

# Historic Shipwrecks and Magnetic Anomalies of the Northern Gulf of Mexico

## Reevaluation of Archaeological Resource Management Zone 1

### Volume III: Appendices



# **Historic Shipwrecks and Magnetic Anomalies of the Northern Gulf of Mexico**

## **Reevaluation of Archaeological Resource Management Zone 1**

### **Volume III: Appendices**

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**APPENDIX A**

**Vessels Attacked in World War II in Gulf Area  
and  
German U-Boat Casualties in World War II**

Table A-1.

**VESSELS ATTACKED IN WORLD WAR II IN GULF OF MEXICO, STRAITS OF FLORIDA, AND SOUTH ATLANTIC OFF FLORIDA TO 78° W.**

Date	Latitude N.	Longitude W.	Vessel Type	Tonnage	Name	U-Boat
5/3/42	26°04'	79°45'	Steamship	567	Sama	U-506
5/4/42	24°57'	84°00'	Steamship	2,686	Norundo	U-507
5/5/42	25°24'	83°46'	Tanker	5,104	Munger T. Ball	U-507
5/5/42	25°57'	83°57'	Tanker	6,950	Joseph M. Cudahy	U-507
5/6/42	28°35'	88°22'	Steamship	6,759	Alcoa Puritan	U-507
5/8/42	28°11'	87°32'	Steamship	3,099	Ontario	U-507
5/8/42	26°40'	86°40'	Steamship	2,424	Torny	U-507
5/10/42	28°35'	90°00'	Tanker (D)	7,050	Aurora (towed to port)	U-506
5/12/42	28°53'	89°29'	Tanker	10,731	Virginia	U-507
5/13/42	28°29'	89°17'	Tanker	8,862	Gulf Penn	U-506
5/14/42	28°30'	89°55'	Tanker	6,821	David McKelvy	U-506
5/16/42	26°30'	89°12'	Steamship	4,148	Ampala	U-507
5/16/42	28°52'	90°20'	Tanker (D)	7,302	William C. McTarnahan	U-506
5/16/42	28°41'	90°19'	Tanker (D)	9,002	Sun	U-506
5/17/42	28°08'	89°46'	Tanker	5,189	Gulf Oil	U-506
5/19/42	28°53'	91°03'	Steamship	4,732	Heredia	U-506
5/19/42	23°30'	86°37'	Steamship	5,037	Ogontz	U-103
5/20/42	28°42'	90°08'	Tanker	6,986	Halo	U-506
5/20/42	22°55'	84°26'	Steamship	7,191	George Calvert	U-753
5/20/42	24°30'	83°55'	Sailing Ship (D)	326	E.P. Theriault	U-753
5/21/42	23°30'	84°24'	Tanker	6,067	Fasa de Oro	U-106
5/25/42	28°45'	90°03'	Tanker(D)	6,582	Haakon Havan	U-753
5/26/42	26°18'	89°21'	Tanker	5,030	Carrabulle	U-106
5/27/42	25°50'	89°05'	Steamship (D)	4,639	Atenas	U-106
5/28/42	24°11'	87°02'	Steamship	7,383	Mento	U-106
6/1/42	22°45'	85°13'	Steamship	2,689	Hampton Roads	U-106
6/7/42	23°08'	84°42'	Steamship	5,234	Hermis	U-158
6/11/42	28°41'	91°20'	Tanker	13,467	Sheherzade	U-158
6/12/42	29°02'	91°59'	Tanker	8,192	Cities Service Toledo	U-158
6/16/42	24°05'	81°40'	Steamship	2,220	Managua	U-67

Table A-1  
(continued)

6/17/42	25°26'	95°33'	Steamship	3,601	San Blas	U-158
6/17/42	25°35'	96°20'	Tanker	1,560	Moira	U-158
6/18/42	23°12'	79°28'	Steamship	3,274	Millinocket	U-129
6/20/42	28°41'	89°34'	Tanker (D)	8,221	Nortind	U-67
6/23/42	28°53'	89°15'	Tanker	3,664	Rawleigh Warner	U-67
6/27/42	20°15'	96°20'	Tanker	7,008	Tuxpam	U-129
6/27/42	20°15'	96°20'	Tanker	2,005	Las Chaoapas	U-129
6/29/42	29°25'	85°17'	Tanker	8,032	Empire Mica	U-67
7/1/42	22°50'	92°30'	Steamship	1,855	Cadmus	U-129
7/2/42	23°33'	92°35'	Motorship	1,841	Gundersen	U-129
7/4/42	22°13'	86°06'	Tanker	6,320	Tuapse	U-129
7/6/42	29°35'	88°44'	Motorship	2,160	Bayard	U-67
7/7/42	25°35'	80°02'	Steamship	8,141	Unitata	U-571
7/7/42	29°26'	88°38'	Tanker (D)	6,610	Paul H. Harwood	U-67
7/9/42	23°54'	82°33'	Steamship	1,051	Nicholas Cuned	U-571
7/10/42	20°05'	90°05'	Tanker	5,950	Benjamin Brewster	U-67
7/13/42	23°32'	81°02'	Steamship	5,990	Andrew Jackson	U-84
7/13/42	28°50'	91°05'	Tanker	7,989	R.W. Gallagher	U-67
7/15/42	24°05'	83°42'	Tanker (D)	11,394	Pennsylvania Sun	U-571
7/16/42	23°32'	82°00'	Steam Trawler	16	Gertrude	U-166
7/19/42	25°14'	82°27'	Steamship	1,648	Basa California	U-84
7/19/42	23°39'	84°00'	Steamship	1,266	Port Antonio	U-129
7/21/42	24°08'	82°23'	Steamship	7,176	William Cullen Bryant	U-84
7/23/42	22°40'	78°44'	Steamship	2,310	Onondaga	U-129
7/26/42	28°23'	96°08'	Steamship	4,351	Oaxaca	U-171
7/30/42	28°40'	88°42'	Steamship	5,184	Robert E. Lee	U-166
8/12/42	24°20'	81°50'	Steamship	1,685	Santiago de Cuba	U-508
8/12/42	24°20'	81°50'	Steamship	1,025	Manzanillo	U-508
8/13/42	28°50'	90°42'	Tanker	6,779	R. M. Parker, Jr.	U-171
9/4/42	23°27'	97°30'	Tanker	6,511	Amatlan	U-171
4/2/43	23°09'	83°24'	Steamship	1,091	Lysefjord	U-155
4/3/43	24°26'	80°18'	Tanker	6,882	Gulfstate	U-155

Table A-2.

**GERMAN U-BOAT CASUALTIES IN WORLD WAR II.**

	<u>Latitude N.</u>	<u>Longitude W.</u>	<u>U-Boat</u>
6/7/42	24°13'	82°03'	U-157
8/1/42	28°37'	90°45'	U-166
5/15/43	23°21'	80°18'	U-176
-	24°52'	83°19'	U-2513

Source: United States Submarine Losses - World War II  
Naval Historical Division  
Office of the Chief of Naval Operations  
Washington, D.C. 1963

## **APPENDIX B**

### **Historic Maps, Charts and Sailing Directions**

Table B-1.

**LIST OF HISTORIC MAPS, CHARTS, SAILING DIRECTIONS AND  
MISCELLANEOUS CHARTS.**

**Historic Maps and Charts**

- 1519 - "Mapa de la Costa Firme descubiertas por Juan Ponce, Francisco de Garay, Diego Velasquez. etc." 1st map of Gulf
- 1524 - "Map of Mexico City and the Gulf Coast." Hernán Cortés (Schwartz and Ehrenberg 1980; Weddle 1985). 2nd map of Gulf, 1st published.
- 1569 - "Nova et aveta orbis terrae descriptio ad vsvm navigantium emendate accommodata." Gerard Mercator. Isogonic cylindrical projection presented for the most the first time. One of the most influential maps ever published (Schwartz and Ehrenberg 1980).
- 1572 - "Mapa del Golfo y Costa de Nueva España desde el Río de Panuco hasta el Cabo de Santa Elena, etc." Alonso de Santa Cruz. (Schwartz and Ehrenberg 1980; Martin and Martin 1982). cf. landmarks.
- 1647 - "America carta particolare della Baia de Messico con la costa." Sir Robert Dudley (Martin and Martin 1980). Shown are winds and currents - poor representation of Mississippi River delta.
- 1692 - "Map of America" Rouillard (Weddle 1985; Le Clerq 1691).
- 1715 - "Les Costes aux Environs de la Riviere de Mississippi." Nicolas de Fer (Martin and Martin 1980).
- 1715 - "A Map of the West Indies." Herman Moll. Historic Urban Plans. Ithaca, N.Y. Tracks of galleons.
- 1722 - "Carte du Mexique et de la Florida." Guillaume De l' Isle. Reproduced from original at P.K. Younge Library. University of Florida, Gainesville. Route of Flotas.
- 1744 - "Carte De La Louisiane." Nicolas Bellin. (O'Neill 1977).
- 1744 - "Partie De La Coste De La Louisiane et De La Floride." Nicolas Bellin (O'Neill 1977).
- 1763 - "Plan of the Bay of St. Joseph in the Gulf of Mexico." Thomas Jeffreys. Facsimile reproduction 1976.
- 1763 - "A Plan of Bahia Del Espiritu Santo and the West Side of Florida." Thomas Jeffreys. Facsimile reproduction 1976.
- 1763 - "Plan of the Bay and Island of Mobile." Thomas Jeffreys. Facsimile reproduction 1976.
- 1763 - "Florida," Thomas Jeffreys. Facsimile production 1976.
- 1775 - "Map of Part of East Florida." Bernard Romans. Reproduction, facsimile 1962, Gainesville.
- 1775 - "The Western Coast of Louisiana and the Coast of New Leon." Thomas Jeffreys (Martin and Martin 1980). 1st representation of Continental Shelf; Track of Flotas.
- 1777 - "Insule Americanae." Reiner and Josua Ottens. Reproduced from original copy in P.K. Younge Library. University of Florida. Gainesville.
- 1803 - "The Coast of the Gulf of Mexico." George Gould. Copy of original in Library of Congress.
- 1816 - "Map of the United States." John Melish. (Martin and Martin 1982)
- 1820 - "A Map of Mobile in the State of Alabama." Curtis Lewis. (Guthorn 1984).
- 1833 - "A New Chart of the Tortugas Keys and Shoals." Samuel M. Stuart (publisher) (Guthorn 1984).

Table B-1  
(continued).

- 1833 - "A New Chart of Key West, with the North-West Passage." Samuel M. Stuart (publisher) (Guthorn 1984).
- 1834 - "The Coasts of West Florida, Alabama, Mississippi, and Louisiana. Edmund Blunt. (Guthorn 1984).
- 1840 - "Chart of Mobile Bay." Curtis Lewis and captain Welsh (Guthorn 1984).
- 1847 - "Sketch of the results from soundings at the entrance to Mobile Bay." C.P. Patterson (Guthorn 1984).
- 1851 - "Rebecca Shoal, Florida Keys." F.H. Gerdes. (Guthorn 1984).
- 1851 - "Preliminary Sketch of Mobile Bay." F.H. Gerdes *et al* (Guthorn 1984).
- 1851 - "Grand Bay Including the Entrance of Horn Island Pass." W.E. Green well. (Guthorn 1984).
- 1853 - "Horn Island Pass, Mississippi Sound." F.H. Gerdes (Guthorn 1984).
- 1853 - "Preliminary Reconnaissance of the Entrance to Barataria Bay, Louisiana." F.H. Gerdes. (Guthorn 1984).
- 1853 - "Reconnaissance of Sabine Pass, Texas." J. Wilkinson (Guthorn 1984).
- 1853 - "Galveston Entrance, Texas." R.H. Fauntleroy (Guthorn 1984).
- 1853 - "Preliminary Chart of San Luis Pass." A.D. Bache (Guthorn 1984).
- 1853 - "Reconnaissance of Aransas Pass, Texas." H.S. Stellwagen (Guthorn 1984).
- 1855 - "Tampa Bay, Florida." O.H. Berryman. (Guthorn 1984).
- 1860 - "St. George's Sound, Florida." A.D. Bache. (Guthorn 1984).
- 1865 - "Wall Atlas." Arnold Guyot (Schwartz and Ehrenberg 1980).

#### Sailing Directions

- 1564 - Testimony from a meeting of the officials of the House of Trade, the Prior and consuls, and masters and pilots. Francisco Rodríguez (Notary January 18 (Sevilla, Archivos General de las Indies) (AGI), Indiferente General 2005; McDonald and Arnold 1979).
- 1564 - Opinion of the masters, pilots, and shipowners. Benito Luis (Notary). Seville, February 9 (Sevilla, AGI, Indiferente 2005; McDonald and Arnold 1979).
- 1583 - Sailing Directions for the Coasts of Mexico (London, British Museum, MSS.28, 189; McDonald and Arnold 1979).
- 1712 - Ship course from San Lucas, Spain, to San Juan de Ulua and back to Spain, by Juan Antonio de Orbe, November (Sevilla, AGI, Contracion 4890; McDonald and Arnold 1979).
- 1717 - Directions by the company of the west for inward and outward voyages. Archives Nationales, Colonies, Paris. Série C<sup>13</sup>, Correspondance Generale, Louisiane, 1679-1763 (A.N.,C., Ser C<sup>13</sup>) vol. v, fols. 16, 36-41; A.N.,C., Sér, B, vol. lxxxvii, fol 8. (Surrey 1916).
- 1775 - Directions for Coming round Cape St. Antonio, through the Gulf of Florida. B. Romans.
- 1775 - General Directions for the Dry Tortugas and the Florida Reef and Keys with their description. George Gauld.
- 1820 - "Descripción de la Costa Septentrional y Oriental de Seño Mexicano desde La Bahía de San Bernardo hasta Las Tortugas." Derrotero de Las Antillas, De Las Costas De Tierra Firme, Y De Las Del Seño Mejicano. Seville.

Table B-1  
(continued).

- 1833 - Directions. A New Chart of the Tortugas Keys and Shoals (Guthorn1984).
- 1833 - Directions. A New Chart of Key West, with the Northwest Passage (Guthorn 1984).
- 1839 - "No sure Sailing Directions..." Reconnaissance of the N.E. and S.E. Passes and Passe A L'Outre (Guthorn 1984).
- 1847 - Sailing Directions. Sketch of a Reconnaissance of the Harbor South of Cat Island on the Coast of Mississippi (Guthorn 1984).
- 1850 - Sailing Directions. Cat and Ship Island Harbor. (Guthorn 1984).
- 1851 - Sailing Directions. Preliminary Chart of Key West Harbor and Approaches (Guthorn 1984).
- 1851 - Sailing Directions. Preliminary Sketch of Mobile Bay, Alabama (Guthorn 1984).
- 1852 - Sailing Directions. Reconnaissance of Channel No. IV. Cedar Keys, Florida (Guthorn 1984).
- 1852 - Sailing Directions. Reconnaissance of the Passes of the Delta of the Mississippi, Louisiana showing the changes since 1839 (Guthorn 1984).
- 1853 - Sailing Directions. Galveston Entrance, Texas. (Guthorn 1984: 181).
- 1853 - Sailing Directions. Preliminary Chart of San Luis Pass, Texas (Guthorn 1984).
- 1853 - Sailing Directions. Preliminary Reconnaissance of the Middle or Main, and West Entrances to St. Georges' Sound, Florida (Guthorn 1984).
- 1853 - Sailing Directions. Reconnaissance of Aransas Pass, Texas (Guthorn 1984).
- 1853 - Sailing Directions. Horn Island Pass, Mississippi Sound (Guthorn1984).

#### **Miscellaneous Charts**

- 1985 - "Shipping Routes to Points outside the Gulf." Gulf of Mexico. Coastal and Ocean Zones Strategic Assessment Data Atlas. National Oceanic and Atmospheric Administration (NOAA).
- 1985 - "Shipping Routes within the Gulf." (ibid)
- 1985 - "Bathymetry." (ibid)
- 1985 - "Bottom Sediments." (ibid)
- 1985 - "Remotely Sensed Sea Surface Temperature." (ibid)
- 1985 - "OCS Oil and Gas Activities." (ibid)
- 1985 - "Oil Production." (ibid)



## **APPENDIX C**

### **Summary Statistics of Blockade Runners (after Price 1973)**

Table C-1.

SUMMARY STATISTICS OF BLOCKADE RUNNERS' SUCCESS AGAINST THE BLOCKADE IN GULF OF MEXICO (after Price 1973).

Summary for 1861:					
Vessels engaged in the business:	steamers	34	others, including unascertained types,	397	total 431
Number of runs attempted:	steamers	375	others, including unascertained types,	1348	total 1723
Successful runs:	steamers	371	others, including unascertained types,	1293	total 1664
Unsuccessful runs:	steamers	4	others, including unascertained types,	53	total 57
% of successful runs:	steamers	99%	others, including unascertained types,	96%	all types 97%
Summary for 1862:					
Vessels engaged in the business:	steamers	34	others, including unascertained types,	222	total 256
Number of runs attempted:	steamers	68	others, including unascertained types,	360	total 428
Successful runs:	steamers	50	others, including unascertained types,	229	total 279
Unsuccessful runs:	steamers	18	others, including unascertained types,	131	total 149
% of successful runs:	steamers	73%	others, including unascertained types,	63%	all types 65%
Summary for 1863:					
Vessels engaged in the business:	steamers	38	others, including unascertained types,	216	total 254
Number of runs attempted:	steamers	99	others, including unascertained types,	329	total 428
Successful runs:	steamers	73	others, including unascertained types,	193	total 266
Unsuccessful runs:	steamers	26	others, including unascertained types,	136	total 162
% of successful runs:	steamers	74%	others, including unascertained types,	58%	all types 62%
Summary for 1864:					
Vessels engaged in the business:	steamers	25	sailing vessels,	119	total 144
Number of runs attempted:	steamers	100	sailing vessels,	173	total 273
Successful runs:	steamers	87	sailing vessels,	91	total 178
Unsuccessful runs:	steamers	13	sailing vessels,	82	total 95
% of successful runs:	steamers	87%	sailing vessels,	53%	all types 65%
Summary for 1865:					
Vessels engaged in the business:	steamers	25	sailing vessels,	33	total 58
Number of runs attempted:	steamers	69	sailing vessels,	39	total 108
Successful runs:	steamers	65	sailing vessels,	11	total 76
Unsuccessful runs:	steamers	4	sailing vessels,	28	total 32
% of successful runs:	steamers	94%	sailing vessels,	53%	all types 65%

Table C-1  
(continued).

Overall Summary, 1861-1865:					
Vessels engaged in the business:	steamers	156	others, including unascertained types,	987	total 1143
Number of runs attempted:	steamers	711	others, including unascertained types,	2249	total 2960
Successful runs:	steamers	646	others, including unascertained types,	1817	total 2463
Unsuccessful runs:	steamers	65	others, including unascertained types,	430	total 495
% of successful runs:	steamers	91%	others, including unascertained types,	81%	all types 83%

**APPENDIX D**

**Gulf Blockade Runners Sunk or Destroyed by Year, 1861-1865  
(after Price 1973)**

Table D-1.

**GULF BLOCKADE RUNNERS SUNK OR DESTROYED BY YEAR, 1861-65  
(AFTER PRICE 1973).**

**1861**

<u>Name of vessel</u>	<u>Type</u>	<u>Tons</u>	<u>Crew</u>	<u>Location</u>	<u>Bound</u>	<u>Runs</u>
Ann Ryan	schooner			burned off Galveston, 4 July	for	1
Finland	ship			burned Appalachicola Bay, 26 Aug.		
Falcon	schooner			wrecked off Galveston, 5 July	for	
Reindeer	schooner			scuttled off Lamar, Texas 3 Oct.	for	
Tom Hicks	schooner			sunk off Galveston, 9 July		
TOTAL 1861 = 5						

**1862**

A.B.	steamer			run aground and burned by Confederates off Nueces River, 15 Aug.	for	
Andreila (J.W. Wilder)	schooner			grounded and abandoned by crew off Fort Morgan (Mobile), 20 Jan.		
Anna Smith	schooner	199 <sup>37/95</sup>		destroyed Cedar Keys, 10 Jan.		
Antonica	schooner			grounded off Fort Morgan (Mobile) and burned by Confederates		
Baker	schooner			wrecked off Mobile, Dec	for	
Black Joker (C. Vanderbilt)	steamer	383		founded at sea, March	for	2
Caroline	sloop			sunk off west coast of Florida, March		2
Columbia	schooner		7	captured and burned San Luis Pass, 5 Apr.	from	2

Table D-1  
(continued).

Name of vessel	Type	Tons	Crew	Location	Bound	Runs
Conchita	schooner			burned off Texas coast, Oct.		
Cygnat	schooner (pilot boat)			burned off Appalachicola, 2 April		
Dudley (Pinkney)	sloop			destroyed off Cedar Keys, 10 Jan.		
Deer Island	schooner	37 <sup>66</sup> / <sub>95</sub>	3	scuttled by crew, Mississippi Sound, 13 May	from	
Julia	schooner			destroyed off New Orleans, 24 Jan.	from	
J.W. Townsend	schooner			grounded near Pensacola and burned by crew, during or about April		
Mary Olivia	unascertained			burned		
Monte Christo	(pilot boat) sloop			Appalachicola, 2 Apr. burned by Confederates off coast of Texas, 10 July		
Mustang	sloop			abandoned coast of Texas, Feb.		
Ocilla	schooner			destroyed Cedar Keys, 10 Jan		
O.K.	sloop			sunk Cedar Keys, Feb.		
Pioneer	sloop	12 <sup>22</sup> / <sub>95</sub>	4	destroyed off Rio Grande, 20 Feb.	for	
Ranger	steamer (river boat)			wrecked and lost 120 miles south of Matamoras, Aug.		
Rattler	sloop			destroyed Cedar Keys, 10 Jan.		
R. Burrows (Rhode Borroughs)	sloop	60		beached and burned off Mobile, Oct.		2

Table D-1  
(continued).

Name of vessel	Type	Tons	Crew	Location	Bound	Runs
Spitfire	schooner			sunk west coast of Florida, Mar.		
Stag	schooner			destroyed Cedar Keys, 10 Jan.		
Swan	sloop			abandoned coast of Texas, Feb.		
Tardy	schooner			ran agound after leaving Mobile, burned by master, Feb.		
Wave	sloop			captured and destroyed by U.S. in Mississippi Sound, 27 June		
William H. Middleton	sloop			destroyed Cedar Keys, 10 Jan.		
Wyfe	schooner			destroyed Cedar Keys, 10 Jan.		
TOTAL 1862: 31						
<b>1 8 6 3</b>						
Caroline	schooner			destroyed Ocklockonee River, Fla., 28 Dec.		
Caroline Gertrude	schooner			grounded on bar off Ocklockonee River, set afire by U.S. Navy		
Concordia	schooner			destroyed Calcasieu Pass, 5 Oct.		
Cuba	steamer			fired by crew, abandoned and sunk lat. 28° 47'N, long. 87° 58'W., 17 May	for	
Director	schooner	2.30	2	captured and destroyed at Punta Rasa, 30 Sept.	for	
Fanny (Fox)	steamer	381		burned by master near Pascagoula, Miss., to prevent capture, 12 Sept.		

Table D-1  
(continued).

Name of vessel	Type	Tons	Crew	Location	Bound	Runs
Florrie	schooner			captured 6 miles off Matagorda and burned, 2 Oct.	for	
Isabel	schooner	91		burned off Mobile, 18 May	from	
Jane	schooner			destroyed off Rio Brazos, 10 Oct.		
Mary Jane	schooner			while being chased, ran aground on small key near Clear- water, and destroyed, 18 June	for	
Matamoras	schooner			wrecked in Matagorda Bay		
Matilda	schooner			wrecked in Matagorda Bay		
Powerful	steamer			destroyed in Suwanee River, 20 Dec.		
Prima Donna	schooner			wrecked 10 miles east of Mobile Point, 30 March	for	1
Relief	schooner	29	<sup>18</sup> / <sub>95</sub>	wrecked at Sand Island, off Mobile, in Mar., or Apr.	for	2
Victoria	sloop			burned off Texas coast, 30 May		
TOTAL 1863: 16						
<b>1864</b>						
Caroline (Rosita, Union)	steamer	164	<sup>74</sup> / <sub>95</sub>	burned off Galveston, 7 July	from	1



Table D-1  
(continued).

Name of vessel	Type	Tons	Crew	Location	Bound	Runs
Cassie Holt	sloop			destroyed San Luis Pass, 29 Feb.	from	
Clifton	schooner			grounded on bar off Sabine Pass, burned by own crew, 21 Mar.	from	
Etta	schooner			destroyed near Cedar Keys, Fla., about 30 Mar.		
Good Hope	schooner	150		beached by own crew and burned by U.S. Navy, lat. 28° 34'N., long. 83° 10' W., 18 Apr.	for	
Ivanhoe	steamer			chased ashore and destroyed off Mobile, 4 July	for	2
Little Lilly	steamer	230 <sup>04/95</sup>		destroyed Suwanee River, 2 Feb.	from	3
Marion	schooner			captured off Rio Brazos, 12 Mar., Unsea- worthy; sunk by U.S. Navy		
Mary Ann	sloop			destroyed off Pass Cavallo, 8 Dec.	from	
Matagorda	steamer			destroyed off coast of Texas, 8 July		
Rosina	sloop			chased ashore and burned San Luis Pass, 13 Apr.	for	
Wild Pigeon	schooner	37		run down and sunk off Florida coast, 21 Mar.	for	

TOTAL 1864: 12

Table D-1  
(continued).

Name of vessel	Type	Tons	Crew	Location	Bound	Runs
<b>1865</b>						
Annie	sloop		2	captured off Crystal River Fla., 11 Apr. Destroyed after cargo removed	from	
Denbigh	steamer	162		ran aground off Galveston, shelled, boarded, and burned, 24 May	from	7
Florida	sloop			captured off Crystal River, Fla., 11 Apr. Destroyed after cargo removed	from	
Louisa	schooner			chased ashore at Aransas Pass and sunk by shellfire, 16 Feb.		
Mary Agnes	schooner			destroyed at Aransas Pass, 16 Feb.	for	
Rob Roy	schooner	60		run ashore and burned Steinhatchie River, 2 Mar.		
Will O' the Wisp	steamer			destroyed off Galveston, 9 Feb.	for	1

TOTAL 1865: 7

TOTAL 1861-1865: 71

## **APPENDIX E**

### **Common Historic Vessel Types of the Northern Gulf of Mexico: Brief Descriptions**

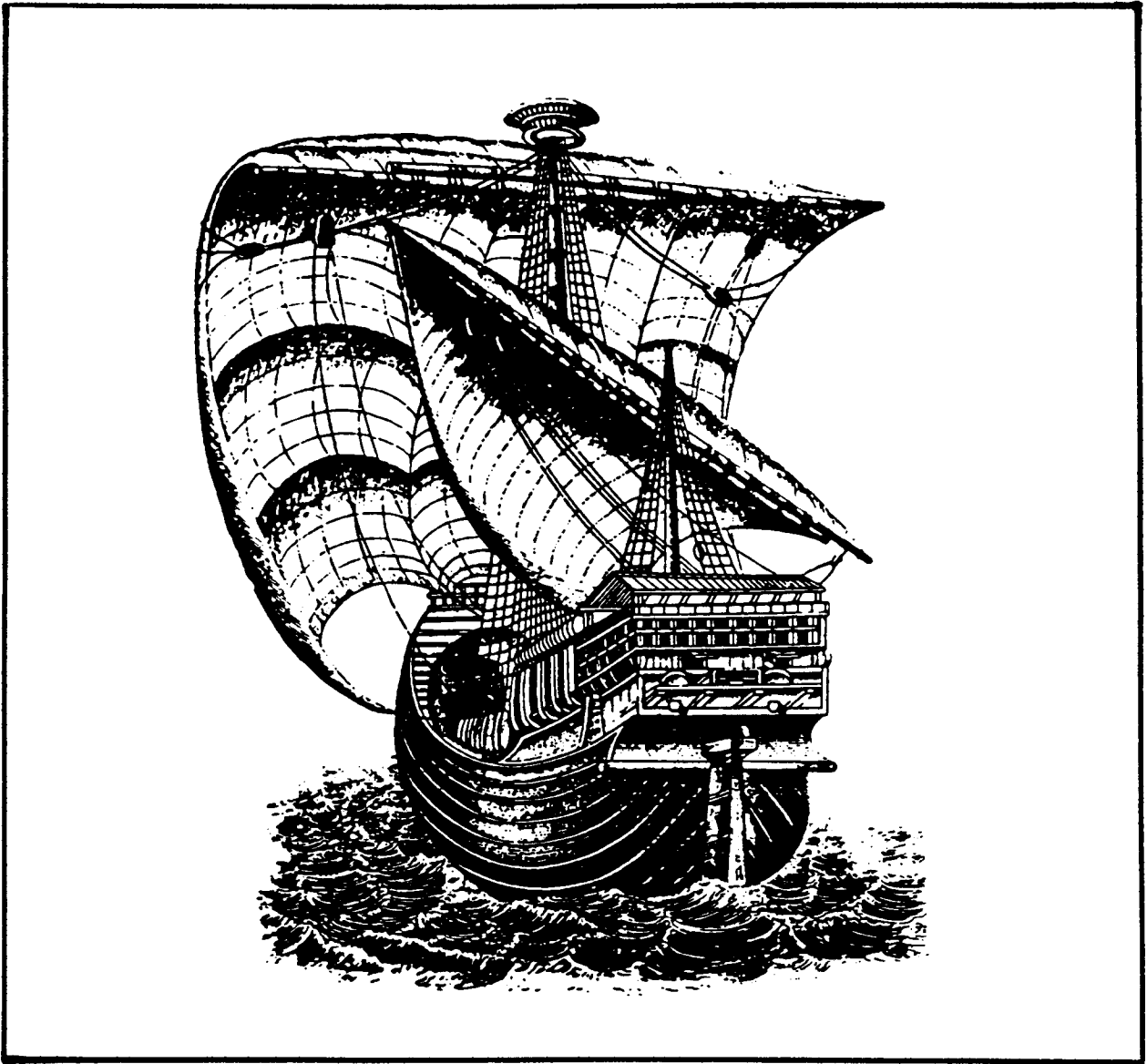
Table E-1.

**COMMON HISTORIC VESSEL TYPES OF THE NORTHERN GULF OF MEXICO: BRIEF DESCRIPTIONS.**

Vessel Illustrations from Chappelle 1951; Chapman 1968; Fleetwood 1982; Paasch 1890.

Sixteenth & Seventeenth Centuries

1. Bark, Barque. Two-three masts; square rigged on main only, fore-and-aft on others (Wilson 1983; Villiers 1973). Prevalent after 1585 (Chaunu and Chaunu 1955, Vol 6 (2)).
2. Bateau. French for "boat". Could have mast with square reg. Surrey (1916) reports bateaux up to 40 tons.
3. Bilander. Two masts; similiar to brig in terms of rig (see McWilliams, 1981).
4. Biscayan. Double-ended longboat. Masts probably not stepped e.g. folding or detachable (McWilliams 1981).
5. Brigantine. Generic term in records (Surrey 1916). Size varies from boat to ship with rig of two masts (Wilson, 1983).
6. Caiche. Probably a ketch. Surrey (1916) says few were ever used in Louisiana. Chappelle (1976) sees the ketch evolving into schooners by the early 1700's implying fore-and-aft rigs.
7. Canoe. Surrey (1916) discusses these water craft at length. "Master canoes" could reach lengths of 42 feet (ibid). Typically bark-covered but some were of hide.
8. Caravel. Also "caravelle". Square-rigged on fore and main, lateen on mizzen. Small in size - 10-50 tons. Used by Spanish from 1500 through 1650 being replaced by "navios" (ships) and larger galleons (Chaunu and Chaunu 1955; Wilford 1985).
9. Chaloupe, Shallop. Double-ended boat with masts (2). Chappelle (1951) defines it as open, 18-28 feet with no decks.
10. Corvette. Two-three masts, square rigged. Warship smaller than a frigate with 10-20 guns (Millar 1978). Corvettes of later centuries were characterized by flush decks (Howard 1979).
11. Felucca, felouque. Lateen-rigged, double-ended vessel. Small - 25 to 28 feet in written sources (Millar 1978 and Chappelle 1951). Powered by oars and sails (Surrey 1916).
12. Flyboat, filibote. Also called "fluyt". Ship-rigged on fore and main masts, lateen on mizzen (Villiers 1973). Stern castles present. Used regularly in Spanish trade 1580-1640 (Chaunu and Chaunu 1955).
13. Frigate. Keel:beam ratio higher than other vessels, 4:1 to 4.75:1. The name came to be applied to faster-than-usual vessels (Howard 1979). Three masts, ship-rigged. Popular 1575-1645 in Spanish trade (Chaunu and Chaunu 1955).
14. Galleon. Largest vessels of Spanish build. Armed as warships or merchantmen. Ship-rigged, square sterns. Dominated Spanish trade together with naos after 1520's (Chaunu and Chaunu 1955).
15. Galley. Sail-oar hybrids that originated in Mediterranean. Lateen-rigged of varying size. Used by Spanish between 1565 and 1600 in Caribbean as coastal defense vessels (Hoffman 1980). Later designs in Gulf and Southeast were up to 60 feet, with 14 oars and 18 cannons (Fleetwood 1982).
16. Hooker, Hourque. Spanish supply vessel (McWilliams 1981). Rig unknown. Chaunu and Chaunu (1955) show a lateen on the fore and mizzen masts. The main is square-rigged. The type is represented from just before 1550 infrequently to 1650 (ibid).



**FIGURE E-1. A carrack of the late fifteenth century, an early engraving based on drawings in a fifteenth-century account of a voyage to the Holy Land. This is the proto-type of the carracks that sailed in the early treasure fleets to and from America.**



**FIGURE E-2.** A mid-sixteenth century galleon and galley. After a contemporary engraving.

Table E-1  
(continued).

17. Ketch. Two masted medium vessel, 70-130 feet in length (Wilson 1983). Foremast taller than main (ibid).
18. Launch. Small vessel utilized in conjunction with larger vessels. Howard (1979) describes them as rowed or sailed.
19. Longboat. Normally a ship's boat. Up to 52 feet in length in British examples (Howard 1979). Carvel built with small cannon in larger sizes.
20. Naο. Navio. Originally a small ship with two masts - main and mizzen (Wilson 1983). Used throughout the Spanish period with term tending to mean ship-rigged vessels in later centuries (Chaunu and Chaunu 1955).
21. Pinnace. Similiar to a launch but generally longer (30-50 feet). Chapelle (1951) cites a variety of rigs. Originally a name for a small ship (Howard 1979).
22. Piragua. Shallow draft vessels, oarred with a large sail. The two utilized by the Spanish expedition of 1686-87 were 54 and 60 ft. in length, carried 20 oars and 25 men (Weddle 1987).
23. Pirogue. Dugout boat with seats for rowers and coxswain (Surrey 1916). Typically oar driven but could have simple sail rig (ibid).
24. Radeau. A general French word for "raft" or freight-boat e.g. generic classification.
25. Skiff. Smallest of ship's boats (Howard 1979). They were 20 feet in length (ibid). Carvel or clinker-built.
26. Traversier. McWilliams (1981) translates the French term as "smack". Surrey (1916) says the term is general like "bateau". Obviously they had keels and had trouble in shallow waters (ibid: 63). Probably with one or two masts and variously rigged, 30 to 50 tons capable of Gulf travel.

#### Eighteenth Century

1. Bercha. Small Spanish vessel type of 1780's (Coker and Coker 1982).
2. Bermuda Sloop. (see illustrations this appendix).
3. Brig. Square-rigged, two-masted vessel (Faye 194).
4. Cutter. Boat with slender lines, clinker-built with two to three masts fore-and-aft rigged (Chapelle 1951) and straight stem (Howard 1979).
5. Frigate. 18th century frigates carried armament on their upper deck unlike 17th century versions (lower deck) (Howard 1979). French versions were lightly built while British more robust. Bows rounded hence "the Frigate bow" as timbers carried up to forecastle deck height (ibid). Rated by number of guns (20-42).
6. Goleta. goleta de dos gavia. goleta de gavia. Schooner-type vessel with fore-and-aft rig coupled with square topsails e.g. a top-sail schooner (Faye 1940).
7. Paranzello. Double-ended, one-masted, lateen-rigged boat (Faye). Evolved into New Orleans lugger.
8. Pink. Any sharp-sterned vessel (Chapelle 1951).
9. Polaos. Small Spanish vessel with square and lateen combination in its rig (Coker and Coker 1981).
10. Schooner. Developed off United States to utilize on and offshore winds (Howard 1979). Two principal classes-cargo (smaller, fuller lines) and sharper lined, taller-rigged smugglers, privateers (ibid; Faye). The classic fore-and-aft rigged ship up to six masts in later centuries.

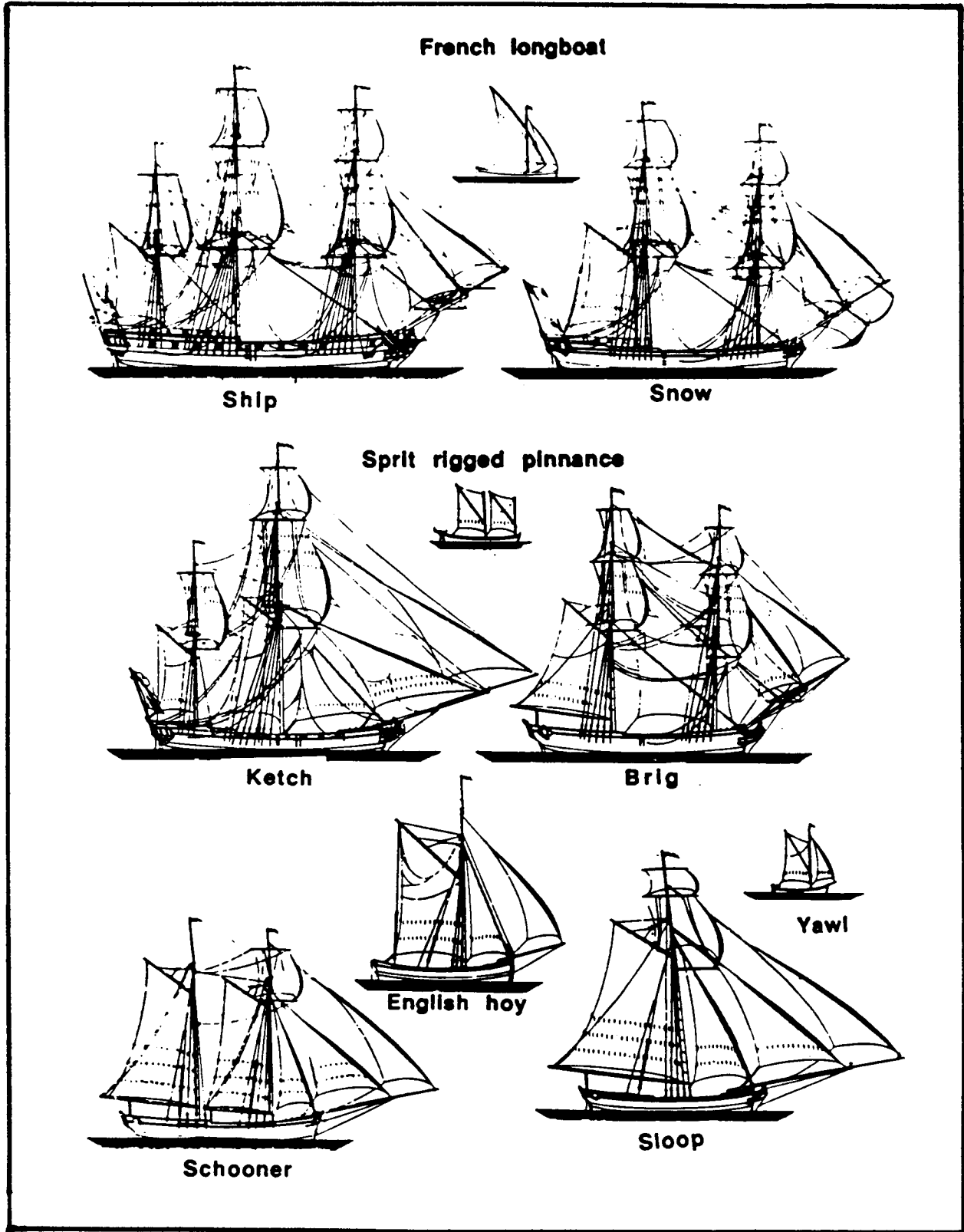


FIGURE E-3. Gulf of Mexico vessel types.



Table E-1  
(continued).

11. Sloop. Name given to three kinds of vessels: single-masted sloops, 2-masted sloops (snows, brigs and ketches) and 3-masted ship sloops. Snows had no mizzen mast and ketches no foremast. Many sloops had an unbroken sheer of their main deck (Howard 1979). Sloops were square-rigged.
12. Saetia. Two-masted, lateen sail rig (Coker and Coker 1981).
13. Snow. (see sloop).
14. Xebec. A falouche with three masts (Faye 1940).
15. Yawl. Ship's boat much like skiffs, pinnaces, and long boats. Rigged for oars and sails (1-2 masts) (Chapelle 1951).

#### Nineteenth Century to Twentieth Century

1. Baltimore Clipper. Chesapeake Bay origin with "bow turned inside out," e.g. clipper bow, raked schooner-rigged masts, and narrow lines. Probably developed out of Chesapeake log canoes."
2. Bark. Vessels with all masts square-rigged except mizzen. An example is the restored ELISSA, Galveston, Texas.
3. Barkentine. Foremast is square rigged with fore-and-aft rigs on all others. Similiar to schooners (Wilson 1983).
4. Biloxi Catboat. Shallow-draft draft with centerboards used primarily for recreation. Single mast (Chapelle 1976).
5. Biloxi Lugger. Evolved out of falouche (see Faye). Characterized by sharp bow, moderate sheer, straight keel, low deadrise, large center-board, broad stern, post-rudder outboard, cabin and cockpit. Lug-rigged (Chapelle 1951; 1976).
6. Crewboat. Late 20th Century monohull, typically steel or aluminum with up to four propellers. Built for speed (up to 35+ knots). Used in offshore petroleum industry. All designs of Gulf origin.
7. Cutter. Term evolved to mean fast Revenue (U.S. Coast Guard) vessels - sail or steam (Wilson 1983).
8. Flattie. Flat-bottomed, sloop-rigged boat used on Gulf coast in 1880's (Wilson 1983). Around 17 feet long, 2 1/2 feet draft, skeg and out board rudder (Chapelle 1951).
9. Gundalow. Also called "scow". Flat or slight v-bottom with sloop or schooner rig. Flat ends, center board, trunk cabin and cuddy (Chapelle 1951). Became common in Gulf after 1840 (Wilson 1983) - 25 to 35 feet in length.
10. Key West Smackee. A fishing sloop, 17-26 feet in length, square stern, outboard rudder and shallow draft (Wilson 1983).
11. Louisiana Oyster Sloop. A centerboard sloop with straight stern. Hull with large sheer over a length of about 36 feet. Common in Morgan City eastward (Chapelle 1976).
12. Packet. Generic name for sail or steam powered vessels on regular service line.
13. Pilot Boat. Sloop or schooner rigged vessels up to 75 feet long used by bar pilots to meet inbound vessels (Wilson 1983). A modified Chesapeake form was used on the Gulf Coast (Chapelle 1976).
14. Schooner. This vessel design dominated coastal traffic in 19th century. It's use continued well into the 20th century. Some Civil War Schooners could raise their

Table E-1  
(continued).

- centerboards (Fleetwood 1982). It's use continued well into the 20th century (Nevins 1946: 5; Sea History 1986). Schooners remained in fishing fleets up to 1933 when law changes permitted oyster dredging with motor vessels (Mistovich *et al* 1983).
15. Snapper Boat. Based on auxiliary schooner design with rear wheel house, flush deck, two masts. The schooner type boats still fish the Gulf although primarily engine powered.
  16. Scow. See gundalow.
  17. Sharpie. Flat-bottomed with a sharp-bow (hence the name) up to 65 feet long. Various rigs (Chapelle 1951).
  18. Shrimper. Vessel developed 1915-1925 relying on engine power alone. The design's origin was the familiar hugger but without a sail rig. The first of this class was the EAGLE built in Bayou La Batre, Alabama in 1925 (Wilson 1983). Early designs were wooden round or v-bottom with a large amount of sheer. After 1937 and the discovery of offshore shrimp grounds (Kniffen 1969) large vessels with two other trawls became standard. Wheel houses moved forward and steel hulls are most common today.
  19. Skipjack. Fishing design up to 25 feet in length. Round hull with sloop rig in Chesapeake forms. V-bottoms were either "skipjacks" or "bateaus". (Chapelle 1951; 1976).
  20. Steamboat, sidewheel paddle (river). This vessel design had a shallow draft, light hull typically using a high pressure steam engine or engines driving two side paddles. Developed as riverine packets they were common in the mid-late 19th century coastal trade.
  21. Steamboat, sternwheel (river). The sternwheel design eventually supplanted the sidewheel design on rivers although this proved less propitious on the Gulf where waves could have the sternwheel out of the water a good bit of the time. Popular due to the narrower breadth which allowed their use on bayous, canals and coast.
  22. Steamship, paddle. Vessels with ship-hulls e.g. deep draft, keels and balanced-sing rudders. Early vessels (mid - 19th century) were all wooden but iron and steel hulls supplanted wood by the turn of the century. Power was by low pressure steam engines in contrast to river-design boats. Some of the mid - late 19th century vessels maintained a sail rig - typically fore-and-aft or schooner type.
  23. Steamship, screw propellor. Deep draft, keeled hull but with propellor. Supplanted paddle designs by late 19th century due to greater efficiency in propulsion. The classic cargo ship design after 1914 was a steel hull separated by watertight bulkheads, deckhouse, a mid-ships and masts rigged as booms for unloading. This carried through the second World War in Liberty Ship design. Common size was 16,000 dwt (dead weight tons); lengths of 350 feet.
  24. Supplyboat; mudboat. Vessel design of Gulf origin. Evolved to serve offshore oil industry. Diesel powered, steel hulls with very low freeboard aft of a pilot house/crew section. This aft deck is over twice the length of the shorter, higher bow section and is for deck cargo.
  25. Submarine (U-boat). German submarines of World War II. Operated in Gulf of Mexico 1942-1944.
  26. Tanker. Steamers designed to carry petroleum began in 1880's (Haviland 1978:). Iron or steel hulled, screwdriven. Early tonnages for these vessels ranged from 482 to 8,039 (1905). Up to 1956 the largest tanker was only 56, 089 dwt

**Table E-1  
(continued).**

(Center for Wetland Studies 1972). Principal targets of German submarines in Gulf of Mexico of World War II (Róhwer 1983).

