
WATER AND SEDIMENT QUALITY

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-198

DATA INVENTORY INFORMATION	
GBNEP Reference Number: TSDH003	
PROJECT NAME:	TSDH survey of 1943
OBJECTIVE:	Water quality survey of selected reefs
DATA USE:	monitoring
PRIORITY PROBLEM:	
	A2. Alteration of salinity
	A6. Contamination
	B1. Discharge of pathogens
KEYWORDS:	water quality, pollution, contamination

SOURCE: Texas State Department of Health

CONTACT: Neil B. Travis
Texas State Department of Health
1100 West 49th St
Austin, TX 78756

512-458-7510

GENERAL TYPE: Water quality data

GEOGRAPHICAL COVERAGE: Red Fish Reef, Dollar Reef, Texas City Dike,
Hannas Reef, Buckshot Reef, Offatts Bayou

PERIOD OF COVERAGE: 1943

MEASUREMENTS:

water temperature	deg F
chlorides	ppm
total coliforms	MPN per 100 mL
dominant bacteria	

Apparently limited to surface samples.

FORMAT: tabular

COMMENTS: Reported in:

Walker, W. P., 1943: Report on sanitary survey of Galveston Bay and adjacent shellfish waters. MS report.

Data sheets included in report. Station locations vague. Copy of report available from Neil Travis. One copy placed in Galveston Bay Information Center, Texas A&M at Galveston.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-200

DATA INVENTORY INFORMATION

GBNEP Reference Number: LIT0007

PROJECT NAME: Harris County surveys 49-51

OBJECTIVE: Extent of pollution of upper Galveston Bay

DATA USE: survey

PRIORITY PROBLEM:

A6. Contamination

B1. Discharge of pathogens

B2. Contamination of water/sediment

B3. Restriction of contact recreation

KEYWORDS: point sources, effluents, BOD, dissolved oxygen

SOURCE: Harris County Stream Pollution Surveys, Harris County
Commissioners Court

CONTACT:

GENERAL TYPE: Water quality

GEOGRAPHICAL COVERAGE: Harris County streams, Trinity Bay, upper
Galveston Bay, Houston Ship Channel from Morgans Point out 5 miles, Clear
Lake

PERIOD OF COVERAGE: 1949-51

MEASUREMENTS: DO, BOD, pH, coliforms

FORMAT: See below.

COMMENTS:

The only existing report on this survey appeared in 1952 *Texas Journal of Science* (Frank J. Metyko, "Sanitary pollution in the Harris County-Galveston Bay area", pp 504-516). There is a tabulation of the 54 operating plants in 1951 with %BOD removal, a tabulation of the 10 sampling stations in Trinity Bay, 12 in Galveston Bay, and 11 in the Galveston Bay reach of the HSC. A map shows many more stations on the various tributaries, but none on the HSC above Morgans Point. The only data presented is a tabulation for these 33 stations of mean coliform for each of 1949-51.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-205

DATA INVENTORY INFORMATION

GBNEP Reference Number: USGS001

PROJECT NAME: USGS Routine

OBJECTIVE: measurements of steam discharge and water quality

DATA USE: monitoring

PRIORITY PROBLEM:

A2. Alteration of salinity

A3. Alteration of nutrients

A4. Bathymetric/circulation changes

C2. Fisheries depletion

KEYWORDS: stream gauging, inflow, nutrients, runoff

SOURCE: U.S. Geological Survey

CONTACT: District Chief, Water Resources Division
U.S. Geological Survey
8011A Cameron Road
Austin TX 78753

GENERAL TYPE: Stream discharge, water quality

GEOGRAPHICAL COVERAGE: watersheds of Galveston Bay generally above the limit of tidal influence

PERIOD OF COVERAGE: varies

MEASUREMENTS:

Continuous elevation gage records converted to stream discharge by stage rating methods. Some stations, especially in urban areas are equipped with continuous records for temperature, conductivity and occasionally dissolved oxygen. A few stations (see table) are designated National Stream Quality Accounting Network Station, and are equipped with continuous monitors for temperature and conductivity (and sometimes dissolved oxygen), and are sampled intermittently (roughly bimonthly) for:

USGS Routine

Color	Turbidity
DO	BOD
coliforms (fecal)	Strep (fecal)
hardness	Calcium
Magnesium	Sodium
Potassium	Alkalinity
Sulfate	Chlorides
fluoride	silica
solids, residue	total solids
volatile solids	nitrate
nitrite	ammonia
organic-N	phosphorus
phosphate	organic carbon
suspended sediment	aluminum
barium	cadmium
cobalt	copper
iron	lead
lithium	manganese
molybdenum	nickel
selenium	silver
strontium	vanadium
zinc	phytoplankton speciation

Analysis methods are fully documented in the USGS publications.

FORMAT: Tabular and digital

COMMENTS: Published annually in

USGS [date]: Water resources data, Texas. [by water year] USGS District Office, Austin.

Station Locations:

Stream discharge stations

<i>Station Number</i>	<i>Station Name</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
08066500	Trinity River at Romayor	30	25.5	94	51.03
08067070	CIWA Canal near Dayton	29	57.67	94	48.60
08067500	Cedar Bayou near Crosby	29	58.33	94	59.16

Stream discharge stations (continued)

<i>Station Number</i>	<i>Station name</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
08073700	Buffalo Bayou at Piney Point	29	44.80	95	31.46
08074000	Buffalo Bayou at Houston	29	45.60	95	24.50
08074500	White Oak Bayou at Houston	29	46.50	95	23.82
08074600	Buffalo Bayou at Main Street	29	45.90	95	21.53
08074710	Buffalo Bayou at Turning Basin	29	44.95	95	17.45
08075000	Brays Bayou at Houston	29	41.82	95	24.72
08075400	Sims Bayou at Houston	29	37.12	95	26.75
08076000	Greens Bayou near Houston	29	55.08	95	18.40
08076500	Halls Bayou at Houston	29	51.70	95	20.08
08078000	Chocolate Bayou near Alvin	29	22.15	95	19.23

Water quality data

08066500	Trinity River at Romayor	30	25.50	94	51.03
08074500	White Oak Bayou at Houston	29	46.50	95	23.82
08074600	Buffalo Bayou at Main Street	29	45.90	95	21.53
08075000	Brays Bayou at Houston	29	41.82	95	24.72
08075400	Sims Bayou at Houston	29	37.12	95	26.75
08076000	Greens Bayou near Houston	29	55.08	95	18.40
08076500	Halls Bayou at Houston	29	51.70	95	20.08
08078000	Chocolate Bayou near Alvin	29	22.15	95	19.23

QUALITY ASSURANCE/QUALITY CONTROL: For data prior to about 1965, no formal QA/QC plan exists, and no information is available as to QA/QC practices. More recent measurements are fully documented in the various books and chapters of *Techniques of water-resources investigations of the United States Geological Survey*. Particular reference is made to:

Fishman, M. and L. Friedman, L. 1989: Methods for determination of inorganic substances in water and fluvial sediments. *Chapter A1, Techniques etc.*, USGS, Alexandria, VA.

Friedman, L. and D. Erdmann, 1982: Quality assurance practices for the chemical and biological analyses of water and fluvial sediments. *Chapter A6, Techniques etc.*, USGS, Alexandria, VA.

Wershaw, R., M. Fishman, R. Grabbe, L. Lowe, 1987: Methods for the determination of organic substances in water and fluvial sediments. *Chapter A3, Techniques etc.*, USGS, Alexandria, VA.

Older editions should also be consulted to document the evolution of QA procedures at USGS.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-207

DATA INVENTORY INFORMATION

GBNEP Reference Number: TSDH001
PROJECT NAME: TSDH surveys of 1950-58
OBJECTIVE: Water quality survey of Galveston Bay
DATA USE: monitoring
PRIORITY PROBLEM:
 A2. Alteration of salinity
 A6. Contamination
 B1. Discharge of pathogens
KEYWORDS: water quality, pollution, contamination

SOURCE: Texas State Department of Health

CONTACT: Neil B. Travis
Texas State Department of Health
1100 West 49th St
Austin, TX 78756

512-458-7510

GENERAL TYPE: Water quality data

GEOGRAPHICAL COVERAGE: Generally the entire Galveston Bay system.

PERIOD OF COVERAGE: 1950-58

MEASUREMENTS:

air and water temperature	deg F
chlorides	ppm
specific gravity	
pH	
turbidity	
dissolved oxygen	ppm
BOD	ppm
total coliforms	MPN per 100 mL

Grab samples obtained at each station from some point in the water column, usually at the surface.

FORMAT: tabular

COMMENTS: Several hundred stations were established on the periphery and within the main body of Galveston Bay, but it is unclear what proportion of these were in fact sampled. The raw data sheets have not been located, but a few reports from this survey survive (see below) which contain sample data sheets. The report by Cox (1951) contains averaged data, but few raw measurements, which were re-drafted for inclusion in Gloyna and Malina (1964), and suggest a much more voluminous data collection.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

References:

Cox, G.W., 1950: Preliminary report on shellfish producing waters in the Galveston Bay area. Manuscript report, Texas State Department of Health and Galveston County Pollution Survey. (No data.)

Cox, G.W., 1951: Progress report, Galveston County Pollution Survey. Manuscript report, Texas State Department of Health and Galveston County Commissioner's Courts. (Considerable quantitative results based upon average or selected measurements.)

Cox, G.W., 1952a: Report on shellfish producing waters in the Galveston Bay area. Manuscript report draft, Texas State Department of Health and Galveston County Pollution Survey. (Sample data sheets attached.)

Cox, G.W., 1952b: Report on shellfish producing waters in the Galveston Bay area. Manuscript report, Texas State Department of Health and Galveston County Pollution Survey. (Sample data sheets attached, different from those attached to the draft.)

Cox, G.W., 1955: Report on shellfish producing waters in the Galveston Bay area. Manuscript report, Texas State Department of Health and Galveston County Pollution Survey. (Contains reduced or averaged data only.)

Cox, G.W., 1958: Report on shellfish producing waters in the Galveston Bay area. Manuscript report, Texas State Department of Health and Galveston County Pollution Survey. (Contains tabulated raw measurements.)

Gloyna, E. and J. Malina, 1964: Galveston Bay Water Quality Study--Historical and Recent Data. Technical Report, Center for Research in Water Resources, University of Texas at Austin.

TSDH surveys of 1950-58

Station Locations 1950-55 (for sampling points for which raw data is presented in one of the above reports)

<i>Location</i>	<i>Station Number</i>	<i>Latitude Deg</i>	<i>Min</i>	<i>Longitude Deg</i>	<i>Min</i>
April Fool Pt.	48	29	28.19	94	55.47
Carancahua Lk.	150	29	14.90	95	01.43
Choc. Bay	175	29	09.69	95	08.23
Choc. Bay	176A	29	09.28	95	08.96
Choc. Bay	324	29	10.17	95	07.67
S. Deer Island	323	29	16.28	94	54.94
Dollar Point	50	29	25.93	94	53.35
Dollar Bay	311	29	25.95	94	55.45
Dollar Bay	312	29	25.60	94	54.18
Greens Lake	149	29	15.99	94	59.51
Hanna Reef	125	29	28.09	94	41.67
Hanna Reef	126	29	28.86	94	43.58
Hanna Reef	127	29	28.81	94	44.07
Hanna Reef	128	29	30.19	94	45.73
Highland Bayou	147	29	19.30	94	56.83
Highland Bayou	266	29	19.93	94	56.73
Lower Galv Bay	292	29	18.12	94	53.90
Lower Galv Bay	321	29	20.34	94	53.09
Lower Galv Bay	322	29	19.23	94	53.44
Miller Pt.	49	29	27.05	94	55.19
Moses Lake	320	29	26.58	94	55.29
Offatts Bayou	293	29	16.86	94	51.46
Offatts Bayou	294	29	16.75	94	51.87
Oyster Lake	325	29	07.41	95	10.24

TSDH surveys of 1950-58

<i>Location</i>	<i>Station Number</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
Red Fish Reef	46	29	29.73	94	54.53
Red Fish Reef	101	29	29.85	94	54.02
Red Fish Reef	103	29	30.00	94	52.75
Red Fish Reef	105	29	30.38	94	51.67
Red Fish Reef	105A	29	31.13	94	52.39
Red Fish Reef	111	29	32.16	94	48.92
Red Fish Reef	113	29	32.41	94	47.87
Red Fish Reef	296	29	30.58	94	53.26
Teichman Pt.	295	29	17.05	94	52.83

Station locations 1957-58, as depicted on system map in Cox (1958):

<i>Station Number</i>	<i>Latitude</i>		<i>Longitude</i>	
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
1	29	30.39	94	54.63
2	29	31.32	94	56.33
3	29	32.3	94	58.05
4	29	33.07	94	59.45
5	29	34.21	94	58.73
6	29	35	94	58.23
7	29	35.72	94	57.73
8	29	36.45	94	57.25
9	29	37.02	94	54.65
10	29	37.37	94	52.85
11	29	37.68	94	50.38
12	29	37.92	94	47.88
13	29	38.25	94	45.32
14	29	38.55	94	43.43
15	29	40.48	94	41.9
16	29	37.79	94	42.4
17	29	36.97	94	43.25
18	29	35.42	94	45.18
19	29	33.4	94	47.58
20	29	31.01	94	46.75
21	29	32.21	94	39.98
22	29	34.12	94	34.13
22A	29	33.6	94	33.13
23	29	32.87	94	32.18
23A	29	32.08	94	31.33
24	29	31.8	94	30.13
24A	29	32.59	94	29.33

TSDH surveys of 1950-58

<i>Station Number</i>	<i>Latitude</i>		<i>Longitude</i>	
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
25	29	31.34	94	30.1
25A	29	31.23	94	31.4
26	29	32.04	94	33.33
26A	29	31.62	94	32.53
27	29	31.91	94	34.33
28	29	29.12	94	39.68
29	29	28.09	94	42.8
30	29	24.85	94	45.1
31	29	21.71	94	51.18
33	29	24.39	94	48.6
34	29	26.71	94	53.1
35	29	27.94	94	53.8
36	29	39.47	94	50
37	29	39.67	94	46.23
38	29	28.57	94	43.45
39	29	28.2	94	44.73
40	29	28.25	94	51.5
41	29	28.44	94	45.78
42	29	28.93	94	47.1
43	29	30.22	94	47.5
44	29	30.02	94	48.43
45	29	31.86	94	52.53
46	29	32.35	94	50.9
47	29	32.85	94	49.2
48	29	26.89	94	49.95
49	29	25.18	94	49.08
50	29	23.29	94	47.95

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-210

DATA INVENTORY INFORMATION

GBNEP Reference Number: HORC002

PROJECT NAME: Houston Ship Channel, Humble 1955

OBJECTIVE: Characterize dissolved oxygen variation in HSC

DATA USE: research,

PRIORITY PROBLEM:

A6. Contamination

B2. Contamination of water/sediment

C1. Regulatory

KEYWORDS: Effluents, dissolved oxygen

SOURCE: Humble Oil & Refining Company, Baytown

CONTACT:

GENERAL TYPE: Water quality

GEOGRAPHICAL COVERAGE: Houston Ship Channel, from San Jacinto Bay at Tunnel to about Boggy Bayou

PERIOD OF COVERAGE: 18 July - 7 December 1955, weekly

MEASUREMENTS: dissolved oxygen, presumably from surface

FORMAT: Tabular

COMMENTS: Humble has collected data from the HSC and adjacent areas on occasion since the 1950s, but the only formal publication was in Chambers and Sparks (1959b), where this data set is presented as Table 6. This data is only dissolved oxygen, and is presented to compare with the later collections of 1957-58. Apparently, judging from the project report of Chambers and Sparks (1959a), no salinity or temperature measurements were made.

About 1982, Exxon (nee Humble) went through a major staff reduction in the scientific and engineering areas. Virtually all of the staff with any familiarity with this type of survey is now gone. While it is probable that the raw data, especially the punched cards, still exist in one of the Exxon warehouses, as of this writing, Exxon has not responded to any of our inquiries.

Houston Ship Channel, Humble 1955

Published in:

Chambers, Gilbert V. and Albert Sparks, 1959a: Ecological survey of the Houston Ship Channel and adjacent bays. HL.14M.58,10-9-7, Research and Development Division, Humble Oil & Refining Company, Baytown, Texas.

Chambers, Gilbert V. and Albert Sparks, 1959b: An ecological survey of the Houston Ship Channel and adjacent bays. *Contr. Mar. Sci.* 6, pp 213-250.

Station Locations:

<i>Station*</i>	<i>Latitude</i>		<i>Longitude</i>		<i>Description</i>
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>	
I	29	45.45	95	05.47	Battleship Texas
II	29	45.83	95	04.61	300 yds above San Jacinto
III	29	45.69	95	04.61	300 yds down from River mouth
IV	29	44.17	95	03.24	Mouth of Peggy Lake
V	29	43.76	95	01.61	East end Scott Lake mouth, power lines
VI	29	43.28	95	01.25	
VII	29	42.26	95	01.04	Baytown tunnel

*Chambers and Sparks (1959) do not supply station numbers. These have been given here for purposes of data entry. While several of these stations correspond to those of the 1957 survey, there are some differences.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-215

DATA INVENTORY INFORMATION

GBNEP Reference Number: HORC001

PROJECT NAME: Houston Ship Channel, Humble 1957-59

OBJECTIVE: Water quality and contamination of HSC

DATA USE: research

PRIORITY PROBLEM:

A6. Contamination

B2. Contamination of water/sediment

C1. Regulatory

C2. Fisheries depletion

KEYWORDS: fish, ecology, dissolved oxygen, pollutants, hydrocarbons

SOURCE: Humble Oil & Refining Company, Baytown

CONTACT: A copy each of Chambers and Sparks (1959a) and Chambers (1960) is in the library of the Texas Water Commission.

GENERAL TYPE: Water quality, hydrography, sediment, biology

GEOGRAPHICAL COVERAGE: Houston Ship Channel, from San Jacinto Bay at Tunnel to about Boggy Bayou, including stations in San Jacinto River, Burnett Bay, Crystal Lake, and Scott Bay

PERIOD OF COVERAGE: 3 September 1957 - 30 July 1959 (perhaps longer), weekly.

MEASUREMENTS: Surface currents (with current-cross or Price meter), chlorinity at surface (Volhard method), Conductivity and temperature profiles, dissolved oxygen from surface (12-16 in depth) by portable polarograph analyzer (*Anlyt. Chem.* 31, pp 499-502), recording tide gauge at Humble Dock, tide staff in Burnett Bay, wind speed and direction from Humble Dock, grain-size analyses of sediment cores, organic chemistry from Ekman dredge samples, speciation and abundance from fish-invertebrate trawls (10-ft otter trawls), sulfides (*Anlyt. Chem* 20 (10), 915-919), hydrocarbons (*Analyt. Chem.* 23 (10), 1384-1387), phenols (*Analyt. Chem.* 21 (8), 941-945), pH, COD (cold permanganate titration, *Standard Methods* 9th ed., p 123).

FORMAT: Tabular, graphical, digital (IBM 705, cards and mag tape)

Houston Ship Channel, Humble 1957-59

COMMENTS: This is one of the more intense surveys of the Houston Ship Channel. Most of the raw data is presented in Chambers and Sparks (1959a) and Chambers (1960), see also Chambers and Sparks (1959b), either in tabular or graphical form. Generally, the hydrographic data was taken at most stations weekly, the trawls at 5 stations weekly, the chemistry irregularly, principally at two stations weekly December 1957 - March 1958 and irregularly thereafter. Qualitative descriptions of sediment cores are presented with discussion of organic content. The raw data on trawl catches are presented in tables in Chambers and Sparks (1959a), and as analyzed, averaged and grouped presentations in Chambers and Sparks (1959b). The data in the published paper terminates in July 1958, but data collection continued after this period, Chambers (1960). Further, the report of Chambers and Sparks (1959a) also includes data collected by Humble prior to 1957.

About 1982, Exxon (near Humble) went through a major staff reduction in the scientific and engineering areas. Virtually all of the staff with any familiarity with this type of survey is now gone. While it is probable that the raw data and more importantly the computer cards still exist in one of the Exxon warehouses, as of this writing, Exxon has not responded to any of our inquiries.

Published in:

Chambers, Gilbert V. and Albert Sparks, 1959a: Ecological survey of the Houston Ship Channel and adjacent bays. HL.14M.58,10-9-7, Research and Development Division, Humble Oil & Refining Company, Baytown, Texas.

Chambers, Gilbert V. and Albert Sparks, 1959b: An ecological survey of the Houston Ship Channel and adjacent bays. *Contr. Mar. Sci.* 6, pp 213-250.

Chambers, G.B., 1960: Ecology and hydrography of the Houston Ship Channel and adjacent bays. HL.2M.60, 10-9-7, Research and Development Division, Humble Oil & Refining Company, Baytown, Texas.

STATIONS:

<i>Station</i>	<i>Latitude</i>		<i>Longitude</i>		<i>Description</i>
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>	
I	29	45.45	95	05.47	Battleship Texas
II	29	45.91	95	04.78	Mouth of San Jacinto
IIp	29	45.48	95	04.51	100 yds down from River mouth
III	29	45.10	95	03.88	

Houston Ship Channel, Humble 1957-59
(Stations continued)

<i>Station</i>	<i>Latitude</i>		<i>Longitude</i>		<i>Description</i>
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>	
IV	29	44.17	95	03.24	Mouth of Peggy Lake
V	29	43.76	95	01.61	East end Scott Lake mouth, power lines
Vp	29	43.83	95	02.16	West end Scott Lake mouth
VI	29	43.43	95	01.25	
VII	29	42.26	95	01.04	Baytown tunnel
1	29	45.60	95	04.25	Edge of HSC at Burnett
2	29	45.72	95	04.14	Entrance Burnett Bay
3	29	45.86	95	03.69	Narrows Burnett Bay
4	29	46.16	95	03.37	West shore, "
5	29	46.60	95	03.08	North shore, "
6	29	46.38	95	02.61	East shore, "
7	29	45.97	95	03.04	Center, Burnett Bay
8	29	43.91	95	01.22	Crystal lake
9	29	44.93	95	02.33	N shore, Scott Bay
10	29	46.74	95	04.51	2000 yds up San Jacinto
137	29	44.62	95	06.26	Tucker Bayou
143	29	44.05	95	07.44	Between Boggy Bayou & Patrick Bayou (before bend easing)

Note: two stations were moved beginning with the 30 January 1958 run. The new stations are designated with the letter "p".

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-220

DATA INVENTORY INFORMATION	
	GBNEP Reference Number: MSI001
PROJECT NAME:	Odum productivity surveys 61-62
OBJECTIVE:	community metabolism in Galveston Bay
DATA USE:	research
PRIORITY PROBLEM:	
	A3. Alteration of nutrients
	B2. Contamination of water/sediment
KEYWORDS:	ecology, plankton, primary production, dissolved oxygen

SOURCE: UT Marine Science Institute, H.T. Odum Metabolism Studies
Published as Odum et al. (1963)

CONTACT:

GENERAL TYPE: Water quality, zooplankton counts

GEOGRAPHICAL COVERAGE: Upper Galveston Bay, Lower Galveston Bay,
West Bay, Houston Ship Channel up to the Monument

PERIOD OF COVERAGE: April, July 1961, August 1962

MEASUREMENTS: Oxygen (diurnal), Total P, pH, salinity, temperature, CO₂,
zoop diversity, light intensity

FORMAT: Graphical/ tabular presentation (original data could not be located)

COMMENTS: Published as :

Odum, H.T., R. Cuzon de Rest, R. Beyers, C. Allbaugh, 1963: Diurnal
metabolism, total phosphorus, Ohle anomaly, and zooplankton diversity of
abnormal marine ecosystems of Texas. *Publ. Inst. Mar. Sci.* 9, pp 404-453

For diurnal data, sampling interval 2-3 hrs (depending upon station) for April 61,
3 hrs for HSC Jul 61.

Apparently the stations listed in Table 3 under "lower Galveston Bay" as 1,2,3 et
seq. should be: 6,7,8,...,15, as shown in Fig. 19.

STATION LOCATIONS

Upper Galveston Bay 18-19 April 1961

<i>Station</i>	<i>Description</i>	<i>Latitude</i>	<i>Longitude</i>
1	Upper Galv Bay, W. of Atkinson Is	29° 39	94° 59
2	Upper Galv Bay out from Red Bluff	29° 36	94° 58
3	Upper Galv Bay out from Clear Lake	29° 33	94° 59
4	Trinity Bay S of Houston Point	29° 36	94° 54
5	Trinity Bay S of Houston Point	29° 38	94° 55

Houston Ship Channel 17-18 July 1961

1	Houston Ship Channel at Baytown Tunnel	29° 42	95° 01
2	Houston Ship Chn, Scott Bay mouth, Baytown Refinery	29° 44	95° 02
3	Houston Ship Chn, nr Carpenters By mouth	29° 46	95° 05

Lower Galveston Bay 15-19 July 1961

6	Galv Bay, off Smith Point	29° 33	94° 51
7	Galv Bay, S of Redfish Bar, E of Hanna Reef	29° 30	94° 50
8	Galv Bay E of HSC W of Hanna Reef	29° 27	94° 48
9	NW of Port Bolivar	29° 24	94° 48
10	Galv Bay, April Fool Point	29° 28	94° 55
11	Galv Bay, Dollar Point	29° 26	94° 53
12	West Bay, NW of Pelican Is. Off Texas City	29° 22	94° 52
13	West Bay out from Jones Lake	29° 17	94° 54

<i>Station</i>	<i>Description</i>	<i>Latitude</i>	<i>Longitude</i>
14	West Bay E of Karankaway Reef	29° 15	94° 59
15	West Bay W of Karankaway Reef	29° 12	95° 02
Galveston Bay 22-23 August 1962			
1	Upper Galv Bay out from Clear Lake	29° 33	94° 57
2	Galv Bay off Eagle Point (San Leon)	29° 29	94° 53
3	Redfish Bar out from Smith Point	29° 31	94° 50
4	Mouth of Trinity Bay	29° 35	94° 52
5	Trinity Bay S of Houston Point	29° 38	94° 54
6	Houston Ship Channel at Morgans Point	29° 41	94° 59
7	Upper Galv Bay out from Red Bluff	29° 36	94° 58

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-225

DATA INVENTORY INFORMATION

GBNEP Reference Number: LIT0006

PROJECT NAME: Wilson TOC 1962

OBJECTIVE: New method for measuring TOC

DATA USE: research

PRIORITY PROBLEM:

A3. Alteration of nutrients

C2. Fisheries depletion

KEYWORDS: ecology, carbon, nutrients

SOURCE: Studies by R.F. Wilson, University of Texas Marine Science Institute

CONTACT:

GENERAL TYPE: Water quality

GEOGRAPHICAL COVERAGE: Upper Galveston Bay (10 Stations)

PERIOD OF COVERAGE: 24 February 1962

MEASUREMENTS: Total Organic Carbon (mg/L)

FORMAT:

COMMENTS: Part of development of Infrared Method for Organic Carbon. Described in Wilson (1963), "Organic carbon levels in some aquatic ecosystems", Publ. Inst. Mar. Sci. 9, 64-76. TOC values shown on Fig. 2 (p. 72).

