

ERRATA SHEET

Houston Ship Channel
Monitoring Program 1973-1978

In Table 5, the values given for the following parameters are actually analytical detection limits:

Heptachlor - <0.2
Heptachlor Epoxide - <0.02
Lindane - <0.02
Methoxychlor - <2
DDT - <0.02
DDD - <0.2
DDE - <0.2
Aldrin - <0.2
Dieldrin - <0.2
Endrin - <0.2
Toxaphene - <2
Methyl Parathion - <2
Parathion - <2
PCBS - <20

In Table 6, the values given for the following parameters are actually analytical detection limits:

Aldrin - <0.02
Dieldrin - <0.02
Endrin - <0.02
Toxaphene - <0.02
Malathion - <0.02
PCBS - <20
Heptachlor - <0.02
Toxaphene - <0.02
Malathion - <0.02
Parathion - <0.02
PCBs - <20
Heptachlor - <0.02
Heptachlor Epoxide - <0.02
Lindane - <0.02
Methoxychlor - <0.02
DDT - <0.02
DDE - <0.02
DDD - <0.02

WATER RESOURCES DIVISION, TEXAS DEPARTMENT OF WATER RESOURCES

1973 - 1974

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District Office

Interpretation and Field Operations Division

Texas Department of Water Resources

LP-124

April 1974

An earlier report, Houston Ship Channel Monitoring Program, Special Report No. SR-3, December 1974 (Revised June, 1975) included in more detail data for 1973-74 only summarized herein. Therefore, this new publication does not supersede the previous SR-3.

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INTRODUCTION

The Houston Ship Channel (Figure 1) is a narrow tidal channel about 50 miles long, 400 feet wide, and 40 feet deep. The information in this report includes only the upper 25 miles or the enclosed portion of the Channel. This region has been divided into three segments extending from Morgan's Point (mile 0) to the Turning Basin (mile 25). Segment 1005 extends from Morgan's Point at Galveston Bay up to the San Jacinto River confluence; Segment 1006 extends from the San Jacinto River confluence up to the Turning Basin; and Segment 1007 is the Turning Basin.

The Channel is a man-made seaport originally dredged in 1914 to bring the oceans of the world to Houston's doorstep. Today it is the third largest seaport in the United States and is home of the greatest concentration of petrochemical industries in the world. Presently there are about 354 waste discharges into the Channel (190 or 54% industrial and 164 or 46% municipal).

The Ship Channel is a dynamic estuarine system, a major component of the Galveston Bay complex, where the overlying fresh waters from thirteen tributaries (Figure 2) meet the encroaching more dense (heavier) salt water from both the Bay and Gulf of Mexico. This salt-wedge estuary becomes increasingly more complex as fresh-water inflow and tidal movement commingle at varying rates. As wind, seasonal changes, shipping and barging traffic, maintenance dredging, waste water discharges, and many other factors are introduced into this already complex system, large variations in the physico-chemical characteristics of the water result. Consequently, the same water quality conditions will never be precisely the same at any one location.

The Houston Ship Channel monthly monitoring program was begun in January, 1972, by the Texas Water Quality Board. In September, 1977, the TWQB merged with two other state water agencies to become the Texas Department of Water Resources. The monitoring program was initiated because of the concern for the quality of water entering into the Galveston Bay complex, the largest and one of the most productive estuaries on the Texas coast. The Bay provides 38 percent of all the sport fishing and about 80 percent of all the shellfish produced in Texas. The complex has a total surface area of about 533 square miles with a combined shoreline of about 245 miles.

Sampling Program

The location of all seven Houston Ship Channel monitoring stations and a list of principal municipal and industrial discharges are given in Table 1. The following stations are included in this report.

<u>Station</u>	<u>Segment No.</u>	<u>Mile</u>
Morgans Point	1005.0100	0
San Jacinto Monument	1006.0100	9.0
Greens Bayou	1006.0200	15.5
Sims Bayou	1006.0300	20.7
Turning Basin	1007.0100	25.0

These five stations have been sampled for the longest period and represent equally spaced sampling locations along the length of the Channel.

Monthly water samples are collected at one foot (surface) and 40 feet (bottom). The annual averages of the physicochemical results from 1973 to 1978 are given in Table 2. All values are expressed as milligrams/liter (=parts per million), with the following exceptions: temperature (°C), pH (units), secchi (inches), conductivity (micromhos/cm), and coliform bacteria (number/100 milliliters). Quarterly, composite (surface to bottom) metals in water samples are collected; the results, expressed in micrograms per liter, are given in Table 3. Annually, metals in sediment (milligrams per kilogram) and pesticides in sediment (micrograms per kilogram) samples are collected. The results are given in Tables 4 and 5 respectively. Composite pesticides in water (micrograms per liter) samples are also collected annually, usually during the latter part of summer. The results are given in Table 6.

Biological Monitoring

Monitoring the biological communities in their own habitat has proven to be invaluable for characterizing the water quality of the Channel. The identification of organisms in the Channel has provided some of the fundamental information necessary for assessing what has occurred, what is occurring, and what can be expected to occur in the aquatic environment. Four different groups of organisms have been selected to monitor the water quality of the Channel. A brief discussion follows below:

Plankton

Phytoplankton are free floating plants (primary producers), generally microscopic, subject to movement by wave or current action. A list of species and distributions of phytoplankton from the Channel from 1975 through 1978 is given in Table 7. The mean number of taxa and individuals is given in Table 8. Table 9 contains the classification and ecological categorization of the ten predominant species occurring during 1978. Procedure: Samples are collected monthly by making four 15-foot vertical tows in channel cross-section. About 200 liters of water are filtered with the net; the taxa are reported as number of individuals per milliliter.

Zooplankton are the unattached microscopic animals (primary consumers) having minimal capability for locomotion. A taxonomic listing of all species occurring in the Channel from 1975 through 1978 is given in Table 10. The mean number of taxa and individuals from the aforementioned time period is shown in Table 11. Procedure: Samples are collected monthly by making four 15-foot vertical tows in channel cross-section. A Wisconsin style plankton net (13 cm mouth opening and 80 micron mesh size) is used to sample 200 liters of Channel water. Individuals are reported as number of individuals per liter.

Benthos (Bottom dwelling organisms)

Benthic organisms, those living at least part of their life cycles within or upon available substrates in a body of water or water transport system, generally have limited mobility. Thus, they serve as a useful tool for determining environmental perturbations resulting from introduced contaminants. Their relatively long life span requires optimal conditions to exist for extended periods; therefore the environmental quality during the recent past can be determined by the presence or absence of these benthic animals. A list of benthic organisms collected from the three sampling stations from 1974 through 1978 is given in Table 12. Station descriptions and locations are included in the Table. Procedure: Four 6" x 6" Ekman dredge subsamples are combined and the results are expressed as number of individuals per square foot.

Nekton

Nekton are aquatic animals capable of swimming that are essentially independent of wave and current action. Included in this group are several commercially important species such as blue crab, shrimp and several fishes. A list of 67 species of nekton collected from the Channel from 1972 through 1978 is given in Table 13.

Routinely, nekton are monitored at the intake structures of three industrial plants located along the Channel. At each intake structure, water is withdrawn from the Channel for use within the plant and then returned by another route to the Channel. Large heavy mesh revolving screens are placed at the entrance of the water withdrawal pipes to keep out debris. These screens are routinely cleaned to prevent flow restriction.

Once a month the intake screens are cleaned for monitoring purposes; eight hours later, all organisms that have collected on the screens are washed into a collection basket. The entrapped organisms are identified, counted, weighed and measured; the results are given in Table 14. The diversity and

abundance of the nekton community provides a correlation to the water quality conditions of the Channel.

Concluding Remarks

Information about an estuarine system as ecologically complex as the Houston Ship Channel is rarely definitive. No single survey no matter how comprehensive, can effectively identify all of the special problems within this dynamic system. The input in this system produces such a multitude of variables during any one sampling run that finite conclusions made about a particular area of the Channel would be difficult to support on the next sampling run. For this reason, a comprehensive discussion of all of the sample results was not addressed in this report; rather the results of the monitoring program are made available for one's own specific interpretation. It is important to note, that monitoring data reflect trends in water quality over time, not from one sampling trip to the next.

As wastewater treatment technology continues to improve, so should the water quality of the Channel. When point source problems do occur, the data from the monitoring program will continue to serve as the primary tool for locating and identifying these anomalies.

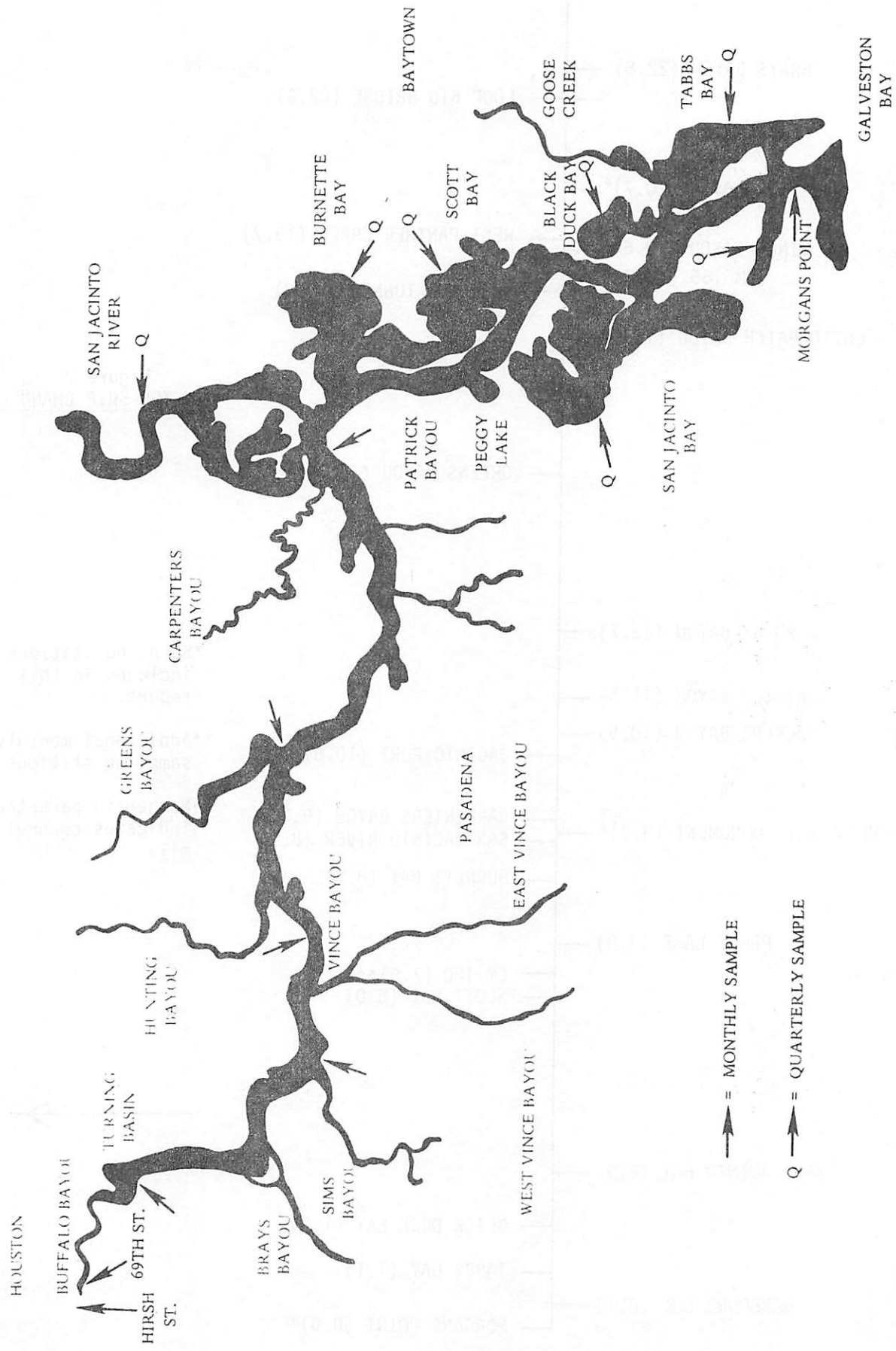


Figure 1
Houston Ship Channel Monitoring Program

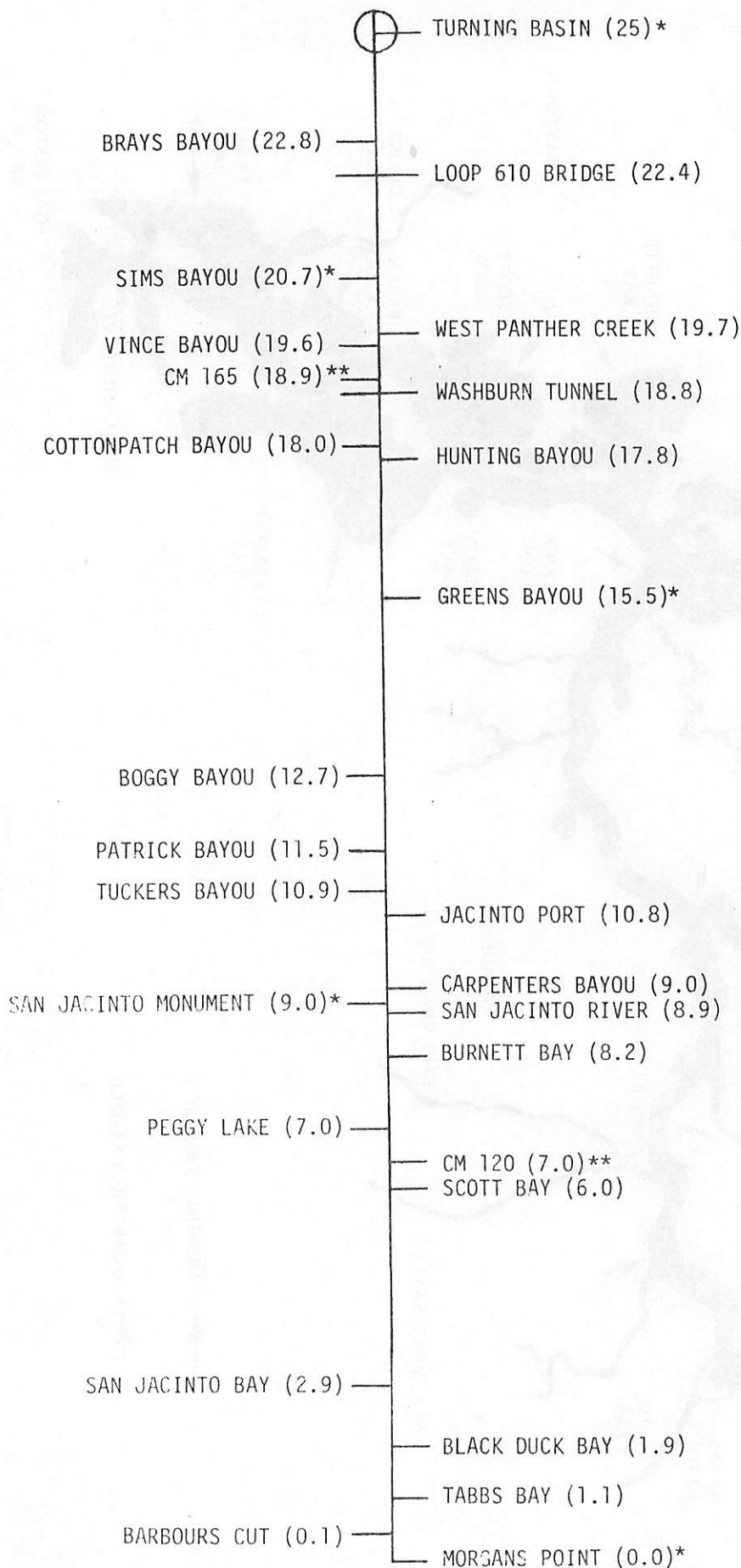
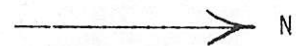


Figure 2
HOUSTON SHIP CHANNEL

*Sampling stations included in this report.