27. Towboat. Based on tugboat designs, with deep hulls, sharp bow, powerful engines - first steam then diesel. These vessels have evolved into push boat designs with square bows. Pointed bows have survived on ocean going forms for use in the offshore.

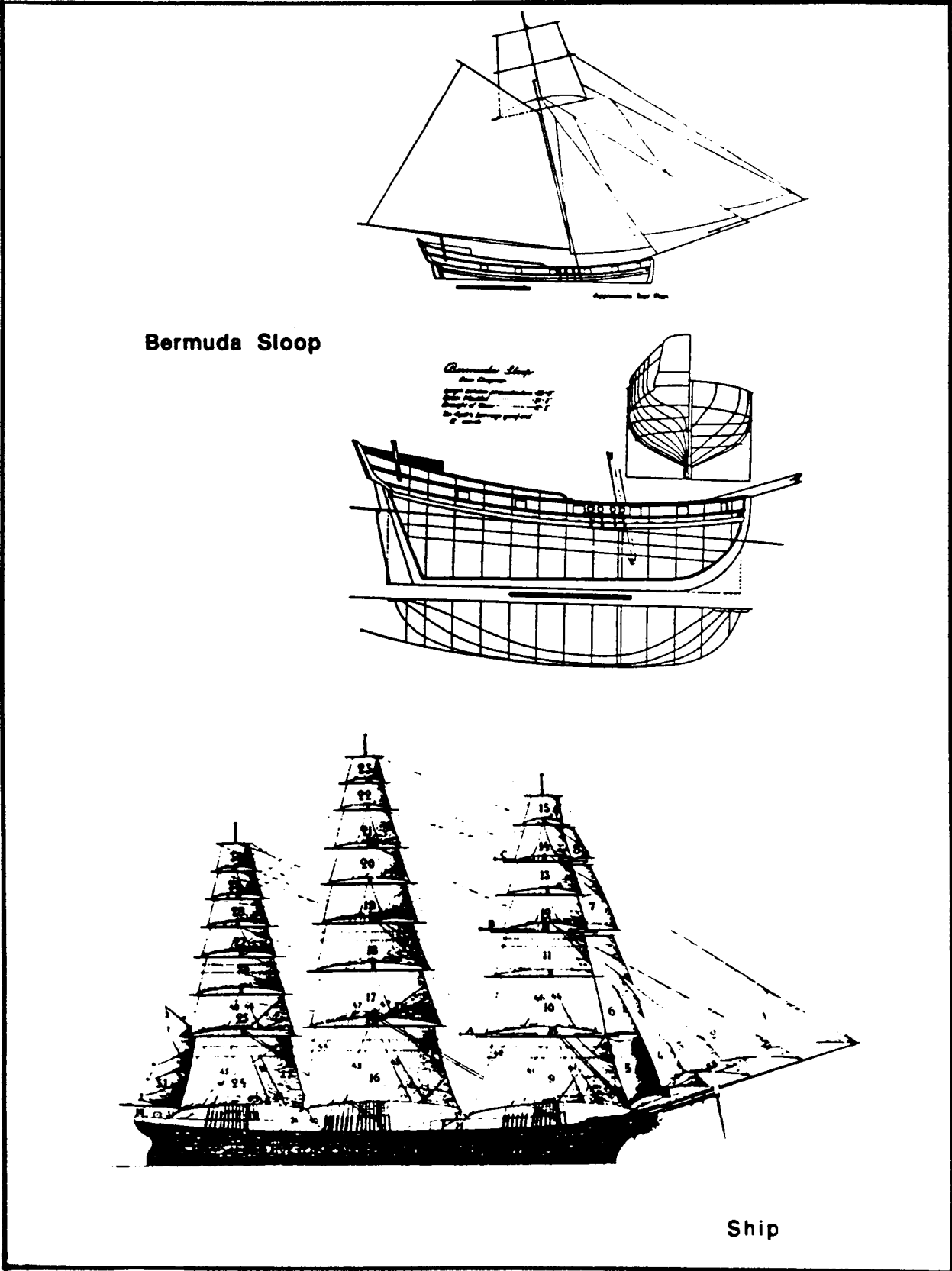
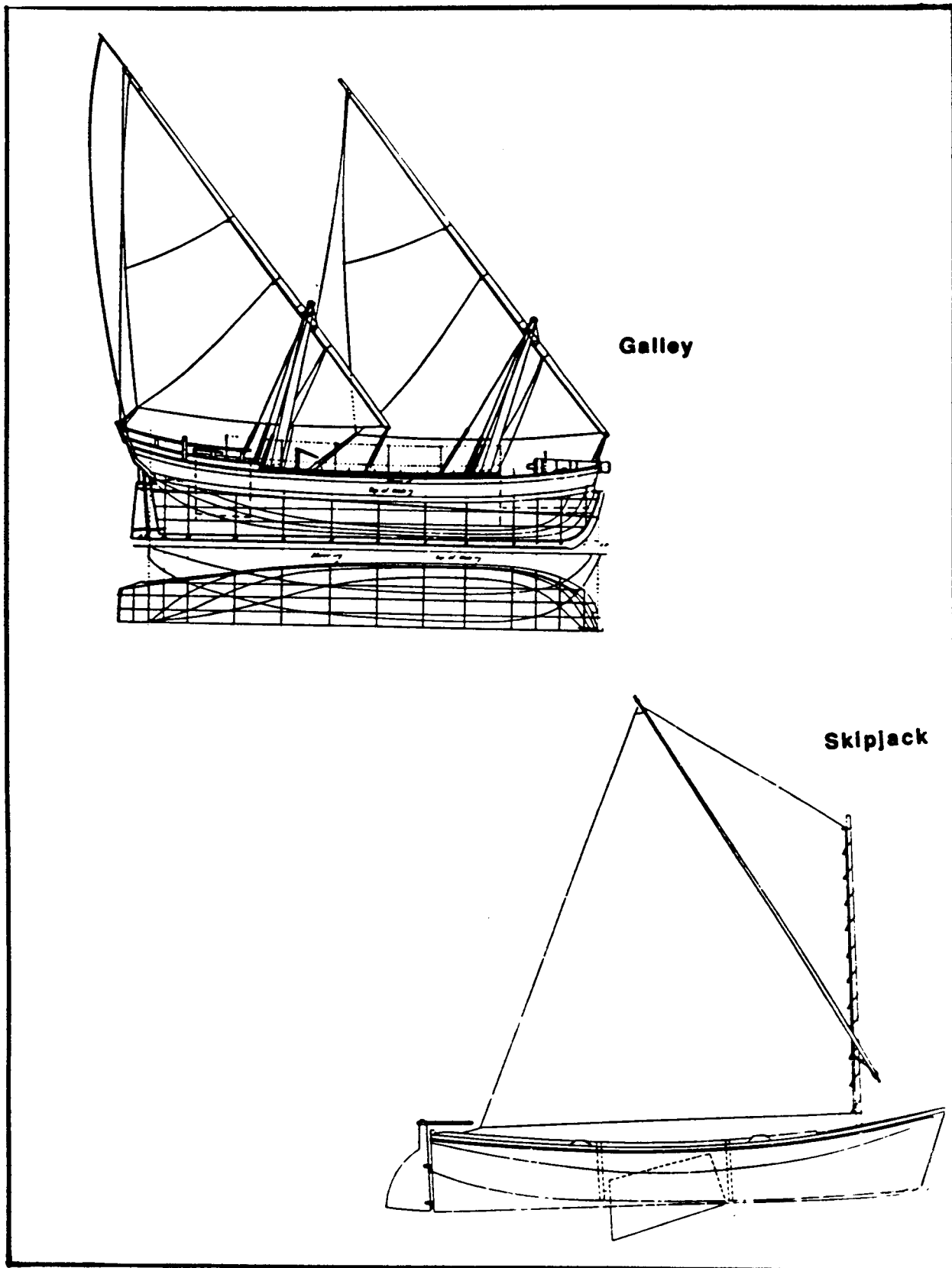


FIGURE E-4. Gulf of Mexico vessel types.



**FIGURE E-5. Gulf of Mexico vessel types.**

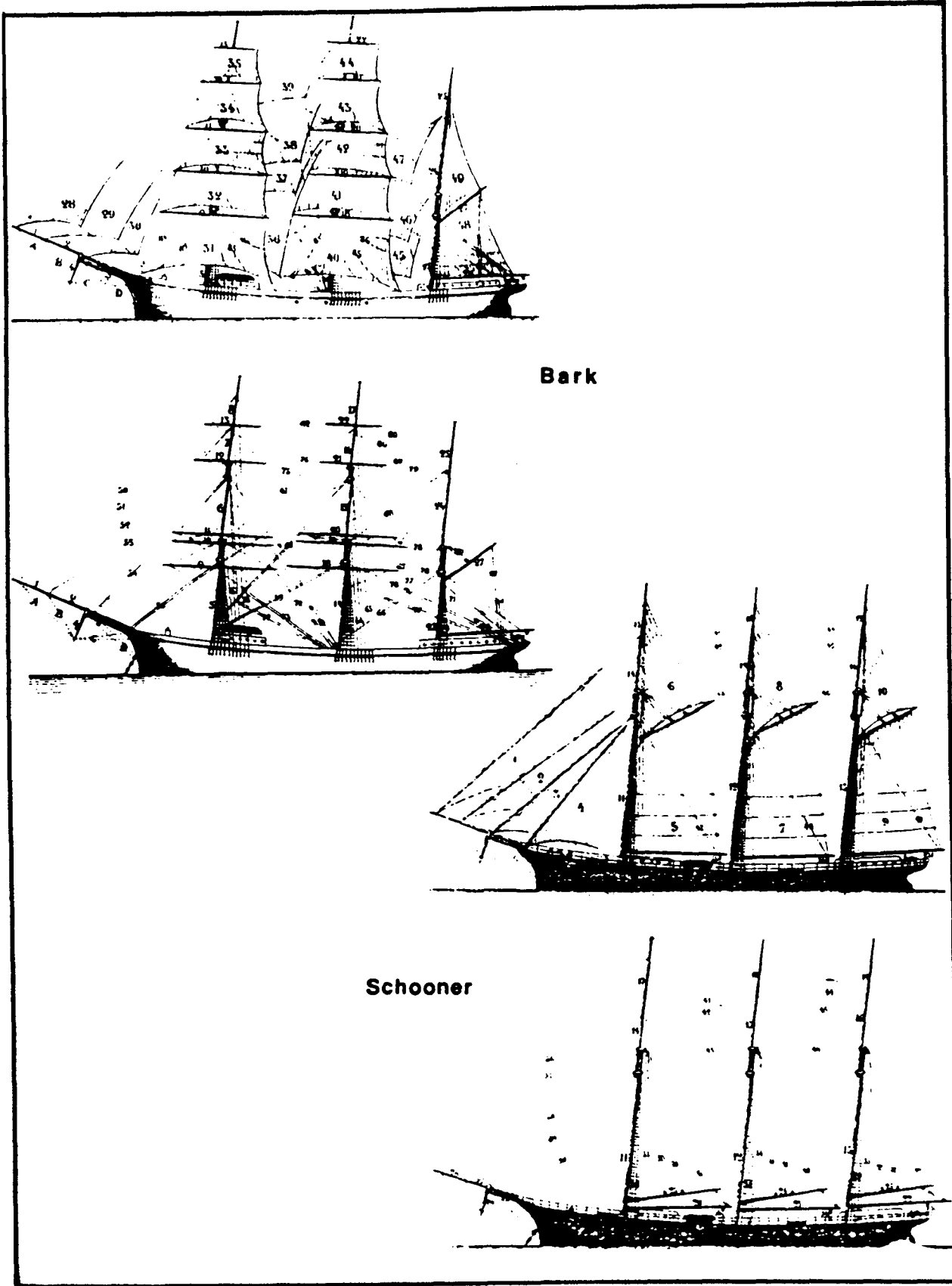
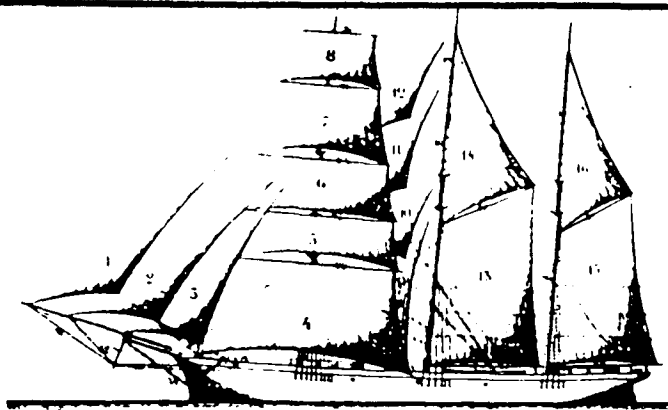
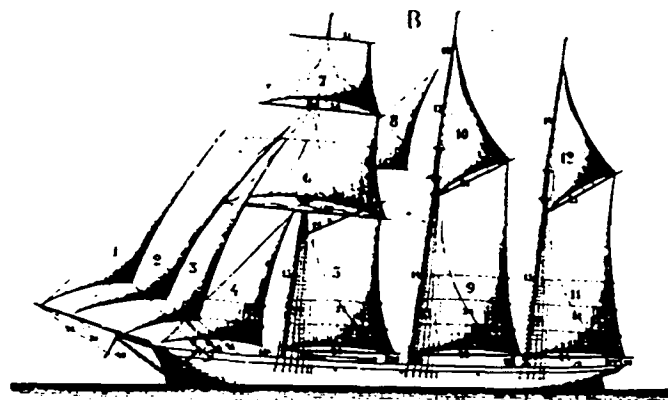


FIGURE E-6. Gulf of Mexico vessel types.

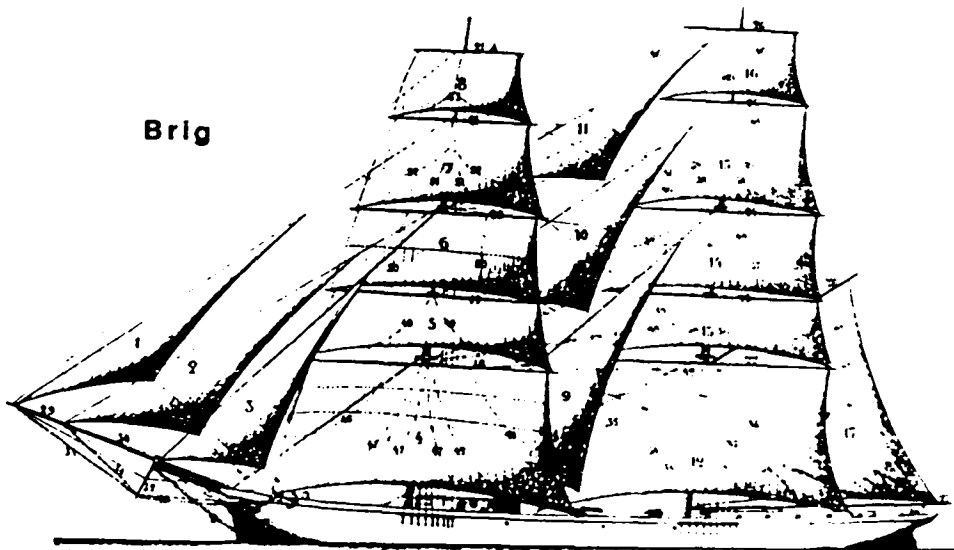
**Barkentine**



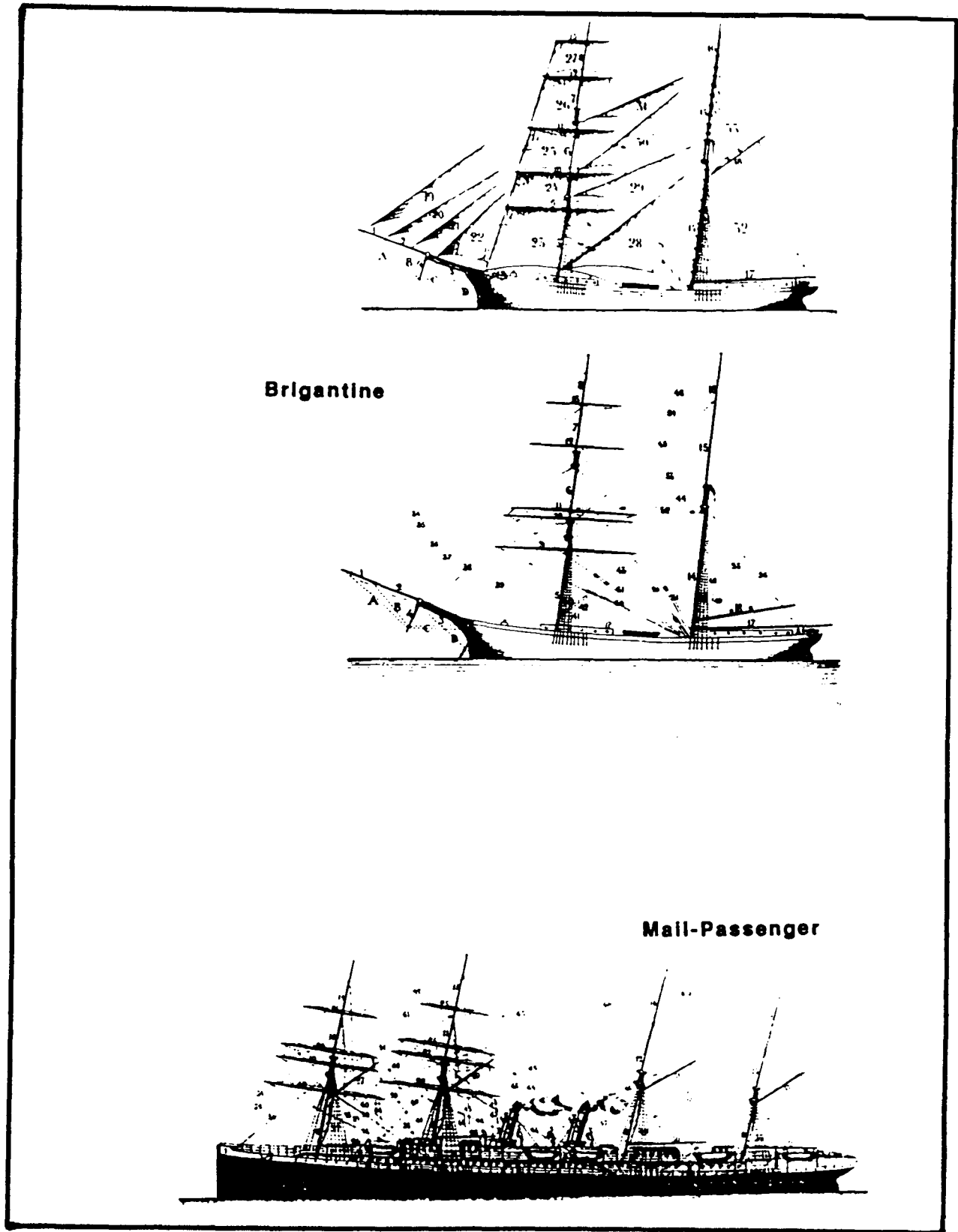
**Topsail Schooner**



**Brig**



**FIGURE E-7. Gulf of Mexico vessel types.**



**Brigantine**

**Mail-Passenger**

**FIGURE E-8. Gulf of Mexico vessel types.**



## **APPENDIX F**

### **Hurricane Tracks and Incidence in the Gulf of Mexico**

# RISK OF TROPICAL CYCLONES

## U.S. Gulf of Mexico Coastline

This histogram and table show the probability (percentage) that a tropical storm, hurricane, or great hurricane will occur in any one year in a 50 mile segment of the coastline.

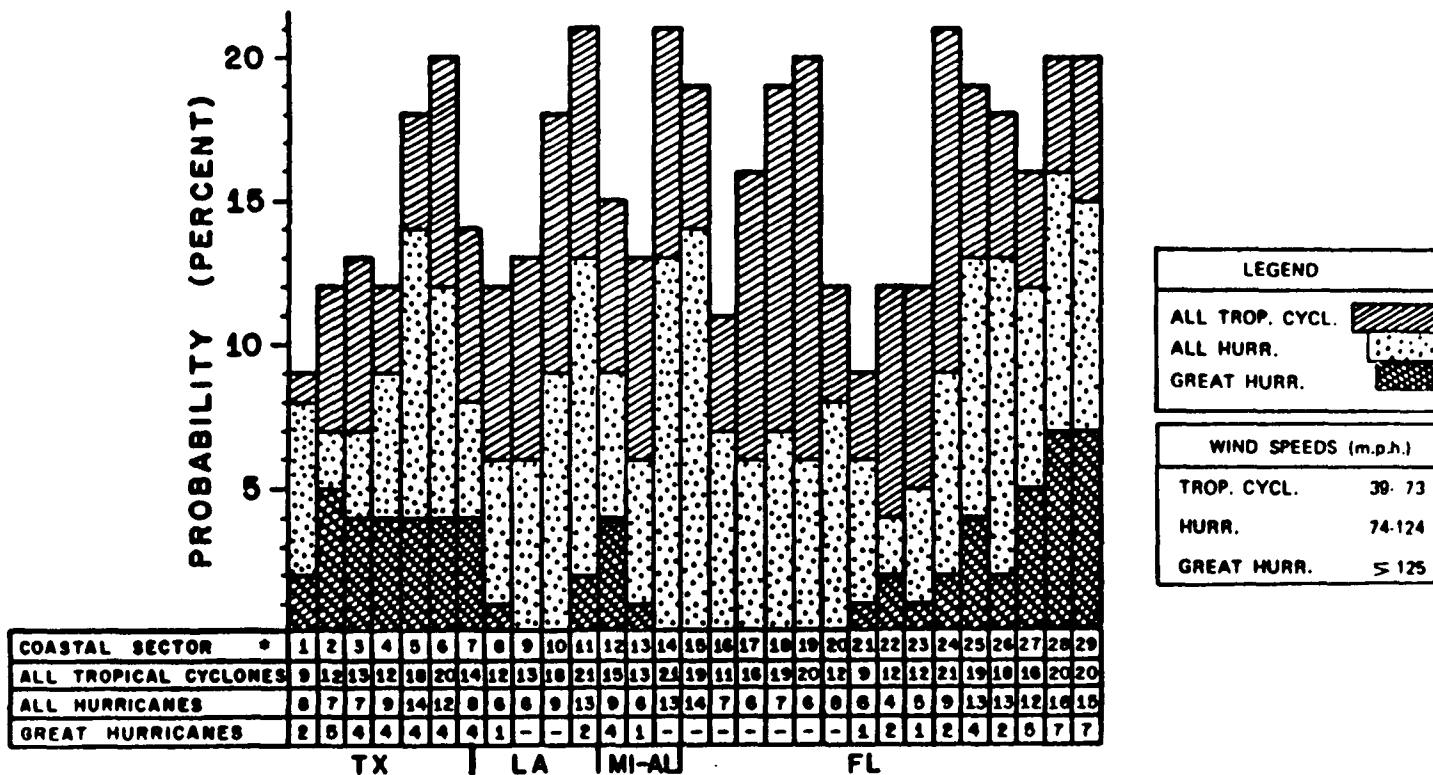
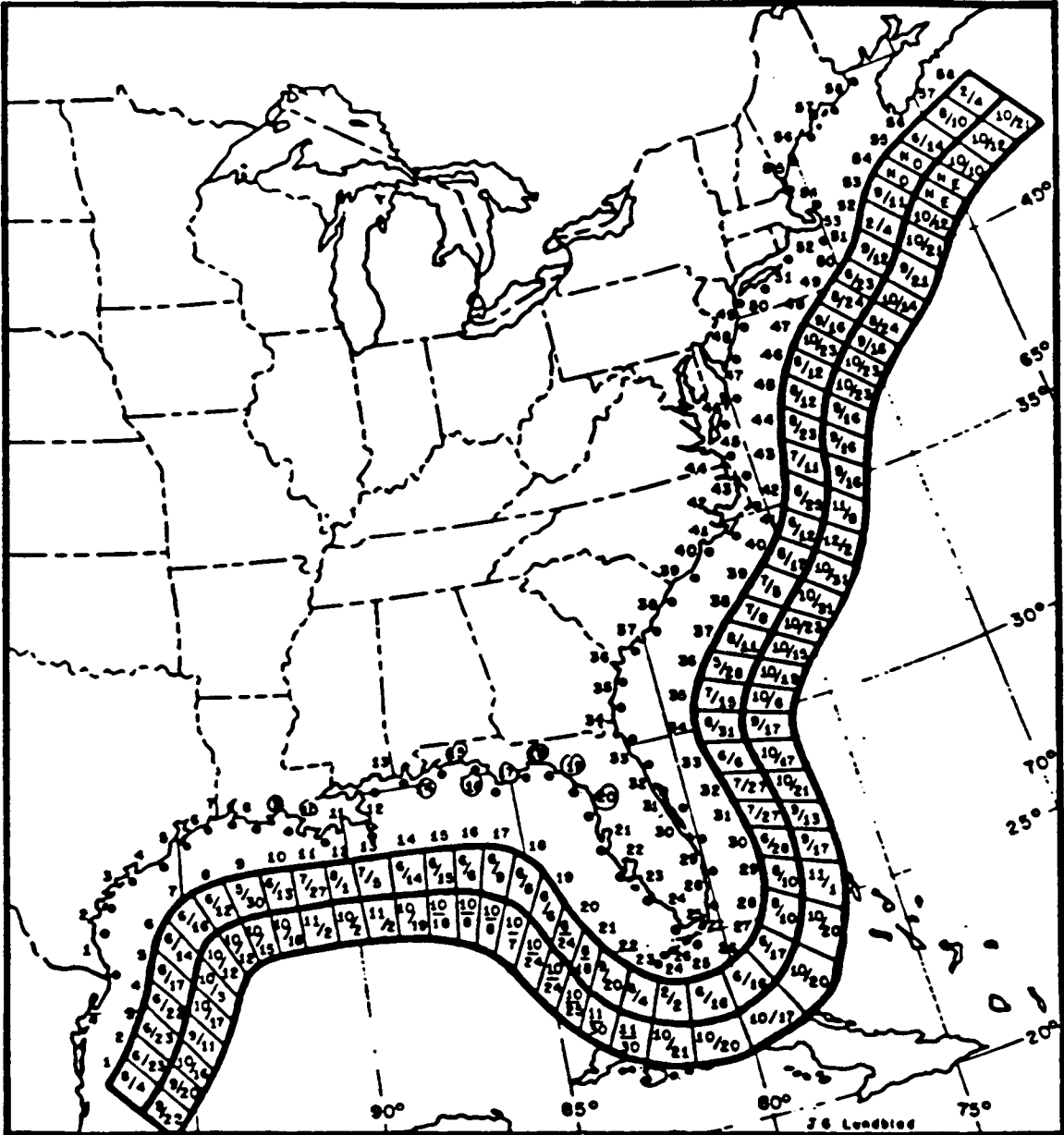


FIGURE F-1. Risk of Tropical Cyclones - U.S. Gulf of Mexico Coastline.



**FIGURE F-2. Tropical Storm Incidence Along the Gulf and Atlantic Coasts. Coastal segments indicated are approximately 50 nautical miles in length. Month and day in box indicates the earliest and latest date of landfall for tropical cyclone occurrences for each segment from 1886-1970.**

Table F-1.

**Chronological List of Tropical Storms  
LIST OF TROPICAL STORMS OF THE GULF OF MEXICO  
FROM 1494 TO 1900.**

<u>Date of Storm</u>	<u>Principal Places Affected, and Remarks</u>
1559, September 19	Mobile and Pensacola. "Great Tempest" lasted 24 hours.
1565, September	East coast of Florida.
1566, September 16	East coast of Florida.
1674, June	Bay of Campeche.
1711, September 11-13	New Orleans. Destroyed St. Louis Cathedral.
1722, September 12-13	New Orleans. "Everything in the port was lost." Houses, church and hospital destroyed.
1723, _____	New Orleans. "A remarkable hurricane nearly destroyed all buildings."
1736, _____	Pensacola. Village swept away.
1740, September 12	Mouth of Mississippi, Pensacola.
1759, September	Gulf of Mexico, Florida. XII.
1766, September 14	Galveston.
1766, October 22	Pensacola. Spanish fleet en route from Vera Cruz to Havana wrecked.
1769, August 30	Florida.
1769, October 29	Florida.
1779, October 7-10	New Orleans.
1780, August 24	New Orleans. Swept over the province of Louisiana, destroying crops, tearing down buildings and sinking every vessel and boat afloat on the Mississippi River.
1780, October 16, 17	Cuba. Solano's Storm. XII.
1787, August 15	Florida.
1800, August	New Orleans.
1811, _____	New Orleans.
1812, August 19	New Orleans. Possibly same as preceding.
1813, August 19	Gulf coast.
1818, _____	Galveston. Four of Lafitte's vessels sunk or driven ashore.
1819, August 25 to 28	Louisiana and Alabama.
1821, _____	New Orleans.
1822, July 11	Mobile.
1831, June 10	Florida.
1831, June 23	Gulf of Mexico.
1831, August 18	Gulf coast, near mouth of Rio Grande.
1833, October 16-19	Cuba, Gulf of Mexico.
1834, September	South Texas.
1835, August 12-18	Antigua, Cuba, Galveston. At Antigua the barometer fell an inch in 1 hour and 27 minutes.
1837, August 31	Western Florida.
1837, September 27- October 10	Gulf of Mexico, "Racer's Storm," X, XIII.
1838, _____	Lower Texas coast.
1839, November 5	Galveston
1840, _____	Lower Texas. Villages destroyed at mouth of Rio Grande.
1642, August 30 to September 9	From Atlantic moved due west across Florida to Tampico. September 4 at Havana, barometer 28.93 inches. XIII.

Table F-1  
(continued).

1842, September 18-22	Gulf of Mexico.
1842, October 5	Galveston.
1842, October 2-10	Gulf of Mexico, Bermuda. Not same as preceding storm.
1844, August 4-6	Mouth of Rio Grande. Not a vestige of a single house left at Brazos Santiago or at mouth of river. About 70 lives lost.
1844, September 1	East Gulf.
1844, October 12	Florida Straits.
1846, _____	New Orleans.
1846, September	Tampa.
1848, October 16	Tampa.
1851, September 18	Gulf of Mexico.
1852, October 9	Florida.
1854, September 16-19	Matagorda, Tex.
1854, September	Galveston. Probably same as preceding.
1856, August 9-12	Louisiana coast. XIII.
1856, August 27- September 2	Cuba to Mobile. Havana barometer 28.62.
1860, August 11	Mobile.
1860, September 15	Mobile.
1865, September	Western Louisiana.
1865, October 22, 23	Cuba to Louisiana coast.
1866, _____	Galveston.
1867, October 1-3	Galveston.
1870, July 3	Mobile.
1871, June 1-4	Texas coast. Barometer at Galveston 29.51.
1871, June 9	East Texas coast.
1871, October 2-3	Galveston.
1874, July 2-4	Gulf, Indianola, Tex.
1874, September 3-6	Gulf coast of Mexico. Moved north-northwestward into Texas.
1875, September 14-19	Cuba, Gulf, Indianola, Tex. II, XIII.
1876, October 7-10	Gulf, Florida.
1877, September 15-21	West Gulf, Louisiana, Georgia.
1878, July 1-3	Florida.
1878, August 13-17	Caribbean Sea and Gulf of Mexico.
1878, October 9-13	Gulf, North Florida.
1879, August 20-23	Yucatan, Texas coast.
1879, September 12-22	Caribbean Sea, Florida.
1879, October 11-15	Caribbean Sea, western Florida.
1882, September 2-15	Turks Island, Cuba, Gulf coast. Wind reached 92 miles NE. at Port Eads, La.
1882, October 8-12	Grand Cayman Island, Cuba. Florida. Town of Pinar del Rio practically all destroyed.
1885, September 17-21	Brownsville, southern Louisiana, Georgia.
1885, September 24-30	Gulf, Louisiana.
1885, October 10-11	Florida.
1885, June 13-14	Sabine, Tex. Inundation. XIII.
1886, June 15-20	Yucatan Channel, Florida. Much damage at Cedar Keys. Wind 68 miles east.
1886, June 27-31	Yucatan, Florida. Great destruction in the Apalachicola-Tallahassee section.
1886, July 14-19	Yucatan Channel, Florida.
1886, July 30	East Gulf.
1886, August 13-20	East Caribbean, Cuba, Indianola, Tex. Very severe in Cuba; destroyed Indianola. II, XIII.
1886, August 12-18	Eastern Caribbean, Cuba, Gulf.

Table F-1  
(continued).

1886, September 15-25	Martinique, Jamaica, Brownsville, Tex. XIII.
1886, October 8-13	Western Cuba, extreme East Texas. Center passed near Sabine Pass, Tex. Johnson's Bayou and Sabine Pass inundated; overflow extending 20 miles inland. Nearly every house moved from its foundation. One hundred fifty lives lost. Second overflow at this point in 1886; first occurred in June. XIII.
1887, July 20-28	Martinique, Yucatan, Apalachicola.
1887, October 9-24	Recurved in Gulf.
1887, October 29- November 8	Gulf, over Florida to Atlantic.
1887, November 27- December 6	Described loop in Bahamas and turned northeastward into Atlantic.
1888, June 17	North Texas coast.
1888, July 5	Galveston.
1888, August 14-24	Florida, middle Gulf coast. Wind estimated at 90 miles at New Orleans.
1888, September 23-27	Florida Straits, Atlantic.
1889, June 15-25	Extreme western Cuba, Florida.
1889, September 12-26	Guadeloupe, west Gulf.
1891, July 3-13	Bay of Campeche, Texas-Louisiana coasts.
1891, October 1-9	Puerto Rico, Haiti, Cuba, Florida.
1892, June 10-16	Southern Florida.
1892, September 9-17	Middle Gulf coast.
1892, September 25-27	Bay of Campeche, Mexico.
1892, October 21-31	Gulf, Florida.
1893, September 6-10	Gulf of Mexico.
1893, September 27- October 6	Louisiana. Reached Gulf coast on October 1 and 2. Wind estimated at 100 miles an hour. Loss of life placed at 2,000. XIII.
1893, October 20-23	Southern Florida, Middle Atlantic coast.
1894, August 6-8	Middle Gulf coast; of small force.
1894, October 1-13	Western Caribbean Sea, Gulf and Atlantic coast states. Moved northeastward inside coast line. Winds exceeded 80 miles an hour at some places.
1895, August 16	Middle Gulf coast. Of slight force.
1895, August 22-29	Caribbean, Gulf, near mouth of Rio Grande.
1895, September 28- October 15	Yucatan, Florida Straits, Atlantic. Of slight intensity.
1895, October 2-7	Gulf, southern Florida, Bermuda.
1895, October 13-16	Bay of Campeche, southern Florida, Atlantic.
1896, September 22- October 1	Windward Islands, extreme western Cuba, Florida. Increased in intensity as it reached Florida and moved through Atlantic States, inside coast line. Center passed over District of Columbia. Principal damage in Florida. Total \$7,000,000; 114 lives lost. XIII.
1897, September 11-13	Gulf, Louisiana.
1898, September 12-25	Yucatan, Louisiana.
1898, September 21-28	Western Caribbean, Yucatan, east Texas coast. Not of much force.
1898, October 10-26	Caribbean Sea, western Cuba, Florida.
1899, October 2-9	Gulf, Florida, Atlantic. Of small force.
1900, August 27- September 22	Atlantic, Haiti, Cuba, Galveston. Disaster at Galveston, Sept. 8. II, XIII.
1900, October 9-13	Western Caribbean, Yucatan, Gulf, Atlantic coast. Not of much intensity.

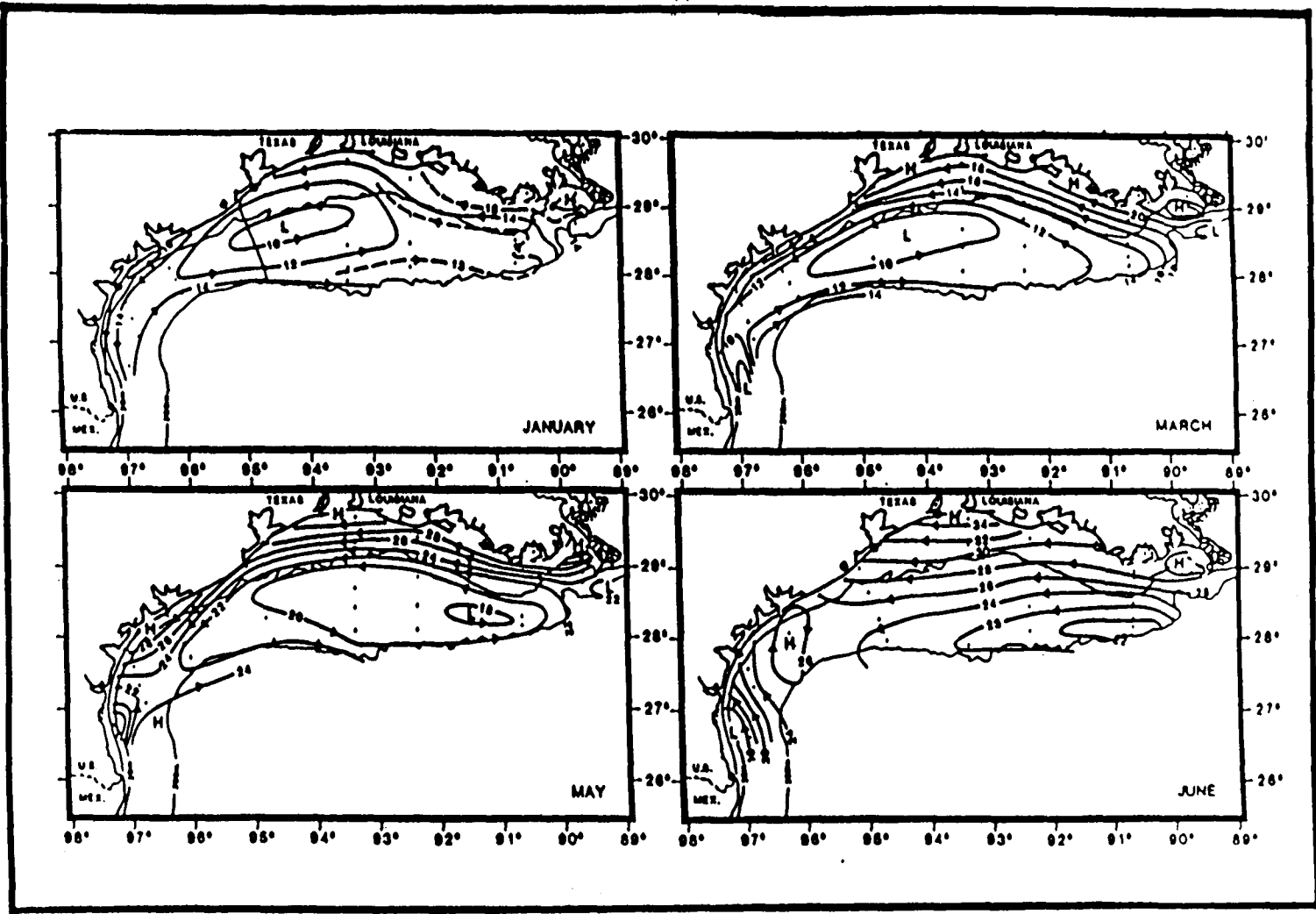


FIGURE F-3. Monthly mean streamlines of surface flow as indicated by geopotential anomaly (dyn cm or  $10^{-1}$  Jkc surface relative to 70 db or 0.70 MPa for January, March, May, and June based on data taken aboard 1963, 1964, and 1965 (from Cochrane and Kelly 1986).

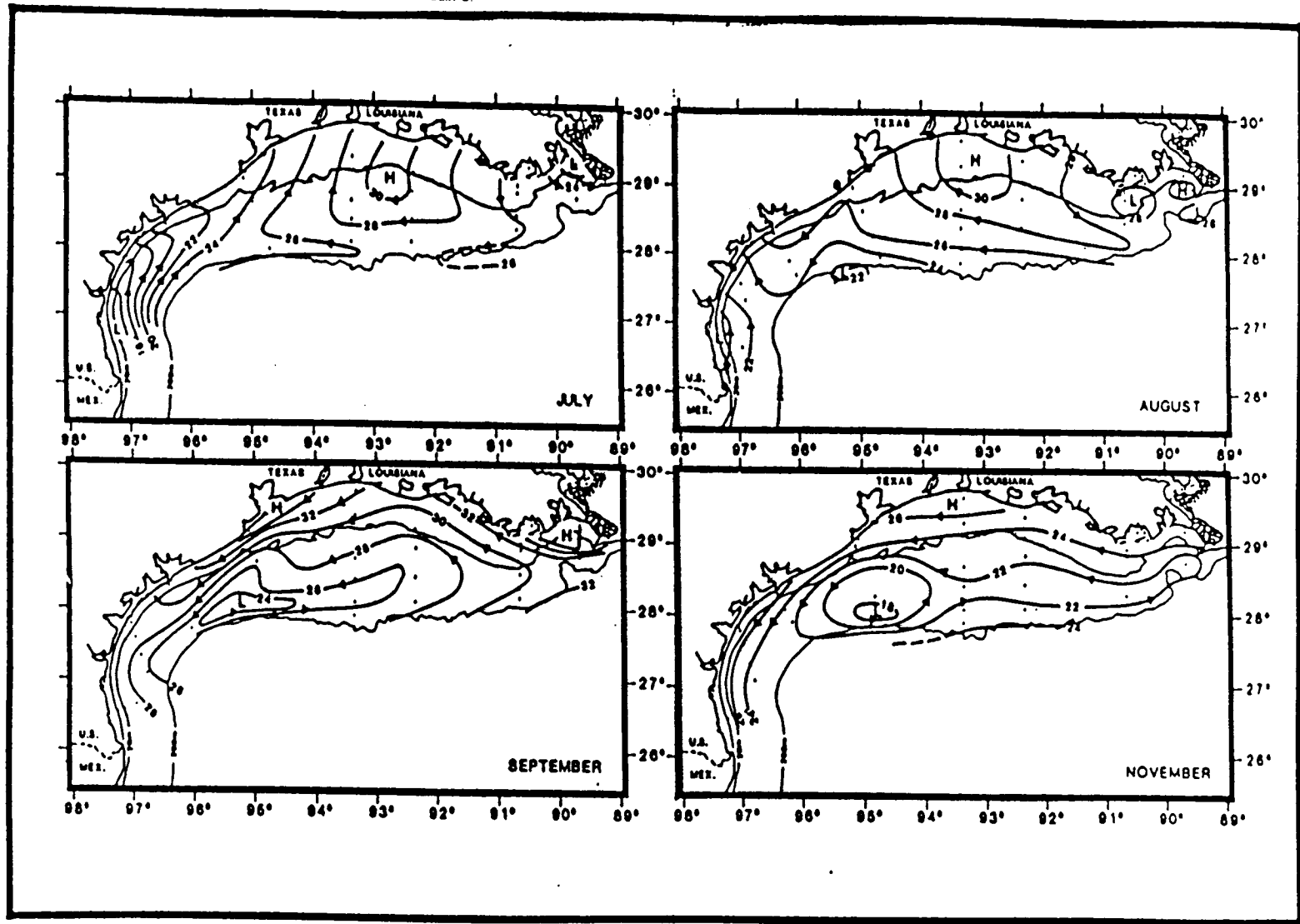


FIGURE F-4.

Monthly mean streamlines of surface flow as indicated by geopotential anomaly (dyn cm or 10-1 Jkc surface relative to 70 db or 0.70 MPa for July, August, September, and November based on data taken GUS III in 1963, 1964, and 1965 (from Cochrane and Kelly 1986).



Table F-2.

Frequency and Duration of Frontal Passages on the Texas/Louisiana Shelf,  
1965-1972 (from: DiMego et al., 1976).

