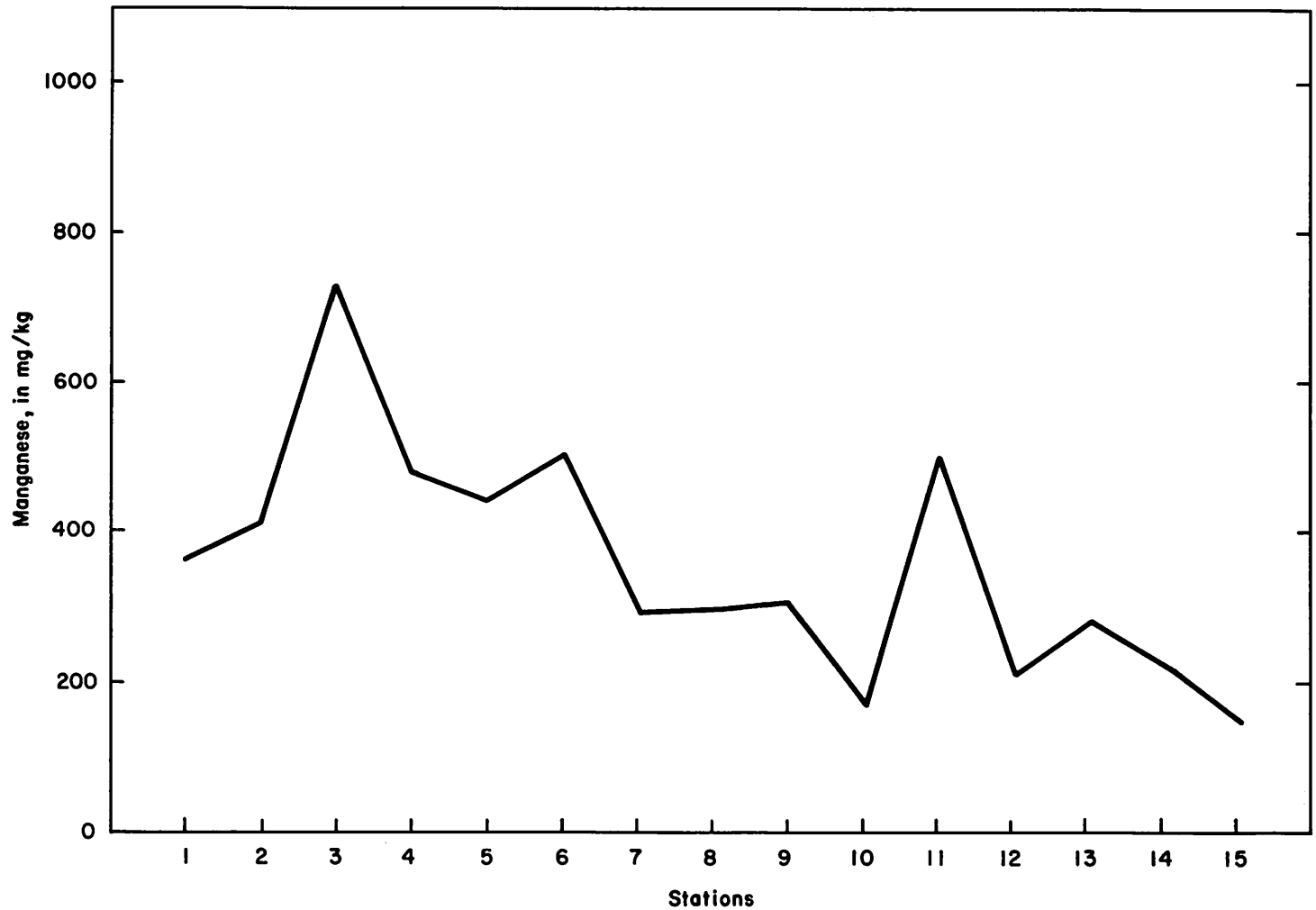

Figure 22

Manganese in Sediment, August 1982

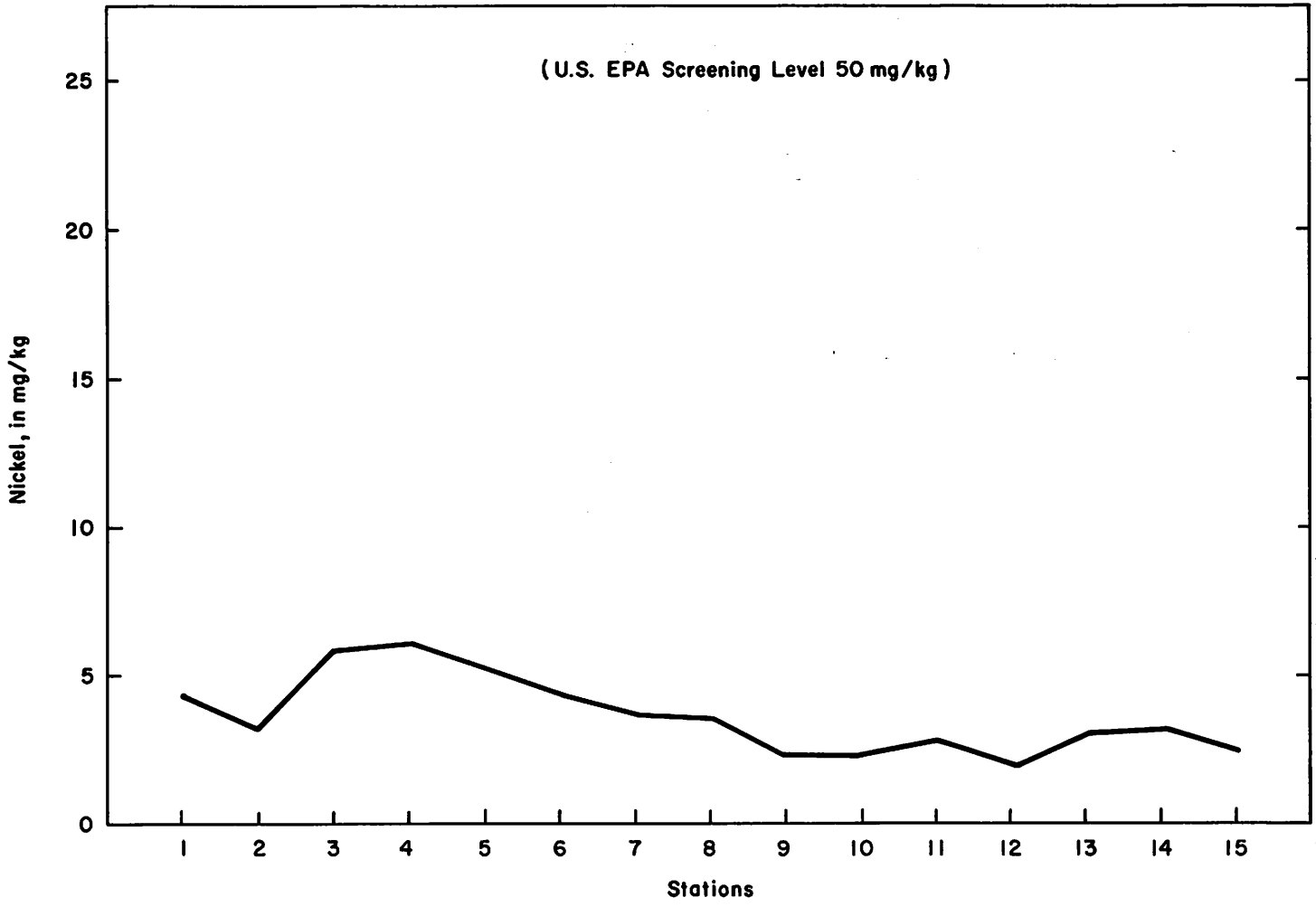

Figure 23

Nickel in Sediment, August 1982

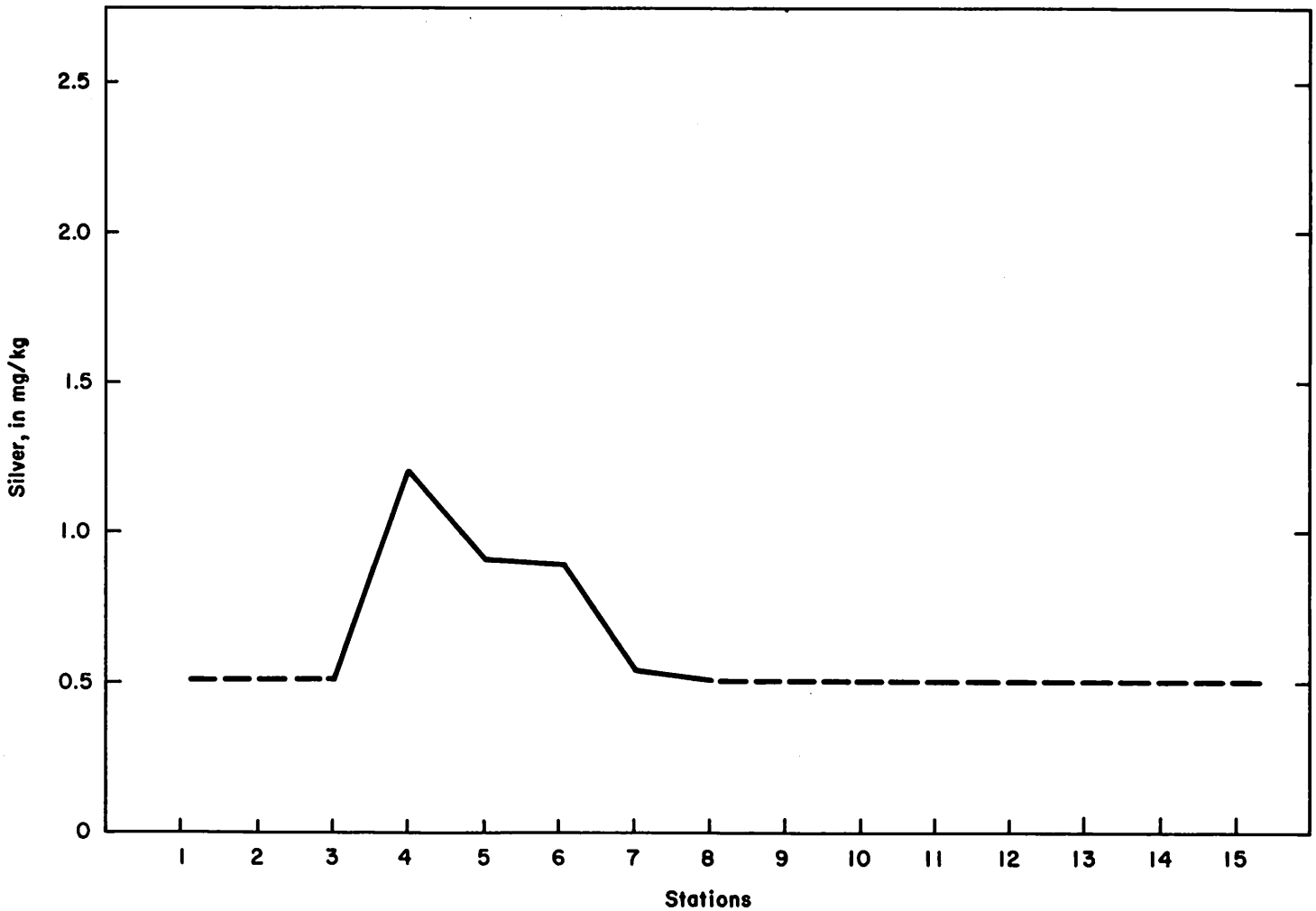

Figure 24

Silver in Sediment, August 1982

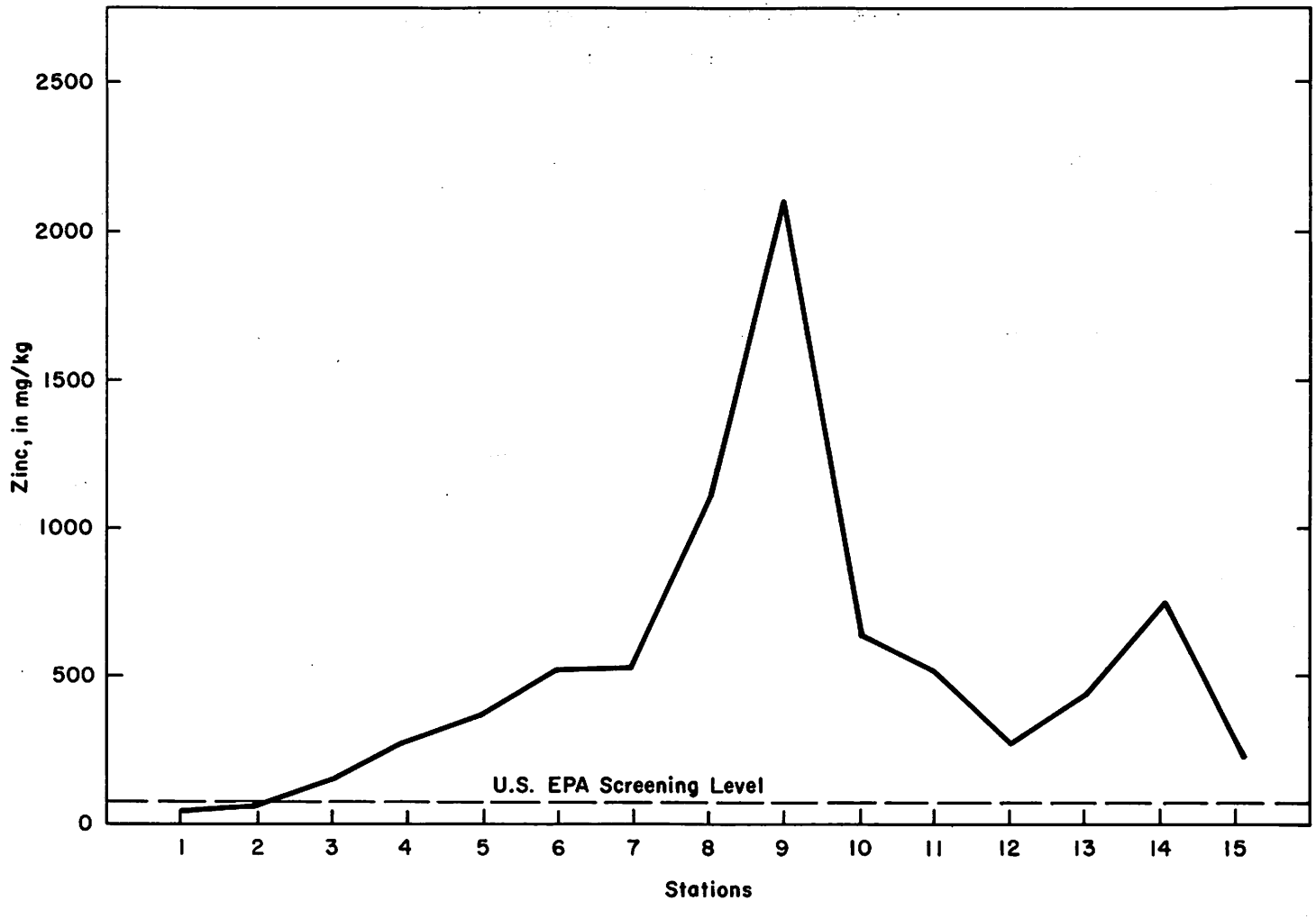

Figure 25

Zinc in Sediment, August 1982