Wilson TOC 1962

STATION LOCATIONS

Odum-Wilson (1962) TOC measurements

<i>Description</i>	<i>Latitude</i>	<i>Longitude</i>
Houston Ship Channel N of Barbours Cut	29°41.3	95° 59.0
Houston Ship Channel at Morgans Point	29° 40.6	95° 58.7
Upper Galveston Bay off At. Is. (HSC?)	29° 37.8	94° 57.7
Upper Galv Bay off Red Bluff	29° 35.2	94° 57.6
Upper Galv Bay out from Clear Lake	29° 33.1	94° 59.6
Upper Galv Bay NNE of San Leon (HSC?)	29° 31.9	94° 53.6
Upper Galv Bay, N of Redfish Bar	29° 33.1	94° 51.3
Trinity Bay, south of Umbrella Point	29° 37.0	94° 53.1
Out from Dickinson Bay	29° 28.2	94° 52.6
Out from Dollar Bay	29° 25.6	94° 51.1

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-230

DATA INVENTORY INFORMATION
GBNEP Reference Number: HCHD004

PROJECT NAME: Clear Lake File
OBJECTIVE: Problems & regulation of water quality in Clear Lake
DATA USE: compliance
PRIORITY PROBLEM:
 B2. Contamination of water/sediment
 B3. Restriction of contact recreation
 C1. Regulatory
KEYWORDS: Recreation, boating, planning

SOURCE: Harris County Health Department, P.O. Box 25249, Houston 77005

CONTACT: Mr. John E. Williams, 713-526-1841

GENERAL TYPE: Anecdotal

GEOGRAPHICAL COVERAGE: Clear Lake watershed, in Harris, Galveston and Brazoria Counties

PERIOD OF COVERAGE: 1962-1982, irregular

MEASUREMENTS:

FORMAT: Textual, memos, reports

COMMENTS: File of communications with regard to Clear Lake watershed. Includes: 1982 memo on boat dumping in Clear Lake, Report on July 1979 fish kill in Taylor Lake within Clear Lake watershed, copy of Clear Creek Basin Study (a planning document by TC&B, Bovay, LAN joint venture), meeting notes on the Clear Creek Basin Committee meetings of the mid-1960s, Background and planning for Clear Lake Pollution Study of early 1960s, memo addressing station locations of the "Galveston Bay Project/Survey" of TSDH, 1964.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan or other information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-233

DATA INVENTORY INFORMATION	
GBNEP Reference Number: TSDH002	
PROJECT NAME:	TSDH Galveston Bay Project 63-67
OBJECTIVE:	Water quality survey of entire system
DATA USE:	monitoring
PRIORITY PROBLEM:	
	A2. Alteration of salinity
	A3. Alteration of nutrients
	A6. Contamination
	B1. Discharge of pathogens
KEYWORDS:	water quality, pollution, contamination, hydrography

SOURCE: Texas State Department of Health

CONTACT: Neil B. Travis
Texas State Department of Health
1100 West 49th St
Austin, TX 78756

512-458-7510

or: Dr. David Brock
Texas Water Development Board
P.O. Box 13231
Austin TX 78711-3231

512-463-7984

GENERAL TYPE: Water quality data

GEOGRAPHICAL COVERAGE: Galveston Bay (see below)

PERIOD OF COVERAGE: 1963-67

MEASUREMENTS:

Air and water temperature	deg F
total dissolved solids	
suspended solids	
volatile solids	
chlorides	ppm
salinity	ppt
dissolved oxygen	ppm

BOD (5-day)	ppm
conductivity	micromhos/cm
sulfates	
chloride demand	
pH	
total coliforms	MPN per 100 mL
wind direction and speed	Principal points & MPH

Grab sampling at a single depth in vertical, though occasionally in the deep channels, grab samples would be taken from surface and bottom, and infrequently, intervening depths.

FORMAT: digital

COMMENTS: Beginning in 1963, TSDH implemented an intensive study of the quality of the waters of Galveston Bay, under the direction of Neil B. Travis, and operating out of the La Marque office. The program was an outgrowth of previous sampling programs that had been undertaken by TSDH in cooperation with Galveston County since about 1950. (Even earlier, Galveston County performed surveys of sections of the bay.) This program, titled the Galveston Bay Project (but which preceded the Texas Water Quality Board project of the same name), included stations in these areas: Trinity Bay, East Bay, Texas City Dike, Pelican Island, West Bay, Morgan Point to Eagle Point, Ship Channel, Clear Lake, Highland Bayou, Greens Lake, Karankaway Lake, Chocolate Bay, East Bay, Offatts Bayou and the Houston Ship Channel. The program was motivated by intensifying concern as to the quality of Galveston Bay, and was undertaken at the request of the Texas Pollution Control Board.

A review of the early results from the program, including maps of sampling locations, is given in Gloyna and Malina (1984). A brief summary report, TSDH (1968) was submitted at the conclusion of the study; this report contains only an overview of the project and some generalized trend analyses based upon the five years of data 1963-7.

All analyses were performed by laboratories of the Health Department, but no documentation survives describing the exact procedures, or even the units of the results, with a few exceptions noted below. The data were entered onto punched cards to create a digitized data base. This data was integrated into similar but less comprehensive programs underway in the other Texas bays, to form the Texas Coastal Data File. In June 1991, in response to requests from the NEP Status & Trends Program, TSDH attempted to provide a copy of this data file, which had not been requested in "several years" and discovered that all five tape copies had been overwritten. Earlier a tape copy had been supplied to TNRIS, but this has evidently been lost. The only remaining record of the data, aside from a few hard-copy printouts, was a copy downloaded onto a hard drive by Dr. David

Brock of TWDB. The units indicated above for the measurements were inferred from TSDH (1968), or from inspection of this data base.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

References:

Gloyna, E. and J. Malina, 1964: Galveston Bay Water Quality Study--Historical and Recent Data. Tech. Report, Center for Research in Water Resources, University of Texas at Austin.

Texas State Department of Health, 1968: Galveston Bay Water Quality Survey, 1963-67. Report for Interagency Contract No. 141 to Texas Water Quality Board.

STATIONS:

Three sources exist for determining station locations:

USC&GS Navigation Chart 1282 marked with station locations, original in possession of Neil Travis, TSDH

Station location maps in Gloyna and Malina (1964)

Current sampling locations of the Shellfish Division, TSDH, many of which have been historically occupied since the 1960's

Even at this there are many stations in the data record for which locations are not determinable. The known and probable station locations are tabulated below.

<i>Station Bay code (3 chars) + Station ID</i>	<i>Latitude</i>		<i>Longitude</i>	
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
CAL00001	29	14.8	95	1.1
CAL00002	29	14.7	95	1.2
CAL00003	29	14.5	95	1.7
CAL00004	29	15	95	1.6
CCK000Y1	29	30.9	95	7.8
CCK000Y2	29	30.5	95	11.6
CCK000Y3	29	31.4	95	10.9
CCK000Y4	29	31.4	95	11.2
CCK000Y5	29	33.7	95	10.7
CCK000Y6	29	34.7	95	11.1
CCK0Y280	29	31.7	95	10.1
CCK0Y286	29	30.8	95	6.7
CCK0Y287	29	31.3	95	6.1
CCK0Y290	29	32.5	95	5.6
CCK0Y291	29	32.1	95	5.5

<i>Station</i> <i>Bay code (3 chars) + Station ID</i>	<i>Latitude</i>		<i>Longitude</i>	
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
CCK0Y292	29	32.8	95	4.5
CCKY279A	29	32.8	95	11.6
CCKY286A	29	30.8	95	6.1
CHB0CHB1	29	14.3	95	14.3
CLK0Y278	29	33.9	95	3.2
CLK0Y293	29	33.4	95	4.4
CLK0Y294	29	33.8	95	4.3
CLK0Y295	29	33.9	95	3.9
CLK0Y296	29	33.4	95	3.1
CLK0Y297	29	33.1	95	1.9
CLK0Y301	29	33.2	95	2
CLK0Y302	29	33.1	95	2.5
CLK0Y303	29	33.2	95	2.4
DBY00DB1	29	28	95	0.4
DBY00DB2	29	27.7	95	1.1
DBY00DB3	29	27.4	95	2.8
DBY00DB4	29	26.7	95	4
DBY00DB5	29	26.2	95	5.3
DBY00DB6	29	25.9	95	6.4
DBY00DB7	29	26.3	95	10.1
DBY03540	29	27.6	94	58.3
DBY0354A	29	27.79	94	58.25
DOB00001	29	40.5	94	40
DOB00002	29	39.1	94	41.4
DOB00003	29	39.2	94	41.8
DOB00004	29	41	94	37.3
EAS00143	29	29.12	94	40.21
EAS00147	29	29.96	94	41.11
EAS00151	29	31.78	94	42.43
EAS00168	29	30.01	94	36.25
EAS00170	29	31.47	94	37.18
EAS00173	29	32.81	94	37.58
EAS00175	29	32.02	94	34.65
EAS00183	29	31.5	94	30.1
EAS00187	29	32.3	94	29.7
EAS00188	29	33	94	32.6
EAS00190	29	33.99	94	34.35
EAS00191	29	31.91	94	32.35
EAS00228	29	30.5	94	47.5
EAS00239	29	28.16	94	45.08
EAS00275	29	25.79	94	43.93
EAS00320	29	24.1	94	46.03
GALA114	29	24.19	94	50.93

TSDH Galveston Bay Project 63-67

<i>Station</i> <i>Bay code (3 chars) + Station ID</i>	<i>Latitude</i>		<i>Longitude</i>	
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
GAL00070	29	40	94	51.6
GAL00071	29	39.1	94	52.7
GAL00073	29	38.6	94	50.6
GAL00084	29	35.9	94	48.4
GAL00092	29	40.53	94	58.71
GAL00095	29	39.01	94	55.08
GAL00116	29	36.69	94	54.98
GAL00123	29	39.74	94	59.35
GAL00209	29	36.62	94	56.98
GAL00213	29	38.55	95	0.38
GAL00214	29	37.54	94	59.55
GAL00216	29	36.23	94	58.33
GAL00226	29	31.49	94	49.43
GAL00228	29	30.5	94	47.5
GAL00251	29	34.1	94	55.3
GAL00256	29	35.07	94	59.31
GAL00263	29	31.64	94	53.81
GAL00284	29	29.78	94	52.08
GAL00286	29	30.81	94	53.41
GAL00294	29	33.95	95	0.2
GAL00296	29	32.94	94	59.55
GAL00301	29	32.89	95	0.78
GAL00302	29	32.11	94	59.83
GAL00303	29	31.45	94	59.28
GAL00304	29	31.1	94	58.48
GAL00305	29	31.03	94	57.73
GAL00306	29	30.55	94	56.4
GAL00307	29	30.33	94	55.5
GAL00308	29	30.04	94	54.65
GAL00312	29	28.31	94	51.18
GAL00326	29	26.91	94	50.53
GAL00331	29	28.68	94	54.9
GAL00332	29	27.79	94	53.53
GAL00345	29	24.63	94	48.73
GAL00349	29	26.56	94	52.68
GAL00351	29	26.62	94	53.98
GAL00352	29	27.52	94	55.1
GAL00354	29	28.2	94	56.85
GAL00361	29	41.32	94	57.71
GAL00362	29	40.64	94	56.18
GAL00A89	29	20.09	94	53.53
GAL00A91	29	22.24	94	53.28
GAL00A92	29	22.83	94	52.98

TSDH Galveston Bay Project 63-67

<i>Station Bay code (3 chars) + Station ID</i>	<i>Latitude</i>		<i>Longitude</i>	
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
GAL00A96	29	24.91	94	52.6
GAL00A97	29	24.01	94	52.38
GAL00A99	29	22.54	94	52.4
GAL00X45	29	40.2	95	58.7
GAL00X46	29	40.7	95	58.8
GAL0302N	29	31.9	94	59.9
GAL0308A	29	29.8	94	53.5
GAL0331N	29	29	94	54.7
GAL0331S	29	29	94	54.7
GAL0352A	29	28.11	94	55.38
GAL0352B	29	26.93	94	54.88
GAL0A103	29	18.46	94	52.5
GAL0A112	29	22.61	94	51.35
GAL0A114	29	24.19	94	50.93
GAL0A117	29	23.03	94	51.05
GAL0A120	29	20.2	94	50.3
GAL0A122	29	18.71	94	49.6
GAL0A127	29	22.19	94	48.73
GAL0A131	29	21.8	94	48.23
GAL0A137	29	20.92	94	46.68
GAL0A140	29	20.2	94	46.43
GAL0Y300	29	32.9	95	0.9
GALA122B	29	18.4	94	49.8
GALA122C	29	18.4	94	49.75
GALA127B	29	21.67	94	48.88
GRL00001	29	15.9	94	59.6
GRL00002	29	16.1	95	0
GRL00003	29	16.5	94	59.7
GRL00004	29	16.3	94	59.6
HSC000X1	29	45.79	95	21.44
HSC000X3	29	45.71	95	20.6
HSC000X4	29	45.74	95	20.36
HSC000X6	29	45.57	95	19.78
HSC000X7	29	45.36	95	19.19
HSC000X9	29	45.23	95	17.86
HSC00X10	29	44.82	95	17.61
HSC00X13	29	43.68	95	16.58
HSC00X17	29	43.53	95	15.38
HSC00X18	29	43.16	95	14.43
HSC00X20	29	43.49	95	13.41
HSC00X23	29	43.52	95	12.74
HSC00X25	29	44.21	95	12.24
HSC00X27	29	44.62	95	11.48

TSDH Galveston Bay Project 63-67

<i>Station</i> <i>Bay code (3 chars) + Station ID</i>	<i>Latitude</i>		<i>Longitude</i>	
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
HSC00X28	29	44.72	95	11.08
HSC00X31	29	44.74	95	10.05
HSC00X33	29	44.07	95	8
HSC00X35	29	44.39	95	6.67
HSC00X37	29	45.46	95	5.49
HSC00X38	29	45.83	95	4.76
HSC00X39	29	44.15	95	3.2
HSC00X40	29	44	95	1.92
HSC00X45	29	41.02	94	59.12
HSC00X46	29	40.7	95	58.8
HSC0X38A	29	44.97	95	3.9
HSC0X40A	29	42.3	95	1.2
HSC0X41A	29	42.22	95	1.14
HSC0X45A	29	42.58	94	59.57
MOL00001	29	25.5	94	55.6
MOL00002	29	25.8	94	54.5
MOL00003	29	26.5	94	55.5
MOL00004	29	26.8	94	55.8
MOL00005	29	25.5	94	56.2
MOL00006	29	25.5	94	57.6
OFB00001	29	16.8	94	50.2
OFB00002	29	17.2	94	50
OFB00003	29	17.1	94	50.1
OFB00004	29	16.8	94	49.9
OFB00005	29	16.9	94	49.9
OFB00006	29	17.2	94	50.1
OFB00007	29	16.7	94	50
OFB00008	29	16.5	94	50.9
OFB00009	29	16.7	94	51.4
OFB00010	29	16.6	94	51.8
OFB00011	29	16.4	94	52.7
OFB00012	29	17	94	51.3
OFB00013	29	16.8	94	52
OFB00014	29	16.7	94	52.5
OFB00016	29	17	94	50.2
OFB00018	29	17	94	50.3
OFB00019	29	16.9	94	50.6
OFB00020	29	16.8	94	51.1
OFB00021	29	17	94	51.5
TRI00050	29	41.5	94	50.7
TRI00058	29	38.16	94	45.78
TRI00061	29	35.46	94	44.78
TRI00065	29	37.74	94	48.13

TSDH Galveston Bay Project 63-67

<i>Station</i> <i>Bay code (3 chars) + Station ID</i>	<i>Latitude</i>		<i>Longitude</i>	
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
TRI00070	29	39.71	94	50.55
TRI00071	29	39.1	94	52.7
TRI00073	29	37.32	94	50.23
TRI00073	29	38.6	94	50.6
TRI00084	29	33.51	94	51.85
TRI00095	29	39	94	55.3
TRI00100	29	36.49	94	50.65
TRI00108	29	33.75	94	46.93
TRI0023A	29	40.59	94	47.23
TRI0028B	29	43.82	94	41.7
TRI0058F	29	38.36	94	43.55
TRI01316	29	44.2	94	44.2
TRI05 8F	29	38.36	94	43.55
TRI1011E	29	43.64	94	49.43
TRI1316A	29	44.2	94	44.2
TRI1316B	29	41.89	94	44.23
TRI2223C	29	45.66	94	47.28
TRI2223C	29	45.9	94	46.9
WES00046	29	9.1	95	3.2
WES00049	29	11.6	95	1.9
WES00052	29	14.6	95	1
WES00058	29	12.2	94	59.2
WES00059	29	13.3	94	59.7
WES00061	29	13.3	94	59.7
WES00067	29	13.1	94	57.2
WES00069	29	14.8	94	57.4
WES00073	29	17.2	94	56.4
WES00079	29	16.6	94	55
WES00086	29	17.6	94	53.4
WES000A1	29	12.48	94	11.48
WES000A3	29	11.86	95	9.35
WES000A8	29	8.82	95	9.08
WES0086A	29	17.6	94	53.4
WES00A13	29	6.38	95	9.33
WES00A19	29	9.56	95	7.9
WES00A23	29	10.09	95	7.1
WES00A46	29	9.41	95	3.25
WES00A49	29	11.43	95	2.13
WES00A49	29	11.6	95	1.9
WES00A52	29	14.52	95	0.8
WES00A58	29	12.2	94	59.2
WES00A59	29	13.14	95	0.2
WES00A61	29	15.9	94	59.25

TSDH Galveston Bay Project 63-67

<i>Station</i> <i>Bay code (3 chars) + Station ID</i>	<i>Latitude</i>		<i>Longitude</i>	
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
WES00A67	29	13.1	94	57.2
WES00A69	29	14.8	94	57.68
WES00A71	29	16.91	94	57.78
WES00A73	29	17.21	94	56.38
WES00A79	29	16.6	94	55.2
WES00A86	29	17.32	94	53.43
WES052WB	29	14.6	95	1
WES061WB	29	13.3	94	59.7
WES0A105	29	16.73	94	53.1
WES0A79W	29	16.6	94	55
WESA52WB	29	14.6	95	1
WESA61WB	29	13.3	94	59.7

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-235

DATA INVENTORY INFORMATION

GBNEP Reference Number: TWC0003

PROJECT NAME: Point source, TWC inspection
OBJECTIVE: discharge sampling to determine compliance with permit
DATA USE: compliance
PRIORITY PROBLEM:
 A6. Contamination
 B2. Contamination of water/sediment
 C1. Regulatory
KEYWORDS: effluents, point sources, enforcement

SOURCE: Texas Water Commission

CONTACT: Tom Haberle
Texas Water Commission
P.O. Box 13087
Austin, TX 78711-3087

512-463-7741
or 512-463-7830

GENERAL TYPE: Inspection Effluent Data (Inspection Compliance Monitoring)

GEOGRAPHICAL COVERAGE: Galveston Bay and Tributaries

PERIOD OF COVERAGE: 1963-present (see comments)

MEASUREMENTS: Effluent constituents named in permit

FORMAT: Written up as "Inspection Compliance Report"

COMMENTS: Wastewater Inspection Fees went into effect in 1985, at which time TWC has endeavored through its District Offices to inspect each permitted discharge once a year. The reports are placed in the permit file in Central Records. Some reports date back to 1963, but in the early years, discharge sampling was dependent upon problems or whether the discharger was a "major" source. Nevertheless, the period of time between inspections of any discharge should not be greater than a three-year interval in most circumstances. The District Offices maintain files for their district that mirrors the Austin holdings, so copies of these inspection reports should be there also.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-240

DATA INVENTORY INFORMATION GBNEP Reference Number: HCHD003
PROJECT NAME: Clear Lake STP 63-64
OBJECTIVE: Monitor quality of STP effluents in watershed
DATA USE: compliance,
PRIORITY PROBLEM:
A6. Contamination
B1. Discharge of pathogens
B2. Contamination of water/sediment
B3. Restriction of contact recreation
KEYWORDS: Sewage, municipal waste, point source discharges

SOURCE: Harris County Health Department, P.O. Box 25249, Houston 77005

CONTACT: Mr. John E. Williams, 713-526-1841

GENERAL TYPE: Clear Lake Watershed Sewage Treatment Plant Surveys

GEOGRAPHICAL COVERAGE: Clear Lake watershed, in Harris, Galveston and Brazoria Counties

PERIOD OF COVERAGE: Surveys in June 1964 and August-November 1963

MEASUREMENTS: Vary, usually BOD, TSS, ABS minimum. Some plants: pH, conductivity, TDS, chlorides, sulfates, cl demand, DO, BOD, ammonia-N, nitrite-N, nitrate-N, alkalinity and VS. Coliforms for some scattered surveys during this period, and occasional flow and chlorine data.

FORMAT: Data sheets

COMMENTS: 19 plants in Harris County, 3 in Galveston County and 1 in Brazoria County. Analyses performed by Texas State Department of Health. Some inspection reports are included in the file, with descriptions of operation and effluent.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-245

DATA INVENTORY INFORMATION

GBNEP Reference Number: UTME001

PROJECT NAME: Siltation, Masch & Espey

OBJECTIVE: study effects of shell dredging on siltation

DATA USE: research

A7. Increased sediment/turbidity

B2. Contamination of water/sediment

C2. Fisheries depletion

KEYWORDS: oysters, turbidity, siltation, dredging

SOURCE: University of Texas, Masch and Espey (1967)

CONTACT: Center for Research in Water Resources
University of Texas
Austin, TX 78712

(512)-471-3131

GENERAL TYPE: Hydrographic, water quality

GEOGRAPHICAL COVERAGE: Redfish Reef and nearby areas

PERIOD OF COVERAGE: 22 October - 11 December 1964, intermittently (roughly weekly), and 6 May 1965

MEASUREMENTS: TSS, VSS, Suspended Fixed Solids. In addition, currents were determined by drogue tracing, but none of the original data is presented, nor is the date of the survey(s) provided. Siltation rates from deployed traps.

FORMAT: Tabular, graphical

COMMENTS: Part of a project sponsored by the Texas Parks & Wildlife Department to evaluate effects of oyster dredging activity in bay.

Published as:

Masch, F. D. and W. H. Espey, 1967: Shell dredging: a factor in sedimentation in Galveston Bay. Tech. Rep. HYD-06-6702 and CRWR-7, University of Texas at Austin.

STATION LOCATION:

Redfish Island, Todds Dump and environs

Latitude: 29° 31, Longitude 94° 53

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-250

DATA INVENTORY INFORMATION

GBNEP Reference Number: HCHD002

PROJECT NAME: Clear Lake STP 65-69

OBJECTIVE: Monitor quality of STP effluents in watershed

DATA USE: compliance,

PRIORITY PROBLEM:

A6. Contamination

B1. Discharge of pathogens

B2. Contamination of water/sediment

B3. Restriction of contact recreation

KEYWORDS: Sewage, municipal waste, point source discharges

SOURCE: Harris County Health Department, P.O. Box 25249, Houston 77005

CONTACT: Mr. John E. Williams, 713-526-1841

GENERAL TYPE: Clear Lake Watershed Sewage Treatment Plant Surveys

GEOGRAPHICAL COVERAGE: Clear Lake watershed, in Harris, Galveston and Brazoria Counties

PERIOD OF COVERAGE: February 1965 - September 1967, July - September 1968, April - June 1969, monthly

MEASUREMENTS: BOD, TSS, Cl residual, coliforms (on separate sheets, and randomly sampled during 1965)

FORMAT: Tabular summary for 25 plants

COMMENTS: Data transmitted from TWQB, apparently based upon data provided by each plant.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

Published in:

Baldauf, R.J., 1970: A study of selected chemical and biological conditions of the lower Trinity River and the Upper Trinity Bay. Tech. Report No. 26, TWRI, TAMU.

STATION LOCATIONS:

<i>Station</i>	<i>Latitude</i>		<i>Longitude</i>	
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
A	29	46.33	94	46.82
B	29	46.76	94	47.33
C	29	47.65	94	47.65
I	29	47.85	94	44.67
D	29	48.22	94	47.96
E	29	48.31	94	47.49
F	29	48.47	94	46.65
G	29	49.10	94	45.76
H	29	48.38	94	44.65
J	29	48.17	94	43.86
J'	29	48.16	94	43.59
P	29	49.76	94	44.41
T	29	50.03	94	45.75
K	29	49.86	94	47.45
L	29	50.38	94	48.14
M	29	50.79	94	46.53
R	29	50.69	94	45.12
S	29	51.34	94	43.98
O	29	51.03	94	45.52
U	29	51.62	94	45.16

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-260

DATA INVENTORY INFORMATION	
GBNEP Reference Number: TAMUG008	
PROJECT NAME:	Galveston Bay metals 67
OBJECTIVE:	determine metal concentrations in water and sediment
DATA USE:	research
PRIORITY PROBLEM:	
	A6. Contamination
	B2. Contamination of water/sediment
KEYWORDS:	trace metals, metals, power plants

SOURCE: Oceanography, Texas A&M University

CONTACT: Texas A&M University
College Station, TX

GENERAL TYPE: water and sediment quality

GEOGRAPHICAL COVERAGE: Galveston Bay, principally in Houston Ship Channel, both open-bay and inland reaches.

PERIOD OF COVERAGE: 1967

MEASUREMENTS: Water and sediment samples by AA spectroscopy. Water samples collected by Van Dorn sampler. Sediment samples collected by hand core. Analyzed for manganese, nickel, copper, zinc and lead. Separation of dissolved and particulate fractions attempted, and separate determination of "total" concentration.

FORMAT: Tabular

COMMENTS: These are among the earliest measurements of trace metals in the system. However, the methods were developmental and some of the concentrations appear suspect.

Original data published in:

Davis, D.R., 1968: The measurement and evaluation of certain trace metal concentrations in the nearshore environment of the Northwest Gulf of Mexico and Galveston Bay. Ph.D. Dissertation, TAMU, College Station.

Galveston Bay metals 67

STATION LOCATION:

<i>Station</i>	<i>Latitude</i>		<i>Longitude</i>	
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
GB-1	29	30.7	94	57.7
GB-2	29	30.7	94	57.7
GB-3	29	30.7	94	57.7
GB-4	29	34.0	94	55.4
GB-5	29	32.8	94	54.6
GB-6	29	44.0	95	1.7
GB-7	29	36.4	94	56.9
GB-8	29	29.6	94	52.0
GB-9	29	24.7	94	46.5
GB-10	29	20.7	94	47.4

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-265

DATA INVENTORY INFORMATION	
GBNEP Reference Number: TAMU0013	
PROJECT NAME:	Channel sediments, 1967
OBJECTIVE:	Determine pollutant concentrations in sediments
DATA USE:	research
PRIORITY PROBLEM:	
	A6. Contamination
	A7. Increased sediment/turbidity
	B2. Contamination of water/sediment
	C1. Regulatory
KEYWORDS:	sediment oxygen demand, sediment quality, channels, dredging

SOURCE: Civil Engineering, Texas A&M University

CONTACT: Dr. Roy Hann
Dept. Environmental Engineering
Texas A&M University
College Station TX
409-845-3012

GENERAL TYPE: Sediment quality

GEOGRAPHICAL COVERAGE: Houston Ship Channel

PERIOD OF COVERAGE: 1967

MEASUREMENTS: Benthic material sampled with Phleger Corer Kit at four mile intervals along the channel. At each cross section samples were taken at both banks and in shallow and deep water. Observations: depth of sludge sample, depth of water from which sample was taken, and physical appearance of sample. In Laboratory: organic content measured in terms of BOD, COD, and volatile solids

FORMAT: Tabular, graphical

Published in:

Smith, Richard H., 1968: Survey of organic content in bottom sediments of the Houston Ship Channel, M.S. Thesis, Texas A&M Univ.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-270

DATA INVENTORY INFORMATION

GBNEP Reference Number: DCE001

PROJECT NAME: TAMU Estuarine Systems Project

OBJECTIVE: monitoring of water quality in HSC

DATA USE: research

PRIORITY PROBLEM:

A3. Alteration of nutrients

A6. Contamination

C2. Fisheries depletion

KEYWORDS: water quality, Channel, salinity, hydrography

SOURCE: Department of Civil Engineering, Texas A&M University

CONTACT: Dr. Roy Hann
Dept. Environmental Engineering
Texas A&M University
College Station TX
409-845-3012

GENERAL TYPE: hydrography, water quality

GEOGRAPHICAL COVERAGE: Houston Ship Channel above Morgans Point

PERIOD OF COVERAGE: 1968-1971 bi-weekly for various subperiods

In addition, other projects were carried in the Houston Ship Channel in association with the Estuarine Systems Project, which are treated in separate summaries.