Month	Passages/Month	Frontal Duration (Hours)
January	9	24
February	9½	21
March	8	24
April	6½	27
May	4½	30
June	2	24
July	2	24
August	2	42
September	3	48
October	6	30
November	7	24
December	9	30

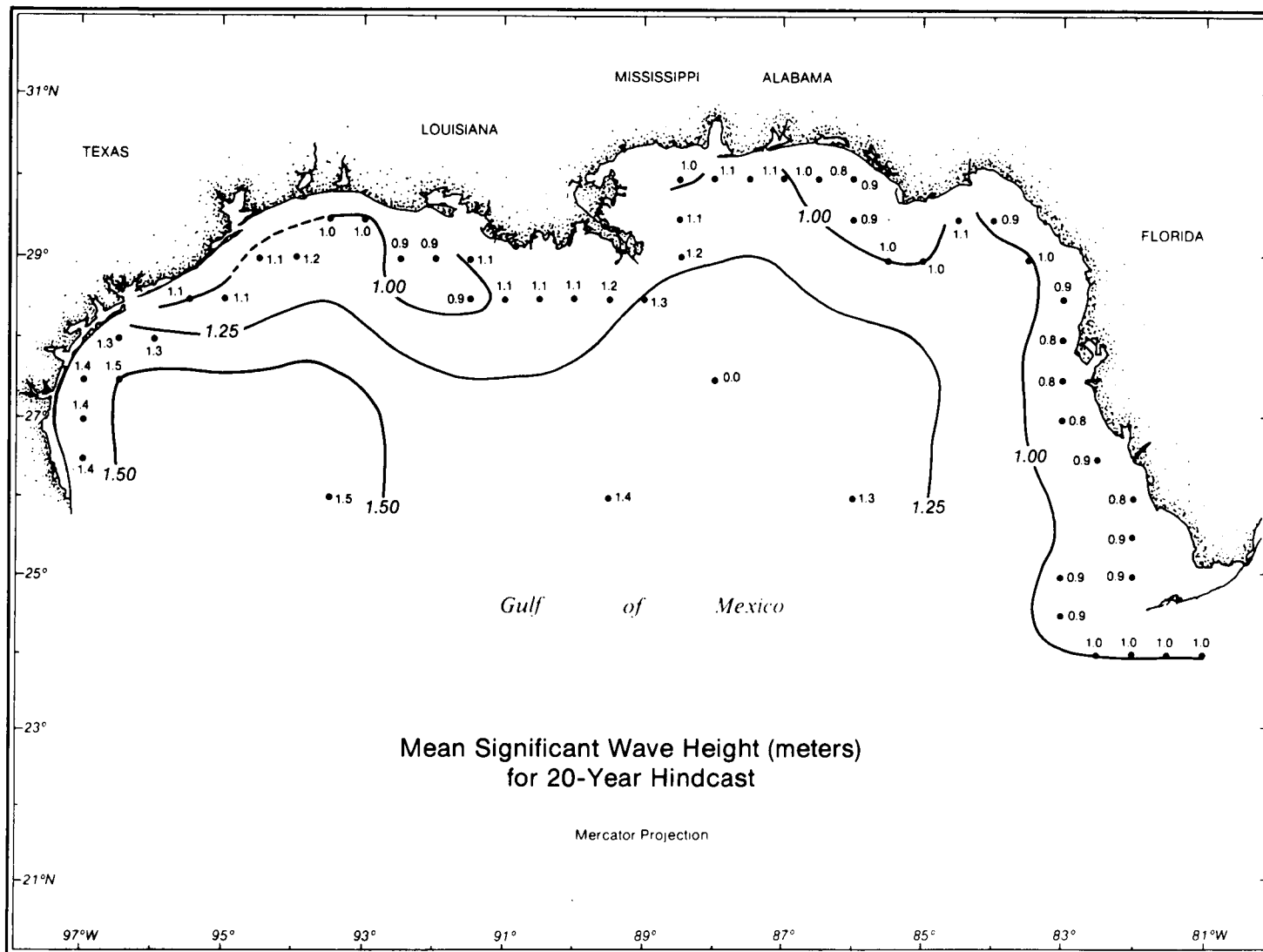
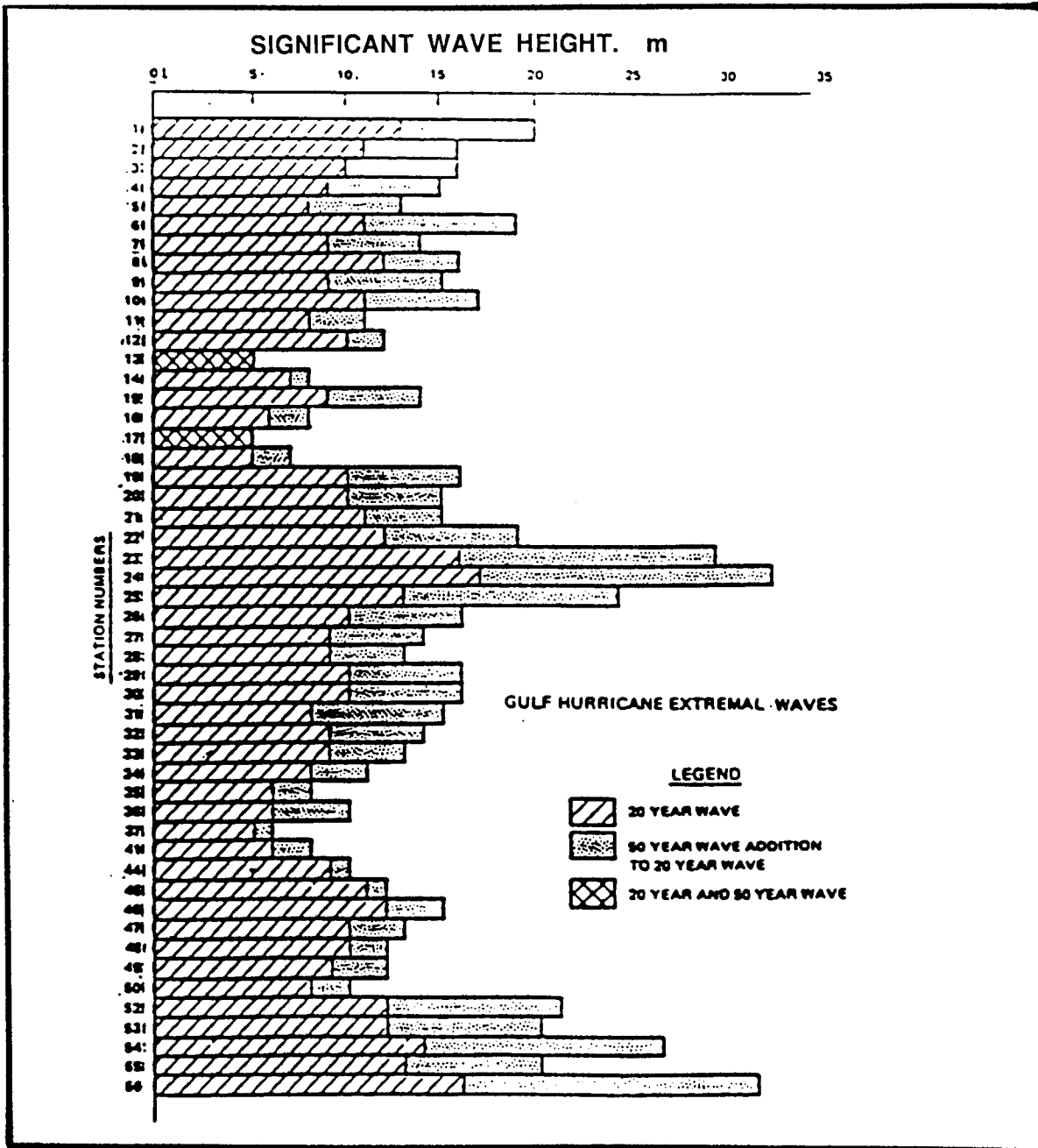


Figure F-5. Mean Significant Wave Height (meters) for 20-Year Hindcast.



**FIGURE F-6.** This histogram shows the 20 yr and 50 yr extremal waves that were calculated for each of the locations shown in Figure F-7.

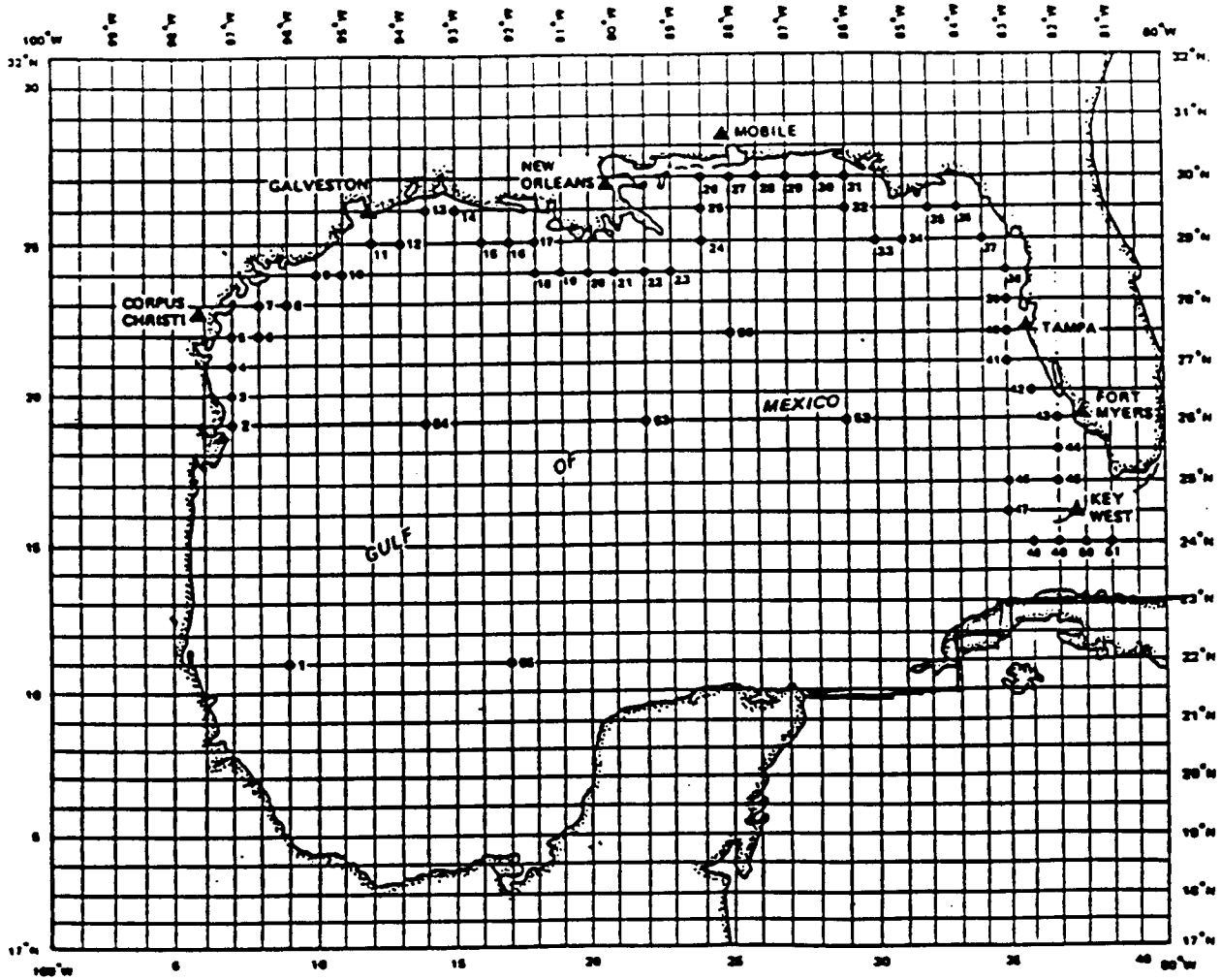
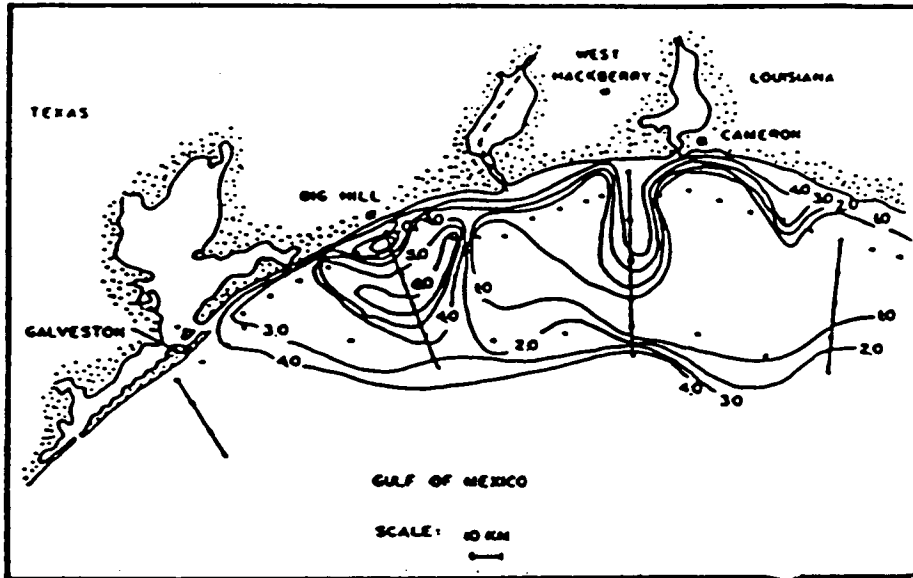
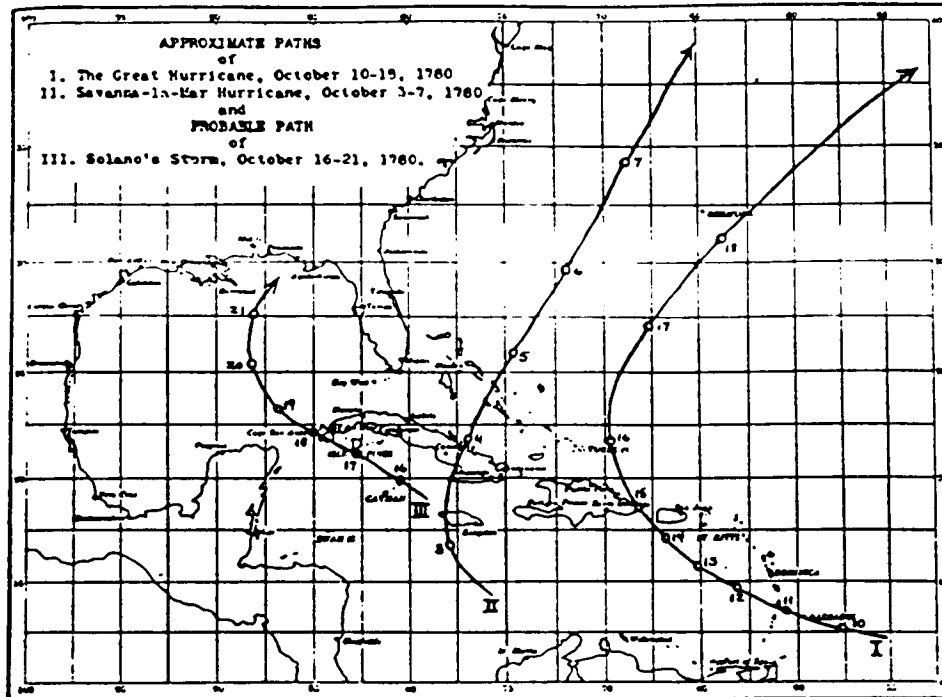


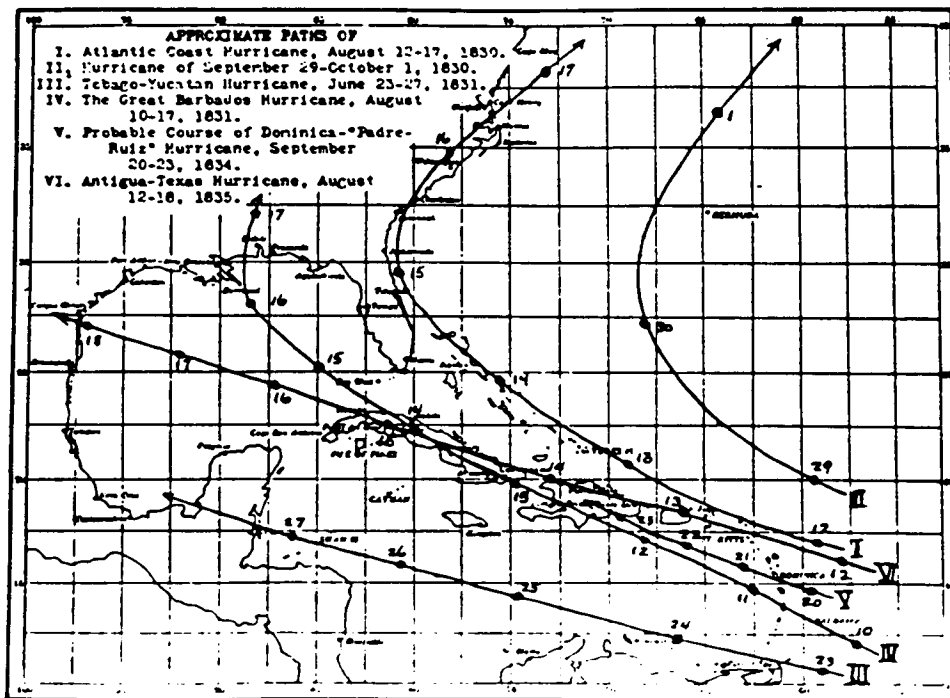
FIGURE F-7. Locations of Gulf stations listed in Figure (from Abel et al. 1988).



**FIGURE F-8. Dissolved oxygen concentrations (mg/l) of the bottom water on 9 to 10 July 1984 (From Pokryfki and Randall 1987).**



**FIGURE F-9.** Paths of the hurricanes that occurred in the year 1780. Courses of the "Great Hurricane" and the "Savanna-la-Mar Hurricane," as determined by Colonel Reid. Probable path of "Solano's Storm" as deduced from observations on ships of the Spanish fleet en route from Havana to attack Pensacola.



**FIGURE F-10.** Path followed by center of the Great Barbados hurricane of 1831, and five other hurricanes of the same period.

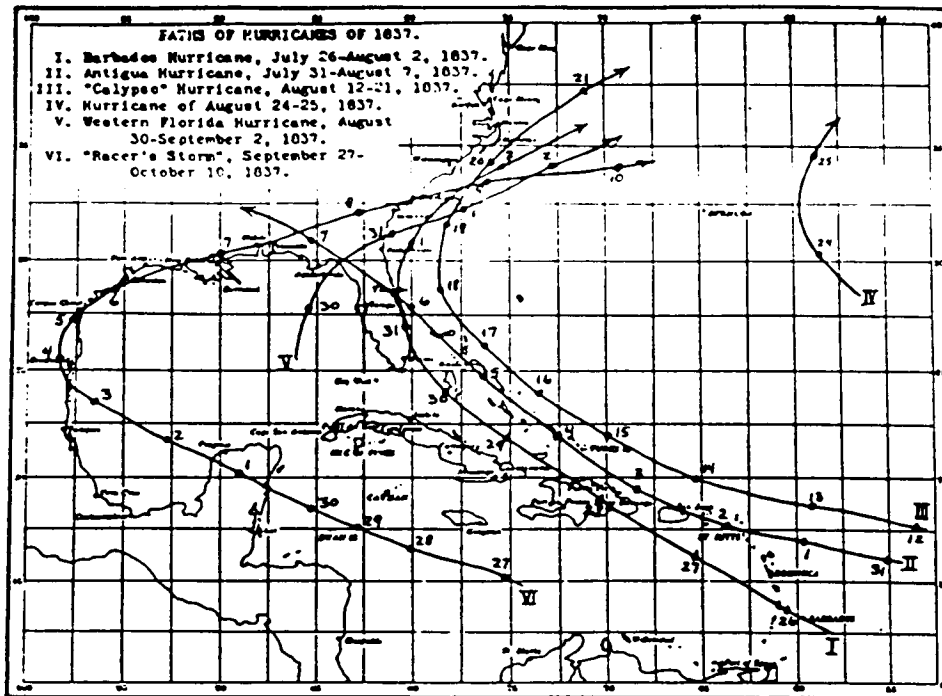


FIGURE F-11. Track of "Racer's Storm" and five other hurricanes of 1837.

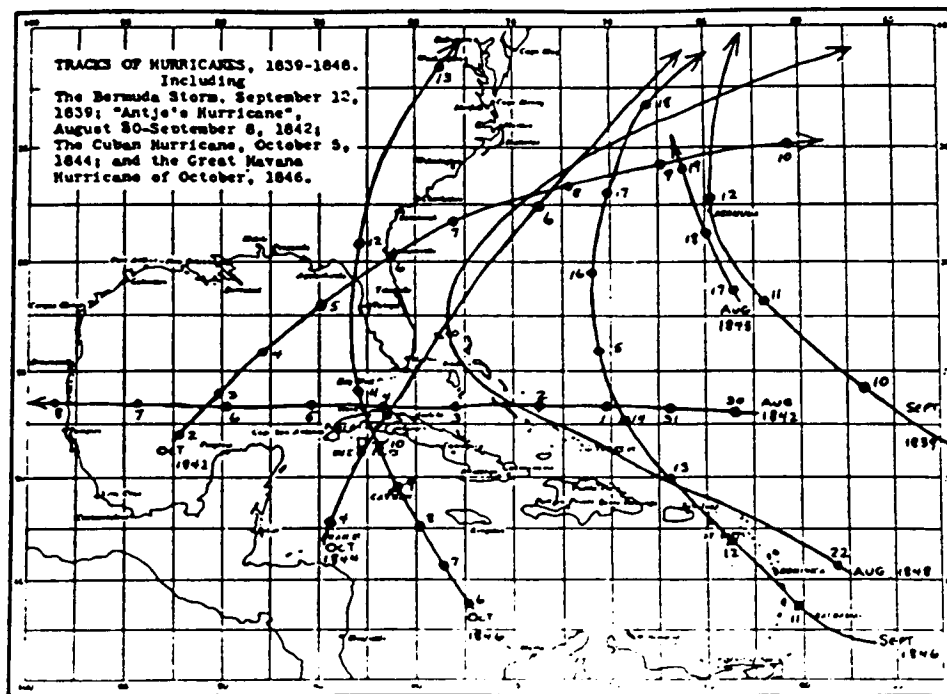


FIGURE F-12. Tracks of eight hurricanes during the ten-year period, 1839 to 1848, including the Bermuda Storm, Antje's hurricane, and the Cuban and Great Havana hurricanes.

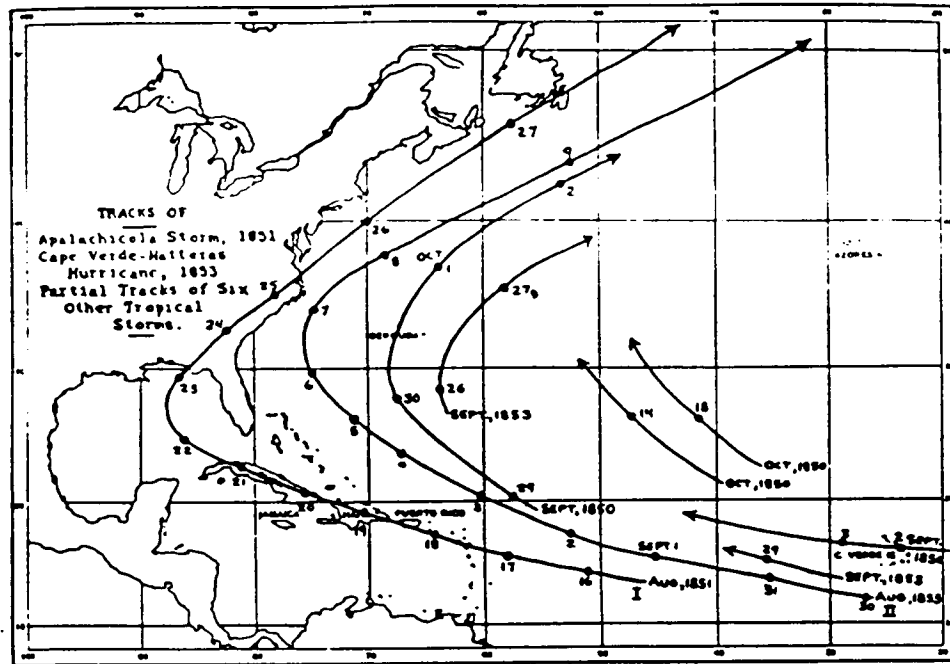


FIGURE F-13. Track of the Cape Verde-Hatteras hurricane, the first to be traced from the region of the Cape Verde Islands to the vicinity of the Atlantic coast, also of the Apalachicola Storm, and six other hurricanes of the same period.

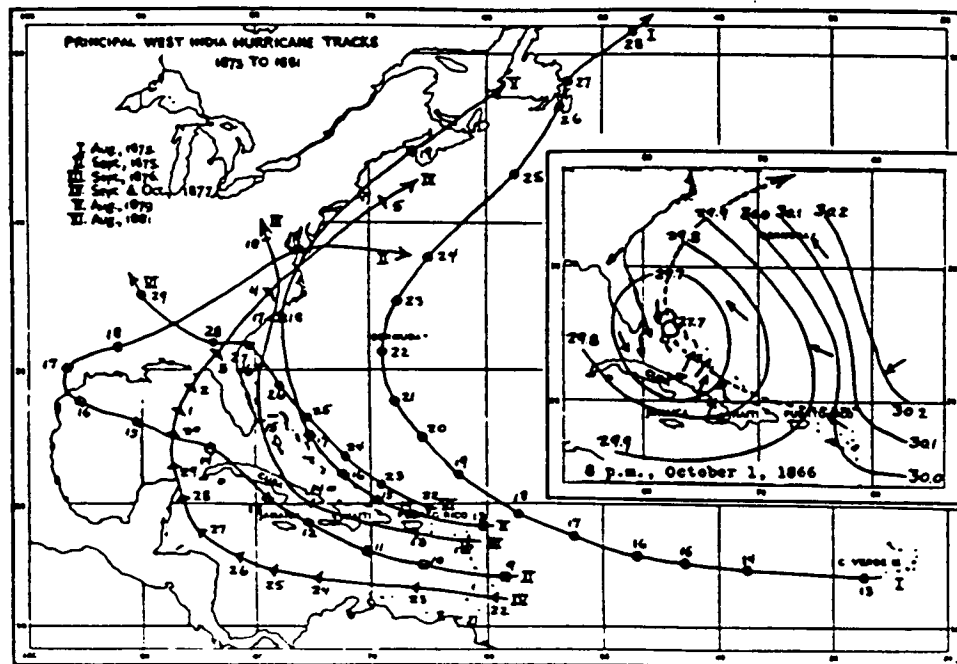


FIGURE F-14. Tracks of principal West India hurricanes, 1873 to 1881. Inset shows wind direction and pressure map of "Great Bahama Hurricane" at 8 p.m., October 1, 1866 and the probable path of the storm. (After Buchan.)



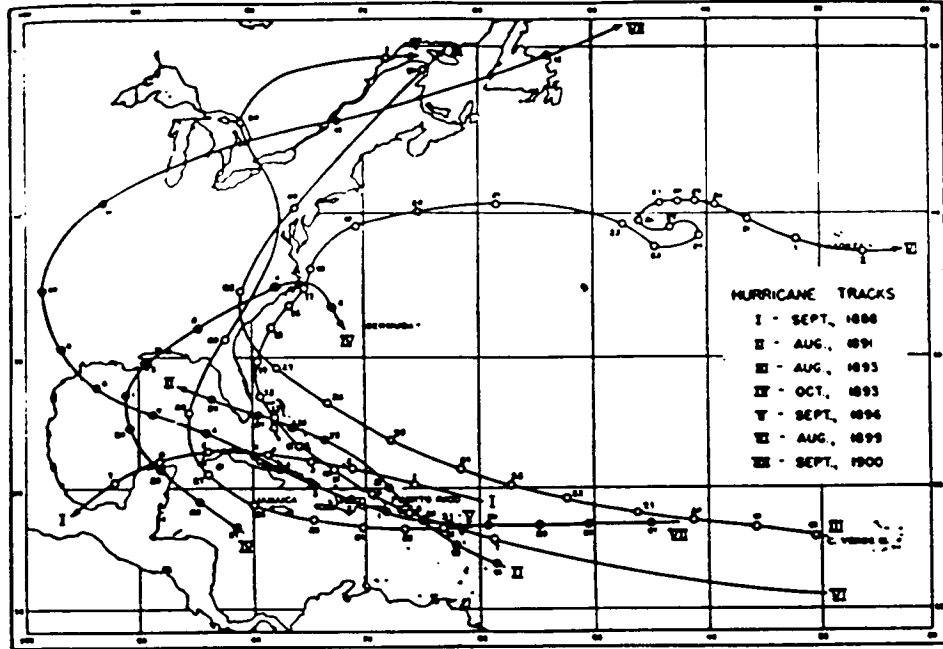


FIGURE F-15. Tracks of principal West Indian hurricanes, 1888 to 1900.

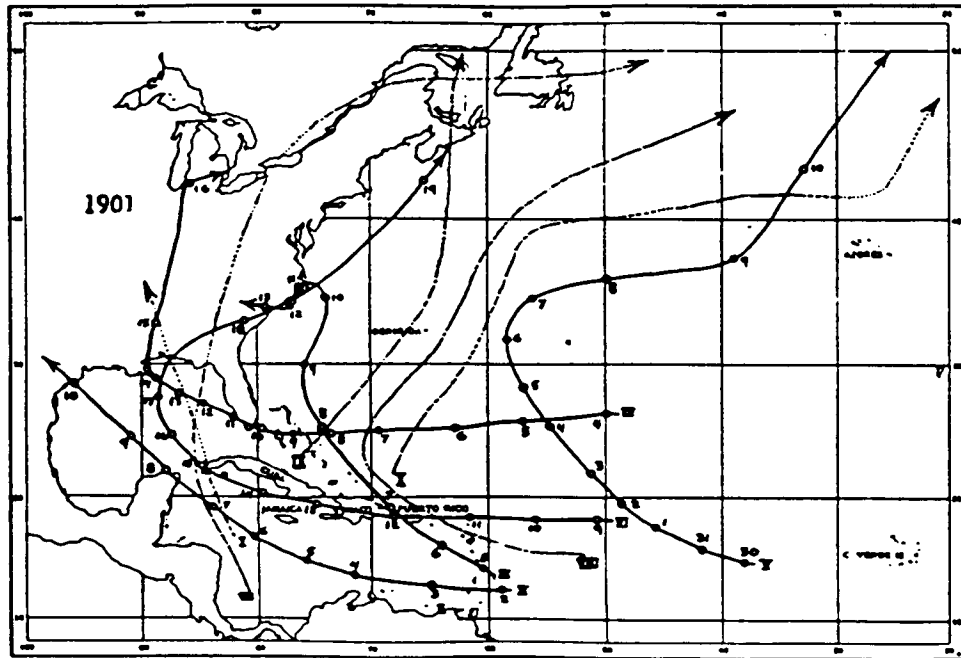
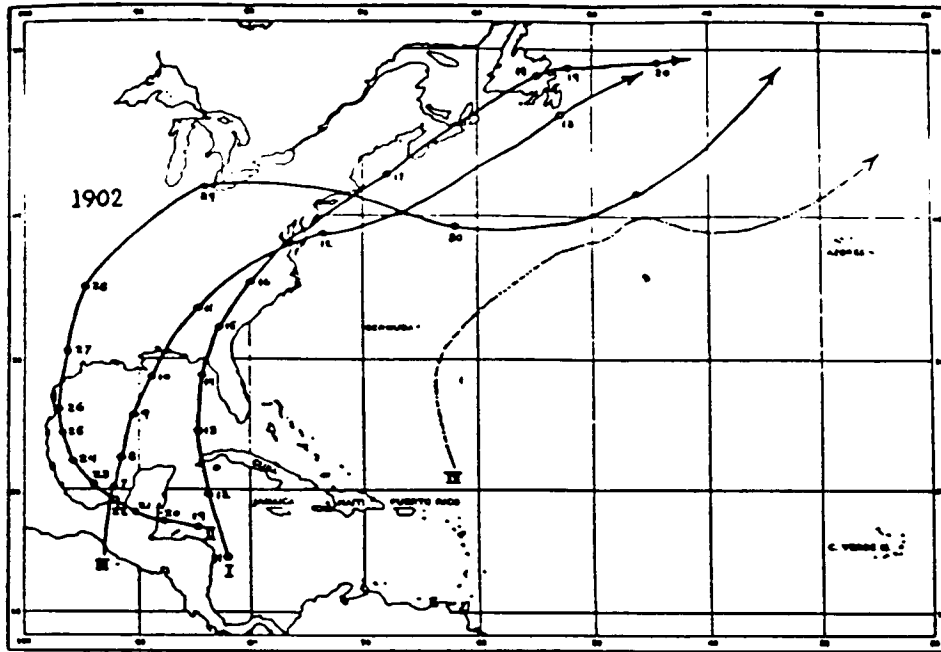
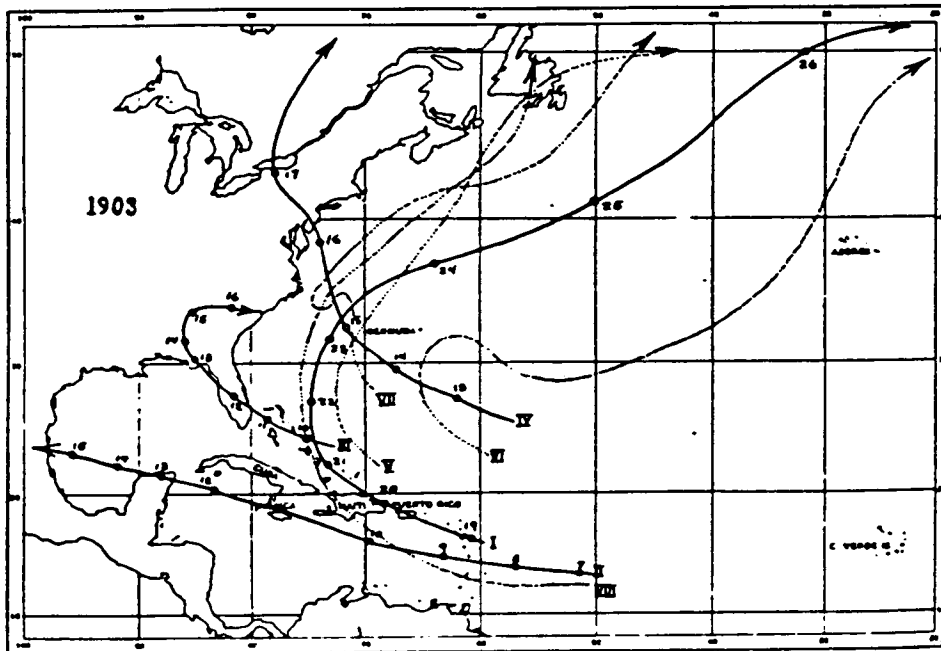


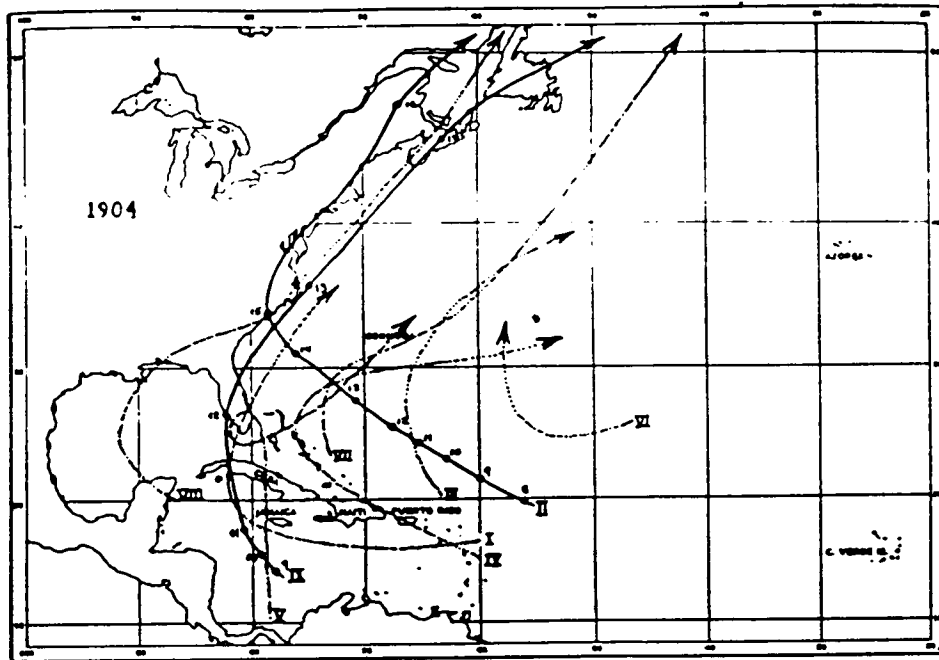
FIGURE F-16. Tracks of tropical storms of 1901. I. June 10 to 13; II. July 2 to 10; III. July 5 to 13; IV. August 4 to 16; V. August 30 to September 10; VI. September 9 to 19; VII. September 20 to 30; VIII. October 7 to 14; IX. October 16 to 18; and X. October 31 to November 10.



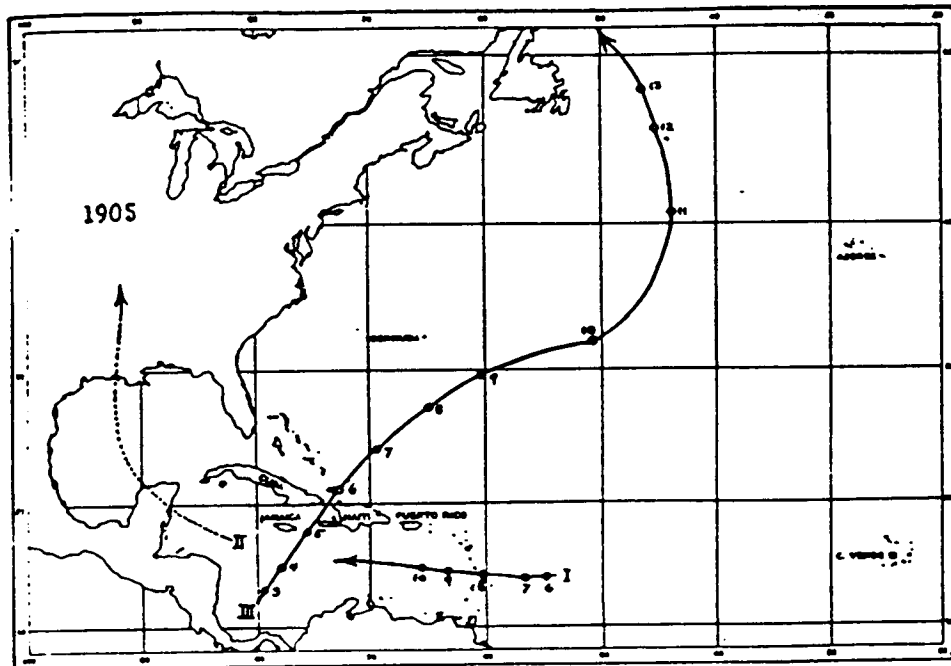
**FIGURE F-17.** Tracks of tropical storms of 1902. I. June 11 to 20; II. June 19 to July 1; III. October 7 to 13; IV. November 1 to 9.



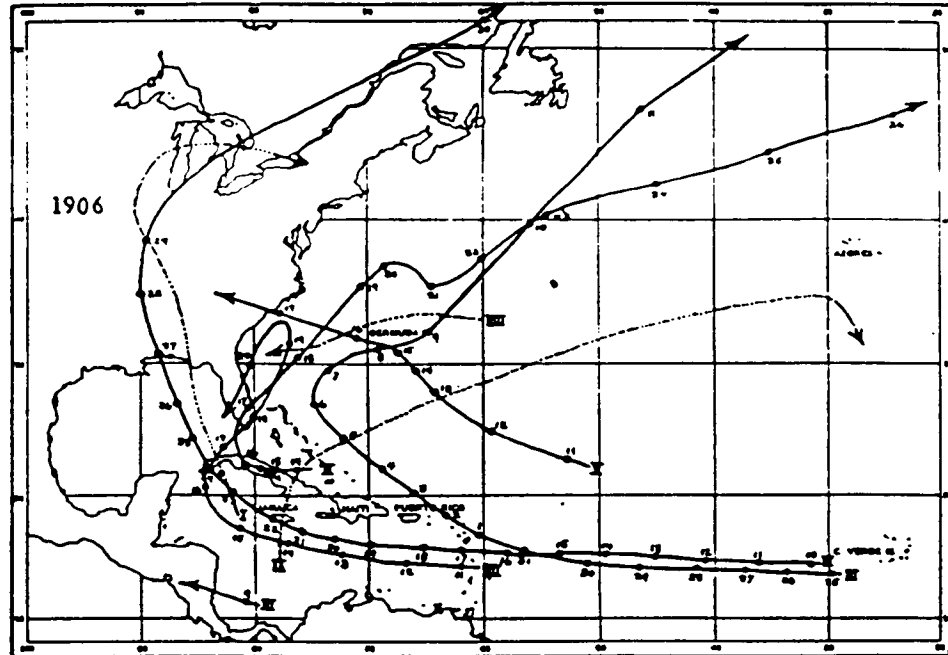
**FIGURE F-18.** Tropical storm tracks of 1902. I. July 19 to 26; II. August 7 to 15; III. September 10 to 16; IV. September 13 to 17; V. September 22 to 25; VI. October 1 to 10; VII. October 7 to 14; VIII. October 18 to 27.



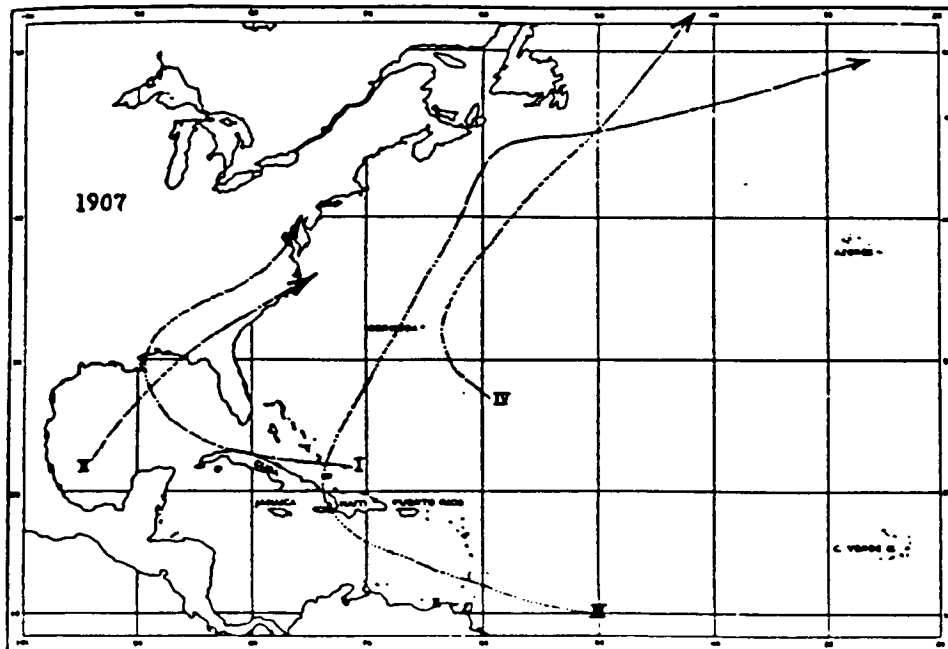
**FIGURE F-19.** Tracks of tropical storms of 1904. I. September 3 to 9; II. September 8 to 16; III. September 24 to 30; IV. October 10 to 16; V. October 10 to 23; VI. October 19 to 23; VII. October 28 to November 2; VIII. October 29 to November 6; IX. November 9 to 14.



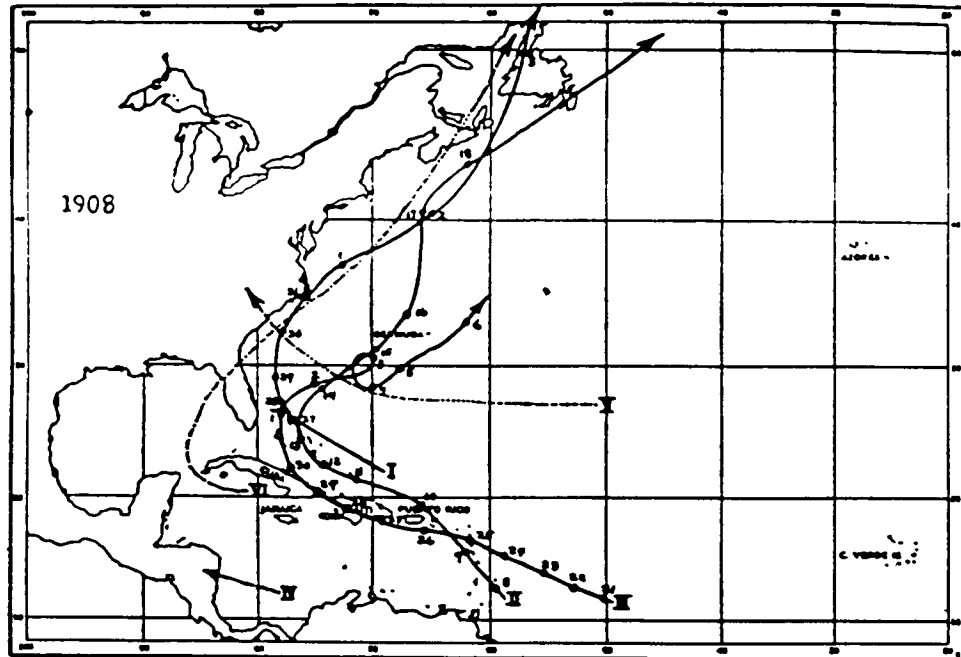
**FIGURE F-20.** Tracks of tropical storms of 1905. I. September 6 to 10; II. September 24 to 30; III. October 3 to 13.



