
**HYDROGRAPHY
(INCLUDING TEMPERATURE AND SALINITY)**

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-120

DATA INVENTORY INFORMATION

GBNEP Reference Number: FRZ0001

PROJECT NAME: Early hurricanes

OBJECTIVE: summarize knowledge of historical hurricanes, 19th Cent.

DATA USE: research

PRIORITY PROBLEM:

A. REDUCTION/ALTERATION OF LIVING RESOURCES

A4. Bathymetric/circulation changes

A5. Subsidence & sea-level rise

D1. Subsidence & sea-level rise

D2. Bathymetric/circulation changes

D4. Use of littoral property

KEYWORDS: hurricanes, storm surge, beach erosion

SOURCE: Frazier (1921)

CONTACT:

GENERAL TYPE: Anecdotal

GEOGRAPHICAL COVERAGE: Galveston area of coast

PERIOD OF COVERAGE: 1800-1876

FORMAT: Textual

COMMENTS: Excerpt from report of 1916 to Houston-Galveston Electric Railway Company, summarizing current knowledge of hurricanes in the area. Much anecdotal information relating to weather and morphology of island.

Publication:

Frazier, R. D. , 1921: Early records of tropical hurricanes on the Texas coast in the vicinity of Galveston. *Monthly Weather Review*, 49 (8), pp 454-457.

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-125

DATA INVENTORY INFORMATION	
	GBNEP Reference Number: HPT0001
PROJECT NAME:	Haupt, 1880 Galveston Inlet
OBJECTIVE:	Document morphology of Bolivar Roads
DATA USE:	survey
PRIORITY PROBLEM:	
	A4. Bathymetric/circulation changes
	D2. Bathymetric/circulation changes
	D4. Use of littoral property
KEYWORDS:	Bolivar Roads, inlets, jetties, navigation, shoreline, beaches

SOURCE: Haupt (1888)

CONTACT: No way

GENERAL TYPE: Hydrographic, anecdotal

GEOGRAPHICAL COVERAGE: Galveston Inlet (Bolivar Roads)

PERIOD OF COVERAGE: Bathymetry for 1850-1883

MEASUREMENTS: Soundings and shoreline position

FORMAT: Graphical, textual

COMMENTS: Published as:

Haupt, Lewis M., 1888: The physical phenomena of harbor entrances, their causes and remedies. *Proceedings, American Philosophical Society* 25 (127), pp. 19-41.

Includes map of 19th century positions of shoreline, bathymetry of inlet, especially tidal gorge and ebb bar structure, and comments on the construction of south jetty.

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-130

DATA INVENTORY INFORMATION

GBNEP Reference Number: RIP0001

PROJECT NAME: Ripley tide & current 1889

OBJECTIVE: measure currents in Galveston Inlet (Bolivar Roads)

DATA USE: research

PRIORITY PROBLEM:

A2. Alteration of salinity

A4. Bathymetric/circulation changes

D2. Bathymetric/circulation changes

KEYWORDS: inlets, currents, tides

SOURCE: Ripley (1891), UT Library System

CONTACT:

GENERAL TYPE: Hydrographic

GEOGRAPHICAL COVERAGE: Lower Galveston Bay, Bolivar Roads

PERIOD OF COVERAGE: 20-31 December 1889 (Galveston outer bar to Red Fish Bar), 21 April - 4 May 1880 (Bolivar Point)

MEASUREMENTS: 1889: Simultaneous tidal stage; 1880: current and tide

FORMAT: Graphical

COMMENTS: The 1880 data is the oldest current measurements apparently extant from Galveston Bay, being taken by an "automatic current meter" designed by Mr. Ripley, when he was with USCE, and moored at Bolivar Point. The 1889 data display some of the USCE tide records from that period, along with a dynamical analysis of Ripley based upon the observed water surface slope during various stages of the tide. The particular period selected is that of great declination and syzygy, also "a time of freedom from wind disturbances."

Published in :

Ripley, H.C., 1891: Tidal phenomena of Galveston Harbor (discussion to accompany "The Brazos River Harbor project" by G.Y. Wisner). *Transactions, ASCE* 25, 543-548 + 2 plates.

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-135

DATA INVENTORY INFORMATION GBNEP Reference Number: SMD0001
PROJECT NAME: Jetties 1890
OBJECTIVE: response of currents in inlet to meteorology
DATA USE: engineering study
PRIORITY PROBLEM:
A4. Bathymetric/circulation changes
A7. Increased sediment/turbidity
C1. Regulatory
D2. Bathymetric/circulation changes
KEYWORDS: jetties, inlets, currents, tides

SOURCE: Stanley, MacDonald (1893)

CONTACT:

GENERAL TYPE: Anecdotal

GEOGRAPHICAL COVERAGE: Galveston Bay, Bolivar Roads

PERIOD OF COVERAGE: ca. 1890

MEASUREMENTS: Discussion of the response of the bay and inlet flow to hydrometeorology, and scouring effect of these currents.

FORMAT: Textual, transcript of discussion

COMMENTS: Published as:

Stanley, D. Gen., C. MacDonald, 1893: Discussion of "Jetty harbors on the Pacific Coast." *Trans. ASCE*, 28, pp 372-382.