**Additional monthly sampling stations

()Number in paranthesis indicates channel mile



MILEAGE POINTS OF INDUSTRIAL AND MUNICIPAL DISCHARGES INTO
HOUSTON SHIP CHANNEL (SAN JACINTO RIVER BASIN)

<u>Mile</u>	<u>Feature</u>	<u>Statewide Monitoring</u>
		<u>Network</u> <u>Station Number</u>
0.0	I. Morgans Point (S*) (CM 89) (30 mi. from Bolivar Roads)	1005.01
	II. Barbours Cut (S)	2436.01
	A. Morgans Point STP (E)	
	B. Tenneco Oil Company (E)	
1.1	I. Tabb's Bay (N)	
	A. Goose Creek (Segment 2426)	
	1. Baytown West Main STP (4.7 MGD) (E)	
	2. Helmerich and Payne (W)	
	3. Chemical Exchange (W)	
	4. Harris County FWSD 1A (0.19 MGD) (W)	
	5. P.S. Contractors (0.0378 MGD) (W)	
1.9	I. Black Duck Bay (N) (Entrance)	2428.01
2.6	I. Exxon Company USA (WCO #00592) (N) (CM 101)	
2.8	I. Baytown Tunnel (SH 146) (CM 103)	
	A. Texas Highway Department (STP) (W)	
2.9	I. San Jacinto Bay (S) (CM 15)	2427.01
	A. E. I. DuPont, Houston	
	B. Syngas	
	C. DuPont, Deer Park	
	D. U. S. Industrial Chemical Company	
	E. Dram Ditch	
	1. Upjohn Company	
	F. Houston Lighting & Power, Bertron Station	
3.9	I. Exxon Chemical Emergency Bypass (N)	
4.1	I. Exxon Docks (N)	

* See abbreviations at end of this section.

Statewide Monitoring
Network
Station Number

<u>Mile</u>	<u>Feature</u>	<u>Station Number</u>
6.0	I. Scott Bay (N) (CM 114) A. Exxon Chemical	2429.01
7.0	I. Peggy Lake (S) (CM 120) A. Arco Polymers B. Celanese Plastics C. Texas Alkyls D. Diamond Shamrock Battleground Plant	1005.02
8.2	I. Burnett Bay (N) (CM 126) A. Baytown Lakewood STP (SE) B. HiPort Industries	2430.01
8.9	I. San Jacinto River (Lynchburg Ferry) (N) (CM 127) (5440 MGD) (Battleground Road, Deer Park - LaPorte City Boundary) A. Channel Shipyards (E) B. Lost Lake (W) 1. Freshwater Bayou a. Harris County WCID #21 (W) (0.85 MGD) b. Harris County WCID #84 (E) (0.40 MGD) c. Gulf Oil Chemical (N) d. Groendyke Transport (W) C. Southwestern Barge (W) D. Harris County WCID #1 (0.75 MGD) E. Oxirane Chemical Company (W) (Channelview) F. Baroid (W) G. Arco Chemical (W) H. Harris County FWSD #48 Sheldon Woods (0.21 MGD) (W) I. Harris County FWSD #48 Rolling Hills (0.22 MGD) (W) J. Vornsand Enterprises (0.98 MGD) (E)	
9.0	I. Battleship Texas and San Jacinto Monument (S) (CM 131) II. Carpenters Bayou (N) A. Harris County FWSD #6 (0.20 MGD - expanding soon) (N)	1006.01

Statewide Monitoring

<u>Mile</u>	<u>Feature</u>	<u>Network</u> <u>Station Number</u>
	B. American Plating (W)	
	C. Jacintoport North STP (0.011 MGD) (W)	
	D. Houston Lighting & Power Channelview Service Center (0.0016 MGD) (E)	
	E. Berwind (E)	
	F. Harris County FWSD #47 (0.6 MGD) (E)	
	G. Harris County FWSD #51 (2.0 MGD- expanding to 4 MGD) (E)	
10.6	I. Empak (S)	
10.7	I. Equity Export Corp. (S) (CM 136) II. Intercontinental Terminals (S) III. Flour Corporation (S)	
10.8	I. Jacintoport Terminals (N) A. Houston Fuel Oil Terminal (N) (Apex Oil) (0.002 MGD) B. GATX (0.005 MGD) (S) C. Steel Enterprises (W) D. C. F. Brown & Company (W)	
10.9	I. Tuckers Bayou (S) A. Rohm and Haas (W) B. Intercontinental Terminals (E) C. Rollins-Environmental Services (E) II. Fuller Company (N)	
11.0	I. CM 138 (HSC)	
11.5	I. Patrick Bayou (S) (CM 139) A. Shell Chemical Company (W) B. Diamond Shamrock Deer Park Plant (E) C. Lubrizol Corporation (Deer Park Eastern City Limit) (E) D. Deer Park STP (3.0 MGD) (W)	1006.0125 (Nekton)
11.7	I. Behring Export International (0.01 MGD) (N)	

Statewide MonitoringNetworkStation Number

<u>Mile</u>	<u>Feature</u>	<u>Station Number</u>
	II. Oil Tanking (N)	
	III. Litho Strip (N)	
12.6	I. Dundee Cement (N)	
12.7	I. Shell Oil Company (S) (CM 142)	
	II. Cargill (N)	
14.1	I. Tenneco Oil Company (S) (CM 145)	
14.5	I. Georgia Pacific Corporation (S)	
15.2	I. Southland Paper Mills (N) (CM 150)	
	II. Pasadena Deepwater (S)	
15.3	I. Ethyl Corporation (S)	
15.5	I. Greens Bayou (N) (CM 152) (829 MGD)	1006.02
	A. Todd Shipyard/Brown & Root (W)	
	B. Koppers (W)	
	C. Standley Utility Company (0.0125 MGD) (E)	
	D. Diamond Shamrock Greens Bayou (E)	
	E. Pennwalt Corporation (E)	
	F. Merichem Company (E)	
	G. Stauffer Chemical Company, Greens Bayou Plant (E)	
	H. Reichhold Chemical (E)	
	I. Western Refuse (W)	
	J. Northeast STP (3.0 MGD) (W)	
	K. Houston WCID #32	
	L. Properties International (0.06 MGD) (E)	
	M. Fox & Jacobs (0.80 MGD) (E)	
	N. Royalwood MUD (0.26 MGD) (E)	
	O. Sepco Corporation (0.002 MGD) (E)	
	P. Wallace Company (0.005 MGD) (W)	
	Q. Houston Lighting & Power (E)	
	R. Ashbrook (Halls Bayou) (W)	
	S. Greenwood Utility District (0.85 MGD) (W)	
	T. Harris County MUD #48 (E)	

Statewide Monitoring
Network
Station Number

<u>Mile</u>	<u>Feature</u>	<u>Station Number</u>
16.5	I. Phillips Petroleum Company (S) (Adams Terminal)	
16.6	I. Fertilizer Company of Texas (Fertitex)	
16.8- 17.2	I. Armco Steel Corporation (N)	1006.0210
17.3	I. Amerada Hess Terminal (N) II. Olin Mathieson Chemical Corporation (S)	(Nekton)
17.8	I. Hunting Bayou (N) (CM 160) (264 MGD) A. Gulf Oil Terminal (Storm- water Runoff) (E) B. Warren Petroleum (W) C. Galena Park #2 (0.10 MGD) (W) D. Jacinto City STP (1.25 MGD) (E) E. Anheuser Busch (W) F. Houston FWSD #17 (3.0 MGD) (N) G. Johnson Inn (0.012 MGD) (W) H. Missouri Pacific Railroad (N) I. Texaco (W)	
18.0	I. Cottonpatch Bayou (S) A. GATX Pasadena Terminal (Outfall #2) (W)	
18.1	I. GATX - Pasadena Terminal (S) (Outfall #1)	
18.6	I. CM 161 (HSC)	
18.7	I. Crown Central and Air Products (S) (GCWDA)	
18.8	I. Washburn Tunnel (CM 163)	

Statewide Monitoring
Network
Station Number

<u>Mile</u>	<u>Feature</u>	<u>Station Number</u>
18.9	I. U. S. Plywood-Champion Papers, Inc. (S) (CM 165)	
	II. Gulf Coast Waste Disposal Authority (52.6 MGD) (S) (CM 165)	1006.0220
19.5	I. Texaco Inc. (N)	
19.6	I. Vince Bayou (S) (71 MGD)	
	A. Pasadena Northside STP - Outfall 1A (W)	
	B. Pasadena Northside STP - Outfall 1B (E)	
19.7	I. Panther Creek (N)	
	A. GATX (E)	
	B. Chemical Exchange (E)	
	C. Galena Park #1 (0.70 MGD) (E)	
	II. Houston Lighting and Power Deepwater Plant (S) (240 MGD)	1006.0220 (Nekton)
19.8	I. High Line	
20.2	I. Arco (S) (GCWDA Pending)	
	II. Robertson Terminals (N)	
	III. Good Pasture Grain (N)	
20.7	I. Sims Bayou (S) (Houston Pasadena City Boundary) (350 MGD)	1006.0300
	A. Houston Sims Bayou STP (Permit 45 MGD - Avg. 55 MGD) (W)	
	B. Goodyear Tire and Rubber Company (E)	
	C. Petro-Tex and Denka (GCWDA (E)	
	D. U.S.S. Chemicals (E)	
	E. Berry Gully	
	1. South Houston STP	
	2. Intercoastal Refining (W)	
	3. Houston WCID #47 (3.0 MGD) (W)	
	4. Houston Gulfway Terrace (0.31 MGD) (W)	
	5. Houston Gulf Palms (0.3 MGD) (W)	

Statewide Monitoring
Network
Station Number

<u>Mile</u>	<u>Feature</u>	
20.8	I. U. S. Gypsum (N) II. Manchester Docks (S) III. Ideal Cement (N)	
21.3	I. Charter International Oil Company (S) II. U. S. Steel (N)	
21.7	I. U. S. Coast Guard Station (N)	
21.9	I. John W. Mecom and Proler STP (N) II. Fireboat Station (S) A. National Molasses Company (Behind Fireboat Station)	
22.3	I. Port Houston Dickson (N)	
22.4	I. Interstate Loop 610 Bridge II. City of Houston Clinton Park STP 0.25 miles northwest of bridge	
22.5	I. Stauffer Chemical Company (S)	
22.8- 23.0	I. Brays Bayou (S) (apx. 30 miles long) (562 MGD) A. Brady Island 1. Newpark Shipbuilding and Repair (S) B. Hermann Park (Bypass) (N) C. MacGregor Park (Bypass) (E) 1. Blue Ribbon Packing Company (N) D. West University STP (N) E. Bellaire STP (N) F. Southwest Houston STP (N) (30 MGD)	
23.5	I. Sea Land Service (N)	
24.6	I. Exxon Chemical (N)	
24.7	I. Turning Basin A. Jacob Stearns Tallow Handling Plant (S)	1007.01

Statewide Monitoring
Network
Station Number

<u>Mile</u>	<u>Feature</u>	<u>Station Number</u>
25.0	I. Buffalo Bayou (986 MGD avg.)	
	A. Southern Pacific Railroad (N)	
	B. 69th Street (0.6 mile above Turning Basin)	
	C. Wayside	
	D. 69th Street Wastewater Treatment Plant (to be completed 1982) (200 MGD) (N)	
	E. Houston Belt and Terminal Railroad (S)	
	F. Portland Cement (S)	
	G. Turkey Bend (S)	
	1. Parker Brothers (S)	
	H. Northside Sewage Treatment Plant (2.0 miles above Turning Basin) (N)	
	I. Lockwood Drive (2.0 miles above Turning Basin)	
	J. General Portland Cement (S)	
	K. Lead Products (S)	
	L. Horton and Horton (S)	
	M. Hirsch Street (2.7 miles above Turning Basin)	
30.5	I. White Oak Bayou	
	A. MKT Railroad (SW)	
	B. Uvalde Rock Asphalt (SW)	
	C. Cook Paint and Varnish (SW)	

* Abbreviations:

S - Southside of Channel
 N - Northside of Channel
 E - East of tributary (leaving the channel)
 W - West of tributary
 SW - Southwest of tributary leaving Buffalo Bayou
 CM - Channel Marker
 STP - Sewage Treatment Plant
 MGD - Million Gallons Per Day
 FWSD - Fresh Water Supply District
 WCO - Waste Control Order
 SH - State Highway
 WCID - Water Control and Improvement District
 MUD - Municipal Utility District
 GCWDA - Gulf Coast Waste Disposal Authority

Table 2

PHYSICOCHEMICAL CHARACTERISTICS OF SURFACE AND BOTTOM WATER
AT MORGANS POINT
1 FT./40 FT. (MILE 0)