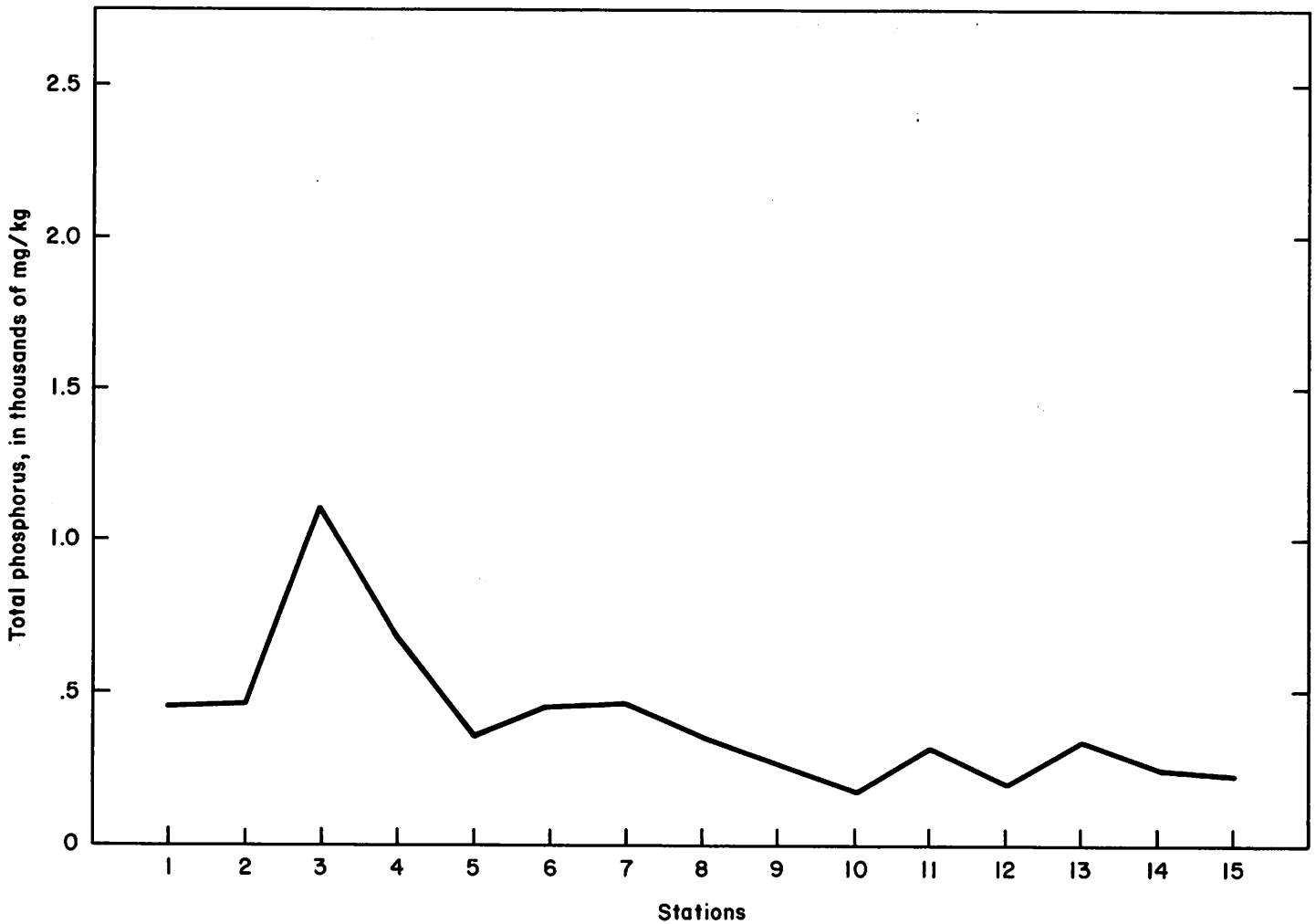

Figure 26
Total Phosphorus in Sediment, August 1982

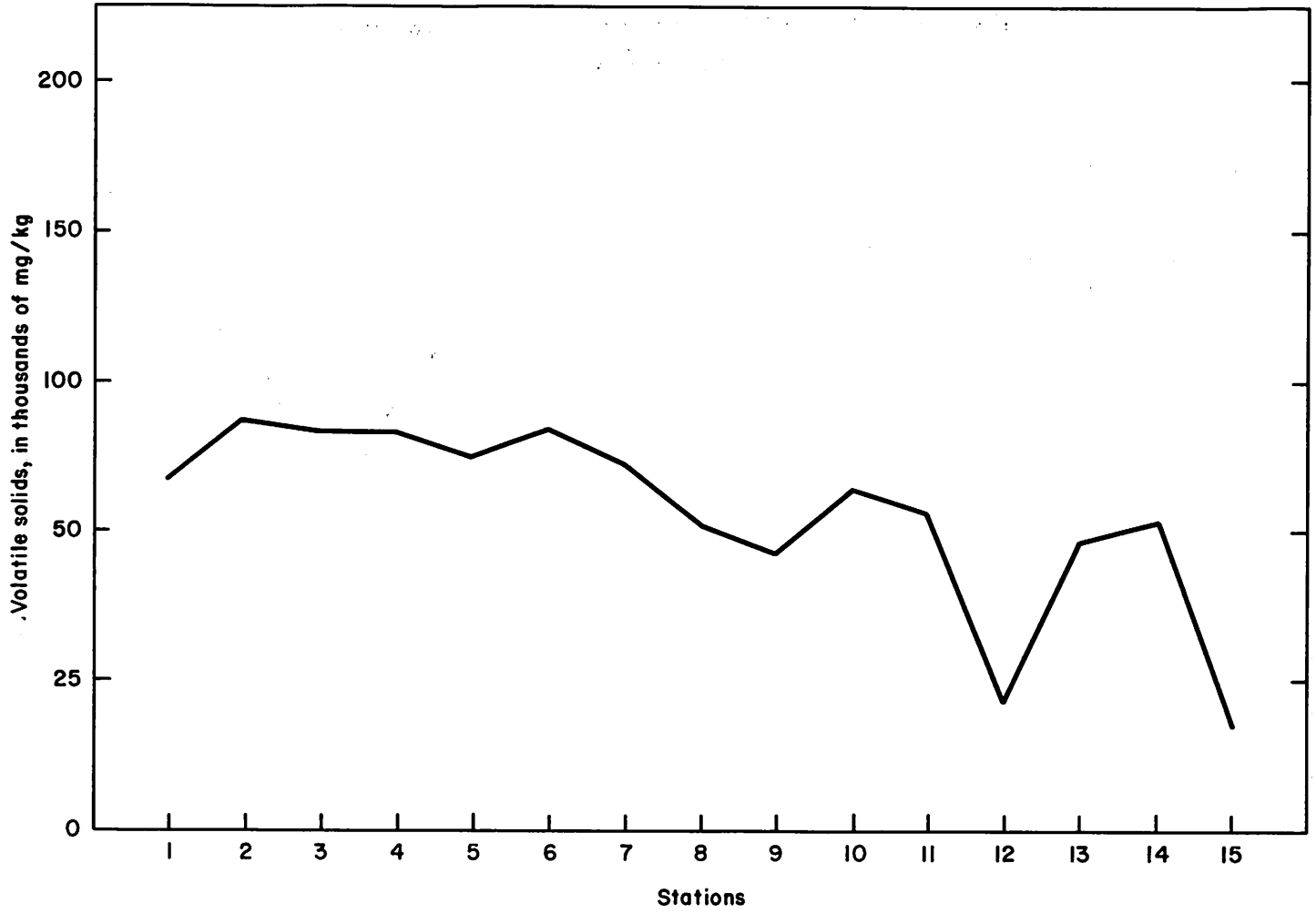

Figure 27
Volatile Solids in Sediment, August 1982

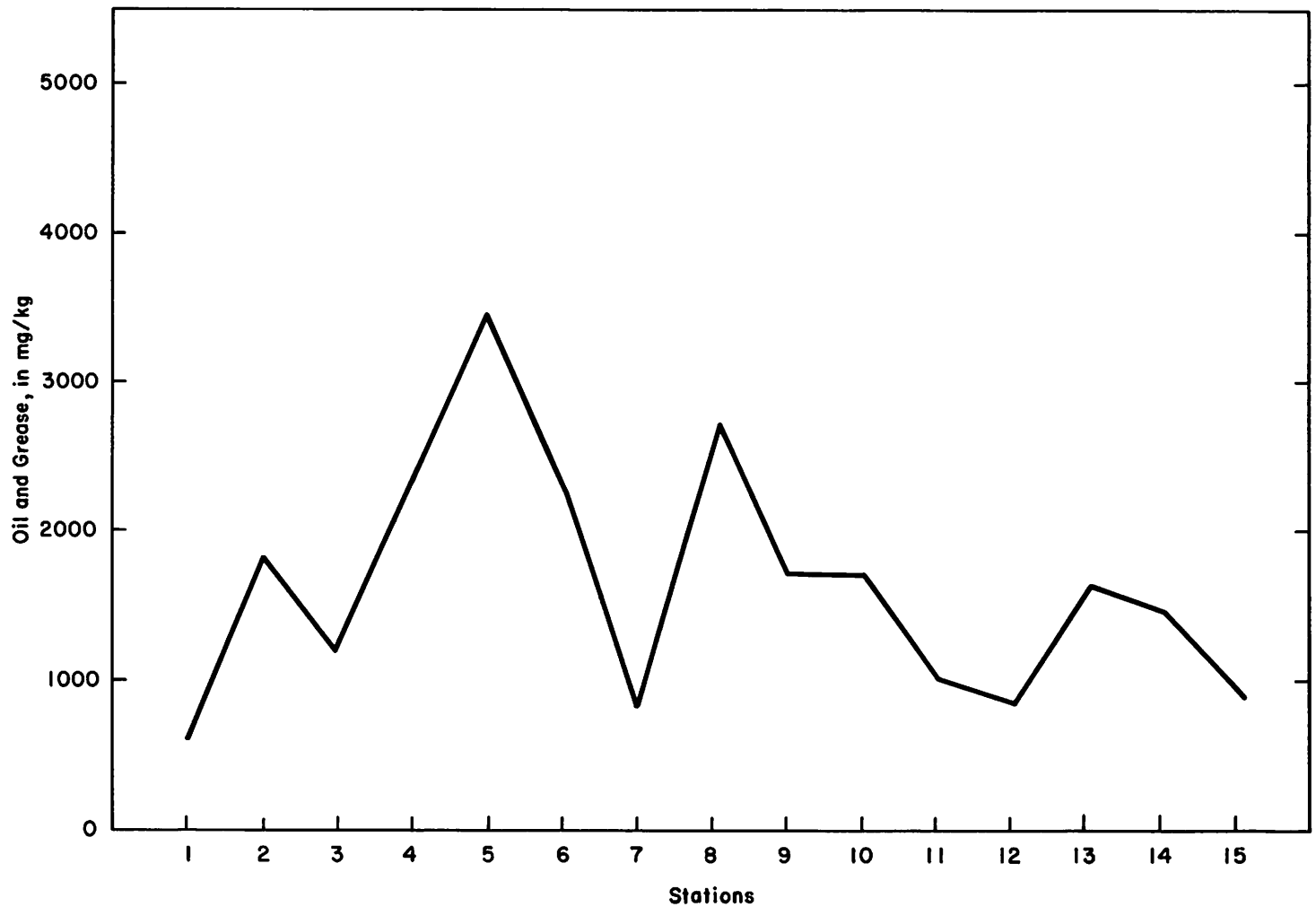

Figure 28

Oil and Grease in Sediment, August 1982

APPENDIX

Historical Data for Stations 2, 6, 8 and 15.