MEASUREMENTS:

salinity

Beckman RS5-3 Induction salinometer

water sampling

Van Dorn sampler

Various water quality parameters analyzed throughout program.

FORMAT: raw data never published.

TAMU Estuarine Systems Project

COMMENTS: Project sponsored by Water Quality Office of EPA (nee Federal Water Quality Administration, nee Federal Water Pollution Control Administration), by Sea Grant and Texas Engineering Experiment Station. This was a major project operating out of a field station established on Barbours Cut, and employing about 9 people.

Results published in series of 21 technical reports, through Department of Civil Engineering. Only reduced data appeared in reports. No data report or permanent copy of data. Hann (pers. comm., 1991) believes data may be in box in TAMU warehouse, but not sure. General sampling strategy at outset of program summarized in:

Withers, R. & R. Hann, 1968: Initial evaluation of salinity patterns in the Houston Ship Channel. Tech. Report 2, Estuarine Systems Project, Civil Engineering Department, Texas A&M University, College Station.

See also Field Directive (following).

ADDENDUM [November 1991]: Drs. Hann and Ward searched the warehouse in summer 1991 and located a computer printout of the routine field data, including BOD's. This appears to be the only surviving data.

SAMPLING STATIONS (according to Withers and Hann, 1968)

<i>Station</i>	<i>Description</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
0	Morgans Point	29	40.60	94	58.76
4	Humble Oil & Refining	29	43.45	95	01.25
8	Below Lynchburg Ferry Crossing	29	45.10	95	03.92
SJR	San Jacinto River upstream from HSC	29	46.00	95	04.75
10	At Carpenters Bayou	29	45.31	95	05.60
12	Diamond Alkali	29	44.28	95	06.69
16	Phillips Chemical	29	45.00	95	10.64
20	HL&P Deepwater	29	43.40	95	13.90
24	Mouth of Turning Basin	29	44.86	95	17.18

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

MEMORANDUM

TO: RICHARD SMITH
 FROM: ROY W. HANN, JR. *R. W. Hann*
 SUBJECT: FIELD DIRECTIVE: REVISED SAMPLING PROGRAM

As per the discussion of our staff conference on January 17, you are to modify the field sampling program as outlined below.

Each week you shall make a major sampling run for both salinity data and DO - BOD information. The following chart will indicate the sampling stations and the analyses to be made.

TAMU Station	Depth									
	S	5	10	15	20	25	30	35	40	45
-2	ACD	C	ACD	C	CD ²	C	ACD	C	ACD	C
0	ACD	C	ACD	C	CD ²	C	ACD	C	ACD	C
2	ACD	C	ACD	C	CD ²	C	ACD	C	ACD	C
4	ACD	C	ACD	C	CD ²	C	ACD	C	ACD	C
6	ACD	C	ACD	C	CD ²	C	ACD	C	ACD	C
8	ACD	CD	ACD	CD	CD ²	CD	ACD	CD	ACD	CD
SJRO	ACD	C	AC	C	CD ²					
10	ACD	CD	ACD	CD	CD ²	CD	ACD	CD	ACD	CD
12	ACD	CD	ACD	CD	CD ²	CD	ACD	CD	ACD	CD
14	ACD	CD	ACD	CD	CD ²	CD	ACD	CD	ACD	CD
16	ACD	CD	ACD	CD	CD ²	CD	ACD	CD	ACD	CD
18	ACD	C	ACD	C	CD ²	C	ACD	C	ACD	C
20	ACD	C	ACD	C	CD ²	C	ACD	C	ACD	C
22	ACD	C	ACD	C	CD ²	C	ACD	C	ACD	C
24	ACD	C	ACD	C	CD ²	C	ACD	C	ACD	C

- A = Water Sample for BOD Analysis
- B = Water Sample for Bacterial Analysis
- C = Salinity, Temperature and Conductivity
- D = Dissolved Oxygen
- D² = Duplicate Dissolved Oxygen

The samples will be collected and the analyses made only on the center-line of the channel.

The BOD Test shall be made on the composit of the 0 and 10 ft. depth and the composit of the 30 and 40 foot depth. At least three dilutions

ILLUSTRATION 6

Typical Field Directive

Richard Smith
Page 2
January 20, 1969

shall be set up for each composited sample and duplicates shall be run on stations 0, 8, 16, and 24. Dilution water shall be made from distilled or deionized water in accordance with standard methods. The dilution water shall be seeded with a composite of water collected at stations 0, 8, 16, and 24 at the 10 foot depth.

All tests shall be run in accordance with the methods outlined in the Field Operations Manual.

It is suggested that this major run be made on Thursdays. The run shall be made on Friday or Saturday if weather or mechanical difficulty prevents the run being made on Thursday.

Dissolved oxygen analysis may be cut down to three samples (0, 20 and 40 ft) every 4 miles above the second upstream station showing no dissolved oxygen.

You may plan your sampling run from upstream to downstream or vice versa to minimize the adjustment for non-high water slack sampling and to minimize night time sampling.

A second run will be made on Monday of each week. This run will be the same as the other run except dissolved oxygen values will be obtained only at 0, 20, and 40 feet and no BOD analyses will be made. Stations 2, 6, 10, 14, 18 and 22 will not be sampled unless a major inflow or exceptional tide condition has occurred.

You should continue to initiate special sampling runs following extreme climatic changes. When low D.O. waters are obtained in areas previously having high D.O., the intensive 5 foot D.O. sampling program shall be used.

The Galveston Bay Study run shall be made as in the past except no BOD samples will be collected for our use. The (S 1/3 2/3 B) D.O. samples will satisfy our needs on this run. Note that this will now be a special run just for their benefit.

It is recognized that the Thursday run will be a long one. Every effort must be made to expedite each task, have ample personnel to permit some rest time, and to insure quality control.

ILLUSTRATION 6

(Continued)
Typical Field Directive



R/V DUET
Civil Engineering Department
Texas A&M University

Length Overall: 62'

Draft: 12"

Type of Propulsion: Diesel

Number of Propellers: 2

Size of Crew: 2

Steaming Radius: 100 miles

Electrical Generating Capacity: 10 KW

Age: 3 years

Accommodations for Non-Crew Personnel: 20/5 (single day operation/overnight operation).

Longest Voyage with Full Crew & Maximum Non-Crew Personnel: 100 miles.

Scientific Equipment (Major): One water quality monitoring system, fixed and variable depth pumping systems, portable monitoring equipment (pH, D.O., salinity, temperature), samplers, velocity meters, corers.

Special Features, Capabilities or Equipment: Shallow draft vessel, adjustable outdrives.



R/V EXCELLENCE
Civil Engineering Department
Texas A&M University

Length Overall: 56'

Draft: 42"

Age: 11 years

Steaming Radius: 100 miles

Type of Propulsion: Diesel

Number of Propellers: 2

Electrical Generating Capacity: 10 KW

Size of Crew: 2

Number and Capacity of Booms: 1 boom, 1000 lb. capacity

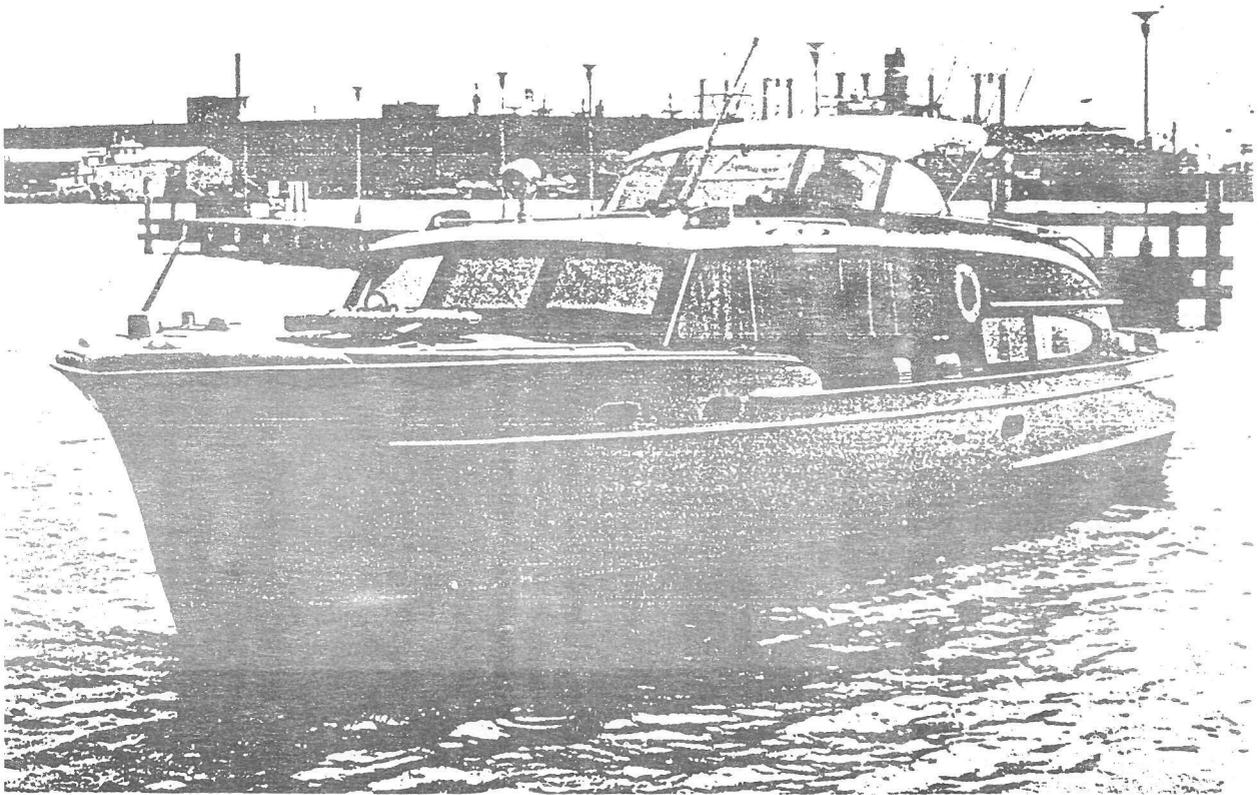
Number and Capacity of Winches: 1 winch, 1000 lb. capacity

Accommodations for Non-Crew Personnel: 20/5 (single day operation/overnight)

Longest Voyage with Full Crew & Maximum Non-Crew Personnel: 100 miles.

Scientific Equipment (Major): Two water quality monitoring systems, fixed and variable depth pumping systems, 2 fluorimeters, total carbon analyzer, oxygraph, samplers, velocity meters, corers.

Special Features, Capabilities or Equipment: Extensive instrumentation for water quality research.



R/V MARINER
Civil Engineering Department
Texas A&M University

Length Overall: 50'

Draft: 36"

Type of Propulsion: Diesel

Steaming Radius: 100 miles

Size of Crew: 2

Number of Propellers: 2

Electrical Generating Capacity: 12.5 KW

Number and Capacity of Booms: 1 boom, 1000 lb. capacity

Number and Capacity of Winches: 1 winch, 1000 lb. capacity

Accommodations for Non-Crew Personnel: 15/5 (single day operation/overnight operation).

Longest Voyage with Full Crew & Maximum Non-Crew Personnel: 100 miles.

Scientific Equipment (Major): An overboard pumping system, portable monitoring equipment (pH, D.O., salinity, temperature), samplers, velocity meters.

Special Features, Capabilities or Equipment: Heavy duty work vessel; biological related activities (i.e. trolling for aquatic organisms).

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-275

DATA INVENTORY INFORMATION	
GBNEP Reference Number: TAMU0017	
PROJECT NAME:	HSC sediments 68-69
OBJECTIVE:	Characterize sediments in Houston Ship Channel
DATA USE:	research
PRIORITY PROBLEM:	
	A6. Contamination
	A7. Increased sediment/turbidity
	B2. Contamination of water/sediment
	C1. Regulatory
	C2. Fisheries depletion
KEYWORDS:	sediment quality, sediment oxygen demand, Houston Ship Channel

SOURCE: Environmental Engineering Division, Civil Engineering Dept., Texas A&M University

CONTACT: Dr. Roy Hann
Dept. Environmental Engineering
Texas A&M University
College Station TX
409-845-3012

GENERAL TYPE: Sediment quality - benthic deposits

GEOGRAPHICAL COVERAGE: Houston ship channel and Burnett, Scott, and Upper San Jacinto Bays

PERIOD OF COVERAGE: 1968 - 1969

MEASUREMENTS: Observation of core samples (obtained with modified Phleger corer kit), sludge depth, BOD and COD (see methods in Standard Methods - reference 22 unavailable), suspended solids

FORMAT: Tabular, graphical

Published in:

Hutton, Welford Samuel et al., 1970: A quantitative and qualitative survey of benthic deposits contained in the Houston ship channel, Estuarine Systems Project Technical Report #8, Texas A&M University, College Station, TX.

HSC sediments 68-69

SITE LOCATIONS:

<i>Station</i>	<i>Description</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
0	Morgan's Point	29	40.81	94	58.84
2		29	42.05	95	00.18
4		29	43.45	95	01.25
6		29	44.48	95	03.63
8		29	45.34	95	04.02
10	San Jacinto Mon.	29	45.81	95	05.00
12	Patrick Bayou Inlet	29	44.34	95	06.87
14		29	44.13	95	08.69
16		29	44.79	95	10.49
18		29	44.26	95	12.22
20		29	43.49	95	13.75
22		29	43.53	95	15.80
24		29	44.94	95	17.27

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-280

DATA INVENTORY INFORMATION

GBNEP Reference Number: GBPRJ01

PROJECT NAME: GBP Routine

OBJECTIVE: large-scale sampling of water quality throughout system

DATA USE: monitoring

PRIORITY PROBLEM:

A2. Alteration of salinity

A3. Alteration of nutrients

A6. Contamination

B2. Contamination of water/sediment

C1. Regulatory

KEYWORDS: Water quality, organics, hydrography

SOURCE: Routine Sampling Program, Galveston Bay Project, Texas Water Quality Board-Texas Department of Water Resources

CONTACT: Jeff Kirkpatrick or Dan Beckett
Texas Water Commission
P.O. Box 13087
Austin, TX 78711-3087
512-463-7830

GENERAL TYPE: Water quality, hydrography

GEOGRAPHICAL COVERAGE: Galveston Bay system

PERIOD OF COVERAGE: 16 July 1968 - 15 August 1972, monthly

MEASUREMENTS: Suite of water quality & hydrographic parameters, specifically:

air temp (C)*

conductivity*

chlorinity

ammonia

org N

fecal coli

5-day BOD (various dilutions)

aerated BOD 1-16 day

water temp (C)*

DO*

nitrite

total P

total coli

pH*

nitrate

wind*

current*

* indicates field measurement

FORMAT: Tabular, see below.

GBP Routine

COMMENTS: The Galveston Bay Project was a comprehensive study of the system conducted by the Texas Water Quality Board. Project direction was under Col. Frank P. Bender, and overall management of the study was the responsibility of Turner, Collie & Braden, Inc. Numerous agencies contributed to the effort, including the Corps of Engineers, City of Houston, Texas State Department of Health, Texas Parks & Wildlife. Work elements were performed under contracts awarded to the University of Texas Marine Science Institute, UT Center for Research in Water Resources, Departments of Zoology and Civil Engineering, Tracor, Inc., Bernard Johnson, Inc., and Hydrosience, Inc., among others.

The data collection program was designed by Tracor, field sampling conducted by the Corps of Engineers, Galveston District, and sample analyses performed by the Department of Health and the City of Houston. The routine monitoring program was conducted in two phases. The first extended from July 1968 through October 1970. After a hiatus, sampling resumed in March 1971 and continued through August 1972. The first phase involved sampling multiple depths at 35 stations. The second phase was considerably reduced, 15 stations being occupied, only in the main bay (i.e. not in the upper Houston Ship Channel) and sampled at mid-depth for most stations, surface and 2/3 depth for the deep channel stations. (In addition, there was a "high-frequency component, described elsewhere. Also, some of the contracts included their own sampling, e.g. the ecological studies of UT, also reported elsewhere.)

A number of reports were produced as a part of the study, most of which are in the Texas Water Commission Library. Tracor developed a data management system to store and analyze the data, from the GBP programs as well as other surveys in the system, including the TPWD Seabrook and the USBCF. The data management system codes (written in FORTRAN) and the data set were transmitted to the Texas Department of Water Resources at the conclusion of the Tracor contract in 1971. An update was produced by Espey, Huston & Assoc. and transmitted to the TDWR in 1973. The original data tapes are lost. The only record of the Galveston Bay Project routine data is in the following reports:

Huston, R. J., 1971: Galveston Bay Project, Compilation of Water Quality Data, July 1968 - September 1971. Doc. No. T71-AU-9617-U, Tracor, Inc., Austin, TX.

Huston, R.J. and F. S. Carl-Mitchell, 1973: Galveston Bay Project, Addendum to Compilation of Water Quality Data through August 1972. Doc. No. 7315, Espey, Huston & Assoc., Inc., Austin, TX.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices. The water chemistry analyses were performed by the City of Houston laboratories until 1971, and thereafter by commercial laboratory. It is safe to assume that QA procedures were in conformance with norms of the time, e.g. *Standard Methods*.

GBP Routine

ADDENDUM [November 1991]: A digital copy of the Routine Sampling program was reconstructed by Ward from an archive card-image record obtained from the Espey Huston computer center.

SAMPLING STATIONS:

<i>Station</i>	<i>Latitude</i>		<i>Longitude</i>		<i>Description</i>
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>	
1	29	20.69	94	42.93	In channel near FL "9"
2	29	18.2	94	52.9	In GIWW channel near buoy #24.
3	29	24.66	94	49.41	In Houston Ship Channel near FL "36"
4	29	32.96	94	54.49	In Houston Ship Channel near FL "64"
5	29	36.37	94	57.09	In Houston Ship Channel near FL "76" near 5 mile cut
6	29	42.36	95	01.13	In Houston Ship Channel near front light of range "H"
7	29	44.46	95	03.61	In Houston Ship Channel near front light of range "T"
8	29	46.10	95	04.69	In San Jacinto River near powerline tower
9	29	45.05	95	05.75	In Houston Ship Channel near flashing light "133"
10	29	44.8	95	10.5	In Houston Ship Channel near Phillips 66 Dock and flashing light
11	29	44.85	95	17.19	In Houston Ship Channel near Public Wharf 2, north side
12	29	09.6	95	08.1	At marker C "11" on the GIWW
13	29	06.9	95	08.0	Marked pile in West Bay, north of San Luis Pass bridge
14	29	13.3	94	59.7	Marked pile E of Carancahua Reef in West Bay
15	29	23.5	94	51.0	Marked pile 0.5 mile S Half Moon Shoal & 0.7 mile N Texas City Dike

GBP Routine

<i>Station</i>	<i>Latitude</i>		<i>Longitude</i>		<i>Description</i>
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>	
16	29	20.1	94	50.5	In GIWW W of Pelican Island near buoy #21
17	29	22.38	94	50.91	In Texas City Channel near buoy "12"
18	29	26.4	94	52.8	Pile pipeline marker near Dollar Point
19	29	30.4	94	57.3	100 yards E of entrance to HL&P Co. discharge channel near Bacliff
20	29	32.0	95	00.2	1.0 mile N Bayview near Corinthian Yacht Club
21	29	38.6	95	00.6	Near Sylvan Beach Pavilion Pier Yacht Club
22	29	33.8	94	58.2	Between HSC marker "71" & outer beacon of Seabrook Channel (TPWD marker)
23	29	36.6	94	55.3	Buoy 6, Five Mile Cut Channel
24	29	44.0	94	50.0	USED tide gage near Pt. Barrow
25	29	45.2	94	46.5	Pipe marker near Cross Bayou
26	29	39.9	94	47.2	Humble Oil Well 95 - flashing red
27	29	36.0	94	43.8	Oyster lease pile marker near Lone Oak Bayou NE of Vinetun Island
28	29	31.9	94	49.3	Humble Well 148 N of Trinity River Channel between Smith Point and Eagle Point
29	29	28.2	94	42.6	USED tide gage near Hanna Reef
30	29	31.1	94	37.2	Pile with slat day marker in East Bay between Marsh Pt. and Elmgrove Pt.
31	29	18.63	94	49.88	In channel near FLR "2"
32	29	18.3	94	49.9	Pipe marker near Galveston sewage disposal plant

GBP Routine

<i>Station</i>	<i>Latitude</i>		<i>Longitude</i>		<i>Description</i>
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>	
33	29	40.47	94	58.75	In Houston Ship Channel at Morgan Point, opposite FR range "B"
34	29	44.4	95	06.7	In Houston Ship Channel opposite FL "138"
35	29	43.47	95	13.18	In Houston Ship Channel opposite FL "165"
37	29	27.4	94	55.3	In Dickinson Bayou Channel opposite can buoy #15
38	29	42.8	94	43.6	Buoy #1 in Anhuac Channel (#5 in naut. chart)
39	29	35.9	94	48.0	Orange Buoy NW Smith Point
40	29	30.0	94	40.7	Pipe marker NE of Moody Pass (Hannah Reef)
41	29	29.3	94	51.8	In Houston Ship Channel near FL "51A" (Junction of Trinity River Channel)
42	29	45.0	94	48.7	Pipe marker opposite HL&P Cedar Bayou outfall

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-290

DATA INVENTORY INFORMATION

GBNEP Reference Number: TWC0008

PROJECT NAME: Point sources, TWC self-reporting data

OBJECTIVE: maintain digital file of all self-reporting data

DATA USE: compliance

PRIORITY PROBLEM:

A6. Contamination

B2. Contamination of water/sediment

C1. Regulatory

KEYWORDS: effluents, point sources, enforcement

SOURCE: Texas Water Commission

CONTACT: Dwight Eads (512-463-8392) or Tom Haberle (512-463-7741)

Texas Water Commission

P.O. Box 13087

Austin, TX 78711-3087

GENERAL TYPE: Effluent data (Self-reporting)

GEOGRAPHICAL COVERAGE: Galveston Bay and Tributaries

PERIOD OF COVERAGE: 1969-present

MEASUREMENTS: Effluent constituents named in permit

FORMAT: Digitized.

COMMENTS: Beginning in 1972, the computer format is simple and easy to use. Older data is stored on the main frame system and difficult to manipulate.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-295

DATA INVENTORY INFORMATION

GBNEP Reference Number: HFP001

PROJECT NAME: GBP High-Frequency

OBJECTIVE: Determine short-term changes in water quality

DATA USE: research

PRIORITY PROBLEM:

A. REDUCTION/ALTERATION OF LIVING RESOURCES

A2. Alteration of salinity

A7. Increased sediment/turbidity

C1. Regulatory

C2. Fisheries depletion

D2. Bathymetric/circulation changes

KEYWORDS: currents, tides, salinity, water quality, transport

SOURCE: High Frequency Program, Galveston Bay Project, Texas Water Quality Board-Texas Department of Water Resources

CONTACT: Jeff Kirkpatrick, Dan Beckett
Texas Water Commission
P.O. Box 13087
Austin, TX 78711-3087

512-463-7830

GENERAL TYPE: Water quality, hydrography

GEOGRAPHICAL COVERAGE: Galveston Bay system

PERIOD OF COVERAGE: 29 January 1969 - 23 June 1971.

MEASUREMENTS: All measurements were *in situ*, limited to water temperature, dissolved oxygen, pH and salinity.

FORMAT: Graphical, see below.

COMMENTS: The Galveston Bay Project was a comprehensive study of the system conducted by the Texas Water Quality Board. Project direction was under Col. Frank P. Bender, and overall management of the study was the responsibility of Turner, Collie & Braden, Inc. Numerous agencies contributed to the effort, including the Corps of Engineers, City of Houston, Texas State Department of Health, Texas Parks & Wildlife. Work elements were performed under contracts awarded to the University of Texas, Tracor, Bernard Johnson, and Hydroscience among others.

GBP High-Frequency

The data collection program was designed by Tracor, field sampling conducted by the Corps of Engineers, Galveston District, and sample analyses performed by the Department of Health and the City of Houston. The high frequency program was designed to monitor detailed temporal variation of parameters in key sections of the bay. Five diurnal sampling runs were conducted:

29-30 January 1969
8-9 May 1969
9-10 September 1969
14-15 July 1970
22-23 June 1971

in which sampling was performed hourly for 24 hours beginning noon on the first day and extending to noon of the second. Generally six stations were occupied. Sampling stations and precise procedures varied from run to run, and according to equipment malfunction. (In addition, there was a "routine" program of the GBP, described in Data Report 280.)

Tracor developed a data management system to store and analyze the data, from the GBP program. The data management system codes (written in FORTRAN) and the data set were transmitted to the Texas Department of Water Resources at the conclusion of the Tracor contract in 1970. As of this writing (November 1990) the original data tapes are lost. The only record of the Galveston Bay Project high-frequency data is in the following report:

Huston, R. J., 1971: Galveston Bay Project, Compilation of Water Quality Data, July 1968 - September 1971. Doc. No. T71-AU-9617-U, Tracor, Inc., Austin, TX.

Unfortunately, the tabular printouts of the data are not given; only graphical output displays are presented. Further, while current velocity may have been measured, this data set is not reported here. This appears to be the last remaining record of this intensive and expensive exercise.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

ADDENDUM [November 1991]: A digital copy of the High-Frequency Program data set has been reconstructed by Ward from an archive card-image record obtained from the Espey Huston computer center.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-300

DATA INVENTORY INFORMATION GBNEP Reference Number: BJIH001
PROJECT NAME: Waste loads 1970
OBJECTIVE: Quantify waste loads to Galveston Bay system
DATA USE: survey
PRIORITY PROBLEM:
A3. Alteration of nutrients
A6. Contamination
B2. Contamination of water/sediment
C1. Regulatory
KEYWORDS: BOD, waste loads, effluent, contamination

SOURCE: Bernard Johnson, inc., Houston

CONTACT:

GENERAL TYPE: Water Quality, Waste Loading

GEOGRAPHICAL COVERAGE: Galveston Bay, Houston Ship Channel, tributaries

PERIOD OF COVERAGE: June 1970 - June 1971

MEASUREMENTS: See comments below.

FORMAT: Tabular, graphical

COMMENTS:

This study was part of the TWQB Galveston Bay Project, and was published in:

Bernard Johnson, Inc., 1971: Galveston Bay Project - Regional Systems Task (IIA)
- Phase I. BJI, Houston

one copy of which is in the Texas Water Commission library. While working entirely with derivative data, this report is a good summary of the state of waste loading to the Galveston Bay system ca. 1970. Includes a compilation of self-reporting data for the indicated period, and an individual census of existing wasteloads, by operator and permit number, together with segments of USGS quad sheets showing the locations of the discharges.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-305

DATA INVENTORY INFORMATION

GBNEP Reference Number: TWC0011

PROJECT NAME: TWC Statewide Monitoring Network

OBJECTIVE: Monitoring of water quality in state waters

DATA USE: monitoring

PRIORITY PROBLEM:

A2. Alteration of salinity

A3. Alteration of nutrients

A6. Contamination

A7. Increased sediment/turbidity

KEYWORDS: water quality, microbiology, ecology, pollutants

SOURCE: Statewide Monitoring Network, Texas Water Commission

CONTACT: Robert Organ
Texas Water Commission
P.O. Box 13087, Capitol Station
Austin, TX 78711-3087

512-463-8400

GENERAL TYPE: Water quality, biology

GEOGRAPHICAL COVERAGE: Galveston Bay System & Tributaries

PERIOD OF COVERAGE: circa 1970-present

MEASUREMENTS: See below

FORMAT: Digital data base on TWC mainframe computer. Output is usually as hard-copy tabulation in several formats. Line-image magnetic tapes can be generated for these same printed formats upon request.