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-140

DATA INVENTORY INFORMATION

GBNEP Reference Number: SWIT001

PROJECT NAME: Littoral processes 19th Century
OBJECTIVE: 19th Cent view of offshore hydrography at Galveston
DATA USE: survey
PRIORITY PROBLEM:
A4. Bathymetric/circulation changes
D1. Subsidence & sea-level rise
D2. Bathymetric/circulation changes
KEYWORDS: inlets, shoreline, bathymetry, currents

SOURCE: Switzer, N. (1898)

CONTACT:

GENERAL TYPE: hydrographic, anecdotal

GEOGRAPHICAL COVERAGE: Galveston shorefront, south jetty, inlet

PERIOD OF COVERAGE: ca. 1880

MEASUREMENTS: bathymetry

FORMAT: textual, graphical

COMMENTS:

Published as:

Switzer, N., 1898: Origin of the Gulf Stream and circulation of waters in the Gulf of Mexico, with special reference to the effect on jetty construction. *Transactions, ASCE*, 40, pp 86-124.

The value of this document is in the discussions attached to the paper, especially those of Haupt and Ripley, which provide information on the view of littoral processes along the Galveston shorefront during the late 19th Century. Wisner states that, "At Galveston, the action of the eddy to the west of the jetties has been sufficient to erode the shore along the city front to a considerable extent."

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-145

DATA INVENTORY INFORMATION

GBNEP Reference Number: USCE001

PROJECT NAME: USCE 1936-37

OBJECTIVE: Tides & currents in harbor/inlet area

DATA USE: engineering study

PRIORITY PROBLEM:

A. REDUCTION/ALTERATION OF LIVING RESOURCES

A2. Alteration of salinity

A4. Bathymetric/circulation changes

D2. Bathymetric/circulation changes

D4. Use of littoral property

KEYWORDS: currents, tides, inlets, shoreface, sediment, siltation

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

CONTACT: Library
Corps of Engineers Galveston District
P.O. Box 1229
Galveston, TX 77553

409-766-3899

GENERAL TYPE: Hydrographic, water quality

GEOGRAPHICAL COVERAGE: Galveston Bay, Galveston Channel, Bolivar
Roads, Redfish Bar

PERIOD OF COVERAGE: 1936-1937

MEASUREMENTS: Tides 1 Sep 36 - 31 October 37
Currents 19 Oct 36 - 10 Apr 37
Suspended sediments, surface and "subsurface",
20 Jan 36 - 2 Jun 37
Salinity 20 Jan - 2 Jun 37

FORMAT: Graphical, tabular

COMMENTS:

This was a comprehensive field study performed to support the construction and operation of a physical model at the Waterways Experiment Station in Vicksburg to determine the cause and possible solutions to increased shoaling in Galveston Channel. The only remaining documentation of the data is in a three-volume report, marked "Advance Copy, Subject to Revision":

USCE, 1942: Report on Galveston Bay, Texas, for the reduction of maintenance dredging. U.S. Engineer Office, Galveston, Texas.

The measurements included intensive *in situ* current observations, tide gauge operation at 23 locations, salinity at 42 stations, and currents at 14 stations (though not simultaneously). The project depth in the Houston Ship Channel at this time was about 34 ft.

This data set would be invaluable, not only because it is one of very few hydrodynamic studies of the system, but also because of the ability to quantify behavior of the bay for a very different morphology. According to the final report on the study, "The data obtained were forwarded to the U.S. Waterways Experiment Station, together with a large number of maps to be used for the construction of the model." During this project, extensive searches were made for this data set, both at Galveston District and at Waterways. Finally, four boxes on the 1939 model study were located in the Corps archive at Vicksburg. However, these boxes proved to contain only Corps memos and communications on the model project, and data records of measurements in the model. The field data (i.e. from the prototype) were not included. It would appear, therefore, that this data set has been lost. Because the authors of the Galveston District report were scrupulous in including data in the report, it is possible to recover much of the data by carefully extracting data points from the graphical depictions, though this is tedious and clearly inferior to having the raw data *per se*. The bulk of this data is in Volume 2 of the report, a folio size document, assembling all of the referenced figures and tables. (Volume 3 is the WES report on the physical model studies.)

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

ADDENDUM [November 1991] - The field measurements of currents were located in the federal archive at East Point, Georgia, and copies were made for the Corps Galveston District Library, and the Galveston Bay Information Center. The tide data have still not been recovered.

USCE 1936-37
TIDE GAUGE STATIONS;

<i>Name</i>	<i>Station (description and period of record)</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
Kemah	Entrance to Clear Lake 3 Sep - 15 Oct 37	29	32.9	95	01.0
Morgan Point	At south end of Morgans cut 16 Sep 36 - 24 Oct 37	29	40.5	94	58.8
Houston Point	31 Aug - 15 Oct 37	29	39.6	94	53.3
Anahuac	Trinity Bay, Anah. Chnl. 8 Sep 36 - 26 Oct 37	29	44.3	94	42.5
Red Fish, N	Next to HSC, 1 mi N of bar 14 Oct 36 - 23 Apr 37 16 Aug - 18 Oct 37	29	31.0	94	53.1
Red Fish,S	HSC cut in Red Fish Reef 14 Oct 36 - 23 Apr 37 30 Jun - 26 Aug 37	29	30.2	94	52.5
Smith Point N	At tip of Smith Point 31 Aug - 19 Oct 37	29	33.2	94	47.6
Smith Point S	East Bay S of point 30 Jun - 28 Aug 37	29	30.7	94	44.5
Rollover	W end of Rollover Bay 13 Sep 36 - 21 Oct 37	29	31.3	94	30.7
Gage 1	N of Tex City Dike, W end 3-30 Dec 38	29	23.6	94	53.0
West End	4000 ft E of Gage 1 30 Jun - 28 Aug 37	29	23.4	94	52.4
Gage 2	N of Dike, at center 3 - 30 Dec 38	29	22.9	94	50.9
Gage 3	N of Dike, E end 3-30 Dec 38	29	22.1	94	48.9