Selective Data Retrieval

Survey Station Number	S.M.S. No.	Description
2	2481.05	Corpus Christi Bay at Channel Marker 86
6	2484.01	Corpus Christi Inner Harbor at Avery Turning Basin
8	2484.02	Corpus Christi Inner Harbor at Navigation Blvd. Bridge
15	2484.03	Corpus Christi Inner Harbor at Viola Turning Basin

BAYS AND ESTUARIES

CORPUS CHRISTI BAY
2481.0500 NEAR CORPUS CHRISTI SHIP CHANNEL MARKER 86
DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 48 36 / 097 23 18

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
10/24/73	1555	1.0	TDWR	8.90	8.500	26.70	98.0*		.1440	.030	.1000
10/24/73	1600	10.0	TDWR	7.00	8.100	24.40					
10/24/73	1600	20.0	TDWR	3.30	8.000	23.90					
10/24/73	1600	30.0	TDWR	2.40	7.900	23.90					
11/19/73	1430	1.0	TDWR	7.90	8.300	24.40					
12/14/73	1200	1.0	TDWR	8.50	8.200	18.90					
12/14/73	1200	10.0	TDWR	7.40	8.020	17.50					
12/14/73	1200	20.0	TDWR	6.10	7.950	17.20					
12/14/73	1200	30.0	TDWR	5.80	7.920	17.50					
01/16/74	1240	1.0	TDWR	11.20	8.200	13.60	2.0		.0390	.030	.1000
01/16/74	1240	10.0	TDWR	9.70	8.000	13.10					
01/16/74	1240	20.0	TDWR	8.60	7.900	13.10					
01/16/74	1240	30.0	TDWR	8.70	7.850	13.10					
04/24/74	1030	1.0	TDWR	7.20	8.200	24.70	18.0		.0690	.030	.1000
07/23/74	0920	1.0	TDWR	5.50	8.200	29.50	27.0	7.00	.1240	.070	.2000
07/23/74	0920	40.0	TDWR	3.00	8.150	29.00		8.00	.0490	.030	.1000
08/01/74	1440	1.0	TDWR	6.60	8.250	30.00					
08/01/74	1440	10.0	TDWR	6.40	8.250	30.00					
08/01/74	1440	20.0	TDWR	4.40	8.200	29.50					
08/01/74	1440	30.0	TDWR	3.00	8.150	28.80					
08/01/74	1440	40.0	TDWR	2.60	8.100	28.50					
10/29/74	1000	1.0	TDWR	5.90	8.200	24.00	.0	10.00	.0620	.030	.1000
10/29/74	1000	10.0	TDWR	5.60	8.200	23.90					
10/29/74	1000	20.0	TDWR	6.40	8.300	23.30					
10/29/74	1000	30.0	TDWR	6.50	8.300	23.30					
10/29/74	1000	40.0	TDWR	6.40	8.300	23.30					
11/26/74	1130	1.0	TDWR	8.60	8.250	17.00					
11/26/74	1130	10.0	TDWR	8.50	8.300	17.00					
11/26/74	1130	15.0	TDWR	8.50	8.300	17.00					
11/26/74	1130	20.0	TDWR	8.40	8.350	17.00					
11/26/74	1130	30.0	TDWR	8.40	8.350	17.00					
11/26/74	1130	35.0	TDWR	8.30	8.350	17.00					
01/15/75	1425	1.0	TDWR	9.50	8.200	13.80	.0	7.00	.0750	.050	.1000
04/15/75	1120	1.0	TDWR	7.20		21.50	20.0			.900	.3000
04/15/75	1120	10.0	TDWR	7.20		21.00					
04/15/75	1120	20.0	TDWR	7.10		21.00					
04/15/75	1120	30.0	TDWR	6.90		21.00					
04/15/75	1120	35.0	TDWR	6.60		20.50					

Corpus Christi Inner Harbor Study

August 8-14, 1982

Survey Station No. 2
S.M.S. No. 2481.05

Corpus Christi Bay at Ship Channel Mkr. 86

AN ASTERISK (*) DENOTES A MEASUREMENT THAT IS NOT WITHIN STANDARDS.

BAYS AND ESTUARIES

CORPUS CHRISTI BAY
2461.0500 NEAR CORPUS CHRISTI SHIP CHANNEL MARKER 86
DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 48 36 / 097 23 18

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
04/15/75	1120	40.0	TDWR	6.50		20.50					
07/22/75	1115	1.0	TDWR	7.00	8.400	30.00	11.0			1.200	.0400
07/22/75	1115	10.0	TDWR	6.00	8.200	29.00					
07/22/75	1115	20.0	TDWR	3.00	8.100	28.00					
07/22/75	1115	30.0	TDWR	2.50	8.100	28.00					
07/22/75	1115	40.0	TDWR	.80	8.000	27.50					
07/30/75	1325	1.0	TDWR	12.00	8.950					1.750	1.0000
08/04/75	1000	1.0	TDWR	8.60	8.750	28.90				1.400	.7700
08/06/75	1330	1.0	TDWR	8.50	8.850	30.00				1.450	.1500
08/14/75	1315	1.0	TDWR	7.00	8.900					1.800	.4800
09/17/75	1400	1.0	TDWR	8.10	7.100	29.40				.100	.5800
10/14/75	1150	1.0	TDWR	5.60	8.300	26.00	14.0				.1900
10/14/75	1150	10.0	TDWR	5.50	8.300	26.00					
10/14/75	1150	20.0	TDWR	5.50	8.300	26.00					
10/14/75	1150	30.0	TDWR	5.50	8.300	26.00					
01/15/76	0930	1.0	TDWR	8.00	8.000	13.00			.0400		.0100
01/15/76	0930	10.0	TDWR	8.40		13.00					
01/15/76	0930	20.0	TDWR	8.40		13.00					
01/15/76	0930	30.0	TDWR	8.50		12.50					
01/15/76	0930	40.0	TDWR	9.20		12.50					
02/19/76	1330	1.0	TDWR	8.40	8.250	20.00					
02/19/76	1330	10.0	TDWR	8.40	8.300	19.50					
02/19/76	1330	20.0	TDWR	7.90	8.300	19.50					
02/19/76	1330	30.0	TDWR	7.80	8.350	19.50					
02/19/76	1330	35.0	TDWR	5.50	8.300	19.50					
02/19/76	1330	40.0	TDWR	4.90	8.200	19.50					
04/06/76	1430	1.0	TDWR	8.30	8.100	21.50	6.0	15.00	.0900		6.3000
04/06/76	1430	10.0	TDWR	7.10	8.100	21.00					
04/06/76	1430	20.0	TDWR	6.80	8.100	20.50					
04/06/76	1430	30.0	TDWR	6.70	8.100	20.50					
04/06/76	1430	37.0	TDWR	6.70	8.100	20.50					
07/13/76	1110	1.0	TDWR	8.80	8.400	28.00		9.00	.1700	.010	.0300
07/13/76	1110	10.0	TDWR	7.00	8.200	28.00					
07/13/76	1110	20.0	TDWR	6.00	8.300	27.00					
07/13/76	1110	30.0	TDWR	6.70	8.30	27.00					
10/12/76	1118	1.0	TDWR	8.60	8.600	23.00	3.0	7.00	.1200	.050 <	.030
10/12/76	1118	10.0	TDWR	7.00	8.400	22.50					
10/12/76	1118	20.0	TDWR	5.90	8.400	21.50					

BAYS AND ESTUARIES

CORPUS CHRISTI BAY
2481.0500 NEAR CORPUS CHRISTI SHIP CHANNEL MARKER 86
DISTRICT 12 COUNTY NUECES USGS GAGE 00000000 LAT / LONG 27 48 36 / 097 23 18

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
10/12/76	1118	30.0	TDWR	4.90	8.350	21.00					
10/12/76	1118	45.0	TDWR	1.40	8.300	20.50					
01/27/77	0725	1.0	TDWR	8.60	8.400	12.50					
01/27/77	0725	10.0	TDWR	8.00	8.400	11.50					
01/27/77	0725	20.0	TDWR	9.90	8.400	11.00					
01/27/77	0725	30.0	TDWR	7.40	8.400	10.50					
01/27/77	1055	1.0	TDWR	8.60	8.450	12.50					
01/27/77	1055	10.0	TDWR	8.00	8.400	11.50					
01/27/77	1055	20.0	TDWR	7.50	8.350	11.00					
01/27/77	1055	30.0	TDWR	7.40	8.350	10.50					
01/27/77	1430	1.0	TDWR	10.70	8.400	14.50					
01/27/77	1430	10.0	TDWR	10.20	8.400	12.50					
01/27/77	1430	20.0	TDWR	8.60	8.300	11.00					
01/27/77	1430	30.0	TDWR	7.90	8.300	10.50					
01/27/77	1740	1.0	TDWR	11.30	8.500	14.50					
01/27/77	1740	10.0	TDWR	9.70	8.400	13.00					
01/27/77	1740	20.0	TDWR	8.10	8.300	11.00					
01/27/77	1740	30.0	TDWR	10.30	8.300						
04/05/77	1230	1.0	TDWR	8.60	8.100	20.00					
04/05/77	1230	10.0	TDWR	8.30	8.100	20.00					
04/05/77	1230	20.0	TDWR	8.20	8.100	20.00					
04/05/77	1230	30.0	TDWR	6.60	8.100	20.00					
04/05/77	1230	35.0	TDWR	6.50	8.100	20.00					
09/14/77	1500	1.0	TDWR	5.50	8.30	29.00		10.0	.090 <	.030	.070
09/14/77	1500	10.0	TDWR	5.20	8.300	28.50					
09/14/77	1500	20.0	TDWR	5.20	8.350	28.00					
09/14/77	1500	30.0	TDWR	5.20	8.350	28.00					
09/14/77	1500	40.0	TDWR	5.10	8.350	28.00					
03/08/78	1130	1.0	TDWR	8.60	8.60	15.0					
03/08/78	1130	10.0	TDWR	8.40	8.60	15.0					
03/08/78	1130	20.0	TDWR	8.20	8.60	14.50					
03/08/78	1130	30.0	TDWR	8.10	8.60	14.50					
06/07/78	1425	1.0	TDWR	5.00	7.60	28.50	1500.0*	11.0	.280	.240	.50
08/22/78	COMP	1.0	TDWR					11.0	.070	.050	.080
08/22/78	0615	1.0	TDWR				.0				
08/22/78	1220	1.0	TDWR	5.90	8.20	30.50					
08/22/78	1220	10.0	TDWR	4.70	8.20	30.0					
08/22/78	1220	20.0	TDWR	3.80	8.150	30.0					

AN ASTERISK (*) DENOTES A MEASUREMENT THAT IS NOT WITHIN STANDARDS.

BAYS AND ESTUARIES

CORPUS CHRISTI BAY
2481.0500 NEAR CORPUS CHRISTI SHIP CHANNEL MARKER 86
DISTRICT 12 COUNTY NUECES USGS GAGE 00000000 LAT / LONG 27 48 36 / 097 23 18

SAMPLE DATE	TYPE	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	C0610 NH3-N TOTAL MG/L
08/22/78	1220	30.0	TDWR	2.80	8.10	29.50					
08/22/78	1220	40.0	TDWR	3.00	8.10	29.50					
02/08/79	0935	1.0	TDWR	9.70	8.30	11.00		4.0	.080	.100	.100
02/08/79	0935	10.0	TDWR	9.70	8.30	11.50					
02/08/79	0935	20.0	TDWR	9.50	8.30	11.50					
02/08/79	0935	30.0	TDWR	9.40	8.30	11.50					
02/08/79	0935	35.0	TDWR	9.30	8.30	11.50					
02/08/79	0936	1.0	TDWR				600.0*				
05/15/79	1606	1.0	TDWR	9.60	8.350	25.50		7.0	.060	.040 <	.050
05/15/79	1606	10.0	TDWR	6.10	8.050	24.00					
05/15/79	1606	20.0	TDWR	5.50	8.050	23.50					
05/15/79	1606	25.0	TDWR	5.50	8.050	23.50					
06/27/79	1055	1.0	TDWR	7.10	8.20	30.00					
06/27/79	1055	10.0	TDWR	5.50	8.050	29.50					
06/27/79	1055	20.0	TDWR	4.30	8.050	28.50					
06/27/79	1055	30.0	TDWR	3.10	8.00	28.50					
08/08/79	1130	1.0	TDWR	6.60	8.350	30.50		13.0	.080	.030 <	.050
08/08/79	1130	10.0	TDWR	6.00	8.350	30.50					
08/08/79	1130	20.0	TDWR	4.00	8.20	30.0					
08/08/79	1130	30.0	TDWR	3.60	8.10	29.50					
11/08/79	1100	1.0	TDWR	7.50	8.20	21.0	540.0*	10.0	.100	.080	.200
11/08/79	1100	10.0	TDWR	7.10	8.250	20.50					
11/08/79	1100	20.0	TDWR	7.40	8.30	20.50					
11/08/79	1100	30.0	TDWR	7.90	8.350	20.50					
02/04/80	1530	1.0	TDWR	8.30	7.60	12.30	25.0	4.0	.140	.210	.520
02/04/80	1530	10.0	TDWR	8.20	7.60	11.60					
02/04/80	1530	20.0	TDWR	8.50	7.60	10.90					
02/04/80	1530	30.0	TDWR	8.60	7.70	10.40					
05/05/80	1215	1.0	TDWR	6.60	7.60	24.20	< 2.0	9.50	.030	.070 <	.050
05/05/80	1215	10.0	TDWR	6.60	7.60	23.90					
05/05/80	1215	20.0	TDWR	6.00	7.60	23.50					
05/05/80	1215	30.0	TDWR	5.40	7.50	22.60					
05/05/80	1215	40.0	TDWR	5.10	7.50	22.40					
05/05/80	1215	50.0	TDWR	4.90	7.50	22.40					
08/26/80	1105	1.0	TDWR	6.80	7.90	30.50	10.0	5.0	.080 <	.030	.050
08/26/80	1105	10.0	TDWR	5.10	7.90	30.50					
08/26/80	1105	20.0	TDWR	3.40	7.90	30.0					
08/26/80	1105	30.0	TDWR	2.00	7.90	29.50					

AN ASTERISK (*) DENOTES A MEASUREMENT THAT IS NOT WITHIN STANDARDS.