COMMENTS:

The Statewide Monitoring Network (aka Stream Monitoring Network) of the Texas Water Commission refers to both a sampling program and a data base. The sampling program is a continuing program of sampling at fixed stations at regular intervals, usually carried out by the field and/or District offices of the Texas Water Commission (TWC). The program has continued to evolve, both in the suite of parameters measured and in the distribution of sampling stations. Parameters have been expanded from conventional variables in the early 1970's to trace constituents, pesticides and priority pollutants in recent years.

TWC Statewide Monitoring Network

In addition, from time to time, the state performs Intensive Studies on a particular reach or watercourse. These TWC Intensive Studies are an important data source because the range of parameters sampled and the temporal intensity permit more detailed analysis of the water quality regime than is normally possible with the routine SMN observations. Table 1 presents a summary of the Intensive Surveys that have been performed within the Galveston Bay system by the Texas Water Commission. (It should be noted that these studies are different from the "Intensive Inflow" studies of the Texas Water Development Board.)

The organization of sampling and analysis of surface waters of Texas is a system of segmentation. Each watercourse is divided into a series of "designated segments" and, perhaps, "undesignated segments." The designated segments are identified by a unique number, which in turn is employed as a prefix to the permanent sampling station designations. Table 2 summarizes the segment definitions for the Galveston Bay system. Segment Descriptions for segments 0801-1113 are taken from TWC (1990). Descriptions for the un-designated Bayous are based on information obtained from various "Intensive Surveys" prepared by the Water Commission or its predecessor agencies (Table 1).

The SMN data base is a digitized comprehensive data management program implemented on the TWC mainframe computer and operated in coordination with the Texas Natural Resources Information System of the Texas Water Development Board. The SMN data base includes all sampling activities of the Statewide Monitoring Network, as well as special studies (including microbiology and benthos) and Intensive Surveys. It also includes data from other agencies, notably Texas Water Development Board and the U.S. Geological Survey. Parameter data are identified by STORET codes, 5-digit identifiers that uniquely specify a water quality variable, including method of analysis and reporting units. Table 3 lists the STORET codes for variables which have been sampled in the Galveston Bay system and tributaries, and gives some indication of the scope of the data base. [NOTE - some of these have been sampled only in the upper reaches of tributaries, and some are represented by only one or two measurements in the historical period of record. Thus the sampling is not as comprehensive as this list might suggest.]

SAMPLING LOCATIONS:

Summaries of the routine stations are given in the various "segment" reports, in the Intensive Survey Report summaries, and the State Water Quality Inventory (e.g. TWC, 1990). Table 4 summarizes the TWC SMN stations in the Galveston Bay system and tributaries, both active and inactive, with corrected latitude/longitude coordinates. The reader is referred to the station summaries in TWC (1990) for further locational descriptions. Also, the SMN can generate a computer listing of all sampling stations, including physical description and latitude/longitude coordinates upon request.

REFERENCES:

Texas Water Commission, 1990. The State of Texas Water Quality Inventory, 10th Edition 1990. TWC, Austin, Texas.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information was made available to this project as to QA/QC practices. Chemical analyses are performed by the Texas State Department of Health, and procedures are in general conformity to *Standard Methods* and EPA manuals. Field procedures are not documented, nor were we provided any information concerning the tracking of data through the keyboarding and data-base integration processes.

Table 1
Summary of Intensive Surveys in Galveston Bay system

<i>Seg #</i>	<i>Name</i>	<i>Intensive Survey #</i>	<i>Date</i>	<i>Type of Data Code</i>
TRINITY RIVER BASIN				
801	Trinity River Tidal	NONE		
802	Trinity River Below Lake Livingston	NONE		
TRINITY-SAN JACINTO COASTAL BASIN				
901	Cedar Bayou Tidal	IS-89-07 IS-89-07	5-Jul-83 22-May-84	B,C,F,L,Q B,C,F,X,Q
902	Cedar Bayou Above Tidal	IS-89-07 IS-89-07	5-Jul-83 22-May-84	B,C,F,L,X,Q B,C,F,L,X,Q
SAN JACINTO RIVER BASIN				
1001	San Jacinto River Tidal	IS-86-10 IS-87-06 IS-87-09	2-Aug-78 8-Jul-80 24-Feb-81	Q,F,C,L Q,F,C,L Q,F,C,L
1005	Houston Ship Channel/ San Jacinto River	IS-26 IS-86-10 IS-87-06 IS-87-09	13-Aug-74 2-Aug-78 8-Jul-80 24-Feb-81	Q,F,C,L Q,F,C,L Q,F,C,L Q,F,C,L
1006	Houston Ship Channel (Halls Bayou) (Greens Bayou)	IS-26 IS-31 IS-30 IS-30 IS-86-10 IS-87-06 IS-87-09	13-Aug-74 23-Oct-75 11-Aug-76 14-Oct-76 2-Aug-78 8-Jul-80 24-Feb-81	Q,F,C Q,D,F,C,R Q,X,D F,C,R Q,F,C,L Q,F,C,L Q,F,C,L
1007	Houston Ship Channel/ Buffalo Bayou (Brays Bayou) (Hunting Bayou) (Sims Bayou) (White Oak Bayou)	IS-26 IS-18 IS-21 IS-24 IS-32 IS-86-10 IS-87-06 IS-87-09	13-Aug-74 14-Oct-75 22-Oct-75 10-Aug-76 2-Nov-76 2-Aug-78 8-Jul-80 24-Feb-81	Q,F,C Q,X,D,R,F,C,B Q,X,D,R,F,C Q,X,D,R,F,C Q,X,D,R,F,C,B Q,F,C,L Q,F,C,L Q,F,C,L

TWC Statewide Monitoring Network

Table 1
(continued)

<i>Seg #</i>	<i>Name</i>	<i>Intensive Survey #</i>	<i>Date</i>	<i>Type of Data Code</i>
1013	Buffalo Bayou Tidal	IS-86-10	2-Aug-78	Q,F,C,L
		IS-87-06	8-Jul-80	Q,F,C,L
		IS-87-09	24-Feb-81	Q,F,C,L
		IS-87-05	14-Jul-81	Q,X,F,C,B
		IS-87-05	12-May-82	Q,X,F,C,R
1014	Buffalo Bayou Above Tidal	IS-28	1-Sep-76	Q,X,D,F,C
		IS-28	6-Oct-76	Q,X,D,R
		IS-86-10	2-Aug-78	Q,F,C,L
		IS-87-06	8-Jul-80	Q,F,C,L
		IS-87-09	24-Feb-81	Q,F,C,L
		IS-87-05	14-Jul-81	Q,X,D,F,C,B
		IS-87-05	12-May-82	Q,X,F,C,R
IS-88-01	6-Apr-83	Q,X,F,C		
SAN JACINTO-BRAZOS COASTAL BASIN				
1101	Clear Creek Tidal	IMS-62	15-Sep-72	Q,X,D,F,C,S,P,I,B
		IS-5	9-Sep-75	Q,X,D,R,F,C,B
1102	Clear Creek above Tidal	IMS-62	15-Sep-72	Q,X,D,F,C,S,P,I,B
		IS-5	9-Sep-75	Q,X,D,R,F,C,B
1103	Dickinson Bayou Tidal	IMS-71	13-Sep-72	Q,F,C,S,P,I,B
		IS-34	27-May-76	Q,X,D,F,C,L
		IS-86-03	26-Nov-80	Q,X,L,F,C,B
1104	Dickinson Bayou Above Tidal	IMS-71	13-Sep-72	Q,F,C,S,P,I,B
		IS-8	9-Aug-74	Q,X,D,F,C
		IS-86-07	5-May-81	Q,X,D,F,C
1105	Bastrop Bayou Tidal	IMS-54	12-Sep-72	Q,X,F,C,S,P,I,B
		IS-13	8-Aug-74	L,F,C
1107	Chocolate Bayou Tidal	NONE		
1108	Chocolate Bayou Above Tidal	IMS-60	14-Sep-72	Q,F,C,S,P,I,B
1113	Armand Bayou Tidal (Horsepen Bayou)	IS-7	12-Nov-75	Q,X,L,F,C,O,B
		IS-20	30-Jun-76	Q,X,F,C
		IS 89-03	30-Mar-83	Q,X,L,F,C,B

TWC Statewide Monitoring Network

Table 1
(continued)

<i>Seg #</i>	<i>Name</i>	<i>Intensive Survey #</i>	<i>Date</i>	<i>Type of Data Code</i>
BAYS AND ESTUARIES				
2421	Upper Galveston Bay	IS 87-06	8-Jul-80	Q,F,C,L
		IS 87-09	24-Feb-81	Q,F,C,L,S
2422	Trinity Bay	NONE		
2423	East Bay	NONE		
2424	West Bay	NONE		
2425	Clear Lake	unpublished	18-Feb-76	F,C,A,Q,L
2426	Tabbs Bay	IMS-80	26-Jul-73	F,C,S,P,I,B
		IS-26	14-Aug-74	F,C,Q
		IS 86-10	2-Aug-78	F,C
		IS 87-06	8-Jul-80	F,C
		IS 87-09	25-Feb-81	F,C
2427	San Jacinto Bay	IMS-80	26-Jul-73	F,C,S,P,I,B
		IS-26	14-Aug-74	F,C,Q
		IS 86-10	2-Aug-78	F,C
		IS 87-06	8-Jul-80	F,C
		IS 87-09	25-Feb-81	F,C
2428	Black Duck Bay	IS 87-06	8-Jul-80	F,C
		IS 87-09	25-Feb-81	F,C
2429	Scott Bay	IMS-80	26-Jul-73	F,C,S,P,I,B
		IS-26	14-Aug-74	F,C,Q
		IS 86-10	2-Aug-78	F,C
		IS 87-06	8-Jul-80	F,C
		IS 87-09	25-Feb-81	F,C
2430	Burnett Bay	IMS-80	26-Jul-73	F,C,S,P,I,B
		IS-26	14-Aug-74	F,C,Q
		IS 86-10	2-Aug-78	F,C
		IS 87-06	8-Jul-80	F,C
		IS 87-09	25-Feb-81	F,C
2431	Moses Lake	NONE		
2432	Chocolate Bay	NONE		

TWC Statewide Monitoring Network

Table 1
(continued)

<i>Seg #</i>	<i>Name</i>	<i>Intensive Survey #</i>	<i>Date</i>	<i>Type of Data Code</i>
2433	Bastrop Bay/Oyster Lake	NONE		
2434	Christmas Bay	NONE		
2435	Drum Bay	NONE		
2436	Barbours Cut	IS 87-06 IS 87-09	8-Jul-80 25-Feb-81	F,C F,C
2437	Texas City Ship Channel	IS-57	12-Apr-78	Q,X,L,F,C,S
2438	Bayport Channel	NONE		
2439	Lower Galveston Bay	NONE		

DATA codes

- A Algal Growth Potential
- B Bacteriological
- C Chemical (nutrients, BOD, Solids)
- D Dye Studies (time of travel)
- F Field (DO, pH, conductivity, water temperature)
- I Invertebrates (benthic)
- L Tidal Data
- M Macrophytes (vascular aquatic plants)
- N Nekton (fish, shellfish)
- O Benthic Respiration
- P Plankton or Periphyton
(drifting or attached microscopic plants)
- Q Flow
- R Reaeration
- S Metals or Pesticides in Sediment
- T Metals or Pesticides in Animal Tissue
- W Metals or Pesticides in Water
- X Stream Widths

Table 2
Segment Description for Galveston Bay Area

- 0801 Trinity River Tidal**
from the confluence with Anahuac Channel in Chambers County to a point 3.1 kilometers (1.9 miles) downstream of US 90 in Liberty County
- 0802 Trinity River Below Lake Livingston**
from a point 3.1 kilometers (1.9 miles) downstream of US 90 in Liberty County to Livingston Dam in Polk/San Jacinto County
- 0901 Cedar Bayou Tidal**
from the confluence with Galveston Bay 1.0 kilometer (0.6 mile) downstream of Tri-City Beach Road in Chambers County to a point 2.2 kilometers (1.4 miles) upstream of IH 10 in Chambers/Harris County
- 0902 Cedar Bayou Above Tidal**
from a point 2.2 kilometers (1.4 miles) upstream of IH 10 in Chambers/Harris County to a point 7.4 kilometers (4.6 miles) upstream of FM 1960 in Liberty County
- 1001 San Jacinto River Tidal**
from a point 100 meters (110 yards) downstream of IH 10 in Harris County to Lake Houston Dam in Harris County
- 1005 Houston Ship Channel/San Jacinto River**
from the confluence with Galveston Bay at Morgan's Point in Harris/Chambers County to a point 100 meters (110 yards) downstream of IH 10 in Harris County
- 1006 Houston Ship Channel**
from the confluence with the San Jacinto River in Harris County to a point immediately upstream of Greens Bayou in Harris County, including tidal portions of tributaries
- 1007 Houston Ship Channel/Buffalo Bayou**
from a point immediately upstream of Greens Bayou in Harris County to a point 100 meters (110 yards) upstream of US 59 in Harris County, including tidal portions of tributaries
- 1013 Buffalo Bayou Tidal**
from a point 100 meters (110 yards) upstream of US 59 in Harris County to a point 100 meters (110 yards) downstream of Shepherd Drive in Harris County

Table 2
(continued)

- 1014 Buffalo Bayou Above Tidal**
from a point 100 meters (110 yards) downstream of Shepherd drive in Harris County to SH 6 in Harris County
- 1101 Clear Creek Tidal**
from the confluence with Clear Lake in Galveston/Harris County to a point 100 meters (110 yards) upstream of FM 528 in Galveston/Harris County
- 1002 Clear Creek Above Tidal**
from a point 100 meters (110 yards) upstream of FM 528 in Galveston/Harris County to Rouen Road in Fort Bend County
- 1103 Dickinson Bayou Tidal**
from the confluence with Dickinson Bay 2.1 kilometers (1.3 miles) downstream of SH 146 in Galveston County to a point 4.0 kilometers (2.5 miles) downstream of FM 517 in Galveston County
- 1104 Dickinson Bayou Above Tidal**
from a point 4.0 kilometers (2.5 miles) downstream of FM 517 in Galveston County to FM 528 in Galveston County
- 1105 Bastrop Bayou Tidal**
from the confluence with Bastrop Bay 1.1 kilometers (0.7 mile) downstream of the Intracoastal Waterway in Brazoria County to Old Clute Road at Lake Jackson in Brazoria County
- 1107 Chocolate Bayou Tidal**
from the confluence with Chocolate Bay 1.4 kilometers (0.9 mile) downstream of FM 2004 in Brazoria County to a point 4.2 kilometers (2.6 miles) downstream of SH 35 in Brazoria County
- 1108 Chocolate Bayou Above Tidal**
from a point 4.2 kilometers (2.6 miles) downstream of SH 35 in Brazoria County to SH 6 in Brazoria County
- 1113 Armand Bayou Tidal**
from the confluence with Clear Lake in Harris County to a Point 0.8 kilometer (0.5 mile) downstream of Genoa-Red Bluff Road in Pasadena in Harris County (also includes Horsepen Bayou)

Table 2
(continued)

- 2421 Upper Galveston Bay**
separated from Trinity Bay by a line drawn from Houston Point to Smith Point and from Lower Galveston Bay by a line drawn from Eagle Point in San Leon to Smith Point
- 2422 Trinity Bay**
separated from Upper Galveston Bay by a line from Houston Point to Smith Point
- 2423 East Bay**
separated from Lower Galveston Bay by a line drawn from south of Smith Point to near Elmgrove Point on Galveston Island
- 2424 West Bay**
includes Highland Bayou below Hitchcock
- 2425 Clear Lake**
- 2426 Tabbs Bay**
includes Goose lake
- 2427 San Jacinto Bay**
includes the upper and lower San Jacinto Bays
- 2428 Black Duck Bay**
- 2429 Scott Bay**
- 2430 Burnett Bay**
includes Crystal Bay
- 2431 Moses Lake**
- 2432 Chocolate Bay**
- 2433 Bastrop Bay/Oyster Lake**
- 2434 Chirstmas Bay**
- 2435 Drum Bay**

Table 2
(continued)

2436 Barbours Cut

2437 Texas City Ship Channel

includes the entire inland channel and extends bayward to the eastern side of Snake Island and north to the Texas City Ship Channel

2438 Bayport Ship Channel

2439 Lower Galveston Bay

includes the area of Galveston Bay bounded by Upper Galveston Bay, West Bay, East Bay, and other designated segments

UN-DESIGNATED SEGMENTS

Brays Bayou

from the confluence with the Houston Ship Channel to west of Southwest Freeway in Harris County

Hunting Bayou

from the confluence with the Houston Ship Channel to west of the IH 610 - US 59 intersection

Sims Bayou

from the confluence with the Houston Ship Channel to west of South Post Oak Road in Winchester

Greens Bayou

From the Confluence with the Houston Ship Channel to west of SH 149

Halls Bayou

from the confluence with Greens Bayou to west of the M.P.R.R.

Whiteoak Bayou

from the confluence with Buffalo Bayou to approximately 1 mile north of IH 610

TWC Statewide Monitoring Network

Table 3: STORET Codes for parameters reported in SMN data base for Galveston Bay system

10	11	20	21	23	24	61	62	64	65
68	70	76	77	78	80	81	90	94	95
300	307	308	309	310	314	324	335	339	340
400	403	410	415	425	430	440	441	445	480
496	500	505	510	515	530	535	556	557	561
605	610	615	618	620	623	625	626	627	630
633	650	660	665	668	671	680	684	685	900
901	915	925	927	929	930	935	937	940	941
945	950	951	955	1000	1002	1003	1004	1005	1007
1008	1022	1023	1025	1027	1028	1029	1030	1034	1040
1042	1043	1045	1046	1049	1051	1052	1053	1055	1056
1065	1067	1068	1069	1075	1077	1078	1090	1092	1093
1105	1106	1108	1145	1147	1148	1149	1351	31501	31505
31616	31619	31641	31646	31673	31679	32210	32211	32218	32231
32232	32730	32731	32734	34204	34209	34224	34241	34246	34251
34258	34263	34277	34282	34287	34324	34340	34345	34350	34355
34360	34370	34380	34385	34390	34400	34407	34412	34432	34437
34442	34446	34451	34465	34473	34474	34495	34530	34540	34555
34570	34575	34585	34595	34600	34605	34610	34615	34620	34625
34630	34635	34640	34645	34650	34680	34682	34683	34685	34686
34687	34688	34691	39032	39060	39061	39062	39063	39064	39065
39066	39067	39068	39070	39071	39072	39073	39074	39075	39076
39099	39100	39102	39110	39112	39120	39300	39301	39302	39305
39306	39307	39310	39311	39312	39315	39316	39320	39321	39322
39325	39327	39328	39329	39330	39333	39337	39350	39351	39360
39363	39365	39368	39370	39373	39376	39380	39383	39388	39390
39393	39400	39403	39406	39410	39413	39420	39423	39480	39481
39507	39515	39516	39519	39530	39531	39540	39541	39570	39571
39600	39601	39700	39701	39704	39730	39731	39740	39741	39760
39761	39770	39782	39783	50051	50060	70300	70301	70507	71890
71900	71921	71930	71936	71937	71938	71939	71940	72053	74016
74069	74990	74995	78877	79035	79036	79037	79038	79039	79040
79041	80080	80081	80083	80257	80258	80259	81403	81614	81615
81619	81644	81896	81897	82004	82079	82198	84008	84100	89008
90000	90005	90006	90072	90074	90105	90162	90174	90178	90184
90196	90222	90290	90291	90354	90382	90410	90425	90457	90459
90461	90465	90496	90497	90498	90504	90507	90510	90517	90520
90528	90533	90558	90561	90564	90568	90584	90598	90602	90610
90630	90634	90647	90649	90666	90671	90687	90692	90726	90731
90738	90740	90747	90748	90750	90753	90754	90768	90785	90788
90789	90798	90800	90809	90812	90847	90849	90851	90854	90860
90888	90913	90914	90921	90942	90945	90957	90966	90985	91120
91140	91143	91155	91158	91183	91195	91210	91224	91238	91241
91259	91265	91286	91309	91329	91332	91348	91360	91378	91380
91383	91386	91412	91416	91487	91546	91550	91555	91563	91566
91570	91571	91572	91582	91590	91592	91594	91600	91602	91607
91620	91633	91637	91644	91646	91664	91665	91669	91674	91677

Table 3
(continued)

91679	91683	91691	91705	91718	91728	91730	91737	91771	91806
91837	91855	91896	91911	91923	92016	92047	92067	92069	92076
92088	92095	92105	92153	92154	92155	92170	92171	92172	92194
92220	92225	92226	92228	92253	92256	92257	92266	92281	92289
92292	92294	92296	92302	92308	92310	92324	92332	92391	92409
92420	92440	92442	92447	92449	92467	92472	92474	92483	92489
92491	92492	92495	92500	92501	92503	92507	92508	92509	92522
92531	92534	92537	92547	92551	92552	92569	92593	92596	92618
92627	92631	92667	92750	92762	92770	92771	92783	92831	92855
92871	92874	92881	92885	92887	92891	92897	92945	92957	92973
92977	93024	93028	93030	93032	93036	93037	93038	93047	93064
93068	93101	93145	93146	93151	93155	93158	93202	93276	93300
93305	93306	93353	93354	93355	93359	93362	93381	93385	93393
93432	93457	93464	93469	93470	93471	93472	93474	93475	93476
93478	93531	93551	93688	93707	93769	93770	93773	93779	93780
93782	93785	93786	93787	93789	93790	93791	93809	93819	93820
93822	93823	93825	93827	93829	93831	93833	93834	93836	93839
93840	93843	93852	93857	93859	93861	93866	93869	93871	93872
93873	93874	93878	93881	93883	93884	93886	93888	93893	93896
93898	93899	93900	93901	93903	93904	93905	93906	93907	93908
93910	93911	93912	93913	93914	93916	93917	93919	93921	93922
93924	93931	93932	93935	93937	93938	93941	93942	93946	93950
93951	93952	93954	93956	93957	93958	93959	93960	93961	93962
93965	93968	93969	93970	93971	93972	93979	93983	93993	94009
94012	94014	94022	94035	94038	94041	94043	94044	94045	94048
94053	94081	94094	94111	94175	94178	94208	94218	94223	94237
94240	94257	94258	94278	94294	94310	94324	94334	94346	94347
94351	94352	94358	94362	94364	94366	94374	94375	94379	94385
94390	94392	94401	94428	94429	94456	94482	94522	94569	94571
94588	94596	94623	94652	94659	94663	94676	94695	94710	94748
94776	94778	94796	94800	94849	94909	94978	94983	94986	94993
94998	95005	95010	95019	95022	95033	95074	95088	95090	95096
95129	95131	95244	95453	95462	95476	95493	95501	95507	95509
95510	95512	95519	95526	95537	95546	95566	95582	95613	95622
95632	95635	95640	95646	95659	95682	95692	95694	95702	95716
95721	95723	95726	95727	95734	95736	95740	95744	95754	95776
95792	95794	95796	95798	95823	95853	95885	95886	95941	95954
95990	95992	95993	96000	96005	96006	96010	96171	96177	96182
96183	96185	96242	96245	96268	96269	96294	96359	96476	96477
96479	96481	96483	96488	96489	96490	96571	96575	96578	96616
96683	96743	96750	96757	96758	96759	96760	96761	96762	96763
96764	96765	96766	96767	96768	96770	96774	96775	96776	96777
96778	96779	96780	96781	96782	96784	96785	96786	96788	96793
96797	96798	96799	96802	96803	96805	96806	96812	96817	96818
96819	96820	96821	96822	96823	96824	96825	96826	96827	96828
96830	96831	96833	96834	96835	96836	96838	96844	96850	96851
96852	96856	96860	96862	96877	96878	96879	96880	96889	96904

TWC Statewide Monitoring Network

Table 3
(continued)

96908	96919	96923	96925	96927	96929	96931	96945	96946	96950
96960	96965	96992	97000	97001	97018	97031	97043	97055	97060
97073	97074	97084	97089	97093	97094	97100	97102	97111	97113
97119	97120	97125	97126	97131	97134	97135	97136	97163	97213
97214	97223	97250	97298	97304	97343	97344	97347	97349	97354
97361	97362	97369	97376	97381	97414	97422	97430	97431	97437
97443	97493	97495	97497	97500	97501	97509	97510	97519	97521
97522	97534	97536	97537	97546	97549	97554	97561	97564	97565
97567	97583	97585	97665	97749	97750	97751	97854	97855	97878
97927	97956	97960	97965	97969	97970	97976	97980	97981	97982
97983	97984	97985	97986	98000	98005	98007	98011	98019	98020
98026	98036	98038	98046	98047	98049	98051	98054	98058	98059
98061	98140	98145	98156	98162	98167	98169	98340	98341	98344
98352	98356	98388	98394	98396	98410	98412	98418	98424	98427
98429	98430	98437	98441	98452	98458	98474	98487	98498	98506
98507	98511	98515	98541	98546	98547	98557	98559	98561	98562
98563	98564	98570	98574	98582	98586	98589	98590	98648	98677
98687	98695	98699	98700	98702	98709	98713	98724	98727	98728
98732	98734	98773	98775	98779	98780	98786	98793	98794	98795
98805	98809	98817	98822	98828	98836	98840	98868	98891	98900
98906	98908	98914	98916	98918	98934	98937	98952	98953	98958
98960	98962	98964	98968	98970	98971	98973	98974	98983	98985
98987	99003	99008	99023	99044	99046	99069	99075	99078	99090
99092	99093	99094	99095	99097	99099	99100	99101	99104	99108
99109	99153	99155	99163	99164	99165	99167	99186	99216	99218
99220	99222	99232	99234	99246	99285	99293	99294	99295	99300
99302	99321	99359	99367	99370	99375	99404	99517	99589	99637
99693	99695	99722	99738	99758	99787	99797	99801	99815	99817
99837	99878	99978	99995	99997					

TWC Statewide Monitoring Network

Table 4
SMN Stations in Galveston Bay System

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 0801.0100	Trinity River Tidal at IH 10 Near Liberty TRA #35	29	50	15	94	45	45
SMN 0802.0050	Trinity River at Devers Pump Station #1 Near Moss Bluff TRA *34	29	56	30	94	46	27
SMN 0901.0005	Cedar Bayou Tidal At Tri-City Beach RCAD (FM 2354)	29	40	45	94	55	40
SMN 0901.0025	Cedar Bayou Tidal At Spur 55	29	43	10	94	56	34
SMN 0901.0030	Cedar Bayou Tidal at Roseland Park Boat Ramp 400 Meters Upstream or Spur 55	29	43	23	94	56	30
SMN 0901.0040	Cedar Bayou 0.4 mi Downstream of HL & P Intake	29	44	53	94	55	47
SMN 0901.0050	Cedar Bayou Tidal Houston Lighting And Power Cedar Bayou Power Plant Water Intake from Edgar Bayou	29	45	8	94	55	32
SMN 0901.0060	Cedar Bayou 0.4 Mi Upstream of HL & P Intake	29	45	18	94	55	12
SMN 0901.0100	Cedar Bayou Tidal at SH 146 Northeast of Baytown	29	46	12	94	54	58
SMN 0901.0150	Cedar Bayou Tidal at Pinehurst Utilities WWTP Outfall, 200 M Downstream of McGee Gully	29	47	48	95	2	45
SMN 0901.0200	Cedar Bayou Tidal IH ID Bridge South of Mont Belview	29	49	14	94	54	34
SMN 0902.0065	Cedar Bayou at FM 1942	29	50	57	94	56	49
SMN 0902.0080	Cedar Bayou at End of Kenning Road, 5.0 Mi East of Barrett	29	53	37	94	59	4
SMN 0902.0100	Cedar Bayou at US 90 Southwest of Dayton	29	58	20	94	59	8

TWC Statewide Monitoring Network

Table 4
(continued)