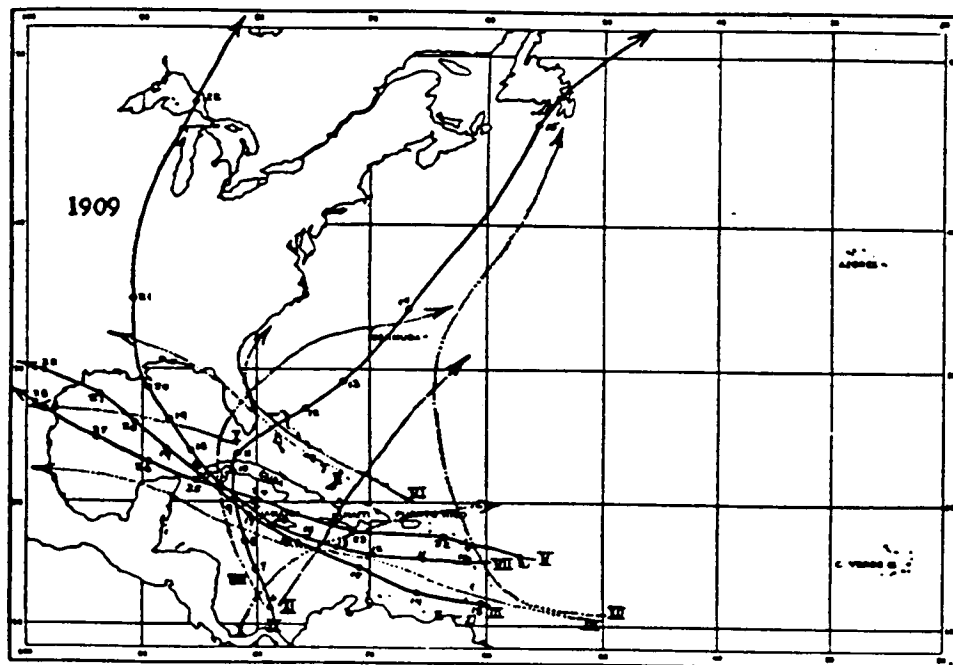
**FIGURE F-21.** Tracks of tropical storms of 1906. I. June 8 to 16; II. June 14 to 26; III. August 25 to September 11; IV. September 10 to 30; V. September 11 to 17; VI. October 9; VII. October 11 to 20; VIII. October 13 to 17; IX. November 6 to 13.



**FIGURE F-22.** Tracks of tropical storms of 1907. I. September 16 to 23; II. September 27 to 29; III. October 3 to 17; IV. October 17 to 20.



**FIGURE F-23.** Tracks of tropical storms of 1908. I. July 27 to August 4; II. September 8 to 18; III. September 21 to October 6; IV. October 17; V. October 18 to 23; VI. October 25 to 31.



**FIGURE F-24.** Tracks of tropical storms of 1909. I. June 25 to 30; II. June 26 to July 1; III. July 13 to 22; IV. July 27 to August 10; V. August 21 to 28; VI. August 27 to 31; VII. September 10 to 22; VIII. September 22 to 30; IX. October 6 to 15; X. November 8 to 14; XI. November 22 to 25; XII. November 25 to December 2.

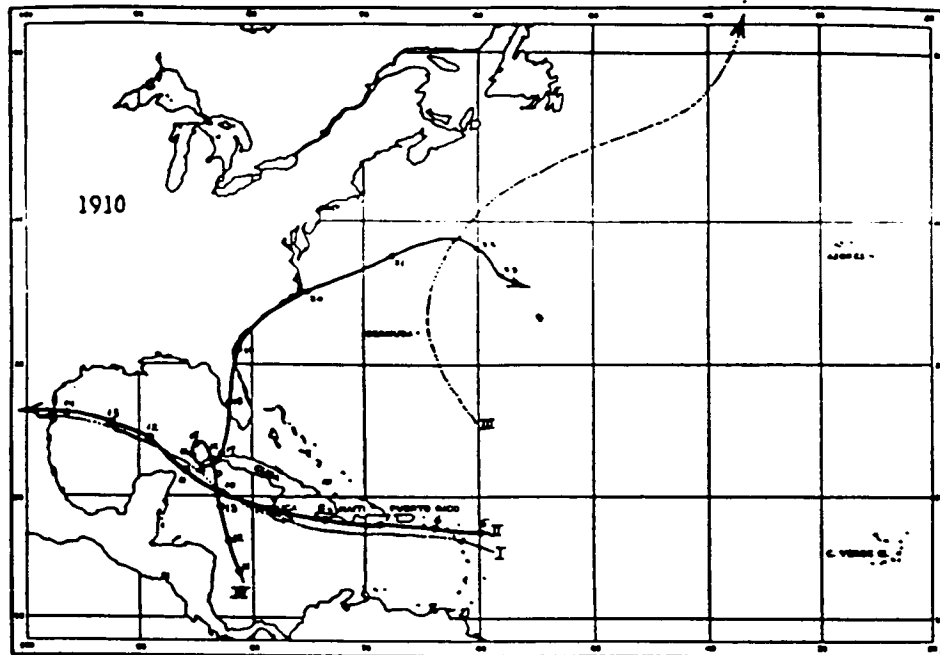


FIGURE F-25. Tracks of tropical storms of 1910. I. August 23 to 31; II. September 5 to 14; III. September 23 to October 1; IV. October 11 to 23.

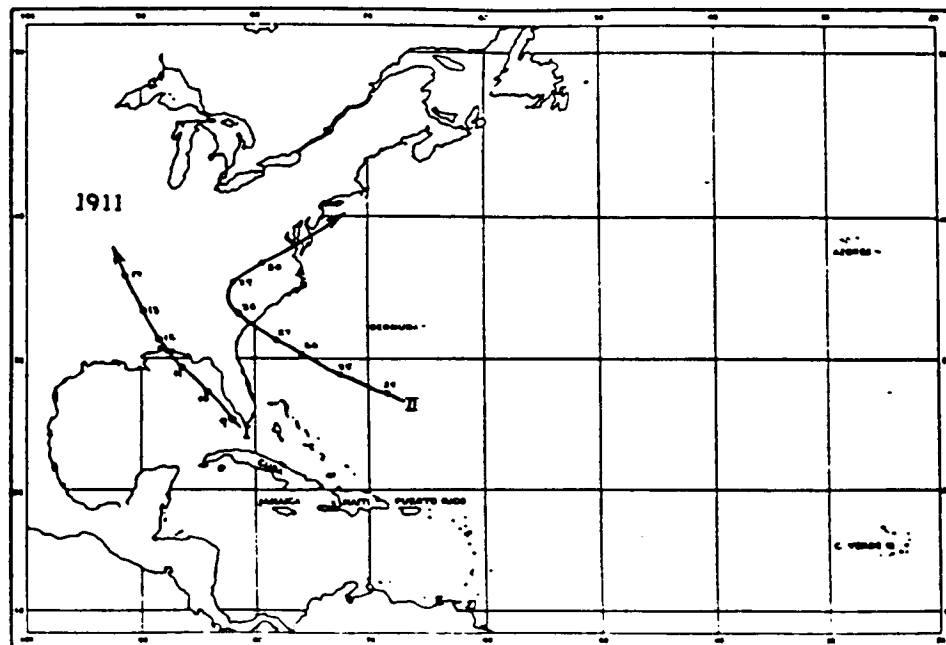
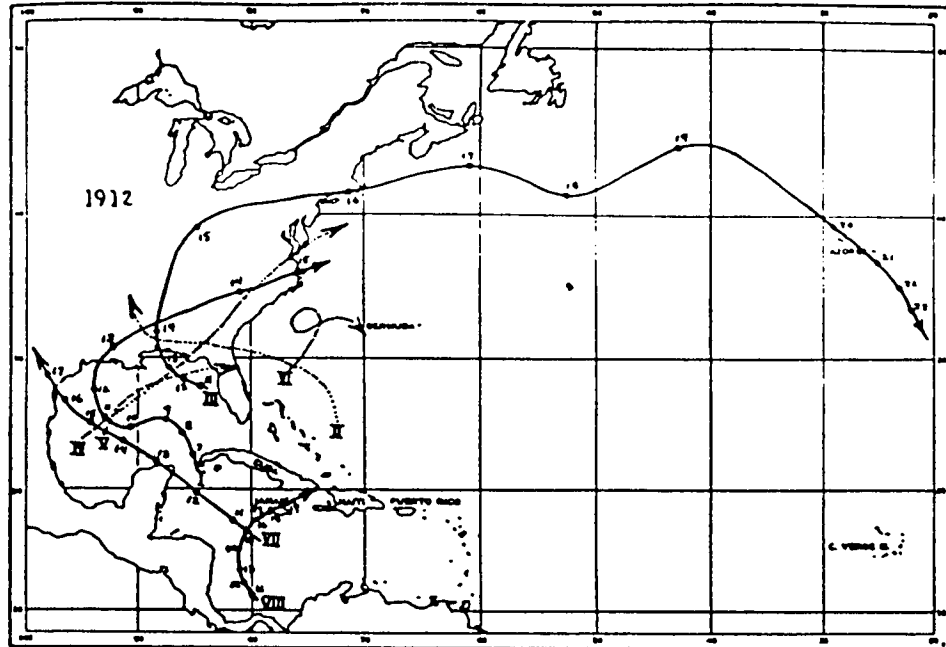
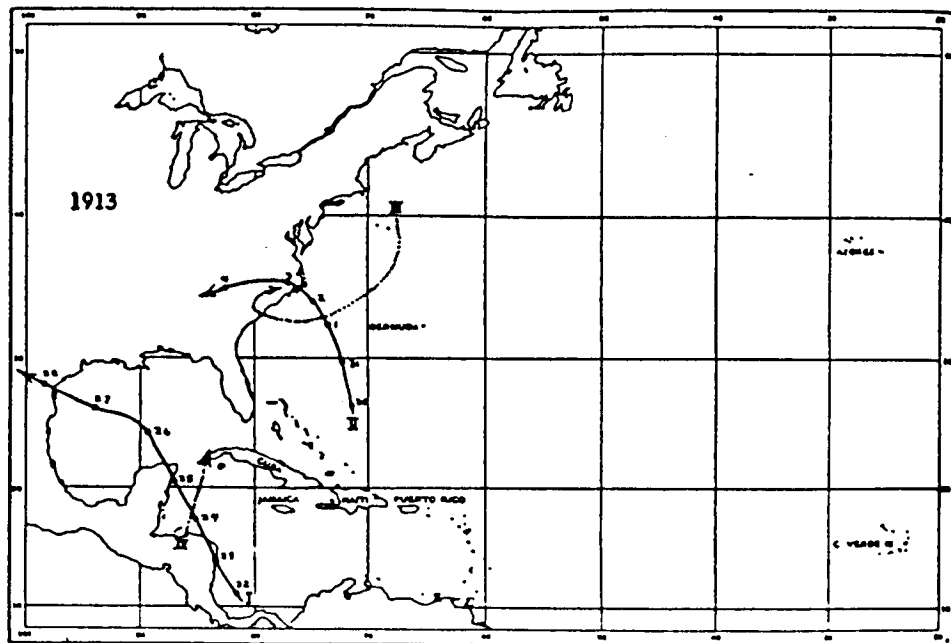


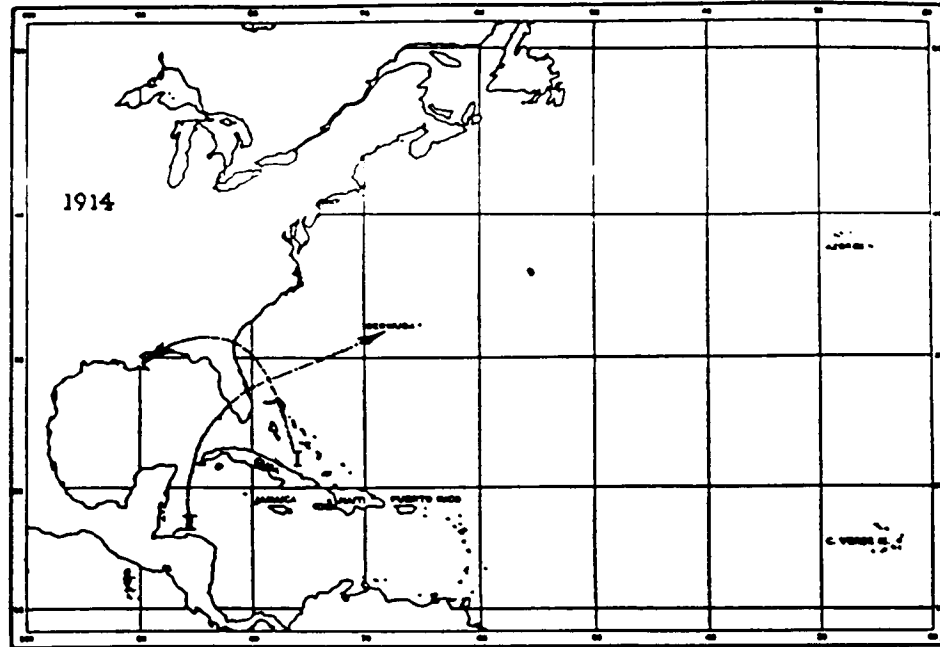
FIGURE F-26. Tropical storm tracks of 1911. I. August 9 to 14; II. August 24 to 30.



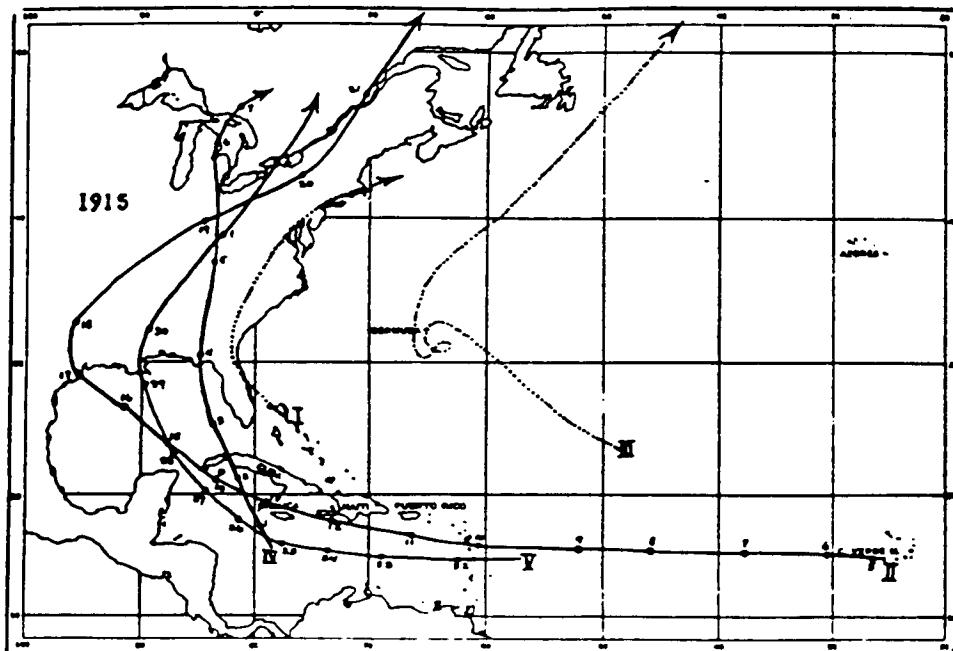
**FIGURE F-27.** Tracks of tropical storms of 1912. I. June 7 to 15; II. July 12 to 17; III. September 11 to 23; IV. September 21 to 25; V. October 2 to 4; VI. October 4 to 9; VII. October 11 to 17; VIII. November 11 to 19.



**FIGURE F-28.** Tracks of tropical storms of 1913. I. June 22 to 28; II. August 30 to September 4; III. October 3 to 9; IV. October 27 to 29.

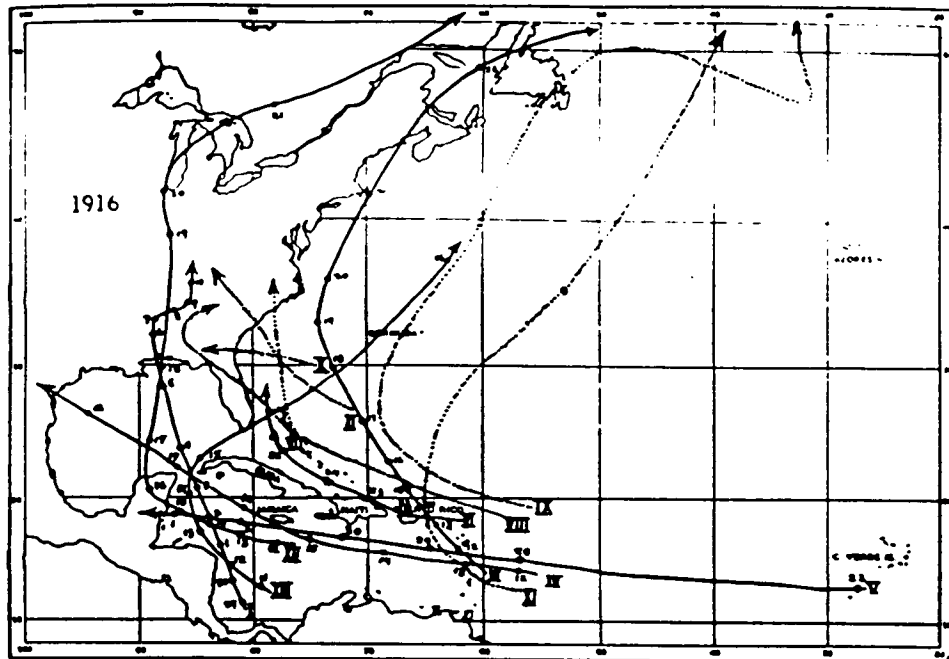


**FIGURE F-29.** Tracks of tropical storms of 1914. I. September 14 to 18; II. October 24 to 27.

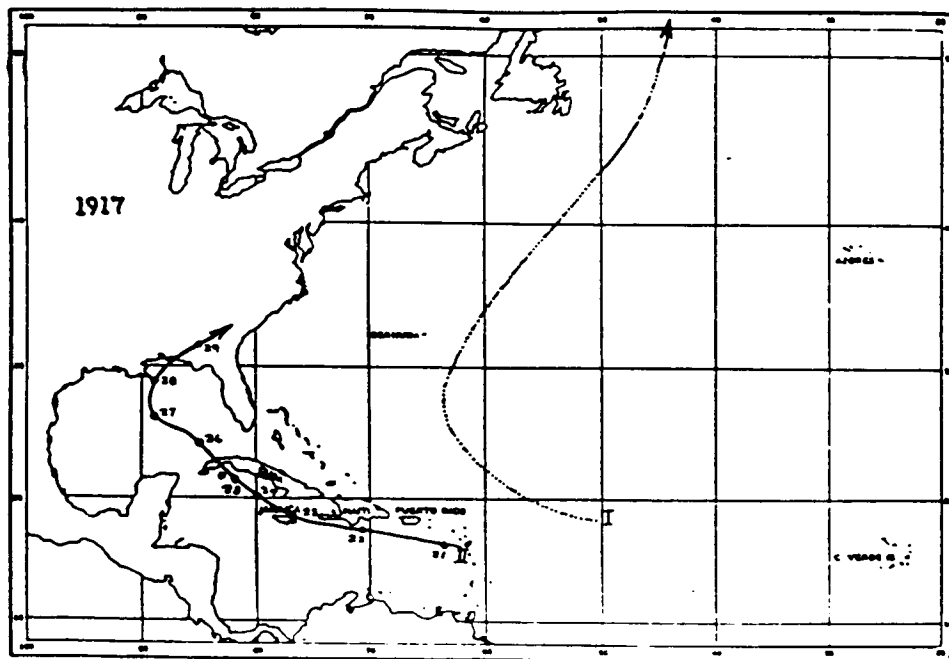


**FIGURE F-30.** Tracks of tropical storms of 1915. I. July 31 to August 5; II. August 5 to 24; III. August 28 to September 13; IV. September 1 to 7; V. September 22 to October 2.





**FIGURE F-31.** Tracks of tropical storms of 1916. I. June 29 to July 10; II. July 11 to 15; III. July 12 to 22; IV. August 12 to 18; V. August 22 to September 1; VI. August 22 to 25; VII. September 4 to 7; VIII. September 9 to 14; IX. September 21 to October 2; X. October 3 to 5; XI. October 6 to 14; XII. October 12 to 21; XIII. November 11 to 16.



**FIGURE F-32.** Tracks of tropical storms of 1917. I. August 31 to September 6; II. September 21 to 29.

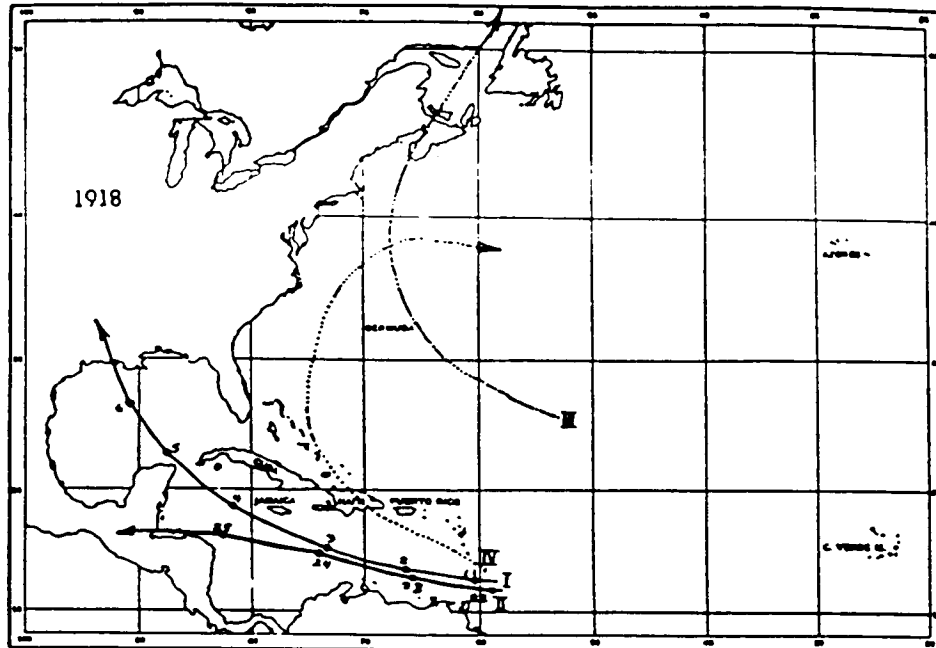


FIGURE F-33. Tropical storm tracks, 1918. I. August 1 to 6; II. August 21 to 25; III. September 4 to 8; IV. September 9 to 16.

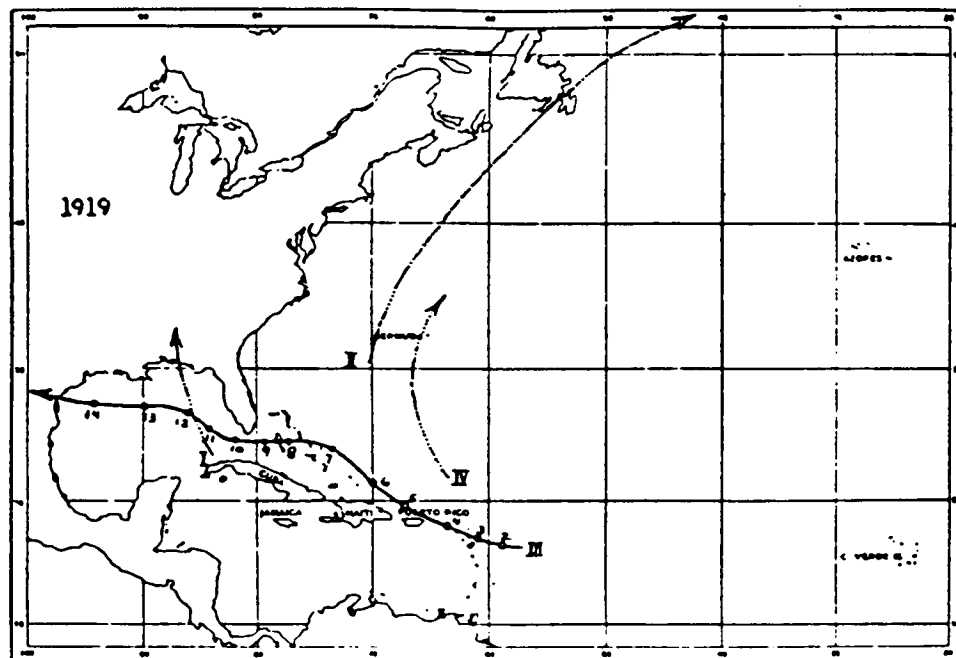
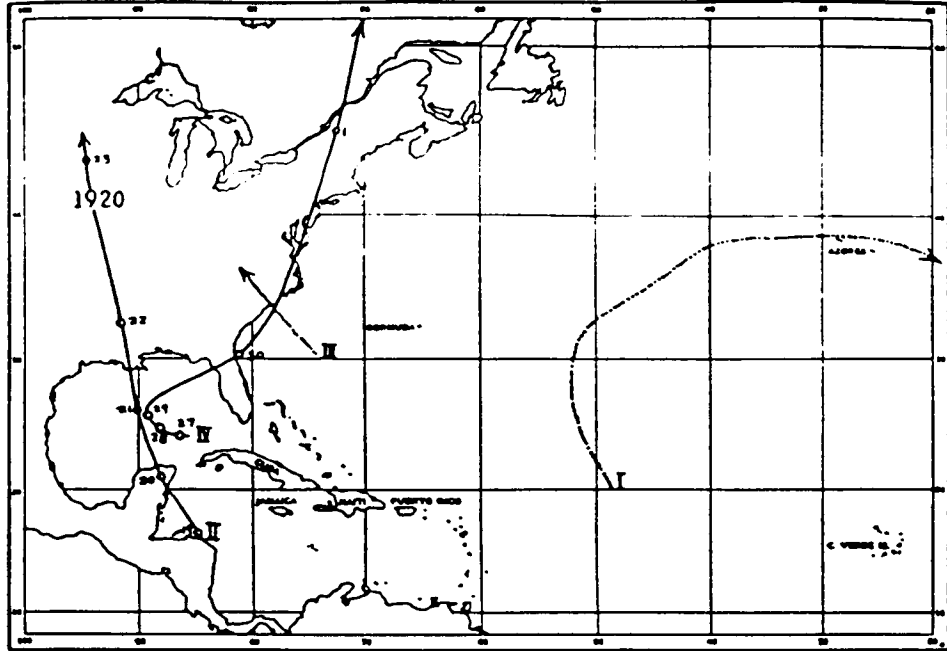
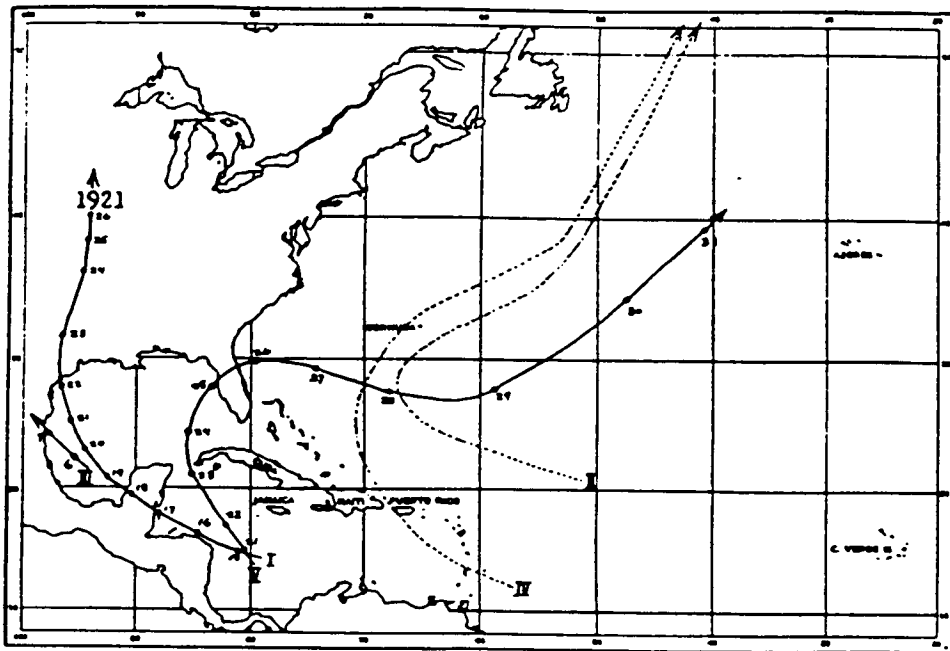


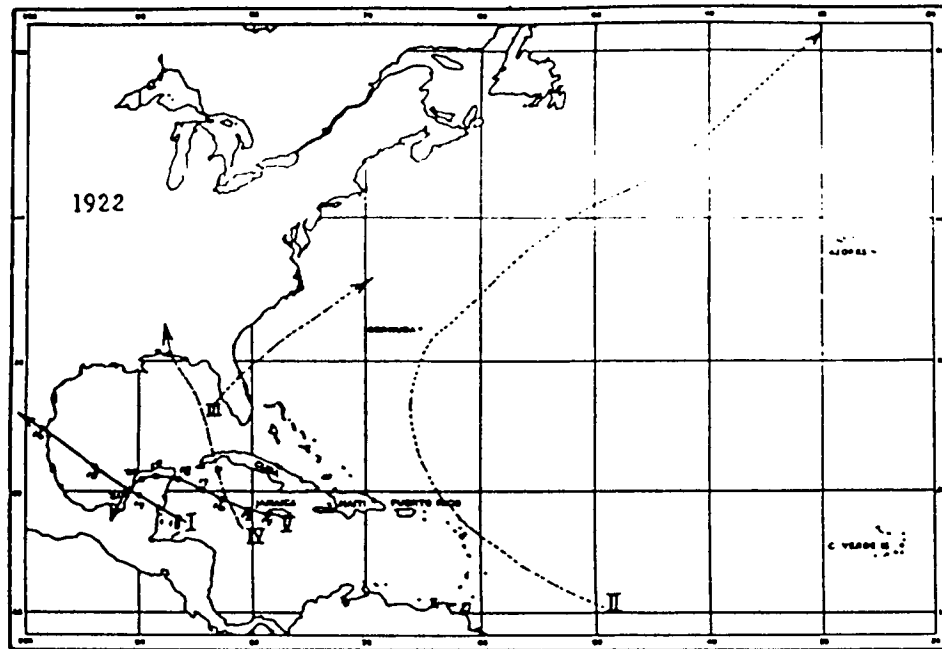
FIGURE F-34. Tracks of tropical storms of 1919. I. July 2 to 4; II. September 1 to 4; III. September 2 to 14; IV. November 11 to 14.



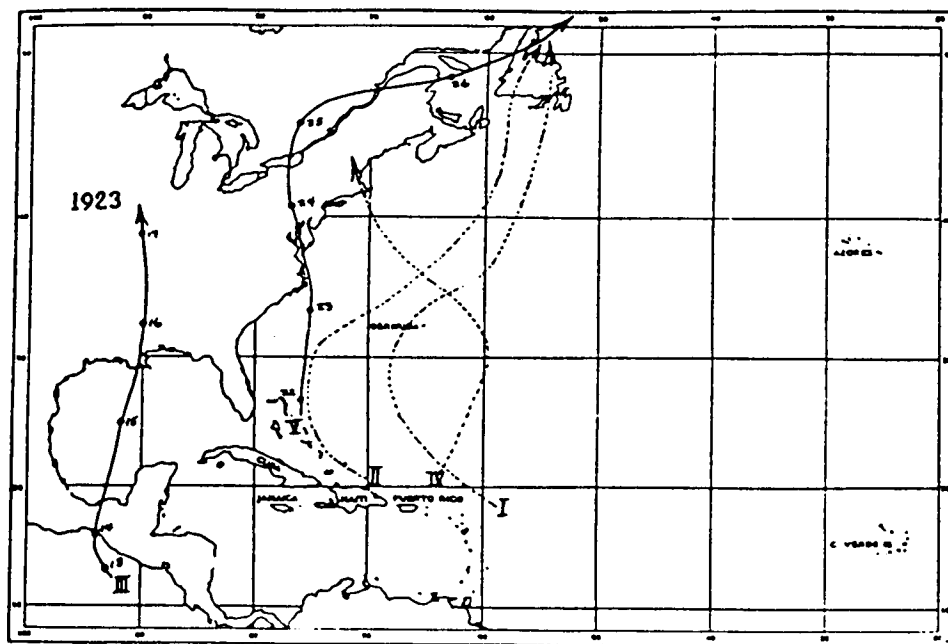
**FIGURE F-35.** Tracks of tropical storms of 1920. I. September 10 to 18; II. September 19 to 23; III. September 22 to 23; IV. September 27 to October 1.



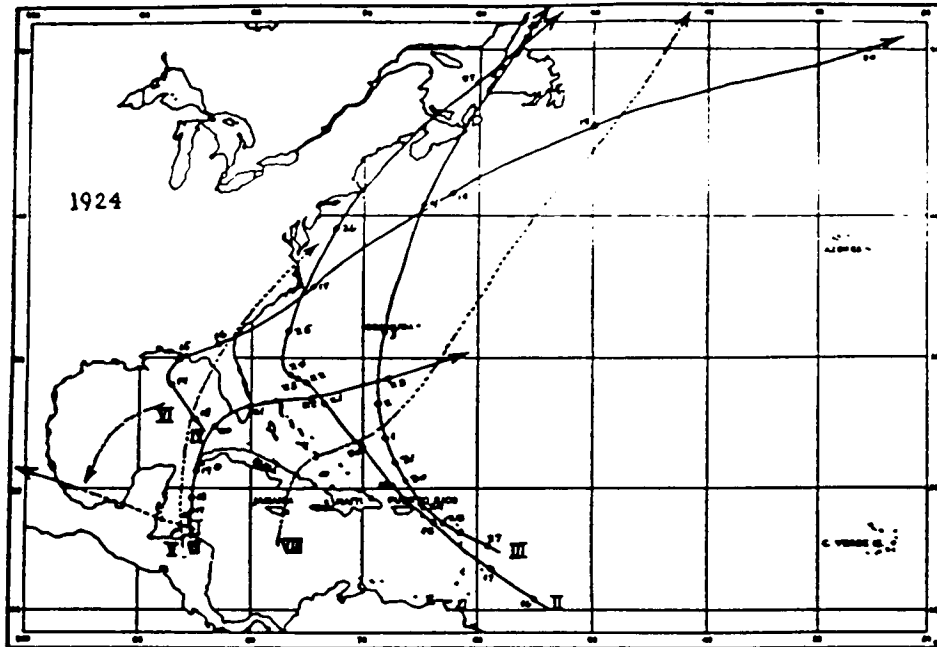
**FIGURE F-36.** Tracks of tropical storms of 1921. I. June 15 to 26; II. September 5 to 14; III. September 6 to 7; IV. September 8 to 17; V. October 21 to 31.



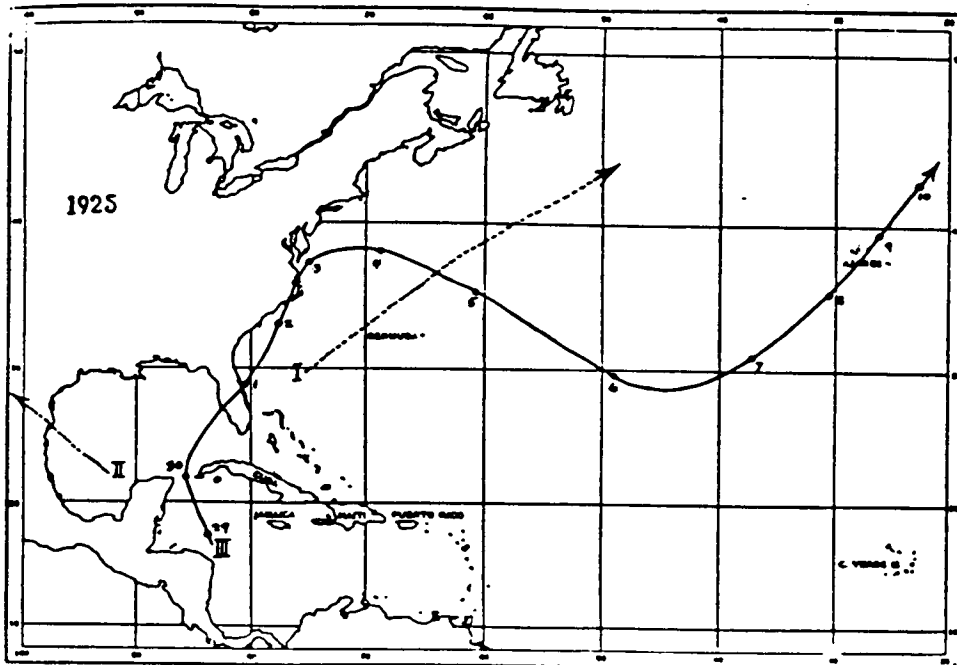
**FIGURE F-37.** Tracks of tropical storms of 1922. I. June 13 to 16; II. September 13 to 24; III. September 17 to 22; IV. October 12 to 17; V. October 14 to 21.



**FIGURE F-38.** Tracks of tropical storms of 1923. I. August 29 to September 10; II. September 24 to October 2; III. October 13 to 17; IV. October 14 to 19; V. October 22 to 26.



**FIGURE F-39.** Tracks of tropical storms of 1924. I. June 18 to 21; II. August 16 to 27; III. August 27 to September 5; IV. September 13 to 20; V. September 27 to 30; VI. October 12 to 14; VII. October 16 to 23; VIII. November 7 to 15.



**FIGURE F-40.** Tracks of tropical storms of 1925. I. August 18 to 21; II. September 6 to 7; III. November 29 to December 10.

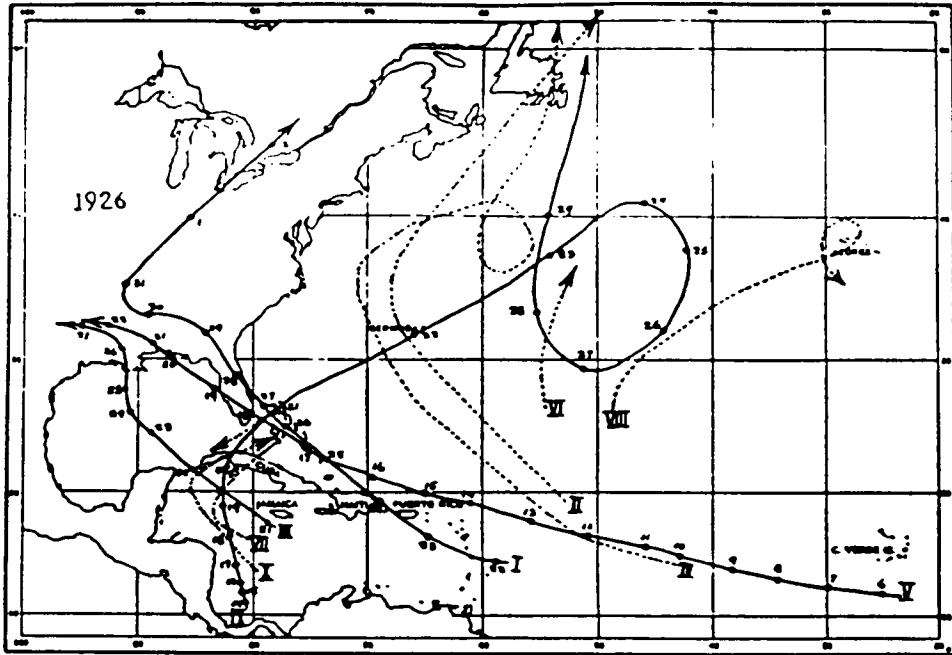


FIGURE F-41. Tracks of tropical storms of 1926. I. July 22 to August 2; II. August 1 to 9; III. August 21 to 27; IV. September 2 to 23; V. September 6 to 22; VI. September 11 to 14; VII. September 11 to 17; VIII. September 22 to 29; IX. October 14 to 29; X. November 13 to 16.

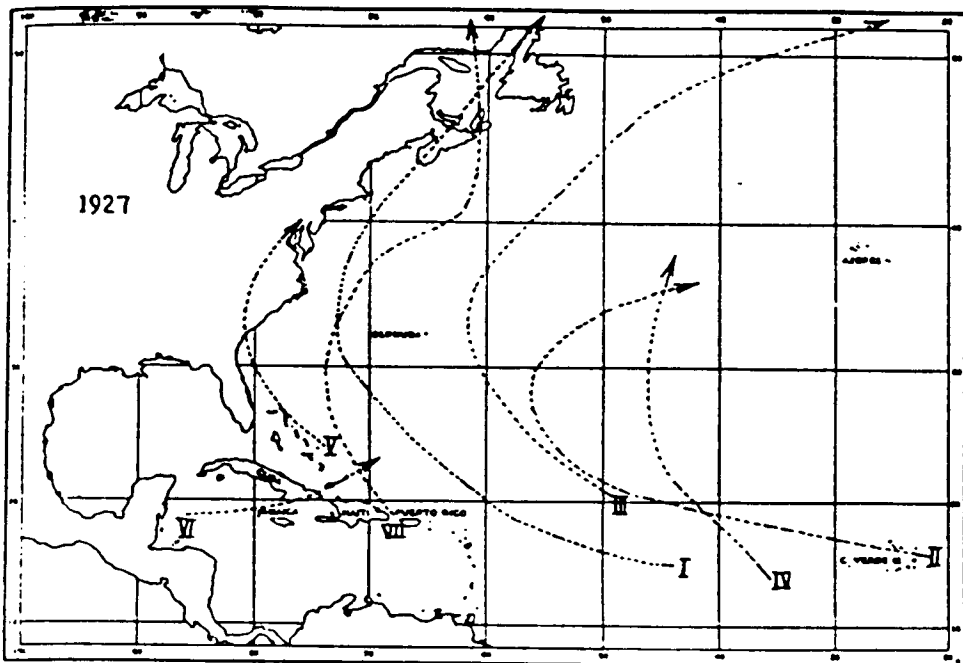


FIGURE F-42. Tracks of tropical storms of 1927. I. August 19 to 27; II. September 3 to 11; III. September 23 to 30; IV. September 25 to 29; V. October 1 to 3; VI. October 17 to 19; VII. November 1 to 6.

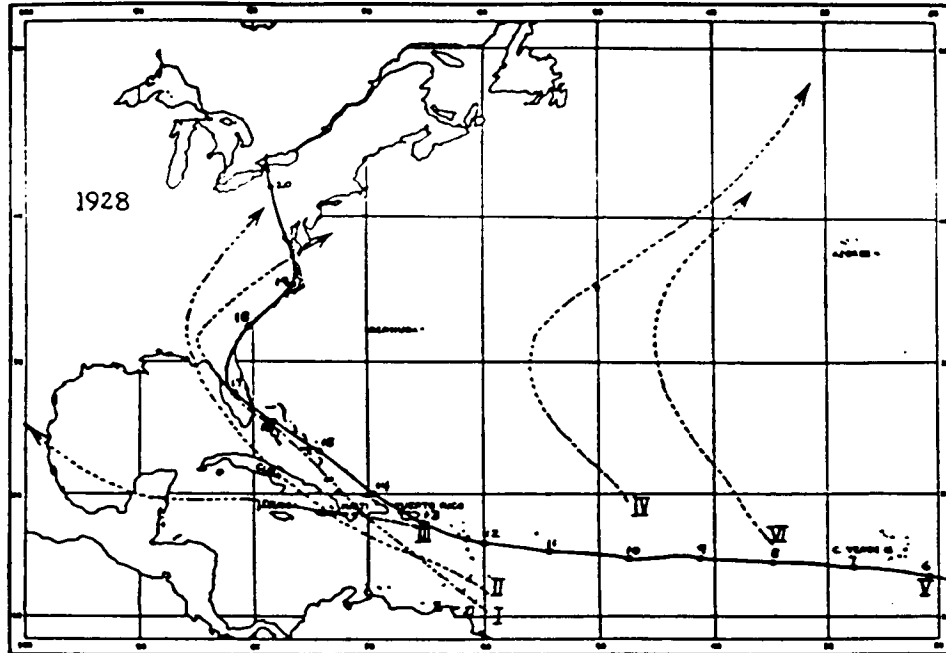


FIGURE F-43. Tracks of tropical storms of 1928. I. August 3 to 12; II. August 7 to 17; III. September 1 to 7; IV. September 8 to 12; V. September 6 to 20; VI. October 10 to 14.

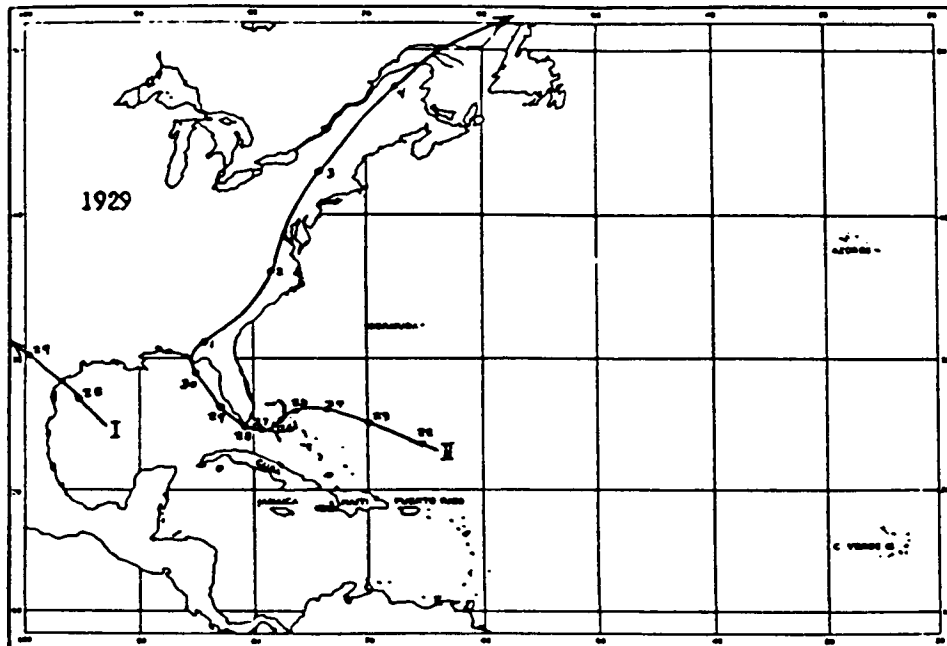


FIGURE F-44. Tracks of tropical storms of 1929. I. June 28 to 29; II. September 22 to October 4.