BAYS AND ESTUARIES

CORPUS CHRISTI BAY
2481.0500 NEAR CORPUS CHRISTI SHIP CHANNEL MARKER 86
DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 48 36 / 097 23 18

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
08/26/80	1105	40.0	TDWR	2.20	7.90	29.0					
10/30/80	1108	1.0	TDWR	7.60	8.30	19.70	620.0*	4.0	.060	.050	.240
10/30/80	1108	10.0	TDWR	7.40	8.30	19.50					
10/30/80	1108	20.0	TDWR	7.60	8.30	19.00					
10/30/80	1108	30.0	TDWR	7.80	8.350	17.50					
10/30/80	1108	40.0	TDWR	7.80	8.350	18.00					
02/03/81	0955	1.0	TDWR	7.80	7.30	14.10	70.0	6.00 <	.010 <	.030	.180
02/03/81	0955	10.0	TDWR	8.10	7.80	13.90					
02/03/81	0955	20.0	TDWR	8.20	7.80	13.50					
02/03/81	0955	30.0	TDWR	8.30	7.80	13.30					
02/03/81	0955	40.0	TDWR	8.50	7.90	13.30					
05/05/81	0915	1.0	TDWR	4.50*	7.40	25.60	> 10000.0*	6.0	.190	.330	.510
08/13/81	1001	1.0	TDWR	6.00	7.90	30.30		9.0	.140 <	.030 <	.050
08/13/81	1001	10.0	TDWR	5.30	8.00	29.70					
08/13/81	1001	20.0	TDWR	4.10	8.00	30.0					
08/13/81	1001	30.0	TDWR	3.00	7.90	30.0					
08/13/81	1001	40.0	TDWR	2.40	7.90	29.80					
11/12/81	1224	1.0	TDWR	10.10	8.40	19.00	120.0*	6.0	.130 <	.030 <	.050
11/12/81	1224	10.0	TDWR	9.10	8.40	20.00					
11/12/81	1224	20.0	TDWR	7.20	8.30	20.50					
11/12/81	1224	30.0	TDWR	7.70	8.30	21.00					
11/12/81	1224	40.0	TDWR	7.60	8.20	21.50					
02/10/82	1604	1.0	TDWR	8.90	8.350	10.00		6.0	.090 <	.030 <	.050
02/10/82	1604	10.0	TDWR	9.20	8.350	10.00					
02/10/82	1604	20.0	TDWR	9.20	8.350	10.00					
02/10/82	1604	30.0	TDWR	9.10	8.40	10.20					
02/10/82	1604	40.0	TDWR	8.60	8.350	10.20					
05/11/82	1320	1.0	TDWR	7.80	7.70	24.10	90.0*<	5.0	.170	.070	.070
05/11/82	1320	10.0	TDWR		7.90	24.10					
05/11/82	1320	20.0	TDWR		7.80	23.90					
05/11/82	1320	30.0	TDWR		7.90	23.80					
05/11/82	1320	40.0	TDWR		7.70	23.80					

AN ASTERISK (*) DENOTES A MEASUREMENT THAT IS NOT WITHIN STANDARDS.

BAYS AND ESTUARIES

CORPUS CHRISTI BAY
2481.0500 NEAR CORPUS CHRISTI SHIP CHANNEL MARKER 86
DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 48 36 / 097 23 18

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L

STATION SUMMARY

	DO MG/L	PH SU	WATER TEMP CENT	TOT COLI MFIMENDO /100ML	T ORG C MG/L	PHOS-T P-WET MG/L	NO3-N TOTAL MG/L	NH3-N TOTAL MG/L
AVERAGE	6.9		21.1		7.9	.099	.31	.375
GEOMETRIC MEAN				49.				
MAXIMUM	12.0	8.95	30.5	10000.	15.0	.280	1.80	6.300
MINIMUM	.8	7.10	10.0	0.	4.0	.010	.01	.010
NUMBER OF SAMPLES	177	171	178	20	24	28	33	36

SEGMENT STANDARDS

	DO MG/L	PH SU	WATER TEMP CENT	TOT COLI MFIMENDO /100ML	T ORG C MG/L	PHOS-T P-WET MG/L	NO3-N TOTAL MG/L	NH3-N TOTAL MG/L
EFFECTIVE DATE: 10/01/67 DEPTH: 1.0 AGENCY: TDWR								
MAXIMUM		9.00	35.0	70.0				
MINIMUM	5.00	6.50						

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0100 IN AVERY TURNING BASIN
DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 49 13 / 097 25 44

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
10/24/73	1630	1.0	TDWR	9.80	8.500	26.70	52.0		.1860	.030	.3000
10/24/73	1630	10.0	TDWR	3.40	8.250	26.10					
10/24/73	1630	20.0	TDWR	2.10	8.100	25.00					
10/24/73	1630	30.0	TDWR	1.30	8.000	25.00					
11/19/73	1500	1.0	TDWR	6.80	8.250	24.40					
12/14/73	1115	1.0	TDWR	8.90	8.120	18.90					
12/14/73	1115	10.0	TDWR	8.20	8.000	18.30					
12/14/73	1115	20.0	TDWR	6.60	7.900	18.90					
12/14/73	1115	30.0	TDWR	4.70	7.800	18.50					
01/16/74	1330	1.0	TDWR	12.20	8.050	16.40	32.0		.1310	.160	.3000
01/16/74	1330	10.0	TDWR	10.10	8.000	15.60					
01/16/74	1330	20.0	TDWR	7.80	7.900	14.40					
01/16/74	1330	30.0	TDWR	8.50	7.950	13.10					
02/21/74	1040	1.0	TDWR						.0850	.040	.4000
02/21/74	1040	35.0	TDWR						.0490	.040	.1000
04/24/74	1050	1.0	TDWR	7.00	8.150	24.70	8.0		.0950	.030	.1000
07/12/74	1343	1.0	TDWR	6.00	8.100	29.60		51.00	.1140	.030	.1000
07/12/74	1343	10.0	TDWR	5.00	8.050	29.40					
07/12/74	1343	15.0	TDWR	4.40	8.050	29.20					
07/12/74	1343	20.0	TDWR	4.00	8.050	28.90					
07/12/74	1343	30.0	TDWR	3.60	8.100	28.60					
07/12/74	1343	35.0	TDWR	3.20	8.100	28.30					
07/12/74	1343	40.0	TDWR	3.30	8.100	28.10					
08/01/74	1340	1.0	TDWR	8.40	8.250	30.50					
08/01/74	1340	10.0	TDWR	7.20	8.200	30.50					
08/01/74	1340	20.0	TDWR	2.70	8.100	29.80					
08/01/74	1340	30.0	TDWR	1.80	8.050	29.50					
08/01/74	1340	40.0	TDWR	.80	8.000	29.00					
09/23/74	1020	1.0	TDWR	7.00	7.600	26.00					
10/29/74	1025	1.0	TDWR	5.20	8.100	24.50	.0	11.00	.0980	.090	.1000
10/29/74	1025	10.0	TDWR	5.00	8.150	24.40					
10/29/74	1025	15.0	TDWR	4.80	8.100	24.40					
10/29/74	1025	20.0	TDWR	4.30	8.000	24.40					
10/29/74	1025	30.0	TDWR	3.50	8.050	23.90					
10/29/74	1025	35.0	TDWR	4.10	8.150	23.30					
10/29/74	1025	40.0	TDWR	4.00	8.200	23.30					
11/26/74	1447	1.0	TDWR	8.50	8.250	20.00					
11/26/74	1447	10.0	TDWR	7.60	8.200	20.00					

Corpus Christi Inner Harbor Study

August 8-14, 1982

Survey Station No. 6
S.M.S. No. 2484.01

Corpus Christi Inner Harbor at
Avery Turning Basin

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0100 IN AVERY TURNING BASIN
DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 49 13 / 097 25 44

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
11/26/74	1447	15.0	TDWR	7.50	8.200	19.80					
11/26/74	1447	20.0	TDWR	7.30	8.200	19.80					
11/26/74	1447	30.0	TDWR	7.10	8.200	19.50					
11/26/74	1447	35.0	TDWR	7.30	8.350	19.00					
11/26/74	1447	40.0	TDWR	7.30	8.300	17.50					
01/15/75	1435	1.0	TDWR	9.50	8.000	15.30	5.0	7.00	.0750	.170	.5000
02/14/75	1440	1.0	TDWR	7.10	8.200	16.00					
02/14/75	1440	10.0	TDWR	7.10	8.200	16.00					
02/14/75	1440	15.0	TDWR	7.20	8.200	16.00					
02/14/75	1440	20.0	TDWR	7.30	8.200	16.00					
02/14/75	1440	30.0	TDWR	7.30	8.200	15.50					
02/14/75	1440	35.0	TDWR	7.30	8.200	15.50					
02/14/75	1440	40.0	TDWR	7.30	8.200	15.50					
03/10/75	1015	1.0	TDWR	7.90	8.200	20.00					
03/10/75	1015	10.0	TDWR	7.90	8.300	19.50					
03/10/75	1015	15.0	TDWR	7.80	8.300	19.50					
03/10/75	1015	20.0	TDWR	7.50	8.300	19.50					
03/10/75	1015	30.0	TDWR	6.80	8.200	19.00					
03/10/75	1015	35.0	TDWR	6.80	8.200	19.00					
03/10/75	1015	40.0	TDWR	7.20	8.300	19.00					
04/15/75	1235	1.0	TDWR	5.80	8.300	21.50	.0			1.000	.3000
04/15/75	1235	10.0	TDWR	5.80	8.400	21.00					
04/15/75	1235	20.0	TDWR	5.50	8.300	21.00					
04/15/75	1235	30.0	TDWR	5.00		21.00					
04/15/75	1235	35.0	TDWR	4.70	8.300	21.00					
04/15/75	1235	40.0	TDWR	4.60	8.300	21.00					
05/27/75	1030	1.0	TDWR	6.50	8.200	27.80					
07/22/75	1145	1.0	TDWR	8.40	8.300	29.50	17.0			1.200	.0900
07/22/75	1145	10.0	TDWR	7.50	8.200	29.50					
07/22/75	1145	20.0	TDWR	4.60	8.100	29.00					
07/22/75	1145	30.0	TDWR	2.60	8.100	27.50					
07/22/75	1145	40.0	TDWR	1.80	8.100	27.50					
10/14/75	1205	1.0	TDWR	6.20	8.300	26.50	270.0		.0600		.3700
10/14/75	1205	10.0	TDWR	5.90	8.300	26.50					
10/14/75	1205	20.0	TDWR	5.50	8.300	26.50					
10/14/75	1205	30.0	TDWR	5.10	8.300	26.50					
01/15/76	0940	1.0	TDWR	8.10	8.100	13.00			.0500		.7900
01/15/76	0940	10.0	TDWR	8.40		13.00					

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0100 IN AVERY TURNING BASIN
DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 49 13 / 097 25 44

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
01/15/76	0940	20.0	TDWR	8.40		12.50					
01/15/76	0940	30.0	TDWR	8.40		12.50					
01/15/76	0940	40.0	TDWR	8.40		12.50					
02/19/76	1430	1.0	TDWR	9.90	8.300	20.00					
02/19/76	1430	10.0	TDWR	9.40	8.300	20.00					
02/19/76	1430	20.0	TDWR	7.00	8.200	19.50					
02/19/76	1430	30.0	TDWR	6.40	8.200	19.50					
02/19/76	1430	35.0	TDWR	6.00	8.200	19.50					
02/19/76	1430	40.0	TDWR	5.70	8.200	19.50					
04/06/76	1455	1.0	TDWR	7.80	8.100	22.00	8.0	19.00	.0900		3.4000
04/06/76	1455	10.0	TDWR	7.60	8.100	22.00					
04/06/76	1455	20.0	TDWR	6.20	8.050	21.50					
04/06/76	1455	30.0	TDWR	5.30	8.050	21.50					
04/06/76	1455	40.0	TDWR	4.90	8.050	21.00					
07/13/76	1130	1.0	TDWR	6.20	8.000	27.50	13.0	12.00	.2400	.200	2.0000
07/13/76	1130	10.0	TDWR	5.40	8.100	27.50					
07/13/76	1130	20.0	TDWR	4.20	8.100	27.00					
07/13/76	1130	30.0	TDWR	4.60	8.200	26.00					
07/13/76	1130	35.0	TDWR	4.80	8.200	26.50					
10/12/76	1145	1.0	TDWR	8.30	8.500	23.50	< 1.0	12.00	.1400	.140	< .030
10/12/76	1145	10.0	TDWR	7.50	8.400	23.50					
10/12/76	1145	20.0	TDWR	5.10	8.400	22.50					
10/12/76	1145	30.0	TDWR	4.70	8.400	21.50					
10/12/76	1145	40.0	TDWR	4.00	8.400	21.00					
01/05/77	1445	1.0	TDWR	15.50	8.600	11.50	110.0	8.00	.1200	< .030	< .030
01/05/77	1445	10.0	TDWR	10.60	8.350	12.00					
01/05/77	1445	20.0	TDWR	10.20	8.350	11.50					
01/05/77	1445	30.0	TDWR	10.00	8.350	11.00					
01/05/77	1445	40.0	TDWR	9.90	8.350	10.50					
01/27/77	0740	1.0	TDWR	10.50	8.350	13.50					
01/27/77	0740	10.0	TDWR	10.50	8.400	12.50					
01/27/77	0740	20.0	TDWR	7.60	8.400	11.00					
01/27/77	0740	30.0	TDWR	7.30	8.400	11.00					
01/27/77	1120	1.0	TDWR	9.50	8.400	14.00					
01/27/77	1120	10.0	TDWR	8.70	8.400	12.50					
01/27/77	1120	20.0	TDWR	7.70	8.300	11.50					
01/27/77	1120	30.0	TDWR	7.30	8.300	11.00					
01/27/77	1450	1.0	TDWR	10.20	8.600	17.00					

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0100 IN AVERY TURNING BASIN
DISTRICT 12 COUNTY NUECES USGS GAGE 00000000 LAT / LONG 27 49 13 / 097 25 44