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 0902.0120	Cedar Bayou at Crosby-Eastgate Road, 4.1 MI SE of Huffman	29	59	48	95	1	35
SMN 1001.0100	San Jacinto River Tidal IH 10 Bridge East of Channelview	29	47	31	95	3	41
SMN 1001.0115	San Jacinto River Tidal North Side of Whites Lake, Offshore of Harris Rd.	29	48	45	95	3	55
SMN 1001.0117	San Jacinto River Tidal North Side of Whites Lake, Offshore of 9th St.	29	48	50	95	4	5
SMN 1001.0119	San Jacinto River Tidal North Side of Whites Lake, 400 Meters East of RR Bridge	29	48	45	95	4	15
SMN 1001.0125	San Jacinto River Tidal at Missouri-Pacific RR Bridge	29	47	57	95	5	22
SMN 1001.0150	San Jacinto River Tidal at End of Wallisville Road	29	49	27	95	4	45
SMN 1005.0100	Houston Ship Channel at CM 91, Morgan's Point	29	40	58	94	58	55
SMN 1005.0120	Houston Ship Channel at Channel Marker 98/99	29	41	56	95	0	2
SMN 1005.0140	Houston Ship Channel at Baytown Tunnel Channel Marker 1031	29	42	17	95	1	4
SMN 1005.0160	Houston Ship Channel at Channel Marker 113	29	43	30	95	1	21
SMN 1005.0170	Houston Ship Channel at Channel Marker 114	29	43	51	95	2	33
SMN 1005.0180	Houston Ship Channel Houston Lighting and Power (Bertron Plant)	29	44	0	95	2	59

TWC Statewide Monitoring Network

Table 4
(continued)

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 1005.0200	Houston Ship Channel at Channel Marker 120	29	44	23	95	3	32
SMN 1005.0300	Houston Ship Channel at Channel Marker 122	29	44	41	95	3	43
SMN 1005.0400	Houston Ship Channel at Channel Marker 125	29	45	23	95	4	6
SMN 1005.0500	Houston Ship Channel San Jacinto River at Lynchburg Ferry	29	45	46	95	4	45
SMN 1005.0600	Houston Ship Channel San Jacinto River Midway Between Lynchburg Ferry and IH 10	29	46	50	95	4	31
SMN 1006.0050	Houston Ship Channel at Channel Marker 128/129	29	45	42	95	5	16
SMN 1006.0100	Houston Ship Channel at Carpenter Bayou Confluence Near San Jacinto Monument at the Powerline Above Battleship	29	45	13	95	5	39
SMN 1006.0115	Houston Ship Channel at Channel Marker 136	29	44	44	95	6	8
SMN 1006.0125	Houston Ship Channel Diamond Shamrock (Deer Park Plant) Intake screens on the Houston Ship Channel Mile 11.5	29	44	16	95	6	36
SMN 1006.0130	Houston Ship Channel at Patrick Bayou Confluence (Cargill-North and Diamond Shamrock-South) Below CM 139	29	44	23	95	6	38
SMN 1006.0140	Houston Ship Channel at Channel Marker 142	29	44	4	95	7	22
SMN 1006.0150	Houston Ship Channel at Beltway 8	29	44	9	95	8	45

TWC Statewide Monitoring Network

Table 4
(continued)

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 1006.0175	Houston Ship Channel at Marker 150	29	44	28	95	9	33
SMN 1006.0200	Houston Ship Channel-At Confluence with Green's Bayou (CM 152-1)	29	44	46	95	10	1
SMN 1006.9100	Houston Ship Channel-Carpenter Bayou at South Sheldon Road in Channelview	29	45	26	95	7	26
SMN 1006.9202	Houston Ship Channel-Green's Bayou at Mechling Barge Lines in Houston	29	45	12	95	10	33
SMN 1006.9204	Houston Ship Channel-Green's Bayou at IH 10 Bridge East of Houston	29	46	16	95	11	50
SMN 1006.9206	Houston Ship Channel-Green's Bayou at Eastbrook Street Boat Ramp	29	47	52	95	12	20
SMN 1006.9207	Houston Ship Channel-Green's Bayou at South Lake Houston Parkway (FM 526)	29	48	36	95	12	47
SMN 1006.9208	Houston Ship Channel-Greens Bayou at Beaumont Road (US 90) Northeast of Houston	29	49	24	95	13	47
SMN 1006.9210	Houston Ship Channel-Greens Bayou at Ley Road in Houston	29	50	14	95	13	59
SMN 1007.0210	Houston Ship Channel/Buffalo Bayou at Armco Steel Corporation Intake Screens	29	44	40	95	11	23
SMN 1007.0212	Houston Ship Channel/Buffalo Bayou at CM 160 (Hunting Bayou Confluence)	29	44	15	95	12	11
SMN 1007.0215	Houston Ship Channel/Buffalo Bayou at Channel Marker 161	29	43	41	95	12	33

TWC Statewide Monitoring Network

Table 4
(continued)

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 1007.0217	Houston Ship Channel/Buffalo Bayou HSC 41 Washburn Tunnel	29	43	34	95	12	43
SMN 1007.0220	Houston Ship Channel/Buffalo Bayou Near FL 165, 440 Yds Below Vince Bayou	29	43	27	95	13	10
SMN 1007.0240	Houston Ship Channel/Buffalo Bayou at Vince Bayou Confluence (Near HL & P-Deepwater Plant)	29	43	30	95	13	25
SMN 1007.0250	Plant Intake Screens on Houston Ship Channel	29	43	32	95	13	29
SMN 1007.0300	Houston Ship Channel/Buffalo Bayou at Confluence with Sim's Bayou	29	43	9	95	14	33
SMN 1007.0400	Houston Ship Channel/Buffalo Bayou at IH 610	29	46	29	95	15	59
SMN 1007.0500	Houston Ship Channel/Buffalo Bayou at Bray's Bayou Confluence	29	43	34	95	16	47
SMN 1007.0600	Houston Ship Channel/Buffalo Bayou at Wharf 21/22	29	44	11	95	16	43
SMN 1007.0700	Houston Ship Channel/Buffalo Bayou HSC at Wharf 20	29	44	22	95	16	42
SMN 1007.0800	Houston Ship Channel/Buffalo Bayou in Middle of Turning Basin	29	44	57	95	17	20
SMN 1007.2300	Houston Ship Channel/Buffalo Bayou at Port of Houston Dock No. 4	29	44	52	95	17	31
SMN 1007.2350	Houston Ship Channel/Buffalo Bayou at 69 TH Street	29	45	15	95	17	50
SMN 1007.2400	Houston Ship Channel/Buffalo Bayou at Lockwood Drive	29	45	21	95	19	11

TWC Statewide Monitoring Network

Table 4
(continued)

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 1007.2500	Houston Ship Channel/Buffalo Bayou at Hirsh and York Streets Bridge	29	45	34	95	19	42
SMN 1007.3000	Houston Ship Channel/Buffalo Bayou at US Hwy 59	29	45	58	95	20	51
SMN 1007.9050	Houston Ship Channel/Buffalo Bayou Hunting Bayou at Federal Road Bridge in Houston	29	44	15	95	12	44
SMN 1007.9200	Houston Ship Channel/Buffalo Bayou Vince Bayou at Conf. with the Houston Ship Channel	29	43	31	95	13	29
SMN 1007.9210	Houston Ship Channel/Buffalo Bayou Vince Bayou at North Richey St.	29	43	6	95	13	11
SMN 1007.9220	Houston Ship Channel/Buffalo Bayou Vince Bayou at W Shaw St. in Pasadena	29	42	44	95	12	59
SMN 1007.9305	Houston Ship Channel/Buffalo Bayou Sips Bayou at Lawndale Avenue in Houston	29	42	37	95	15	19
SMN 1007.9310	Houston Ship Channel/Buffalo Bayou Sips Bayou at SH 225 East of Houston	29	42	28	95	15	24
SMN 1007.9350	Houston Ship Channel/Buffalo Bayou Sips Bayou at Galveston Road	29	41	23	95	15	35
SMN 1007.9400	Houston Ship Channel/Buffalo Bayou Bray's Bayou at Broadway Blvd. South of Houston	29	43	38	95	16	43
SMN 1007.9405	Houston Ship Channel/Buffalo Bayou Bray's Bayou at 75th Street	29	43	41	95	17	41

TWC Statewide Monitoring Network

Table 4
(continued)

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 1007.9410	Houston Ship Channel/Buffalo Bayou Bray's Bayou at IH 45 Southeast of Houston	29	42	44	95	18	37
SMN 1007.9450	Houston Ship Channel/Buffalo Bayou Bray's Bayou at OST (US 90A) in Houston	29	42	38	95	19	14
SMN 1013.2560	Buffalo Bayou Tidal at McKee Street	29	45	54	95	21	7
SMN 1013.2590	Buffalo Bayou Tidal 160 M Downstream of White Oak Bayou at Fannin St.	29	45	48	95	21	28
SMN 1013.2600	Buffalo Bayou Tidal at Main Street in Houston	29	45	53	95	21	32
SMN 1013.2650	Buffalo Bayou Tidal at IH 45	29	45	40	95	22	20
SMN 1013.2670	Buffalo Bayou Tidal at Studemont Street	29	45	44	95	23	32
SMN 1013.2680	Buffalo Bayou Tidal at Waugh Drive-Yale Street	29	45	43	95	23	53
SMN 1014.2700	Buffalo Bayou Above Tidal Buffalo Bayou at Shepherd Drive in Houston	29	45	37	95	24	31
SMN 1014.2750	Buffalo Bayou Above Tidal Near Picnic Lane in Memorial Park	29	45	30	95	26	15
SMN 1014.2800	Buffalo Bayou Above Tidal at IH 610 In Houston	29	45	34	95	27	19
SMN 1014.2803	Buffalo Bayou above Tidal at Woodway Drive	29	45	51	95	27	35
SMN 1014.2810	Buffalo Bayou above Tidal near Farther Point Drive	29	46	12	95	28	55
SMN 1014.2815	Buffalo Bayou above Tidal at Voss Rd.	29	45	37	95	30	3

TWC Statewide Monitoring Network

Table 4
(continued)

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 1014.2820	Buffalo Bayou above Tidal at San Felipe St.	29	45	3	95	30	18
SMN 1014.2825	Buffalo Bayou above Tidal at Piney Point Road 4.3 Miles West of IH 610 in West Houston	29	44	48	95	31	23
SMN 1014.2835	Buffalo Bayou above tidal at Gessner Drive	29	45	5	95	32	23
SMN 1014.2850	Buffalo Bayou above tidal at West Belt in Houston	29	45	44	95	33	26
SMN 1014.2870	Buffalo Bayou Above Tidal at Wilcrest Drive	29	45	55	95	34	33
SMN 1014.2900	Buffalo Bayou Above Tidal at Dairy-Ashford Road West of Houston	29	45	42	95	36	20
SMN 1014.2950	Buffalo Bayou Above Tidal at Eldridge St. in Houston	29	46	16	95	37	17
SMN 1014.3000	Buffalo Bayou Above Tidal at SH 6	29	46	9	95	38	36
SMN 1101.0050	Clear Creek Tidal at Houston Lighting and Power Webster Power Plant Water Intake	29	31	17	95	5	46
SMN 1101.0100	Clear Creek Tidal at SH 3 Southeast of Webster	29	31	15	95	6	12
SMN 1101.0125	Clear Creek Tidal at IH 45 East of Friendswood	29	30	30	95	7	0
SMN 1101.0150	Clear Creek Tidal Bridge on FM 528 Southeast of Friendswood	29	31	6	85	10	40
SMN 1102.0050	Clear Creek at Friendswood Link Road at Friendswood	29	31	30	95	11	0
SMN 1102.0100	Clear Creek at FM 2351 at Webster West of Friendswood	29	32	31	95	11	48
SMN 1102.0150	Clear Creek at Country Club Road	29	33	15	95	15	15

TWC Statewide Monitoring Network

Table 4
(continued)

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 1102.0200	Clear Creek at SH 35 North of Pearland	29	35	50	95	17	11
SMN 1102.0300	Clear Creek at FM 518 Northwest of Pearland	29	35	0	95	21	0
SMN 1103.0090	Dickson Bayou Tidal at CH M 35 about 1.5 km Downstream of SH 146	29	27	48	94	57	47
SMN 1103.0100	Dickinson Bayou Tidal at SH 146 Bridge East of Dickinson	29	27	36	94	58	27
SMN 1103.0120	Dickinson Bayou Tidal 1.2 Mi. Upstream of SH 146	29	27	18	94	59	13
SMN 1103.0140	Dickinson Bayou Tidal at Gum Bayou Confluence	29	27	50	95	0	38
SMN 1103.0160	Dickinson Bayou Tidal at Dickinson Country Club	29	27	24	95	1	20
SMN 1103.0180	Dickinson Bayou Tidal 200 Yards Downstream of GH&H Railroad Bridge	29	27	26	95	2	23
SMN 1103.0200	Dickinson Bayou Tidal at SH 3 Bridge In Dickinson	29	27	20	95	2	55
SMN 1103.0230	Dickinson Bayou Tidal at Benson Bayou Confluence	29	27	20	95	3	27
SMN 1103.0250	Dickinson Dayou Tidal at IH 45	29	26	42	95	4	25
SMN 1103.0280	Dickinson Bayou Tidal at FM 646	29	26	11	95	5	30
SMN 1103.0300	Dickinson Bayou Tidal at Arcadia-Cemetery Road North of Arcadia	29	25	45	95	6	54
SMN 1104.0060	Dickinson Bayou Dickinson Bayou at End of Jack Beaver Rd.	29	25	45	95	8	22
SMN 1104.0080	Dickinson Bayou Dickinson Bayou at End of Happy Hollow Rd. East of Alvin	29	25	43	95	9	26

TWC Statewide Monitoring Network

Table 4
(continued)

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 1104.0100	Dickinson Bayou at FM 517 East of Alvin	29	26	9	95	10	11
SMN 1104.0200	Dickinson Bayou Dickinson Bayou at McFarland Rd.	29	25	41	95	10	36
SMN 1104.0300	Dickinson Bayou Dickinson Bayou on Higgin's Ranch Near Alvin	29	27	5	95	11	29
SMN 1104.0400	Dickinson Bayou Dickinson Bayou at American Canal Crossover Near Alvin	29	27	15	95	12	14
SMN 1104.0500	Dickinson Bayou Dickinson Bayou East of FM 528 Near Alvin	29	27	41	95	12	59
SMN 1104.0600	Dickinson Bayou Dickinson Bayou East at FM 528 North of Alvin	29	27	46	95	13	41
SMN 1104.0700	Dickinson Bayou Dickinson Bayou East at Mandale Drive	29	27	46	95	13	50
SMN 1105.0050	Bastrop Bayou Tidal in Intracoastal Canal at Intersection of Bayou and Bay	29	6	0	95	12	10
SMN 1105.0100	Bastrop Bayou Tidal at County Road 227 Near Mims	29	5	36	95	17	0
SMN 1105.0200	Bastrop Bayou Tidal at SH 288 North of Richwood Village	29	5	54	95	24	48
SMN 1105.0300	Bastrop Bayou Tidal at S. Front Rd.	29	4	30	95	25	30
SMN 1107.0100	Chocolate Bayou Tidal FM 2004 Bridge South of Alvin	29	12	18	95	12	25
SMN 1107.0300	Chocolate Bayou Tidal at Amsterdam at Lutes Marina	29	14	43	95	13	57
SMN 1107.0400	Chocolate Bayou Tidal at Liverpool	29	18	17	95	16	12

TWC Statewide Monitoring Network

Table 4
(continued)

Station ID	Description	Latitude			Longitude		
		Deg	Min	Sec	Deg	Min	Sec
SMN 1107.0450	Chocolate Bayou Tidal North of Liverpool Below Dam Located 3 Miles Downstream From Hwy 35, Chocolate Bayou Survey, June 19						
SMN 1108.0100	Chocolate Bayou at SH 35 Southwest of Alvin	29	20	6	95	17	0
SMN 1108.0200	Chocolate Bayou at FM 1462 West of Alvin	29	22	9	95	19	14
SMN 1113.0005	Armand Bayou Tidal Armand Bayou at NASA I Bridge	29	33	45	95	4	18
SMN 1113.0020	Armand Bayou Tidal Lower Mud Lake 1.4 km Upstream of NASA 1 Bridge	29	34	27	95	4	15
SMN 1113.0030	Armand Bayou Tidal Upper Mud Lake 2.8 km Upstream of NASA 1 Bridge	29	35	5	95	4	26
SMN 1113.0050	Armand Bayou Tidal Armand Bayou 0.4 km Upstream of Horsepen Bayou Confluence	29	33	45	95	4	20
SMN 1113.0100	Armand Bayou Tidal Armand Bayou at Bay Area Boulevard North of NASA	29	35	45	95	5	26
SMN 1113.0150	Armand Bayou Tidal Armand Bayou 2.2 km Upstream of Bay Area Boulevard	29	36	23	95	5	39
SMN 1113.0200	Armand Bayou Tidal Armand Bayou at Unnamed Road, 1.1 km Downstream of Spring Gully	29	36	46	95	5	45
SMN 2421.0100	Upper Galveston Bay HSC Channel Marker 63/64	29	32	57	94	54	28
SMN 2421.0450	Upper Galveston Bay at HPL Robinson Plant Discharge Canal at Bacliff	29	30	28	94	57	30

TWC Statewide Monitoring Network

Table 4
(continued)

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 2421.0500	Upper Galveston Bay Between HSC Marker 71 and Outer Beacon of Seabrook Channel (TPWC Marker)	29	34	25	94	57	51
SMN 2421.0600	Upper Galveston Bay at End of Five Mile Pass at Channel Marker 6	29	36	38	94	55	14
SMN 2421.0700	Upper Galveston Bay at HSC Marker 75/76	29	36	22	94	57	8
SMN 2421.0710	Upper Galveston Bay at CM 79/80	29	37	46	94	57	41
SMN 2421.0720	Upper Galveston Bay at HSC Channel Marker 83/84	29	38	27	94	57	57
SMN 2421.0740	Upper Galveston Bay Midway Between CM 83 and Sylvan Beach	29	38	45	94	59	18
SMN 2421.0750	Upper Galveston Bay at Silvan Beach Park Near Laporte	29	38	56	95	0	38
SMN 2421.0775	Upper Galveston Bay at HSC Marker 85/86	29	39	7	94	58	10
SMN 2421.0800	Upper Galveston Bay at HSC Marker 87/88	29	39	42	94	58	24
SMN 2422.0100	Trinity Bay TDHR Point TRI-13-16B (In Anahuac Channel at Marker 1)	29	41	58	94	44	9
SMN 2422.0200	Trinity Bay 200 Yds. North of Exxon C-1 Platform	29	39	54	94	47	12
SMN 2422.0300	Trinity Bay TDHR Point TRI-10-11E (Just offshore from Point Barrow)	29	44	0	94	50	0
SMN 2422.0400	Trinity Bay Pipe Marker Opposite Houston Lighting and Power Co. Cedar Bayou Outfall	29	45	0	94	48	42
SMN 2422.0500	Trinity Bay In Double Bayou Channel at CM 4	29	37	55	94	44	50

TWC Statewide Monitoring Network

Table 4
(continued)

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 2423.0100	East Bay 1/2 Way Between Marsh and Elm Grove Point	29	30	40	94	37	52
SMN 2424.0020	West Bay TDHR Point Wes-00A86 (At Channel Intersection Near Teichman Point)	29	17	28	94	53	21
SMN 2424.0030	West Bay Offat Bayou - Mid-Bayou Opposite Lake Madeline Canal	29	17	0	94	51	0
SMN 2424.0050	West Bay In Jones Bay Arm	29	18	17	94	56	1
SMN 2424.0090	West Bay at Carancahua Reef, 1.2 Mi. East of Carancahua Point and 1.8 Mi. West of Carancahua Cove	29	13	1	95	0	33
SMN 2424.0100	West Bay At Carancahua Reef	29	12	45	95	0	0
SMN 2424.0120	Chocolate and West Bays, 1 Mi. Southwest of Alligator Point	29	9	55	95	7	33
SMN 2424.0150	West Bay TDHR Point Wes-00A19 (Intersection of GIWW and Chocolate Bayou Channel)	29	9	42	95	8	0
SMN 2424.0200	West Bay Midway Between Alligator Point and San Luis Pass	29	7	42	95	7	24
SMN 2424.0300	West Bay 1.4 Mi. Northwest of Inlet TC Bay Habor and 2 Mi. Southeast of Alligator Point	29	9	2	95	5	21
SMN 2424.0350	West Bay West Bay at San Luis Pass, Near the West Shore	29	4	50	95	7	20
SMN 2424.0400	West Bay 0.7 Mi. West of South Deer Island and 0.7 Mi. South of North Deer Island	29	16	17	94	55	26
SMN 2425.0100	Clear Lake at SH 146 Drawbridge	29	32	55	95	1	25
SMN 2425.0120	Clear Lake Approximately 500 Feet North of The East Boundary Line or Glen Cove Subdivision	29	33	7	95	2	43

TWC Statewide Monitoring Network

Table 4
(continued)

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 2425.0140	Clear Lake 0.3 km Southeast of NASA 1 Bridge	29	33	43	95	4	16
SMN 2425.0200	Clear Lake at Channel Marker #17	29	33	20	95	2	53
SMN 2426.0050	Tabb's Bay at CM #14 In Barge Canal Between the Houston Ship Channel and the Mouth of Cedar Bayou	29	41	20	94	57	53
SMN 2426.0100	Tabb's Bay Mid-Bay at Ruined Bridge	29	42	12	94	59	6
SMN 2426.0200	Tabb's Bay Midway Between Goose Creek and Upper Hog Island	29	42	10	94	59	6
SMN 2427.0100	San Jacinto Bay at Buoy 15	29	42	23	95	2	20
SMN 2428.0100	Black Duck Bay at Mid-Bay	29	43	0	95	0	17
SMN 2428.0200	Black Duck Bay at SH 146 Bridge	29	42	42	95	0	21
SMN 2429.0100	Scott Bay at Mid-Bay	29	44	36	95	2	24
SMN 2430.0050	Burnett Bay, 100 Meters South of Confluence with Spring Gully	29	46	41	95	2	55
SMN 2430.0100	Burnett Bay at Mid-Bay	29	46	4	95	3	5
SMN 2431.0100	Moses Lake Channel Marker #9	29	25	58	94	56	0
SMN 2432.0100	Chocolate Bay at Chocolate Bayou Channel Marker 9	29	10	55	95	8	30
SMN 2432.0150	Chocolate Bay at Marker C-25 In Chocolate Bayou Channel	29	12	5	95	10	40
SMN 2433.0100	Bastrop Bay at Junction of 3 Private Channels at Mid-Bay	29	5	42	95	10	45
SMN 2433.0200	Bastrop Bay Intracoastal Waterway, Between Christmas and West Bays, In Guyton Cut	29	5	29	95	9	53

TWC Statewide Monitoring Network

Table 4
(continued)

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 2434.0100	Christmas Bay Midway Between Christmas Point and Rattlesnake Point	29	3	30	95	11	10
SMN 2434.0200	Christmas Bay at Christmas Point	29	3	42	95	4	19
SMN 2434.0300	Christmas Bay 1.1 Mi Northeast of Rattlesnake Point	29	2	35	95	12	5
SMN 2435.0100	Drum Bay Mid-Bay In Old Intracoastal Waterway	29	1	6	95	13	15
SMN 2436.0100	Barbours Cut Mid-way Between Mouth and Terminus	29	40	55	95	00	00
SMN 2437.0050	Texas City Ship Channel Between Channel Markers 2 and 3	29	21	9	94	47	38
SMN 2437.0075	Channel at Channel Marker 11A	29	22	6	94	49	50
SMN 2437.0100	Texas City Ship Channel Near Buoy 12	29	22	31	95	50	54
SMN 2437.0150	Channel Between Channel Markers 14 and 15	29	22	42	94	52	13
SMN 2437.0200	Channel Northwest of Snake Island at TDHR Station A-92	29	22	46	94	53	7
SMN 2437.0250	Channel Bend Between Barge Canal and TCSC Turning Basin	29	21	52	94	53	20
SMN 2437.0300	Texas City Ship Channel Texas City Canal Midway Between Mouth and Terminus	29	21	45	94	54	1
SMN 2437.0350	Texas City Barge Canal (TCSC) Terminus	29	21	44	94	55	4
SMN 2438.0100	Bayport Channel Mid-way Between Mouth and Terminus	29	36	48	95	0	31
SMN 2439.0025	Lower Galveston Bay 1/2 Way Between Smith and Eagle Point at South End of West Pass Near Redfish Island	29	30	50	94	52	45

TWC Statewide Monitoring Network

Table 4
(continued)

<i>Station ID</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
SMN 2439.0050	Lower Galveston Bay Houston Lighting and Power P. H. Robinson Power Plant Water Intake from West Dickinson Bay	29	29	15	94	58	41
SMN 2439.0100	Lower Galveston Bay TDHR Point Gal-00349 (Between Dollar Pt. and HSC)	29	26	53	94	52	13
SMN 2439.0150	Lower Galveston Bay US Corps of Engineers Tide Gage Near Hanna Reef	29	28	12	94	42	38
SMN 2439.0300	Lower Galveston Bay in Galveston Channel Near FLR 2	29	18	39	94	49	51
SMN 2439.0350	Lower Galveston Bay 1901 Bayou Shore Drive	29	16	50	94	49	45
SMN 2439.0400	Lower Galveston Bay Rocky Point Southwest of Tip of Pelican Island	29	18	43	94	49	21
SMN 2439.0450	Lower Galveston Bay Galveston Channel - Mid-Channel Between Seawolf Park and Coast Guard Station	29	20	0	94	46	30
SMN 2439.0475	Lower Galveston Bay at Lateral Channel off Intracoastal Waterway (ICWW) at Channel Marker 6	29	20	14	94	50	42
SMN 2439.0500	Lower Galveston Bay Dickinson Bay at Channel Marker 21	29	27	48	94	56	19
SMN 0900.0010	Goose Creek at SH 146 in Baytown	29	42	49	94	59	28
SMN 0900.0030	Goose Creek at Market Street at Baytown	29	43	54	94	59	18
SMN 0900.0040	Goose Creek at West Texas Avenue in Baytown	29	44	12	94	58	59
SMN 0900.0050	Goose Creek at Decker Drive in Baytown	29	44	34	94	58	59

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-310

DATA INVENTORY INFORMATION

GBNEP Reference Number: HCPCD001

PROJECT NAME: Harris Cnty PCD instream

OBJECTIVE: monitoring of water quality

DATA USE: monitoring

PRIORITY PROBLEM:

A2. Alteration of salinity

A3. Alteration of nutrients

A6. Contamination

B1. Discharge of pathogens

B2. Contamination of water/sediment

B3. Restriction of contact recreation

KEYWORDS: Water quality, bacteriology, effluents, pollution, contamination

SOURCE: Harris County Pollution Control Department

CONTACT: Allison R. Peirce
107 North Munger
Pasadena TX 77506
(713) 920-2831

GENERAL TYPE: Water quality, instream

GEOGRAPHICAL COVERAGE: Houston Ship Channel, San Jacinto River

PERIOD OF COVERAGE: 1970-present, monthly (But see below re data availability)

MEASUREMENTS: In situ observations of temperature, dissolved oxygen, pH. (Conductivity is not measured.) Laboratory analyses of: TSS, total residue, total organic carbon, ammonia, chloride, fecal coliform, fecal streptococcus, arsenic, cadmium, chromium, copper, lead, manganese, nickel, zinc. All samples and measurements at surface.

FORMAT: Since October 1988, data are digitized on PC system. Older material is hard copy only.

Harris Cnty PCD instream

COMMENTS: All information before 1981 was lost in a lab fire in that year. The older material (back to 1981) amounts to about 5000 pieces of paper a year, i.e. about 50,000 total. Since files are frequently basis of litigation, lab is very careful with them and will not release them. Any use must be in the laboratory offices, under supervision of staff.