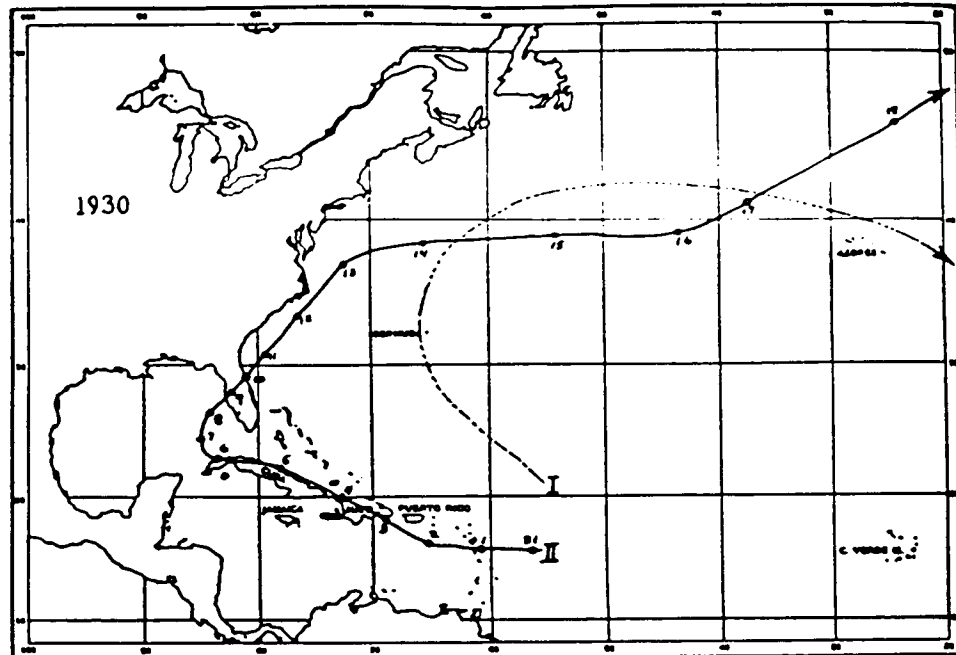


FIGURE F-45. Tracks of tropical storms of 1930. I. August 22 to 31; II. August 31 to September 18.

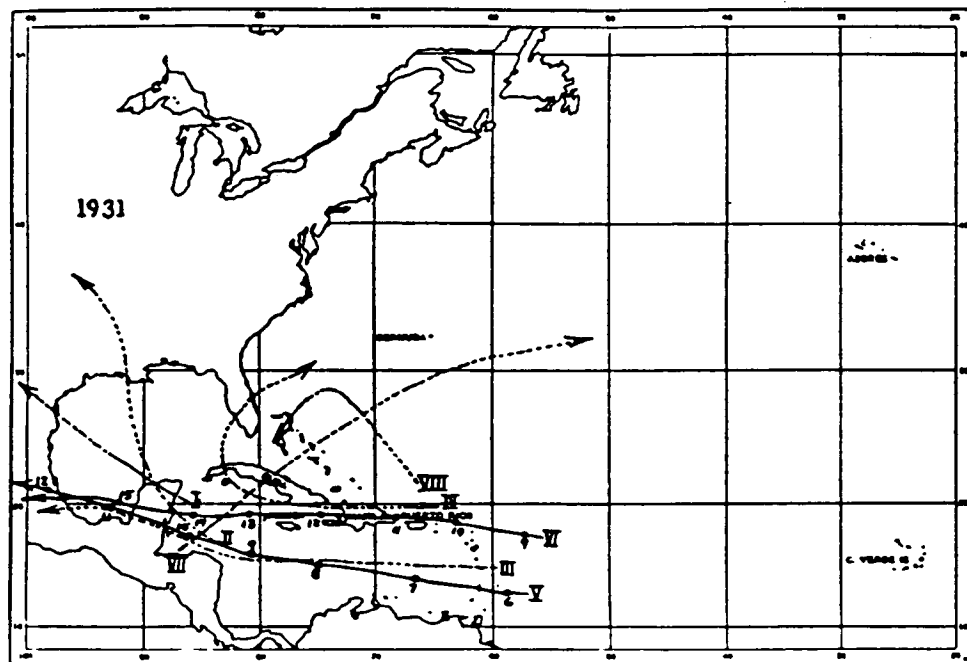
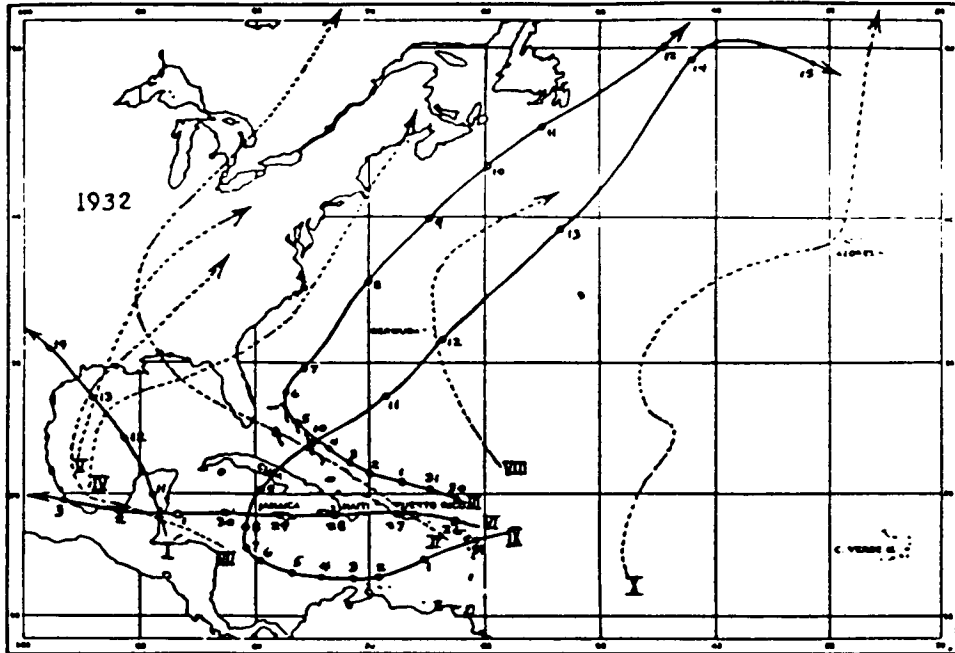
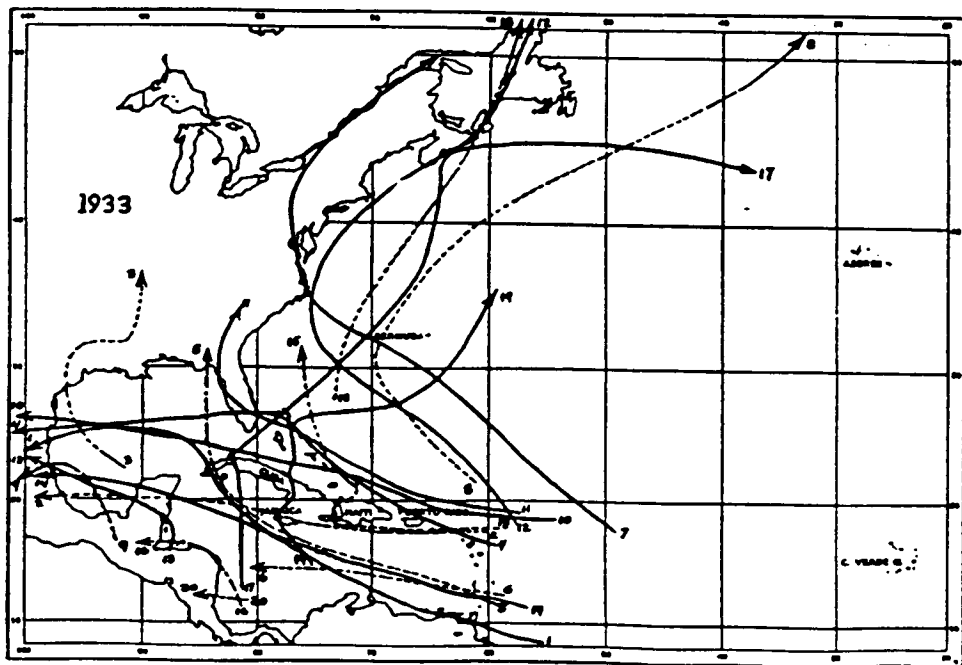


FIGURE F-46. Tracks of tropical storms of 1931. I. June 25 to 28; II. July 11 to 15; III. August 10 to 18; IV. September 2 to 9; V. September 6 to 12; VI. September 9 to 15; VII. October 18 to 21; VIII. November 22 to 25.

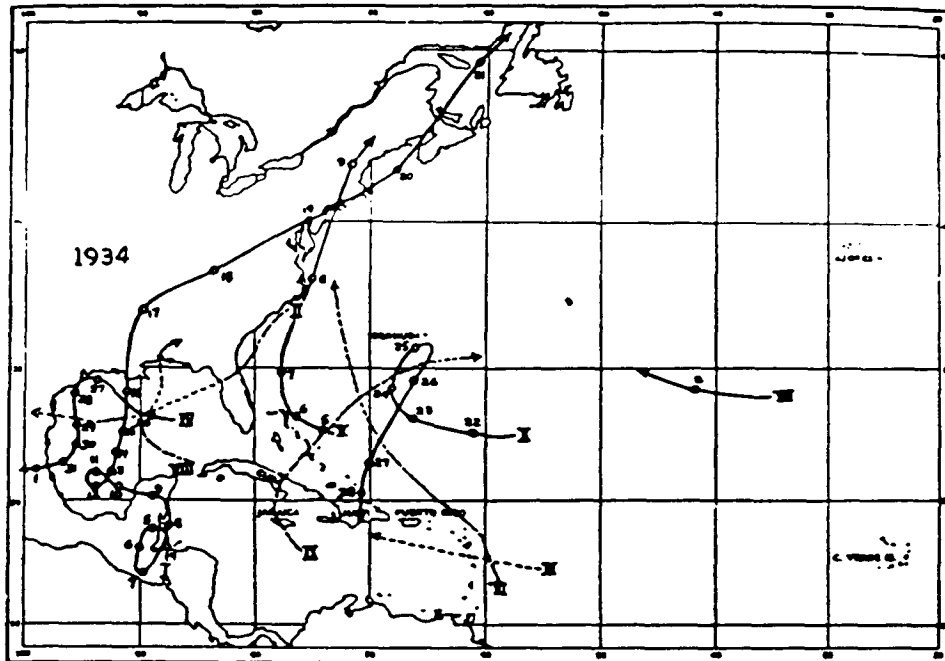




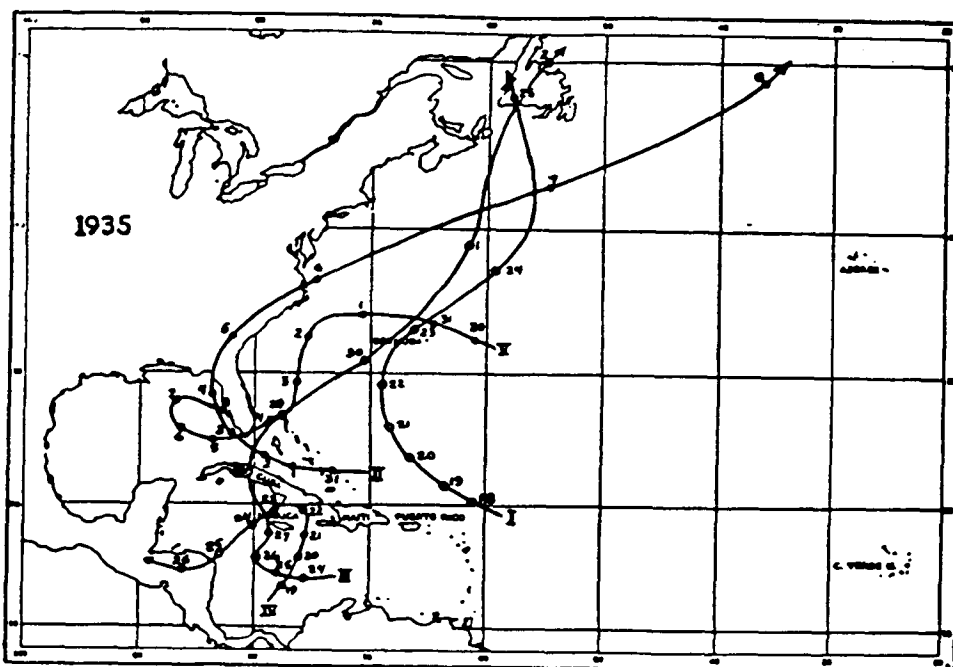
**FIGURE F-47.** Tracks of tropical storms of 1932. I. August 11 to 14; II. August 24 to September 4; III. August 30 to September 12; IV. September 9 to 17; V. September 18 to 21; VI. September 26 to October 3; VII. October 7 to 17; VIII. October 9 to 12; IX. October 31 to November 15; X. November 3 to 11.



**FIGURE F-48.** Tracks of tropical storms of 1933.



**FIGURE F-49.** Tracks of tropical storms of 1934. I. June 4 to 21; II. July 21 to 25; III. August 20 to 22; IV. August 26 to September 1; V. September 5 to 9; VI. September 15 to 21; VII. October 1 to 2; VIII. October 3 to 5; IX. October 19 to 23; X. November 21 to 28.



**FIGURE F-50.** Tracks of tropical storms of 1935. I. August 18 to 25; II. August 31 to September 8; III. September 23 to October 2; IV. October 19 to 26; V. October 30 to November 8.

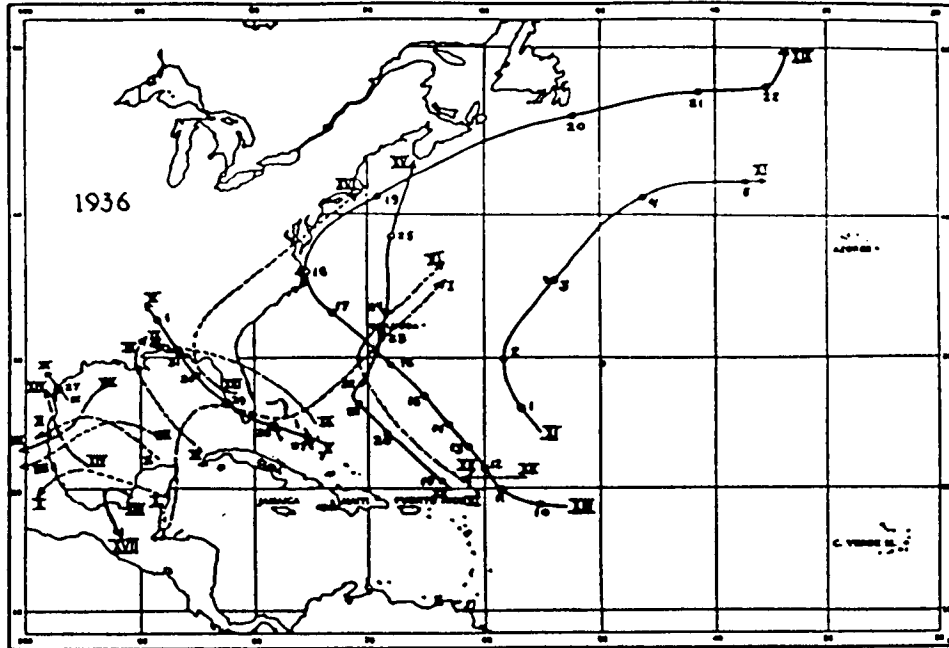


FIGURE F-51. Tracks of tropical storms of 1936.

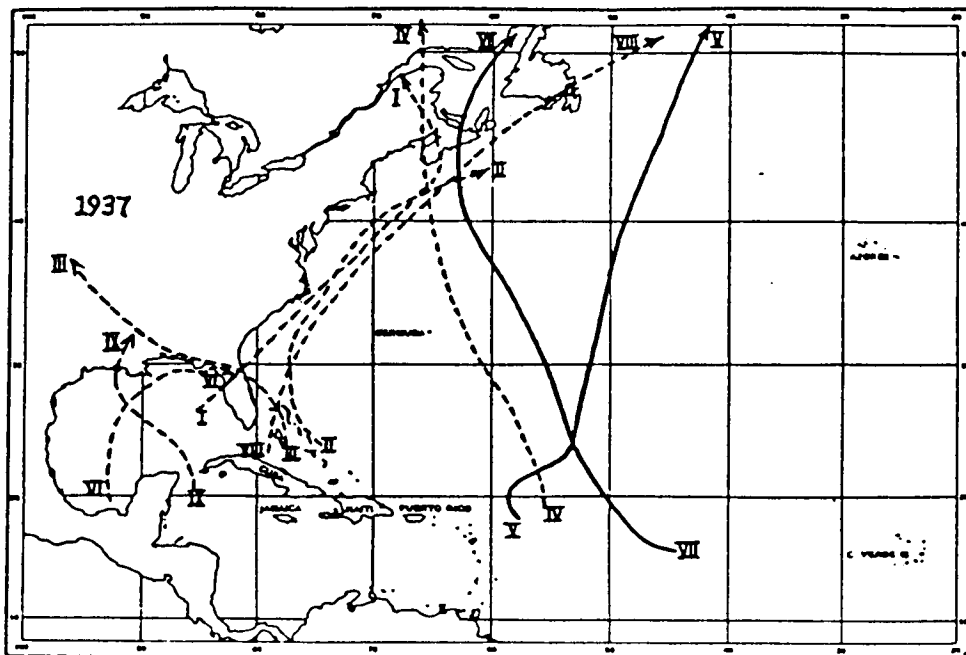


FIGURE F-52. Tracks of tropical storms of 1937. I. July 29 to August 2; II. August 2 to 8; III. August 28 to September 2; IV. September 9 to 14; V. September 14 to 20; VI. September 16 to 21; VII. September 20 to 26; VIII. September 26 to 30; IX. September 30 to October 2.

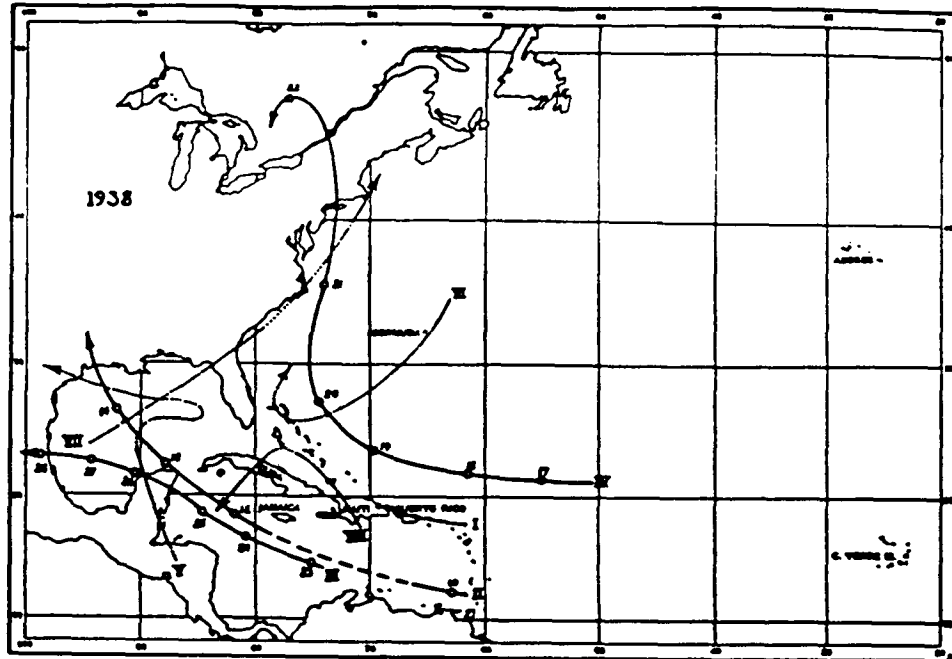


FIGURE F-53. Tracks of tropical storms of 1938. I. August 8 to 10; II. August 9 to 14; III. August 23 to 28; IV.

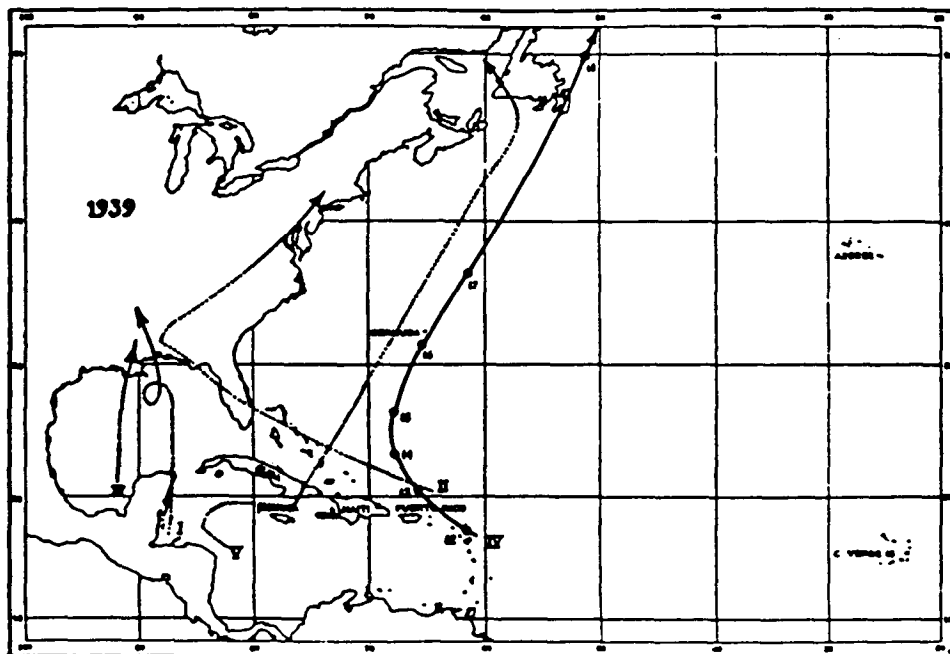
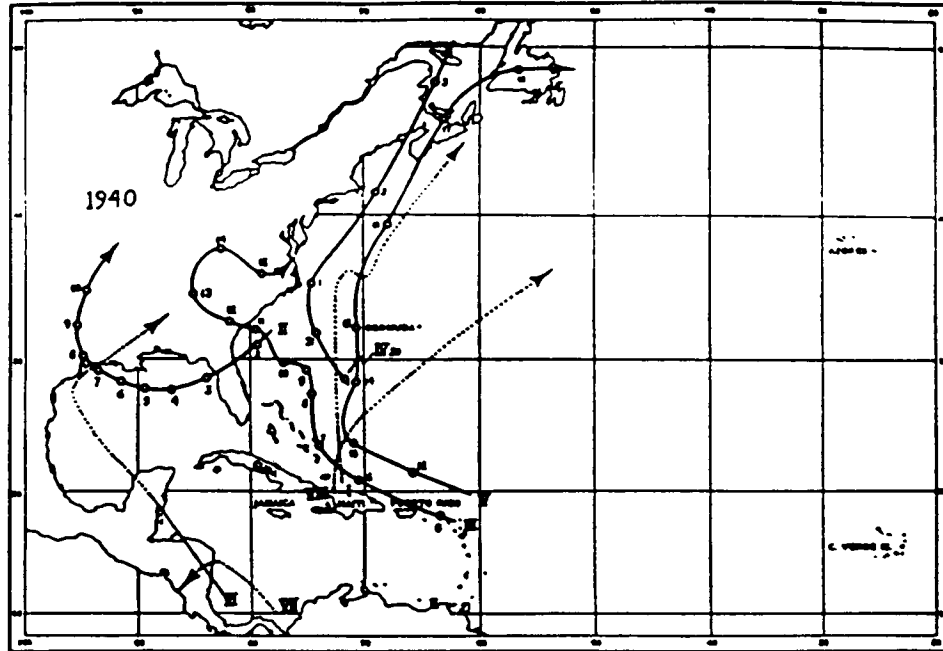
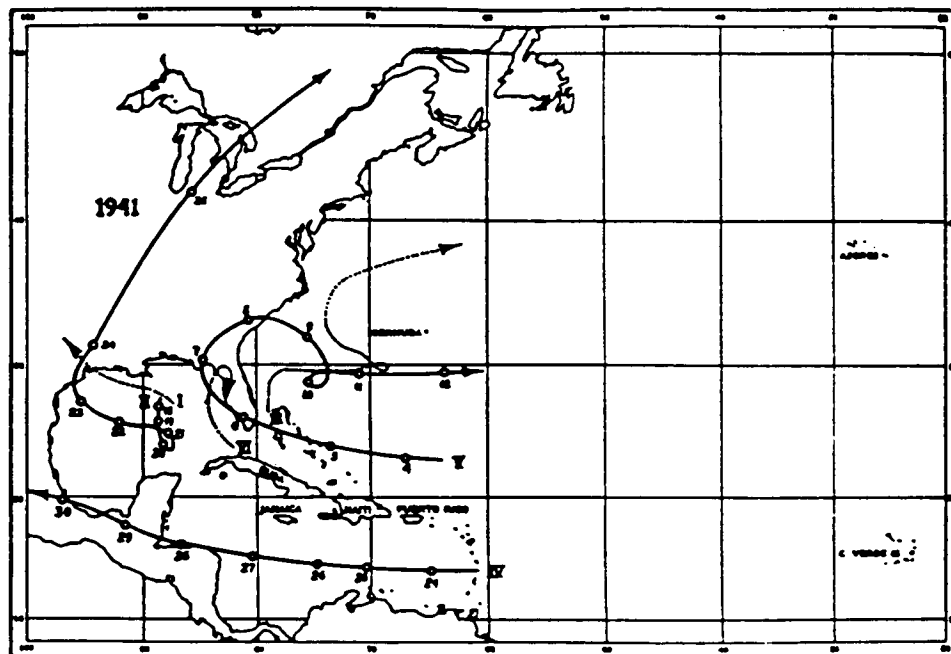


FIGURE F-54. Tracks of tropical storms of 1939. I. June 12 to 16; II. August 8 to 20; III. September 24 to 26; IV. October 12 to 18; V. October 29 to November 8.



**FIGURE F-55.** Tracks of tropical storms of 1940. I. May 18 to 27; II. August 2 to 10; III. August 5 to 15; IV. August 30 to September 3; V. September 11 to 18; VI. September 19 to 24; VII. October 20 to 23; VIII. October 24 to 26.



**FIGURE F-56.** Tracks of tropical storms of 1941. I. September 11 to 14; II. September 18 to 25; III. September 18 to 26; IV. September 24 to 30; V. October 4 to 12; VI. October 19 to 21.

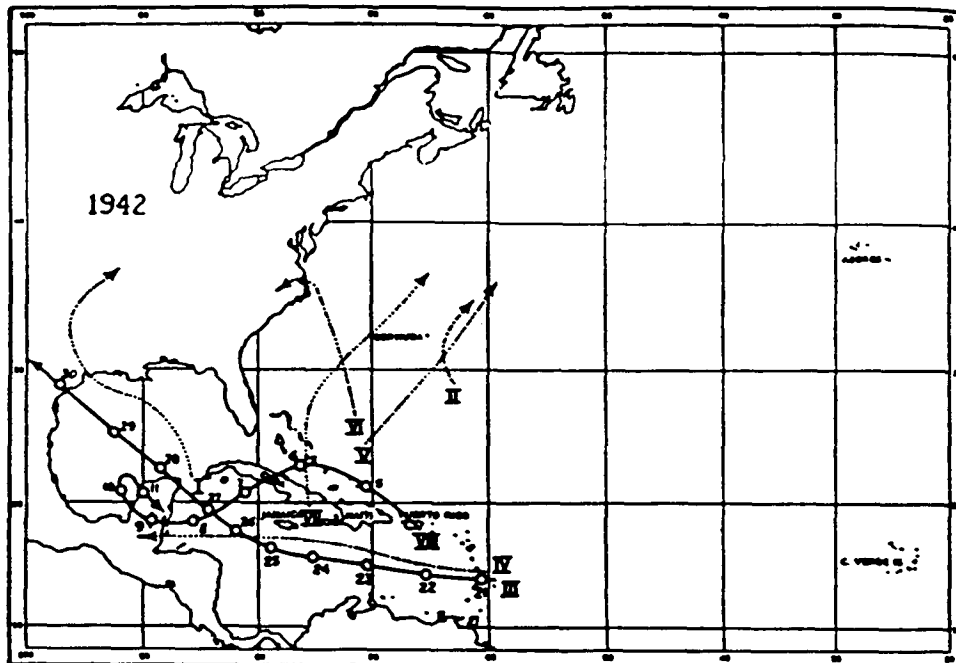


FIGURE F-57. Tracks of tropical storms of 1942. I. August 18 to 22; II. August 25 to 26; III. August 21 to 30; IV. September 15 to 22; V. October 1 to 3; VI. October 10 to 12; VII. October 13 to 18; VIII. November 5 to 11.

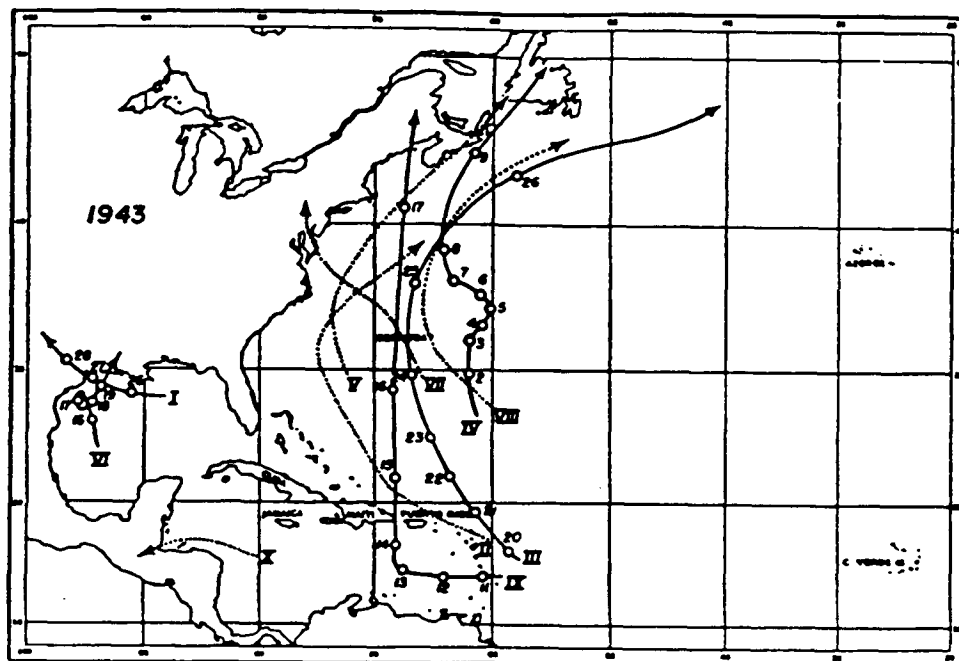


FIGURE F-58. Tracks of tropical storms of 1943. I. July 26 to 28; II. August 13 to 19; III. August 20 to 27; IV. September 1 to 9; V. September 13 to 16; VI. September 16 to 19; VII. September 28 to October 1; VIII. October 1 to 3; IX. October 11 to 17; X. October 21 to 22.

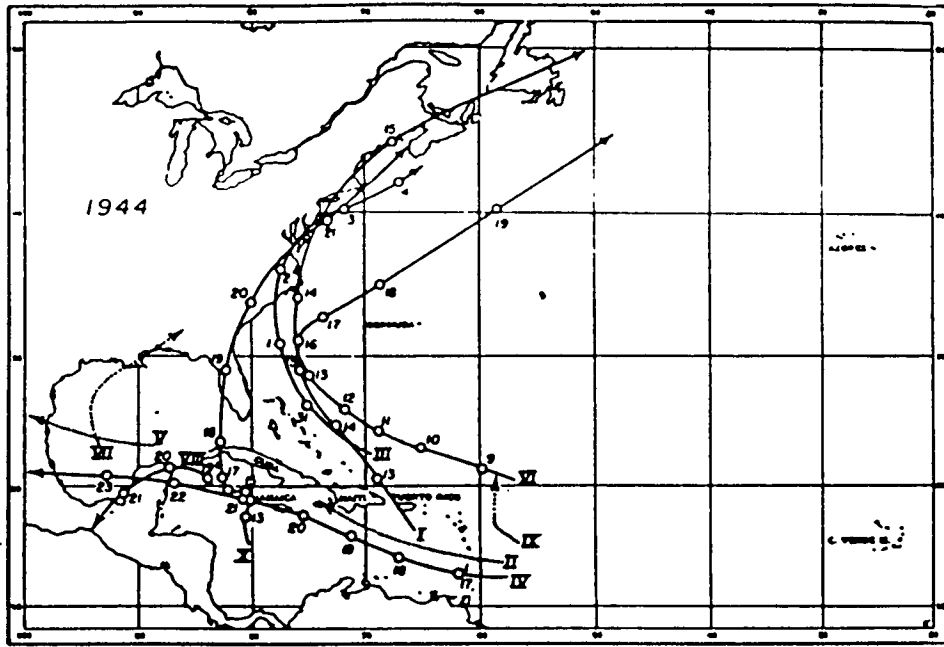


FIGURE F-59. Tracks of tropical storms of 1944. I. July 13 to 19; II. July 25 to 26; III. July 31 to August 4; IV. August 17 to 23; V. August 20 to 22; VI. September 9 to 15; VII. September 9 to 10; VIII. September 19 to 21; IX. October 1 to 2; X. October 13 to 21.

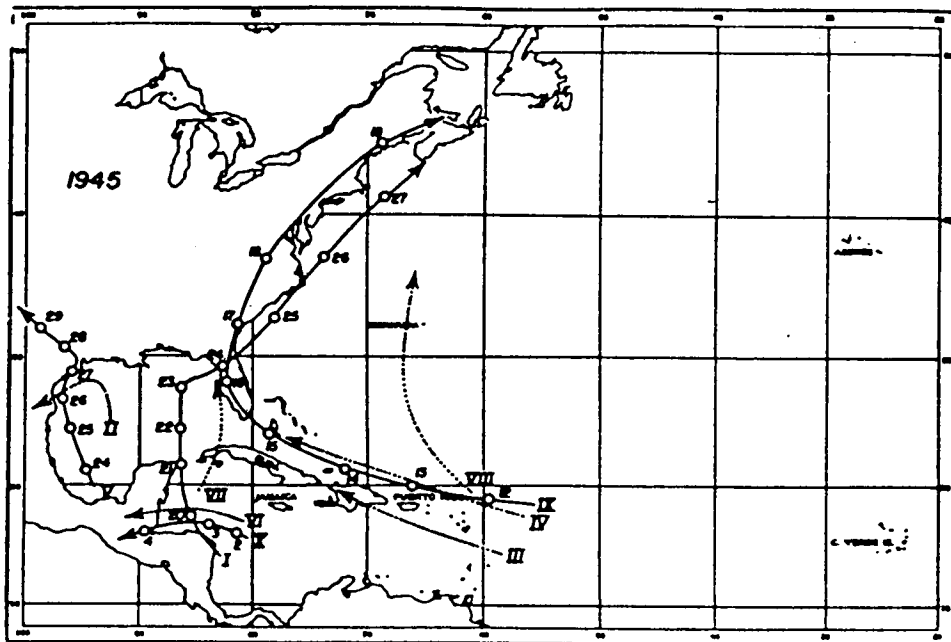


FIGURE F-60. Tracks of tropical storms of 1945. I. June 20 to 27; II. July 19 to 21; III. August 2 to 4; IV. August 17 to 21; V. August 24 to 29; VI. August 30 to 31; VII. September 3 to 4; VIII. September 9 to 12; IX. September 12 to 19; X. October 2 to 4.

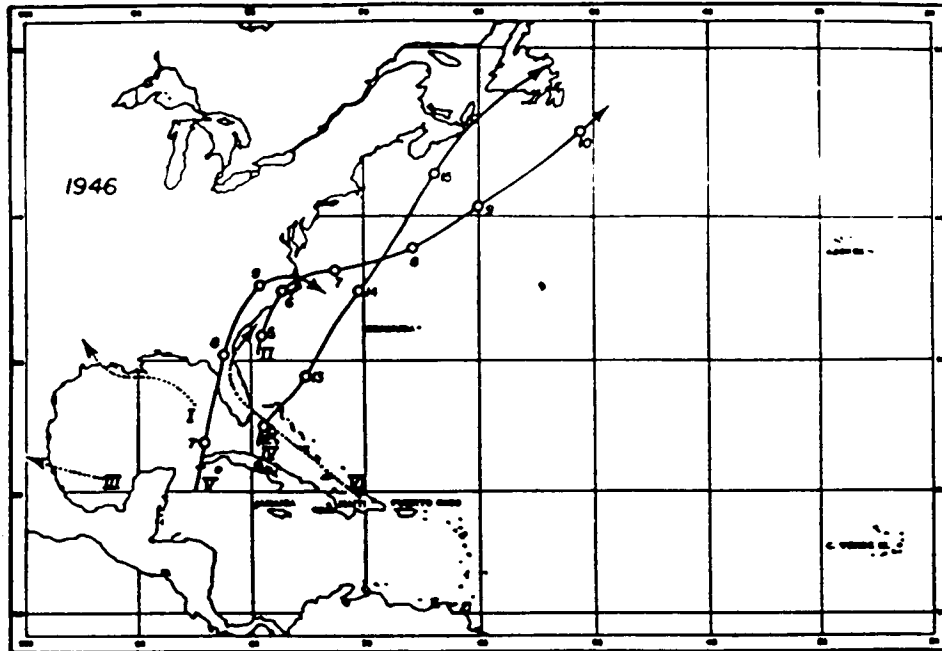


FIGURE F-61. Tracks of tropical storms of 1946. I. June 14 to 16; II. July 5 to 10; III. August 25; IV. September 12 to 15; V. October 7 to 9; VI. October 31 to November 2.

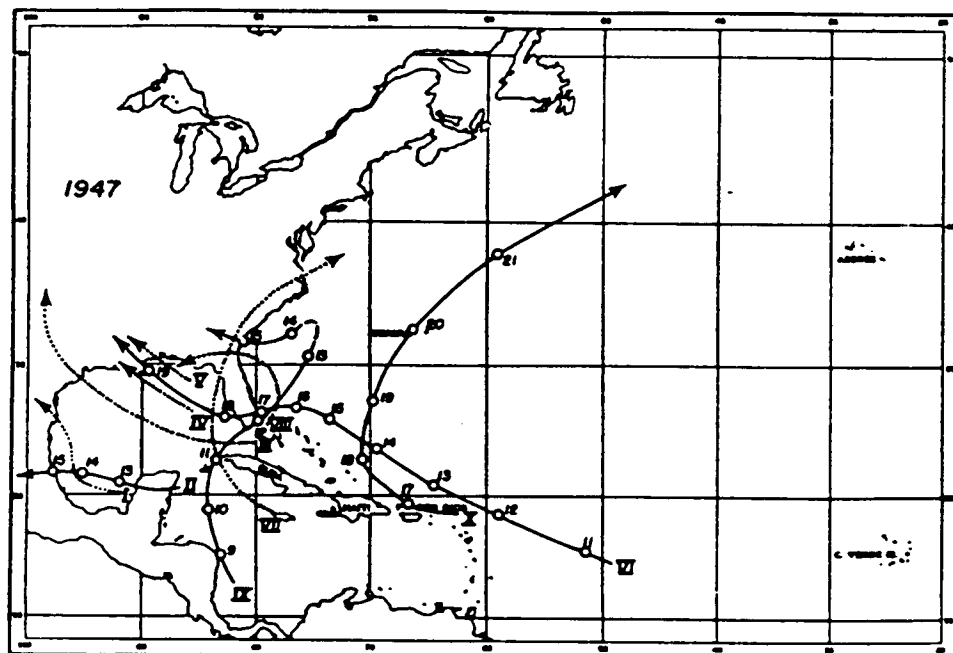
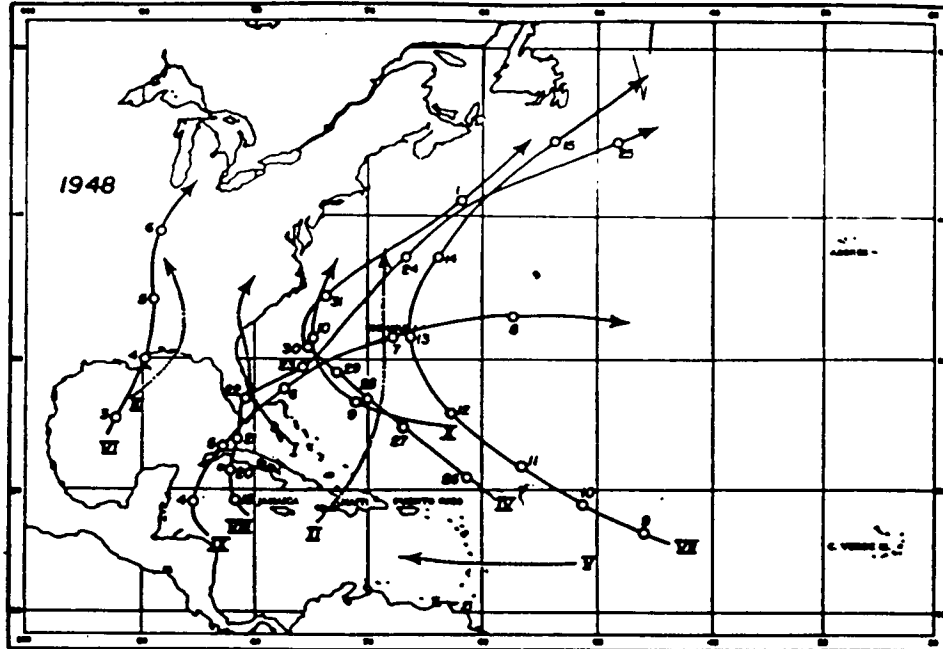
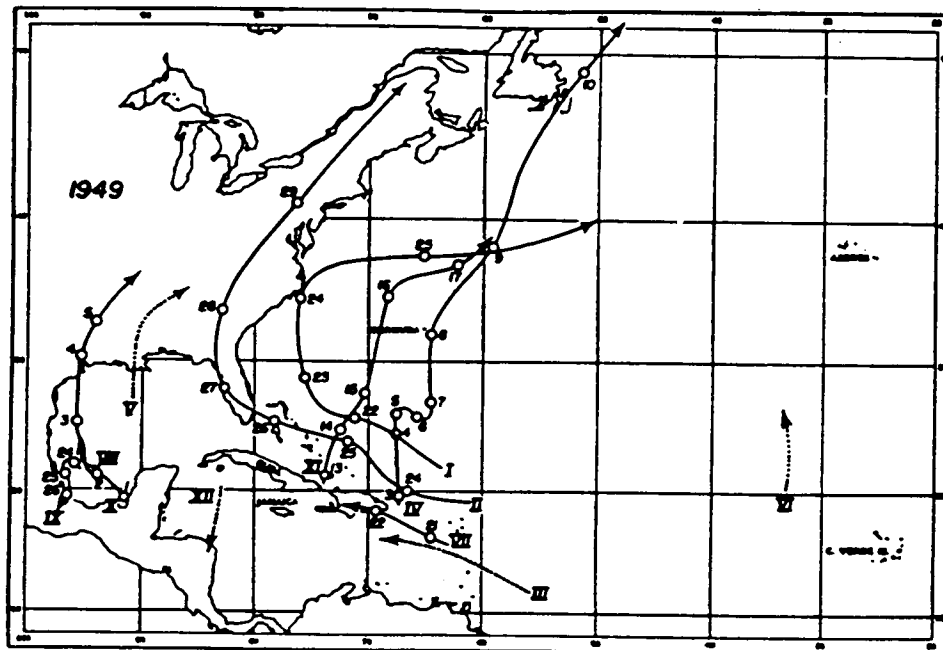


FIGURE F-62. Tracks of tropical storms of 1947. I. July 31 to August 1; II. August 13 to 15; III. August 18 to 27; IV. August 21 to 22; V. September 7 to 8; VI. September 11 to 19; VII. September 20 to 25; VIII. October 6 to 7; IX. October 9 to 15; X. October 17 to 21.





**FIGURE F-63.** Tracks of tropical storms of 1948. I. May 10 to 12; II. May 22 to 28; III. July 4 to 11; IV. August 26 to September 1; V. August 30 to September 2; VI. September 3 to 6; VII. September 9 to 15; VIII. September 19 to 25; IX. October 4 to 8; X. November 9 to 10.



**FIGURE F-64.** Tracks of tropical storms of 1949. I. August 21 to 25; II. August 24 to 29; III. August 30 to September 2; IV. September 3 to 10; V. September 4 to 5; VI. September 14 to 16; VII. September 21 to 22; VIII. September 22; IX. September 24 to 26; X. October 1 to 5; XI. October 13 to 17; XII. November 3.