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
01/27/77	1450	10.0	TDWR	9.70	8.500	12.50					
01/27/77	1450	20.0	TDWR	7.60	8.300	11.00					
01/27/77	1450	30.0	TDWR	7.10	8.300	10.50					
01/27/77	1800	1.0	TDWR	16.40	8.800	15.50					
01/27/77	1800	10.0	TDWR	11.20	8.500	12.50					
01/27/77	1800	20.0	TDWR	8.00	8.300	11.00					
01/27/77	1800	30.0	TDWR	9.20	8.300	10.50					
04/05/77	1215	1.0	TDWR	6.40	7.900	21.00	9.0	12.00	.2400	.100	.4000
04/05/77	1215	10.0	TDWR	6.10	7.950	20.50					
04/05/77	1215	20.0	TDWR	5.90	8.000	20.50					
04/05/77	1215	30.0	TDWR	5.80	8.000	20.50					
04/05/77	1215	40.0	TDWR	5.60	8.000	20.50					
07/05/77	1705	1.0	TDWR	7.70	8.300	30.00	< 10.0	15.00	.0900	< .030	< .050
07/05/77	1705	10.0	TDWR	7.20	8.300	29.50					
07/05/77	1705	20.0	TDWR	5.20	8.200	29.00					
07/05/77	1705	30.0	TDWR	3.00	8.050	28.00					
07/05/77	1705	35.0	TDWR	2.30	8.050	27.00					
09/14/77	1510	1.0	TDWR	5.00	8.20	30.0		9.0	.070	.050	.250
09/14/77	1510	10.0	TDWR	4.10	8.100	29.50					
09/14/77	1510	20.0	TDWR	4.00	8.100	29.50					
09/14/77	1510	30.0	TDWR	3.50	8.150	29.00					
09/14/77	1510	35.0	TDWR	3.60	8.150	29.00					
12/28/77	1505	1.0	TDWR	7.80	8.50	15.00	22.0	10.0	.080	.200	.390
03/07/78	1145	1.0	TDWR	8.10	8.50	15.00	10.0	9.0	.040	.240	.420
03/07/78	1145	10.0	TDWR	8.30	8.550	14.80					
03/07/78	1145	20.0	TDWR	8.20	8.550	14.50					
03/07/78	1145	30.0	TDWR	8.20	8.550	14.50					
06/07/78	1440	1.0	TDWR	5.20	7.70	28.50	210.0	13.0	.250	.220	.350
09/06/78	1145	1.0	TDWR		8.050	29.0	96.0	10.0	.090	.120	.230
09/06/78	1145	10.0	TDWR	4.70	8.060	29.0					
09/06/78	1145	20.0	TDWR	3.80	8.080	29.50					
09/06/78	1145	30.0	TDWR	3.70	8.10	29.50					
09/06/78	1145	40.0	TDWR	3.70	8.120	29.50					
02/08/79	0950	1.0	TDWR	9.80	8.40	12.0	700.0	9.0	.100	.200 <	.050
02/08/79	0950	10.0	TDWR	10.80	8.450	12.0					
02/08/79	0950	20.0	TDWR	9.70	8.40	12.0					
02/08/79	0950	30.0	TDWR	9.50	8.40	11.50					
02/08/79	0950	36.0	TDWR	9.50	8.40	11.50					

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0100 IN AVERY TURNING BASIN
DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 49 13 / C97 25 44

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
05/15/79	1617	1.0	TDWR	7.90	8.20	24.50		8.0	.080	.140 <	.050
05/15/79	1617	10.0	TDWR	7.40	8.20	24.50					
05/15/79	1617	20.0	TDWR	6.10	8.00	24.30					
05/15/79	1617	30.0	TDWR	5.40	8.00	24.00					
05/15/79	1617	40.0	TDWR	5.10	8.00	23.70					
08/08/79	1145	1.0	TDWR	5.60	8.30	30.50		13.0	.090 <	.030	.090
08/08/79	1145	10.0	TDWR	5.00	8.250	30.0					
08/08/79	1145	20.0	TDWR	4.80	8.250	30.0					
08/08/79	1145	30.0	TDWR	3.80	8.180	29.50					
08/08/79	1145	40.0	TDWR	3.30	8.150	29.50					
11/08/79	1115	1.0	TDWR	5.70	8.150	21.50	450.0	12.0	.140	.200	.430
11/08/79	1115	10.0	TDWR	5.60	8.150	21.50					
11/08/79	1115	20.0	TDWR	5.40	8.150	21.50					
11/08/79	1115	30.0	TDWR	5.40	8.20	21.50					
11/08/79	1115	35.0	TDWR	5.40	8.20	21.50					
02/04/80	1515	1.0	TDWR	8.40	7.50	12.80	10.0	4.0	.130	.290	.550
02/04/80	1515	10.0	TDWR	8.50	7.50	12.80					
02/04/80	1515	20.0	TDWR	8.20	7.60	12.40					
02/04/80	1515	30.0	TDWR	8.20	7.60	11.90					
05/05/80	1227	1.0	TDWR	5.80	7.60	23.70	220.0	4.70	.040	.140 <	.050
05/05/80	1227	10.0	TDWR	5.30	7.60	22.90					
05/05/80	1227	20.0	TDWR	5.10	7.60	22.90					
05/05/80	1227	30.0	TDWR	5.10	7.60	22.90					
05/05/80	1227	40.0	TDWR	4.60	7.60	22.80					
08/26/80	1120	1.0	TDWR	6.60	7.90	30.50	790.0	4.0	.080 <	.030	.060
08/26/80	1120	10.0	TDWR	5.50	7.90	30.0					
08/26/80	1120	20.0	TDWR	4.00	7.90	29.50					
08/26/80	1120	30.0	TDWR	2.30	7.90	29.50					
08/26/80	1120	40.0	TDWR	1.30	7.90	29.0					
10/30/80	1132	1.0	TDWR	7.30	8.250	20.50	10.0	4.0	.090	.200	.380
10/30/80	1132	10.0	TDWR	7.00	8.250	20.50					
10/30/80	1132	20.0	TDWR	6.80	8.20	20.50					
10/30/80	1132	30.0	TDWR	6.60	8.20	20.50					
10/30/80	1132	40.0	TDWR	6.90	8.30	19.00					
02/03/81	1015	1.0	TDWR	8.30	7.70	13.80	870.0	7.50	.090	.100	.250
02/03/81	1015	10.0	TDWR	8.50	7.90	13.70					
02/03/81	1015	20.0	TDWR	8.50	7.90	13.70					
02/03/81	1015	30.0	TDWR	8.50	7.80	13.80					

BAYS AND ESTUARIES

CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN

2484.0100 IN AVERY TURNING BASIN

DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 49 13 / 097 25 44

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
02/03/81	1015	40.0	TDWR	8.30	7.80	13.90					
05/05/81	0945	1.0	TDWR	4.60*	7.60	25.60	310.0	5.0	.160	.350	.510
08/13/81	1025	1.0	TDWR	5.90	8.00	30.30		5.0	.130 <	.030 <	.050
08/13/81	1025	10.0	TDWR	5.40	8.00	30.20					
08/13/81	1025	20.0	TDWR	4.70	8.00	30.10					
08/13/81	1025	30.0	TDWR	4.60	8.00	30.10					
08/13/81	1025	40.0	TDWR	3.80	8.00	30.10					
11/12/81	1238	1.0	TDWR	9.20	8.40	20.00		7.0	.140 <	.030	.080
11/12/81	1238	10.0	TDWR	7.80	8.40	20.50					
11/12/81	1238	20.0	TDWR	7.00	8.350	21.00					
11/12/81	1238	30.0	TDWR	6.00	8.30	21.30					
11/12/81	1238	40.0	TDWR	6.10	8.30	21.30					
02/10/82	1535	1.0	TDWR	10.30	8.450	11.50		8.0	.220	.210	.250
02/10/82	1535	10.0	TDWR	9.60	8.450	11.50					
02/10/82	1535	20.0	TDWR	9.60	8.50	11.50					
02/10/82	1535	30.0	TDWR	9.10	8.450	11.00					
02/10/82	1535	40.0	TDWR	8.30	8.350	10.00					
05/11/82	1304	1.0	TDWR	7.10	8.10	24.10	60.0 <	5.0	.120	.260	.320
05/11/82	1305	10.0	TDWR	6.80	8.10	23.90					
05/11/82	1305	20.0	TDWR	6.30	8.10	23.80					
05/11/82	1305	30.0	TDWR	6.10	8.10	23.70					
05/11/82	1305	40.0	TDWR		8.10	23.70					

AN ASTERISK (*) DENOTES A MEASUREMENT THAT IS NOT WITHIN STANDARDS.

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0100 IN AVERY TURNING BASIN
DISTRICT 12 COUNTY NUECES USGS GAGE 00000000 LAT / LONG 27 49 13 / 097 25 44

SAMPLE DATE	TYPE	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L

STATION SUMMARY

AVERAGE	6.6		21.1		10.5	.114	.19	.382
GEOMETRIC MEAN				44.				
MAXIMUM	16.4	8.80	30.5	870.	51.0	.250	1.20	3.400
MINIMUM	.8	7.50	10.0	0.	4.0	.040	.03	.030
NUMBER OF SAMPLES	208	205	210	25	28	35	34	37

SEGMENT STANDARDS

	DO MG/L	PH SU	WATER TEMP CENT	TOT COLI MFIMENDO /100ML	T ORG C MG/L	PHOS-T P-WET MG/L	NO3-N TOTAL MG/L	NH3-N TOTAL MG/L
EFFECTIVE DATE: 10/01/67 DEPTH: 1.0 AGENCY: TDWR								
MAXIMUM		9.00	35.0					
MINIMUM	5.00	6.50						

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0200 NEAR NAVIGATION BLVD. DRAW BRIDGE
DISTRICT 12 COUNTY NUECES USGS GAGE 00000000 LAT / LONG 27 49 10 / 097 27 00

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
04/17/69	0915	COMP	TDWR		8.450				.0650	.300	1.0000
04/17/69	0940	COMP	TDWR		8.500				.0650	.300	1.0000
04/17/69	0945	COMP	TDWR		8.600				.0650	.300	1.0000
04/17/69	1005	COMP	TDWR		8.550				.0650	.300	1.0000
04/17/69	1030	COMP	TDWR		8.500				.0650	.300	1.0000
04/17/69	1045	COMP	TDWR		8.300				.0650	.300	1.0000
04/17/69	1100	COMP	TDWR		8.300				.0650	.300	1.0000
04/17/69	1115	COMP	TDWR		8.100				.0650	.300	1.0000
05/22/69	1200	1.0	TDWR	3.50*	8.500	26.70			.0650	.300	1.0000
09/23/69	1305	1.0	TDWR	4.10*		30.00			.1310	.050	.0700
12/10/69	1300	1.0	TDWR	4.30*		15.00			.0100	.050	.2800
03/25/70	1100	1.0	TDWR	6.50		18.50			.1760	.080	3.1000
06/17/70	1200	1.0	TDWR	5.50		27.80			.0980	.030	.1000
09/24/70	1600	1.0	TDWR	3.10*		29.40			.1440	.030	.1000
10/27/70	1115	1.0	TDWR	3.50*		25.00			.1570	.030	.5400
10/27/70	1115	40.0	TDWR	1.30		24.40					
01/20/71	1600	1.0	TDWR	6.70		15.60			.1500	.080	.3000
03/03/71	1100	1.0	TDWR	3.50*		15.60			.0980	.040	.4000
06/10/71	1510	1.0	TDWR	5.00		31.70			.0820	.470	.5800
09/27/71	1620	1.0	TDWR	5.70	8.300	27.80			.3270	.100	1.7000
12/10/71	1600	1.0		9.10		18.33			.3268	.080	.1000
02/27/72	0930	1.0		5.70	8.800	20.00			.1438	.030	.8000
03/15/72	1400	1.0		8.20	8.500	23.33					
04/27/72	1620	1.0		6.30	6.300	26.11					
05/15/72	1100	1.0		5.30	6.600	26.11			.2288	.130	2.2000
06/23/72	1700	1.0		8.10	8.400	31.11					
07/25/72	1235	1.0		10.10	8.500	30.56					
08/17/72	1100	1.0		12.30	8.400	30.56			1.0294	18.900	2.0000
09/19/72	1040	1.0		5.90	8.200	31.11					
10/31/72	1130	1.0		6.90	7.900	25.00					
11/16/72	1035	1.0		6.90	8.400	20.56			.1373	.030	.2000
12/27/72	1350	1.0		7.90	8.400	13.89					
01/16/73	1640	1.0		7.30	8.600	11.67					
02/26/73	1045	1.0		5.90	8.600	15.56			.1438	.140	.3000
03/28/73	1400	1.0		5.90	8.000	22.22					
04/30/73	1705	1.0		5.90	8.400	23.89					
05/11/73	1112	1.0		8.90	8.600	27.22			.0980	.090	.2000
06/28/73	1640	1.0		8.60	8.300	31.67					

Corpus Christi Inner Harbor Study

August 8-14, 1982

Survey Station No. 8
S.M.S. No. 2484.02

Corpus Christi Inner Harbor at
Navigation Blvd. Bridge

AN ASTERISK (*) DENOTES A MEASUREMENT THAT IS NOT WITHIN STANDARDS.