<i>Name</i>	<i>Station (description and period of record)</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
End of Dike	1000 ft E of Gage 3 14 Oct 36 - 19 Oct 37	29	22.0	94	48.7
S of Hanna Reef	N of Bolivar Peninsula 14 Oct 36 - 25 Apr 37 30 Jun - 26 Aug 37	29	25.7	94	45.7
Texas City TB	At ent to Turning Basin 30 Apr - 26 Jun 37	29	22.7	94	53.3
Bolivar Ferry Landing	Bolivar Roads, N shore 29 Apr - 25 Jun 37	29	21.7	94	45.7
First Turn Beacon	East point Pelican Island 14 Oct 36 - 24 Feb 37	29	20.3	94	46.5
Ft. Point Lighthouse	At Lighthouse 25 Feb 36 - 19 Oct 37	29	20.3	94	46.0
Galveston Standard	[Primary Gauge] 1908 - 1940	29	18.7	94	47.3
South Jetty Lighthouse	E end of jetty [Primary] 27 Aug 36 - 15 Oct 37	29	19.7	94	41.5
Causeway	Center of Pass 14 Oct - 20 Jun 37	29	18.6	94	53.0
Karankawa Reef	East Bay [Primary Gauge] 15 Sep 36 - 18 Oct 37	29	13.1	94	59.8
Karankawa Reef South	East Bay, W of Reef 28 Apr - 24 Jun 37	29	12.7	95	0.4
San Luis Pass	Inside inlet, N of island 15 Oct 36 - 19 Oct 37	29	06.5	95	6.7

USCE 1936-37
CURRENT STATION LOCATIONS:

<i>Description</i>	<i>Station Period of Record</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
HSC	1-3 Nov 36, 7-10 Apr 37	29	21.8	94	47.9
HSC	7-9 Jan 37	29	21.8	94	47.8
Off end of Dike	1-3 Nov 36	29	21.7	94	48.2
TCC-N, Dike end	15-18 Nov 36	29	21.7	94	48.8
TCC, end of Dike	7-8 Jan 36, 7-10 Apr 36, 15-18 Nov 36, 12-15 Dec 36	29	21.6	94	48.8
TCC-S, Dike end	15-18 Nov 36	29	21.5	94	48.8
Bolivar Point	19-22 Oct 36	29	21.2	94	46.0
Bolivar Roads	24 Oct - 25 Nov 36, 28 Nov -1 Dec 36, 12-15 Dec 36, 7-9 Jan 37, 7-10 Apr 37	29	20.9	94	46.1
Bolivar Roads	19-22 Oct 36	29	20.8	94	45.9
Bolivar Roads	19-22 Oct 36	29	20.6	94	45.9
Inner Channel	22-24 Oct 36	29	20.6	94	45.8
Inner Channel,S	19-22 Oct 36	29	20.4	94	46.0
W end Galv Ch,N	22-25 Nov 36, 28 Nov -1Dec 36	29	18.7	94	49.3
W end Galv Ch	22-25 Nov 36, 28 Nov -1Dec 36, 12-13 Dec 36 7-9 Jan 37, 7-10 Apr 37	29	18.6	94	49.3
W end Galv Ch,S	22-25 Nov 36, 28 Nov -1Dec 36	29	18.5	94	49.3
Causeway, W	12-15 Dec 36, 7-9 Jan 37, 7-10 Apr 37	29	18.0	94	53.0

SALINITY & TSS STATIONS:

<i>Number</i>	<i>Station Description</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
49	Trinity Bay, out from River mouth	29	44.8	94	42.5
27	Mid-Trinity Bay	29	38.4	94	47.2
26	Mouth of Trinity Bay	29	34.0	94	50.5
30	HSC at Barbours Cut	29	41.1	94	59.1
29	HSC at Atkinson Is.	29	39.7	94	58.5
28	HSC, near Red Bluff	29	37.0	94	57.3
25	1000 ft E of HSC	29	33.1	94	54.2
24	HSC N of Redfish Bar	29	30.4	94	52.3
48	W of Hanna Reef	29	27.9	94	48.2
22	W of Hanna Reef	29	26.3	94	46.3
23	HSC S of Redfish Bar	29	28.1	94	51.2
47	Houston Ship Channel	29	25.1	94	49.6
21	1000 ft E of HSC	29	23.5	94	48.6
42	HSC at end of Texas City Dike	29	22.2	94	48.2
20	HSC at Bolivar Point	29	21.5	94	47.4
46-B	Out from Texas City, N of Dike	29	23.7	94	51.9
XX	Out from Bolivar	29	22.4	94	47.5
40	Texas City Channel, near Texas City	29	22.6	94	51.8
39	Texas City Channel, ned end of Dike	29	22.0	94	49.5
32	Out from Texas City Turning Basin	29	22.1	94	52.3