	<u>D.O.</u> <u>mg/l</u>	<u>Temperature</u> <u>°C</u>	<u>pH</u> <u>Units</u>	<u>Conductivity</u> <u>umhos/cm</u>	<u>Chloride</u> <u>mg/l</u>	<u>Sulfate</u> <u>mg/l</u>	<u>Total</u> <u>Coliform</u> <u>no./100 ml</u>	<u>Fecal</u> <u>Coliform</u> <u>no./100 ml</u>	<u>Secchi</u> <u>inches</u>
<u>7/73-6/74</u>									
Average	8/6	23/23	7.2-8.3/7.4-8.3	10050*/19225*	4408/7107	490/592	2872	387	15
Maximum	9/10	29/29	8.3/8.3	248000*/42900*	6230/17428	808/1600	10000	3300	
Minimum	5/3	16/13	7.2/7.4	5200*/2500*	1646/810	71/57	200	10	
# Samples	12/12	12/12	12/12	12/12	12/12	12/12	11	10	10
<u>7/74-6/75</u>									
Average	7/6	22/21	7.6-8.2/7.8-8.6	12927/24505	3883/7971	655/1351	1038	27	15
Maximum	10/9	31/30	8.2/8.6	28500/39500	9200/12950	1450/1950	9000	200	
Minimum	5/3	14/14	7.6/7.8	1800/2200	125/580	17/160	100	10	
# Samples	10/11	12/12	9/9	11/11	12/11	12/12	12	12	7
<u>7/75-6/76</u>									
Average	8/6	21/20	7.7-8.8/7.8-8.7	24270/32091	9764/11642	1136/1369	326	13	18
Maximum	10/10	30/29	8.8/8.7	30000/39000	19400/19600	1450/1815	23000	40	
Minimum	6/3	13/7	7.7/7.8	10000/11000	5350/2900	720/450	30	10	
# Samples	9/11	11/12	9/9	10/11	11/12	11/12	11	11	6
<u>7/76-6/77</u>									
Average	8/6	21/20	7.7-8.6/7.4-9.4	18925/30169	5519/10310	839/1278	732	36	19
Maximum	12/10	31/30	8.6/9.4	30000/39000	8700/24800	1615/1910	47000	2900	26
Minimum	4/2	9/9	7.7/7.4	9000/15000	2450/3625	403/525	100	10	14
# Samples	12/12	12/12	11/12	12/12	12/12	11/10	11	12	11
<u>7/77-6/78</u>									
Average	7/7	20/19	7.8-8.9/7.8-8.9	25737/33287	7966/10019	1168/1488	1512	51	19
Maximum	12/10	30/29	8.9/8.9	32700/44000	12050/14700	1695/2000	28000	1500	25
Minimum	3/4	9/8	7.8/7.8	7200/21000	2510/5555	282/750	110	10	5
# Samples	10/10	10/10	7/7	8/8	10/10	10/10	9	10	8

* Lab Data (following years taken from field measurements).

Table 2

PHYSICOCHEMICAL CHARACTERISTICS OF SURFACE AND BOTTOM WATER
 AT MORGANS POINT
 1 FT./40 FT. (MILE 0)
 mg/l

<u>7/73-6/74</u>	<u>BOD</u>	<u>TOC</u>	<u>TSS</u>	<u>VSS</u>	<u>TPO₄</u>	<u>OPO₄</u>	<u>NH₃N</u>	<u>NO₃N</u>	<u>Chlor a</u>
Average	5/3	12/12	80/133	22/12	3.30/2.71	2.708/2.07	1.13/0.84	0.16/0.13	0.038
Maximum	14/10	23/23	238/470	86/23	5.57/5.24	4.180/3.01	3.20/3.40	0.23/0.25	0.068
Minimum	1/1	4/4	10/46	2/4	0.95/0.95	1.950/0.84	0/0	0.09/0.03	0.015
# Samples	11/11	9/9	12/12	11/12	12/12	10/10	12/12	12/12	5
<u>7/74-6/75</u>									
Average	4/3	11/8	42/229	11/33	1.011/0.728	0.735/0.432	1.242/0.958	0.24/0.24	0.014
Maximum	13/14	19/13	157/712	24/80	1.530/1.950	1.281/0.634	4.000/1.900	0.91/1.31	0.043
Minimum	1/1	7/5	6/57	0/0	0.490/0.380	0.225/0.200	0.100/0.000	0.03/0.03	0.000
# Samples	12/12	12/12	12/12	12/12	12/12	12/12	12/12	12/12	3
<u>7/75-6/76</u>									
Average	4/3	13/11	38/81	12/16	0.743/0.497	0.644/0.426	0.682/0.602	0.13/0.11	0.038
Maximum	8/5	21/20	64/155	21/27	0.780/0.820	1.630/0.762	1.000/1.100	0.21/0.32	0.093
Minimum	2/1	8/8	14/26	1/6	0.284/0.177	0.216/0.164	0.150/0.060	0.03/0.01	0.000
# Samples	12/11	11/11	11/11	11/11	11/11	11/11	11/11	11/11	11
<u>7/76-6/77</u>									
Average	4/3	16/14	22/75	8/13	0.836/0.460	0.748/0.381	0.517/0.137	0.17/0.10	0.024
Maximum	10/7	22/19	38/180	15/31	1.244/0.635	1.120/0.635	0.210/0.400	0.48/0.30	0.080
Minimum	2/1	12/8	8/38	1/4	0.604/0.232	0.514/0.170	0.020/0.010	0.02/0.01	0.002
# Samples	11/11	12/12	12/12	12/12	12/12	12/12	12/12	12/12	11
<u>7/77-6/78</u>									
Average	3/2	15/16	19/52	6/10	0.652/0.418	0.558/0.351	0.482/0.277	0.20/0.14	0.161
Maximum	8/3	26/25	35/97	23/21	1.150/0.618	1.080/0.528	1.380/0.610	0.37/0.40	1.414
Minimum	1/1	9/8	1/6	1/1	0.406/0.182	0.232/0.106	0.010/0.010	0.08/0.02	0.002
# Samples	10/10	7/7	10/10	10/10	10/10	10/10	10/10	10/10	10

Table 2
 PHYSICOCHEMICAL CHARACTERISTICS OF SURFACE AND BOTTOM WATER
 AT THE MONUMENT
 1 FT./40 FT. (MILE 9)

	<u>D.O.</u> mg/l	<u>Temperature</u> °C	<u>pH</u> Units	<u>Conductivity</u> umhos/cm	<u>Chloride</u> mg/l	<u>Sulfate</u> mg/l	<u>Total Coliform</u> no./100 ml	<u>Fecal Coliform</u> no./100 ml	<u>Secchi</u> inches
<u>7/73-6/74</u>									
Average	4/3	23/23	7.2-8.2/7.1-7.7	7015*/12486*	2733/4326	283/808	22135	1446	16
Maximum	7/8	29/29	8.2/7.7	19100*/30600*	6470/9760	572/4120	80000	7900	
Minimum	1/1	15/13	7.2/7.1	1040*/1350*	210/425	46/60	1500	80	
# Samples	12/12	12/12	11/12	11/12	12/12	11/12	11	10	9
<u>7/74-6/75</u>									
Average	5/3	23/22	7.1-8.1/7.0-7.8	9121/1707	2649/6226	388/847	9319	349	13
Maximum	9/7	31/30	8.1/7.8	21000/30000	7900/10100	1212/1650	120000	6600	
Minimum	2/0	14/15	7.1/7.0	1500/2500	175/595	60/177	1000	10	
# Samples	10/9	12/11	10/8	12/10	12/10	12/10	12	12	8
<u>7/75-6/76</u>									
Average	5/5	24/22	7.1-8.0/7.3-8.4	18418/27192	7075/9758	851/1203	2421	62	22
Maximum	7/8	31/29	8.0/8.4	26000/33000	13600/16600	1175/1450	17000	1500	
Minimum	3/1	18/13	7.1/7.3	5300/9800	2300/2600	251/376	200	10	
# Samples	11/11	11/12	10/11	11/12	10/12	10/12	10	10	10
<u>7/76-6/77</u>									
Average	5/4	21/21	6.7-7.9/7.1-8.2	12292/23392	3259/5968	531/993	11293	304	17
Maximum	11/7	31/30	7.9/8.2	23500/35000	6350/9900	1265/1750	150000	13000	27
Minimum	1/1	8/9	6.7/7.1	3200/8700	400/2350	75/340	800	10	8
# Samples	12/12	12/12	11/11	12/12	12/11	11/10	11	12	10
<u>7/77-6/78</u>									
Average	5/5	21/20	7.1-8.1/7.4-8.6	17837/23850	5474/6806	809/1063	26717	805	21
Maximum	10/7	30/30	8.1/8.6	28000/33000	11250/10600	1365/1735	190000	30000	32
Minimum	2/1	9/9	7.1/7.4	2100/7100	494/1610	80/258	2000	150	5
# Samples	10/10	10/10	7/7	8/8	10/10	10/10	9	9	10

* Lab Data (following years taken from field measurements).

Table 2
 PHYSICOCHEMICAL CHARACTERISTICS OF SURFACE AND BOTTOM WATER
 AT THE MONUMENT
 1 FT./40 FT. (MILE 9)
 mg/l

<u>7/73-6/74</u>	<u>BOD</u>	<u>TOC</u>	<u>TSS</u>	<u>VSS</u>	<u>TPO₄</u>	<u>OPO₄</u>	<u>NH₃N</u>	<u>NO₃N</u>	<u>Chlor a</u>
Average	4/4	16/15	30/47	15/16	6.42/5.84	5.45/4.84	3.27/2.64	1.69/0.10	0.020
Maximum	16/14	24/22	54/94	50/50	11.90/15.30	10.90/9.11	6.80/6.00	10.35/0.19	0.046
Minimum	1/1	10/9	8/0	0/0	1.23/1.47	1.98/2.55	0.40/0.44	0.02/0.03	0
# Samples	11/12	8/9	11/12	11/12	11/12	9/10	11/12	11/12	5
<u>7/74-6/75</u>									
Average	4/5	12/9	27/432	7/71	1.791/1.746	1.441/1.522	2.467/2.360	0.18/0.27	0.035
Maximum	15/17	15/12	52/2000	21/216	3.540/3.248	3.070/2.928	6.400/4.300	0.51/1.39	0.099
Minimum	1/1	8/6	12/12	0/4	0.556/0.750	0.281/0.627	1.000/1.000	0.01/0.02	0.000
# Samples	12/10	12/10	12/10	12/10	12/10	12/10	12/10	12/10	3
<u>7/75-6/76</u>									
Average	3/4	16/13	27/53	7/13	1.802/1.610	1.651/0.918	2.397/1.215	0.15/0.15	0.015
Maximum	8/8	22/22	45/110	13/22	2.740/8.400	2.500/1.670	4.200/2.040	0.26/0.29	0.027
Minimum	1/1	13/8	18/18	1/6	0.980/0.418	0.880/0.324	1.000/0.130	0.07/0.05	0.000
# Samples	11/12	10/12	11/12	11/12	10/12	10/12	10/12	10/12	10
<u>7/76-6/77</u>									
Average	3/3	19/16	26/49	6/10	1.596/1.341	1.321/1.142	1.394/1.076	0.29/0.32	0.736
Maximum	6/6	25/20	55/82	17/19	2.560/2.550	2.368/2.320	2.960/2.750	1.48/1.62	8.580
Minimum	2/2	14/8	8/15	1/1	0.414/0.708	0.345/0.680	0.130/0.170	0.03/0.04	0.001
# Samples	11/11	12/11	12/11	12/11	12/11	12/11	12/11	12/11	12
<u>7/77-6/78</u>									
Average	2/3	18/15	21/40	7/10	1.378/1.208	1.173/0.961	1.876/1.302	0.34/0.32	0.016
Maximum	3/4	30/25	33/75	24/32	2.640/2.320	2.300/1.760	4.050/3.610	0.91/0.97	0.068
Minimum	2/2	13/11	1/16	1/1	0.670/0.544	0.505/0.355	0.560/0.200	0.09/0.04	0.000
# Samples	10/10	7/7	10/10	10/10	10/10	10/10	10/10	10/10	9

Table 2

PHYSICOCHEMICAL CHARACTERISTICS OF SURFACE AND BOTTOM WATER
 AT GREENS BAYOU
 1 FT./40 FT. (MILE 15.5)
 **73-74 SAMPLES WERE COLLECTED FL 138

	<u>D.O.</u> mg/l	<u>Temperature</u> C	<u>pH</u> Units	<u>Conductivity</u> umhos/cm	<u>Chloride</u> mg/l	<u>Sulfate</u> mg/l	<u>Total Coliform</u> no./100 ml	<u>Total Coliform</u> no./100 ml	<u>Secchi</u> inches
<u>7/73-6/74</u>									
Average	3/2	22/22	7.1-7.9/7.0-7.8	7747*/13455*	2731/4601	238/549	31370	2922	17
Maximum	7/6	30/29	7.9/7.8	18500*/34600*	6840/10956	679/1500	81000	7900	
Minimum	1/1	14/14	7.1/7.0	770*/1150*	210/362	9/57	2800	90	
# Samples	10/10	10/10	10/10	10/10	10/10	10/9	10	9	8
<u>7/74-6/75</u>									
Average	2/1	22/23	6.6-7.3/6.6-7.7	7967/14614	2522/4881	387/771	36166	1156	17
Maximum	4/5	30/30	7.3/7.7	19500/28000	7050/8500	1100/1450	300000	17000	
Minimum	1/0	15/15	6.6/6.6	1150/1700	195/505	58/100	7000	60	
# Samples	9/10	12/12	10/9	12/11	12/12	12/12	12	12	10
<u>7/75-6/76</u>									
Average	3/2	23/22	7.1-7.5/7.0-7.9	16558/23867	6127/8345	800/1063	12495	369	22
Maximum	4/5	32/28	7.5/7.9	24000/30000	15400/16400	1145/1485	9000	3600	
Minimum	1/0	15/14	7.1/7.0	3600/7900	1450/735	325/356	470	20	
# Samples	12/11	12/12	11/11	12/12	11/12	11/12	11	11	10
<u>7/76-6/77</u>									
Average	3/3	22/21	6.5-7.6/6.7-8.1	11200/20725	3087/6500	566/845	15240	1181	19
Maximum	7/7	31/31	7.6/8.1	21000/33000	7500/17700	1725/1615	570000	26000	33
Minimum	1/0	11/9	6.5/6.7	2800/7700	500/2000	127/310	1000	120	6
# Samples	12/12	12/12	12/12	12/12	12/11	11/10	10	10	11
<u>7/77-6/78</u>									
Average	3/3	21/20	6.9-8.1/7.0-8.0	14522/21900	4117/6174	655/935	42665	2364	22
Maximum	6/7	30/29	8.1/8.0	26000/32000	7700/10250	1200/1565	480000	64000	36
Minimum	0/0	11/10	6.9/7.0	3100/9500	344/1895	80/275	8600	110	3
# Samples	10/10	10/10	7/7	9/9	10/10	10/10	9	10	10

* Lab Data (following years taken from field measurements).