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0200 NEAR NAVIGATION BLVD. DRAW BRIDGE
DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 49 10 / 097 27 00

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
06/28/73	1640	15.0		2.10	8.100						
06/28/73	1640	40.0		4.60	7.900						
07/31/73	0915	1.0		5.70	8.400	30.56					
07/31/73	0915	20.0		.10	8.000						
07/31/73	0915	40.0		.00	7.900						
08/20/73	1320	1.0		11.60	8.700	31.11			.1373	.030	.2000
08/20/73	1320	40.0		.30	8.300	28.89			.1111	.030	.3000
09/18/73	1300	1.0	TDWR	2.70*	8.400	26.70					
10/24/73	1600	1.0	TDWR	16.90	8.700	26.40	4.0		.2220	.030	.3000
10/24/73	1600	10.0	TDWR	9.20	8.500	25.60					
10/24/73	1600	20.0	TDWR	4.70	8.100	25.60					
10/24/73	1600	30.0	TDWR	2.80	8.000	25.60					
11/19/73	1530	1.0	TDWR	6.90	8.250	25.00					
12/14/73	1100	1.0	TDWR	8.90	8.200	19.40					
12/14/73	1100	10.0	TDWR	8.30	8.050	18.30					
12/14/73	1100	20.0	TDWR	4.70	7.850	18.90					
12/14/73	1100	30.0	TDWR	2.70	7.700	19.40					
01/16/74	1300	1.0	TDWR	13.00	8.350	16.90	8.0		.0490	.290	.3000
01/16/74	1300	10.0	TDWR	8.00	8.000	15.00					
01/16/74	1300	20.0	TDWR	7.00	7.900	13.90					
01/16/74	1300	30.0	TDWR	7.70	7.900	13.10					
02/21/74	1145	1.0	TDWR						.0690	.030	.5000
02/21/74	1145	35.0	TDWR						.0460	.060	.1000
03/31/74	1935	1.0	TDWR	11.60	8.500	22.20	4.0		.1080	.030	.1000
04/29/74	1115	1.0	TDWR	6.80	8.100	25.60	41.0		.1080	.040	.1000
06/28/74	1455	1.0	TDWR	11.70	8.600	28.90					
06/28/74	1455	10.0	TDWR	7.50	8.450	28.90					
06/28/74	1455	20.0	TDWR	5.70	8.200	28.90					
06/28/74	1455	30.0	TDWR	.40	8.100	28.30					
06/28/74	1455	40.0	TDWR	1.10	8.200	28.30					
07/12/74	1400	10.0	TDWR	4.40	8.100	28.90					
07/12/74	1400	15.0	TDWR	2.70	8.100	28.30					
07/12/74	1400	20.0	TDWR	2.30	8.150	28.30					
07/12/74	1400	30.0	TDWR	2.70	8.200	28.30					
07/12/74	1400	35.0	TDWR	2.90	8.200	28.30					
07/12/74	1400	40.0	TDWR	2.20		28.30					
07/12/74	1430	1.0	TDWR	5.30	8.100	29.40		48.00	.1440	.200	.2000
08/01/74	1330	1.0	TDWR	6.80	8.250	30.10					

AN ASTERISK (*) DENOTES A MEASUREMENT THAT IS NOT WITHIN STANDARDS.

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0200 NEAR NAVIGATION BLVD. DRAW BRIDGE
DISTRICT 12 COUNTY NUECES USGS GAGE 00000000 LAT / LONG 27 49 10 / 097 27 00

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
08/01/74	1330	10.0	TDWR	2.90	8.100	29.50					
08/01/74	1330	20.0	TDWR	1.90	8.100	29.50					
08/01/74	1330	30.0	TDWR	1.60	8.100	29.50					
08/01/74	1330	40.0	TDWR	1.00	8.050	29.30					
09/23/74	1110	1.0	TDWR	7.00	7.400	25.00					
09/23/74	1110	10.0	TDWR	6.40	7.200	25.00					
09/23/74	1110	20.0	TDWR	2.50	7.150	26.10					
09/23/74	1110	30.0	TDWR	1.40	7.150	26.10					
09/23/74	1110	40.0	TDWR	.00	7.150	26.10					
09/24/74	1530	1.0	TDWR	9.20	8.300	25.00					
10/29/74	1040	1.0	TDWR	5.70	8.100	25.00		12.00	.1110	.420	.3000
10/29/74	1040	10.0	TDWR	5.30	8.100	24.40					
10/29/74	1040	15.0	TDWR	4.70	8.100	24.40					
10/29/74	1040	20.0	TDWR	3.10	8.050	24.40					
10/29/74	1040	30.0	TDWR	2.20	8.000	23.90					
10/29/74	1040	35.0	TDWR	1.70	8.000	23.90					
10/29/74	1040	40.0	TDWR	1.70	8.050	23.90					
11/26/74	1327	1.0	TDWR	8.70	8.250	19.50					
11/26/74	1327	10.0	TDWR	8.40	8.300	19.00					
11/26/74	1327	15.0	TDWR	8.20	8.300	19.00					
11/26/74	1327	20.0	TDWR	8.00	8.250	19.00					
11/26/74	1327	30.0	TDWR	7.20	8.200	19.00					
11/26/74	1327	35.0	TDWR	6.70	8.250	19.00					
11/26/74	1327	40.0	TDWR	6.50	8.250	19.00					
01/15/75	1525	1.0	TDWR	9.30	8.150	15.80	.0	8.00	.1010	.270	.5000
02/14/75	1500	1.0	TDWR	7.00	8.200	17.00					
02/14/75	1500	10.0	TDWR	6.70	8.200	17.00					
02/14/75	1500	15.0	TDWR	6.20	8.200	16.00					
02/14/75	1500	20.0	TDWR	6.10	8.200	15.50					
02/14/75	1500	30.0	TDWR	6.10	8.200	15.50					
02/14/75	1500	35.0	TDWR	6.20	8.200	15.00					
02/14/75	1500	40.0	TDWR	6.40	8.200	15.00					
03/10/75	1040	1.0	TDWR	8.30	8.200	20.50					
03/10/75	1040	10.0	TDWR	8.20	8.200	20.00					
03/10/75	1040	15.0	TDWR	7.90	8.200	19.50					
03/10/75	1040	20.0	TDWR	7.50	8.200	19.50					
03/10/75	1040	30.0	TDWR	7.20	8.100	19.50					
03/10/75	1040	35.0	TDWR	7.10	8.100	19.50					

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0200 NEAR NAVIGATION BLVD. DRAW BRIDGE
DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 49 10 / 097 27 00

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
03/10/75	1040	40.0	TDWR	6.90	8.100	19.50					
04/15/75	1310	1.0	TDWR	6.00	8.300	22.00	10.0			1.100	.3000
04/15/75	1310	10.0	TDWR	6.00	8.300	22.00					
04/15/75	1310	20.0	TDWR	5.70	8.300	21.50					
04/15/75	1310	30.0	TDWR	5.30	8.300	21.50					
04/15/75	1310	35.0	TDWR	5.00	8.200	21.50					
04/15/75	1310	40.0	TDWR	4.60	8.200	21.00					
05/27/75	1040	1.0	TDWR	7.50	8.300	27.80					
07/22/75	1200	1.0	TDWR	7.90	8.300	29.50	4.0			1.000	.1420
07/22/75	1200	10.0	TDWR	6.10	8.200	29.00					
07/22/75	1200	20.0	TDWR	1.60	8.100	28.50					
07/22/75	1200	30.0	TDWR	.80	8.000	27.50					
07/22/75	1200	40.0	TDWR	.40	8.000	27.00					
07/30/75	1345	1.0	TDWR	8.40	8.800					2.200	.9400
08/04/75	1015	1.0	TDWR	8.30	8.900	28.90				1.400	.1800
08/06/75	1355	1.0	TDWR	9.70	9.000	30.00				1.000	.1200
08/14/75	1245	1.0	TDWR	6.80	8.900					1.900	.2200
09/17/75	1420	1.0	TDWR	9.90	7.000	29.40				.110	1.8000
10/14/75	1215	1.0	TDWR	7.00	8.300	27.50	19.0				1.8000
10/14/75	1215	10.0	TDWR	6.50	8.200	27.00					
10/14/75	1215	20.0	TDWR	5.80	8.200	26.50					
10/14/75	1215	30.0	TDWR	5.60	8.200	26.50					
01/15/76	1110	1.0	TDWR	8.70	8.100	13.50			.0800		.1200
01/15/76	1110	10.0	TDWR	9.10		13.50					
01/15/76	1110	20.0	TDWR	8.90		13.50					
01/15/76	1110	30.0	TDWR	8.70		13.50					
01/15/76	1110	40.0	TDWR	8.40		13.00					
02/19/76	1500	1.0	TDWR	12.30	8.500	19.50					
02/19/76	1500	10.0	TDWR	8.50	8.400	19.00					
02/19/76	1500	20.0	TDWR	6.20	8.200	19.00					
02/19/76	1500	30.0	TDWR	5.90	8.200	19.00					
02/19/76	1500	35.0	TDWR	5.80	8.200	19.50					
02/19/76	1500	40.0	TDWR	5.20	8.200	19.50					
04/06/76	1530	1.0	TDWR	8.80	8.100	23.00	6.0	17.00	.0900		5.4000
04/06/76	1530	10.0	TDWR	7.30	8.100	21.50					
04/06/76	1530	20.0	TDWR	5.80	8.100	21.00					
04/06/76	1530	30.0	TDWR	5.00	8.100	21.00					
04/06/76	1530	40.0	TDWR	4.30	8.100	21.00					

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0200 NEAR NAVIGATION BLVD. DRAW BRIDGE
DISTRICT 12 COUNTY NUECES USGS GAGE 00000000 LAT / LONG 27 49 10 / 097 27 00

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
07/13/76	1230	1.0	TDWR	6.40	8.000	27.00	14.0	11.00	.1900	.200	.0500
07/13/76	1230	10.0	TDWR	3.60	8.100	26.50					
07/13/76	1230	20.0	TDWR	3.20	8.100	26.50					
07/13/76	1230	30.0	TDWR	2.20	8.100	26.50					
07/13/76	1230	35.0	TDWR	2.10	8.100	26.00					
10/12/76	1200	1.0	TDWR	8.90	8.520	23.50	< 1.0	12.00	.1200	.540	.0900
10/12/76	1200	10.0	TDWR	8.10	8.450	23.50					
10/12/76	1200	20.0	TDWR	5.60	8.370	22.50					
10/12/76	1200	30.0	TDWR	4.60	8.400	21.50					
10/12/76	1200	40.0	TDWR	4.00	8.400	21.20					
01/05/77	1430	1.0	TDWR	15.50	8.700	11.00	39.0	7.00	.1700	< .030	< .030
01/05/77	1430	10.0	TDWR	12.10	8.500	11.50					
01/05/77	1430	20.0	TDWR	9.40	8.300	12.00					
01/05/77	1430	30.0	TDWR	9.10	8.300	12.00					
01/05/77	1430	40.0	TDWR	9.40	8.300	11.50					
01/27/77	0755	1.0	TDWR	10.80	8.400	12.50					
01/27/77	0755	10.0	TDWR	11.00	8.400	11.50					
01/27/77	0755	20.0	TDWR	10.20	8.450	11.00					
01/27/77	0755	30.0	TDWR	7.60	8.400	10.50					
01/27/77	1130	1.0	TDWR	12.30	8.500	12.00					
01/27/77	1130	10.0	TDWR	12.20	8.500	12.00					
01/27/77	1130	20.0	TDWR	11.20	8.450	11.50					
01/27/77	1130	30.0	TDWR	7.40	8.300	11.00					
01/27/77	1510	1.0	TDWR	13.00	8.700	10.50					
01/27/77	1510	10.0	TDWR	11.10	8.600	12.00					
01/27/77	1510	20.0	TDWR	8.50	8.400	11.00					
01/27/77	1510	30.0	TDWR	7.20	8.350	10.50					
01/27/77	1810	1.0	TDWR	16.40	8.900	14.00					
01/27/77	1810	10.0	TDWR	11.80	8.600	12.00					
01/27/77	1810	20.0	TDWR	8.70	8.400	11.00					
01/27/77	1810	30.0	TDWR	8.30	8.300	10.50					
04/05/77	1155	1.0	TDWR	6.70	8.050	21.00	100.0	14.00	.2800	.160	.4500
04/05/77	1155	10.0	TDWR	6.20	8.050	21.00					
04/05/77	1155	20.0	TDWR	6.30	8.050	21.00					
04/05/77	1155	30.0	TDWR	6.10	8.050	21.00					
04/05/77	1155	40.0	TDWR	5.90	8.050	20.50					
07/05/77	1630	1.0	TDWR	9.20	8.400	30.50	< 10.0	17.00	.0700	< .030	< .050
07/05/77	1630	10.0	TDWR	8.10	8.400	30.00					

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0200 NEAR NAVIGATION BLVD. DRAW BRIDGE
DISTRICT 12 COUNTY NUECES USGS GAGE 00000000 LAT / LONG 27 49 10 / 097 27 00

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
07/05/77	1630	20.0	TDWR	5.20	8.250	29.00					
07/05/77	1630	30.0	TDWR	1.70	8.100	28.50					
07/05/77	1630	35.0	TDWR	.90	8.050	27.50					
09/14/77	1535	1.0	TDWR	5.80	8.20	30.00		10.0	.080	.170	.170
09/14/77	1535	10.0	TDWR	4.30	8.200	29.50					
09/14/77	1535	20.0	TDWR	3.50	8.150	29.00					
09/14/77	1535	30.0	TDWR	3.60	8.150	29.00					
09/14/77	1535	35.0	TDWR	3.70	8.150	29.00					
12/28/77	1440	1.0	TDWR	8.10	8.50	15.0	60.0	9.0	.070	.480	.360
03/07/78	1205	1.0	TDWR	8.50	8.550	15.0		9.0	.020	.260	.300
03/07/78	1205	10.0	TDWR	8.50	8.60	15.0					
03/07/78	1205	20.0	TDWR	8.30	8.60	15.0					
03/07/78	1205	30.0	TDWR	8.40	8.60	14.50					
06/07/78	1455	1.0	TDWR	5.00	7.550	28.50	20.0	12.0	.270	.280	.520
09/06/78	1045	1.0	TDWR		8.020	29.00	227.0	11.0	.100	.130	.300
09/06/78	1045	10.0	TDWR	4.50	8.020	29.20					
09/06/78	1045	20.0	TDWR	4.20	8.030	29.30					
09/06/78	1045	30.0	TDWR	3.70	8.040	29.50					
09/06/78	1045	40.0	TDWR	3.00	8.10	29.50					
02/08/79	1010	1.0	TDWR	10.20	8.50	12.0	300.0	20.0	.090	1.10	.130
02/08/79	1010	10.0	TDWR	9.70	8.40	12.0					
02/08/79	1010	20.0	TDWR	9.60	8.40	12.0					
02/08/79	1010	30.0	TDWR	9.60	8.40	11.50					
02/08/79	1010	40.0	TDWR	9.20	8.350	11.50					
05/15/79	1635	1.0	TDWR	7.70	8.10	25.0		9.0	.080	.590	.100
05/15/79	1635	10.0	TDWR	6.70	8.10	25.0					
05/15/79	1635	20.0	TDWR	5.60	8.00	24.50					
05/15/79	1635	30.0	TDWR	4.90	8.00	24.0					
05/15/79	1635	40.0	TDWR	4.80	8.00	24.0					
08/08/79	1155	1.0	TDWR	6.20	8.30	29.70		15.0	.080	.170	.060
08/08/79	1155	10.0	TDWR	5.90	8.30	29.50					
08/08/79	1155	20.0	TDWR	4.30	8.20	30.00					
08/08/79	1155	30.0	TDWR	3.40	8.10	30.00					
08/08/79	1155	35.0	TDWR	2.40	8.050	29.00					
11/08/79	1120	1.0	TDWR	6.40	8.20	21.50	1030.0	9.0	.090	.410	.380
11/08/79	1120	10.0	TDWR	6.60	8.20	21.50					
11/08/79	1120	20.0	TDWR	6.30	8.20	21.50					
11/08/79	1120	30.0	TDWR	6.20	8.20	21.50					