STATION LOCATIONS:

<i>Station Number</i>	<i>Description or Location</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
HOUSTON SHIP CHANNEL					
1	Turning Basin	29	44.99	95	17.32
2	Mayo Shell Rd, adjacent to west end Manchester Terminal	29	43.15	95	14.63
3	Washburn Tunnel	29	43.55	95	12.71
4	Mouth of Greens Bayou, near POHA bulk loading terminal	29	44.78	95	10.14
5	Cargill Terminal	29	44.35	95	06.87
6	San Jacinto Monument at Battleship	29	45.62	95	05.47
7	Lynchburg Ferry Inn	29	45.69	95	04.61
8	Exxon Docks--Mitchell Point	29	43.76	95	01.61
9	Baytown Tunnel	29	42.29	95	01.08
SAN JACINTO RIVER					
1	Mouth of San Jacinto	29	45.91	95	04.78
2	IH 10 Bridge	29	47.79	95	03.37
3	Wallisville Road	29	49.50	95	04.55

Harris Cnty PCD instream

STATION LOCATIONS (Continued):

<i>Station Number</i>	<i>Description or Location</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
4	At apex of Banana Bend (Heads Bend on USGS)	29	50.65	95	06.40
5	Highway 90 Bridge	29	52.60	95	06.15
6	Magnolia Gardens Beach	29	53.65	95	06.20

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-315

DATA INVENTORY INFORMATION	
GBNEP Reference Number: UTSPH001	
PROJECT NAME:	Bacteria, Chocolate Bay
OBJECTIVE:	Determine coliform and strep occurrences in Chocolate Bay complex
DATA USE:	survey
PRIORITY PROBLEM:	
	A6. Contamination
	B1. Discharge of pathogens
	B2. Contamination of water/sediment
	B3. Restriction of contact recreation
	C1. Regulatory
KEYWORDS:	coliforms, strep, water quality, bacteria, sediment quality

SOURCE: Institute of Environmental Health, The Univ. of Texas at Houston School of Public Health

CONTACT: Dr. Ernst Davis

GENERAL TYPE: Biology, water quality - indicator organisms for water quality

GEOGRAPHICAL COVERAGE: Chocolate Bay

PERIOD OF COVERAGE: June - September, 1971

MEASUREMENTS: Sediment and water samples at about 50 stations were obtained. Total coliform, fecal coliform, and fecal strep were measured using membrane filter and multiple fermentation tube techniques; effects of scour velocity on waterborne bacteria were also determined.

FORMAT: Graphical, tabular

COMMENTS:

Published in:

Hulka, Steven Charles and Davis, Ernst M., 1972: The Occurrence of Indicator Organisms in Two Texas Estuaries, Technical Report, Univ. of Texas at Houston School of Public Health

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-320

DATA INVENTORY INFORMATION
GBNEP Reference Number: TAMU0014

PROJECT NAME: Galveston Bay sediments 72
OBJECTIVE: Chemical quality of sediments in Bay
DATA USE: research
PRIORITY PROBLEM:
 A6. Contamination
 B2. Contamination of water/sediment
KEYWORDS: sediment quality, metals, pesticides

SOURCE: Texas A&M University

CONTACT: Dr. Roy Hann
Dept. Environmental Engineering
Texas A&M University
College Station TX
409-845-3012

GENERAL TYPE: Water/sediment quality

GEOGRAPHICAL COVERAGE: Galveston Bay, Houston Ship Channel

PERIOD OF COVERAGE: December 1971 - July 1972, single-shot sampling runs

MEASUREMENTS:

Metals: As, Ba, Cr, Cu, Fe, Pb, Mn, Hb, Ni, Zn, Cd

Nutrients and sediment quality: BOD5, COD, TOC, Oil & grease, Total solids,
volatile solids

Pesticides: α -BHC, β -BHC, Lindane, Heptachlor, Heptachlor epoxide,
Dieldrin, Aldrin, Endrin, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT,
p,p'-DDT, Kelthane, Chlordane

At each bay station two core and two dredge samples were taken. In the Houston Ship Channel stations, only dredge samples were collected. Coring with modified Phleger corer with 6-foot barrel & 1.5-in plastic core liner. Core lengths usually ranged from 1 to 3 feet. Dredge sampling with Peterson Dredge. Samples stored in 1-quart plastic lined cardboard container and frozen until analyzed.

BOD5 - sediment diluted with distilled water & aliquot analyzed by method of Hutton et al. (1970)

COD - sediment diluted with distilled water & aliquot analyzed by method of Hutton et al. (1970)

Oil & grease - GLRC (1969)

total & volatile SS - GLRC (1969)
TOC - method of El Wakeel & Riley (1956)
arsenic - silver diethyldithiocarbamate colorimetry (Standard
Methods)
other metals - AA spectrophotometry (mercury by Hatch & Ott, 1968)
pesticides - Tracor MT-220 gas chromatograph with ⁶³Ni electron
capture detector for chlorinated hydrocarbons, and flame
photometric detector with filter for P- or S-containing pesticides

References:

Great Lakes Region Committee on Analytical Methods, 1969: Chemistry
laboratory manual - bottom sediments. Report to FWQA/EPA.

Hutton, W., R. Hann, & R. Smith, 1970: A quantitative and qualitative survey of
benthal deposits contained in the Houston Ship Channel. Tech Rep. 8,
Estuarine Systems Project, Texas A&M University.

Hatch, W. & W. Ott, 1968: *Analytical chemistry* 40, p. 2085.

El Wakeel & Riley not given.

FORMAT: Tabular

COMMENTS: Project performed in association with Estuarine Systems Project of
TAMU (described separately). Published in:

Hann, Roy & Frank Slowey, 1972: Sediment analysis - Galveston Bay. Tech Report
24, Estuarine Systems Project, Texas A&M University.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists,
and no information is available as to QA/QC practices.

SAMPLING STATIONS:

<i>Station</i>	<i>Latitude</i>		<i>Longitude</i>		<i>Nearest Landmark</i>
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>	
HSC-2	29	38.79	94	58.03	
HSC-0	29	40.81	94	58.84	Morgans Point tide staff
HSC-1	29	41.41	94	59.25	
HSC-2	29	42.05	95	00.18	West tip of Hog Island
HSC-3	29	42.10	95	0.67	
HSC-4	29	42.97	95	01.25	Alex. I. old spillway
HSC-5	29	43.63	95	01.45	
HSC-6	29	43.86	95	02.63	Humble pipeline crossing
HSC-7	29	44.46	95	3.61	
HSC-8	29	45.20	95	03.92	Tx Eastern pipeline crossing
HSC-9	29	45.51	95	4.39	
SJR	29	46.00	95	04.75	
HSC-10	29	45.55	95	05.41	Battleship Texas
HSC-11	29	44.92	95	05.90	
HSC-12	29	44.34	95	06.87	Patrick Bayou (Dmnd. Alk.)
HSC-13	29	44.08	95	07.55	
HSC-14	29	44.13	95	08.69	Tenneco Company
HSC-15	29	44.55	95	09.64	
HSC-16	29	44.79	95	10.49	Phillips Petroleum Corp.
HSC-17	29	44.71	95	11.19	
HSC-18	29	44.26	95	12.22	Warren Petroleum Corp.
HSC-19	29	43.53	95	12.74	

TAMU Estuarine Systems Project sediment

<i>Station</i>	<i>Latitude</i>		<i>Longitude</i>		<i>Nearest Land mark</i>
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>	
HSC-20	29	43.49	95	13.75	HLP Company
HSC-21	29	43.18	95	14.74	
HSC-22	29	43.53	95	15.61	U.S. Navy wharf
HSC-23	29	43.81	95	16.59	
HSC-24	29	44.48	95	16.91	Wharf #18
GB-1	29	40.5	94	58.8	In channel at mile 24 FR range "B", GBS station #33
GB-2	29	40.7	94	56.5	Ash Point channel at F1 "31"
GB-3	29	36.8	94	59.0	Bayport channel at N "6", near GBS station #21
GB-4	29	33.0	95	00.4	Seabrook channel at C "9", near GBS station #20
GB-5	29	33.8	94	58.2	Seabrook channel, outer beacon, GBS station #22
GB-6	29	34.1	94	55.4	In channel at F1 "67"
GB-7	29	30.8	94	57.7	Bacliff, in channel at FR "2", priv. maintd, GBS station #19
GB-8	29	29.4	94	51.8	In channel near F1 "51A", GBS station #4
GB-9	29	27.6	94	55.7	Dickinson channel between markers "17" & "19" near GBS station #37
GB-10	29	22.9	94	53.2	In Texas City channel near buoy "19"
GB-11	29	22.4	95	50.8	In Texas City channel near buoy "12", GBS station #17

TAMU Estuarine Systems Project sediment

<i>Station</i>	<i>Latitude</i>		<i>Longitude</i>		<i>Nearest Landmark</i>
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>	
GB-12	29	18.6	94	49.9	In channel near F1 R"2", GBS station #31
GB-13	29	13.3	94	59.7	Marked pile E Carancahua Reef, West Bay GBS station #14
GB-14	29	11.1	95	08.7	In Chocolate Bay channel, off Nymph Pt.
GB-15	29	21.0	94	47.0	In Bolivar Roads channel, between R "18" and "1"
GB-16	29	31.7	94	37.7	East Bay, GBS station #30
GB-17	29	28.2	94	44.7	Used Tide Gage, Hanna Reef, GBS station #29
GB-18	29	39.9	94	47.2	Humble oil well-95F1R, GBS station #26
GB-19	29	42.8	94	43.6	Anahuac channel buoy #1, GBS station #38
GB-20	29	44.0	94	44.0	Triangle Pass, Trinity Bay
GB-21	29	45.0	94	48.5	HL&P Cedar Bayou outfall, GBS station #24
GB-22	29	41.4	94	50.7	Trinity Bay, Qk F1R, priv maintd.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-325

DATA INVENTORY INFORMATION	
GBNEP Reference Number: GCHD001	
PROJECT NAME:	Galveston Cnty Health Dept
OBJECTIVE:	monitoring of nearshore water quality
DATA USE:	monitoring
PRIORITY PROBLEM:	
	A6. Contamination
	B1. Discharge of pathogens
	B2. Contamination of water/sediment
	B3. Restriction of contact recreation
	C1. Regulatory
KEYWORDS:	water quality, coliforms, pathogens, shoreline

SOURCE: Galveston County Health Department

CONTACT: Karen Kilpatrick, Director
P.O. Box 939
La Marque, TX 77568
(409) 938-2251

GENERAL TYPE: Water quality

GEOGRAPHICAL COVERAGE: Galveston Island, back beach and beachfront, Texas City, Dickinson Bayou, Clear Lake, and Galveston County in general

PERIOD OF COVERAGE: 1972 - present, every other month at most stations

MEASUREMENTS: *In situ*: temperature, dissolved oxygen, salinity, conductivity, color, turbidity (secchi depth), pH and environmental conditions (wind velocity, tide, flow direction, cloud cover, air temperature, rain, days prior to rainfall)

Laboratory: pH, BOD₅, TSS, COD, VSS, TDS, sulfate, total phosphate, orthophosphate, ammonia nitrogen, nitrate nitrogen, total and fecal coliforms, oil & grease.

FORMAT: Tabular & raw field sheets. Some limited digitizing.

COMMENTS: The objective of this program is monitoring of natural waterways. Few of the samples are situated specifically to monitor point/nonpoint discharges, but rather to indicate water quality in the receiving body. (When a problem is encountered, additional sampling may be undertaken to identify the cause.) All stations are reached from land or bridge crossings, which limits the depth of the sample in some instances. Stations have been added and deleted over time, so the above period of record may not apply at a particular station.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

STATION LOCATIONS

<i>Station Number</i>	<i>Location</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
100	Galveston Island at Fort Point	29	20.24	94	45.88
102	Galveston Island, Ferry landing	29	19.64	94	46.39
104	Galveston Channel, south, Yacht Basin at Harbor	29	19.28	94	46.45
109	Galveston Channel, south in vessel slip	29	18.79	94	46.75
114	Galveston Channel, south Pier 14 slip	29	18.74	94	47.06
115	Galveston Channel, south, Pier 15 slip	29	18.71	94	47.14
119	Galveston Channel, south, Pier 19 slip	29	18.60	94	47.41
120	Galveston Channel, south, Pier 22 slip	29	18.59	94	47.55
122	Galveston Channel, south, Pier 20	29	18.52	94	47.67
124	Galveston Channel, south, Pier 24	29	18.53	94	48.68

Galveston Cnty Health Dept

STATION LOCATIONS (continued)

<i>Station Number</i>	<i>Location</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
125	Galveston Channel, south, Pier 25	29	18.53	94	47.82
126	Galveston Channel, south, Pier 26	29	18.50	94	47.90
127	Galveston Channel, south, Pier 27	29	18.48	94	48.08
128	Galveston Channel, south, Pier 28	29	18.48	94	48.12
129	Galveston Channel, south, Pier 29	29	18.48	94	48.20
133	Galveston Channel, south, Pier 33	29	18.47	94	48.39
137	Galveston Channel, south, Pier 37 slip	29	18.31	94	48.71
141	Galveston Channel, south, Pier 41 slip	29	18.31	94	48.92
145	Galveston Channel, south, Pier 45 slip	29	18.33	94	49.12
150	Out from west entrance to Galveston Channel	29	18.10	94	49.71
196	Galveston Channel, north, Seawolf Park	29	20.00	94	46.75
194	Galveston Channel, north, Pennsoil slip	29	19.22	94	47.20
192	Galveston Channel, north, shipyard	29	18.74	94	47.96

STATION LOCATIONS (continued)

<i>Station Number</i>	<i>Location</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
190	Galveston Channel, north, at west entrance	29	18.78	94	49.20
198	South jetty, east end of East Lagoon	29	20.08	94	45.00
200	Galveston, on Big Reef	29	20.31	94	44.00
203	Galveston shorefront, East Beach near South Jetty	29	19.48	94	44.45
208	Galveston shorefront, Stewart Beach, east end	29	18.78	94	45.49
211	Galveston shorefront, Stewart Beach	29	18.50	94	45.88
212	Galveston shorefront, Stewart Beach, west end	29	18.12	94	46.27
215	Galveston shorefront, Stewart Beach, at Seawall	29	17.97	94	46.53
218	Galveston shorefront, 12th St.	29	17.88	94	46.63
220	Galveston shorefront, 22nd St.	29	17.59	94	46.96
223	Galveston shorefront, Pleasure Pier	29	17.22	94	47.39
231	Galveston shorefront, 47th St.	29	16.40	94	48.75
239	Galveston shorefront, West Beach	29	14.81	94	51.49

Galveston Cnty Health Dept

STATION LOCATIONS (continued)

<i>Station Number</i>	<i>Location</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
242	Galveston shorefront, West Beach at Spanish Grant	29	13.2	94	54.5
244	Galveston shorefront, West Beach at Pirates Beach	29	12.3	94	55.8
245	Galveston shorefront, West Beach at Palm Beach	29	11.7	94	57.0
246	Galveston shorefront, West Beach at Jamaica Beach	29	11.0	94	58.0
247	Galveston shorefront, West Beach at Jamaica Beach	29	10.7	94	58.5
249	Galveston shorefront, West Beach at Sea Isle	29	8.0	95	3.0
347	Galveston Island, West Bay, inside San Luis Pass	29	05.55	95	6.80
342	Galveston Island, West Bay, at Bay Harbor	29	07.59	95	4.57
337	Galveston Island, West Bay, at Sea Isle	29	08.80	95	2.80
322	Galveston Island, West Bay, at Jamaica Beach	29	12.0	94	59.0
317	Galveston Island, West Bay, Delehide Cove	29	13.50	94	56.80
302	Galveston Island, West Bay, near S. Deer Is.	29	15.84	94	53.96
186	Galveston Island, West Bay, Entrance to Sydnor Bayou	29	16.34	94	52.76

STATION LOCATIONS (continued)

<i>Station Number</i>	<i>Location</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
188	Galveston Island, West Bay, Syndor Bayou pass, bridge	29	16.03	94	52.41
180	Galveston Island, Offatts Bayou South shore, Boat ramp	29	16.38	94	50.84
174	Galveston Island, Offatts Bayou South shore, Heard's Lane	29	16.71	94	50.08
167	Galveston Island, Offatts Bayou south shore, 61st St.	29	16.98	94	50.12
170	Galveston Island, Offatts Bayou East end, at McCullough	29	17.17	94	49.92
172	Galveston Island, Offatts Bayou Southeast, end, at 57th St.	29	16.84	94	49.76
165	Galveston Island, Offatts Bayou North shore, Walsh Ln.	29	16.98	94	51.72
164	Galveston Island, Offatts Bayou North shore, Blume St.	29	16.81	94	52.18
160	Galveston Island, West Bay, South end of Causeway	29	17.28	94	52.43
H81	Basford Bayou	29	18.50	94	59.12
H80	Highland Bayou SH6 Bridge	29	19.88	94	56.73
H90	Highland Bayou	29	22	95	03
H75	Marchand Bayou Hwy 341 Bridge	29	21.43	95	05.24
H76	Highland Bayou	29	21.5	95	01.0
M85	Highland Bayou	29	21.07	94	59.57

STATION LOCATIONS (continued)

<i>Station Number</i>	<i>Location</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
LM70	Tributary to Highland Bayou	29	20.57	94	57.06
LM71	Tributary to Highland Bayou at IH 45	29	20.95	94	57.75
LM72	Tributary to Highland Bayou at IH 45	29	21.24	94	58.27
TC10	Tributary to Swan Lake at Hwy 197	29	21.0	94	55.5
TC15	Texas City Industrial Channel	29	21.79	94	54.1
TC11	Texas City Industrial Channel Turning Basin	29	21.79	94	55.1
TC16	Texas City near Turning Basin	29	22.95	94	53.31
TC65	Drainageway west of Texas City	29	23.6	94	58.2
TC20	Dollar Bay Canal, Ditch under RR	29	24.93	94	53.37
TC17	Drainageway to Dollar Bay	29	25.3	94	53.8
TC25	Drainageway to Dollar Bay, at SH 146	29	24.50	94	55.08
TC30	Drainageway to Moses Lake, at SH 146	29	24.50	94	56.84
TC35	Drainageway to Moses Lake, at SH 146	29	24.50	94	57.25
TC40	Moses Bayou, at SH 146	29	25.33	94	57.67
D60	Dickinson Bayou at SH 146	29	27.62	94	58.39
D55	Dickinson Bayou at GHH RR	29	27.39	95	2.51

Galveston Cnty Health Dept

STATION LOCATIONS (continued)

<i>Station Number</i>	<i>Location</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
D50	Dickinson Bayou at SH 3	29	27.39	95	2.84
D45	Dickinson Bayou at IH 45	29	26.8	95	4.4
SL28	Upper Galveston Bay in HL&P P.H. Robinson SES discharge canal	29	30.34	94	57.59
K27	Clear Lake entrance canal, east end	29	32.91	95	1.08
K26	Clear Lake entrance canal, west end	29	32.91	95	1.67
LC58	Clear Lake, south shore, in HL&P disharge canal	29	33.05	95	2.98
LC56	Drainageway to Clear Creek	29	31.5	95	4.7
LC53	Clear Creek, at SH 3	29	31.24	95	6.18
20	Same as TC20				
25	Same as TC25				
30	Same as TC30				
35	Same as TC35				
40	Same as TC40				
33	Dollar Point	29	25.95	94	53.43
19	Same as TC19				
18	Texas City Turning Basin	29	22.12	94	53.35
16	Same as TC16				
13	Texas City Turning Basin	29	21.76	94	53.49

Galveston Cnty Health Dept

STATION LOCATIONS (continued)

<i>Station Number</i>	<i>Location</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
15	Same as TC15				
17	Texas City Industrial Channel, Turning Basin	29	21.76	94	54.71
12	Texas City Industrial Channel, Turning Basin	29	21.55	94	55.00

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-330

DATA INVENTORY INFORMATION

GBNEP Reference Number: TPWD001

PROJECT NAME: Dickinson Bayou 72, TPWD
OBJECTIVE: Monitor diurnal water quality to explain fish kills
DATA USE: research
PRIORITY PROBLEM:
A3. Alteration of nutrients
B2. Contamination of water/sediment
C1. Regulatory
C2. Fisheries depletion
KEYWORDS: primary production, dissolved oxygen, fish kills

SOURCE: Texas Parks & Wildlife, Seabrook

CONTACT: Ms. Brenda Bowling
TPWD Seabrook Marine Lab
P.O. Box 8
Seabrook, TX 77586

713-474-2811

GENERAL TYPE: Water quality, biological

GEOGRAPHICAL COVERAGE: Dickinson Bayou

PERIOD OF COVERAGE: 20 April - 31 August, 1972, weekly

MEASUREMENTS: Salinity Goldberg refractometer
temperature
dissolved oxygen Winkler, azide-modification
Phosphorus Colorimetry, ascorbic acid technique,
after persulfate oxidation (*Standard
Methods*, 1971)
Chlorophyll a *Publ. Inst. Mar. Sci. 5*, p 55

FORMAT: Graphical

COMMENTS: Only a portion of the raw data is presented in Knudson and Belaire (1975), including surface & bottom salinities for Stations 2,3,4 May-July, and diurnal DO for 1200 17 Aug - 1200 18 Aug 1972 for Stas 4 & 5.

Published in:

Knudson, K. and C. Belaire, 1975: Causes and probable correctives for oxygen depletion fish kills in the Dickinson Bayou estuary: a field study and simplified algal assay. *Contr. Mar. Sci.*, 19, pp 37-48.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

STATIONS:

<i>Number</i>	<i>Latitude</i>		<i>Longitude</i>		<i>Description</i>
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>	
1	29	26	95	07.0	Cemetery Road crossing
2	29	26	95	05.5	Hwy 646 crossing
3	29	25.5	95	04.5	IH 45 crossing
4	29	27.5	95	02.5	Hwy 3 crossing
5	29	27.5	94	58.5	Hwy 146 crossing

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-335

DATA INVENTORY INFORMATION

GBNEP Reference Number: UTMB001

PROJECT NAME: Dickinson Bayou 72 UTMB
OBJECTIVE: Study contamination of water quality
DATA USE: research
PRIORITY PROBLEM:

- A6. Contamination
- B1. Discharge of pathogens
- B2. Contamination of water/sediment
- B3. Restriction of contact recreation
- C1. Regulatory

KEYWORDS: bacteria, salmonella, shigella, fish kills

SOURCE: UTMB, Faget et al. (1976)

CONTACT: University of Texas Medical Branch
Galveston, TX

GENERAL TYPE: Water quality, bacteriology

GEOGRAPHICAL COVERAGE: Dickinson Bayou

PERIOD OF COVERAGE: 20 June - 7 August 1972, appx every 3 days

MEASUREMENTS:

Dissolved oxygen	Winkler, azide modified
Nitrite/nitrate	Hach Kit
Orthophosphate	colorimeter
pH	Beckman meter
COD	Standard Methods
BOD	Standard 5-day method
Coliform	MPN Standard Methods
Fecal coliform	MPN Standard Method
Salmonella	By both swab and filter
Shigella	By both swab and filter

Additional notes on water condition, fish kills, etc.

FORMAT: Tabular

COMMENTS: Original records on project no longer available. Some data published in:

Faget, C., N. Trieff & J. Songer, 1976: A preliminary survey on the water quality of Dickinson Bayou, Texas. *Tex. J. Sci.* 27 (4), 465-475.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

STATION LOCATIONS:

<i>Number</i>	<i>Description</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
1	SH 3	29	27.50	95	02.48
2	near IH 45	29	26.67	95	04.37
3	near FM 646	29	26.17	95	05.57

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-340

DATA INVENTORY INFORMATION

GBNEP Reference Number: HCHD001

PROJECT NAME: Clear Lake STP 72-73

OBJECTIVE: Monitor quality of STP effluents in watershed

DATA USE: compliance

PRIORITY PROBLEM:

A6. Contamination

B1. Discharge of pathogens

B2. Contamination of water/sediment

B3. Restriction of contact recreation

KEYWORDS: Sewage, municipal waste, point source discharges

SOURCE: Harris County Health Department, P.O. Box 25249, Houston 77005

CONTACT: Mr. John E. Williams, 713-526-1841

GENERAL TYPE: Clear Lake Watershed Sewage Treatment Plant Surveys, plus anecdotal

GEOGRAPHICAL COVERAGE: Clear Lake watershed, in Harris, Galveston and Brazoria Counties

PERIOD OF COVERAGE: Averages of monthly data September 1972 - August 1973

MEASUREMENTS: Flow, BOD, TSS, Chlorine

FORMAT: Tabular summary for 25 plants

COMMENTS: Data incorporated in Hearing Commission Report for Hearing of 17 October 1973, transmitted from TWQB 14 January 1974. Includes anecdotal information about Clear Lake.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-345

DATA INVENTORY INFORMATION	
GBNEP Reference Number: TAMU0018	
PROJECT NAME:	WQ - Canal communities
OBJECTIVE:	Determine water quality in finger canals: Galveston Island, Clear Lake, Dickinson
DATA USE:	research
PRIORITY PROBLEM:	
	A1. Loss of habitat
	A6. Contamination
	B1. Discharge of pathogens
	B2. Contamination of water/sediment
	C1. Regulatory
KEYWORDS:	Finger canals, water quality, West Bay, sediment oxygen demand

SOURCE: Civil Engineering, Texas A&M University

CONTACT: Dr. Roy Hann
Dept. Environmental Engineering
Texas A&M University
College Station TX
409-845-3012

GENERAL TYPE: Water quality

GEOGRAPHICAL COVERAGE: seven coastal canal communities in Galveston County area - Jarbo Bayou, Bayou Vista, Tiki Island, Spanish Grant, Pirates Cove, Jamaica Beach, Sea Isle

PERIOD OF COVERAGE: Nov. 1974 - July 1975 (monthly samples)

MEASUREMENTS:

In situ: temperature, DO, salinity, conductivity, turbidity, visual observation;

lab analysis: coliform, fecal coliform, BOD, TOC, nutrients (phosphate, nitrite, nitrate, ammonia, total Kjeldahl nitrogen), COD, sediments

Procedures:

coliforms determined using the multiple-tube fermentation technique

fecal coliform test carried out using EC medium*

phosphate - ascorbic acid method*

nitrite - Nitrover III powder pillows made by Hach Chemical Co.

nitrate - Brucine Method *

ammonia - Nesslerization method with preliminary distillation*

Kjeldahl nitrogen (total) - organic nitrogen found using distillation and Nesslerization and final value found by adding organic nitrogen and ammonia nitrogen

COD (run only on sediments) - collected with Ekman Dredge and stored on ice until taken to lab*

TOC - determined using the Oceanography International Total Carbon System Model 05243-Hr (see OI manual of the Oceanography International system)

sediment-oxygen uptake rates - used electrolytic respirometer system developed by Clark (references 41-43 in thesis)

*described in "Standard Methods" (see thesis for full reference 39)

FORMAT: Tabular, graphical

COMMENTS:

Published in:

Hall, Ernest Robert, 1976: Water quality of some coastal canal communities in the Galveston County area, M.S. Thesis, Texas A&M University

Basic objective: compare water quality in canal systems with septic tanks, those with collection system and treatment plant, and undeveloped canal systems. Sampling confined to the "finger canal" developments, i.e. very few open-water or in-bay sampling.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-350

DATA INVENTORY INFORMATION
GBNEP Reference Number: USCE007
PROJECT NAME: USCE dredging 74-75
OBJECTIVE: water/sediment quality surveys for dredging effects
DATA USE: monitoring
PRIORITY PROBLEM:
A. REDUCTION/ALTERATION OF LIVING RESOURCES
A6. Contamination
A7. Increased sediment/turbidity
B2. Contamination of water/sediment
KEYWORDS: dredging, channels, sediment, contaminants

SOURCE: U.S. Corps of Engineers, Galveston District

CONTACT: Rick Medina or Rob Hauch, Operations and Maintenance
Corps of Engineers Galveston District
P.O. Box 1229
Galveston, TX 77553

409-766-3899
or 409-766-3962

GENERAL TYPE: Water and sediment quality

GEOGRAPHICAL COVERAGE: In and adjacent to dredging projects and/or disposal areas, including all GIWW, deepdraft and service channels in Galveston Bay system

PERIOD OF COVERAGE: 1974-75

MEASUREMENTS: Analysis of multiple constituents (metals, organics, pesticides) in sediment sample and in water sample just above (ca. 5 ft) bottom, plus in situ profiles of conductivity/salinity, temperature and occasional dissolved oxygen.