<i>Number</i>	<i>Station Description</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
17	West of Pelican Island	29	20.3	94	50.0
16	West of Pelican Island	29	19.5	94	50.5
15	West of Pelican Island	29	18.9	94	51.1
14	West of Pelican Island	29	18.3	94	50.6
18	Northeast of Pelican Island	29	21.2	94	48.8
19	Northeast of Pelican Island	29	20.4	94	47.2
9-A	Galveston Channel, E end	29	19.8	94	46.5
10	Galveston Channel	29	19.4	94	46.7
11	Galveston Channel	29	18.7	94	47.7
12	Galveston Channel	29	18.6	94	48.5
13	Galveston Channel, W end	29	18.8	94	49.3
38	Bolivar Roads, E of Pelican Island	29	20.5	94	46.7
9	N end, Galveston Island	29	20.3	94	46.0
36	Inner Harbor Channel	29	20.7	94	45.4
8	N end, Galveston Island	29	20.3	94	45.5
7	Bolivar Roads	29	20.8	94	44.7
35	Outer Harbor Channel, near N jetty	29	21.2	94	43.2
6	Entrance Channel	29	20.4	94	42.0
4	Gulf, out from end of S jetty	29	19.6	94	40.3
5	Gulf, out from end of N jetty	29	20.7	94	39.7
57	Gulf, N of center of N jetty	29	21.6	94	42.8
3	Gulf, S of center of S jetty	29	19.7	94	42.5

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-150

DATA INVENTORY INFORMATION

GBNEP Reference Number: GUT0001

PROJECT NAME: Offatts Bayou 1940-41

OBJECTIVE: Determine cause of summer fish kills

DATA USE: research

PRIORITY PROBLEM:

A6. Contamination

B2. Contamination of water/sediment

C2. Fisheries depletion

KEYWORDS: fish kills, exchange, dissolved oxygen

SOURCE: Gunter (1942)

CONTACT:

GENERAL TYPE: Hydrographic, anecdotal

GEOGRAPHICAL COVERAGE: Offatts Bayou, West Bay

PERIOD OF COVERAGE: 1940-41, seasonal

MEASUREMENTS: Salinity, temperature

FORMAT: tabular

COMMENTS: Salinity/temperature surveys motivated by summer mortality of organisms since 1936 (except 1940), associated with "boils", zones of up-to-30-ft diameter of furiously escaping gas, presumably H₂S. The lack of a summer mortality in 1940 may have been due to a small hurricane in August, landfalling near Port Arthur, which elevated water levels in Offatts some 3-4 ft above normal. Gunter hypothesizes that poor exchange with West Bay and stratification lead to near-bottom anaerobiosis in summer.

Gunter, G., 1942: Offatts Bayou, a locality with recurrent summer mortality of marine organisms. *Amer. Midland Natur.* 28 (3), pp 631-633.

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-155

DATA INVENTORY INFORMATION	
GBNEP Reference Number: TGFC005	
PROJECT NAME:	East Bay, Reid 54-55
OBJECTIVE:	Effects on salinity & ecology of opening Rollover Pass
DATA USE:	research
PRIORITY PROBLEM:	
A. REDUCTION/ALTERATION OF LIVING RESOURCES	
A2. Alteration of salinity	
A4. Bathymetric/circulation changes	
C2. Fisheries depletion	
KEYWORDS:	fish, plankton, water quality, inlets, sediment, fish passes

SOURCE: Marine Laboratory, Texas Game and Fish Commission, Rockport

CONTACT:

GENERAL TYPE: Salinity, temperature, biological communities

GEOGRAPHICAL COVERAGE: East Bay and Gulf adjacent to Gilchrist

PERIOD OF COVERAGE: Summer 1954, summer 1955

MEASUREMENTS: surface salinity and temperature; pH, color and turbidity (Secchi depths); benthic surveys and vegetational communities; plankton tows; trawls, seines, trammel nets

FORMAT: Raw data not published; only "generalized" and composite results

COMMENTS: Published in:

Reid, George K., 1955: A summer study of the biology and ecology of East Bay, Texas, Part I. *Texas Journal of Science* 7(3), 316-343.

_____, 1955: A summer study of the biology and ecology of East Bay, Texas, Part II. *Texas Journal of Science* 7(4), 430-453.

_____, 1956: Ecological investigations in a disturbed Texas coastal estuary. *Texas Journal of Science* 8(3), 296-327.

_____, 1957: Biologic and hydrographic adjustment in a disturbed Gulf coast estuary. *Limn. & Oceanogr.*, 2(3), pp 198-212. (Essentially a summary of the above papers.)

The summer 1955 followed opening of Rollover Pass, so these four papers collectively evaluate the short-term effects on East Bay. Unfortunately, almost no raw data is presented in the papers. Efforts to locate the data at TPWD have failed. The data probably perished during Hurricane Carla in 1961.