** 4.5 miles below Greens Bayou

Table 2
 PHYSICOCHEMICAL CHARACTERISTICS OF SURFACE AND BOTTOM WATER
 AT GREENS BAYOU
 1 FT./40 FT. (MILE 15.5)
 *73-74 SAMPLES WERE COLLECTED FL 138
 mg/l

<u>7/73-6/74</u>	<u>BOD</u>	<u>TOC</u>	<u>TSS</u>	<u>VSS</u>	<u>TPO₄</u>	<u>OPO₄</u>	<u>NH₃N</u>	<u>NO₃N</u>	<u>Chlor a</u>
Average	6/5	15/16	42/101	22/30	6.660/6.260	4.900/5.860	4.100/3.390	0.10/0.138	0.022
Maximum	26/24	18/20	126/420	110/110	11.500/13.900	10.500/9.280	2.300/7.600	0.19/0.660	0.037
Minimum	1/1	9/11	6/8	0/8	0.940/0.950	4.460/2.650	1.180/0.000	0.02/0.010	0.012
# Samples	10/10	7/7	10/10	10/10	10/10	8/8	10/10	10/10	3
<u>7/74-6/75</u>									
Average	5/3	12/12	43/51	11/10	3.363/2.510	2.630/2.131	3.283/3.308	0.99/0.13	0.042
Maximum	17/15	18/28	170/140	26/42	7.730/5.020	4.575/4.216	8.800/7.800	10.01/0.22	0.118
Minimum	1/1	10/7	9/14	3/0	1.650/0.428	1.650/0.428	0.000/1.000	0.01/0.01	0.000
# Samples	12/12	12/12	12/12	12/12	12/12	12/12	12/12	12/12	3
<u>7/75-6/76</u>									
Average	2/4	18/14	18/49	4/8	2.630/1.630	2.242/1.510	3.536/2.506	0.15/0.13	0.007
Maximum	3/13	27/21	28/152	10/16	3.980/2.570	3.340/2.570	5.400/4.920	0.32/0.37	0.027
Minimum	1/1	15/10	11/15	1/3	1.715/1.100	1.100/0.900	1.000/1.000	0.04/0.02	0.000
# Samples	12/11	11/12	12/12	12/12	11/12	11/12	11/12	11/12	11
<u>7/76-6/77</u>									
Average	4/4	20/18	36/45	6/7	2.493/1.974	2.132/1.797	2.530/2.194	0.30/0.31	0.005
Maximum	11/10	26/27	89/97	14/15	3.960/3.630	3.770/3.436	5.000/4.500	1.16/1.86	0.012
Minimum	2/1	15/9	10/10	1/3	0.664/1.208	0.530/1.024	0.780/0.640	0.07/0.03	0.001
# Samples	11/10	12/11	12/11	12/11	12/11	12/11	12/11	12/12	12
<u>7/77-6/78</u>									
Average	3/3	19/18	67/53	12/11	1.830/1.621	1.616/1.423	2.325/1.782	0.30/0.25	0.018
Maximum	7/6	31/31	326/140	40/30	3.570/2.960	3.410/2.960	3.900/4.050	0.70/0.68	0.140
Minimum	2/2	13/12	7/14	3/1	0.967/0.742	0.620/0.560	0.790/0.710	0.05/0.08	0.000
# Samples	10/10	7/7	10/10	10/10	10/10	10/10	10/10	10/10	10

20

* 4.5 miles below Greens Bayou

Table 2

PHYSICO-CHEMICAL CHARACTERISTICS OF SURFACE AND BOTTOM WATER

AT SIMS BAYOU

1 FT./40 FT. (MILE 20.7)

**73-74 SAMPLES WERE COLLECTED AT FL 165

	<u>D.O.</u> mg/l	<u>Temperature</u> °C	<u>pH</u> Units	<u>Conductivity</u> umhos/cm	<u>Chloride</u> mg/l	<u>Sulfate</u> mg/l	<u>Total Coliform</u> no./100 ml	<u>Fecal Coliform</u> no./100 ml	<u>Secchi</u> inches
<u>7/73-6/74</u>									
Average	2/1	25/23	7.1-7.5/7.1-7.5	5232*/8861*	1778/2932	202/465	217808	11466	11
Maximum	5/3	31/30	7.5/7.5	13500*/28800*	4700/8564	549/1820	620000	24000	
Minimum	0/0	19/15	7.1/7.1	372*/610*	80/90	14/9	13000	2900	
# Samples	12/12	12/12	12/12	12/12	12/11	12/12	12	11	10
<u>7/74-6/75</u>									
Average	2/1	23/22	7.0-7.4/6.9-7.5	4560/13213	1609/3623	245/650	185092	3657	13
Maximum	5/4	29/30	7.4/7.5	16000/25000	4400/8000	625/1220	3600000	51000	
Minimum	0/0	16/15	7.0/6.9	750/730	138/100	45/26	9000	100	
# Samples	11/10	12/10	10/8	12/10	12/11	12/11	12	12	10
<u>7/75-6/76</u>									
Average	1/1	23/22	7.2-7.6/7.0-7.6	13650/21392	5005/7265	582/874	59276	957	23
Maximum	3/4	31/29	7.6/7.6	20000/28000	10600/11800	839/1080	4000000	35000	32
Minimum	0/0	14/14	7.2/7.0	2200/8700	2150/2700	289/442	1000	100	10
# Samples	12/12	12/12	11/11	12/12	11/12	11/12	10	10	10
<u>7/76-6/77</u>									
Average	2/1	22/21	6.6-7.6/6.4-7.7	7442/18117	1880/5352	347/690	40984	3445	20
Maximum	8/5	30/31	7.6/7.7	15000/32000	3900/11500	703/1290	940000	99000	36
Minimum	0/0	11/10	6.6/6.4	810/4600	82/1100	37/226	1000	100	6
# Samples	12/12	12/12	12/12	12/12	12/12	11/11	11	12	11
<u>7/77-6/78</u>									
Average	3/2	21/20	7.0-8.1/7.0-8.2	10659/16978	2960/5866	472/803	119531	3298	19
Maximum	8/5	29/29	8.1/8.2	23000/30000	6400/14600	925/1375	800000	80000	42
Minimum	0/0	12/10	7.0/7.0	470/1800	115/785	41/135	27000	400	3
# Samples	10/10	10/10	7/7	9/9	10/9	10/9	9	10	10

* Lab data (following years taken from field measurements)

** 1.8 miles downstream Sims Bayou

Table 2

PHYSICOCHEMICAL CHARACTERISTICS OF SURFACE AND BOTTOM WATER
 AT SIMS BAYOU
 1 FT./40 FT. (MILE 20.7)
 *73-74 SAMPLES WERE COLLECTED AT FL 165
 mg/l

<u>7/73-6/74</u>	<u>BOD</u>	<u>TOC</u>	<u>TSS</u>	<u>VSS</u>	<u>TPO₄</u>	<u>OPO₄</u>	<u>NH₃N</u>	<u>NO₃N</u>	<u>Chlor a</u>
Average	8/6	28/21	42/51	21/20	6.680/7.63	41.400/6.68	4.460/4.09	0.135/0.07	0.009
Maximum	22/24	34/45	80/114	40/50	12.100/16.00	9.850/14.70	8.400/9.60	0.640/0.22	0.027
Minimum	4/2	18/14	0/0	0/0	0/0	1.470/1.470	1.530/0.59	0.010/0.01	0.004
# Samples	12/12	9/9	12/12	12/12	12/12	10/10	12/12	12/12	5
<u>7/74-6/75</u>									
Average	8/5	13/11	36/53	8/13	2.191/2.049	1.887/1.618	4.667/3.109	0.190/0.10	0.013
Maximum	16/16	18/17	108/210	26/44	3.889/3.260	3.248/2.914	13.500/5.800	0.550/0.25	0.028
Minimum	4/1	7/7	18/15	1/3	1.069/1.065	0.804/0.814	1.200/1.000	0.010/0.01	0.000
# Samples	12/11	12/11	12/11	12/11	12/11	12/11	12/11	12/11	3
<u>7/75-6/76</u>									
Average	5/6	19/16	17/115	5/19	2.598/2.044	2.297/1.665	5.655/3.463	0.070/0.06	0.003
Maximum	17/28	27/24	28/1080	9/148	3.380/4.200	2.970/2.740	7.600/5.760	0.250/0.25	0.013
Minimum	1/1	14/12	10/10	1/1	1.710/9.758	1.370/0.758	3.300/0.910	0.010/0.01	0.000
# Samples	12/12	11/12	12/12	12/12	11/12	11/12	11/12	11/12	11
<u>7/76-6/77</u>									
Average	6/4	20.17	25/20	5/6	2.050/1.827	1.833/1.472	3.738/2.447	0.180/0.13	0.0048
Maximum	16/14	31/22	124/35	16/15	3.110/3.140	3.110/2.590	5.300/5.000	0.420/0.32	0.1240
Minimum	3/2	15/11	6/6	1/0	0.926/1.102	0.690/0.714	0.730/0.900	0.040/0.01	0.0010
# Samples	11/11	12/12	12/12	12/12	12/12	12/12	12/12	12/12	11
<u>7/77-6/78</u>									
Average	4/3	20/19	35/31	10/9	2.188/1.529	1.823/1.304	3.542/2.624	0.260/0.220	0.0100
Maximum	8/7	32/28	137/74	25/22	3.950/2.800	3.620/2.500	6.910/5.580	0.590/0.640	0.0570
Minimum	2/1	14/12	9/9	2/1	1.190/0.957	0.945/0.750	1.320/1.440	0.010/0.010	0.0000
# Samples	10/9	7/6	10/9	10/9	10/9	10/9	10/9	10/9	10

* 1.8 miles downstream Sims Bayou

Table 2

PHYSICOCHEMICAL CHARACTERISTICS OF SURFACE AND BOTTOM WATER
AT THE TURNING BASIN
1 FT./40 FT. (MILE 25)

	<u>D.O.</u> <u>mg/l</u>	<u>Temperature</u> <u>°C</u>	<u>pH</u> <u>Units</u>	<u>Conductivity</u> <u>umhos/cm</u>	<u>Chloride</u> <u>mg/l</u>	<u>Sulfate</u> <u>mg/l</u>	<u>Total</u> <u>Coliform</u> <u>no./100 ml</u>	<u>Fecal</u> <u>Coliform</u> <u>no./100 ml</u>	<u>Secchi</u> <u>inches</u>
<u>7/73-6/74</u>									
Average	2/1	23/23	6.7/7.4-6.8/7.5	2090*/5587*	546/1452	112/202	2238172	72386	10
Maximum	7/3	29/29	7.4/7.5	6600*/19700*	2350/5590	397/536	17000000	250000	
Minimum	0/0	16/14	6.7/6.8	152*/149*	13/13	22/10	4500	220	
# Samples	12/12	12/12	12/12	12/12	12/12	12/12	11	10	10
<u>7/74-6/75</u>									
Average	2/0.3	22/23	6.9/7.7-6.8/7.7	2089/9440	668/3165	127/522	1220096	27277	8
Maximum	7/2	30/30	7.7/7.7	9300/20000	3060/6850	460/1036	80000000	350000	
Minimum	0.1/0	16/15	7.0/6.8	320/310	29/28	32/35	80000	1000	
# Samples	11/8	12/8	11/7	12/8	12/10	12/10	11	12	6
<u>7/75-6/76</u>									
Average	0.5/0.2	23/22	7.2/7.6-6.9/7.4	9527/18367	2909/6352	360/807	715237	2923	12
Maximum	2/1	30/29	7.6/7.4	18000/26000	6600/11400	591/1385	4200000	200000	22
Minimum	0.1/0	15/13	7.2/6.9	830/3100	750/1069	72/131	134000	300	6
# Samples	12/12	12/12	11/11	12/12	11/12	11/12	10	10	9
<u>7/76-6/77</u>									
Average	3/0	21/21	6.6/7.8-6.4/7.4	3461/15125	757/3543	147/629	53881	1365	12
Maximum	8/3	29/31	7.8/7.4	10000/30000	2400/7600	500/1290	3000000	140000	2
Minimum	0/0	11/10	6.6/6.4	630/4100	43/590	20/140	1000	100	5
# Samples	12/12	12/12	12/12	12/12	12/12	11/11	11	11	12
<u>7/77-6/78</u>									
Average	2/1	21/20	6.8/8.0-6.9/8.0	6826/14733	1904/4288	275/682	279314	5208	15
Maximum	8/5	30/29	8.0/8.0	17000/28000	5820/8150	630/1285	740000	80000	24
Minimum	0/0	12/10	6.8/6.9	310/1100	34/358	17/65	80000	500	3
# Samples	10/10	10/10	7/7	8/9	10/10	10/10	9	9	7

* Lab data (following years taken from field measurements)