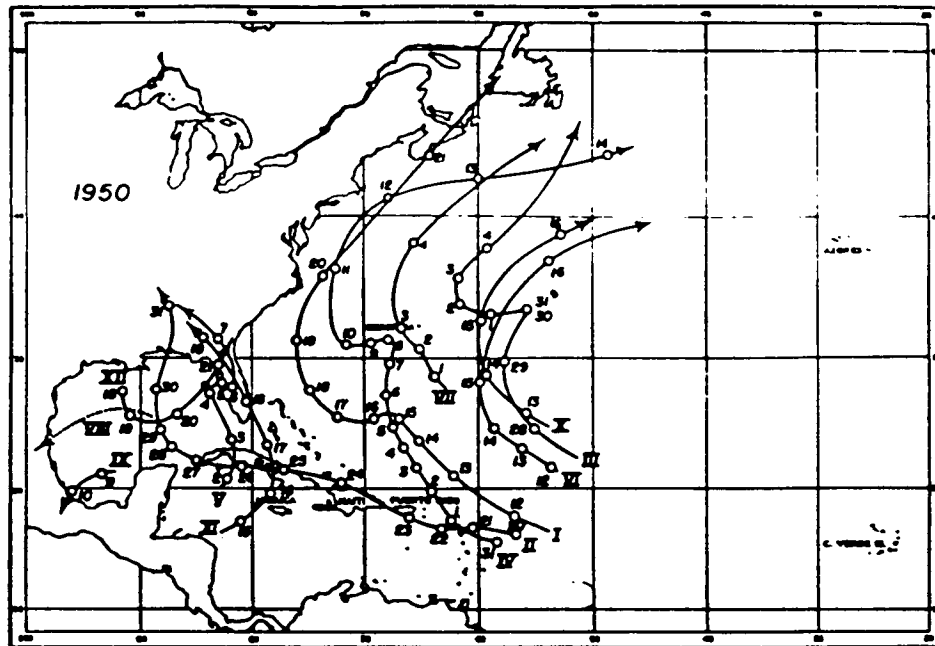


FIGURE F-65. Tracks of tropical storms of 1950. I. August 11 to 21; II. August 20 to 31; III. August 27 to September 4; IV. August 31 to September 14; V. September 1 to 7; VI. September 12 to 16; VII. October 1 to 4; VIII. October 2 to 4; IX. October 9 to 10; X. October 13 to 16; XI. October 15 to 19; XII. October 18 to 21.

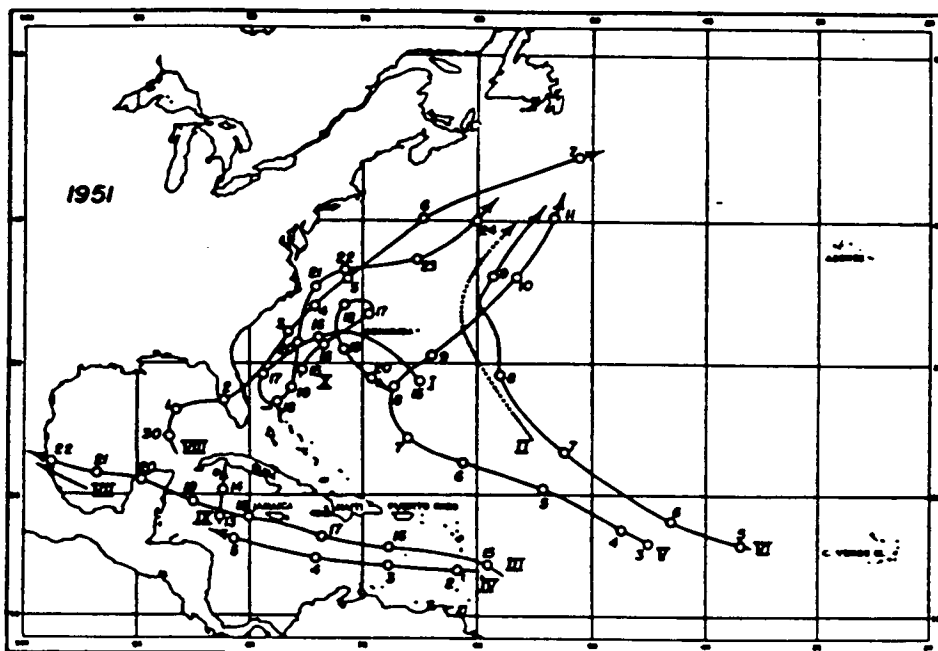


FIGURE F-66. Tracks of tropical storms of 1951. I. May 15 to 24; II. August 3 to 5; III. August 15 to 22; IV. September 2 to 5; V. September 3 to 11; VI. September 5 to 9; VII. September 20 to 21; VIII. September 30 to October 7; IX. October 13 to 14; X. October 15 to 20.

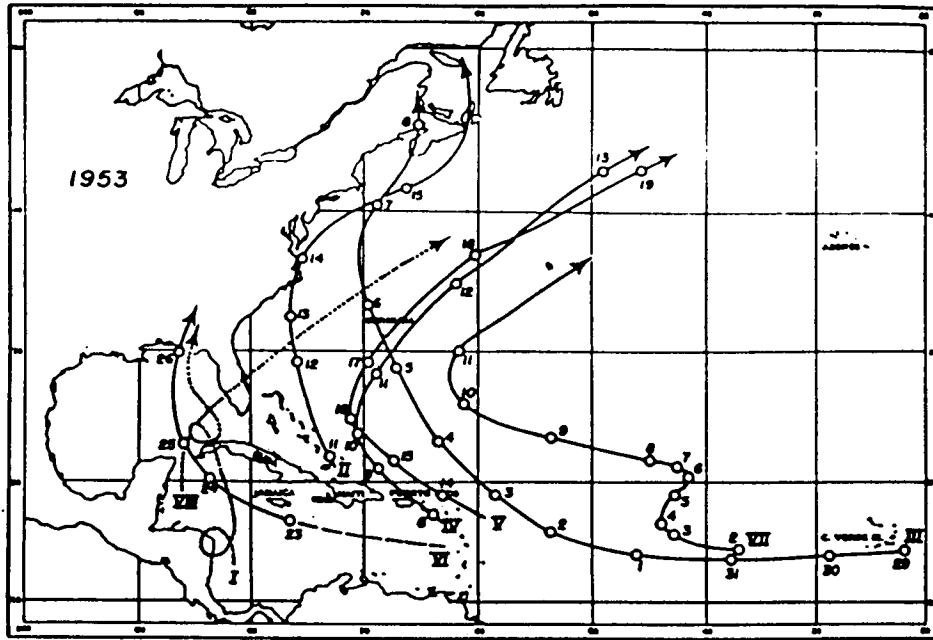


FIGURE F-67. Tracks of tropical storms of 1953. I. May 25 to June 6; II. August 11 to 15; III. August 29 to September 8; IV. September 8 to 13; V. September 14 to 19; VI. September 23 to 26; VII. October 2 to 11; VIII. October 8 to 10.

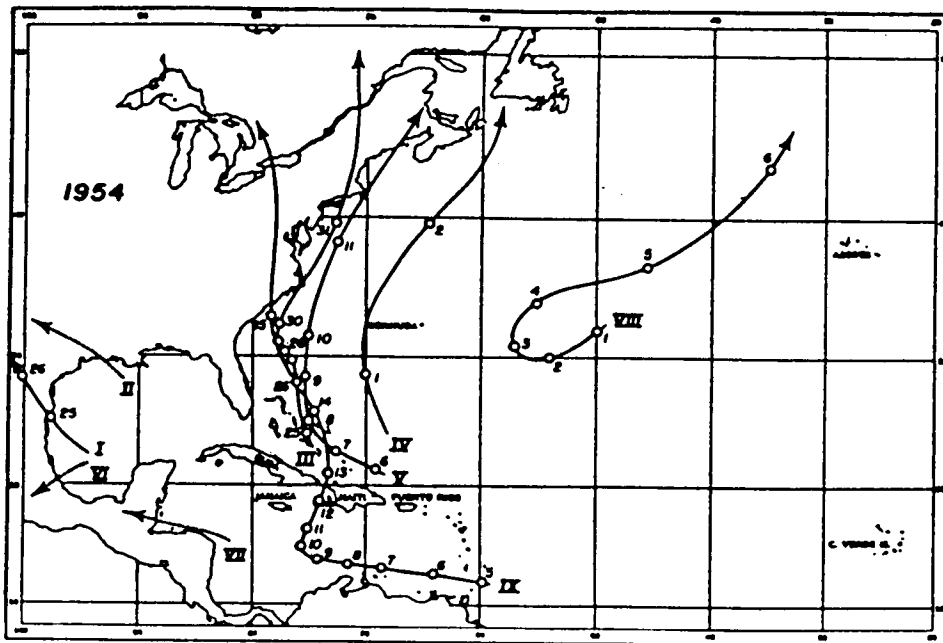


FIGURE F-68. Tracks of tropical storms of 1954. I. June 24 to 26; II. July 28 to 29; III. August 25 to 31; IV. September 1 to 2; V. September 6 to 11; VI. September 11 to 12; VII. September 25 to 27; VIII. October 1 to 6; IX. October 5 to 16.

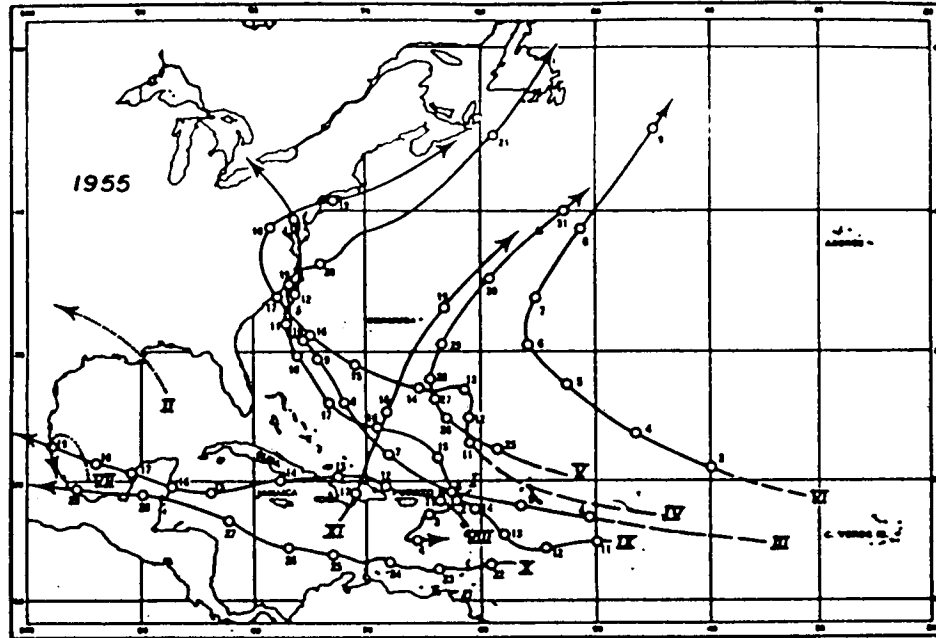


FIGURE F-69. Tracks of tropical storms of 1955. I. January 2 to 4; II. July 31 to August 2; III. August 3 to 13; IV. August 10 to 19; V. August 24 to 31; VI. September 3 to 9; VII. September 4 to 6; VIII. September 11 to 19; IX. September 11 to 21; X. September 22 to 29; XI. October 16 to 19.

## **APPENDIX G**

### **Shipwrecks Contained in Lease Blocks**

Table G-1.

G-3

## Shipwrecks Contained in Lease Blocks.

SHIP NAME	YEAR REF. NO.	SHIP NAME	YEAR REF. NO.
LITTLE TY	0 182	L AND L	0 156
UNKNOWN	0 522	UNKNOWN	0 587
UNKNOWN	0 433	UNKNOWN	0 462
ANCIENT MARINER	0 9	JEFF DAVIS	0 138
SANTA FEZ	0 297	UNKNOWN	0 524
UNKNOWN	0 446	UNKNOWN	0 423
JELYGE	0 139	KERR MCGEE 11055	0 150
UNKNOWN	0 569	UNKNOWN	0 2733
COASTAL RAMBLER	0 63	UNKNOWN	0 555
LORI	0 183	UNKNOWN	0 399
UNKNOWN	0 527	UNKNOWN	0 564
UNKNOWN	0 557	OBSTRUCTION	0 240
ALLEGRO	0 3	OBSTRUCTION	0 239
OFFSHORE	0 256	BRETON ISLAND	0 39
UNKNOWN	0 448	UNKNOWN	0 545
UNKNOWN	0 531	BLUE WAVE	0 36
UNKNOWN	0 502	UNKNOWN	0 565
HAWAIIAN BREEZE	0 120	UNKNOWN	0 567
UNKNOWN	0 554	JO ANN	0 140
UNKNOWN	0 392	SHIP SHOAL	0 308
CAPT. CARL	0 47	MISS ELLEN	0 211
WEST BEUFORT M.V.	0 624	UNKNOWN	0 509
UNKNOWN	0 532	UNKNOWN	0 580
BULL	0 41	UNKNOWN	0 375
UNKNOWN	0 351	EMMA LOUIS	0 91
CAPT JACK	0 46	UNKNOWN	0 576
UNKNOWN	0 400	CORAL FAYE	0 391
UNKNOWN	0 370	UNKNOWN	0 561
UNKNOWN	0 547	UNKNOWN	0 558
WA WA	0 622	UNKNOWN	0 350
UNKNOWN	0 447	G. I. JOE	0 105
UNKNOWN	0 594	UNKNOWN	0 568
BELLE	0 30	OBSTRUCTION	0 246
UNKNOWN	0 388	UNKNOWN	0 461
BARGER	0 22	UNKNOWN	0 389
SWIFT FISH	0 316	LITTLE CRIS	0 176
RIGHARD P	0 287	UNKNOWN	0 606
UNKNOWN	0 476	INCOGNITO	0 130
OBSTRUCTION	0 248	CUAHUTEMOC	0 108
UNKNOWN	0 543	GREENWOOD	0 190
UNKNOWN	0 373	LASPRESIS	0 256
UNKNOWN	0 376	COLUMBIA	0 97
UNKNOWN	0 378	COLUMBIA	0 64
OBSTRUCTION	0 254	SAN PEDRO	0 126
UNKNOWN	0 463	SOUTH SEAS	0 429
UNKNOWN	0 506	UNKNOWN	0 539
UNKNOWN	0 575	UNKNOWN	0 372
M. V. BARBARA	0 189	UNKNOWN	0 549
UNKNOWN	0 465	LITTLE ELIJAH	0 179
LUCILLE	0 186	UNKNOWN	0 496
UNKNOWN	0 597	OBSTRUCTION	0 237
YSD-71	0 632	UNKNOWN	0 526
BAHAMA MAMA	0 18	CAPTAIN READY	0 54
JACKIE M	0 134	ORION	0 260
UNKNOWN	0 500	UNKNOWN	0 403
UNKNOWN	0 428	UNKNOWN	0 411
JAN H	0 137	TODTS	0 330
UNKNOWN	0 396	UNKNOWN	0 599
BLUEWATER NO 1	0 37	UNKNOWN	0 541
UNKNOWN	0 417	CAPT CRICKET	0 44
OBSTRUCTION	0 233	CRANE	0 66
WILLIE D	0 626	TERRY	0 320
UNKNOWN	0 550	UNKNOWN	0 470
CHEVRON OIL	0 58	UNKNOWN	0 603
OBSTRUCTION	0 231	UNKNOWN	0 355
IMCO DRILLER	0 129	UNKNOWN	0 409

TABLE G-1 (CONTINUED).

SHIP NAME	YEAR	REF. NO.	SHIP NAME	YEAR	REF. NO.
UNKNOWN	0	662	PERAMA	0	271
UNKNOWN	0	186	HELO	0	125
UNKNOWN	0	421	FRANCES	0	104
UNKNOWN	0	512	WRECKAGE	0	628
UNKNOWN	0	407	VAINQUEUR	0	616
UNKNOWN	0	521	GULFSTAG	0	115
OBS (HELICOPTER)	0	647	UNKNOWN	0	371
UNKNOWN	0	429	UNKNOWN	0	404
LUCKY FOUR	0	188	UNKNOWN	0	382
UNKNOWN	0	443	UNKNOWN	0	363
TX 6473	0	340	UNKNOWN	0	424
MAVERICK	0	205	UNKNOWN	0	452
OBSTRUCTION	0	232	UNKNOWN	0	519
UNKNOWN	0	367	UNKNOWN	0	460
UNKNOWN	0	393	UNKNOWN	0	414
UNKNOWN	0	480	UNKNOWN	0	175
DANLYN	0	68	LINDA LOU	0	86
UNKNOWN	0	518	EAGLES CLIFF	0	86
STRANGER	0	313	UNKNOWN	0	563
UNKNOWN	0	573	DUBHE	0	81
UNKNOWN	0	440	TRIESTA	0	337
UNKNOWN	0	420	UNKNOWN	0	346
PHIL ALICE	0	272	UNKNOWN	0	387
UNKNOWN	0	520	EXCALIBER	0	96
MARCO	0	198	UNKNOWN	0	458
UNKNOWN	0	348	UNKNOWN	0	419
TERRY LEE	0	322	OBSTRUCTION	0	244
LUCKY	0	187	UNKNOWN	0	552
UNKNOWN	0	466	JULIE ANN	0	147
JOSEPH RUFF	0	236	PENROD 52	0	269
UNKNOWN	0	608	BECK II	0	27
MISS HAYES	0	212	UNKNOWN	0	595
UNKNOWN	0	228	UNKNOWN	0	386
FAITHFUL LADY	0	97	UNKNOWN	0	362
UNKNOWN	0	240	UNKNOWN	0	368
FLOSSIE R. SHAW	0	101	OBSTRUCTION	0	241
FLOSSEI R. SHAW	0	166	SHELL DRILLER	0	306
UNKNOWN	0	410	UNKNOWN	0	612
CAPTAIN GRIFFIN	0	50	PIONEER	0	273
BLUE BONNET	0	35	SAMMY J	0	292
LADY TONYA	0	162	OBSTRUCTION	0	230
UNKNOWN	0	488	OBSTRUCTION	0	253
ALYSSA	0	4	UNKNOWN	0	529
UNKNOWN	0	511	UNKNOWN	0	393
LYCO I	0	284	UNKNOWN	0	600
DOLPHIN	0	74	UNKNOWN	0	357
UNKNOWN	0	501	LOUIS	0	184
M901	0	191	UNKNOWN	0	469
M905	0	192	LA ENGLE	0	157
UNKNOWN	0	477	UNKNOWN	0	456
MR B	0	219	EDGAR F CONEY	0	389
UNKNOWN	0	454	SARAH MARIE	0	299
UNKNOWN	0	584	CLARA ANNEK	0	61
AMAYS	0	6	UNKNOWN	0	398
UNKNOWN	0	366	TRADEWIND	0	333
UNKNOWN	0	479	U-2513	0	65
UNKNOWN	0	471	JUNO	0	148
JOLLY ROGER	0	143	UNKNOWN	0	605
LADY VERNE	0	163	UNKNOWN	0	540
UNKNOWN	0	609	OBSTRUCTION	0	243
UNKNOWN	0	439	GANDY DANCER	0	107
OBSTRUCTION	0	251	HIGH STEPPER	0	127
UNKNOWN	0	560	UNKNOWN	0	593
MISS LAURA	0	215	UNKNOWN	0	646
UKDLA	0	344	OUTLAW	0	262
UNKNOWN	0	582	UNKNOWN	0	508
			KINGFISHER	0	154

TABLE G-1 (CONTINUED).

G-5

SHIP NAME	YEAR	REF. NO.	SHIP NAME	YEAR	REF. NO.
TRI-FISH	0	335	UNKNOWN	0	585
UNKNOWN	0	534	CHIP	0	59
UNKNOWN	0	379	SUZANNE	0	315
UNKNOWN	0	384	HAZEL FOSTER	0	121
UNKNOWN	0	566	MIDCO	0	209
OCEAN BELLE	0	255	UNKNOWN	0	427
MISS EILEEN	0	210	UNKNOWN	0	360
MABEL F II	0	193	MR MAGOO	0	220
UNKNOWN	0	487	BILL H	0	34
UNKNOWN	0	413	LAURA E	0	166
UNKNOWN	0	491	EMILE T EYMARD	0	90
UNKNOWN	0	467	SAN JORGE	1625	344
GELMER	0	108	LA BELLE	1685	233
UNKNOWN	0	571	AIMABLE	1685	19
NEW MOON	0	224	UNKNOWN	1700	
UNKNOWN	0	361	NUESTRA SRA. AMPARO	1717	314
UNKNOWN (GIGI IV)	0	613	N.ESRA. DEL AMPARO	1717	314
MOONRAKER	0	218	UNKNOWN	1725	
TEXACO 157	0	323	LA PRINCE DE CONTY	1731	
CONT 112 22	0	65	VIGILANTE	1732	
BUCCANEER	0	40	LA LOUISIANE	1738	
BARGE R. D. 2.	0	21	UNKNOWN	1741	
UNKNOWN	0	478	LE SUPERB	1745	263
THERESA F	0	326	DOLPHIN	1748	124
UNKNOWN	0	356	BETSEY	1750	58
TUFFY	0	338	ALEXANDER	1752	12
UNKNOWN	0	359	DOLPHIN	1752	123
UNKNOWN	0	551	STATEA	1752	429
UNKNOWN	0	437	LANCASTER	1752	253
MARVINA	0	202	UNKNOWN	1752	516
JAMES I	0	135	MAY	1752	289
UNKNOWN	0	516	UNKNOWN	1752	493
JAMESI	0	136	RHODE ISLAND	1752	379
UNKNOWN	0	559	UNKNOWN	1766	468
UNKNOWN	0	435	UNKNOWN	1766	475
UNKNOWN	0	548	LA CARAQUENA	1776	234
DOROTHY GLORIA	0	76	UNKNOWN	1777	
UNKNOWN	0	438	ROBERT	1777	
UNKNOWN	0	504	GALGO	1783	
FIVE BROTHERS	0	100	ARAUCANA	1811	
NEW HOPE	0	223	ATLAS	1816	43
HELEN MARTIN	0	124	LEOPARD	1825	242
UNKNOWN	0	525	RUFUS PUTNAM	1825	361
UNKNOWN	0	536	MONROE	1826	323
LITTLE GENERAL I V	0	180	WASHINGTON	1829	527
MICHELLE DESLETES	0	208	REGULATOR	1830	384
UNKNOWN	0	572	UNKNOWN	1830	478
UNKNOWN	0	459	FREDERICK	1830	170
UNKNOWN	0	450	PIZARRO	1831	370
OBSTRUCTION	0	250	PACIFIC	1831	347
UNKNOWN	0	385	PETTIT NANCY	1831	364
UNKNOWN	0	405	NATIVE	1832	333
SINTPAT	0	310	CHAMPION	1832	75
UNKNOWN	0	369	PENNSYLVANIA	1835	361
UNKNOWN	0	489	SOPHIA	1835	428
UNKNOWN	0	449	RUTH	1835	399
KOKOMO	0	155	SAN FELIPE	1835	375
UNKNOWN	0	537	HANNAH ELIZABETH	1835	166
OBSTRUCTION	0	236	ST. ISABEL	1836	401
CLIPPER	0	62	JAMES I. TIMPSON	1836	219
SANDRA F	0	295	CAYUGA	1836	74
UNKNOWN	0	601	SAN FELIPE	1836	552
DOS HOMBRES	0	77	PELICAN	1836	359
UNKNOWN	0	416	HENRY	1837	201
UNKNOWN	0	431	WILLIAM	1837	532
UNKNOWN	0	602	UNION	1837	463



TABLE G-1 (CONTINUED).

SHIP NAME	YEAR	REF. NO.	SHIP NAME	YEAR	REF. NO.
CRUSADER	1838	107	MARY ANN	1864	270
CONSTITUTION	1840	102	UNKNOWN	1864	484
CHANCELLOR	1841	75	ROB ROY	1865	352
GENERAL BRYAN	1842	150	EXCELSIOR	1865	153
MARY	1842	42	ANNA DALE	1865	24
SWAN	1843	73	UNKNOWN	1865	464
SARAH BARNES	1843	67	ELLA	1866	138
ALEXANDER WASHINGTON	1844	1	L'ECLAIR	1866	247
LLEWELLYN	1844	37	RINALDO	1866	392
SOBIESKI	1844	69	PATOMSKIA	1866	352
J.D. NOYES	1844	28	ALEXA	1866	11
TIGER	1844	418	EDITH BROWN	1867	130
SWALLOW	1845	72	CHIEF	1867	79
NEW YORK	1846	51	UNKNOWN	1867	494
NEPTUNE	1846	334	TARTAR	1867	443
GOPHER	1846	186	MOUNTAIN HOME	1867	327
FLORIDA	1846	165	UNKNOWN	1867	474
TARRY NOT	1846	442	UNKNOWN	1867	488
TWO BROTHERS	1846	459	VOLUMNIA 25748	1867	524
SEA	1846	418	BILLOW	1868	47
PALO ALTO	1846	350	SAINT MARY 23664	1868	406
VAN BUREN	1846	77	MARIPOSA	1870	280
PANAMA	1846	56	QUEEN OF THE SEAS	1870	378
BLACK HAWK	1846	3	SUN FLOWER	1870	406
MARGARET	1846	40	IDA REES	1873	191
FRONTIER	1846	171	S.S. PAISANO	1873	335
PAULINE	1846	57	ODELIA 19267	1874	342
HAMLET	1846	24	MARION	1874	295
J.T. BERTINE	1846	29	MARY CAROLINE 16691	1874	301
COLONEL HARNEY	1847	91	TEXAS RANGER	1874	450
SARAH	1847	416	ADA	1875	6
ALICE SADELL	1847	20	REINE DES MERS	1875	387
A.B. COOLEY	1848	3	RESCUE	1875	389
GLOBE	1851	182	DESPERADO	1875	.
SPRAY	1851	432	JONAS H. FRENCH	1875	.
PALMETTO	1851	348	IDA LEWIS	1875	207
INDEPENDENCE	1852	192	WESTERN EMPIRE	1875	.
METEOR	1852	315	DEMOCRAT 6465	1875	114
CINCINNATI	1853	77	BURKHART	1876	56
UNKNOWN	1853	555	GEORGE BURKHART	1876	177
UNKNOWN	1853	485	THISTLE	1877	415
CINCINNATI	1853	81	WOODHOUSE	1877	465
YACHT	1853	540	E.S. TYLER	1877	125
UNKNOWN	1854	479	CLARA WOODHOUSE	1877	83
MAGYAR	1854	238	FAIRY 9902	1877	156
J.J. WARREN	1859	203	THREE SISTERS	1877	.
OK	1862	316	GOVERNOR MORTON	1877	147
ELMA	1862	125	EMMA	1878	142
MORNING LIGHT	1863	326	TORRY	1878	421
REVENGE	1863	391	RHODA B. TAYLOR	1878	351
MANHASSET	1863	291	BEST FRIEND	1879	43
USS MORNING LIGHT	1863	445	J.D. WILLETS 13807	1880	240
YOUNG HARRY	1863	542	CATON	1880	72
NASSAU	1863	298	MARIE THERESA	1880	294
NASSAU	1863	332	LAURA LEWIS 15968	1880	257
KATE	1863	243	NONESUCH	1880	.
I.W. HANCOX	1863	206	WELCOME	1880	457
BLOSSOM	1863	49	PETRITA 20307	1880	363
ZEPHIR	1863	544	MARIA THERESA	1880	293
PARTRIDGE	1863	351	R.D. PIPER	1880	380
RELIEF	1863	388	WELCOME	1880	.
VICTORIA	1863	521	UNKNOWN	1881	496
USS HATTERAS	1863	443	JWAY M. (?)	1881	229
HATTERAS	1863	168	JOSEPHINE	1881	222
CLIFTON	1864	87	WHISPER 80460	1881	529
MARY ANN	1864	299	VALLEY CITY	1882	546

TABLE G-1 (CONTINUED).

G-7

SHIP NAME	YEAR	REF. NO.	SHIP NAME	YEAR	REF. NO.
TWO MARY'S	1882	.	COLUMBUS	1909	354
TEX MEX	1882	.	ISAAC T. CAMPBELL	1909	.
ROSETTA MCNEIL	1882	476	LYDIA	1909	988
POSETTA MCNEIL	1882	336	FRANCES H.	1909	571
ANNIE LEWIS	1883	.	EDNA B.	1909	131
SAM HOUSTON	1883	369	JAMES C. CLIFFORD	1909	.
LAURA	1884	238	HARRY K. FOOKS	1910	683
DORIO DORIA	1885	120	SATURN	1910	1430
PHEONIX	1886	365	CLARKE OIL TNKR #1	1911	85
LOTTIE MAYO	1886	.	RACHEL EMERY	1911	315
ARIETAS	1886	37	BARGE NO. 14	1912	38
QUINTANA 20562	1887	379	N.A.D. CO. NO.5	1912	1173
MINNIE	1888	255	N.A.D. CO. NO.6	1912	1174
ANTONIETTA	1888	.	T.T. CO. NO.11	1912	1530
EAGLE	1888	113	S.O.CO. NO.87	1912	1398
RIPPLE	1889	.	TAURUS	1912	1532
L.A.BURHAM	1889	.	BISCAYNE	1913	46
REBECCA 21860	1889	383	MILDRED	1914	283
NUEVO CURRUTACO	1889	287	PRISCILLA	1914	1310
FANNIE	1889	.	NELLIE GRANT	1915	1183
MAGGIE 91447	1890	289	LYDIA M. DEERING	1915	.
MATTIE	1891	312	DORIS	1915	438
FRANK HITCHCOCK	1893	169	DONNA CHRISTINA	1915	107
WALTER L. PLUMMER	1894	.	THEODORE WEEMS	1915	.
G.G.O.	1895	.	MAUDE PALMER	1915	1054
CRISIS	1895	.	CHICOPEE	1915	78
JAMES ANDREWS	1896	217	EMMA HARVEY	1916	502
GERHARDUS	1897	.	JENNIE S. HALL	1916	779
UNKNOWN BARGE	1897	508	MARION R	1916	1027
SEA GULL	1897	422	BRADFORD C. FRENCH	1916	.
HENRY C. WINSHIP	1897	175	C STRONG	1916	43
HATTIE	1898	199	C. STRONG	1916	122
WILLIAM J. KEYSER	1898	.	CARRIE STRONG	1916	297
MARJORIE	1899	.	METEOR	1916	1069
HELENA E. RUSSELL	1899	.	SUSIE H. DAVIDSON	1917	371
JOHN S. AMES	1899	.	PATTON	1917	294
ABBIE DEES	1899	.	DEAN E. BROWN	1917	401
COQUETTE	1900	103	MAGGIE TODD	1918	275
CAROLINE	1900	67	GUYTON NO.10	1918	672
REGULATOR	1901	.	SPRINGFIELD	1918	.
MABEL HOOPER	1901	.	FAIRHOPE	1918	121
LIZZIE HAAS	1902	246	MILLIE R. BOHANNAN	1919	1075
HELEN BUCK	1902	.	JOHN FRANCIS	1919	800
CARDLINE	1902	66	JOHN SEALY	1919	233
MARY E. LYNCH	1902	302	CAPE HORN	1919	61
JOSEPHINE D.	1903	237	MUNISLA	1919	273
E.H. WEAVER	1903	457	CORYDON	1919	111
LAKE AUSTIN	1903	253	MARIE	1919	1020
EL MAR	1904	133	DETROIT	1919	91
HANNAH	1905	197	SAVERIO M. STELLA	1920	1431
VILA Y. HERMANO	1905	392	CAPTAIN SAM	1920	275
NOKOMIS	1905	227	THREE MARYS	1920	327
ELMER E. RANDALL	1906	112	SPEEDWELL	1920	.
A.A. ROWE	1906	1	HOLLISWOOD	1920	714
G.L. DABOLL	1906	592	CRESCENT	1920	114
FRED P. LITCHFIELD	1906	132	MINGO	1920	.
ASA T. STOWELL	1906	39	GUNN&ANDERSON BROS.	1921	.
E.L. COTTINGHAM	1906	145	G. A. SOMERVILLE	1921	614
E L COTTINGHAM	1906	83	J.W. SOMERVILLE	1921	758
EMMA L. COTTINGHAM	1906	113	G.C.T. CO.16	1921	590
FLYTON	1906	562	ALLEGHENY	1921	.
ELSIE MARIE	1907	493	BEN	1921	32
ADDIE F. COLE	1908	6	BAN	1921	430
VICTORINE	1908	1609	C. W. WELLS	1921	78
NORTHERN EAGLE	1908	1206	C.W. MILLS	1921	79
JERRY	1909	208	JESSIE C. BARBOUR	1922	209

TABLE G-1 (CONTINUED).

SHIP NAME	YEAR	REF. NO.	SHIP NAME	YEAR	REF. NO.
JESSE C. BARBOUR	1922	189	RAWLEIGH WARNER	1942	291
GOLDEN STATE	1922	144	GULFOIL	1942	152
NOLA	1922	.	GULF OIL	1942	211
FIDGET	1923	540	GULF PENN	1942	243
CASTINE	1924	60	ROBERT E. LEE	1942	323
GRADY S.	1924	637	ALCOA PURITAN	1942	1
FANNIE AND FAY	1925	532	R E LEE	1942	278
HORACE M. BICKFORD	1925	.	R.E. LEE	1942	261
THELMA	1925	.	CARRABELLE	1942	56
M.N. COBB	1925	280	AMAPALA	1942	5
MARION N. COBB	1925	246	GEORGE CALVERT	1942	603
W.D. CASH	1926	1626	UNKNOWN	1943	412
GULF OF MEXICO	1926	656	ARIZONA	1943	82
HELENA	1926	695	UNKNOWN	1943	202
LADY BERTHA	1926	881	UNKNOWN	1943	651
YUMA	1926	633	UNKNOWN	1943	482
ELLEN C. BURKE	1927	489	PRAWN	1943	1299
W H MARSTON	1927	621	TULSA	1943	436
W.H. MARSTON	1927	395	UNKNOWN	1943	667
MARY	1930	4175	SUNSHINE	1943	1518
EDGAR F. CONEY	1930	.	ANONA	1944	341
E.F. CONEY	1930	675	SEA DUKE	1944	1436
BUCCANEER	1933	220	YP 331	1944	66
PROVIDENCIA	1936	1315	EAGLE	1945	84
LINDE NO.5	1936	935	ANTONIA ENSEN	1945	12
IDA Q	1936	731	EL VIVO	1945	342
E. J. BULLOCK	1938	129	MARGATE	1945	313
UNKNOWN	1939	441	UNKNOWN	1946	579
BELMONT	1939	31	SUNSHINE	1946	1519
SHAMROCK	1939	1452	ANACONDA	1946	8
KIVA	1939	212	GULF TIDE	1947	362
J W CLISE	1940	133	LEO HUFF	1947	170
J.W. CLISE	1940	183	DONNA LEE	1947	434
TEXAS NO.2	1941	1541	VALKYRE	1947	1599
EDGAR M.	1942	468	WINTHROP	1947	402
MERRIMACK	1942	1066	WARRIOR	1947	1635
JOSEPH M. CUDAHY	1942	820	UNKNOWN	1947	495
GEORGE C. GREER	1942	602	S. C. LOVELAND JR.	1948	395
U-166	1942	273	RAY SCOTT	1948	1335
R.M. PARKER JR.	1942	272	SUNBEAM	1948	369
R M PARKER JR.	1942	279	HELEN L	1948	692
WM. C. MCTARNAHAN	1942	403	IRVIN	1948	742
HEREDIA	1942	246	SAN MARCOS	1948	.
R W GALLAGHER	1942	280	S.C. LOVELAND	1948	311
R.W. GALLAGHER	1942	248	S C LOVELAND	1948	289
BAJA CALIFORNIA	1942	19	UNKNOWN	1948	515
MUNGER T. BALL	1942	272	FL'S TRAILBLAZER	1949	556
DAVID MCKELVY	1942	673	CARMEN LOUISE	1949	287
UNKNOWN	1942	435	STARLAN	1949	1500
BAYARD	1942	24	LITTLE TOM	1949	956
UNKNOWN	1942	230	THE SHARK	1949	1551
GUNBOR	1942	116	MERIDA	1949	.
NORLINDO	1942	70	RUMA	1949	328
TORNY	1942	331	DOROTHY	1949	440
SHEHERAZADE	1942	265	UNKNOWN	1949	294
CIT S TOLEDO	1942	60	WILDA L.	1949	1649
CITY OF TOLEDO	1942	324	JOGUY	1950	798
EDWARD LUCKENBACK	1942	72	RECESS II	1950	1340
ED LUCKENBACH	1942	643	NORTHER	1950	338
ONTARIO	1942	259	HAZEL C	1950	687
B-1	1942	102	COASTWISE	1950	349
BENJAMIN BREWSTER	1942	23	TROUT	1950	1581
B BREWSTER	1942	16	BERTHA S.	1950	144
EMPIRE MICA	1942	92	BETTY	1950	152
HERMIS	1942	47	E.M. HARTWICK	1950	459
VIRGINIA	1942	620	SILVER LINER	1951	357

TABLE G-1 (CONTINUED).

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SHIP NAME	YEAR	REF. NO.	SHIP NAME	YEAR	REF. NO.
VIRGINIA MAY	1951	555	381&1	1954	1
GEN. PAPAGOS	1951	599	C.D. ERGAS	1954	227
CUAHUHEMUC	1951	114	WA WA	1954	424
LADY MAE	1951	216	CARIBE NO.500	1954	327
MACKEREL	1951	896	PIONEER	1954	330
ANNE HARDY	1951	11	BERTHA R.	1954	.
MARY-JOHN	1951	1050	ROSIE II	1954	389
HILDA B	1951	709	PEARL LOUISE	1954	1261
GEORGIANA	1951	610	HUCKLEBERRY FINN	1954	719
EDNA BELLE	1951	470	LEE HARDIMAN	1954	903
ATHENS	1951	94	SHOAL HARBOR	1955	398
WRECK	1951	627	CHIEF	1955	325
UNKNOWN	1951	141	LOUFAYTERRY	1955	228
DAHLIA	1952	386	RAMOS III	1955	676
RITA	1952	1355	RAMOX III	1955	392
CHIC	1952	323	UNKNOWN	1955	644
EVELYN JEWELL	1952	119	LINDA LEE	1955	934
ALERT	1952	35	BLUE BONNET	1955	182
ARMY	1952	86	SNAPPER QUEEN	1955	1473
MERRY SEA	1952	1067	JEAN	1955	775
PARNELL	1952	1250	CORAL SANDS	1955	82
GREEN SEAS	1952	185	JOSEPH ANTHONY	1955	199
JANET ANN	1953	770	CONQUEST	1955	359
WEST BEUFORT	1953	423	BON SECOUR	1955	196
VERMILION	1953	1605	ELECTRA	1955	134
KILE NO.1	1953	859	ARROW	1955	13
LITTLE CHRIS	1953	273	ARROW	1955	32
CANNON BALL	1953	47	KERMAC XVI	1955	853
BOUNTY	1953	38	KERMAC XVI	1955	209
F.W. SHEPER	1953	526	SHOAL HARBOUR	1955	356
USS PC 463	1953	101	ESMERALDAS	1955	116
PENTREL 14	1953	270	OBSTRUCTION	1955	242
BARBARA ANNE	1953	118	UNKNOWN	1955	310
TEXAS NO.7	1953	1542	MISS CONSTANCE	1955	1096
CLIPPER	1953	347	OBSTRUCTION	1955	245
VONCILLE	1953	1625	UNKNOWN	1955	302
CAYO HUESO	1953	306	SUNSHINE	1955	1517
DOLPHIN	1953	428	DEWEY	1956	71
LITTLE HOWDY	1953	948	SANDY HOOK	1956	1421
LINDA	1954	173	SHOAL HARBOR	1956	309
DR. H.E. WHITE	1954	449	UNCLE LUM	1956	1592
ATLANTIC	1954	15	CHALLENGER	1956	309
MAMIE J.	1954	1007	POLARIS	1956	386
R.J.L.	1954	1322	DELTA JR.	1956	413
POLARIS	1954	303	MUTINY	1956	275
AMIGA MIA	1954	20	DONALD FAYE	1956	430
PALMETTO	1954	349	LOT BESCO	1956	373
H. FINN	1954	195	LCT BESCO	1956	168
CAMPECHE	1954	238	ANGELOS	1956	9
H FINN	1954	117	VONA MABRY	1956	1624
JIM MELTON	1954	785	MAYFLOWER	1956	1061
GMOCO	1954	625	NEW LIFE III	1956	1191
LIBERATOR	1954	814	SUSAN & GRETTA	1956	370
FLAGSHIP	1954	126	VIVIAN TILLMAN	1956	1621
BLUE STACK 79	1954	174	ELIZABETH	1956	481
GYPSY GIRL	1954	194	V TILEMAN	1956	263
DOROTHY	1954	441	AGEOS SPERIDON	1957	22
UNKNOWN	1954	177	PELICAN DRILLER	1957	295
HILL	1954	710	J.A. BISSO	1957	.
UNKNOWN	1954	654	J E BISSO	1957	132
UNKNOWN	1954	176	MURMANILL	1957	221
VIRGINIA GAIL	1954	1616	TWIN BROTHER	1957	1586
UNKNOWN	1954	4190	RUTLIDGE	1957	400
VIKING	1954	1611	CAPT GENE	1957	246
LIBORIA C.	1954	268	ANSON T.	1957	78
SAM HOUSTON	1954	337	EMILY INEZ	1957	499

TABLE G-1 (CONTINUED).

SHIP NAME	YEAR REF. NO.	SHIP NAME	YEAR REF. NO.
LITTLE JEWEL	1957 949	MISS BARBARA ANN	1959 256
SALLY ANNE	1957 1409	40_FATHOM NO.27	1959 6
DIXIE DANCY	1957 118	LAVENA	1959 167
BLUE FIN	1957 32	ROSEINA	1959 288
ATLANTA	1957 34	CHEROKEE	1959 69
CHEBEAGUE	1957 318	ELINOR-J	1959 479
MARGARET M.	1957 292	HUSTLER	1959 722
EVA ROSE	1957 151	JUJUBEE	1959 203
NIKE	1957 1196	CHERIE	1960 321
MARY ELLEN	1957 1042	RAMOS PRIDE	1960 283
WILLIAM HAYES	1957 625	DRAGONET	1960 79
KETURAH	1957 210	ECLIPSE II	1960 465
STAR DUST	1957 1497	MARY JOHN	1960 1047
RANGELY	1957 316	GULF STREAM	1960 150
MARY ANNE	1957 1037	POP EYE	1960 1295
RALPH E. HAVENS	1957 1328	LI'L TEXAN	1960 222
NEW REGAL	1957 1193	LIL TEXAN	1960 921
GERALDINE	1957 611	MISS MORGAN CITY	1960 1124
UNKNOWN	1957 390	fish haven	1960 635
TROPICAL	1957 .	FISH HAVEN	1960 160
DOTTIE NELL	1957 446	FIGHTER	1960 542
BOY SCOUT	1957 3243	KATY D.	1960 848
D-17	1958 381	MISS GINA	1960 260
SUPERTEST	1958 434	DOCTOR WALLING	1960 94
BECKY SUE	1958 19	UNKNOWN	1960 465
MISS CAMPECHE	1958 298	UNKNOWN	1960 659
WALLING III	1958 561	LITTLE MITCH	1960 225
SAMMY H.	1958 339	UNKNOWN	1960 395
OCEAN BRIDE	1958 1212	40_FATHOM NO.6	1960 7
UNKNOWN	1958 665	TEXAS NO.11	1960 1540
TIMMY	1958 1565	ROWENA BURGMAN	1960 326
YANKEE PIRATE	1958 406	MISS CATHERINE	1960 257
ST. MARK	1958 1493	LONGHORN	1960 227
FRANCES	1958 131	SEA GULL	1960 1437
SHELL DRILLER	1958 355	GEORGIA QUEEN	1960 608
ALABAMA	1958 28	THERESA F.	1960 1554
CATHIE	1958 303	LITTLE DAVID	1960 942
ECHO	1958 463	TRICIA F	1960 336
PRINCESS PAT	1958 1308	BLANCHE MARIE	1960 180
AUDREY	1958 99	LADY LILLIAM	1960 887
MARTHA GENE	1959 1034	CARLTON EACHO	1960 285
MR. BILL	1959 271	SANTA FE	1961 1424
TRANS-GULF NO.10	1959 1577	TRVELER	1961 1582
JOSEPH H. DAVI	1959 819	JANIS WALKER	1961 186
G. MO. MARCONI	1959 588	MABEL MARJEAN	1961 994
CAROL FAYE	1959 56	POMPANO SCOUT	1961 1293
SOUTHERN QUEEN	1959 1480	TRAVELER	1961 385
RUTHELINE	1959 1393	MILLIE	1961 1074
QUE NO.3	1959 1317	KELLY K	1961 852
BUCKROY	1959 221	KELLY K.	1961 208
LITTLE SARAH	1959 955	JORDAN GIRLS	1961 817
SYLVIA H.	1959 373	HI-WAY	1961 706
INEZ G	1959 4155	CORAL CLIPPER	1961 363
DRYDOCK	1959 80	RODNEY	1961 1368
GLEN-RAE	1959 181	MISS MYRTLE	1961 1125
MISS LOU	1959 1119	UNKNOWN	1961 3597
NANCY F.	1959 276	ROSE CROIX	1961 325
FAITH	1959 529	SHERRY ANN	1961 307
SAILOR	1959 1406	DONNA K	1961 433
OTTIS	1959 1237	K.	1961 242
PHILOMENE	1959 299	ISLANDER	1961 267
C.M. BOGGS	1959 45	FEARLESS	1961 124
VELMA	1959 1603	TUG	1961 339
D-15	1959 380	TWO SISTERS	1961 1589
J.S. OTIS	1959 756	SANTA MARIA	1961 1425
MISS MINNIE	1959 1123	TONY S.	1961 1571

TABLE G-1 (CONTINUED).