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-160

DATA INVENTORY INFORMATION	
GBNEP Reference Number: CERC001	
PROJECT NAME:	CERC wave hindcast
OBJECTIVE:	hindcast wave climate from historical meteorology
DATA USE:	engineering study
PRIORITY PROBLEM:	
A4. Bathymetric/circulation changes	
A5. Subsidence & sea-level rise	D1. Subsidence & sea-level rise
D2. Bathymetric/circulation changes	
KEYWORDS:	beach, shorefront, waves, erosion

SOURCE: Coastal Engineering Research Center

CONTACT: Jon Hubertz
Coastal Engineering Research Center
Waterways Experiment Station
3909 Halls Ferry Road
Vicksburg, Mississippi 39180-6199

601-634-3111

GENERAL TYPE: Hydrographic

GEOGRAPHICAL COVERAGE: Gulf of Mexico, offshore from Galveston

PERIOD OF COVERAGE: 1956-1975

MEASUREMENTS: Hindcast wave statistics, based upon application of Wave Information Study shallow-water model using meteorological data as the driver. Periods of tropical storms are excluded, but statistics for these conditions are presently in preparation.

FORMAT: Digital media and tabular (Hubertz and Brooks, 1989)

COMMENTS: Data presented by month-year and statistically summarized for period. Significant wave height, spectral peak period and average wave direction (*from* which waves approach) are tabulated and in some cases graphed. Parameters calculated from 2-d wave spectrum for four stations offshore from Galveston Bay.

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

CERC wave hindcast

STATION LOCATIONS:

<i>Station No.</i>	<i>Latitude</i>	<i>Longitude</i>
10	28.5	95
11	29	94.5
12	29	94

Data published in:

Hubertz, J. and R. Brooks, 1989: *Gulf of Mexico hindcast wave information*. WIS Rep. 18, CERC, WES, Vicksburg.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-165

DATA INVENTORY INFORMATION	
GBNEP Reference Number: USBCF02	
PROJECT NAME:	Trent USBCF hydrographic 58-67
OBJECTIVE:	ST and nutrients surveys throughout bay
DATA USE:	research
PRIORITY PROBLEM:	
	A2. Alteration of salinity
	A3. Alteration of nutrients
	A4. Bathymetric/circulation changes
KEYWORDS:	water chemistry, salinity, temperature, nutrients

SOURCE: U.S. Bureau of Commercial Fisheries (now National Marine Fisheries Service, NOAA)

CONTACT: Frank Patella or Peter F. Sheridan
National Marine Fisheries Service
4700 Ave. U
Galveston, TX 77551

(409)-766-3500.

GENERAL TYPE: Hydrographic, water quality

GEOGRAPHICAL COVERAGE: Galveston Bay exclusive of West Bay (except for stations in extreme east end of West Bay)

PERIOD OF COVERAGE: 1958-1967

MEASUREMENTS:

Salinity at surface and one subsurface depth measured by either Industrial Instruments RS-5 salinometer (accuracy ± 0.3 ‰) or by titration (± 0.2 ‰). Temperature by either the RS-5 salinometer or mercury-in-glass thermometer (± 0.5 °C).

Water samples taken from the subsurface point by Kemmerer sampler and analyzed for total phosphorus (inorganic phosphate), dissolved organic nitrogen, dissolved oxygen.

Methods according to Marvin, K.T. et al., 1960: Chemical analyses of marine and estuarine waters used by the Galveston Biological Laboratory. U.S. Fish & Wildlife Service, Spec. Sci. Rep. Fish. 349. Organic Nitrogen measured by Kjeldahl modified by D.C. Willis (unpubl).

Trent USBCF hydrographic 58-67

FORMAT: Originally digitized on punched cards, now lost. These cards were shipped to the USFWS Slidell computer facility in the early 1970's, copied to tape, and the original cards apparently destroyed.

COMMENTS: See also Trent-Pullen USBCF biological data set.

This is one of the most intensive continuous, consistent hydrographic surveys ever performed on the Galveston Bay system as a whole. The sampling interval ranged from weekly to monthly, usually at least twice monthly. Phosphorus, nitrogen and DO data were taken in the period 1964-66 only. The areas of the bay sampled for each year were as follows:

Number of stations

Year	Gulf	Pass (Bolivar)	Upper & Lower Galv Bay	Trinity Bay	East Bay	Offatts Bayou	Clear Lake	GIWW
1958							8	
1959							8	
1960						9	5	
1961			1	11		9	5	
1962			1	10		11	5	
1963	2	6	28	14	14		2	2
1964	2	5	31	15	16		4	3
1965		3	25	15	10		4	1
1966		3	26	12	11		3	2
1967		2	19		3		1	1

Published in:

Pullen, E.J., and L. Trent, 1969: Hydrographic observations from the Galveston Bay system, Texas, 1958-67. U.S. Fish & Wildlife Service Data Rep. 31. (A brief typed manuscript followed by about 150 pages of carbon computer printout.)

Pullen, E.J., W.L. Trent and G.B. Adams, 1971: A hydrographic survey of the Galveston Bay system, Texas, 1963-66. Tech. Rep. NMFS SSRF-639, NOAA. (A brief survey, showing time variation by general habitat zone, e.g. open bay vs. periphery.)