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2484.0200 NEAR NAVIGATION BLVD. DRAW BRIDGE
DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 49 10 / 097 27 00

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
11/08/79	1120	40.0	TDWR	6.20	8.20	21.50					
02/04/80	1500	1.0	TDWR	8.10	7.50	13.30	6.0	6.0	.150	.300	.600
02/04/80	1500	10.0	TDWR	8.30	7.60	13.30					
02/04/80	1500	20.0	TDWR	8.10	7.60	13.10					
02/04/80	1500	30.0	TDWR	7.80	7.50	12.00					
05/05/80	1235	1.0	TDWR	6.70	7.70	23.60	< 2.0	8.30	.040	.300	< .050
05/05/80	1235	10.0	TDWR	5.70	7.60	22.80					
05/05/80	1235	20.0	TDWR	5.50	7.70	22.70					
05/05/80	1235	30.0	TDWR	5.30	7.60	22.70					
05/05/80	1235	40.0	TDWR	5.00	7.60	22.60					
08/26/80	1130	1.0	TDWR	6.20	7.90	30.0	810.0	8.0	.120	.350	.080
08/26/80	1130	10.0	TDWR	6.10	7.90	30.0					
08/26/80	1130	20.0	TDWR	4.60	7.90	29.50					
08/26/80	1130	30.0	TDWR	2.80	7.90	29.50					
08/26/80	1130	40.0	TDWR	.30	7.90	2.80					
10/30/80	1146	1.0	TDWR	6.80		20.50	1900.0	8.0	.190	.700	.970
10/30/80	1146	10.0	TDWR	6.70	8.20	20.50					
10/30/80	1146	20.0	TDWR	6.80	8.150	20.50					
10/30/80	1146	30.0	TDWR	6.70	8.150	20.50					
10/30/80	1146	40.0	TDWR	6.60	8.20	20.50					
02/03/81	1030	1.0	TDWR	9.30	7.90	13.50	60.0	6.00	.130	.340	.380
02/03/81	1030	10.0	TDWR	9.40	7.90	13.50					
02/03/81	1030	20.0	TDWR	9.30	7.90	13.50					
02/03/81	1030	30.0	TDWR	9.40	7.90	13.30					
02/03/81	1030	40.0	TDWR	9.10	7.90	13.40					
05/05/81	1000	1.0	TDWR	4.30*	7.60	25.80	60.0	8.0	.180	.410	.580
08/13/81	1039	1.0	TDWR	5.90	8.00	30.30		5.0	.110 <	.030 <	.050
08/13/81	1039	10.0	TDWR	5.20	8.00	30.20					
08/13/81	1039	20.0	TDWR	4.30	8.00	30.10					
08/13/81	1039	30.0	TDWR	3.90	7.90	30.10					
08/13/81	1039	40.0	TDWR	2.00	7.90	30.10					
11/12/81	1248	1.0	TDWR	9.20	8.40	19.50		8.0	.130 <	.030	.050
11/12/81	1248	10.0	TDWR	8.90	8.40	20.00					
11/12/81	1248	20.0	TDWR	8.10	8.40	20.50					
11/12/81	1248	30.0	TDWR	7.50	8.30	21.00					
11/12/81	1248	40.0	TDWR	6.80	8.30	21.50					
02/10/82	1502	1.0	TDWR	10.10	8.50	12.00		5.0	.060	.240	.060
02/10/82	1502	10.0	TDWR	9.50	8.550	12.00					

AN ASTERISK (*) DENOTES A MEASUREMENT THAT IS NOT WITHIN STANDARDS.

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0200 NEAR NAVIGATION BLVD. DRAW BRIDGE
DISTRICT 12 COUNTY NUECES USGS GAGE 00000000 LAT / LONG 27 49 10 / 097 27 00

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
02/10/82	1502	20.0	TDWR	9.40	8.50	11.70					
02/10/82	1502	30.0	TDWR	8.90	8.450	11.00					
02/10/82	1502	40.0	TDWR	8.60	8.40	10.50					
03/11/82	1522	1.0	TDWR	9.00	8.10	17.60					
03/11/82	1522	10.0	TDWR	8.60	8.10	16.60					
03/11/82	1522	20.0	TDWR	7.10	8.10	16.50					
03/11/82	1522	30.0	TDWR	7.00	8.10	16.30					
03/11/82	1522	40.0	TDWR	6.70	8.20	15.80					
03/11/82	1522	45.0	TDWR	6.50	8.20	15.00					
05/11/82	1212	1.0	TDWR	7.60	8.00	25.00	100.0 <	5.0	.120	.440	.270
05/11/82	1212	10.0	TDWR	7.00	8.00	23.80					
05/11/82	1212	20.0	TDWR	6.60	8.10	23.80					
05/11/82	1212	30.0	TDWR	6.50	8.10	23.80					
05/11/82	1212	40.0	TDWR	6.10	8.10	23.70					

STATION SUMMARY

AVERAGE	6.5		21.7		11.3	.133	.60	.592
GEOMETRIC MEAN				30.				
MAXIMUM	16.9	9.00	31.7	1900.	48.0	1.029	18.90	5.400
MINIMUM	.0	6.30	2.8	0.	5.0	.010	.03	.030
NUMBER OF SAMPLES	269	261	264	25	28	63	68	71

SEGMENT STANDARDS

	DO MG/L	PH SU	WATER TEMP CENT	TOT COLI MFIMENDO /100ML	T ORG C C MG/L	PHOS-T P-WET MG/L	NO3-N TOTAL MG/L	NH3-N TOTAL MG/L
EFFECTIVE DATE: 10/01/67 DEPTH: 1.0 AGENCY: TCWR								
MAXIMUM		9.00	35.0					
MINIMUM	5.00	6.50						

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0300 IN VIOLA TURNING BASIN
DISTRICT 12 COUNTY NUECES USGS GAGE 00000000 LAT / LONG 27 50 36 / 097 21 12

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
07/15/71	1030	1.0	TDWR				310.0				
10/24/73	1630	1.0	TDWR	12.50	8.900	25.60	2.0		.3270	.030	.6000
10/24/73	1630	10.0	TDWR	11.60	8.700	27.20					
10/24/73	1630	20.0	TDWR	1.90	7.900	26.10					
10/24/73	1630	30.0	TDWR	3.00	8.000	27.20					
12/14/73	1000	1.0	TDWR	11.10	8.500	15.60					
12/14/73	1000	10.0	TDWR	4.00	7.850	18.10					
12/14/73	1000	20.0	TDWR	.20	7.600	21.10					
12/14/73	1000	30.0	TDWR	.10	7.500	23.30					
01/16/74	1245	1.0	TDWR	9.50	8.050	15.60	6.0		.1210	.050	.5000
01/16/74	1245	10.0	TDWR	6.20	7.950	15.00					
01/16/74	1245	20.0	TDWR	4.80	7.800	15.60					
01/16/74	1245	30.0	TDWR	3.70	7.700	15.60					
02/21/74	1350	1.0	TDWR						.1110	.040	.5000
02/21/74	1350	35.0	TDWR						.0950	.060	.3000
04/29/74	1140	1.0	TDWR	6.20	8.150	24.70	10.0		.1410	.030	.1000
06/28/74	1540	1.0	TDWR	8.70	8.500	28.90					
07/12/74	1500	1.0	TDWR	3.50*	8.150	29.00		55.00	.327	.030	.5000
07/12/74	1500	10.0	TDWR	2.90	8.150	28.90					
07/12/74	1500	15.0	TDWR	2.40	8.150	28.90					
07/12/74	1500	20.0	TDWR	2.10	8.150	28.60					
07/12/74	1500	30.0	TDWR	1.70	8.150	28.60					
07/12/74	1500	35.0	TDWR	1.30	8.150	28.30					
07/12/74	1500	40.0	TDWR	1.20	8.150	28.30					
08/01/74	1315	1.0	TDWR	.50*	8.000	30.50					
08/01/74	1315	10.0	TDWR	.20	8.050	30.50					
08/01/74	1315	20.0	TDWR	.10	8.100	30.00					
08/01/74	1315	30.0	TDWR	.00	8.050	29.80					
08/01/74	1315	37.0	TDWR	.00	8.000	29.30					
09/23/74	1100	1.0	TDWR	7.10	7.500	25.00					
10/29/74	1155	1.0	TDWR	6.00	8.250	24.20	.0	15.00	.1370	.120	.3000
10/29/74	1155	15.0	TDWR	6.00	8.200	24.40					
10/29/74	1155	20.0	TDWR	6.00	8.200	24.40					
10/29/74	1155	30.0	TDWR	5.60	8.200	24.40					
10/29/74	1155	35.0	TDWR	5.20	8.200	24.40					
10/29/74	1155	40.0	TDWR	3.80	8.100	24.40					
11/26/74	1425	1.0	TDWR	9.90	8.350	19.00					
11/26/74	1425	10.0	TDWR	10.00	8.350	19.40					

Corpus Christi Inner Harbor Study

August 8-14, 1982

Survey Station No. 15
S.M.S. No. 2484.03

Corpus Christi Inner Harbor at
Viola Turning Basin

AN ASTERISK (*) DENOTES A MEASUREMENT THAT IS NOT WITHIN STANDARDS.

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0300 IN VIOLA TURNING BASIN
DISTRICT 12 COUNTY NUECES USGS GAGE 00000000 LAT / LONG 27 50 36 / 097 31 12

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
11/26/74	1425	15.0	TDWR	9.90	8.350	19.40					
11/26/74	1425	20.0	TDWR	8.90	8.350	19.40					
11/26/74	1425	30.0	TDWR	8.30	8.300	19.20					
11/26/74	1425	35.0	TDWR	8.30	8.300	19.00					
11/26/74	1425	40.0	TDWR	8.20	8.300	19.00					
01/15/75	1505	1.0	TDWR	9.30	8.150	15.00	11.0	6.00	.0850	.210	.1000
02/14/75	1350	1.0	TDWR	7.80	8.200	17.50					
02/14/75	1350	10.0	TDWR	7.80	8.200	18.20					
02/14/75	1350	15.0	TDWR	7.80	8.200	17.00					
02/14/75	1350	20.0	TDWR	7.80	8.200	17.00					
02/14/75	1350	30.0	TDWR	7.70	8.200	16.50					
02/14/75	1350	35.0	TDWR	7.50	8.200	16.50					
02/14/75	1350	40.0	TDWR	6.40	8.200	16.00					
03/10/75	1230	1.0	TDWR	8.00	8.200	20.00					
03/10/75	1230	10.0	TDWR	8.00	8.200	20.00					
03/10/75	1230	15.0	TDWR	7.90	8.200	19.50					
03/10/75	1230	20.0	TDWR	7.90	8.200	19.50					
03/10/75	1230	30.0	TDWR	7.70	8.200	19.50					
03/10/75	1230	35.0	TDWR	7.50	8.200	19.50					
03/10/75	1230	40.0	TDWR	7.50	8.200	19.50					
04/15/75	1405	1.0	TDWR	7.10	8.300	21.50	.0			1.100	.3000
04/15/75	1405	10.0	TDWR	6.90	8.300	21.50					
04/15/75	1405	20.0	TDWR	7.00	8.300	21.50					
04/15/75	1405	30.0	TDWR	7.00	8.300	21.50					
04/15/75	1405	35.0	TDWR	6.90	8.300	21.50					
04/15/75	1405	40.0	TDWR	4.30	8.200	21.50					
05/27/75	1100	1.0	TDWR	8.90	8.450	28.10					
07/22/75	1300	1.0	TDWR	7.60	8.300	29.50	2.0			1.250	.2330
07/22/75	1300	10.0	TDWR	5.40	8.200	29.50					
07/22/75	1300	20.0	TDWR	1.50	8.000	28.50					
07/22/75	1300	30.0	TDWR	.70	7.900	27.50					
07/22/75	1300	40.0	TDWR	.40	7.800	27.00					
07/30/75	1400	1.0	TDWR	10.00	8.900					1.800	.4800
08/04/75	1035	1.0	TDWR	8.00	8.800	28.90				1.300	.8400
08/06/75	1425	1.0	TDWR	4.80*	8.600	30.00				1.250	.7500
08/14/75	1215	1.0	TDWR	3.80*	8.650					1.800	.7700
09/17/75	1440	1.0	TDWR	12.90	7.000	30.00				.240	4.2000
10/14/75	1235	1.0	TDWR	8.10	8.400	26.50	110.0		.0300		.2300

AN ASTERISK (*) DENOTES A MEASUREMENT THAT IS NOT WITHIN STANDARDS.