Table 2

PHYSICOCHEMICAL CHARACTERISTICS OF SURFACE AND BOTTOM WATER
 AT THE TURNING BASIN
 1 FT./40 FT. (MILE 25)
 mg/l

	<u>BOD</u>	<u>TOC</u>	<u>TSS</u>	<u>VSS</u>	<u>TPO₄</u>	<u>OPO₄</u>	<u>NH₃-N</u>	<u>NO₃-N</u>	<u>Chlor a</u>
<u>7/73-6/74</u>									
Average	12/7	18/20	79/168	30/37	6.930/6.635	6.810/5.630	6.310/4.860	0.09/0.06	0.022
Maximum	22/16	23/41	311/322	50/64	14.100/12.000	11.100/8.880	19.000/10.800	0.026/0.29	0.055
Minimum	5/3	13/5	22/8	0/8	2.700/3.430	3.030/2.990	1.570/1.530	0.010/0.00	0
# Samples	12/12	9/9	12/12	12/12	12/12	10/10	12/12	12/12	4
<u>7/74-6/75</u>									
Average	9/7	11/10	68/100	12/22	2.502/2.333	1.337/1.670	6.667/3.800	0.400/0.08	0.017
Maximum	15/22	16/15	112/344	24/50	11.600/4.170	2.758/3.333	39.000/5.600	3.080/0.21	0.027
Minimum	3/2	5/7	16/17	7/3	0.850/1.176	0.608/0.755	1.800/1.000	0.010/0.01	0.002
# Samples	12/10	12/10	12/10	12/10	12/10	12/10	12/10	12/10	3
<u>7/75-6/76</u>									
Average	14/6	21/15	45/32	12/8	2.795/1.984	2.437/1.707	6.636/4.118	0.060/0.05	0.004
Maximum	42/22	37/23	85/56	18/14	4.190/2.910	3.710/2.780	9.800/6.640	0.030/0.25	0.013
Minimum	2/2	14/11	19/15	7/1	1.210/0.867	0.970/0.800	1.600/1.200	0.010/0.010	0.000
# Samples	12/12	11/12	12/12	12/12	11/12	11/12	11/12	11/12	11
<u>7/76-6/77</u>									
Average	7/4	20/18	39/20	8/7	1.654/2.015	1.402/1.579	3.209/2.725	0.200/0.070	0.010
Maximum	23/18	31/24	107/41	18/13	3.310/2.990	2.870/2.950	7.500/5.200	0.420/0.230	0.044
Minimum	2/2	15/12	5/6	0/1	0.662/1.013	0.476/0.856	0.530/1.280	0.010/0.010	0.001
# Samples	11/11	12/12	12/12	12/12	12/12	12/12	12/12	12/12	11
<u>7/77-6/78</u>									
Average	6/3	21/19	75/31	16/10	1.774/1.633	1.459/1.331	3.786/2.896	0.190/0.130	0.015
Maximum	10/7	38/31	294/153	42/31	3.780/3.410	3.120/2.900	8.290/7.070	0.440/0.52	0.055
Minimum	2/1	14/12	12/6	1/1	0.640/0.838	0.385/0.500	0.730/0.880	0.010/0.010	0.000
# Samples	10/10	7/7	10/10	10/10	10/10	10/10	10/10	10/10	10

Table 3

METALS IN WATER
MORGANS POINT (MILE 0)
ug/l

	<u>Cadmium</u>	<u>Copper</u>	<u>Chromium</u>	<u>Iron</u>	<u>Lead</u>	<u>Manganese</u>	<u>Mercury</u>	<u>Zinc</u>	<u>Arsenic</u>	<u>Nickel</u>	<u>Silver</u>	<u>Barium</u>
<u>7/73-6/74</u>												
Average	16	145	22	903	100	99	1.11	106	ND	ND	ND	ND
Maximum	30	360	100	2150	190	230	4.00	140				
Minimum	8	50	10	390	20	70	0.02	60				
# Samples	12	12	12	8	12	12	12	12				
<u>7/74-6/75</u>												
Average	26	199	24	2755	154	108	0.50	143	ND	ND	ND	ND
Maximum	50	470	50	15570	300	340	1.50	410				
Minimum	10	80	10	930	50	40	0.20	10				
# Samples	12	12	12	11	12	12	12	12				
<u>7/75-6/76</u>												
Average	17	227	33	1423	59	96	0.50	114	ND	ND	ND	ND
Maximum	60	650	60	4510	150	200	1.40	420				
Minimum	10	30	20	580	50	50	0.00	10				
# Samples	13	13	13	13	13	13	13	13				
<u>7/76-6/77</u>												
Average	10	212	23	1060	45	93	0.30	172	15	165	20	150
Maximum	10	950	40	1200	180	220	1.10	350	30	190	20	200
Minimum	10	10	20	920	5	10	0.10	50	10	140	20	100
# Samples	12	12	12	2	12	12	12	6	10	2	2	2
<u>7/77-6/78</u>												
Average	20	308	20	ND	42	106	0.20	*	30	*	*	*
Maximum	20	950	20		100	160	0.20		43			
Minimum	20	130	20		10	60	0.20		20			
# Samples	5	5	5		5	5	5		5			

ND - No Data

* - Sampling discontinued 9/9/76

Table 3
METALS IN WATER
MONUMENT (MILE 9)
ug/l

Period	Average	Maximum	Minimum	# Samples	Cadmium	Copper	Chromium	Iron	Lead	Manganese	Mercury	Zinc	Arsenic	Nickel	Silver	Barium
<u>7/73-6/74</u>	10	20	3	12	136	186	21	658	77	139	1.11	98	ND	ND	ND	ND
	10	20	3	12	136	186	100	1350	140	220	3.36	170	ND	ND	ND	ND
	10	20	3	12	136	186	10	400	10	90	0.20	70	ND	ND	ND	ND
	10	20	3	12	136	186	12	8	12	12	12	12	ND	ND	ND	ND
<u>7/74-6/75</u>	17	30	10	12	167	320	18	1808	107	134	0.60	114	ND	ND	ND	ND
	17	30	10	12	167	320	40	2730	220	200	1.80	300	ND	ND	ND	ND
	17	30	10	12	167	320	5	670	40	40	0.20	80	ND	ND	ND	ND
	17	30	10	12	167	320	12	11	12	12	12	12	ND	ND	ND	ND
<u>7/75-6/76</u>	16	50	10	13	178	300	29	1032	55	141	0.50	85	ND	ND	ND	ND
	16	50	10	13	178	300	70	1660	110	200	1.30	170	ND	ND	ND	ND
	16	50	10	13	178	300	20	350	50	90	0.20	40	ND	ND	ND	ND
	16	50	10	13	178	300	13	13	13	13	13	13	ND	ND	ND	ND
<u>7/76-6/77</u>	13	50	10	12	191	670	24	600	25	151	0.40	153	22	165	15	60
	13	50	10	12	191	670	60	800	120	220	1.40	340	90	220	20	100
	13	50	10	12	191	670	20	400	4	80	0.10	90	10	110	10	20
	13	50	10	12	191	670	12	12	12	12	12	6	10	2	2	2
<u>7/77-6/78</u>	14	20	10	5	154	330	20	ND	36	190	0.20	*	43	*	*	*
	14	20	10	5	154	330	20	ND	36	190	0.20	*	43	*	*	*
	14	20	10	5	154	330	20	ND	80	270	0.20	73	73	*	*	*
	14	20	10	5	154	330	20	ND	10	102	0.20	18	18	*	*	*
	14	20	10	5	154	330	20	ND	5	5	0.20	5	5	*	*	*

ND - No Data
* - Sampling discontinued 9/9/76

Table 3

METALS IN WATER
 GREENS BAYOU (MILE 15.5)
 **73-74 SAMPLES WERE COLLECTED FL 138
 ug/l

	<u>Cadmium</u>	<u>Copper</u>	<u>Chromium</u>	<u>Iron</u>	<u>Lead</u>	<u>Manganese</u>	<u>Mercury</u>	<u>Zinc</u>	<u>Arsenic</u>	<u>Nickel</u>	<u>Silver</u>	<u>Barium</u>
<u>7/73-6/74</u>												
Average	12	129	25	665	61	145	0.87	144	ND	ND	ND	ND
Maximum	30	190	100	750	130	170	10.00	260				
Minimum	4	70	7	360	10	120	0.20	60				
# Samples	10	10	10	6	10	10	10	10				
<u>7/74-6/75</u>												
Average	17	129	17	1197	101	161	0.50	199	ND	ND	ND	ND
Maximum	30	250	40	3210	230	240	1.80	790				
Minimum	10	28	5	350	30	100	0.20	10				
# Samples	12	12	12	11	12	12	12	12				
<u>7/75-6/76</u>												
Average	16	195	31	894	58	176	0.60	112	ND	ND	ND	ND
Maximum	50	340	60	1690	110	220	2.30	300				
Minimum	10	70	20	230	50	120	0.20	50				
# Samples	13	13	13	13	13	13	13	13				
<u>7/76-6/77</u>												
Average	10	176	70	705	23	163	0.70	127	29	120	10	150
Maximum	10	370	610	840	50	260	5.60	190	95	160	10	200
Minimum	10	10	20	570	5	90	0.20	80	10	80	10	100
# Samples	12	12	12	2	12	12	12	6	10	2	2	2
<u>7/77-6/78</u>												
Average	13	137	27	ND	25	238	0.20	*	42	*	*	*
Maximum	20	210	50		50	280	0.20		68			
Minimum	10	10	20		10	200	0.20		30			
# Samples	4	4	4		4	4	4		4			

ND No Data

* Sampling discontinued 9/9/76

** 4.5 miles below Greens Bayou

Table 3

METALS IN WATER
 SIMS BAYOU (MILE 20.7)
 **73-74 SAMPLES WERE COLLECTED FL 165
 ug/l

	<u>Cadmium</u>	<u>Copper</u>	<u>Chromium</u>	<u>Iron</u>	<u>Lead</u>	<u>Manganese</u>	<u>Mercury</u>	<u>Zinc</u>	<u>Arsenic</u>	<u>Nickel</u>	<u>Silver</u>	<u>Barium</u>
<u>7/73-6/74</u>												
Average	11	163	22	800	65	142	1.1	159	ND	ND	ND	ND
Maximum	20	320	100	1770	130	190	3.4	490				
Minimum	1	60	10	800	10	80	0.2	60				
# Samples	12	12	12	9	12	12	12	12				
<u>7/74-6/75</u>												
Average	23	224	18	1265	114	128	0.5	175	ND	ND	ND	ND
Maximum	100	410	30	2370	200	190	1.2	470				
Minimum	10	100	10	610	50	70	0.2	10				
# Samples	11	11	11	10	11	11	11	11				
<u>7/75-6/76</u>												
Average	14	208	55	5047	63	198	0.5	195	ND	ND	ND	ND
Maximum	50	330	180	28100	100	420	1.4	560				
Minimum	10	160	20	360	50	110	0.2	80				
# Samples	12	12	12	12	12	12	12	12				
<u>7/76-6/77</u>												
Average	10	132	20	ND	12	165	0.2	260	11	ND	ND	ND
Maximum	10	250	20		18	190	0.3	260	12			
Minimum	10	10	20		10	100	0.0	260	10			
# Samples	4	4	4		4	4	4	1	4			
<u>7/77-6/78</u>												
Average	10	244	22	ND	38	214	0.2	*	28	*	*	*
Maximum	10	560	30		90	370	0.2		50			
Minimum	10	10	20		10	120	0.2		16			
# Samples	5	5	5		5	5	5		5			

ND No Data

* Sampling discontinued 9/9/76

** 1.8 miles downstream Sims Bayou

Table 3

METALS IN WATER
TURNING BASIN (MILE 25)
ug/l

	<u>Cadmium</u>	<u>Copper</u>	<u>Chromium</u>	<u>Iron</u>	<u>Lead</u>	<u>Manganese</u>	<u>Mercury</u>	<u>Zinc</u>	<u>Arsenic</u>	<u>Nickel</u>	<u>Silver</u>	<u>Barium</u>
<u>7/73-6/74</u>												
Average	9	178	22	1312	61	158	1.2	198	ND	ND	ND	ND
Maximum	10	650	100	2110	120	190	3.6	530				
Minimum	4	50	6	660	10	94	0.2	100				
# Samples	12	12	12	9	12	12	12	12				
<u>7/74-6/75</u>												
Average	12	254	19	1999	118	156	0.6	192	ND	ND	ND	ND
Maximum	20	380	30	4120	230	240	1.2	430				
Minimum	10	110	5	730	50	100	0.2	80				
# Samples	11	11	11	10	11	11	11	11				
<u>7/75-6/76</u>												
Average	20	312	33	1402	73	183	0.5	380	ND	ND	ND	ND
Maximum	100	650	70	2820	262	240	1.0	1000				
Minimum	10	130	20	820	50	120	0.2	80				
# Samples	13	13	13	13	13	13	13	13				
<u>7/76-6/77</u>												
Average	12	217	22	985	32	148	0.3	732	17	165	10	100
Maximum	30	510	30	1100	50	230	0.6	1320	62	200	10	100
Minimum	10	10	20	870	7	90	0.0	300	10	130	10	100
# Samples	12	12	12	2	12	12	12	6	10	2	2	2
<u>7/77-6/78</u>												
Average	10	216	20	ND	22	196	0.2	*	18	*	*	*
Maximum	10	420	20		50	280	0.2		20			
Minimum	10	10	20		10	130	0.2		16			
# Samples	5	5	5		5	5	5		5			

* Sampling discontinued 9/9/76
ND-No Data

Table 4
 SEDIMENTS
 MORGANS POINT (MILE 0)
 mg/kg

5/15/74	2	8	32	39	0.08	604	16	1.0	799	46300	849522	ND	5	670	92
6/18/75	1	21	27	26	0.40	797	15	1.0	61	43300	50100	29	ND	673	112
8/12/75	ND	ND	ND	ND	ND	ND	ND	ND	ND	39480	105600	867	ND	586	ND
11/25/75	2	13	20	57	0.15	1092	20	2.1	50	38740	63040	507	ND	691	153
2/12/76	2	12	19	12	0.25	878	12	4.8	51	53325	70510	445	ND	ND	193
5/18/76	2	14	20	22	0.15	983	23	1.5	49	12400	73900	122	ND	807	169
8/17/76	2	15	24	30	0.10	967	30	1.5	65	35900	61980	ND	ND	610	178
9/15/77	1	7	20	35	0.10	683	12	1.2	48	36432	43000	ND	8	540	ND
8/15/78	2	11	19	11	0.10	858	*	*	50	38686	33433	ND	8	ND	ND