FORMAT: Tabular

COMMENTS: Stations are identified by reference to the USCE project coordinates, the key dimension of which is distance along the centerline of the channel from some point of reference. Frequently, stations are occupied on a line normal to the centerline, in which case they are further identified by the offset in distance and direction. For this inventory, all stations have been located on project maps and the corresponding latitude-longitude determined. (Consult the DMS data base.)

For the deepdraft projects in open water, viz. Texas City Channel, Houston Ship Channel, and some segments of the GIWW, spatially intense network was established to determine details of sediment quality in the neighborhood of the project. In some cases, stations were sampled before and after dredging to measure direct effects of dredge operation.

QUALITY ASSURANCE/QUALITY CONTROL: Laboratory analyses are performed through contract, and in strict conformance to EPA methods and guidelines, all of which are documented in the contract files at Galveston District. Subsequently, the lab data are transferred to data forms in an established format. Until the late 1980's this was done by typewriter, but since about 1988, the data are entered directly in spreadsheet software. No information is available on the QA of data handling.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-355

DATA INVENTORY INFORMATION GBNEP Reference Number: PGA001
PROJECT NAME: POG - EHA
OBJECTIVE: Environmental surveys of proposed deep channel
DATA USE: survey
PRIORITY PROBLEM:
A2. Alteration of salinity
A4. Bathymetric/circulation changes
A7. Increased sediment/turbidity
B2. Contamination of water/sediment
KEYWORDS: sediment, navigation, channels, Galveston Harbor

SOURCE: Galveston Wharves

CONTACT: Gene Poe
Port of Galveston Authority

GENERAL TYPE: Chemistry, biology, water quality, hydrography

GEOGRAPHICAL COVERAGE: Galveston Harbor (between the jetties), Galveston Channel, Lower Galveston Bay, Gulf of Mexico

PERIOD OF COVERAGE: ca. 1975

MEASUREMENTS: See comments below

FORMAT: tabular, graphical

COMMENTS:

In the mid-1970's the Port of Galveston Authority (Galveston Wharves) in partnership with shipping interests (Northville Industries, Pelican Terminal Corporation, PelCo, Chicago Bridge & Iron) planned a deepwater channel from the Gulf of Mexico through Galveston Harbor (i.e. the channel system between the jetties) and into the eastern portion of Galveston Channel to a proposed terminal on the southeast section of Pelican Island. Because this would have been a substantially deeper channel than the federal project, an extensive engineering and environmental study was carried out. Most of the work was performed by Espey, Huston & Associates, both the engineering design aspects of the project, and the environmental assessment. This included what was one of the earliest and most thorough studies of the toxic effects of dredged material, employing the (then-new) techniques of bioassays.

The entire project study is documented in copious detail in a multi-volume report, copies of which are on-hand at Galveston Wharves. Volumes of particular pertinence to the data inventory, because they contain either raw data or useful surveys of existing data, include:

- Volume II, Appendix B - Hydrography
- Volume III, Appendix C - Hydrology
- Volume IV, Appendix D - Water Quality
- Volume V, Appendix E/F/G/H/I/J - Ecology
- Volume X, Appendix P - Chemistry; Appendix Q - Bioassay
- Appendix Q, Exhibits 2-12 (bound separately)
- Appendix Q, Supplement, Addendum 1 and 2 (bound separately)
- Appendix Q, Second Supplement (bound separately)

Appendix Q and supplements describe extensive survival and bio-accumulation experiments carried out at a specially built laboratory near Galveston Channel for nearly a two-year period from 1978-79. Test organisms for survival included *Mysidopsis almyra* (post-larvae & adult), *Menidia beryllina*, *Micropogon undulatus*, and for bioaccumulation included *Mercenaria mercenaria*.

Sediment sampling was performed at 18 stations from Pelican island to the disposal sites in the Gulf of Mexico, in spring and summer 1978. Samples were taken with box corer, 2-in gravity piston corer, gravity corer, and 5-in fiberglass corer, depending upon the location and substrate characteristics of the station. Hydrographic data were taken at the time of sampling. These sediment samples were analyzed for metals, total residue, COD, TKN, TOC, TON, NH₃, oil & grease, total VS, and a suite of organohalogenes including most common pesticides. In some cases 60-ft cores were taken. Both maintenance and virgin material sampled.

STATION LOCATIONS

Station	Description	Latitude			Longitude		
		Deg	Min	Sec	Deg	Min	Sec
1	In existing Galveston Channel	29	18	30	94	48	00
2	In Inner Bar Channel	29	20	39	94	44	48
3	In proposed New Entrance Channel in GOM	29	16	18	94	35	00

<i>Station</i>	<i>Description</i>	<i>Latitude</i>			<i>Longitude</i>		
		<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
4	In/adjacent to proposed extension of Galveston Bay Entrance Channel						
	Center of Channel	29	10	30	94	28	00
	1 mi offset	29	09	57	94	33	00
	2 mi offset	29	09	25	94	33	55
	3 mi offset	29	08	53	94	34	53
	East offset	29	10	30	94	26	12
5	In/adjacent to proposed extension of Galveston Bay Entrance Channel						
	Center of Channel	29	06	00	94	25	54
	1 mi offset	29	05	27	94	26	54
	2 mi offset	29	04	55	94	27	49
	3 mi offset	29	04	23	94	28	47
	East offset	29	06	00	94	25	06
6	In existing designated hopper dredge disposal site in GOM	29	15	54	94	38	48
8	North of proposed New Entrance Channel	29	20	03	94	37	48
9	South of Outer Bar Channel immediately adjacent to the channel				not given		
10	South of Outer Bar Channel immediately adjacent to channel	29	20	33	94	42	24
11	South of Inner Bar Channel immediately adjacent to channel	29	20	34	94	44	24
12	Pelican Island, in proposed berthing area	29	20	00	94	46	49

QUALITY ASSURANCE/QUALITY CONTROL: Chemistry analyses were performed by commercial labs through contract, in conformance to *Standard Methods* and EPA methods and guidelines. These were among the first large-scale sediment bioassays performed in Texas, so considerable documentation is provided on the statistics of mortality and the variability of controls and laboratory conditions.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-358

DATA INVENTORY INFORMATION

GBNEP Reference Number: TWDB001

PROJECT NAME: TWDB B&E Monitoring

OBJECTIVE: Large-scale monitoring of water quality in Galveston Bay

DATA USE: monitoring

PRIORITY PROBLEM:

- A1. Loss of habitat
- A2. Alteration of salinity
- A3. Alteration of nutrients
- A6. Contamination
- C1. Regulatory

KEYWORDS: Water quality, hydrography, nutrients, toxics

SOURCE: Texas Water Development Board

CONTACT: Dr. David Brock
Texas Water Development Board
P.O. Box 13231
Austin TX 78711-3231

512-463-7984

GENERAL TYPE: Water quality

GEOGRAPHICAL COVERAGE: Galveston Bay

PERIOD OF COVERAGE: September 1975 - September 1989 , bimonthly or quarterly

MEASUREMENTS: Conductivity (umhos), temperature (°C), pH, dissolved oxygen (ppm), turbidity (JTUs), Secchi depth (cm), all measurements in field: vertical profiles at various intervals, typically 5 ft.

Analyses (TSDH) for: CO₂, carbonate as CaCO₃, total phosphate [these through 1980], BOD (5 day), Alkalinity & hardness as CaCO₃, HCO₃ ion, org N, Calcium, Magnesium, Sodium, Potassium, Sulfate, Chlorides, flourides, silica, arsnic, bottom deposited arsenic [these through 1982], salinity [through 1984], ammonia, nitrite, nitrate total N, orthophosphate, org C, chl-a [through present].

FORMAT: Digital data base on TNRIS mainframe, referred to as Coastal Data System.

TWDB B&E Monitoring

COMMENTS: This comprises the routine sampling program of the Bays & Estuaries program of the TWDB, carried out through cooperative agreement with the U.S. Geological Survey. In addition, over the years, the B&E Program has sponsored special-purpose studies, including the operation of tide gauges, intensive inflow studies and concentrated biogeochemical monitoring, e.g. that of Trinity Bay in 1975, all of which are described separately.

QUALITY ASSURANCE/QUALITY CONTROL: No documentation is available on a QA/QC plan or QC protocols. The laboratory analyses are performed by TSDH or USGS. The former are conducted in general conformity to Standard Methods and EPA manuals and guidance documents. The latter are conducted in conformity to the applicable books and chapters of *Techniques of water-resources investigations of the United States Geological Survey*. Particular reference is made to:

Fishman, M. and L. Friedman, L. 1989: Methods for determination of inorganic substances in water and fluvial sediments. *Chapter A1, Techniques etc.*, USGS, Alexandria, VA.

Friedman, L. and D. Erdmann, 1982: Quality assurance practices for the chemical and biological analyses of water and fluvial sediments. *Chapter A6, Techniques etc.*, USGS, Alexandria, VA.

Wershaw, R., M. Fishman, R. Grabbe, L. Lowe, 1987: Methods for the determination of organic substances in water and fluvial sediments. *Chapter A3, Techniques etc.*, USGS, Alexandria, VA.

and predecessor editions.

STATION LOCATIONS:

<i>Station Designation</i>	<i>Latitude</i>			<i>Longitude</i>		
	<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>
220-07	29	45	41	94	45	49
260-04	29	35	17	94	50	09
260-08	29	38	21	94	53	29
320-04	29	37	07	94	57	48
340-04	29	34	32	94	55	39
340-06	29	33	35	94	57	36
350-03	29	31	33	94	50	14

TWDB B&E Monitoring

Station Locations (continued):

<i>Station Designation</i>	<i>Deg</i>	<i>Latitude Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Longitude Min</i>	<i>Sec</i>
380-02	29	24	31	94	46	40
380-04	29	24	07	94	49	08
394-02	29	21	12	94	44	24
430-02	29	32	29	94	34	42
450-03	29	31	02	94	40	00
470-03	29	27	20	94	45	13
470-06	29	30	28	94	46	24
530-02	29	13	39	94	57	34
575-05	29	09	24	95	04	51
580-01	29	06	59	95	06	35
	29	06	54	95	07	51

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-360

DATA INVENTORY INFORMATION	
GBNEP Reference Number: DMRP001	
PROJECT NAME:	UTD DMRP sediment 75
OBJECTIVE:	Analyze character of sediments from dredged channels
DATA USE:	research
PRIORITY PROBLEM:	
A. REDUCTION/ALTERATION OF LIVING RESOURCES	
A3. Alteration of nutrients	
A7. Increased sediment/turbidity	
B2. Contamination of water/sediment	
KEYWORDS:	dredging, channels, sediment, bioassay, sediment quality

SOURCE: Dredged Material Research Program

CONTACT: Waterways Experiment Station
3909 Halls Ferry Road
Vicksburg, Mississippi 39180-6199

GENERAL TYPE: Sediment quality, limited water quality

GEOGRAPHICAL COVERAGE: Galveston Harbor, Texas City Channel & Turning Basin

PERIOD OF COVERAGE: March- September 1975, irregular intervals

MEASUREMENTS: Sediment sampling:
nitrogen species, phosphorus, pesticides, metals

Water quality profiling for temperature, salinity, dissolved oxygen and turbidity

FORMAT: tabular

COMMENTS: Published as:

Lee, G. Fred, P. Bandyopadhyay, J. Butler, D. Homer, R. Jones, J. Lopez, G. Mariani, C. McDonald, M. Nicar, M. Piwoni, F. Saleh, 1977: Aquatic disposal field investigations, Galveston Texas, offshore disposal site. Tech. Report D-77-20, DMRP, WES.

Extensive data reports in the Appendices.

QUALITY ASSURANCE/QUALITY CONTROL: Apparently, the laboratory analyses were carried out with QA/QC protocol current as of the mid-1970's, as documented in EPA manuals. The QA/QC procedures are discussed in scattered sections through the report and its appendices. However, no formal QA/QC plan is documented.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-365

DATA INVENTORY INFORMATION

GBNEP Reference Number: USCE002

PROJECT NAME: USCE Trinity Delta
OBJECTIVE: General ecological survey of Trinity marsh
DATA USE: research
PRIORITY PROBLEM:

- A1. Loss of habitat
- A2. Alteration of salinity
- A3. Alteration of nutrients
- A4. Bathymetric/circulation changes
- A5. Subsidence & sea-level rise
- C2. Fisheries depletion
- D1. Subsidence & sea-level rise
- D3. Loss of wetlands

KEYWORDS: marshes, delta, dams, fish, shrimp, ecology

SOURCE: U.S. Corps of Engineers, Galveston District

CONTACT: Mr. Bob Bass
USCE, Galveston District
P.O. Box 1229
Galveston, TX 77553
409-766-3037

GENERAL TYPE: Water quality, biology

GEOGRAPHICAL COVERAGE: Trinity delta marsh

PERIOD OF COVERAGE: 7 May 1975 - 19 May 1976, biweekly

MEASUREMENTS: In situ field measurements and biology performed routinely,
water chemistry occasionally

In situ measurements:

temperature	salinity
air temperature	pH
dissolved oxygen	

water chemistry:

nitrate	total phosphorus
organic N	Kjeldahl N
ammonia	organic carbon

USCE Trinity Delta

biology:

trawl
seine
gill net

liner
marsh net
trammel net

In addition staff gauges were installed at three locations in the delta and one recording gauge was installed at the IH 10 crossing of Old River.

FORMAT: All data entered from field sheets to punched cards.

COMMENTS: This was an extensive year-long sampling program to provide environmental data in support of the Wallisville project. One printout of water chemistry and biological measurements exists at Galveston District. The cards were subsequently stored in the Fort Point warehouse and water-damaged beyond use. The water level data have been lost.

Sampling Stations - USCE Trinity Marsh 1975-76

<i>Station</i>	<i>Description</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
1	Trinity Bay out from Cross Bayou	29	45.68	94	46.57
2	Trinity Bay out from Jacks Pass	29	46.51	94	44.06
3	Cross Bayou about 2000 ft from mouth	29	47.19	94	47.47
4	Long Island Bayou	29	46.88	94	44.45
5	Old River Lake	29	48.53	94	46.96
6	Round Lake	29	49.09	94	46.08
7	Lost River below Lost Lake	29	50.81	94	46.75
8	Trinity River below Big Hog Bayou	29	48.38	94	43.55
9	Lake Charlotte	29	52.07	94	43.49
10	Channel to Lost Lake	29	51.22	94	46.39

Sampling Stations (continued) - USCE Trinity Marsh 1975-76

<i>Station</i>	<i>Description</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>deg</i>	<i>min</i>	<i>deg</i>	<i>min</i>
G1	Trinity Bay 1000 ft off Dunn Bayou mouth	29	46.31	94	46.04
G2	Trinity Bay 2000 ft off Dunn Bayou mouth	29	46.16	94	45.94
G3	Trinity Bay 3000 ft off Dunn Bayou mouth	29	46.02	94	45.86
G4	Trinity Bay 4000 ft off Dunn Bayou mouth	29	45.84	94	45.76
G5	Trinity Bay 5000 ft off Dunn Bayou mouth	29	45.67	94	45.67

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices. However, the chemistry analyses were performed by commercial laboratories through contract with USCE. It is probable therefore that QA/QC protocol consistent with EPA manuals and guidelines was observed.

USCE-Trinity Delta (Wallisville)

		Sample dates:	
Dates	Stations	Dates	Stations
5/20/75	6,9	6/10/75	4,6
5/21/75	1-5,7,9,10	6/11/75	1-3,6
5/22/75	9,10	6/12/75	5,6,7,9,10
5/23/75	5,6	7/9/75	1-7,10
6/24/75	1-6	7/10/75	9
6/25/75	5,6,7,9,10	7/22/75	5,6,10
6/26/75	5,6,9,10	7/23/75	1-7,10
6/27/75	9	7/24/75	9
8/6/75	1-7,9,10	8/19/75	5,6,9,10
9/2/75	5,6,9,10	8/20/75	1-7,10
9/3/75	1-7,10	8/21/75	5,9
9/4/75	9,11*	10/1/75	1-6
9/17/75	1-7,9,10	10/2/75	5,6,7,10
9/18/75	5,6,9,10	10/3/75	6,10
10/14/75	5,6,9,10	10/28/75	1-4
10/15/75	1-3,5,7,10	10/29/75	5-7,9,10
10/16/75	4,6,9	12/2/75	1-5
11/11/75	5,6,10	12/3/75	5-7,9,10
11/12/75	3-7,9,10	12/16/75	2-4
11/13/75	1,2,5	12/17/75	1-7,10
1/6/76	1-4	12/18/75	5
1/8/76	5,6,9	1/27/76	2,4
2/10/76	5	1/28/76	3,5-7,10
2/11/76	1,2,4,5	1/29/76	10
2/12/76	5,7,9,10	3/9/76	5,7,10
2/24/76	1-4	3/10/76	1-6
2/25/76	5-7,10	3/11/76	9
2/26/76	5	3/23/76	1-5
2/27/76	9	3/24/76	5-7,9,10
4/6/76	1-6	3/25/76	5,9
4/7/76	5,7,10	4/20/76	4,9
4/8/76	5,6,9,10	4/21/76	1-3,5-7,9,10
5/4/76	1-4,7,9,10	4/22/76	5,9
5/5/76	9	5/18/76	1-7,9,10
5/6/76	5,6,10	5/19/76	5,9
		5/20/76	5,6,10

*No information on location of this station

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-370

DATA INVENTORY INFORMATION	
GBNEP Reference Number: BEG0003	
PROJECT NAME:	BEG submerged lands study
OBJECTIVE:	Determine sediment quality of the bay system
DATA USE:	survey
PRIORITY PROBLEM:	
A. REDUCTION/ALTERATION OF LIVING RESOURCES	
A1. Loss of habitat	
B. PUBLIC HEALTH ISSUES	
B2. Contamination of water/sediment	
D3. Loss of wetlands	
KEYWORDS:	sediment quality, metals, texture, nutrients

SOURCE: Bureau of Economic Geology, University of Texas

CONTACT: William A. White
Bureau of Economic Geology
University of Texas, Balcones Research Center
Austin, TX 78758

512-471-1534

GENERAL TYPE: sediment quality, sediment texture, vegetation, botanical communities, benthos

GEOGRAPHICAL COVERAGE: Galveston Bay

PERIOD OF COVERAGE: 1976-77 (See below)

MEASUREMENTS: Determinations of
Grain-size distribution in classes: gravel, sand, silt, clay, muds
Total organic carbon - wet combustion technique (Jackson, 1958)
Selected elements: boron, barium, calcium, chromium, copper,
iron, lead, manganese, nickel, strontium, zinc, analyzed by
inductively coupled plasma-atomic emission spectrometer

in conformance with:

Jackson, M., 1958: *Soil chemical analysis*. New York: Prentice-Hall.

FORMAT: Tabular

COMMENTS: Published in:

White, W.A., et al., 1985: *Submerged lands of Texas, Galveston-Houston area*.
Bureau of Economic Geology, University of Texas at Austin.

Complete data listing in Appendix. Dates of samples are only generally indicated, as range of dates in which sampling was performed in specific subareas of bay.

Although the data base was keyboarded onto magnetic media for publication of the report, the software was a word-processor with proprietary and non-transferable format (8-inch diskettes), nor can the files be written in ASCII file. For practical purposes, therefore, the only version accessible is the hard-copy publication.

STATION LOCATIONS:

A network of stations on a grid of approximately 2 km spacing was established throughout the bay, and up the major tributaries. Latitude/longitudes for these stations were determined directly from the station map published with the above-cited report, and comprise a separate file in this GBNEP data base.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices. Many of the analyses were performed by USGS laboratories, which observed QA/QC protocols as documented in the USGS *Techniques of Water Resources Investigations*, especially the earlier editions of:

Fishman, M. and L. Friedman, L. 1989: Methods for determination of inorganic substances in water and fluvial sediments. *Chapter A1, Techniques etc.*, USGS, Alexandria, VA.

Friedman, L. and D. Erdmann, 1982: Quality assurance practices for the chemical and biological analyses of water and fluvial sediments. *Chapter A6, Techniques etc.*, USGS, Alexandria, VA.

Wershaw, R., M. Fishman, R. Grabbe, L. Lowe, 1987: Methods for the determination of organic substances in water and fluvial sediments. *Chapter A3, Techniques etc.*, USGS, Alexandria, VA.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-372

DATA INVENTORY INFORMATION	
GBNEP Reference Number: TWDB002	
PROJECT NAME:	TWDB Intensive Inflow 1976
OBJECTIVE:	Intense transient monitoring of transports into/out of system
DATA USE:	research
PRIORITY PROBLEM:	
	A2. Alteration of salinity
	A3. Alteration of nutrients
	C2. Fisheries depletion
KEYWORDS:	water quality, hydrography, inlets, inflows

SOURCE: Texas Water Development Board

CONTACT: Dr. David Brock or Dr. Reuben Solis
Texas Water Development Board
P.O. Box 13231
Austin TX 78711-3231

512-463-7984

GENERAL TYPE: Hydrographic, water quality, morphology

GEOGRAPHICAL COVERAGE: Entire system

PERIOD OF COVERAGE: 19-23 July 1976, bi-hourly; station ratings (see below)
22-25 June 1976, point profiles and samples at 17 supplementary stations in West Bay on 19 and 23 July.

MEASUREMENTS: *In situ*: current velocity (speed & direction), temperature, conductivity, dissolved oxygen. Laboratory analysis: NH₄-N, Org N, NO₃-N, NO₂-N, Ortho-PO₄ - P, Total PO₄ - P, Total C, Total inorg C, total org C.

Temperature and oxygen by YSI Model 51A Temp/DO meter (membrane probe)

Conductivity by Hydrolab Model IIB with automatic compensation to 25°C or by YSI Model 33 SCT meter, compensated manually to 25°C.

Field pH by electrometric probe (at Galveston Channel with Chemtrix Type 40 meter and at Texas City, by Fisher Accumet, San Luis Pass by Hydrolab IIB, other stations unknown).

Velocity at Galveston Channel and Texas City Channel by Savonius oceanographic meter (Marine Advisers or Bendix)

Velocity at San Luis Pass and Causeway, by Type AA Price meter (apparently, speed only). Other stations unknown.

Water samples were obtained at surface, mid-depth and bottom. At Galveston Channel and San Luis Pass by small pump, at Texas City Channel by a Kemmerer. Other stations sampling methodology unknown. The samples were analyzed by the Texas State Department of Health.

FORMAT: Tabular

COMMENTS: Part of the Intensive Inflow Study was performed by Espey, Huston & Assoc. under contract to TWDB, and covered the West Bay area from Texas City Dike to San Luis Pass. These results, including field sheets, were published in a data report:

Johnston, W. & G. Ward, 1976: Galveston Bay Comprehensive Inflow/Exchange Survey Data Report. Doc. No. 7666, Espey Huston & Assoc., Austin.

which provides a complete description of procedures as well as tabular presentations of all measurements. Cross sections at each of the four principal stations, taken 22-25 June 1976 with survey fathometer, are presented. Data from other stations are available in the files of the TWDB in summary or transcribed form; the original field sheets are lost.

In the June period the principal stations, except Galveston Railroad Causeway, were "rated" in which detailed time-intensive current measurements were made at several stations across the section. For the EH&A stations the general procedures are described in the above report (3 stations across the section at San Luis Pass and Galveston, 5 across Texas City Channel, for one complete tidal cycle). The raw data from these surveys are lost, but reduced information, viz. the discharge across the section obtained by integrating the normal component of current, is given in the EH&A report and available from TWDB files. Tide tracings for the West Bay section for both the rating period and the intensive inflow collection period are presented graphically in the EH&A report, and hourly stage values are available from TWDB.

QUALITY ASSURANCE/QUALITY CONTROL: No documentation is available on a QA/QC plan or QC protocols. The laboratory analyses were performed by TSDH or USGS. The former are conducted in general conformity to Standard Methods and EPA manuals and guidance documents. The latter are conducted in conformity to the applicable books and chapters of *Techniques of water-resources investigations of the United States Geological Survey*. Particular reference is made to:

Fishman, M. and L. Friedman, L. 1989: Methods for determination of inorganic substances in water and fluvial sediments. *Chapter A1, Techniques etc.*, USGS, Alexandria, VA.

TWDB Intensive Inflow 1976

Friedman, L. and D. Erdmann, 1982: Quality assurance practices for the chemical and biological analyses of water and fluvial sediments. *Chapter A6, Techniques etc.*, USGS, Alexandria, VA.

Wershaw, R., M. Fishman, R. Grabbe, L. Lowe, 1987: Methods for the determination of organic substances in water and fluvial sediments. *Chapter A3, Techniques etc.*, USGS, Alexandria, VA.

and predecessor editions.

STATION LOCATIONS:

<i>Station Name</i>	<i>Latitude</i>		<i>Longitude</i>		<i>Description</i>
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>	
San Luis Pass	29	04.91	95	07.73	In tidal gorge, TWDB line 590 site 20
Galveston Ship Channel, West end	29	18.66	94	49.16	At Duval Dock, TWDB line 500, site 10
Texas City Ship Channel	29	21.64	94	48.73	At end of Dike, TWDB line 385, site 15
Railroad Causeway	29	17.81	94	53.14	At GIWW, TWDB line 520, site 50
A1 Trinity River	29	47.99	94	43.45	In main channel below cutoff
A-2 Long Island Bayou	29	48.26	94	44.72	Below breach in Wallisville levee
A-3 Cross Bayou	29	48.20	94	47.20	Below breach in Wallisville levee
B Houston Ship Channel	29	42.91	95	1.22	Upstream from mouth of San Jacinto Bay
C Clear Lake entrance channel	29	32.95	95	1.43	HWY 46 crossing
D Dickinson Bayou	29	27.63	94	58.37	HWY 46 crossing

TWDB Intensive Inflow 1976

STATION LOCATIONS (Continued):

<i>Station Name</i>	<i>Latitude.</i>		<i>Longitude</i>		<i>Description</i>
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>	
E Moses Lake Entrance	29	26.72	94	55.00	In barge channel
F Lone Oak Bayou	29	36.76	94	42.87	In mouth
G Oyster Bayou	29	33.83	94	28.77	Upstream from mouth
H Rollover Pass	29	30.52	94	30.00	In pass channel
I Flood Bar Section	29	22.18	94	47.82	Section from Port Bolivar to end of Texas City Dike
Supplementary Stations (West Bay):					
1	29	18.66	94	49.16	Galveston Channel W, TWDB line 500 site 10
2	29	19.09	94	46.98	Galveston Channel
3	29	20.48	94	46.25	Galveston Channel at Inner Bar Channel
4	29	21.47	94	48.35	Texas City Ch at GIWW TWDB line 385 site 15
5	29	22.38	94	50.94	Texas City Channel
6	29	22.71	94	53.16	Texas City Channel at TB
7	29	19.34	94	51.37	GIWW west of Galv Ch, TWDB line 510 site 50
8	29	18.38	94	52.73	GIWW at Freeport Cutoff
9	29	17.09	94	54.22	GIWW at Buoy 40
10	29	16.24	94	55.78	West Bay, S of N Deer Is, W of S Deer Is
11	29	14.3	94	57.9	West Bay at Hoeckers Pt

TWDB Intensive Inflow 1976

STATION LOCATIONS (Continued):

<i>Station Name</i>	<i>Latitude</i>		<i>Longitude</i>		<i>Description</i>
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>	
12	29	13.2	94	59.8	West Bay at Jamaica Beach
13	29	12.44	95	0.9	West Bay W of Karankawa Reef
14	29	10.2	95	3.4	West Bay out from Sea Isle, TWDB Line 570, site 50
15	29	9.1	95	5.7	West Bay out from Bay Harbor
16	29	7.6	95	7.0	West Bay near W end
17	29	04.91	95	07.73	In San Luis Pass tidal gorge, TWDB line 590, site 20

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-373

DATA INVENTORY INFORMATION

GBNEP Reference Number: EHA003

PROJECT NAME: Houston Ship Channel nitrogen budgets

OBJECTIVE: kinetics of nitrogen in Channel

DATA USE: research

PRIORITY PROBLEM:

A. REDUCTION/ALTERATION OF LIVING RESOURCES

A3. Alteration of nutrients

A6. Contamination

KEYWORDS: nitrifiers, nitrogen, DO, Houston Ship Channel

SOURCE: Ward, Miertschin & Tuffey (1977)

CONTACT: James Miertschin
JMA
P.O. Box 162305
Austin, TX 78716-2305

512-327-2708

GENERAL TYPE: Water quality

GEOGRAPHICAL COVERAGE: Houston Ship Channel above Morgans Point

PERIOD OF COVERAGE: April - September 1976, at irregular intervals

MEASUREMENTS:

Profiles in Houston Ship Channel at mid-stream of:
dissolved oxygen, temperature, salinity

Water samples analyzed for:
nitrogen species
nitrifier populations (MPN)
algae
chlorophyll-a

FORMAT: tabular

COMMENTS: Complete data report and analysis published in:

Ward, G. H., J.D. Miertschin, and T.J. Tuffey, 1977: Nitrogen and nitrification in the Houston Ship Channel. Doc. No. 7739, Espey, Huston & Assoc., Austin, TX.