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SHIP NAME	YEAR	REF. NO.	SHIP NAME	YEAR	REF. NO.
UNKNOWN	1961	672	BAR PILOT	1965	17
FAWN	1961	534	CAVALIER	1965	73
ISLANDER	1961	131	BULL	1965	43
THE GEORGE QUEDNAU	1962	1547	NELLY ROSE	1965	280
TOOTS	1962	1573	MISS PAT	1965	1128
GUIDING LIGHT	1962	645	PAMELA M	1965	1245
SALLY GALE	1962	1410	PRINCESS	1966	1303
SIDNEY JR.	1962	1464	FLIPPER TOO	1966	549
WILLIAM R.	1962	570	MINIMAX ELEVATOR	1966	254
COMANCHE	1962	355	ANDY MARTIN	1966	11
ALLEGRO	1962	42	PLEIADES	1966	1285
UNKNOWN	1962	661	MISS AMERICA	1966	1079
CAPTAIN JIMMIE	1962	50	BETTY SCO.	1966	44
PETRO PETE	1962	1272	DESCO	1966	419
HEEDLESS	1962	166	BAETTY SCA	1966	108
MARINE SU. QUEEN	1963	.	LITTLE RED	1966	226
S.S. SPENCE	1963	1400	OTIS IV	1966	1236
UNKNOWN	1963	396	LILLIE MACK	1966	928
JOLIE BLONDE	1963	814	CHRIS ALAN	1966	327
DAVID B	1963	110	MATAGORDA PILOT	1966	238
LUA	1963	233	COMPASS STAR	1966	357
MISS NORTH CAROLINA	1963	1127	MR. B.	1966	343
CHUCKADEE II	1963	70	DONCELYN	1966	96
CAPTAIN TONY	1963	278	CLARE ANN K	1966	338
DRUE ANN	1963	23	JOANNE	1966	792
JACK PHARR	1963	184	MALCOLM B. TOOMER	1966	241
BETTY LOU	1963	159	RED SEAL	1966	1341
CATHY AND BARNEY	1963	62	SADIE S.	1966	1405
PAN AMERICAN-20	1963	1246	SADIE S	1966	245
JANUARY	1963	772	SUNRISE	1966	437
GEORGIA TECH	1963	609	SANDRA F.	1966	1419
EV-ANN	1963	516	KATY SUE	1966	207
COMMANDO	1963	356	CAPT. CARL	1967	249
NOLA	1963	1203	PAL-O-MINE	1967	1241
COURAGEOUS	1964	372	MRS LORINA	1967	1167
BARBARA	1964	115	CAPT. CHARLES	1967	250
LUCILLE	1964	973	NAUGHTY GIRL	1967	279
INDEPENDENCE	1964	215	BRAZOS VALLEY	1967	208
SASSY JANE	1964	1429	LEEWAY II	1967	264
SHIP SHOAL	1964	1459	HILL TIDE	1967	4162
TERRY WALKER	1964	376	TARAMBANA	1967	657
LYCO T.	1964	286	BLUE BONNET	1967	50
MISS SARAH	1964	1133	BECT NO.2	1967	129
B AND J.	1964	113	LOUISE	1967	969
ADAK	1964	16	CAPT. R.J. SANDERS	1967	292
JANE MARLENE	1964	769	BONUS KEN	1967	202
HULDA BEE	1964	203	MR. LUKE	1967	1165
MISS LAURA	1964	1115	ARTHUR J. ROTH	1967	89
BARBARA JEAN	1964	361	CLEO SUE	1967	286
C.P. BAKER	1964	46	MISS SONDRAL LEIGH	1967	1135
LIGHTNIN	1964	920	CAPTAIN JOE	1968	51
MISS TUCSON	1964	1140	GULF PRIDE	1968	657
BEVERLY ANN	1964	161	MYSTERY II	1968	1172
BLUE WATER I	1964	34	MERMAID	1968	314
ALVIN J.	1964	51	MARGO	1968	1017
SEA CONTRACTOR	1965	351	CAPTAIN SCOTTY	1968	276
EASTBANK	1965	461	CAPTAIN STEVE	1968	53
LIBBY ANN	1965	913	UNKNOWN	1968	450
CAMPECHE	1965	237	MR. MURPHY	1968	1166
BAROID EXPRESS	1965	18	WHIRLAWAY	1968	1640
MISS LIBERTY	1965	262	JULIE	1968	204
CHERAMIE NO.3	1965	319	LYCO XX	1968	235
G.I. JOE	1965	591	TERRY AND MIKE	1968	446
ONAWA	1965	258	JULIE ANN	1968	834
CARL TIDE	1965	55	LITTLE JOE	1968	951
JIMBO	1965	4177	JOHN R. COOK	1968	805

TABLE G-1 (CONTINUED).

SHIP NAME	YEAR	REF. NO.	SHIP NAME	YEAR	REF. NO.
SAN JU THAD	1968	1416	WONDERFUL WORLD	1971	1665
MISS SUE	1968	1137	DEBORA M	1971	404
LITTLE GENERAL IV	1968	946	GEORGIA MAE	1972	607
ELLA	1969	486	SKYLARK	1972	1471
MISS GEORGIA	1969	1103	MISS GEORGIA	1972	1104
LADY VERNE	1969	252	FAIR WIND	1972	528
BRETON ISLAND	1969	.	WHISPER	1972	1641
CARDINAL ELEVATOR	1969	282	HAPPY FOUR	1972	438
BRETON ISLAND	1969	209	BARBARA K.	1972	122
BIG DIPPER	1969	167	DE RAIL	1972	195
MISS FOUR HUNDRED	1969	1101	LISA GAIL	1972	272
CORPUS LADY	1969	370	SANDY BELLE	1972	1420
DELTA ELEVATOR	1969	412	LADY GAY	1972	884
POWHATTAN	1969	1298	MISS WANDA DENE	1972	1141
SECO NO. 2	1969	1449	MOUETTE	1972	1154
MARGARET ANN	1969	1012	J. STORM II	1972	749
DEMAS C	1969	414	YUCATAN	1972	1673
CAPT. DON	1969	251	V A FOGG	1972	614
MYRTLE O	1969	1171	SMOKEY	1972	237
FRANCIS BRANDER	1969	574	ST. LAURENT I	1972	1492
LADY BETH	1969	882	GULF KING XVIII	1972	649
CU 708	1969	83	SHIP ISLAND	1973	1458
ICE FLOE	1969	727	LYCO V	1973	985
FOUR DS	1969	566	UNKNOWN	1973	232
EL TIGRE GRANDE	1970	477	GEMINI	1973	597
EL RANCHO	1970	476	RUBY GUY	1973	1388
KIM & KELLY	1970	860	KAMRON K.	1973	838
FRIENDSHIP	1970	584	BELATRIX	1973	28
DEBBIE SUE	1970	402	MISS JUDY ANN	1973	1113
L & M	1970	872	'fish haven'	1973	3618
BIG ELEVATOR	1970	.	UNKNOWN	1973	190
LEE TIDE	1970	904	UNKNOWN	1973	3610
CAPTAIN BILL	1970	263	GRACIE L.	1973	635
BRG_118	1970	210	GRACIE L	1973	3646
TAA_SINGE	1970	1531	JABE	1973	759
BILL HOLLIS	1970	174	GULF KING_17	1973	650
MERT	1970	1068	NIEUWE MARKET	1973	1195
AMERICAN STAR	1970	54	LYCO I	1973	3727
OBSTRUCTION	1970	4153	TYPHOON	1973	1590
BILLY & RICKY	1970	177	POINT CHICOT	1973	1289
BALBOA	1970	111	MOSES	1973	1153
KATHIE JUNE	1970	844	CARIBE IV	1973	283
SEA WITCH	1970	1446	JOYCE C.	1973	824
AIPLE_100	1970	26	TERN	1973	1536
WESTERN ACE	1970	.	MISS TERRI	1973	1138
KATHRYN JO ANN	1970	847	Q-5	1974	408
J W M II	1970	747	LORELEI	1974	963
LADY OF THE SEA	1970	893	BIG ED	1974	168
JOHN KURT	1970	803	ATLAS	1974	.
MR. JEFF	1970	1163	QUE_5	1974	1320
GULF RANGER	1971	658	MARY ETTA	1974	1044
MISS GINGER	1971	1106	'liberty ship'	1974	3611
DEBORAH KAY	1971	406	'liberty ship'	1974	3654
MISS ANITA BRYANT	1971	1081	GIBSON GIRL	1974	616
VERNON	1971	1607	'HELICOPTER'	1974	168
SARAH ANN	1971	1426	LU BELLE	1974	971
P M J	1971	1239	UNKNOWN	1974	3604
DAISY MAE	1971	389	'fish haven'	1974	3621
AURORA BORA	1971	101	'fish haven'	1974	3623
FIVE KIDS	1971	545	MISS ARANSAS	1974	1083
LAFOURCHE	1971	896	DRESSER VII	1974	451
FULL MOON	1971	586	GOINBROKE	1974	627
ATHENA 2	1971	283	MISS MARY B	1974	1121
GLADYS BEA	1971	.	ATHENA III	1974	82
RICKY M	1971	1348	ALARICO	1975	30
DORADO	1971	436	LACY L.	1975	879

TABLE G-1 (CONTINUED).

SHIP NAME	YEAR	REF. NO.	SHIP NAME	YEAR	REF. NO.
ONE MULLET	1975	1227	CAPT DOC	1978	333
PMI II	1975	1286	SEA WRESTLER	1978	1447
SABINE SEAHORSE	1975	1402	UNKNOWN	1978	1323
OBSTRUCTION	1975	235	MISS TINA MARIE	1978	1139
PHANTOM	1975	1273	REBEL HUSTLER	1978	1339
CORAL SEA	1975	89	C-JACK I	1978	266
'liberty ship'	1975	3655	MISS LA MARQUE	1979	1114
BETSY M	1975	3628	GRACE C	1979	113
UNKNOWN	1975	181	'liberty ship'	1979	3615
PEGASUS	1975	1264	MICHELE JENENE	1979	1070
'liberty ship'	1975	3607	RITA M	1979	1356
BOBBIE GAIL	1975	193	JACK CRAWFORD	1979	760
TOMMY BRAD	1975	1570	UNKNOWN	1979	3614
SP_2	1975	1490	ESCAPE MACHINE	1979	3720
ORLEANS	1975	1230	MISS HELEN	1979	1109
JUDY M	1975	831	HOT TUNA	1979	718
MISS ANITA	1975	1080	LARRY AND MABEL II	1979	900
HO HUM	1975	712	LADY O	1979	892
TERN	1976	1535	RANGER	1979	1332
NONA GAIL	1976	1205	ARTEMIS	1980	14
NONA GALE	1976	222	JOYNT EFFORT II	1980	827
SUNDOWNER	1976	1516	'liberty ship'	1980	3613
JOYCE & JOE	1976	823	INVADER	1980	658
COLONELS LADY	1976	351	JOHN PHILLIPS	1980	4139
MISS BESSIE M.	1976	1087	LYNN I	1980	991
UNKNOWN	1976	183	'fish haven'	1980	3609
CLAUDIA ELIZA G.	1976	341	CARMAR	1980	2808
BETTY G.	1976	157	NORTH SEA	1980	2809
VACA-DEL-MAR	1976	2807	SANDPIPER II	1980	1418
OCEAN EXPRESS	1976	4184	AEOLUS	1980	20
NL_504	1976	1200	UNKNOWN	1980	3242
JIM DANDY	1976	784	CAPT MIKE	1980	247
CAR_2	1976	298	F/V CRAWFISH	1981	3195
UNKNOWN	1976	312	JANE AND JULIE	1981	4182
GEORGE VANCOUVER	1976	275	LAURA	1981	165
HAT I	1977	684	SUNSHINE	1981	314
CORA LEE	1977	361	LADY BRENDA	1981	158
GOLDEN DAWN	1977	628	OZARK	1981	263
ST. NICHOLAS	1977	1494	UNKNOWN	1981	592
IMCO EXPLORER_2	1977	733	DAVANA	1982	4152
GULF KING_21	1977	651	LADY NANCY	1982	161
BDCO NO. 52	1977	124	BIG WHEEL	1982	3238
'fish haven'	1977	3619	MISS ALINE	1982	2473
GUNSMOKE	1977	2670	PROVIDENCE	1982	277
THATS-A-MY-BOAT	1977	199	UNKNOWN	1982	3092
MADALINE GOFORTH	1977	998	PROFILER 2	1983	275
UNKNOWN	1977	212	EVELYN T	1983	94
LIONEL HODGSON	1977	4191	TRANSWORLD 45	1983	334
BESCO	1977	41	UNKNOWN	1983	425
CLED C.	1977	344	UNKNOWN	1983	451
LAMCO III	1977	898	CALYPSO LADY	1983	4154
THE BACHELORS II	1977	1545	LAVERNE HEBERT	1983	122
GIGI IV	1977	3216	BARBARA D	1983	797
SHELL KEYS	1977	1455	TRY ME	1983	3237
LEE BROS	1977	902	PBR 220	1983	266
NEW YORK	1977	1194	UNKNOWN	1983	505
FIRST MATE	1977	227	VIKING IV	1983	3236
STACY & JENNY	1977	1496	DALE AND DAVID	1983	67
C JACK	1977	225	UNKNOWN	1984	345
ENJOY	1978	293	PANKY	1984	265
CHARLES II	1978	312	MISS KECHIA	1984	214
GOLDEN ISLE	1978	629	OBSTRUCTION	1984	252
MARIAN S	1978	1019	UNKNOWN	1984	4172
FRANKIE E.	1978	578	SCORPION	1984	4164
UNKNOWN	1978	653	PENROD	1984	668
VIVIAN MARIE	1978	.	AMERICAN EAGLE	1984	7



TABLE G-1 (CONTINUED).

SHIP NAME	YEAR	REF. NO.
EAGLESCLIFF	1984	3327
WANDERING STAR	1984	3240
FLORENCE B.	1984	670
SANDY POINT	1985	296
CAPTAIN COOPER	1985	48
MARITIMER	1985	201
CAPTAIN TRUE	1985	4140
DAMN YANKEE	1985	652
UNKNOWN	1985	4161
LENORE	1985	4187
MICHAEL DAVID	1985	207
GEORGIA	1985	110
DERRICKS PRIDE	1985	70
UNKNOWN	1986	533
DEWEY	1987	490
OCEAN MAID	1987	1213
PATRICIA B	1987	1252

## **APPENDIX H**

### **Shipwrecks Found in State Waters**

Table H-1.

## Shipwrecks Found In State Waters.

H-3

SHIP NAME	YEAR	REF. NO.
UNKNOWN	0	604
EL INFANTE	0	2860
UNKNOWN	0	537
UNKNOWN	0	531
UNKNOWN	0	544
M/V THUNDERBOLT	0	190
UNKNOWN	0	464
IVORY WRECK	0	225
UNKNOWN	0	607
UNKNOWN	0	497
UNKNOWN	0	588
UNKNOWN	0	408
SAUFLEY DD465	0	301
UNKNOWN	0	352
UNKNOWN	0	581
KENDRICK DD612	0	149
UNKNOWN	0	445
UNKNOWN	0	578
LADY JANET	0	159
UNKNOWN	0	591
SANTA ROSA	0	408
UNKNOWN	0	442
GOLDENK	0	40
OBSTRUCTION	0	238
UNKNOWN	0	514
OBSTRUCTION	0	247
FISH REEF	0	99
UNKNOWN	0	499
UNKNOWN	0	401
DLGA	0	257
UNKNOWN	0	494
UNKNOWN	0	444
UNKNOWN	0	589
UNKNOWN	0	553
UNKNOWN	0	611
UNKNOWN	0	434
ORION	0	261
UNKNOWN	0	590
EAGLE BOAT	0	85
UNKNOWN	0	415
UNKNOWN	0	457
UNKNOWN	0	513
UNKNOWN	0	380
UNKNOWN	0	2
UNKNOWN	0	610
UNKNOWN	0	383
UNKNOWN	0	353
UNKNOWN	0	517
LITTLE DAVID	0	178
UNKNOWN	0	1
BAGS	0	17
OBSTRUCTION	0	234
UNKNOWN	0	189
UNKNOWN	0	586
ZALOPHUS	0	634
UNKNOWN	0	381
UNKNOWN	0	484
UNKNOWN	0	648
UNKNOWN	0	492
UNKNOWN	0	514
CINDY	0	649
UNKNOWN	0	491
UNKNOWN	0	488
SEA GAL	0	193
EMPRESS ANN	0	83
MADAME QUEEN	0	194

SHIP NAME	YEAR	REF. NO.
UNKNOWN	0	354
UNKNOWN	0	502
UNKNOWN	0	487
BRICK WRECK	0	68
IRON BALLAST WRECK	0	222
UNKNOWN	0	494
UNKNOWN	0	416
KIM-G	0	153
ELLA MACVONA	0	88
UNKNOWN	0	2919
UNKNOWN	0	3055
E E SIMPSON	0	82
UNKNOWN	0	3141
YANKEE CLIPPER	0	630
UNKNOWN	0	556
UNKNOWN	0	493
FOUR ACES	0	103
LITTLE DAVID	0	177
UNKNOWN	0	530
TARGET	0	677
UNKNOWN	0	464
UNKNOWN	0	3734
BRIDE OF LORNE	0	454
ANNA PEPINA	0	458
UNKNOWN	0	1772
UNKNOWN	0	481
FORTANIA	0	102
UNKNOWN	0	523
WADDON	0	467
PEGGY G	0	268
UNKNOWN	0	3640
UNKNOWN	0	3518
UNKNOWN	0	3593
MANHORTON	0	196
JOY	0	145
MARION D	0	200
UNKNOWN	0	570
MARY ROSE	0	203
UNKNOWN	0	577
UNKNOWN	0	387
UNKNOWN	0	397
UNKNOWN	0	394
UNKNOWN	0	444
UNKNOWN	0	574
UNKNOWN	0	528
MISS. PAT	0	216
BAYOU BELLE	0	25
UNKNOWN	0	418
DOLLY DIMPLES	0	72
UNKNOWN	0	503
GEORGIA PEACH	0	111
UNKNOWN	0	490
RIG TENDER	0	286
UNKNOWN	0	441
UNKNOWN	0	483
JUDY	0	146
UNKNOWN	0	475
UNKNOWN	0	453
SCI NO. 5	0	302
UNKNOWN	0	485
UNKNOWN	0	391
UNKNOWN	0	562
UNKNOWN	0	364
DONCELN	0	75
CAPTAIN HARRY	0	51
ELLAMAE VAUGN	0	89

TABLE H-1 (CONTINUED).

H-5

SHIP NAME	YEAR	REF. NO.
PORTLAND	0	372
STRANGER	0	436
UNKNOWN	0	535
WRECKAGE	0	629
UNKNOWN	0	546
UNKNOWN	0	498
UNKNOWN	0	510
UNKNOWN	0	363
JOHNNY K	0	142
UNKNOWN	0	474
UNKNOWN	0	583
TERRY AND MIKE	0	321
LITTLE GIANT	0	181
UNKNOWN	0	2658
THREE SISTERS	0	328
CLIPPER	0	88
ARKANSAS	0	31
UNKNOWN	0	468
ACADIA	0	5
PODUNK QUEEN	0	371
UNKNOWN	0	412
SAINT MICHAEL	0	407
JIMBO	0	225
CAPTAIN PETE	0	53
AMERICAN	0	18
TAMAULIPAS	0	440
MASCOT	0	307
SEA BIRD	0	303
VIOLET GLADYS	0	619
GENERAL CLARK	0	175
GULF RAIDER	0	191
BO K	0	52
WAGON TRAIN	0	623
MATAGORDA PILOT	0	308
GENERAL CLARK	0	109
UNKNOWN	0	422
UNKNOWN	0	218
WILDCAT	0	530
JIMBO	0	226
CARDLINE	0	69
FLORENCE BERNICE	0	164
BIG DADDY	0	33
SAN ANTON	1521	397
UNKNOWN	1528	426
UNKNOWN	1528	441
UNKNOWN	1528	428
UNKNOWN	1549	490
VISITACION	1550	556
SANTA MARIA DE ICIAR	1554	414
SAN ESTEBAN	1554	411
ESPIRITU SANTO	1554	148
VARGARA'S BOAT	1554	518
UNKNOWN	1565	535
NRA. SRA. DEL ROSARIO	1593	312
UNKNOWN	1595	517
SANTA MARGARITA	1595	382
SHOT WRECK	1600	419
BRONZE CANNON WRECK	1600	75
UNKNOWN	1621	534
NUESTRA SEN DELROSARIO	1622	340
LA MARGARITA	1622	235
UNKNOWN	1622	463
JESUS SEN DEL ROSARIO	1622	231
JESUS Y NUESTRA ROSARIO	1622	210
NUESTRA SEN DE ATOCHA	1622	339
CAPITANA	1623	63

SHIP NAME	YEAR	REF. NO.
UNKNOWN	1630	433
UNKNOWN	1634	427
UNKNOWN	1643	436
UNKNOWN	1643	431
UNKNOWN	1677	478
LA BELLE	1685	248
UNKNOWN	1685	438
NAO	1688	315
UNKNOWN	1688	483
HENRIETTA MARIE	1698	202
UNKNOWN	1700	538
UNKNOWN	1700	475
WALKER KEY WRECK	1700	560
UNKNOWN	1700	515
UNKNOWN WRECK	1700	543
WRECK #12	1700	577
UNKNOWN	1700	458
UNKNOWN	1700	512
SAINT ANTOINE	1705	
HERRERA WRECK	1715	209
SAN PEDRO	1717	345
EL CAPTAIN	1717	110
LA BELLONE	1725	
BRIGANTINE OF DUCLOS	1725	
LE SAINT LOUIS	1733	
SAN JOSE DE LAS ANIMAS	1733	403
CAPITANA	1733	62
CHAVEZ	1733	95
LOS TRES PUENTES	1733	266
NS BELEM SAN ANTONIO	1733	334
NS BELEM JUAN BAUTISTA	1733	333
NS CARMEN SAN ANTONIO	1733	335
EL PODER DE DIOS	1733	142
EL LERI	1733	141
EL POPER DE DIOS	1733	143
NS ROSARIO SAN ANTONIO	1733	337
FLORIDANA	1733	166
SAN FRANCISCO DE ASIS	1733	401
NS ANGUSTIAS SAN RAFAEL	1733	331
NS ROSARIO SAN FRANCIS	1733	338
SAN FRANCISCO	1733	378
SAN RAFAEL	1733	405
GALLO INDIANA (POSS.)	1733	177
WALKER KEY WRECK	1733	453
SAN FERNANDO	1733	400
EL GRAN PODER DE DIOS Y	1733	140
SAN IGNACIO	1733	379
SAN FELIPE	1733	399
LA MARGUERITE	1737	
UNKNOWN	1737	
NAFFAW	1741	308
FURTE	1742	175
H.M.S. TYGER	1742	195
BILLANDER BETTY	1744	61
H.M.S. LODDE	1744	193
SWIVEL GUN SITE	1750	437
QUEEN ANNE	1752	373
GREENVILLE PACKET	1765	186
GENERAL CONWAY	1766	180
UNKNOWN	1766	498
EL NUEVO CONSTANTE	1766	119
UNKNOWN	1766	470
UNKNOWN	1766	486
ANNA THERESA	1768	31
SAN ANTONIO	1768	373
UNKNOWN	1770	504

TABLE H-1 (CONTINUED).

H-7

SHIP NAME	YEAR	REF. NO.
UNKNOWN	1770	503
UNKNOWN	1771	466
RHEE GALLEY	1774	378
ANN & ELIZABETH	1774	28
UNKNOWN	1775	485
SANTISIMA CONCEPCION	1775	384
UNKNOWN	1776	471
LA CARAQUENA	1776	234
ROBERT	1777	.
UNKNOWN	1778	495
MARY	1778	284
SARAH & ELIZABETH	1778	409
FRANCESA	1781	144
UNKNOWN	1782	461
H.M.S. MENTOR	1782	194
EVENLY	1788	153
FLY	1789	167
UNKNOWN	1790	496
LIVELY	1791	263
LOVELY ANN	1792	270
GENERAL CLARK	1793	179
CATHERINE GREEN	1794	91
NOAH'S' ARK	1795	327
FLORA	1798	163
HMS FOX	1799	183
GRANITE WRECK	1800	184
UNKNOWN	1800	465
UNKNOWN	1800	462
BRONZE WRECK	1800	76
UNKNOWN	1800	536
HECTOR	1800	200
GOOD HOPE	1800	183
IRON BALLAST WRECK	1800	221
FISCHER ROBINS CLAUSE	1800	160
SCHOONER WRECK	1800	410
HMS MELEAGER	1801	185
EAGLE	1801	112
BRITANNIA	1803	73
CALLIOPE	1804	82
ANDROMACHE	1805	24
PROVIDENCE	1805	371
MARIA	1806	261
CABINET	1811	80
EARL BATHURST	1811	114
ORION	1812	350
AMERICAND	1814	19
INTREPIDO	1814	216
JERUSALEM	1815	229
WATT	1815	565
VOLADOR II	1815	558
ROSA	1815	355
SANTA ROSA	1815	348
MAGDALEN	1816	274
COSSACK	1816	113
SIR JOHN SHERBROKE	1816	394
EUROPA	1817	151
MARQUIS DE POMBAL	1817	282
MERRIMACK	1817	294
UNNAMED LAFITTE	1818	
QUEBEC	1818	372
SOLWAY	1818	422
BETSEY	1818	59
ACASTA	1818	5
HIBERNIA	1818	182
UNKNOWN	1818	472
SANDWICH	1819	406

SHIP NAME	YEAR	REF. NO.
ANIE OF SCARBOR	1819	27
BARILLA	1819	49
BRIG	1819	70
MISSISSIPPI	1821	286
COSMOPOLITE	1821	112
GASPARILLA	1821	138
MISSISSIPPI	1821	286
NAVIGATOR	1821	302
MARGARET ANN	1822	259
ALLIGATOR	1822	21
U.S.S. ALLIGATOR	1822	456
ANN OF LONDON	1822	29
UNKNOWN	1822	506
FRANCIS & LUCY	1822	170
LADY WASHINGTON	1822	248
MARGARET ANN	1822	259
PARKER & SONS	1823	325
FRANKLIN	1823	171
LEOPARD	1823	255
INTREPIDO	1823	193
THEODORE	1824	444
POINTE-A-PETRE	1824	366
CERES	1824	82
SARAH	1824	385
JOHAN CARL	1825	233
REVENGE	1825	377
MUNROE	1826	292
NANNU	1828	314
VIGILANT	1828	551
MISSISSIPPI	1829	302
ELIZABETH	1829	137
GENERAL LAFAYETTE	1829	176
VINEYARD	1830	393
UNKNOWN	1830	477
SPLENDID	1831	427
AMULET	1831	22
MT. HOPE	1831	306
TOISON	1831	450
HENRY	1831	203
EXERTON	1831	155
DUMFRIES	1831	111
MOUNT VERNON	1831	289
KLEEBURG	1831	245
EMELINE	1832	141
CORDENA	1834	106
SEALION	1834	423
UNKNDWN	1834	504
PHEONIX	1834	366
GALAXY	1835	176
VERSAILLES	1835	448
ELIZA ANN	1835	135
AMERICA	1835	17
ELIZABETH	1835	136
SPARTACUS	1835	430
IZARD	1836	201
FLORA	1836	162
TALLAHASSEE	1836	439
AMERICA	1836	17
LODI	1836	276
HALCYON	1836	196
BILLOW	1837	62
CHAMPION	1837	76
BELLE	1837	40
TOM TOBY	1837	456
FLASH	1837	139
INVINCIBLE	1837	196



TABLE H-1 (CONTINUED).

H-9

SHIP NAME	YEAR	REF. NO.
BRUTUS	1837	55
FLASH	1837	161
YELLOWSTONE	1837	407
LOUISIANA	1837	279
BONITA	1837	53
JULIUS CAESAR	1837	241
JULIA E. WILLETS	1837	227
MOTTO	1838	268
CONSTITUTION	1838	101
ALBERT	1839	10
POACHER	1840	365
UNIDENTIFIED	1840	457
BILLY BOWLEGS	1840	63
BILLY (BOWLEGS) ROGERS	1840	30
RODNEY	1840	394
UNKNOWN	1841	481
LAMPLIGHTER	1841	237
PLUTUS	1841	60
EMBLEM	1841	17
NAPOLEAN	1841	48
ALASCO	1842	9
PEGUOT	1842	359
CUBA	1842	11
AXIS	1842	46
CAROLINE	1842	90
KEY WEST	1842	31
ISIS	1842	223
NEW YORK	1842	52
RUDDOLPH GRONING	1842	360
MARION	1842	41
JAMES ADAMS	1842	30
LADY ANN	1842	32
LADY MUNROE	1842	33
ELIZA	1842	16
FARMER'S RETURN	1842	157
ANSON	1843	32
COL. T SHEPPARD	1843	104
IVANHOE	1843	27
PILGRIM	1843	59
REBECCA	1843	376
COUNSELOR	1843	10
ROBERT FULTON	1843	383
RELIEF	1843	61
EMBLEM	1843	18
SUCCESS	1844	71
ATHALIA	1844	40
ROSELLA	1844	64
WELLINGTON	1844	567
SELECT	1844	416
ZOTTOFF	1844	468
STATIRA	1844	70
NEW HANDOVER	1844	50
RIENZI	1845	62
LADY BYRON	1845	250
DAYTON	1845	111
MARY WALKER	1845	43
IRIS	1846	26
PERRY	1846	58
MORRIS	1846	46
METAMORA	1846	44
NAPOLEAN	1846	47
OLIVE & ELIZA	1846	348
ALIDA	1846	2
COMMISSARY	1846	107
MELEMORA	1846	292
H.W. STAFFORD	1846	196

SHIP NAME	YEAR	REF. NO.
LAFAYETTE	1846	34
GENERAL WILSON	1846	22
EXCHANGE	1846	19
OLIVE AND ELIZA	1846	53
DELIA	1846	14
EDWARD TILLITT	1846	15
MONMOUTH	1846	321
POTOMAC	1846	305
S.G. MYRES	1846	65
AUGUSTA	1846	14
OREGON	1846	54
RIGHT BOWER	1846	63
URSULA	1846	76
WARSAW	1846	79
MARY MARSHALL	1846	306
ORLEANS	1846	55
TWO FRIENDS	1846	75
SEA	1846	68
CDL HARNEY or HARVEY	1846	89
FREDERICK	1846	145
LED	1846	36
DEFIANCE	1846	12
JOHN HOWELL	1847	237
AUGUSTA	1847	44
COLONEL YELL	1847	94
VIRGINIA	1847	522
LAMA	1847	255
HUNTER	1847	204
COFFIN	1847	89
GIRAFFE	1847	179
MONROE	1847	322
MARY EMMA	1847	303
CANTON	1848	60
AID	1848	9
W.C. PRESTON	1848	525
LAUREL	1848	259
NANCY W. STEVENS	1849	310
EMILY	1849	127
SAMUEL M. WILLIAMS	1849	410
BROWNSVILLE	1849	41
UNKNOWN	1850	469
NEW ORLEANS	1850	324
UNKNOWN	1850	511
SYLPHIDE	1850	438
IRENE	1850	178
E.A. DGDEN	1850	.
ENVOY	1850	115
COLONEL CROSS	1850	90
GALVESTON	1851	137
WILLIAM AND MARY	1851	533
COMMERCIAL	1851	98
WILLIAM PENN	1851	534
TOM BROWN	1851	455
MARIA BURT	1851	243
TOM BROWN	1851	420
PALMETTO	1852	355
ALBANY	1852	10
NANIOPE	1852	296
METEOR	1852	251
UMPIRE	1852	462
PERSERVERENCE	1853	362
STAR STATE	1853	365
FARMER	1853	123
UNKNOWN	1853	489
UNKNOWN	1853	490
HARRIET AND MARTHA	1854	198

TABLE H-1 (CONTINUED).

H-11

SHIP NAME	YEAR	REF. NO.
NICK HILL	1854	335
TARTAR	1855	412
UNKNOWN	1855	483
S.S. FLORIDA	1856	364
PACIFIC	1857	322
OPELOUSAS	1857	317
MAJOR A. HARRIS	1857	240
LOUISIANA	1857	231
MARTHA GILCHRIST	1858	267
UNKNOWN	1858	503
GRAPESHOT	1858	157
GRAPE SHOT	1858	189
SOUTH CAROLINA	1859	358
BETTY POWELL	1859	25
CUBA	1859	97
LIZZIE LAKE	1859	247
CERRO GORDO	1860	74
SOUTH CAROLINA	1860	399
WILLIAM C. YOUNG	1860	421
FINLAND	1861	138
AID	1861	12
JUDAH	1861	225
ROYAL YACHT	1861	358
REINDEER	1861	385
HAVANA	1862	170
HELEN	1862	172
ADVOCATE	1862	9
DAYLIGHT or DELIGHT	1862	101
GARONNE	1862	148
EXPRESS	1862	134
OSCEOLA	1862	320
COLUMBIA	1862	95
MARY AGNES	1862	298
IDA	1863	189
MARY JANE	1863	276
POWERFUL	1863	469
CAROLINE GERTRUDE	1863	67
USS PREBLE	1863	446
NATHANIEL TAYLOR	1863	300
FOX	1863	143
TEXANA	1863	414
MIST	1863	287
HELANA	1863	171
SARAH BLADEN	1863	386
CONCORDIA	1863	92
PUSHMATAHA	1863	341
WESTFIELD	1863	459
NEPTUNE	1863	304
JANE	1863	206
JOHN F. CARR	1863	213
BAGLEY	1863	36
GENERAL C.C. PINCKNEY	1863	174
LADWING	1863	249
ALICE AND MARY	1863	14
MORNING STAR II	1863	267
GENERAL FINNEGAN	1864	151
ETTA	1864	131
MATAGORDA	1864	277
ROSINA	1864	396
CATHERINE HOLT	1864	70
LOUISA	1864	251
IKE DAVIS	1864	208
UNKNOWN	1865	464
SORT	1865	397
FLORIDA	1865	140
ATLANTA	1865	32

SHIP NAME	YEAR	REF. NO.
USS IDA	1865	444
UNKNOWN	1865	550
LE COMPTE	1865	262
UNKNOWN	1865	507
CSS LE COMPT	1865	86
LECOMPT	1865	241
WILL-O-THE-WISP	1865	531
UNKNOWN	1865	493
DENBIGH	1865	115
GRANITE CITY	1865	188
LOUISA	1865	278
JAMES DUCKETT	1865	218
ORIZABA	1865	345
PELICAN	1865	360
TERESITA 24721	1865	445
JOHN BULL	1865	229
TAMPICO	1865	441
MEXICO	1865	252
PAMPERO	1866	324
REBECCA BARTON (21530)	1866	375
SOPHIA	1866	424
NATCHEZ	1866	278
ELLA	1866	121
POTOMSKA	1866	306
RIO GRANDE	1866	393
MONTEZUMA	1866	325
NEW MUNNERLYN	1867	322
SUN FLOWER	1867	368
ALICE M.	1867	19
PRINCE ALBERT	1867	374
ADMIRAL FOOTE	1867	8
YOUNG AMERICA	1867	408
ANTONIA	1867	29
TERDDO	1867	444
PRIMERO	1867	373
EDITH	1867	117
EMERALD	1868	126
GOVERNOR MORTON	1868	146
BELVIDERE	1868	42
SELMA	1868	424
PHILADELPHIA	1868	369
BRAVO	1868	56
NORDCAP	1869	337
GLADIATOR	1869	180
MUTTER SHULTZ	1870	307
HONDURAS (10524)	1870	213
MARIA FERGUSON	1870	263
LOUISBURG	1870	269
SENECA	1870	391
EUTERPE	1870	117
BARNETT	1871	50
FANNY	1871	122
NOR'WESTER	1872	310
SONORA	1872	423
JULIA	1872	226
ELLA MAY (8371)	1872	145
ECLIPSE 8665	1872	127
ECLIPSE	1872	116
HUMTREAZ	1873	188
MARY E. FORSYTHE	1873	248
MATTIE	1873	310
S. J. LEE	1873	333
ETHEL	1874	149
J. S. SELLERS 75126	1874	215
RATTLER 56328	1874	382
SAINT MARY	1874	405

TABLE H-1 (CONTINUED).

H-13

SHIP NAME	YEAR	REF. NO.
MOUNTAIN HOME	1875	290
ERA	1875	129
WILLIAM M. JONES	1875	569
HENRY J. MAY	1875	204
MATTIE	1875	311
EDITH BELLE NASON DOVER	1875	129
ECLIPSE 8665	1875	128
EMORY	1875	144
COMMODORE MORBIT	1875	99
CAROLINE	1875	68
ANNETTA	1875	26
ALICE	1875	13
LAKE AUSTIN	1875	254
FLOUNDER 9547	1875	167
TIDAL WAVE 24882	1875	453
STAR OF THE SOUTH 23306	1875	435
SHELL FISH	1875	425
ROYINIA	1875	398
PHEONIX	1875	367
PROUTY	1875	377
DELMORE	1875	113
CORA BICKFORD 5345	1875	104
CITY OF WACO	1875	82
DESPERADO 6741	1875	117
WITCH OF THE WAVE	1875	.
PEEDIE	1875	327
MAGGIE	1875	.
MARY 1876	1875	268
JESSIE	1875	224
GODFREY KEEBLER	1876	.
JALAPA	1876	204
MAGDALA	1876	.
ST. MARY	1876	433
MARY	1876	297
PROTECTOR	1877	370
EMILIE	1877	.
OCEAN QUEEN	1877	342
MEZZIE	1877	295
MEGGIE or MEZZIE	1877	280
TWO SISTERS	1877	.
HENRY MEARCY	1878	176
BERLINDA	1878	.
BONNIE ADVENTURE	1879	49
AURORA	1879	34
PEARL RIVERS	1879	357
SEABIRD	1880	387
BRAVO 2682	1880	57
BRAISTED	1880	55
ANNETTE 1384	1880	27
MARY	1880	.
AMEDIO FIRST	1880	.
LAUREL	1880	.
BRAVO	1880	50
CARRIE THOMAS	1880	59
JOSEPH BAKER	1881	239
TOLOMEO	1881	451
DIRIGO	1881	105
HERMES	1881	180
CONGO STATE	1881	100
DANIEL GOOS	1881	.
R.B. GOVE	1882	343
RELIABLE #2	1882	349
UNKNOWN	1882	477
UNKNOWN	1882	476
UNKNOWN	1882	481
UNKNOWN	1882	500

SHIP NAME	YEAR	REF. NO.
ZENOBIA	1882	543
RAMYREZ	1882	381
TEX MEX	1882	448
TWO MARYS 24313	1882	461
ABEONA	1882	.
DAY BREAK	1883	100
LAURA R. BURNHAM	1883	.
LAURA R. BURNHAM 15962	1883	258
ANNIE LAURA	1884	.
ALICE	1884	17
GUTENBERG	1885	189
GUTENBURG	1885	161
MARY E. CLARKE	1885	272
PAT CHRISTIAN	1885	.
ORIENT	1885	.
CHARLES R. CAMPBELL	1886	94
C.H. FROZIER	1886	58
JANE EMERSON	1886	.
LITTLE SIMMS	1886	.
BUFFALO BILL	1886	58
ORANZOFF	1886	343
S.W. PERRY	1886	366
LIVONIA PERKINS	1886	.
ELLA ELLIOT	1886	139
GRANFOS	1886	187
FLOWER OF FRANCE	1886	141
ARTHUR	1887	38
FREDDIE L. PORTER	1887	173
JOSHUA H. MARVELL	1887	240
SEBULON	1887	389
SAMUEL MACMANEMY	1887	396
AMANDA	1887	16
BRIDE OF LORNE	1887	51
ARANSAS 105749	1887	30
JOSEPHINE	1887	202
D'JENNINGS GILL	1887	340
LUISITA	1887	282
PRINCE UMBERTO	1888	368
WILLIAM TITTAMER 26511	1888	573
small boat	1888	.
UNKNOWN	1888	467
CEPHAS STARRET	1888	72
CLEOPATRA	1888	.
LAUREL	1888	.
SEA GULL	1888	.
HENRIETTA	1888	200
SEMINOLE	1888	.
ADALAID BAKER	1889	6
ADELAIDE BAKER	1889	7
TRUE BRITON	1889	423
CARL D. LOTHROP	1889	65
ELLA B.	1889	.
sailboat	1889	.
URBANO	1889	545
small boat	1889	.
ALPHONSINE	1889	23
EBBA	1889	115
HAUVUND	1889	160
PRINCE LUCIEN	1889	307
EBBA	1889	106
ELLEN	1889	.
T.F.P.	1889	.
ABBIE DEES	1889	.
HENRIETTA	1889	.
LILLIE G.	1889	.
KELVIN	1889	.

TABLE H-1 (CONTINUED).

H-15

SHIP NAME	YEAR	REF. NO.
VIOLA	1889	.
catboat	1889	.
small boat	1889	.
A. J. PERKINS	1889	.
ROBERT TEMPLETON	1889	.
BARGE #13	1889	37
A. J. PERKINS	1889	.
ADELIA	1889	.
C. H. MOORE	1889	.
FLORA WOODHOUSE	1889	.
TERESA	1889	.
STAR	1889	.
EASTERN LIGHT	1890	487
DOMENICO	1890	95
CASTILLA	1890	.
GOOD INTENT	1890	.
MOUNTAIN GIRL	1890	269
ERL	1891	.
WATESKA	1891	455
H. A. DEWITT	1891	191
JOSEPH BAKER	1891	220
DEXTER CLARK	1891	.
AMICUS	1891	.
HATTIE G. MCFARLAND	1891	.
BERTHA DRAHEIM	1891	.
LIVINGSTONE	1891	.
ALFHILD	1891	6
FRANK HITCHCOCK	1891	.
COQUETTE	1891	81
MAUD McLANE	1891	.
SHANNON	1892	392
MARY JANETTE	1892	.
LILLY	1892	269
FAIR PLAY	1892	155
LIBERTY	1892	.
LIBERTY 14998	1892	267
ARCADIA	1893	31
CARMALITA COMPOSITE	1893	88
OCTAVIA	1893	.
ERA	1893	.
SANTA MARIA	1893	.
ANNIE E. B.	1893	.
F. W. ELMER	1893	.
ELIZA B.	1893	120
JOE WEBRE	1893	211
JOSIE	1893	238
BRANDON	1894	.
MARIA	1894	.
CATHRINE	1894	.
INGRID	1895	.
BEATRICE	1895	36
BEATRICE McLEAN	1895	.
WALTER D. WALLETT	1895	454
JENNIE WOOD	1895	.
AGNES	1895	10
C. BRAISTED	1895	59
SCANDINAVIAN	1895	417
ALFRED AND SAMMIE	1895	16
SHELTER ISLAND	1896	418
ANNA	1896	.
MABEL TAYLOR	1896	.
ANNA PEPPINA	1896	.
FLORA S. 120274	1896	163
ANDREW BOWDEN	1896	21
CLYDE	1897	85
CLYDE (5001)	1897	103

SHIP NAME	YEAR	REF. NO.
AMELIA	1897	.
ORLINA	1897	346
COLONEL RUFUS INGALLS	1897	93
CADICE	1898	.
HENRY STANBERY	1898	177
OSMOND	1898	.
BUTESHIRE	1898	.
SPORT	1898	431
GLAD TIDINGS	1899	153
GRACE ANDREWS	1899	.
JAMES BAIRD	1899	.
AMELIA	1899	16
MYSTERY	1899	330
COPENHAGEN	1900	108
UNKNOWN	1900	533
LIDA FRANCIS	1900	244
JOHN W. SMART	1900	219
NELLIE M. SLADE	1900	.
STEEL WRECK	1900	430
CUMBERLAND	1900	.
JENNIE S. BUTLER	1900	222
MARY JANETTE	1900	304
EAGLE NO. 1	1900	126
MARY LORENA	1900	305
J.M. McINNIS	1900	.
BELLE	1901	37
CHARLES E. BALCH	1901	.
S.J. DICKSON	1901	363
ELLEN	1901	140
LA PLATA	1902	.
SILAS	1902	426
NINEVAH	1903	1199
EVA I. SHINTON	1903	133
MARGARET WARD	1903	.
THOMAS	1903	1556
KITTY HÖRR	1904	867
LENA R. STORER	1904	.
BIANCA CASANOVA	1904	.
LUZON	1904	283
MOUNT PLEASANT	1905	1155
PARGO	1905	1249
VOLUNTEER	1905	1623
EAGLE	1905	132
A. HAYFORD	1905	2
MARGUEDONA	1905	260
NORTHERN EMPIRE	1905	.
LOUISE	1905	229
ANNIE ROOT	1905	77
DCTAVIA	1905	1216
ZILLAH	1905	1675
EDITH L. ALLEN	1906	136
SIDNEY	1906	1463
PALM	1906	1243
RACE	1906	1325
MOCCASIN	1906	1147
ADAM W. SPIES	1906	5
VANDALIA	1906	1602
PELICAN	1906	329
S.O. CO. NO.80	1906	1397
MARIETTA	1906	1024
WM. H. WARREN	1906	1664
WILLIAM H. WARREN	1906	.
ANGELO AMANDA	1906	27
CAMPBELL	1906	.
OLIVARI	1906	.
MARIE	1906	.