30

ND - No Data
 * - Sampling discontinued 9/9/76

Table 4

SEDIMENTS
MONUMENT (MILE 9)
mg/kg

	<u>Cadmium</u>	<u>Copper</u>	<u>Chromium</u>	<u>Lead</u>	<u>Mercury</u>	<u>Manganese</u>	<u>Nickel</u>	<u>Silver</u>	<u>Zinc</u>	<u>Phosphorus in Particulate</u>	<u>COD</u>	<u>Organic Nitrogen</u>	<u>VSS</u>	<u>Oil & Grease</u>	<u>Phosphorus</u>	<u>Arsenic</u>	<u>Total Phosphorus</u>	<u>Barium</u>	
5/15/74	3	17	83	20	3.07	343	37	3	1160	39	66900	1200	901840	ND	ND	ND	ND	ND	
6/18/75	1	10	29	28	0.25	697	16	1	58	ND	48100	ND	45300	187	554	ND	ND	ND	
<u>7/75-6/76</u>																			
Average	2	21	40	45	0.43	507	22	2	93	ND	41915	ND	55612	692	879	ND	ND	ND	
Maximum	2	28	49	62	0.65	816	32	2	142		52470		88720	1505	1101				
Minimum	1	16	29	20	0.13	268	14	0	57		17100		17790	0	526				
# Samples	5	5	5	5	5	5	5	5	5		5		5	5	5				
9/15/77	2	9	33	62	0.30	513	16	2	82	ND	55844	ND	49600	ND	ND	6	1124	77	
8/15/78	1	7	19	17	0.20	474	*	*	38	ND	25910	ND	584602	ND	ND	5	540	*	

ND - No Data

* - Sampling discontinued 9/9/76

Table 4
 SEDIMENTS
 GREENS BAYOU (MILF 15.5)
 mg/kg

	6/18/75	7/75-6/76	9/15/77	8/15/78
<u>Cadmium</u>	2	2	1	1
<u>Copper</u>	31	19	20	24
<u>Chromium</u>	61	37	43	38
<u>Lead</u>	106	73	92	37
<u>Mercury</u>	0.30	0.30	0.20	0.10
<u>Manganese</u>	310	168	213	190
<u>Nickel</u>	19	17	13	*
<u>Silver</u>	1	1	1	*
<u>Zinc</u>	272	138	141	113
<u>COD</u>	67100	42934	65966	40708
<u>VSS</u>	49200	50538	64300	45656
<u>Oil and Grease</u>	554	1026	ND	ND
<u>Phosphorus</u>	1358	1048	ND	ND
<u>Arsenic</u>	ND	ND	6	9
<u>Total Phosphorus</u>	ND	ND	1024	876
<u>Barium</u>	ND	ND	132	*

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ND - No Data
 * - Sampling discontinued 9/9/76

Table 4
 SEDIMENTS
 SIMS BAYOU (MILE 20.7)
 mg/kg

Date	Cadmium	Copper	Chromium	Lead	Mercury	Manganese	Nickel	Silver	Zinc	COD	VSS	Oil and Grease	Phosphorus	Arsenic	Total Phosphorus
6/18/75	12	120	219	171	1.70	163	22	7	526	103100	70900	3415	1016	ND	ND
<u>7/75-6/76</u>															
Average	4	47	107	233	10.58	159	22	5	436	72382	72310	4991	1127	ND	ND
Maximum	8	62	153	407	0.80	175	26	7	533	115590	105590	7624	2182		
Minimum	1	24	62	167	0.40	141	17	3	321	31000	15380	2665	321		
# Samples	4	4	4	4	4	4	4	4	4	4	4	4	3		
9/15/77	3	47	74	142	0.30	127	14	4	242	83920	66200	ND	ND	6.8	837.8
8/15/78	8	54	136	128	0.70	148	*	*	325	77936	64765	ND	ND	10.0	ND

ND - No Data
 * - Sampling discontinued 9/9/76

Table 4
 SEDIMENTS
 TURNING BASIN (MILE 25)
 mg/kg

Date	Cadmium	Copper	Chromium	Lead	Mercury	Manganese	Nickel	Silver	Zinc	COD	Organic Nitrogen	VSS	Oil and Grease	Phosphorus	Arsenic	Total Phosphorus	Barium
5/15/74	11	193	134	278	0.33	172	23	5	1656	169100	2150	140996	10500	ND	ND	ND	ND
6/18/75	6	41	85	198	0.60	267	22	6	492	97000	ND	66300	2403	727	ND	ND	ND
7/75-6/76																	
Average	5	50	105	228	0.57	164	24	6	560	89439	ND	73250	7419	1136	ND	ND	ND
Maximum	9	57	130	252	0.65	175	31	8	650	109100		94000	9014	1397			
Minimum	3	34	76	197	0.50	151	18	0.4	445	43700		24880	5484	671			
# Samples	4	4	4	4	4	4	4	4	4	4		4	4	3			
9/15/77	8	61	85	350	0.50	160	31	6	730	141955	ND	94200	ND	ND	731	1172	244
8/15/78	11	48	89	191	0.40	138	*	*	700	105254	ND	66669	ND	ND	13	310	*

ND - No Data
 * - Sampling discontinued 9/9/76

Table 5
 PESTICIDES IN SEDIMENT
 MORGANS POINT (MILE 0)
 ug/kg

Sample Date	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	DDT	DDD	DDE	Aldrin	Dieldrin	Endrin	Toxaphene	Methyl Parathion	Parathion	PCBS	Chlordane
5/15/74	0.2	0.02	0.02	2	4.92	0.2	2.30	7.29	0.2	0.2	2	ND	ND	20	ND
7/15/75	0.2	0.02	0.02	2	0.02	0.2	0.20	0.20	0.2	0.2	2	ND	ND	20	ND
8/18/76	0.2	0.02	0.02	2	0.20	0.2	0.20	0.20	0.2	0.2	2	ND	ND	20	ND
8/15/78	0.2	0.02	0.02	2	0.20	2.0	0.20	0.20	0.2	0.2	ND	2	2	20	ND

ND - No Data
 Samples not collected in 1977.

Table 5
 PESTICIDE IN SEDIMENT
 MONUMENT (MILE 9)
 ug/kg

Date	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	DDT	DDD	DDE	Dieldrin	Endrin	Toxaphene	Methyl Parathion	Parathion	PCBS	Chlordane
5/15/74	0.2	0.2	0.02	2	6.07	0.2	2.17	0.2	0.2	2	ND	ND	T	ND
7/15/75	0.2	0.2	0.02	2	0.20	0.2	0.20	0.2	0.2	2	ND	ND	20	ND
8/18/76	0.2	0.2	0.02	2	0.20	0.2	0.20	0.2	0.2	2	ND	ND	20	ND
8/15/78	0.2	0.2	0.02	2	0.20	0.2	0.20	0.2	0.2	2	2	2	20	ND
2/14/79	0.2	0.2	1.06	2	5.21	0.2	0.58	0.2	0.2	2	2	2	20	2

T - Trace
 ND - No Data
 Samples not collected in 1977.

Table 5

PESTICIDES IN SEDIMENT
GREENS BAYOU (MILE 15.5)
ug/kg

	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	DDT	DD	DDE	Aldrin	Dieldrin	Endrin	Toxaphene	Methyl Parathion	Parathion	PCBS	Chlordane
5/14/74	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.02	2	ND	ND	ND	ND
7/15/75	0.2	0.02	0.02	2	0.20	0.226	0.20	0.02	0.02	0.02	2	ND	ND	20	ND
8/18/76	0.2	0.02	0.02	2	0.20	0.200	0.20	0.02	0.02	0.02	2	ND	ND	20	ND
8/15/78	0.2	0.02	0.02	2	50.31	33.440	17.29	0.02	0.02	0.02	2	2	0.1	20	0.2

ND - No Data
Samples not collected in 1977.

Table 5
 PESTICIDES IN SEDIMENT
 SIMS BAYOU (MILE 20.7)
 ug/kg

Date	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	DDT	DDD	DDE	Aldrin	Dieldrin	Endrin	Toxaphene	Methyl Parathion	Parathion	PCBS	Chlordane
5/14/74	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND
7/15/75	0.2	0.02	0.02	2	0.2	0.2	0.2	ND	ND	ND	ND	ND	ND	ND	ND
8/17/76	0.2	0.02	0.02	2	0.2	0.2	0.2	157.8	ND	ND	ND	ND	ND	1101	ND
9/15/77	0.2	0.20	0.20	2	0.2	0.2	0.2	0.2	0.2	0.2	2	ND	ND	371	ND
8/15/78	0.2	0.02	0.02	2	49.2	T	T	0.2	0.2	0.2	2	2	2	20	0.2

83

T - Trace
 ND - No Data

Table 5

PESTICIDES IN SEDIMENT
TURNING BASIN (MILE 25)
ug/kg

Date	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	DDT	DDD	DDE	Aldrin	Dieldrin	Endrin	Toxaphene	PCBS
5/15/74	0.2	0.2	T	2	0.2	0.2	0.2	T	0.2	0.2	2	ND
7/15/75	0.2	0.2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	2	ND
8/18/76	0.2	0.2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	2	20
9/15/77	0.2	0.2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	2	20
8/15/78*												

63

T - Trace
ND - No Data
* - sample disposed of prematurely by lab.

Table 6
 PESTICIDES IN WATER
 MORGANS POINT (MILE 0)
 ug/l

Sample Date	Aldrin	Dieldrin	Endrin	Toxaphene	Malathion	Parathion	PCBS	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	DDT	DDE	DDD
7/15/75	0.02	0.02	0.02	0.02	ND	ND	20	0.02	0.02	0.02	0.02	T	T	0.02
10/23/75	0.02	0.02	0.02	0.02	0.02	0.02	20	0.02	0.02	0.02	0.02	0.02	0.02	0.02
8/15/78	ND	ND	ND	ND	0.02	0.02	20	0.02	0.02	0.02	0.20	ND	ND	ND

T - Trace
 ND - No Data
 Samples not collected in 1976 and 1977.

PESTICIDES IN WATER
MONUMENT (MILE 9)
ug/l

Table 6

Date	Aldrin	Dieldrin	Endrin	Toxaphene	Malathion	Parathion	PCBS	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	DDT	DDE	DDD
7/15/75	0.02	0.02	0.02	0.02	ND	ND	20	0.02	0.02	0.063	0.02	0.02	0.02	0.02
10/23/75	0.02	0.02	0.02	0.02	ND	ND	20	0.02	0.02	0.020	0.02	0.02	0.02	0.02
8/15/78	ND	ND	ND	ND	0.02	0.02	T	0.02	0.02	0.020	0.02	ND	ND	ND

T - Trace
ND - No Data
Samples not collected in 1976 and 1977.

PESTICIDES IN WATER
GREENS BAYOU (MILE 15.5)
ug/l

Table 6

Sample Date	Aldrin	Dieldrin	Endrin	Toxaphene	Malathion	Parathion	PCBS	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	DDT	DDE	DDD
7/15/75	0.02	0.02	0.02	0.2	ND	ND	20	0.02	0.02	0.070	0.2	0.02	0.02	0.02
10/23/75	0.02	0.02	0.02	0.2	ND	ND	20	0.02	0.02	0.020	0.2	0.02	0.02	0.02
8/15/78	ND	ND	ND	ND	0.02	0.02	20	0.27	0.02	0.020	0.2	ND	ND	ND

ND - No Data
Samples not collected in 1976 and 1977.

PESTICIDES IN WATER
SIMS BAYOU (MILE 20.7)
ug/l

Table 6

Date	PCBS	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	DDT	DDE	DDD
7/15/75	ND	0.02	0.02	0.068	0.2	0.02	0.02	0.02
10/23/75	ND	0.02	0.02	0.024	0.2	0.02	0.02	0.02
8/15/78	20	0.02	0.02	0.020	0.2	ND	ND	ND

ND - No Data
Samples not collected in 1976 and 1977

Table 6
 PESTICIDES IN WATER
 TURNING BASIN (MILE 25)
 ug/l

Sample Date	Aldrin	Dieldrin	Endrin	Toxaphene	PCBS	Heptachlor	Heptachlor Epoxide	Lindane	Methoxychlor	DDT	DDE	DDD
7/15/75	0.02	0.02	0.02	0.2	20	0.02	0.02	0.093	0.2	0.437	0.024	0.02
10/23/75	0.02	0.02	0.02	0.2	20	0.02	0.02	0.020	0.2	0.020	0.020	0.02
8/15/78	ND	ND	ND	ND	20	0.02	0.02	0.020	0.2	0.020	0.020	0.02

ND - No Data
 Samples not collected in 1976 and 1977.

Table 7

LIST OF SPECIES AND DISTRIBUTIONS OF PHYTOPLANKTON FROM
THE HOUSTON SHIP CHANNEL
(1975-1978)

	1975	1976	1977	1978
	<u>Station No.</u>	<u>Station No.</u>	<u>Station No.</u>	<u>Station No.</u>
<u>Blue-Green</u>				
<u>Anabaena</u> sp.	1235*	24	4	3
<u>Arthrospira</u> sp.	124		1	
<u>Hapalosiphon</u> sp.	2	3		
<u>Lyngbya</u> sp.	3	24	123	234
<u>Nodularia</u> sp.	12		5	
<u>Nostoc</u> sp.	2			
<u>Oscillatoria</u> sp.	12345	12345	12345	12345
<u>Spirulina</u> sp.	2	124	2	
<u>Green</u>				
<u>Acnathes coarctata</u>			12	123
<u>Actinastrum</u> sp.	3	4	1	12
<u>Chlorella</u> sp.	12345	3	12345	12345
<u>Cladophora</u> sp.		235		
<u>Closteridium</u> sp.	234		2	
<u>Closterium</u> sp.	24		1	
<u>Coelastrum</u> sp.	2		1	
<u>Crucigenia</u> sp.		1		
<u>Crucigenia (rectangularis)</u>		5		
<u>Eudorina</u> sp.	1	1	1	
<u>Hyalotheca</u> sp.		3		
<u>Merismopedia</u> sp.	1345	45	3	24
<u>Mougeotia</u> sp.	12345	12345		
<u>Microspora</u> sp.				3
<u>Oocystis</u> sp.	1			
<u>Pandorina</u> sp.				1
<u>Pediastrum biradiatum</u>	1			
<u>Pediastrum</u> sp.	245	14	134	1234
<u>Phytoconis</u> sp.		234	12	
<u>Platydorina</u> sp.		1		2
<u>Scenedesmus armatus</u>	3			
<u>Scenedesmus denticulatus</u>		4		
<u>Scenedesmus dimorphus</u>		4		
<u>Scenedesmus (obliquus)</u>	2			
<u>Scenedesmus</u> sp.	12345	1234	12	12

* Station Code

1-Turning Basin (Mile 25.0), 2-Sims Bayou (Mile 20.7), 3-Greens Bayou
(Mile 15.5), 4-San Jacinto Monument (Mile 9.0), 5-Morgans Point (Mile 0)