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0300 IN VIOLA TURNING BASIN
DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 50 36 / 097 31 12

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	C061C NH3-N TOTAL MG/L
10/14/75	1235	10.0	TDWR	8.20	8.400	26.50					
10/14/75	1235	20.0	TDWR	8.10	8.400	26.50					
10/14/75	1235	30.0	TDWR	8.00	8.400	26.00					
01/15/76	1050	1.0	TDWR	10.50	8.250	14.50	.0		.0300		.4300
01/15/76	1050	10.0	TDWR	10.40		14.50					
01/15/76	1050	20.0	TDWR	10.30		14.30					
01/15/76	1050	30.0	TDWR	9.60		19.00					
01/15/76	1050	40.0	TDWR	7.80		13.00					
02/19/76	1540	1.0	TDWR	9.20	8.400	19.50					
02/19/76	1540	10.0	TDWR	9.00	8.450	19.50					
02/19/76	1540	20.0	TDWR	8.70	8.450	19.50					
02/19/76	1540	30.0	TDWR	6.50	8.350	19.00					
02/19/76	1540	35.0	TDWR	5.60	8.300	18.50					
02/19/76	1540	40.0	TDWR	4.40	8.200	18.50					
04/06/76	1600	1.0	TDWR	8.20	8.150	21.50	2.0	21.00	.0900		4.4000
04/06/76	1600	10.0	TDWR	8.20	8.200	21.50					
04/06/76	1600	20.0	TDWR	8.10	8.200	21.50					
04/06/76	1600	30.0	TDWR	6.70	8.100	21.00					
04/06/76	1600	40.0	TDWR	6.20	8.100	21.00					
07/13/76	1155	1.0	TDWR	13.10	8.500	27.50	2.0	19.00	.2700	.010	4.0000
07/13/76	1155	10.0	TDWR	6.90	8.200	26.50					
07/13/76	1155	20.0	TDWR	.40	8.100	27.00					
07/13/76	1155	30.0	TDWR	.30	8.100	27.50					
07/13/76	1155	35.0	TDWR	.00	8.100	27.50					
10/12/76	1220	1.0	TDWR	8.50	8.400	24.50	< 1.0	10.00	.1400	< .030	< .030
10/12/76	1220	10.0	TDWR	8.00	8.400	24.20					
10/12/76	1220	20.0	TDWR	5.70	8.300	24.80					
10/12/76	1220	30.0	TDWR	3.10	8.300	22.50					
10/12/76	1220	40.0	TDWR	2.80	8.350	22.00					
01/05/77	1400	1.0	TDWR	14.20	8.700	11.00	6.0	8.00	.1100	< .030	< .030
01/05/77	1400	10.0	TDWR	14.80	8.700	11.00					
01/05/77	1400	20.0	TDWR	9.00	8.350	11.50					
01/05/77	1400	30.0	TDWR	7.30	8.250	12.50					
01/05/77	1400	40.0	TDWR	7.80	8.250	12.50					
01/27/77	0810	1.0	TDWR	14.00	8.800	12.50					
01/27/77	0810	10.0	TDWR	14.60	8.800	12.50					
01/27/77	0810	20.0	TDWR	14.20	8.700	12.00					
01/27/77	0810	30.0	TDWR	10.20	8.450	11.00					

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0300 IN VIOLA TURNING BASIN
DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 50 36 / 097 31 12

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	C0610 NH3-N TOTAL MG/L
01/27/77	1145	1.0	TDWR	14.20	8.850	13.50					
01/27/77	1145	10.0	TDWR	12.30	8.750	12.50					
01/27/77	1145	20.0	TDWR	10.50	8.650	11.50					
01/27/77	1145	30.0	TDWR	7.90	8.450	11.00					
01/27/77	1535	1.0	TDWR	15.10	8.950	14.50					
01/27/77	1535	10.0	TDWR	11.10	8.700	12.50					
01/27/77	1535	20.0	TDWR	9.60	8.600	11.50					
01/27/77	1535	30.0	TDWR	7.60	8.400	10.50					
01/27/77	1820	1.0	TDWR	14.90	8.900	14.50					
01/27/77	1820	10.0	TDWR	12.10	8.700	12.50					
01/27/77	1820	20.0	TDWR	9.50	8.500	11.50					
01/27/77	1820	30.0	TDWR	9.60	8.400	11.00					
04/05/77	1130	1.0	TDWR	6.50	8.150	21.00	13.0	12.00	.2400	.100	.3800
04/05/77	1130	10.0	TDWR	6.50	8.150	21.00					
04/05/77	1130	20.0	TDWR	7.70	8.150	21.00					
04/05/77	1130	30.0	TDWR	6.20	8.150	20.50					
04/05/77	1130	35.0	TDWR	6.30	8.150	20.50					
05/17/77	1010	1.0	TDWR	5.20	8.300	25.00					
05/17/77	1010	10.0	TDWR	4.80	8.300	25.00					
05/17/77	1010	20.0	TDWR	4.50	8.300	25.00					
05/17/77	1010	30.0	TDWR	4.40	8.300	25.00					
07/05/77	1610	1.0	TDWR	9.40	8.500	31.50	< 10.0	15.00	.0800	< .030	< .050
07/05/77	1610	10.0	TDWR	9.30	8.550	31.00					
07/05/77	1610	20.0	TDWR	6.80	8.350	29.50					
07/05/77	1610	30.0	TDWR	2.10	8.100	29.00					
07/05/77	1610	35.0	TDWR	.90	8.000	28.00					
07/15/77	1030	1.0	TDWR	6.80	8.350	28.00		8.00	.0700	< .030	< .050
07/15/77	1616	1.0	TDWR	7.90	8.400	30.00	170.0	15.00	.0900	< .030	< .050
09/14/77	1555	1.0	TDWR	7.10	8.30	29.50		12.0	.070	< .030	< .050
09/14/77	1555	10.0	TDWR	6.00	8.500	29.50					
09/14/77	1555	20.0	TDWR	4.80	8.500	29.50					
09/14/77	1555	30.0	TDWR	3.40	8.400	29.00					
09/14/77	1555	40.0	TDWR	1.30	8.250	28.50					
12/28/77	1420	1.0	TDWR	7.90	8.50	16.0	8.0	13.0	.080	.200	.370
03/07/78	1235	1.0	TDWR	9.40	8.60	15.0	1.0	11.0 <	.010	.310	.230
03/07/78	1235	10.0	TDWR	9.50	8.70	15.20					
03/07/78	1235	20.0	TDWR	9.40	8.70	15.20					
03/07/78	1235	30.0	TDWR	9.30	8.70	15.0					

BAYS AND ESTUARIES

CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN

2484.0300 IN VIOLA TURNING BASIN

DISTRICT 12 COUNTY NUECES USGS GAGE 000000000 LAT / LONG 27 50 36 / 097 31 12

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	C061C NH3-N TOTAL MG/L
06/07/78	1530	1.0	TDWR	6.50	7.80	29.20	10.0		.330	.310	.070
09/06/78	1010	1.0	TDWR		7.950	29.50	9.0	20.0	.100	.080	.410
09/06/78	1010	10.0	TDWR	2.80	8.00	29.50					
09/06/78	1010	20.0	TDWR	2.00	8.00	29.50					
09/06/78	1010	30.0	TDWR	1.60	8.00	29.50					
09/06/78	1010	35.0	TDWR	1.60	8.00	29.50					
02/08/79	1045	1.0	TDWR	10.30	8.450	12.0	100.0	19.0	.080	.200 <	.050
02/08/79	1045	10.0	TDWR	10.50	8.450	12.0					
02/08/79	1045	20.0	TDWR	10.50	8.450	12.0					
02/08/79	1045	30.0	TDWR	10.50	8.450	12.0					
02/08/79	1045	40.0	TDWR	10.50	8.450	12.0					
05/15/79	1700	1.0	TDWR	8.90	8.20	25.50		9.0	.060	.220 <	.050
05/15/79	1700	10.0	TDWR	9.10	8.180	25.50					
05/15/79	1700	20.0	TDWR	8.10	8.180	25.50					
05/15/79	1700	30.0	TDWR	4.20	7.90	24.50					
05/15/79	1700	40.0	TDWR	3.60	7.950	24.0					
08/08/79	1215	1.0	TDWR	8.20	8.40	31.00		14.0	.060 <	.030 <	.050
08/08/79	1215	10.0	TDWR	7.40	8.350	31.00					
08/08/79	1215	20.0	TDWR	6.50	8.30	31.00					
08/08/79	1215	30.0	TDWR	1.60	7.950	29.50					
08/08/79	1215	39.0	TDWR	.70	8.00	29.00					
11/08/79	1200	1.0	TDWR	5.50	8.10	22.00	30.0	11.0	.020	.080	1.10
11/08/79	1200	10.0	TDWR	5.40	8.10	22.00					
11/08/79	1200	20.0	TDWR	5.40	8.10	22.00					
11/08/79	1200	30.0	TDWR	5.40	8.10	22.00					
11/08/79	1200	40.0	TDWR	5.30	8.10	22.00					
11/08/79	1200	48.0	TDWR	5.30	8.10	22.00					
02/04/80	1430	1.0	TDWR	7.30	7.30	14.10	12.0	6.0	.150	.330	.480
02/04/80	1430	10.0	TDWR	7.20	7.30	13.90					
02/04/80	1430	20.0	TDWR	7.10	7.30	13.80					
02/04/80	1430	30.0	TDWR	6.90	7.30	13.70					
05/05/80	1250	1.0	TDWR	6.70	7.90	23.90	< 2.0	6.50	.020	.050	.090
05/05/80	1250	10.0	TDWR	8.10	7.90	23.80					
05/05/80	1250	20.0	TDWR	8.00	7.90	23.80					
05/05/80	1250	30.0	TDWR	5.90	7.70	22.30					
05/05/80	1250	40.0	TDWR	3.20	7.50	21.70					
08/26/80	1150	1.0	TDWR	9.70	7.90	31.0	10.0	9.0	.090 <	.030 <	.050
08/26/80	1150	10.0	TDWR	5.30	7.90	30.0					

BAYS AND ESTUARIES
CORPUS CHRISTI INNER HARBOR-US 181 BRIDGE TO VIOLA TURNING BASIN
2484.0300 IN VIOLA TURNING BASIN
DISTRICT 12 COUNTY NUECES USGS GAGE 00000000 LAT / LONG 27 50 36 / 097 31 12

SAMPLE DATE	TIME	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MFIMENDO /100ML	00680 T ORG C C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L
08/26/80	1150	20.0	TDWR	3.00	7.90	30.0					
08/26/80	1150	30.0	TDWR	.30	7.90	28.0					
08/26/80	1150	40.0	TDWR	.10	7.90	27.50					
10/30/80	1210	1.0	TDWR	6.20	8.00	21.50	< 10.0	5.0	.130	.080	1.10
10/30/80	1210	10.0	TDWR	6.10	8.00	21.50					
10/30/80	1210	20.0	TDWR	6.00	8.00	21.50					
10/30/80	1210	30.0	TDWR	5.90	8.00	21.50					
10/30/80	1210	40.0	TDWR	5.90	8.00	21.50					
02/03/81	1050	1.0	TDWR	10.50	8.00	13.60	< 10.0	6.50	.100	.190	.550
02/03/81	1050	10.0	TDWR	10.90	8.00	13.70					
02/03/81	1050	20.0	TDWR	10.90	8.00	13.60					
02/03/81	1050	30.0	TDWR	10.80	8.00	13.60					
02/03/81	1050	40.0	TDWR	10.70	8.00	13.60					
05/05/81	1017	1.0	TDWR	5.50	7.80	25.90	30.0	8.0	.140	.320	.460
08/13/81	1111	1.0	TDWR	6.00	8.00	30.40		5.0	.090 <	.030 <	.050
08/13/81	1111	10.0	TDWR	5.10	8.10	30.30					
08/13/81	1111	20.0	TDWR	4.60	8.10	30.30					
08/13/81	1111	30.0	TDWR	3.80	8.10	30.20					
08/13/81	1111	40.0	TDWR	.70	8.00	30.30					
11/12/81	1308	1.0	TDWR	10.40	8.50	20.00		8.0	.150 <	.030	.080
11/12/81	1308	10.0	TDWR	10.30	8.50	20.00					
11/12/81	1308	20.0	TDWR	10.10	8.50	20.30					
11/12/81	1308	30.0	TDWR	9.00	8.40	21.00					
11/12/81	1308	40.0	TDWR	6.70	8.30	21.50					
02/10/82	1430	1.0	TDWR	8.20	8.350	13.0		5.0	.050 <	.030 <	.050
02/10/82	1430	10.0	TDWR	8.40	8.40	13.0					
02/10/82	1430	20.0	TDWR	8.00	8.450	13.0					
02/10/82	1430	30.0	TDWR	7.80	8.40	13.50					
02/10/82	1430	40.0	TDWR	8.30	8.40	13.0					
05/11/82	1005	1.0	TDWR	6.30	7.40	23.90	10.0 <	5.0	.100	.210	.230
05/11/82	1005	10.0	TDWR	6.30	7.60	23.90					
05/11/82	1005	20.0	TDWR	6.00	7.70	23.90					
05/11/82	1005	30.0	TDWR		8.20	23.90					
05/11/82	1005	40.0	TDWR		8.20	23.90					

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2484.0300 IN VIOLA TURNING BASIN
DISTRICT 12 COUNTY NUECES USGS GAGE 00000000 LAT / LONG 27 50 36 / 097 31 12

SAMPLE DATE	TYPE	DEPTH (FT.)	SOURCE AGENCY	00300 DO MG/L	00400 PH SU	00010 WATER TEMP CENT	31501 TOT COLI MPIMENDO /100ML	00680 T ORG C MG/L	00665 PHOS-T P-WET MG/L	00620 NO3-N TOTAL MG/L	00610 NH3-N TOTAL MG/L

STATION SUMMARY

AVERAGE	6.8		21.7		12.3	.117	.38	.583
GEOMETRIC MEAN				10.				
MAXIMUM	15.1	8.95	31.5	310.	55.0	.330	1.80	4.400
MINIMUM	.0	7.00	10.5	0.	5.0	.010	.01	.030
NUMBER OF SAMPLES	218	217	219	27	29	37	41	44

SEGMENT STANDARDS

	DO	PH	WATER TEMP	TOT COLI MPIMENDO	T ORG C	PHOS-T P-WET	NO3-N TOTAL	NH3-N TOTAL
	MG/L	SU	CENT	/100ML	MG/L	MG/L	MG/L	MG/L

EFFECTIVE DATE: 10/01/67 DEPTH: 1.0 AGENCY: TDWR

MAXIMUM		9.00	35.0
MINIMUM	5.00	6.50	