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices, other than the little information presented in the laboratory references cited above.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-170

DATA INVENTORY INFORMATION

GBNEP Reference Number: NAVO001

PROJECT NAME: NAVOCEANO Dye Tests

OBJECTIVE: Measure dilution & circulation in Galveston Channel area

DATA USE: research

PRIORITY PROBLEM:

A4. Bathymetric/circulation changes

A6. Contamination

B2. Contamination of water/sediment

KEYWORDS: circulation, dye diffusion, dispersion, Pelican Island, Texas City Dike

SOURCE: U.S. Naval Oceanographic Office

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

512-463-7830

GENERAL TYPE: Hydrography

GEOGRAPHICAL COVERAGE: Galveston Channel, West Bay, Bolivar Roads

PERIOD OF COVERAGE: 4-16 May 1962

MEASUREMENTS:

Fluorescence of Rhodamine B -	Turner Model 111 laboratory fluorometer (one mounted on boat, one mounted on Pelican Island bridge)
current velocity -	directional current meter (no further specification)
salinity, temperatures -	Field salinometer, stated accuracy: salinity 0-40 ‰ ± 0.3‰ temperature 0-40°C ± 0.5°C

qualitative observation of water mass differentiation

FORMAT: Tabular, graphical

COMMENTS: This is the earliest known dye tests performed in Galveston Bay. The releases were made in Galveston Channel and the subsequent dilution and dye patch development were tracked. The general patterns of the patches and the concentration at centroid are given, along with occasional salinity/temperature and velocity profiles. The greatest value of the project is the description of circulations around Pelican Island and through Bolivar Roads.

One 25-hour current station occupied at Pelican island Bridge on 7-8 May.

Published in:

Fisher, L. and J. Gallagher, 1962: Field Report, Galveston Channel Dye Dispersion Tests. Marine Sciences Department, U.S. Naval Oceanographic Office, Washington, D.C.

One known copy, poor mimeograph, in Texas Water Commission Library.

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-172

DATA INVENTORY INFORMATION

GBNEP Reference Number: USCE005

PROJECT NAME: USCE hydro surveys 1960s

OBJECTIVE: hydrography and transport especially in channel areas

DATA USE: engineering study

PRIORITY PROBLEM:

A2. Alteration of salinity

A4. Bathymetric/circulation changes

A7. Increased sediment/turbidity

D4. Use of littoral property

KEYWORDS: hydrodynamics, tides, currents, dispersion, channels

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

CONTACT: Mr. Mike Kieslich
Galveston District
Corps of Engineers
P.O. Box 1229
Galveston, TX 77553

409-766-3899

GENERAL TYPE: Hydrographic, water quality

GEOGRAPHICAL COVERAGE: Galveston Bay (see below)

PERIOD OF COVERAGE: Intensive surveys:

0430 12 Dec - 0600 13 Dec 1964. Stations 1-6, half-hourly

2130 10 Dec - 0600 13 Dec 1964. Station 7, half-hourly

0300 11 Dec - 0100 12 Dec 1964. Stations 8 and 10, half-hourly

2230 10 Dec - 0100 12 Dec 1964. Stations 9, 11-13 half-hourly

0600 4 May - 1200 5 May 1965. Stations A-1, A-2, A-3 half-hourly

1800 5 May - 1900 6 May 1965. Stations B-2, B-3 half-hourly

2200 6 May - 2300 7 May 1965. Stations C-1, C-2 half-hourly

1100 2 April - 1400 3 April 1964. Stations CS-1-6, half-hourly

1100 2 April - 1900 4 April 1964. Station CS-7, half-hourly

1900 3 April - 1900 4 April 1964. Stations CS-8-12, half-hourly.

USCE hydro surveys 1960s

MEASUREMENTS: Current velocity, salinity, temperature, conditions. Vertical profiles 4-5 in vertical from surface to bottom. Channel stations generally at 1, 10, 20, 30 ft depths and bottom.

Current measurement with directional indicator and counter, probably

Price meter

Salinities appear to be by titration

Temperature unknown, and not measured at all stations

Suspended sediments April 64 survey.

FORMAT: Raw field sheets (Dec 1964), or plotted versus time (April 1963), or both (May 1965)

COMMENTS: To provide prototype data for verification of the Houston Ship Channel Physical Model at Waterways, a model encompassing most of Galveston Bay (except West Bay beyond the Causeway), the Galveston District mounted intensive field studies to collect hydrographic data under a variety of conditions.

Field sheets for 10-13 Dec nearly illegible for Stas 5,7 and 12. No sheets located for April 1964 data. 26-28 February 1964 also observed but thusfar not located. A second station (B-1) was established at Red Fish Reef but is unknown whether data were obtained.

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

STATION LOCATIONS:

<i>Designation</i>	<i>Location</i>	<i>Latitude</i>		<i>Longitude</i>	
		<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
A-1	San Luis Pass	29	05	95	07
A-2	Galveston Entrance Channel	29	20.8	94	43.7
A-3	Rollover Pass (Bridge)	29	30	94	30
B-1	Near Redfish Reef	29	30	94	52
B-2	Near Redfish Reef	29	31	94	51
B-3	Near Smith Point	29	32	94	49
C-1	East Bay	29	29	94	40
C-2	Trinity Bay	29	38	94	48

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-175

DATA INVENTORY INFORMATION

GBNEP Reference Number: TAMU0011

PROJECT NAME: TAMU dye tracing 71

OBJECTIVE: measure transport & dispersion in HSC

DATA USE: research

PRIORITY PROBLEM:

A. REDUCTION/ALTERATION OF LIVING RESOURCES

A4. Bathymetric/circulation changes

A6. Contamination

B2. Contamination of water/sediment

KEYWORDS: dye tracing, water quality, transport, dispersion

SOURCE: TAMU, Hann (1971)

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: 11 May 1971, 24 May 1971

MEASUREMENTS: Release and tracing of fluorescent dye

Release #1, 11 May 150 lbs Rhodamine WT 11 May 1971
tracing 12-13 May

Release #2, 200 lbs Rhodamine WT 24 May 1971
tracing 24-26 May

FORMAT: Graphical, fluorescence as contours

TAMU dye tracing 71

COMMENTS: Published in

Hann, Roy, 1971: Selected Houston Ship Channel Studies. Report 21, Estuarine Systems Project, Civil Engineering Department, Texas A&M University.

One additional dye release made in June 1971, but results have apparently never been analyzed. See also Project: TAMU Estuarine Systems Project.

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-180

DATA INVENTORY INFORMATION

GBNEP Reference Number: CERC002

PROJECT NAME: USCE - LEO Program

OBJECTIVE: Monitor surf-zone hydrography on Gulf beaches

DATA USE: monitoring

PRIORITY PROBLEM:

A5. Subsidence & sea-level rise

D1. Subsidence & sea-level rise

D2. Bathymetric/circulation changes

D3. Loss of wetlands

D4. Use of littoral property

KEYWORDS: waves, surf, erosion, beach, groins, jetties, sand

SOURCE: Coastal Engineering Research Center, U.S. Corps of Engineers,
Vicksburg MS

CONTACT: Bill Seabergh
CERC
Waterways Experiment Station
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

(601)-634-3788

GENERAL TYPE: Hydrography, coastal processes

GEOGRAPHICAL COVERAGE: Galveston Island and Bolivar Peninsula
shoreface

PERIOD OF COVERAGE: November 1974 - August 1980

MEASUREMENTS: 943 measurements (roughly alternate days, with gaps in
record) of simple observations of wave and wave transport parameters:

wave period

breaker angle to beach

breaker type

longshore transport (dye packet releases)

breaker height

wind speed & direction

presence of rips & cusps

USCE - LEO Program

The procedures are summarized in Schneider (1981).

FORMAT: Digital?

COMMENTS:

For a summary of the program and procedures see:

Schneider, C., 1981: The Littoral Environment Observation (LEO) data collection program. Tech. Aid No. 81-5, CERC, USCE.

A preliminary analysis of some of the early LEO data is given by:

Hall, Gary L., 1976: Sediment transport processes in the nearshore waters adjacent to Galveston Island and Bolivar Peninsula. Ph.D. Dissertation, Dept. of Oceanography, Texas A&M University.

QUALITY ASSURANCE/QUALITY CONTROL: No formal QA/QC plan exists, and no information is available as to QA/QC practices. Homogeneity of observational procedures was sought by distribution of Tech. Aid 81-5 to the observers.

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-185

DATA INVENTORY INFORMATION

GBNEP Reference Number: NCDC001

PROJECT NAME: NCDC Buoy Data

OBJECTIVE: long-term monitoring of offshore weather & hydrography

DATA USE: monitoring

A4. Bathymetric/circulation changes

D1. Subsidence & sea-level rise

D2. Bathymetric/circulation changes

KEYWORDS: meteorology, Gulf of Mexico, waves, tides, salinity

SOURCE: National Climatic Data Center

CONTACT: NCDC

Federal Bldg

Asheville, North Carolina 28801-2696

704-259-0682

GENERAL TYPE: Hydrography, meteorology

GEOGRAPHICAL COVERAGE: Offshore Gulf of Mexico

PERIOD OF COVERAGE: 1976-1984; 1980-84

MEASUREMENTS: Wind speed, wind direction, wind gust, air temperature, sea level pressure, significant wave height, wave period (dominant and average), surface water temperature

FORMAT: Tabular

COMMENTS:

A general climatological summary of remote buoys is given in NCDC (1986). Two buoy locations are pertinent to the Galveston shoreface:

<i>Station</i>	<i>Latitude</i>	<i>Longitude</i>
42002	26.0	93.5
42008	28.7	95.3

NOTE: The latitude/longitude given for Buoy Station 42008 in the tabular data are incorrect. The buoy is located just offshore from Galveston as indicated on the location map.

Published in:

National Climatic Data Center, 1986: *Climatic summaries for NDBC data buoys.*
Report to National Data Buoy Center, NCDC, Asheville, NC.

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-190

DATA INVENTORY INFORMATION

GBNEP Reference Number: EHA001

PROJECT NAME: EHA HSC 78 dye/hydrography
OBJECTIVE: dye tracing & current structure in upper Channel
DATA USE: research
PRIORITY PROBLEM:
 A2. Alteration of salinity
 A6. Contamination
 B2. Contamination of water/sediment
KEYWORDS: Water quality, dye tracing, transport, dispersion

SOURCE: Miertschin & Ellison (1978)

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

512-327-2708

GENERAL TYPE: Hydrographic, water quality

GEOGRAPHICAL COVERAGE: Houston Ship Channel, above Monument

PERIOD OF COVERAGE: 3-5 August 1978, irregularly, appx 4 hr interval

MEASUREMENTS: Salinity, dissolved oxygen, temperature and current velocity. Also vertical profiles of Rhodamine-WT fluorescent dye. Salinity measured by YSI Model 33 SCT meter, with direct readout of salinity based upon conductivity. Temperature and DO by YSI Model 51A DO meter, membrane probe. Current velocity with Marine Advisers (Bendix) Model Q-9 sensor with Model S-11 deck readout. Savonius sensor with threshold of 0.05 knots and accuracy ± 0.02 knots. Direction relative to N by magnetic flap-type vane, with accuracy $\pm 10^\circ$. Profiles with measurements every 5 ft in vertical.