Table 7 (contd)

	1975	1976	1977	1978
	<u>Station No.</u>	<u>Station No.</u>	<u>Station No.</u>	<u>Station No.</u>
<u>Green Algae</u>				
<u>Schroederia</u> sp.	23			
<u>Selenastrum</u> sp.	123			
<u>Spaerocystis</u> sp.	1			1
<u>Spirogyra</u> sp.	1		1	13
<u>Ulothrix cylindricum</u>	1			
<u>Ulothrix zonata</u>			3	
<u>Ulothrix</u> sp.	125	2	1	
<u>Flagellate Algae</u>				
<u>Euglena</u> sp.			23	
Euglenoid sp.		12345	135	
<u>Euclenophyta distigma</u>		3		
<u>Euclenophyta</u> sp.	234	2		
<u>Phacus</u> sp.		1		1
<u>Pyrobotrys</u> sp.	2			
<u>Volvox</u> sp.				
<u>Dinoflagellates</u>				
<u>Ceratium furca</u>	345	25		5
<u>Ceratium fusus</u>		5		15
<u>Ceratium hircus</u>		5		5
<u>Ceratium massiliense</u>		5		
<u>Ceratium pentagonum</u>		5		
<u>Ceratium pulchellum</u>			5	
<u>Ceratium tripos</u>		4	4	15
<u>Dinophysis caudata</u>		5		
<u>Eutreptia</u> sp.		5	5	5
<u>Exuviaella baltica</u>		45	4	
<u>Exuviaella</u> sp.			235	45
<u>Gonyaulax</u> sp.		5		
<u>Prorocentrum</u> sp.		5		
<u>Diatoms</u>				
<u>Actinocyclus ehrenbergii</u>	5		245	345
<u>Actinocyclus undulatus</u>		12345	345	45
<u>Amphipora alata</u>				4
<u>Amphipora</u> sp.			3	
<u>Amphora</u> sp.	1235	1		
<u>Asterionella japonica</u>	2345	2345	2345	12345

Table 7 (contd)

	1975	1976	1977	1978
	<u>Station No.</u>	<u>Station No.</u>	<u>Station No.</u>	<u>Station No.</u>
<u>Diatoms</u>				
<u>Bacteriastrum delicatulum</u>	5	345	13	345
<u>Bacteriastrum varians</u>	5			
<u>Biddulphia mobiliensis</u>	5	345	45	1345
<u>Biddulphia sinensis</u>	345			34
<u>Biddulphia sp.</u>	3	345	345	25
<u>Campylodiscus sp.</u>		45	35	
<u>Campylodiscus punctulatus</u>		5		
<u>Cerataulina pelagica</u>	34	45	345	345
<u>Chaetoceros affinis</u>	12345	12345	245	345
<u>Chaetoceros atlanticum</u>	5	5		
<u>Chaetoceros breve</u>		45		12345
<u>Chaetoceros compressum</u>	12345	34	45	
<u>Chaetoceros constrictum</u>	35	245		
<u>Chaetoceros curvisetum</u>	135	12345	12345	2345
<u>Chaetoceros danicum</u>	1345	345	12345	2345
<u>Chaetoceros decipiens</u>		124	1345	15
<u>Chaetoceros densum</u>	2			
<u>Chaetoceros didymum</u>	345	12345	12345	12345
<u>Chaetoceros diversum</u>	24	145	1234	145
<u>Chaetoceros gracile</u>		245	345	5
<u>Chaetoceros laciniosum</u>		5		5
<u>Chaetoceros lorenzianum</u>	12345	12345	12345	12345
<u>Chaetoceros orientalis</u>	5			
<u>Chaetoceros peruvianum</u>		5	235	5
<u>Chaetoceros sp.</u>	12345	12345	45	1
<u>Cocconeis sp.</u>	12345	1		3
<u>Corethron criophylum</u>	5		23	
<u>Corethron hystrix</u>			25	2345
<u>Corethron sp.</u>		1		
<u>Coscinodiscus asteromphalus</u>	145	12345	12345	12345
<u>Coscinodiscus centralis</u>	12345	12345	2345	1345
<u>Coscinodiscus concinnus</u>		5	5	5
<u>Coscinodiscus denarius</u>	1			
<u>Coscinodiscus excentricus</u>				5
<u>Coscinodiscus granii</u>	35			
<u>Coscinodiscus radiatus</u>	345	345	12345	3
<u>Coscinodiscus wailesii</u>				134
<u>Coscinodiscus sp.</u>	5	5		235
<u>Cyclotella sp.</u>	1345	3	134	35
<u>Cymbella sp.</u>		2		
<u>Diatom sp.</u>	1345	1234		
<u>Diploneis crabro</u>	5			
<u>Ditylum brightwelli</u>	12345	12345	12345	12345

Table 7 (contd)

	1975	1976	1977	1978
	<u>Station No.</u>	<u>Station No.</u>	<u>Station No.</u>	<u>Station No.</u>
<u>Diatoms</u>				
<u>Eucampia zoodiacus</u>		345	1245	15
<u>Eupodiscus radiatus</u>		25	345	5
<u>Fragilaria</u> sp.	12	145		
<u>Frustulia</u> sp.	2			
<u>Guinardia flaccida</u>	1345	45	35	5
<u>Gyrosigma balticum</u>	2	5		
<u>Gyrosigma</u> sp.	5		24	1245
<u>Hemiaulus hauckii</u>	3	5		
<u>Hemiaulus membranaceus</u>	3			
<u>Hemiaulus sinensis</u>	145	345	2345	12345
<u>Hemiaulus</u> sp.	5			
<u>Lauderia borealis</u>		5		
<u>Leptocylindricus</u> sp.	12345	2345		
<u>Leptocylindricus danicus</u>		12345	12345	1245
<u>Lithodesmium undulatus</u>		5	45	45
<u>Melosira crenulata</u>			12345	12345
<u>Melosira moniliformis</u>	2	3		
<u>Melosira nummuloides</u>		3		
<u>Melosira varians</u>	1245	13	12345	2345
<u>Melosira</u> sp.	25	345		124
<u>Navicula</u> sp.	12345	12345	12345	12345
<u>Nitzschia closterium</u>	145	1245	12345	12345
<u>Nitzschia dubia</u>			3	
<u>Nitzschia hungarica</u>	1234	12345		
<u>Nitzschia longissima</u>		5	3	45
<u>Nitzschia lorenziana</u>		5		
<u>Nitzschia paradoxa</u>	134	345	345	1345
<u>Nitzschia pungens</u>	12345	12345	1235	12345
<u>Nitzschia seriata</u>	1345	2345	34	25
<u>Nitzschia sigma</u>	5	345	245	1345
<u>Nitzschia</u> sp.	12345	12345	12345	1235
<u>Pleurosigma</u> sp.	14	45	345	145
<u>Rhizosolenia alata</u>	12345	2345	12345	45
<u>Rhizosolenia alata f. indica</u>		5	2345	135
<u>Rhizosolenia bergonii</u>	5	2		
<u>Rhizosolenia calcar avis</u>	12345	12345	12345	1345
<u>Rhizosolenia curvisetum</u>		5		
<u>Rhizosolenia delicatula</u>			4	45
<u>Rhizosolenia imbricata</u>	345	245	12345	145
<u>Rhizosolenia robusta</u>		5		
<u>Rhizosolenia setigera</u>	12345	12345	12345	1345
<u>Rhizosolenia stolterfothii</u>	5	45	5	5
<u>Rhizosolenia styliiformis</u>		5		5

Table 7 (contd)

	1975	1976	1977	1978
	<u>Station No.</u>	<u>Station No.</u>	<u>Station No.</u>	<u>Station No.</u>
<u>Diatoms</u>				
<u>Rhizosolenia</u> sp.	2			2
<u>Skeletonema</u> <u>costatum</u>	12345	12345	12	12345
<u>Stephanopyxis</u> <u>palmeriana</u>	1345	5		
<u>Stephanopyxis</u> <u>turris</u>	5	245	12	45
<u>Stephanopyxis</u> sp.				3
<u>Surirella</u> <u>fastuosa</u>		24		
<u>Surirella</u> sp.	4	34	3	4
<u>Synedra</u> <u>superba</u>	145	5	5	5
<u>Synedra</u> <u>ulna</u>				2
<u>Synedra</u> sp.	15	134		1234
<u>Tabellaria</u> sp.		2	1	
<u>Terpsinoe</u> <u>americana</u>			34	5
<u>Thalassionema</u> <u>nitzschioides</u>	1245	45	45	345
<u>Thalassiosira</u> <u>aestivalis</u>		45		
<u>Thalassiosira</u> <u>decipiens</u>		5		5
<u>Thalassiosira</u> <u>rotula</u>				5
<u>Thalassiosira</u> sp.				5
<u>Thalassiothrix</u> <u>frauenfeldii</u>	45	45	45	345
<u>Thalassiothrix</u> <u>longissima</u>	3	12	45	
<u>Thalassiothrix</u> <u>mediterranea</u>	12345	12345	2345	45
<u>Thalassiothrix</u> sp.				4

Table 8

MEAN NUMBER OF TAXA AND NUMBER OF INDIVIDUALS
OF PHYTOPLANKTON FROM THE HOUSTON SHIP CHANNEL
1975 - 1978

	<u>Turning</u> <u>Basin</u> Mile 25.0	<u>Sims</u> <u>Bayou</u> Mile 20.7	<u>Greens</u> <u>Bayou</u> Mile 15.5	<u>San Jac</u> <u>Monument</u> Mile 9.0	<u>Morgans</u> <u>Point</u> Mile 0
<u>1975</u>					
Mean Number of Taxa	11	8	10	11	14
Mean Number of Individuals	127	128	132	137	580
<u>1976</u>					
Mean Number of Taxa	7	8	8	15	22
Mean Number of Individuals	62	104	110	277	1549
<u>1977</u>					
Mean Number of Taxa	7	8	10	9	15
Mean Number of Individuals	411	303	387	9756	2438
<u>1978</u>					
Mean Number of Taxa	8	7	7	11	18
Mean Number of Individuals	238	275	338	710	2535

Table 3

PREDOMINANT PHYTOPLANKTON IN THE HOUSTON SHIP CHANNEL DURING 1978

	TURNING BASIN Mile 25.0	SIMS BAYOU Mile 20.7	GREENS BAYOU Mile 15.5	MONUMENT Mile 9.0	MORGANS POINT Mile 0	TOTAL	PERCENT OCCURRENCE
<u>Oscillatoria</u> sp. (BG) ¹ (B) ²	10 ³	11	6	8	8	43	72
<u>Coscinodiscus asteromphalus</u> (D) (M)	2	1	8	9	10	30	50
<u>Ditylum brightwelli</u> (D) (M)	3	3	3	5	10	24	40
<u>Skeletonema costatum</u> (D) (M)	2	2	2	6	9	21	35
<u>Coscinodiscus centralis</u> (D) (M)	3	0	3	6	8	20	33
<u>Navicula</u> sp. (D) (B)	6	4	3	2	2	17	28
<u>Biddulphia mobiliensis</u> (D) (M)	1	0	1	5	10	17	28
<u>Nitzschia pungens</u> (D) (M)	4	3	2	3	4	16	27
<u>Chaetoceros lorenzianum</u> (D) (M)	1	1	3	5	6	16	27
<u>Chaetoceros curvisetum</u> (D) (M)	0	2	2	5	6	15	25
<u>Rhizosolenia setigera</u> (D) (M)	2	0	1	3	8	14	23
<u>Hemiaulus sinensis</u> (D) (M)	1	2	1	3	5	12	20
<u>Chaetoceros danicum</u> (D) (M)	0	1	2	4	5	12	20
<u>Chlorella</u> sp. (G) (F)	2	4	2	1	3	12	20
<u>Nitzschia</u> sp. (D) (B)	5	4	2	0	5	12	20

1. Classification

- BG - Blue-Green Algae (6.5%)
 G - Green Algae (6.5%)
 D - Diatoms (87%)

2. Ecological categories

- B - Brackish-water species (20%)
 M - Marine species (73%)
 F - Freshwater species (7%)

3. Number of months occurring at a station.

Table 10

HOUSTON SHIP CHANNEL
ZOOPLANKTON
1975 - 1978

Protozoa

Favella sp.
Tintinnopsis sp.
Ciliated protozoan

Coelenterata

Nemopsis bachei

Rotifera

Brachionus sp.
Keratella sp.
Synchaeta sp.
Filinia sp.
Polyarthra sp.
Colurella sp.
Lecane sp.
Monostyla sp.
Platylas sp.

Annelida

Polychaete larva
Oligochaete

Arthropoda

Bosmina sp.
Chydorus sp.
Daphnia sp.
Diaphanosoma sp.
Macrothrix sp.
Paracalanus sp.
Centropages sp.
Pseudodiaptomus coronatus
Diaptomus sp.
Acartia tonsa
Labidocera
Calanoid copepodite
Harpacticoid
Cyclops (Microcyclops) panamensis
Cyclops sp.
Eucyclops sp.
Mesocyclops sp.
Oithona sp.
Paracyclops sp.

Table 10 (contd)

Arthropoda

Saphirella sp.
Cyclopoid copepodite
Copepod nauplius
Cirripedia nauplius
Cirripedia cypris larva
Mysidopsis sp.
Acetes americanus
Rhithropanopeus harrissi

Chaetognatha

Sagitta sp.

Chordata

Oikopleura sp.