QUALITY ASSURANCE/QUALITY CONTROL: Laboratory analyses were performed through contract with a commercial laboratory in strict conformance with QA/QC protocol, as documented in EPA manuals and guidelines. However, no documentation of the QA/QC protocols or plan exists.

STATIONS:

<i>Station Name</i>	<i>Latitude</i>		<i>Longitude</i>		<i>Description</i>
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>	
1	29	40.95	94	58.88	Morgans Point
2	29	42.49	95	1.22	San Jacinto Bay mouth
11	29	43.73	95	1.61	Humble Docks
3	29	44.08	95	3.25	Peggys Lake
4	29	45.58	95	4.37	Burnett Bay mouth
5	29	47.78	95	3.33	San Jacinto River at IH10
5'	29	46.17	95	4.59	San Jacinto River up from mouth
6	29	45.54	95	5.39	Carpenters Bayou
7	29	44.46	95	6.57	
8	29	44.74	95	10.79	
9	29	43.50	95	13.15	
10	29	44.92	95	17.24	Turning Basin Mouth
B1	29	42.51	95	1.39	San Jacinto Bay
B2	29	44.63	95	2.22	Scott Bay
B3	29	46.00	95	3.04	Burnett Bay

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-375

DATA INVENTORY INFORMATION

GBNEP Reference Number: USCE006

PROJECT NAME: USCE dredging 80-89

OBJECTIVE: water/sediment quality surveys for dredging effects

DATA USE: monitoring

PRIORITY PROBLEM:

A. REDUCTION/ALTERATION OF LIVING RESOURCES

A6. Contamination

A7. Increased sediment/turbidity

B2. Contamination of water/sediment

KEYWORDS: dredging, channels, sediment, contaminants

SOURCE: U.S. Corps of Engineers, Galveston District

CONTACT: Rick Medina or Rob Hauch, Operations and Maintenance
Corps of Engineers Galveston District
P.O. Box 1229
Galveston, TX 77553

409-766-3899
or 409-766-3962

GENERAL TYPE: Sediment and water chemistry

GEOGRAPHICAL COVERAGE: In and adjacent to dredging projects and/or disposal areas, including all GIWW, deepdraft and service channels in Galveston Bay system

PERIOD OF COVERAGE: 1980-present at intervals of several years (in association with anticipated maintenance dredging)

MEASUREMENTS: Various constituents (metals, organics, pesticides, texture) is sediment sample and water sample just above (within ca. 5 ft) bottom, plus profiles of conductivity/salinity, DO, temperature. Grain-size analyses on occasion, typically to 0.5-phi resolution. Some change of emphasis has occurred over the years, for example oil & grease has been discontinued in favor of PAH.

FORMAT: Tabular and LOTUS spreadsheet for PC-compatible

COMMENTS: Beginning about 1980, the Corps established a network of permanent stations which are sampled during each survey, thus building a continuity of data. Many of these permanent stations correspond to those occupied in the 1970s but generally the designations have changed.

Stations are identified by reference to the USCE project coordinates, the key dimension of which is distance along the centerline of the channel from some point of reference. Frequently, stations are occupied on a line normal to the centerline, in which case they are further identified by the offset in distance and direction. For this inventory, all stations have been located on project maps and the corresponding latitude-longitude determined.

QUALITY ASSURANCE/QUALITY CONTROL: Laboratory analyses were performed through contract with commercial laboratories in strict conformance with QA/QC protocol, as documented in EPA manuals and guidelines. QA/QC plans are part of the contract and are on file in the O&M Branch, USCE, Galveston District.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-380

DATA INVENTORY INFORMATION

GBNEP Reference Number: TWC0010

PROJECT NAME: Clear Lake Ecology 80

OBJECTIVE: Survey microbiota & water quality

DATA USE: survey

PRIORITY PROBLEM:

A3. Alteration of nutrients

A6. Contamination

B2. Contamination of water/sediment

C1. Regulatory

KEYWORDS: plankton, nutrients, ecology, toxicity

SOURCE: Texas Department of Water Resources (now Texas Water Commission)

CONTACT: Jeff Kirkpatrick
Texas Water Commission
P.O. Box 13087
Austin, TX 78711-3087

512-463-7830
or 512-463-8451

GENERAL TYPE: Water quality, regional statistics, bioassay

GEOGRAPHICAL COVERAGE: Clear Creek, Clear Lake

PERIOD OF COVERAGE: 21 February 1980 and summary statistics ca. 1980

MEASUREMENTS: Nutrient limitation bioassay, phytoplankton community & marine algal assay

FORMAT: assay results graphical, statistical results tabular

COMMENTS:

Published as internal report of the TDWR:

Texas Department of Water Resources, 1980: The Clear Creek/Clear Lake Basin and the Clear Lake Board Order. Staff Report, Modeling Unit & Water Quality Assessment Unit, TDWR, Austin.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices. The chemical analyses of TDWR/TWC are performed by the Texas State Department of Health laboratories, which are prosecuted in general conformance with protocols of *Standard Methods* and EPA guidelines and manuals.

SAMPLING STATIONS (For Bioassays)

<i>Station</i>	<i>Description</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
CM13	Channel marker 13	29	33.10	95	01.92
CM17	Channel marker 17	29	33.37	95	03.11
CM21	Channel marker 21	29	33.13	95	04.19

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-385

DATA INVENTORY INFORMATION

GBNEP Reference Number: TWC0004

PROJECT NAME: Point source, TWC enforcement
OBJECTIVE: track legal enforcement actions of TWC
DATA USE: compliance
PRIORITY PROBLEM:
 A6. Contamination
 B2. Contamination of water/sediment
 C1. Regulatory
KEYWORDS: Point source, effluents, enforcement

SOURCE: Texas Water Commission, Enforcement

CONTACT: Tom Haberle (512-463-7741)
Texas Water Commission
P.O. Box 13087
Austin, TX 78711-3087

512-463-7741
or 512-463-7830

GENERAL TYPE: Wastewater Enforcement Log

GEOGRAPHICAL COVERAGE: Galveston Bay and Tributaries

PERIOD OF COVERAGE: early 1980s to present

MEASUREMENTS: Socioeconomic, generally legal activities

FORMAT: Data base on mainframe

COMMENTS: A continuing log of enforcement actions and resulting legal activities.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices. Generally, QA/QC concerns would be confined to data entry and data manipulations, since no measurements are involved.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-390

DATA INVENTORY INFORMATION	
GBNEP Reference Number: TWQB001	
PROJECT NAME:	Chocolate Bayou TWQB 83
OBJECTIVE:	Survey water quality in Chocolate Bayou
DATA USE:	survey
PRIORITY PROBLEM:	
	A3. Alteration of nutrients
	A6. Contamination
	B2. Contamination of water/sediment
KEYWORDS:	water quality, effluents, plankton, benthos, ecology

SOURCE: Texas Water Quality Board (now Texas Water Commission)

CONTACT: Jeff Kirkpatrick
Texas Water Commission
S.F. Austin Bldg
Austin, TX 78711

512-463-8451

GENERAL TYPE: Water quality, sediment quality, bacteriology, biology

GEOGRAPHICAL COVERAGE: Chocolate Bayou

PERIOD OF COVERAGE: 28-30 January 1983

MEASUREMENTS:

Field measurements, vertical profiles except secchi depth:

temperature
conductivity
dissolved oxygen
pH
secchi disc depth

Laboratory analyses on vertical composites of water samples

BOD5	TSS
FSS	VSS
NH3-N	NO2-N
NO3-N	O-PO4
COD	acidity
p. alkalinity	t. alkalinity
chlorophyll a	fecal coliforms
total coliforms	

Chocolate Bayou TWQB 83

Laboratory analyses on sediment samples:

description and composition
heavy metals Kjeldahl N
Volatile solids COD
Oil & Grease

Biological data include:

benthic species and numbers
aquatic plankton species and numbers

In addition TWQB (1973) contains:

Margalef species diversity of benthos and aquatic plankton

FORMAT: Graphical, tabular, including lab sheets

COMMENTS: Published in internal report:

Texas Water Quality Board, 1973: A water quality survey of the Chocolate Bayou drainage basin. Biological Section, District 7, TWQB, Deer Park.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices. The chemical analyses of TDWR/TWC are performed by the Texas State Department of Health laboratories, which are prosecuted in general conformance with protocols of *Standard Methods* and EPA guidelines and manuals.

STATION LOCATIONS:

Number	Description	Latitude		Longitude	
		Deg	Min	Deg	Min
CHOCOLATE BAYOU:					
MP 0.5	FM 2004 bridge	29	12.70	95	12.52
MP 2.5	100 yds below Monsanto barge canal	29	13.73	95	13.04
MP 3.0	50 yds below Perrys Bayou, in old channel	29	14.33	95	13.11
MP 5.0	100 yds below Chocolate Bayou marina	29	15.0	95	14.15
MP7.0	100 yds below Pleasant Bayou	29	15.90	95	13.85
MP 9.0	Snug Harbor Marina	29	16.60	95	15.00
MP 11.5	Mid-Liverpool area	29	18.13	95	15.96
MP 14.0	Overhead pipeline between Liverpool & SH 35	29	19.00	95	16.30

Chocolate Bayou TWQB 83

<i>Number</i>	<i>Description</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
MP 17.0	SH 35 bridge	29	20.10	95	17.04
MP 18.5	County Road 172 bridge	29	20.90	95	18.07
MP 21.0	FM 1462 bridge	29	22.27	95	19.43
MP 28.5	County Road 67 bridge	29	26.33	95	22.50
TRIBUTARIES:					
1	East Fork bridge	29	17.37	95	13.07
2	Pleasant Bayou bridge	29	17.37	95	14.11
3	Drainage ditch at FM 2917	29	19.73	95	15.81
4	Unnamed trib at FM 2917	29	21.13	95	17.41
5	Unnamed trib at Parker Rd	29	21.20	95	17.96
6	Ditch at Davis Bend Rd	29	23.50	95	19.31
7	Unnamed trib of Chocolate Bayou at FM 1462	29	22.33	95	19.24
8	Trib into Chocolate Bayou	29	22.93	95	22.02
9	Drainage ditch N of SH 35 into Chocolate Bayou	29	19.50	95	17.67
10	Corner Bayou	29	17.3	95	16.6
11	Unnamed trib of Corner Bayou, N fork	29	17.1	95	16.6
12	Unnamed tributary of Corner Bayou, S fork	29	16.9	95	16.6
13	Unnamed tributary of Chocolate Bayou	29	16.57	95	15.26
14	Unnamed tributary of Chocolate Bayou	29	16.50	95	15.00
15	Cottonwood Bayou	29	14.4	95	14.48
16	Upper reach of Chocolate Bayou	29	24.8	95	23.6

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-395

DATA INVENTORY INFORMATION

GBNEP Reference Number: NOAA001

PROJECT NAME: NOAA NS&T Study

OBJECTIVE: sample sediment contamination, shellfish tissue contamination

DATA USE: monitoring

PRIORITY PROBLEM:

- A6. Contamination
- B1. Discharge of pathogens
- B2. Contamination of water/sediment
- C1. Regulatory

KEYWORDS: shellfish, oysters, sediment, pesticides, metals

SOURCE: National Oceanic and Atmospheric Administration,
National Ocean Service

CONTACT: Dr. Thomas O'Connor
Coastal and Estuarine Assessment Branch, NOAA/NOS
6001 Executive Blvd
Rockville, MD 20852

GENERAL TYPE: Sediment quality and biology: sediment and tissue
contamination, bioassay toxicity

GEOGRAPHICAL COVERAGE: Galveston Bay, five sites

PERIOD OF COVERAGE: 1984-present

MEASUREMENTS:

Trace metals:

- Cadmium
- Chromium
- Copper
- Lead
- Mercury
- Silver
- Zinc

Organics:

- Total DDT (including DDE and DDD)
- Total chlordanes
- Total PCB
- Total PAH

NOAA NS&T Study

Biological surveys include tissue analysis in fish and shellfish, and bioassays on test organisms.
Grain-size analysis

Surficial sediment samples collected at three stations within 500 m of designated site location. Protocols and methodologies summarized in NOS, 1988 and references therein.

FORMAT: Tabular

COMMENTS: This is a nationwide program sampling about 290 sites in the coastal U.S., of which 5 are located in Galveston Bay. Program summarized in:

O'Connor, T., 1990: Coastal environmental quality in the United States, Chemical contamination in Sediment and Tissues. Special NOAA 20th Anniv. Report, Office of Oceanography & Marine Assessment, National Ocean Service, Rockville, MD.

Some data are reported in :

National Ocean Service, 1987: A summary of selected data on chemical contaminants in tissues collected during 1984, 1985 and 1986. Tech. Memo. NOS OMA 38, NOAA, Rockville, MD.

National Ocean Service, 1988: A summary of selected data on chemical contaminants in sediments collected during 1984, 1985, 1986 and 1987. Tech. Memo. NOS OMA 44, NOAA, Rockville, MD.

National Ocean Service, 1989: A summary of data on tissue contamination from the first three years (1986-1988) of the Mussel Watch Project. Tech. Memo. NOS OMA 49, NOAA, Rockville, MD.

National Ocean Service, 1991: Second summary of data on chemical concentrations in sediments from the National Status and Trends Program. Tech. Memo. NOS OMA 59, NOAA, Rockville, MD.

See also summary presentations in:

Presley, B., R. Taylor & P. Boothe, 1990: Trace metals in Gulf of Mexico oysters. *The Science of the Total Environment*, 97/98, 551-593.

Sericano, J., E. Atlas, T. Wade & J. Brooks, 1990: NOAA's Status & Trends Mussel Watch Program: Chlorinated pesticides and PCBs in oysters and sediments from the Gulf of Mexico, 1986-87. *Marine Environmental Res.* 29, 161-203.

NOAA NS&T Study

Wade, T. & C. Giam, 1988: Organic contaminants in the Gulf of Mexico. *Proceedings, 22nd Water for Texas Conference* (R. Jensen & C. Dunagan, Eds.), Texas Water Resources Inst. College Station, Texas.

Sampling Locations

<i>Site</i>	<i>Description</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
GBYC	Red Bluff near Yacht Club	29	36	94	58
GBTD	Todds Dump	29	30	94	54
GBHR	Hanna Reef	29	29	94	45
GAL	Out from Dickinson Bay	29	28	94	54
GBCR	Confederate Reef	29	15	94	56

QUALITY ASSURANCE/QUALITY CONTROL: All analyses are performed through NOS contract with regional laboratories, generally academic, and conformance with EPA guidelines and manuals is a requirement. Published plans are not included in the project documentations (see NOS, 1988) but no doubt exist as part of the laboratory contracts.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-400

DATA INVENTORY INFORMATION

GBNEP Reference Number: TWC0007

PROJECT NAME: Point source, TWC compliance
OBJECTIVE: monitor enforcement cases & discharger response
DATA USE: compliance
PRIORITY PROBLEM:
 A6. Contamination
 B2. Contamination of water/sediment
 C1. Regulatory
KEYWORDS: Point sources, effluents, enforcement

SOURCE: Texas Water Commission, Enforcement

CONTACT: Tom Haberle
Texas Water Commission
P.O. Box 13087
Austin, TX 78711-3087

512-463-7741
or 512-463-7830

GENERAL TYPE: Compliance Schedule Monitoring System (CSMS)

GEOGRAPHICAL COVERAGE: Galveston Bay and Tributaries

PERIOD OF COVERAGE: Mid-1980s to present

MEASUREMENTS: Socio-economic; generally legal activities

FORMAT: Data base on TWC mainframe

COMMENTS: A continuing log of orders deriving from Commission and court cases, and the response of dischargers, for purpose of monitoring the adequacy of discharger adherence to specific requirements of the Commission and/or court orders.

QUALITY ASSURANCE/QUALITY CONTROL: No documentation exists nor is information available to this project concerning QA procedures. These procedures would be confined to QA/QC protocols for data entry, since no measurements per se are carried out.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-405

DATA INVENTORY INFORMATION

GBNEP Reference Number: EHA002

PROJECT NAME: EHA West Bay sediment & benthos

OBJECTIVE: Survey areas proposed for dredged material disposal

DATA USE: survey

PRIORITY PROBLEM:

A. REDUCTION/ALTERATION OF LIVING RESOURCES

A1. Loss of habitat

A6. Contamination

B2. Contamination of water/sediment

KEYWORDS: sediment quality, benthos, ecology

SOURCE: Espey, Huston & Associates

CONTACT: Martin Arhelger
Espey, Huston & Assoc.
P.O. Box 519
Austin TX 78767

512-327-6840

GENERAL TYPE: Biology, sediment quality

GEOGRAPHICAL COVERAGE: West Bay, near Causeway and near Chocolate Bay

PERIOD OF COVERAGE: 25-26 March 1986 (West area)
11-12 June 1986 (East area)

MEASUREMENTS:

Epibenthos (including demersal fishes): Sampled by 3-m long bottom otter trawl, 15-min tows. Organisms preserved in formalin, speciated to lowest practical taxon, counted, and average weight determined. Standard length measurements for up to 30 individuals.

Macroinfauna: sampled with stainless-steel Ekman dredge (232 cm²). Filtered in field with 0.5-mm sieve and organisms preserved. Speciated and counted. Biomass determined for major groups

EHA West Bay sediment & benthos

Sediment: sampled with stainless-steel Ekman dredge.
Analyzed for Oil & grease, PAHs, PCBs, metals & pesticides:

	Arsenic	Cadmium
	Chromium	Copper
	Lead	Mercury
	Nickel	Selenium
	Zinc	
PAH's	Total	napthalene
	Acenaphthene	Fluoranthene
	Benzo(a)pyrene	
Pesticides:	Chlordane	Toxaphene

Grain-size in six textural ranges

FORMAT: Tabular, Biological data appears to be on digital media, judging from printouts in report, but no information is available as to software formats.

COMMENTS:

Published in:

Espey, Huston & Assoc. 1986: Baseline study for four potential dredge material disposal sites in the eastern portion of West Bay. Report to Galveston District Corps, Doc. No. 861042, EH&A Austin.

Espey, Huston & Assoc. 1986: Baseline study for three potential dredge material disposal sites in the western portion of West Bay. Report to Galveston District Corps, Doc. No. 860617, EH&A Austin.

QUALITY ASSURANCE/QUALITY CONTROL: Chemical analyses were performed by commercial laboratory through subcontract, in strict conformity with EPA manuals and guidelines. QA/QC plans are a part of the contracts on file at Espey, Huston.

EHA West Bay sediment & benthos

STATION LOCATION:

Eastern sampling area in eastern section of West Bay, south and southeast of Greens Lake: fourteen stations in proposed disposal areas and in control sites. Western sampling area generally south and southeast of Chocolate Bay, ten stations.

<i>Station</i>	<i>Latitude</i>		<i>Longitude</i>	
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
A-1	29	16.32	94	56.08
A-2	29	16.06	94	56.08
B-1	29	15.77	94	56.69
B-2	29	15.78	94	56.91
C-1	29	15.73	94	57.66
C-2	29	15.53	94	57.68
D-1	29	15.88	94	58.11
D-2	29	15.55	94	58.17
E-1	29	15.74	94	58.55
E-2	29	15.60	94	58.65
F-1	29	15.33	94	59.03
F-2	29	15.21	94	59.11
G-1	29	14.90	94	59.44
G-2	29	14.73	94	59.47
AR-1	29	10.26	95	5.41
AR-1	29	10.16	95	5.58
BR-1	29	9.57	95	6.84
BR-2	29	9.31	95	6.80
CR-1	29	8.97	95	8.44
CR-2	29	8.87	95	8.38
DR-1	29	9.33	95	7.61
DR-2	29	9.07	95	7.67
ER-1	29	9.88	95	6.11
ER-2	29	9.54	95	6.04

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-410

DATA INVENTORY INFORMATION	
GBNEP Reference Number: TWC0006	
PROJECT NAME:	Point Source, TWC 75-90 Program
OBJECTIVE:	track 75-90% program
DATA USE:	compliance
PRIORITY PROBLEM:	
	A6. Contamination
	B2. Contamination of water/sediment
	C1. Regulatory
KEYWORDS:	point sources, enforcement, effluents

SOURCE: Texas Water Commission, Enforcement

CONTACT: Tom Haberle
Texas Water Commission
P.O. Box 13087
Austin, TX 78711-3087

512-463-7741
or 512-463-7830

GENERAL TYPE: 75-90% Program

GEOGRAPHICAL COVERAGE: Galveston Bay and Tributaries

PERIOD OF COVERAGE: 1988-present

MEASUREMENTS: Socio-economic; waste treatment planning

FORMAT: Digitized data base on PC (Lotus) and TWC mainframe

COMMENTS: Developed from 1986 TWC rule requiring certain activities by municipal discharger based upon triggers of permitted capacity in use. At 75% for 3 consecutive months, the discharger is required to initiate engineering and financial planning for expansion and/or upgrading of the wastewater treatment and/or collection facilities. At 90% for 3 consecutive months, the discharger is required to initiate permit application for a facility enlargement. The rule also allows for "waivers" of the requirements of the rule to be granted should certain criteria be met by the discharger.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, nor was information about QA/QC practices available to this project. Such practices would be confined to data entry and data manipulation, since no measurements per se are performed.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-412

DATA INVENTORY INFORMATION

GBNEP Reference Number: TWDB003

PROJECT NAME: TWDB Intensive Inflow 1989

OBJECTIVE: Intense transient monitoring of transports into/out of system

DATA USE: research

PRIORITY PROBLEM:

A2. Alteration of salinity

A3. Alteration of nutrients

C2. Fisheries depletion

KEYWORDS: water quality, hydrography, inlets, inflows

SOURCE: Texas Water Development Board

CONTACT: Dr. Reuben Solis
Texas Water Development Board
P.O. Box 13231
Austin TX 78711-3231

512-463-7984

GENERAL TYPE: Hydrographic, water quality, morphology

GEOGRAPHICAL COVERAGE: Entire system

PERIOD OF COVERAGE: 7-10 May 1989, roughly bi-hourly. This intensive exercise was preceded by a series of rating studies at the sample stations, performed on 28 February, 28-29 March, and 11-13 April 1989.

MEASUREMENTS: *In situ* current velocity (speed & direction), temperature, conductivity, dissolved oxygen. Field electrometric measurements by Hydrolab Model ?

Velocities at 0.2, 0.5 and 0.8 x station depth, with various meters (Marsh-McBirney, Price, others).

FORMAT: Digital

COMMENTS: Concurrent tide levels and meteorological data available.

QUALITY ASSURANCE/QUALITY CONTROL: No documentation is available on a QA/QC plan or QC protocols.

TWDB Intensive Inflow 1989

STATION LOCATIONS:

<i>Station Name</i>	<i>Latitude</i>			<i>Longitude</i>			<i>Description</i>
	<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>	
Principal stations:							
1 -San Luis Pass	29	04	43	95	07	34	In tidal gorge, TWDB line 590, site 20
1A - Cold Pass	29	04	38	95	08	12	
2 - GIWW	29	08	45	95	09	30	at entrance to West Bay
3-Causeway	29	17	50	94	53	09	In GIWW, at IH 45
4 - Galveston Ship Channel, West end	29	18	46	94	49	17	At TAMU Dock
5 - Pelican Island	29	21	05	94	48	57	North end, in GIWW
6A -Texas City Ship Channel	29	21	44	94	48	57	Near Pelican Island
6 - Flood Bar	29	21	55	94	48	14	West of HSC, at Texas City Dike
7 - Flood Bar	29	22	15	94	47	13	East of HSC, by Bolivar Peninsula
8 - Port Bolivar	29	22	48	94	46	30	In GIWW
9 - Rollover Pass	29	30	30	94	30	00	In pass channel
10 - East Bay	29	34	18	94	27	08	In GIWW at mouth of Oyster Bayou
11 - Trinity River below Lake Anahuac	29	46	12	94	41	10	In main channel below cutoff
11A Trinity River	29	48	05	94	44	35	In Old River Channel at Long Island Bayou

TWDB Intensive Inflow 1989

STATION LOCATIONS (continued):

<i>Station Name</i>	<i>Latitude</i>			<i>Longitude</i>			<i>Description</i>
	<i>Deg</i>	<i>Min</i>	<i>Sec</i>	<i>Deg</i>	<i>Min</i>	<i>Sec</i>	
12 - HSC	29	42	15	95	01	10	At Baytown Tunnel
13 - Bolivar Roads	29	20	30	94	44	30	Entrance Channel
14A - Karankaway Reef	29	12	28	94	59	25	South
14B - Karankaway Reef	29	12	53	95	00	08	Mid-bay
14C - Karankaway Reef	29	13	14	95	00	53	North
15A - Red Fish Bar	29	29	46	94	52	55	West of HSC
15B - Red Fish Bar	29	31	13	94	50	32	East of HSC

**CROSS-REFERENCE
WATER & SEDIMENT QUALITY**

Data sets with additional or ancillary information:

Data Set Report- 070	Data Set Report - 075
Data Set Report- 145	Data Set Report - 150
Data Set Report- 155	Data Set Report - 165
Data Set Report- 172	Data Set Report - 195
Data Set Report- 440	Data Set Report - 445
Data Set Report- 452	Data Set Report - 465
Data Set Report- 470	Data Set Report - 480
Data Set Report- 510	Data Set Report - 525
Data Set Report- 545	Data Set Report - 570
Data Set Report- 575	Data Set Report - 585
Data Set Report- 595	Data Set Report - 605
Data Set Report- 620	Data Set Report - 630
Data Set Report- 640	Data Set Report - 645
Data Set Report- 655	Data Set Report - 670
Data Set Report- 675	Data Set Report - 680
Data Set Report- 705	Data Set Report - 710
Data Set Report- 715	Data Set Report - 725
Data Set Report- 735	Data Set Report - 795
Data Set Report- 800	