FORMAT: Tabular

COMMENTS: Field study in support of analysis of aeration system for Channel. Continuous 48-hr dye release during which hydrographic data were also taken. Published in:

Miertschin, J & T. Ellison, 1978: Instream aeration on the Houston Ship Channel. Doc. 78119, Espey, Huston & Assoc., Austin.

EHA HSC 78 dye/hydrography

The dye release was initiated on 1745 CDT 3 Aug and terminated at 2240 CDT on 5 Aug, being sustained for two tidal cycles. The dye plume was monitored by a vertically profiling fluorometry system with on-board chart recorder, that moved from station to station. Location of the dye stations was ad hoc, based upon the configuration of the plume. The Appendix to the report contains tabular profile data for dye concentration (ppb).

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

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>	
1	29	44.10	95	09.00	Downstream end of Tenneco Pier, S shore of Channel
RM	29	44.15	95	08.96	Transect at end of Tenneco Pier
D2M	29	44.12	95	08.50	About 800 ft downstream
D2N	29	44.09	95	08.50	S edge of Channel
U2M	29	44.26	95	09.21	Fl "148"
U3M	29	44.48	95	09.58	FL "149"
D2/3M	29	44.09	95	08.29	Between D2 and Boggy Bayou Basin
D6M	29	45.24	95	05.63	Fl 132- 133, near Monument

GALVESTON BAY
NATIONAL ESTUARY PROGRAM
DATA INVENTORY PROJECT

DATA SET REPORT-195

DATA INVENTORY INFORMATION GBNEP Reference Number: TAMU0009
PROJECT NAME: Sahl-Merrell shelf 82
OBJECTIVE: hydrographic structure of nearshore shelf
DATA USE: research
PRIORITY PROBLEM:
A2. Alteration of salinity
A4. Bathymetric/circulation changes
D4. Use of littoral property
KEYWORDS: nearshore, shelf, inlets

SOURCE: Texas A&M University Galveston

CONTACT: Dr. William Merrell
Texas A&M University
P.O. Box 1675
Galveston, TX 77553

409-740-4403

GENERAL TYPE: hydrography, water quality

GEOGRAPHICAL COVERAGE: Nearshore shelf along Galveston Island

PERIOD OF COVERAGE: 17-22 March, 3-4 May, 15-16 November 1982

MEASUREMENTS: Salinity calculated from profiles of conductivity and temperature, estimated accuracy within 0.0015 ppt for oceanic salinity. Water samples taken using rosette sampler, and salinity determined with 6230N Grundy Inductive Salinometer, to check the profiling conductivity sensors. Reversing thermometer readings used to verify temperature profiling sensors.

FORMAT: Graphical sections, from which the measured salinities/temperature can be estimated.

COMMENTS: Published in:

Sahol, Lauren E. and William Merrell, 1987: salinity, temperature and mixing on the Texas continental shelf. *Contr. Mar. Sci.*, 30, pp 1-16.

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

Sahl-Merrell shelf 82

STATION LOCATIONS:

(Only those stations in proximity to Galveston given here)

<i>Cruise/Station</i>	<i>Latitude</i>		<i>Longitude</i>	
	<i>Deg</i>	<i>Min</i>	<i>Deg</i>	<i>Min</i>
March:				
1	29	11	94	35
2	29	05	94	34
44	29	05	95	04
45	29	15	95	49
May:				
1	28	55	95	00
November:				
1	29	05	95	00
2	28	55	95	00

**CROSS-REFERENCE
HYDROGRAPHY**

Data sets with additional or ancillary information:

Data Set Report- 015	Data Set Report - 020
Data Set Report- 025	Data Set Report - 035
Data Set Report- 100	Data Set Report - 198
Data Set Report- 205	Data Set Report - 207
Data Set Report- 210	Data Set Report - 215
Data Set Report- 233	Data Set Report - 245
Data Set Report- 255	Data Set Report - 270
Data Set Report- 280	Data Set Report - 295
Data Set Report- 305	Data Set Report - 310
Data Set Report- 325	Data Set Report - 330
Data Set Report- 345	Data Set Report - 350
Data Set Report- 355	Data Set Report - 358
Data Set Report- 360	Data Set Report - 365
Data Set Report- 372	Data Set Report - 373
Data Set Report- 375	Data Set Report - 390
Data Set Report- 412	Data Set Report - 440
Data Set Report- 452	Data Set Report - 465
Data Set Report- 470	Data Set Report - 480
Data Set Report- 525	Data Set Report - 530
Data Set Report- 540	Data Set Report - 545
Data Set Report- 575	Data Set Report - 585
Data Set Report- 620	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- 750	Data Set Report - 790