Mollusca

Pelecypod (larva)

Table 11

MEAN NUMBER OF TAXA AND NUMBER OF INDIVIDUALS
OF ZOOPLANKTON FROM THE HOUSTON SHIP CHANNEL
1975 - 1978

	<u>Turning Basin Mile 25.0</u>	<u>Sims Bayou Mile 20.7</u>	<u>Greens Bayou Mile 15.5</u>	<u>San Jac Monument Mile 9.0</u>	<u>Morgans Point Mile 0</u>
<u>1975</u>					
Mean Number of Taxa	6	6	7	11	11
Mean Number of Individuals	9	17	175	77	76
<u>1976</u>					
Mean Number of Taxa	3	6	8	9	10
Mean Number of Individuals	12	33	72	131	83
<u>1977</u>					
Mean Number of Taxa	2	5	6	8	9
Mean Number of Individuals	11	47	138	133	88
<u>1978</u>					
Mean Number of Taxa	3	3	5	7	9
Mean Number of Individuals	5	18	292	193	172

Table 12
 BENTHIC MACROINVERTEBRATES COLLECTED IN THE TURNING BASIN (MILE 25.0)

PHYLUM	CLASS/ORDER	SPECIES	YEAR AND MONTH					
			1974	1975	1976	1977	1978	
ANNELIDA	OLIGOCHAETA (Segmented Aquatic Worms)	Tubificid	8 11 *	2 5 8 11	2 5 8 11	2 6 9 11	2 5 8 11	
			D 32 E V O	D D E E V V O O	D D E E V V O O	D N E O V T O	N N O O T T T	N N D D E E V V O O
ARTHROPODA	INSECTA	<u>Chaoborus punctipennis</u>	I 1	I I I I D D	I I I I D D	I S S S A A M M P P L L E E D D	S S A A M M P P L L E E D D	O I O I D D
		<u>Polypedium</u> sp.	D 1	D D D D	D D D D	S A M P L E D	S A M P L E D	A A M M P P L L E E D D

* Organisms in 11/74 were found following heavy rains.

Table 12

BENTHIC MACROINVERTEBRATES COLLECTED NEAR THE SAN JACINTO MONUMENT (MILE 9.0)

PHYLUM	CLASS/ORDER	SPECIES	YEAR AND MONTH																				
			1974		1975				1976				1977				1978						
			8	11	2	5	8	11	2	5	8	11	2	6	9	11	2	5	8	11			
NEMERTEA	ANOPLA (Unsegmented Marine Worms)	<u>Tubulanus</u> <u>pellucidus</u>				3								1		5			3	2	8		
ANNELIDA	POLYCHAETA (Segmented Marine Worms)	<u>Gyptis vittata</u>	28													2							
		<u>Nereis pelagica</u>													1	1	1			2	1		
		<u>Streblospio</u> <u>benedicti</u>	438 49	78	7	35	503	112		36	117	52	22	51						22	21	11	
		<u>Prionospio</u> <u>pinnata</u>															1					8 1	
		<u>Polydora</u> <u>socialis</u>													1					2			
		<u>Boccardia</u> <u>hamata</u>																2					
		<u>Capitella</u> <u>capitata</u>						2										1		1			
		<u>Mediomastus</u> <u>californiensis</u>																3				1	
		<u>Amphicteis</u> <u>gunneri</u>	4																				
			OLIGOCHAETA (Segmented Aquatic Worms)	Immature tubificid					1														
		ARTHROPODA	AMPHIPODA	<u>Ampelisca</u> <u>vadorum</u>				1															
				Gammarid Species A				1															
			MYSIDACEA INSECTA	<u>Mysidiopsis bahia</u> <u>Chaoborus</u> <u>punctipennis</u>	2																		
			1		3		1																

Table 12

BENTHIC MACROINVERTEBRATES COLLECTED AT MORGANS POINT (MILE 0.0)

PHYLUM	CLASS/ORDER	SPECIES	YEAR AND MONTH																	
			1974		1975				1976			1977			1978					
			8	11	2	5	8	11	2	5	8	11	2	6	11	2	5	8	11	
PLATYHELMINTHES	POLYCLADIA	<u>Stylochus ellipticus</u>																	1	
	(Flatworms)																			
NEMERTEA	ANOPIA	<u>Tubulanus pellucidus</u>	1		3		1			16	1		2		2		4	4	8	1
	(Unsegmented	<u>Lineus pallidus</u>																	1	
	Marine Worms)	Nemertea Species A			9															
ANNELIDA	POLYCHAETA	<u>Pseudeurythoe</u>											1						1	
	(Segmented	<u>ambigua</u>																		
	Marine Worms)	<u>Eumida sanguinea</u>															3	1		
		<u>Eteone heteropoda</u>																1		
		<u>Gyptis vittata</u>																1	1	
		<u>Neanthes succinea</u>			1			1												
		<u>Nereis pelagica</u>																1	4	
		<u>Glycinde solitaria</u>								2	5				5		1	5	1	
		<u>Streblospio benedicti</u>	283	3	6		11		6	454	6		2	22	9		9	3	2	
		<u>Prionospio pinnata</u>	12				2			18	3		1	6	15		6	1	40	33
		<u>Polydora websteri</u>																	1	
		<u>Mediomastus</u>																		
		<u>californiensis</u>	3	17	4	1				434	9						3	1		
		<u>Heteromastus</u>																		
		<u>filiformis</u>							2											
		<u>Capitella capitata</u>									28									
SIPUNCULIDA		Sipunculid Species A			4															
MOLLUSCA	GASTROPODA	<u>Cymatium nicobaricum</u>																	2	
	(Snails)	<u>Cratena kaoruae</u>											8							
	PELECYPODA	<u>Brachidontes exustus</u>																1		
	(Clams)	<u>Macoma mitchelli</u>																	3	
		<u>Mulinia lateralis</u>	2						1	3								1		
ARTHROPODA	CUMACEA	Cumacean Species A																	1	
	AMPHIPODA	Gammarid Species A		1																
	DECAPODA	<u>Ogyrides limicola</u>																1		
	(Shrimp-like																			
	Crustaceans)																		2	

Table 13

SPECIES OF NEKTON COLLECTED FROM THE
HOUSTON SHIP CHANNEL
1972 Through 1978

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>
Anchovy - Bay	<u>Anchoa mitchilli</u>
Bass - Yellow	<u>Morone mississippiensis</u>
Butterfish - Gulf	<u>Peprilus burti</u>
Cabbage Head	<u>Stomolophus sp.</u>
Carp	<u>Cyprinus carpio</u>
Catfish - Black Bullhead	<u>Ictalurus melas</u>
- Channel	<u>Ictalurus punctatus</u>
- Flathead	<u>Pylodictis olivaris</u>
- Gafftopsail	<u>Bagre marinus</u>
- Yellow Bullhead	<u>Ictalurus natalis</u>
- Sea	<u>Arius felis</u>
Crab - Blue	<u>Callinectes sapidus</u>
- Gulf	<u>Callinectes similis</u>
Croaker - Atlantic	<u>Micropogon undulatus</u>
Cutlassfish - Atlantic	<u>Trichiurus lepturus</u>
Drum - Black	<u>Paralichthys lethostigma</u>
- Red	<u>Lepisosteus spatula</u>
- Sand	<u>Gobionellus hastatus</u>
- Star	<u>Urophycis floridanus</u>
Eel - American	<u>Fundulus grandis</u>
- Speckled Worm	<u>Menticirrhus littoralis</u>
Flounder - Southern	<u>Menticirrhus americanus</u>
Gar - Alligator	<u>Brevoortia patronus</u>
Goby - Sharptail	<u>Porichthys porosissimus</u>
Hake - Southern	<u>Cyprinodon variegatus</u>
Killifish - Gulf	<u>Eucinostomus lefroyi</u>
Kingfish - Gulf	<u>Eucinostomus argenteus</u>
- Southern	<u>Poecilia latipinna</u>
Menhaden - Gulf	<u>Gambusia affinis</u>
Midshipman - Atlantic	<u>Mugil cephalus</u>
Minnow - Sheepshead	<u>Cichlasoma cyanoguttatum</u>
Mojarra - Mottled	<u>Lagodon rhomboides</u>
- Spotfin	<u>Sphoeroides parvas</u>
Molly - Sailfin	<u>Sardinella anchovia</u>
Mosquitofish	<u>Prionotus tribulus</u>
Mullet - Striped	<u>Cynoscion arenarius</u>
Perch - Rio Grande	<u>Cynoscion nebulosus</u>
Pinfish	<u>Dorosoma cepedianum</u>
Puffer - Least	<u>Dorosoma petenense</u>
Sardine - Spanish	
Searobin - Bighead	
Seatrout - Sand	
- Spotted	
Shad - Gizzard	
- Threadfin	

Table 13 (contd)

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>
Shrimp - Brown	<u>Penaeus aztecus</u>
- Grass	<u>Palaemonetes vulgaris</u>
- Mantis	<u>Squilla</u> sp.
- Pink	<u>Penaeus duorarum</u>
- White	<u>Penaeus setiferus</u>
Silversides - Rough	<u>Membras martinica</u>
- Tidewater	<u>Menidia beryllina</u>
Sleeper - Fat	<u>Dormitator maculatus</u>
Sole - Lined	<u>Achirus lineatus</u>
Spadefish - Atlantic	<u>Chaetodipterus faber</u>
Spot	<u>Leiostomus xanthurus</u>
Squid	<u>Lolliguncula</u> sp.
Sunfish - Bantom	<u>Lepomis symmetricus</u>
- Bluegill	<u>Lepomis macrochirus</u>
- Green	<u>Lepomis cyanellus</u>
- Longear	<u>Lepomis megalotis</u>
- Redear	<u>Lepomis microlophus</u>
- Warmouth	<u>Chaenobrythus gulosus</u>
Tadpole	<u>Rana</u> sp.
Threadfin - Atlantic	<u>Polydactylus octonemus</u>
Tonguefish - Blackcheek	<u>Symphurus plagiosa</u>
Whiff - Bay	<u>Citharichthys spilopterus</u>

Table 14

Nekton Collected From Station 1006.0210*
(Armco Steel)
Channel Mile 17.2

	<u>1976</u>	<u>1977</u>	<u>1978</u>
Anchovy-Bay			1
Catfish-Black Bullhead		1	
-Sea		1	1
Crab-Blue	3	148	113
Croaker-Atlantic		12	150
Drum-Star		66	
Goby-Sharp-tail		1	
Killifish-Gulf	3	11	3
Menhaden-Gulf		1	1
Minnow-Sheepshead	11	19	19
Molly-Sailfin	16	7	
Mosquitofish			1
Puffer-Least		3	
Seatrout-Sand			5
Shad-Threadfin			3
Shrimp-White	6	19	4
Sleeper-Fat		1	2
Sunfish-Bluegill		1	
<hr/>			
Total Species	5	14	12
Total Individuals	39	291	303
Number of Collections	2	12	12

* The Armco Steel Nekton Sampling Program began in November, 1976.

Table 14

Nekton Collected From Station 1006.0100
(Houston Lighting & Power - Deepwater Plant)
Channel Mile 19.7

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Anchovy-Bay			19	1		1	28
Bass-Yellow		2					
Butterfish-Gulf		2					
Carp		8					
Catfish-Black Bullhead		6		1		2	
-Channel		1					
-Yellow Bullhead		9					
-Sea		2		1		5	
Crab-Blue	100	13	44	5	39	68	61
Croaker-Atlantic	250	2	3	19	2	17	27
Drum-Sand				3			
-Star		144				11	
Eel-American	1						
Flounder-Southern		1					
Goby-Sharp-tail				1			
Hake-Southern							1
Killifish-Gulf		2				6	6
Menhaden-Gulf	150	9		25		6	4
Minnow-Sheepshead	30	7	8		18	20	4
Mojarra-Mottled			1				
-Spotfin							1
Molly-Sailfin		1		2	33		
Mosquitofish		1			1		
Puffer-Least						2	
Seatrout-Sand	12	63	1	115		26	81
Shad-Threadfin		1	31	1	1	3	1
Shrimp-Brown						2	
-White		1	12	22	108	16	3
Sleeper-Fat				2		11	1
Sole-Lined						2	7
Spadefish-Atlantic					1		
Spot		1		5		1	4
Sunfish-Bantom		1					
-Bluegill		1		16			
-Green			1				
-Warmouth						1	
Tadpole-Rana sp.						1	
Tonguefish-Blackcheek						1	
Total Species	6	22	9	23	8	20	14
Total Individuals	543	278	120	219	203	202	229
Number of Collections	5	10	7	9	12	12	12

Table 14

Nekton Collected From Station 1006.0125
(Diamond Shamrock-Deer Park Plant)
Channel Mile 11.5

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Anchovy-Bay	16	34	100	406	531	6631	3441
Butterfish-Gulf		39	1	12	8		
Carp		75					
Catfish-Black Bullhead		5		5	8		
-Channel			8				
-Flathead			1				
-Gaftopsail	1	1					
-Yellow Bullhead		1			1		
-Sea	15	16	5	912	780	780	313
Crab-Blue	1603	3296	4473	2387	1265	877	2176
-Gulf		1					
Croaker-Atlantic	4096	1385	15070	30152	55030	91841	18864
Cutlassfish-Atlantic				2		190	
Drum-Black			3	38	191	120	40
-Red							1
-Sand			27	350	270		
-Star		625	8		304	2116	932
Eel-American	99						
-Speckled Worm						1	1
Flounder-Southern							6
Goby-Sharp-tail				52	23	30	120
Hake-Southern			1	3110	93		41
Killifish-Gulf	6	41			229	26	59
Kingfish-Gulf							1
-Southern							1
Menhaden-Gulf	1	551	351	6276	1211	3788	1532
Midshipman-Atlantic				52	139	16	6
Minnow-Sheepshead	126	56	13	42	350	93	303
Mojarra-Mottled					29		
-Spotfin		5				1	
Molly-Sailfin		1					
Mosquitofish			1		17		
Mullet-Striped		6	8	44	78	1	60
Perch-Rio Grande					1		
Pinfish	3						1
Puffer-Least		4	22	159	153	95	43
Sardine-Spanish				1			
Searobin-Bighead	6	1		33	38		58
Seatrout-Sand	339	86	281	866	563	646	847
Shad-Gizzard		4	712			1	8
-Threadfin		26		234	30	13	384
Shrimp-Brown	70	13	11773	143	2002	116	3442
-Grass						15	
-Mantis	12	1831	1	1	84	60	2
-Pink	3						
-White	453		910	30857	16468	4506	10160
Silversides-Rough				1			
-Tidewater		52		5			

Table 14 (contd)

Nekton From Station 1006.0125

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Sleeper-Fat		4	53	291	60	45	
Sole-Lined	6			33	112	96	70
Spadefish-Atlantic	3		21	221	192	60	5
Spot		78	31	974	766	4019	632
Squid						1	
Sunfish-Bantom		1					
-Green			1	1	27		1
-Longear		1					
-Redear		1					
Threadfin-Atlantic			6	8		76	
Tonguefish-Blackcheek		4		183	114	93	172
Whiff-Bay		4		237	138	341	122
<hr/>							
Total Species	18	32	26	34	33	31	33
Total Individuals	6858	8248	33881	78088	81305	116694	43844
Number of Collections	4	10	12	12	12	12	12