TABLE H-1 (CONTINUED).

H-17

SHIP NAME	YEAR	REF. NO.
MINERVA	1906	297
HILARY	1906	708
UNKNOWN	1906	1490
EDGAR RANDALL	1906	469
GAMMA	1906	595
EMMA	1906	.
LILA	1906	922
GUSSIE	1906	155
AGNES	1906	23
OLIVIA	1906	1224
MARY GRAY	1906	1046
MAGDALENE	1906	.
HERCULES	1906	.
FALCON	1906	.
DAISY	1906	.
STARKE	1906	1499
BAUNEN	1906	.
FLUORINE	1906	129
MARGRETTE B.	1906	1018
HOO HOO	1906	172
TROJAN	1906	.
MANATEE	1907	1009
DASH	1907	396
IRENE	1907	738
AVANTI	1907	.
FAWN	1907	535
FLORENCE WITHERBEE	1907	164
D.H. MORRIS	1907	.
CLARKE OIL TANK NO. 3	1907	.
UNKNOWN	1908	3117
EUGENE BATTY	1908	512
WAVE	1908	566
LIBERTY	1908	915
IDA	1908	728
MAUD SPURLING	1908	.
GEORGE	1908	601
BRUCE	1908	42
FEVUE ARLAND	1908	539
TRAVELER	1908	457
PEERLESS	1909	328
WANDERER	1909	562
SYBIL	1909	.
MANAGUA	1909	1008
EMMA ELIZA	1909	501
MEDFORD	1909	.
NETTIE J.	1909	1190
NOAL	1909	1201
ROSEBUD	1909	1379
S.H. WOODBURY	1909	1396
REAPER	1909	1337
S.R. MALLORY	1909	1399
UNDINE	1909	1593
ADDIE AND NORMAN	1909	18
ADA	1909	14
AMY	1909	58
CARMEN	1909	286
BRAGANZA	1909	65
EMPIRE	1909	504
ELIZABETH ANN	1909	483
FLORIDA	1909	555
ETHEL	1909	510
IMPULSE	1909	734
JUNIATA	1909	835
KATE DAVIS	1909	841
HAVANA	1909	686
GERTRUDE	1909	613

SHIP NAME	YEAR	REF. NO.
KATE	1909	840
GLANCE	1909	621
FREDDIE W. ALTON	1909	174
DAVY CROCKETT	1909	117
ELLEN M. ADAMS	1909	124
NANNIE C. BOHLIN	1909	1177
VIVIAN	1909	1619
IRA	1909	198
CLEOPATRA	1909	345
SUN	1909	433
ST JOSEPH	1909	.
CUBA	1909	376
HASSIA	1909	.
NURE	1909	.
ALL HOPE	1909	39
CLEMENTINE	1909	342
HENRY WESTON	1909	698
MARGARET KENNEDY	1909	1014
MARY AGNES	1909	1035
GANT	1909	.
BONITA	1909	199
LONDON	1909	960
GEORGIA H.	1909	606
KATE FEORE	1909	842
JIMMIE	1909	786
EDWARD T. STOTESBURG	1910	474
MAY FLOWER	1910	1058
UNKNOWN	1910	509
VIRGINIA	1910	450
HEARTSEASE	1910	689
LILY WHITE	1910	929
FLORIDA	1910	554
HJALMAR	1910	211
HERMANN DELRICHS	1910	703
WILHENA	1910	1651
WILLENA	1910	461
A. A. FLETCHER	1910	8
TRIUNFO	1910	.
HARRY CAGE	1910	167
ARKADIA	1910	83
WILLIE WALLACE	1911	1656
WM. EDENBORN	1911	404
RUTH A.	1911	362
WINFIELD S. SHUSTER	1911	575
BERTHA RITTER	1911	143
WATER BOY	1911	1636
DREDGE HESTER	1911	103
MARY ELIZA	1911	285
DRONO	1911	351
FRANCES AND LOUISA	1911	570
E. HEMPSTEAD	1911	456
BELLE	1911	39
CLARKE DIL TANK NO.2	1911	340
LIBBIE SHEARN	1911	266
WILLIAM R. WILSON	1912	401
JOLLY TRAMP	1912	816
EMERALD	1912	497
IOLA	1912	218
FREDDIE HENCHON	1912	146
FREDDIE HENCKEN	1912	.
WAUL	1912	396
ELZADA	1912	.
FLORENCE	1912	551
GERTRUDE SUMMERS	1912	615
UNKNOWN	1913	505
CLIFFORD N. CARVER	1913	83

TABLE H-1 (CONTINUED).

H-19

SHIP NAME	YEAR	REF. NO.
PENDELTON BROTHERS	1913	1269
CARRIE B. WELLES	1913	294
NED. P. WALKER	1913	1182
LAURA L. SPRAGUE	1913	217
ALMIRA	1913	47
THOMAS S. DENNISON	1913	448
D.L. TRAFTON	1913	384
HOPPER	1913	173
CLARA IDA	1913	335
GENERAL C.B. COMSTOCK	1913	173
HELEN STORY	1913	168
MARKAB	1914	1031
PLANTER	1914	334
EDNA LOUISE	1914	471
IRENE ALBURY	1914	739
AMELIA	1914	52
HENRIETTA J. POWELL	1914	696
J.O. ELLISON	1914	.
NELLY	1914	1184
EVANGELINE	1914	519
MADELEINE	1914	237
MADELEINE	1914	.
MARY ELLEN	1914	1043
IRIS	1914	740
FIDO	1914	.
JOHN C WHILDIN	1915	212
JOHN G. WHILDIN	1915	235
MAUDE B. KRUM	1915	287
CLARA P. SEWALL	1915	336
J.B. RABEL	1915	.
JOHN W. DANA	1915	.
UNKNOWN	1915	505
SAM HOUSTON	1915	338
SAN JACINTO	1915	343
THOMAS J. CARROL	1915	1558
DAISY	1915	388
DORA ALLISON	1915	99
L.P. FEATHERSTONE	1915	214
GLIDE	1915	623
NETTIE FRANKLIN	1915	281
LEONE	1915	809
REDFISH	1915	1343
LITTLE DORA	1915	943
CLARA	1915	334
HARRY	1915	681
SAM HOUSTON/SAN JACINTO	1915	370
OSCEOLA	1915	1231
LITTLE FREDDIE	1915	945
MARDWIJNE	1915	247
LILLIAN	1915	925
DORA ALLISON	1915	.
SANTAIGO	1916	66
KATHRYN B	1916	846
NORWICH	1916	1210
AVIO	1916	.
JOHN M. KEEN	1916	238
POL RDS	1916	1290
MISCHIEF	1916	1078
DOROTHY	1916	100
CHAMPION	1916	310
MARY G. DANTZLER	1916	249
EDWARD E. BARRETT	1916	118
SOUTHERN STATES	1916	1482
NEVADA	1916	306
RAYMOND	1916	318
BOB	1916	190

SHIP NAME	YEAR	REF. NO.
BERTHA L	1916	141
FORTUNA	1916	564
NETTIE	1916	1188
GUYTON NO. 1	1916	193
GUYTON NO. 1	1916	670
PILOT BOY	1916	301
MAY	1916	1057
LITTLE CHARLIE	1916	940
TEXAS GIRL	1916	1539
NICARAGUA	1916	308
HEREWARD	1917	207
BRAZOS	1917	66
MARIA LOUISA	1917	.
ROBERT A. SNYDER	1917	353
IRMA BENTLEY	1917	.
OTIS	1917	291
DELAWARE SUN	1917	.
WILLIAM L. DOUGLAS	1917	400
PATTON	1917	353
BEN HUR	1917	136
CHARLES K. SCHULL	1917	313
BERTHA	1917	43
GUYTON NO. 9	1918	673
LAKE CITY	1918	164
F. A. KILBURN	1918	135
UNKNOWN	1918	524
ROBERT	1918	381
MYLU	1918	293
PRIDE	1918	1301
ANNIE AND JENNIE	1918	74
BRILLIANT	1918	212
EMILIA GLORIA	1918	147
BESSIE WHITING	1918	42
F. 12	1918	120
F. 12	1918	524
EUNICE	1918	515
ELIZABETH	1918	482
LOUIS H	1919	268
HUGH DE PAYANS	1919	.
SANTA CHRISTINA	1919	407
WHITE SQUADRON	1919	1645
COPPERFIELD	1919	.
CLEO	1919	343
MAGNOLIA	1919	1003
CITY OF PHILADELPHIA	1919	.
UNKNOW	1919	35
CITY OF SARASOTA	1919	99
JOHN FRANCIS	1919	234
WASP	1919	564
CITY OF BILOXI	1919	.
THOMAS L. WAND	1919	380
ALICE B. PHILLIPS	1919	.
BESSIE	1919	148
GYPSY	1919	675
I. X. L.	1919	726
LOU ELLA	1919	965
VOLUNTEER	1919	1622
MILDRED COLLINS	1919	1072
TRAMP	1919	1576
RING DOVE	1919	1352
WILLIAM H. DAVENPORT	1920	.
ALBERT W. ROBINSON	1920	.
PRISCILLA L. RAY	1920	340
'seaplane barge'	1920	445
GRIFFIN	1920	148
FRED W. AYER	1920	.

TABLE H-1 (CONTINUED).

H-21

SHIP NAME	YEAR	REF. NO.
T H WAND	1920	317
CATANIA	1920	61
NORTHWESTERN	1920	286
BOLIKOW	1920	35
RONA	1920	1370
JOHN M. EMERY	1920	196
JOHN. M. EMERY	1920	811
BADDACOCK	1920	35
UTINA	1920	.
PLANTER	1921	639
UNKNOWN	1921	459
PAULINE G	1921	1258
BAGDAD	1921	47
BOBBIE	1921	191
LEWIS H. GOWARD	1921	258
PILOT	1921	1279
BON TEMPS	1921	197
THOMAS B. GARLAND	1921	446
BIG BAZOO	1921	165
FRANCIS	1921	573
AGNES BELLE	1921	24
LILLIE B.	1921	927
MASSACHUSETTS	1921	204
FLORENCE HARVEY	1921	.
SEABREEZE	1921	388
RICKETTS, V.C.	1921	.
ANNETTA	1921	73
CAMBRAI	1921	.
HERBERT MAY	1922	178
CALDWELL H. COLT	1922	234
IDA M. SILVA	1922	214
COLTHRAPS	1922	105
JOSEPHINE	1922	822
CARRIE S. ALLEN	1923	296
BRONX	1923	74
ALTAMAHA	1923	15
BRONX	1923	52
BLUEFIELDS	1923	64
STRANGER	1923	.
ANNIE MURPHY	1923	12
FOUR M'S	1924	568
LILLA	1924	924
ROBIN HOOD	1924	.
AVIS	1924	35
AVIO	1924	45
ALPENA	1924	14
CORNELIAS H. CALLAGHAN	1924	110
VALDARNO	1924	.
EOLA	1925	507
GWAHA	1925	162
GWALIA	1925	190
'schooner'	1925	443
ROSA A	1925	1374
LUDLOW	1925	981
SHEREWOG	1926	.
NANCY HANKS	1926	1176
SERAFINA C.	1926	1451
THENDARA	1926	443
WM. G. VANCE	1926	1663
ISLAND BELLE	1926	224
LIBERTY	1926	916
ROBERT B. BURNEY	1926	1361
IDA	1926	729
HYPNOTIST	1926	723
LEROY	1926	256
ROBERT L. BEAN	1926	354

SHIP NAME	YEAR	REF. NO.
MATTIE B	1926	1052
EOLA	1926	508
LOUISIANA	1926	185
ROSE	1926	1376
ALBERT MEYER	1927	11
ARTEMIS	1927	.
CYNTHIANA	1927	379
UNKNOWN	1927	522
ROSE MURPHY	1927	356
MOORE NO.3	1927	304
NIMROD	1927	1197
JAVELIN	1927	228
STRANGER	1927	432
MAURICE R. THURLOW	1927	288
T.C.I.S.G. NO.1	1927	1529
ALTHEA	1927	50
COLONEL MOORE	1927	92
PORTSMOUTH	1927	304
UNKNOWN	1928	500
ARAGO	1928	30
MONROE COUNTY	1928	303
CHASE	1928	317
JOHN HENRY SHERMAN	1928	236
L. FARIES	1928	875
JIM DANDY	1929	783
E.E. SIMPSON	1929	130
BILLY	1929	176
ROSEMARY	1930	388
W.J. COLLE	1930	559
AMOS WATCHILT	1930	21
UNKNOWN	1930	521
E.E. SIMPSON	1930	412
ZALOPHUS	1930	578
UNKNOWN	1930	3040
UNKNOWN	1930	3041
UNKNOWN	1930	3049
SALVOR II	1931	368
POLLY P.	1931	1292
HIAWATHA	1931	181
UNKNOWN	1932	527
NEPENTHE	1932	303
MORNING STAR	1932	1152
EULALIA	1932	514
EXTRA	1932	523
HANNAH MARIE	1932	680
ELLA P.	1932	488
JOE C.	1932	793
FAREWELL	1933	533
UNKNOWN	1933	395
DEL MAR	1933	407
PIECES DF EIGHT	1934	1278
3-R	1934	2
MARIE J. THOMPSON	1934	3122
ERICKSON	1934	3121
H.T. DeBARDELEBEN	1934	159
UNKNOWN	1934	314
TRIO	1935	1580
UNKNOWN	1935	3132
UNKNOWN	1935	4202
UNKNOWN	1935	760
H.P.	1935	678
UNKNOWN	1936	3126
DREDGE	1936	102
UNKNOWN	1936	127
UNKNOWN	1936	377
E.E. SIMPSON	1936	439

TABLE H-1 (CONTINUED).

H-23

SHIP NAME	YEAR	REF. NO.
MAYFLOWER	1936	1060
SADELL	1937	1403
ECHO	1937	464
ALMA	1937	45
E. J. BULLOCK	1938	.
MANHARTON	1938	448
BERLEON	1939	139
VENETIA	1939	548
TARPON	1939	2656
GRADY S.	1939	636
SOUNDING LINE WRECK	1940	425
BELMONT	1940	.
LEWIS BROTHERS	1940	221
STURDY	1940	1509
AUDREY	1940	100
BOORICHABOO	1941	203
BEN	1941	134
E. E. SIMPSON	1941	105
MANHARTON	1941	242
GLORIA COLITAU	1941	183
GLORIA COLITA	1941	.
SEA WITCH	1941	1445
JAPDNICA	1941	187
UNTATA	1942	544
HALSEY	1942	197
BENWOOD	1942	55
J. A. MOFFITT, JR.	1942	181
CHERIE	1942	320
SANTORE	1942	350
MANAGUA	1942	637
UNKNOWN	1942	518
NORMAN H. DAVIS	1942	329
MANZANILLO	1942	197
SANTIAGO DE CUBA	1942	298
STURTEVANT	1942	642
U-157	1942	29
COOT	1942	48
BARBARA	1942	116
VAMAR	1942	2626
EMPIRE	1942	149
HALO	1942	679
OAXACA	1942	341
ILLINOIS	1942	177
CAPTIVA II	1942	64
ATHENE	1943	41
GULFSTATE	1943	188
UNKNOWN	1943	4473
R-12 SS89	1943	281
MAJESTIC	1943	1004
UNKNOWN	1943	3120
DOLORIS	1943	73
GULFPORT	1943	206
VIKING	1943	552
GALVESTON	1943	172
OCEANIC	1943	1215
PATTY	1943	1256
PATRICIA M	1943	1253
A. B. L. 92	1943	10
EMANUELA C.	1943	496
MARGATE	1943	416
TITAN	1943	.
SC 1063	1943	375
A B L 92	1943	406
GALVESTON USA	1943	434
VITRIC	1944	73
H. H. CONWAY	1944	55

SHIP NAME	YEAR	REF. NO.
MARIA	1944	199
SPINDRIFT	1944	56
UNKNOWN	1944	447
SOUTHERN BREEZE	1944	360
KATHERINE II	1944	843
S-16	1945	33
MAGNOLIA	1945	449
RAINBOW	1945	1327
IOWAN	1945	736
CAYMAN SALVAGEMASTER	1945	228
ORION	1945	.
A.G.T. NO.34	1946	3
DIXIE BELL	1946	424
ANETA	1946	64
OLD RIVER	1947	346
LOICE L	1947	959
OKEECHOBEE	1947	345
PORTARITSA	1947	1296
QUARTER BOAT 357	1947	311
CLARIBEL	1947	84
HOBO	1947	713
PURETA	1948	1316
VAGABOND	1948	1597
BARBARA	1948	117
B.F. MOODY	1948	103
UNKNOWN	1948	640
NANDOMA	1948	311
W.F. FERGUSON	1948	1627
WILD DUCK	1948	399
GROVER CLEVELAND	1948	644
SAN SABA	1948	413
LT. W. ROBINSON III	1948	970
OSPREY	1949	1233
FALCON	1949	530
J.E. GRADY	1949	752
GALTEX	1949	594
GULL	1949	668
JOSEPHINE	1949	821
K-D	1949	837
ILDA	1949	176
WILD WIND	1950	1648
DEMOCRATIA	1950	415
LILLIAN	1950	826
ALBERT ARTHUR	1950	34
JOETTA	1950	194
GRAZIA CERINO	1950	641
SADIE	1950	1404
OSCEOLA	1950	1232
BETTY	1951	153
JOAN C	1951	789
DESIRE	1951	120
DAYCO	1951	399
DORSYL	1951	445
LITTLE JOE	1951	852
D-6	1951	382
EL CAPITAN	1951	.
TRAVELER	1951	1578
GIMICK	1951	617
MARETA	1952	1011
CAPT. FRANK	1952	254
MISS NANCY	1952	1126
FLYING DUTCHMAN	1952	560
MACKIE	1952	997
SA-LA	1952	394
SEACLOUD	1952	1448
CATHERINE	1952	302



TABLE H-1 (CONTINUED).

H-25

SHIP NAME	YEAR	REF. NO.
SEA CLOUD	1952	413
UNKNOWN	1952	641
MISS BERT	1952	.
MISS. BERT	1952	1142
ROANOKE	1952	322
ROXY	1952	1386
FERRYLAND	1953	.
MISS PRISCILLA	1953	1129
UNKNOWN	1953	419
WHITE STAR	1953	1646
JOHNNIE JUNIOR	1953	813
COLUMBIA	1953	96
PHYLLIS	1953	300
PENNANT	1953	1270
FOUR KIDS	1953	130
ELLIOTT	1954	491
YMS 319	1954	631
MARKIE SINGLETON	1954	1032
SPOT PACK	1954	.
BIG APPLE	1954	60
SPOT JACK	1954	312
KON-TIKI	1954	244
SPORTSMAN	1954	1486
S.D.U.B. NO. 1	1954	401
UNKNOWN	1954	466
PROTECTOR	1954	376
M	1954	992
RIO HONDO	1954	1353
SOUTH SEA	1954	311
JO-MARIE	1954	788
THREE FRIENDS	1954	452
CAPT. PHIL	1955	260
JEANNE	1955	776
CATERPILLAR	1955	57
COOKIE	1955	360
NO. B-29	1955	326
KIMTOO	1955	243
S. GONZALEZ	1955	1395
UNKNOWN	1955	456
PEARL HARBOR	1955	1260
DOLLEE	1955	427
JAMES CLOONEY	1955	185
SALTDOME NO. 1	1955	408
CORAL SANDS	1955	105
UNKNOWN	1955	472
D-B	1955	109
YUKPA	1955	1674
BLACK GOLD	1955	31
LUCKY LADY	1955	877
JIFFIE	1955	782
EMPRESS	1955	145
MAYFLOWER	1955	1059
LUCILLE	1955	874
ALBATROSS	1955	5
SEA SPRAY	1956	1443
GOLDEN K	1956	630
RESTAURADOR	1956	1346
THE BIRMINGHAM QUEEN	1956	1546
TEMPLE	1956	375
JOHN SCOTT	1956	807
CHARLIE MASON	1956	67
VALLEY PRINCE	1956	1600
TEXAS STAR	1956	451
TILEMAN	1956	454
MARTHA ANN	1956	1033
MISS COLUMBIA	1957	1094

SHIP NAME	YEAR	REF. NO.
SANTA BARBARA	1957	1422
ATMAR	1957	98
CACTUS	1957	232
PEACE II	1957	1259
WAASY T. JR.	1957	1631
FILLETE	1957	1367
JUDY K.	1957	830
DAYCO	1957	118
LITTLE JIMMIE	1957	950
BUCCANEER	1957	218
TOMMY/GALE	1957	3589
JOE LECKICH, JR.	1957	784
FLAMINGO	1957	424
HICO	1957	171
ANN	1957	69
UNKNOWN	1957	472
WM. HAYES	1957	538
DR. BILLY	1957	448
WEST POINTER	1957	398
I.D. WAFER	1957	725
EBB TIDE	1957	462
DIXIE DANDY	1957	93
CAPTAIN GENE	1957	62
REVONOC	1958	1347
SUN QUEST	1958	1513
UNKNOWN	1958	3232
EVENING STAR	1958	522
EVENING STAR	1958	152
DANIA	1958	116
FLYING ACE	1958	559
VIRGINIA-MAY	1958	1618
ELIZABETH M.	1958	484
HORNET	1958	717
J. EDWIN TREAKLE	1958	748
D 3	1958	455
RESOLUTE	1958	390
JOHN AND MARY	1958	228
WHITE SAND II	1958	1644
NARDY BOY	1958	331
I'M READY	1958	724
FAIR MOON	1958	154
FREDIA L.	1958	582
UNKNOWN	1958	666
FOLLY QUEEN	1958	563
CAPTAIN READY	1958	64
SHERRON	1959	1456
MR. HOPPY	1959	1162
VIRGINIA ANN	1959	1615
PAMELA ANN	1959	1244
MISS FLETA	1959	1100
LOUANNA	1959	267
OH-NO	1959	1220
PAUL TAYLOR	1959	1257
BRYN MAWR	1959	217
MARIETA K. II	1959	1023
JOAN OF ARC	1959	192
JOHN S.	1959	806
DIANA	1959	423
DENEBOLA	1959	116
MISS BEVERLY	1959	1089
FERDINAND MAGELLAN	1959	125
40 FATHOM NO. 30	1959	4
PRINCESS JULANNE	1959	308
ROSEINA II	1959	1380
CAPTAIN WALLING	1959	54
OMA	1959	1225

TABLE H-1 (CONTINUED).

H-27

SHIP NAME	YEAR	REF. NO.
CAROLYN ANN	1959	292
LARK	1960	899
PEGGY III	1960	1265
NEMO	1960	1186
BETTY EARL	1960	156
LEGION	1960	906
IMAGINATION	1960	732
CAPE LOOKOUT	1960	241
EMILY A.	1960	498
CAPTAIN RED	1960	274
VALINTINE	1960	1598
CRACKER'S BOYS	1960	374
SILVER KING	1960	1465
UNKNOWN	1960	3580
COLLE 7	1960	3630
UNKNOWN	1960	3634
UNKNOWN	1960	3520
MACARTHUR	1960	995
EVA LOUISE	1960	517
MARY ROSE	1960	1049
RO 5	1960	321
BELLE CLAIRE	1960	22
RIVERSIDE III	1960	1357
RIPTIDE	1960	1354
SOUTHERN BELLE	1960	1478
MISS BEHAVE	1960	1086
COASTAL II	1960	348
POLLY D	1960	382
MISS MILDRED	1960	1122
BAMA	1960	383
JOE M.	1960	193
DELL-D	1960	112
POCAHONTAS	1960	302
SAN JACINTO	1960	412
NOVIA	1960	1211
GULF TRADER	1960	151
FROG	1960	585
MARY E	1961	1040
GLADYS	1961	620
MADAM QUEEN II	1961	273
JENKINS ROBERTS	1961	.
BUDDY LYNN	1961	77
SALTAIR	1961	1411
MARJIA B.	1961	1029
CAROLYN A	1961	3544
GOOD BROTHERS	1961	437
LADY PHYLLIS	1961	894
MISS LILLIAN	1961	1117
J.R. BOYD	1961	755
LEEVILLE	1961	219
CHARIE B.	1961	311
CAPTAIN PERRY	1961	52
DELTA	1961	411
BECKY-K	1961	128
MILRAY	1961	1076
ROY'S BOY	1961	1387
WM. CLARKE QUINN	1961	537
DORIS A	1961	439
RUTH KAY	1961	329
S.S.S. VIKING	1961	402
BARBARA B.	1961	119
BILL HOLMES	1961	29
BILLY HOLMES	1961	178
JEZEBEL	1961	781
GOLDEN WEST	1961	145
FLEUR DE LIS	1961	547

SHIP NAME	YEAR	REF. NO.
BONNY	1961	201
ETHEL WALLING	1961	511
LUCY F.	1961	980
JOANIE B.	1962	791
YOGI	1962	1669
IRIS	1962	741
GRAND MAR	1962	640
MISS SARAH	1962	301
DANNY BOY	1962	394
BUNTING	1962	42
BESSIE	1962	146
MISS POWERAMA	1962	299
TORNADO	1962	453
BETTY J.	1962	158
LITTLE CHEABEAGUE	1962	941
B. J. WOODS	1962	104
BIDWELL ADAM	1962	163
CAPT. JIMMIE	1962	258
ANNIE BELL	1962	75
EMILY L.	1962	500
CHARLES SINGLETON	1962	314
FRANK B.	1962	575
BIG MAMA	1962	28
JACKO	1963	762
KATHRYN	1963	845
QUI VIVE	1963	1321
EDDIE BOY	1963	466
JAVA	1963	774
LUCKY	1963	975
CAROLINA EXPLORER	1963	57
RUDDIE O	1963	3437
SEA HORSE	1963	1439
FIL'E	1963	543
WAVE	1963	1638
YOUNG CHAMPION	1963	1670
LATHROP	1963	901
GINA & JOY	1963	618
KAREN SUE	1963	839
JOHNNIE GRASSO	1963	812
SEA HOUND	1963	1440
JOYCE HARDIMAN	1963	826
DANNY	1963	85
VALLEY RIO	1963	1601
BOUNTY	1963	54
ANNA M.	1963	25
YELLOW JACKET	1964	1668
BELLE TRIX	1964	645
REBECCA	1964	1338
BELLATRIX	1964	21
DAISY MAY	1964	390
SOUTHERN DAWN	1964	361
THE NORSEMAN	1964	1548
MARIPOSA	1964	1028
PEGGY SUE	1964	1266
BONNE FORTUNE	1964	36
HERO	1964	704
L S U	1964	874
MISS PATRICIA	1964	264
TRIESTA	1964	458
UNKNOWN	1964	381
LADY JO	1964	886
HOOGER	1964	715
BERTHA V	1964	24
BERTHA V.	1964	145
CAPTAIN KENNY	1964	270
LITTLE BILL	1964	938

TABLE H-1 (CONTINUED).

H-29

SHIP NAME	YEAR	REF. NO.
MISS GWEN	1964	1107
MISS JUDY	1964	1112
LACY PYBUS	1964	880
LYCO T	1964	234
LYCO I	1964	982
MARY CALL COLLINS	1964	1039
TEXAS NO.9	1964	1543
ROSALIE	1965	386
LUCKY STAR	1965	979
LITTLE BILL	1965	937
PAPA JON	1965	357
LESLIE ANN	1965	911
CINDY	1965	172
PEG	1965	1263
ROBERT P. DOHERTY	1965	385
UNKNOWN	1965	3617
HELEN S.	1965	167
MISS CAROL	1965	1091
CAPT. NOLAN	1965	259
L.T. OZIO JR.	1965	877
TRADE WIND	1965	1575
SAL & ZINA	1965	1408
LUCKY LADY	1965	976
STR OF THE SEA	1965	1505
SHAREE ANN	1965	1453
MISS ELLEN	1965	318
GEORGE JR.	1965	604
MIDCO	1965	316
KEY LARGO	1965	211
NOLAN R.	1965	285
LYCO IX	1965	285
HENRY BARRETT	1965	697
MISS MARGIE	1965	1120
GULF KING	1965	647
ST. JOSEPH	1965	1491
MR. ARJO	1965	270
DEBBY D	1966	403
GERTIE T	1966	612
CAPTAIN HARRY	1966	268
RANGER II	1966	1333
RANGER III	1966	1334
BETTY RUTH	1966	160
BUHNDAY	1966	222
MISS STELLA	1966	1136
CANDICE	1966	.
CELESTE JOAN	1966	64
TINSLEY	1966	1567
MALRII O	1966	1006
DOROTHY DIX	1966	443
CAPTAIN G	1966	266
UNKNOWN	1966	394
FULL MOON	1966	587
MR. MAGOO	1966	329
CAPTIN JOE	1966	280
LADY SUE	1966	895
LELA NATALIE	1966	907
PHEENIX SHAW	1966	1274
SUN RISE	1966	1514
PHEONIX SHAW	1966	368
PHOENIX SHAW	1966	297
MONALISA	1966	1148
TWO BROTHERS	1967	455
ALICE M	1967	36
CAPTAIN FRANK	1967	265
BAGS	1967	109
MARK E. SINGLETON	1967	281

SHIP NAME	YEAR	REF. NO.
IZAACK WALTON	1967	746
G. WHEEL	1967	589
UNKNOWN	1967	497
SILVER SANDS	1967	1468
MARION D.	1967	1025
QUEEN MARY II	1967	432
MARY B	1967	1038
MISS BETTY J.	1967	1088
C & C NO.3	1967	224
UKRAINE	1967	1591
MISS FULTON	1967	1102
LINDA LOU	1967	271
RANEY GRASSO	1967	1330
FOUR BROTHERS	1967	565
LITTLE GIANT	1967	274
BILLY P	1967	289
SEA BIRD	1967	420
MISS CONNIE	1967	258
CHAS. SCHREINER	1967	68
ARGO	1967	81
WHITE LADY	1967	1642
DOUGHBOY	1967	447
ANGIE	1967	10
BEVERLY JEAN	1967	27
BIG DADDY	1967	45
MISS LORRAINE	1968	1118
RODONSETTA	1968	1369
STRIPER	1968	1508
KINGFISH	1968	865
CRACKER JACK	1968	373
CORAL ISLE	1968	109
JEANNIE	1968	777
JDYCE M	1968	825
CAPT COX	1968	245
DAPHNE	1968	395
KHRISTY BEE	1968	858
DUBHE	1968	124
CONCH TOWN	1968	358
UNKNOWN	1968	2655
ST. VINCENT	1968	1495
HUSTLER	1968	721
MR. CLAY	1968	1159
UNKNOWN	1968	356
MISS CELESTE	1968	1093
PINTAIL	1968	1281
ARKANSAS	1968	85
CHIP	1968	326
HUNDRED PROOF	1968	720
EL GATO	1968	475
BONDAGE	1968	198
BILLIE BEA	1968	175
CHRIS F.	1968	328
TEMPEST	1968	1534
CASA MAR	1968	299
RIDALA	1968	1349
NANU	1969	1178
CAMILLE	1969	236
PIXIE	1969	1283
GOOD LUCK	1969	633
SDC_2	1969	1433
NA NU	1969	222
GYPSY QUEEN	1969	677
SEA STAR	1969	304
MM_71	1969	1146
SILVER STAR	1969	1470
WILHELMENIA	1969	3631

TABLE H-1 (CONTINUED).

H-31

SHIP NAME	YEAR	REF. NO.
TINA REE	1969	1566
THERESA F.	1969	74
LINDA ANITA	1969	930
TEE JAMES	1969	1533
L & L	1969	871
MISS RITA	1969	1130
DACRON	1969	385
WILMA JEAN	1969	1659
SNOW WHITE	1969	1474
JOHNNY K.	1969	234
VERNA SUE	1969	1606
CAPT. JACK	1969	257
JOHN SEKUL	1969	809
UNKNOWN	1969	422
UNKNOWN	1969	316
CAPT. GALJOUR	1969	255
DUECES WILD	1969	454
GULF WIND	1969	662
SEA BREEZE	1969	1434
SOUTHERNER	1969	1483
BILLY P.	1969	48
KIT CAT	1969	866
MY DOLL	1969	1170
DELLA FRANCES	1969	410
MASTER STEVE	1969	1051
OCEANIC	1969	1214
WILMA	1969	535
DANDON	1969	392
GULF KING I	1969	648
NARCO	1969	1179
MISS ROSELLA	1969	1131
CEE DOT	1969	307
TRIENIN IV	1970	1579
CORAL SANDS	1970	367
SEA KING	1970	1441
GODDLUCK	1970	3104
MARIE	1970	1021
REGINA	1970	1344
SASSY GAL	1970	1428
SHIRLEY M	1970	1461
RUBY K.	1970	1389
3C	1970	3
SHRIMP BOAT	1970	420
UNKNOWN	1970	3526
GULF VIEW	1970	661
KAY ANN	1970	850
GULF DRILLER	1970	646
CORAL KEYS	1970	365
BIG RED	1970	.
SONNY BOY	1970	1475
GULF MASTER	1970	655
MELLOW JAX	1970	1064
MISS SALLY	1970	1132
CAPT. EDDIE	1970	252
UNKNOWN	1970	471
UNKNOWN	1970	492
LYCO XI	1970	986
CORAL CLIPPER	1970	362
LONESOME SAFARI	1970	861
ROBERT E	1970	1362
LOU JEAN	1970	866
FRANK J. MALCHAR	1970	576
JEANNIE B	1970	778
STRANGER	1970	1506
LITTLE ANGLER	1970	.
BOBY	1971	194

SHIP NAME	YEAR	REF. NO.
KING CONCH	1971	863
SPRINGTIME	1971	1489
LORRAINE	1971	964
JAMES MUNROE	1971	768
LILL CRUSO	1971	923
CAPT. FELIX	1971	253
MR. LEE	1971	1164
MISTER BOB	1971	1144
UNKNDWN	1971	2503
CALUMET	1971	235
ATHENA II	1971	33
MERMAID	1971	1065
MAVERICK	1971	1056
PRINCESS KE AH SOM PAH	1971	1306
MISS LEIGH	1971	1116
ANITA BRYANT	1971	22
EX FRED T BERRY	1972	95
TURNABOUT	1972	1585
CIN CAT	1972	330
STARR L	1972	1501
TUNA	1972	1584
WAHOO	1972	1632
UNKNDWN	1972	3532
ELLA	1972	485
FREJABAR IV	1972	583
THE SEARCHER	1972	1550
LOCO NO. 2	1972	958
CYNTHIA MARIA	1972	378
LINDA ANN	1972	933
TOLERS TIGER	1972	1569
JACOBINA S.	1972	763
LISA A.	1972	936
PODUNK QUEEN	1972	308
BO-K	1972	276
PRINCE	1972	1302
ROSS AND BESS	1972	1383
CAPT. ROGER	1972	261
DON PEDRO	1972	429
FAIRWIND	1972	134
UNKNDWN	1972	501
MISS SANDRA	1973	3101
DEBORAH ELLEN	1973	405
ATHENIAN	1973	93
FLYING EAGLE	1973	561
YSD_71	1973	1672
FLO_JD III	1973	550
DC_715	1973	400
MISTY	1973	1145
TAURUS	1973	3735
EULA LAVANA II	1973	513
CATHERE	1973	301
SOUTHERN BELL	1973	1477
MISSY LEE	1973	1143
WHIPPOORWILL	1973	1639
SILVER MOON	1973	1467
DALLAS JEAN	1973	391
BLUEBONNET	1973	188
FRANKIE & TERRY	1973	577
MISS BARBARA	1973	1084
LIBERTY BELL	1973	918
ORIENTAL CLIPPER	1973	1229
MARY ANN	1974	1036
MISS FIVE ELEVEN	1974	1099
CAPTAIN BUCK	1974	264
FANCY LADY	1974	531
ANNA MARIE	1974	71



TABLE H-1 (CONTINUED).

H-33

SHIP NAME	YEAR	REF. NO.
AMERICAN TEAM	1974	55
ASTEROPE	1974	91
BROWARD II	1974	215
UNKNOWN	1974	205
UNKNOWN	1974	4201
SAN PABLO	1974	446
KING AND I	1974	862
SUE	1974	1510
SWALLOWS FLIGHT	1974	1526
UNKNOWN	1974	3599
IRONSIDE	1974	2870
MY BABY	1974	766
RIG_3	1974	1351
EVE	1974	520
LITTLE BUDDY	1974	939
ALLIANCE	1974	44
ODYSSEY	1974	1217
PATSY D.	1974	1255
ROUSTABOUT	1974	1384
JUBILEE	1974	829
ROSE MARIE	1974	1378
L AND M	1974	873
GRANADA	1975	639
NORTHWIND	1975	1208
CAPT. GIBERSON	1975	256
PONCE	1975	1294
BLUE MARLIN	1975	184
BETTY ANN	1975	155
BILL ELLISON	1975	173
UNKNOWN	1975	2736
YANKEE CLIPPER	1975	3171
MARY K.	1975	1048
WHITE MARLIN	1975	1643
PARTNER	1975	1251
'aircraft'	1975	3577
MISS BELLE	1975	3538
STAR OF PEACE	1975	1498
BEV ADELE	1975	3565
LADY DAISY	1975	883
AGS342	1975	25
PAPABOTTE	1975	1247
OWNERS PRIDE	1975	1238
LADY NELL	1975	891
KING FISH	1975	864
SARAH M	1975	1427
BRG_135	1975	211
B.P. NO. 1	1975	105
VIKING	1975	1610
RIG	1976	1350
THERESE MICHELLE	1976	.
TIKI	1976	1564
KRISTA RO	1976	870
DORI MALYN	1976	437
UNKNOWN	1976	203
UNKNOWN	1976	204
FRANCILLE	1976	3217
DAVY'S NAVY	1976	3231
MISS JUDY	1976	1111
UNKNOWN	1976	2739
BETTY J	1976	3536
PAL JOEY	1976	1240
UNKNOWN	1976	2629
PATSY	1976	1254
MR. GUY	1976	1161
CAPTAIN PIP	1976	272
LADY JEVON	1976	885

SHIP NAME	YEAR	REF. NO.
UNKNOWN	1976	487
MOON SHADOW	1976	1150
FINA V	1976	2501
ABYSS	1976	13
KERRI	1976	854
SPECS	1977	1484
MAR MAC	1977	1010
ALBACORE	1977	32
QUEEN R V	1977	3203
GEMINI II	1977	598
MISS ANN II	1977	1082
UNKNOWN	1977	192
PERSEVERANCE	1977	1271
MAGEWIND	1977	173
GAIL EMMA	1977	593
UNKNOWN	1977	3219
CINDY BRENT	1977	3234
ERMA J. II	1977	509
BIG BUDDY	1977	166
R.O.6	1977	1323
BOBBIE ELAINE	1977	192
CAPT. STEVEN	1977	262
ARKANSAS	1977	84
SUSIE Q II	1977	1524
YOUNG JIM	1977	1671
PARAGON	1977	1248
PISCES	1978	1282
UNKNOWN	1978	2547
MISS HOPE	1978	1110
SUSAN H	1978	1522
LADY SUSAN	1978	3224
UNKNOWN	1978	3233
UNKNOWN	1978	3539
UNKNOWN	1978	3632
DRUMMER	1978	3438
ALMA B.	1978	46
UNKNOWN	1978	407
CABOOSE	1978	231
ST MICHAEL	1978	306
JOE M. JR.	1978	796
CAJUN BABY	1978	233
MARGARET D. WEBSTER	1978	1013
BEACH COMBER	1978	125
KERRY DANCER	1978	855
MISS DARLENE	1979	1097
CAYMAN SALVAGEMASTER	1979	2570
EMILY BROWN	1979	2594
UNKNOWN	1979	3129
CBC-21	1979	3533
UNKNOWN	1979	3530
M.J.K.	1979	993
CARO	1979	288
CAPN RON DU II	1979	243
OSPREY II	1979	1234
WILMA G.	1979	.
KELLI D.	1979	851
GULF KING 36	1979	652
CAPT ROLAND	1979	248
EAGLESCLIFE	1979	4183
GULF KING 58	1979	653
DENNIS PRIDE	1979	417
UNKNOWN	1980	3719
FLINTSTONE	1980	548
KARMA	1980	3220
UNKNOWN	1980	3227
CAPT BEN MICHELL	1980	244

TABLE H-1 (CONTINUED).

H-35

SHIP NAME	YEAR	REF. NO.
BIG SKIPPER	1980	172
ANITA	1980	67
UNKNOWN	1980	3529
SEA PEARL	1980	1442
A.G. FISHER	1980	11
ALONA GIRL	1980	48
EMA	1980	495
OLE NO. 5	1980	1222
UNKNOWN	1981	2575
UNKNOWN	1981	2577
SANDY P	1981	3229
LITTLE TOTS	1981	3226
DO NT CHA KNOW	1981	2920
UNKNOWN	1981	2921
UNKNOWN	1981	3616
DONNA MARIE	1981	425
UNKNOWN	1982	2574
UNKNOWN	1982	2573
DRIFTER	1982	2467
SEAWEEED V	1982	777
MISS TAMMY	1982	3218
SHORTY'S BOY	1982	3212
UNKNOWN	1982	3128
WANDA FOUR	1982	2628
DECCO II	1982	69
UNKNOWN	1983	1324
UNKNOWN	1983	3531
LITTLETUB	1983	3602
UNKNOWN	1983	3328
UNKNOWN	1984	2922
RESTLESS	1984	655
LADY LYNN	1984	2475
PAN DALLAS	1984	3329
DAVY'S NAVY	1984	3228
UNKNOWN	1984	2896
BUNGE 401	1984	3524
CAPT. GUEL	1984	3330
UNKNOWN	1984	3326
MARGIE B	1984	4186
REX	1985	285
USS EAGLE BOAT	1987	442
TARPON	1987	411
ANDREW JACKSON	1987	26

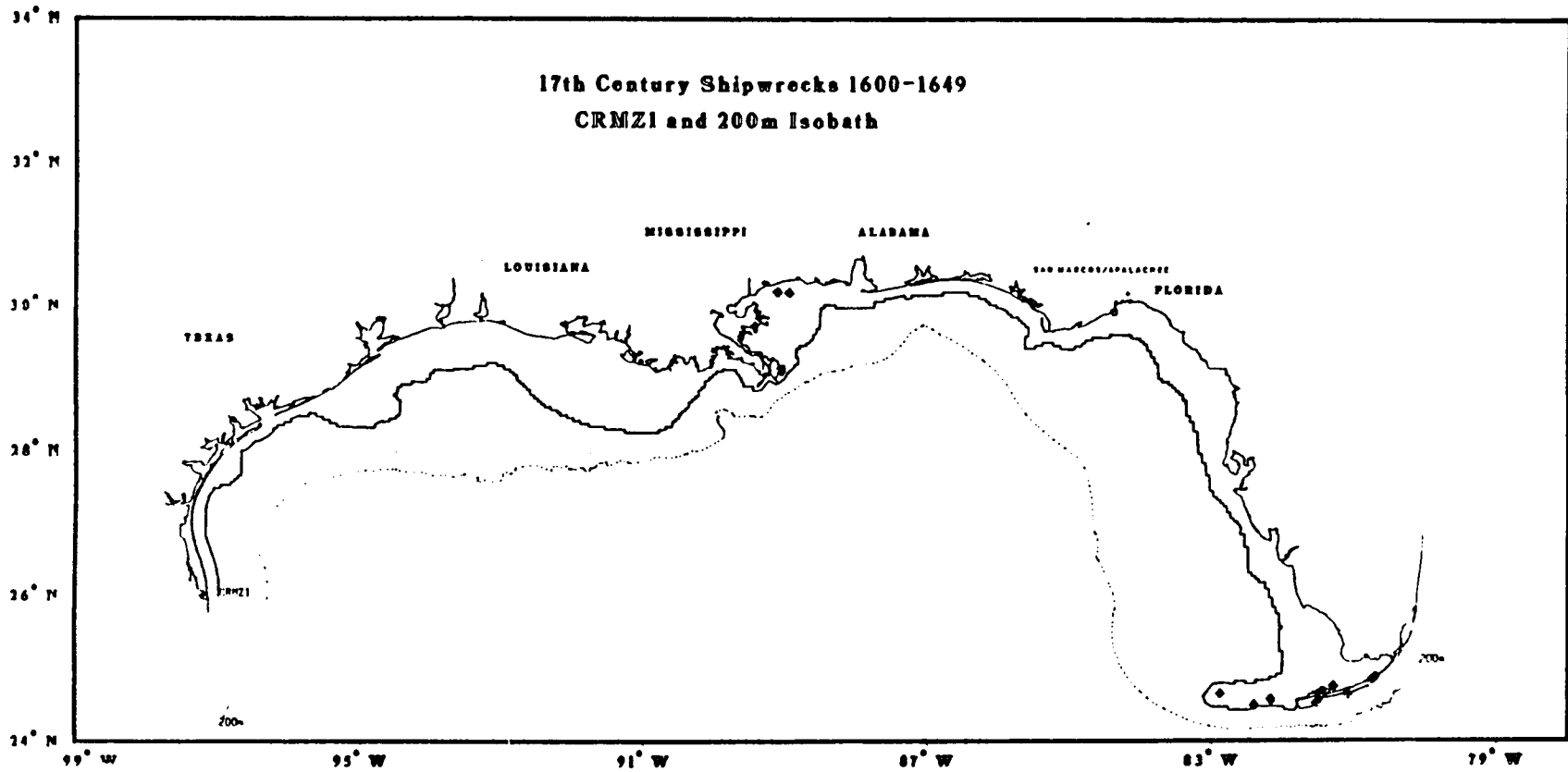
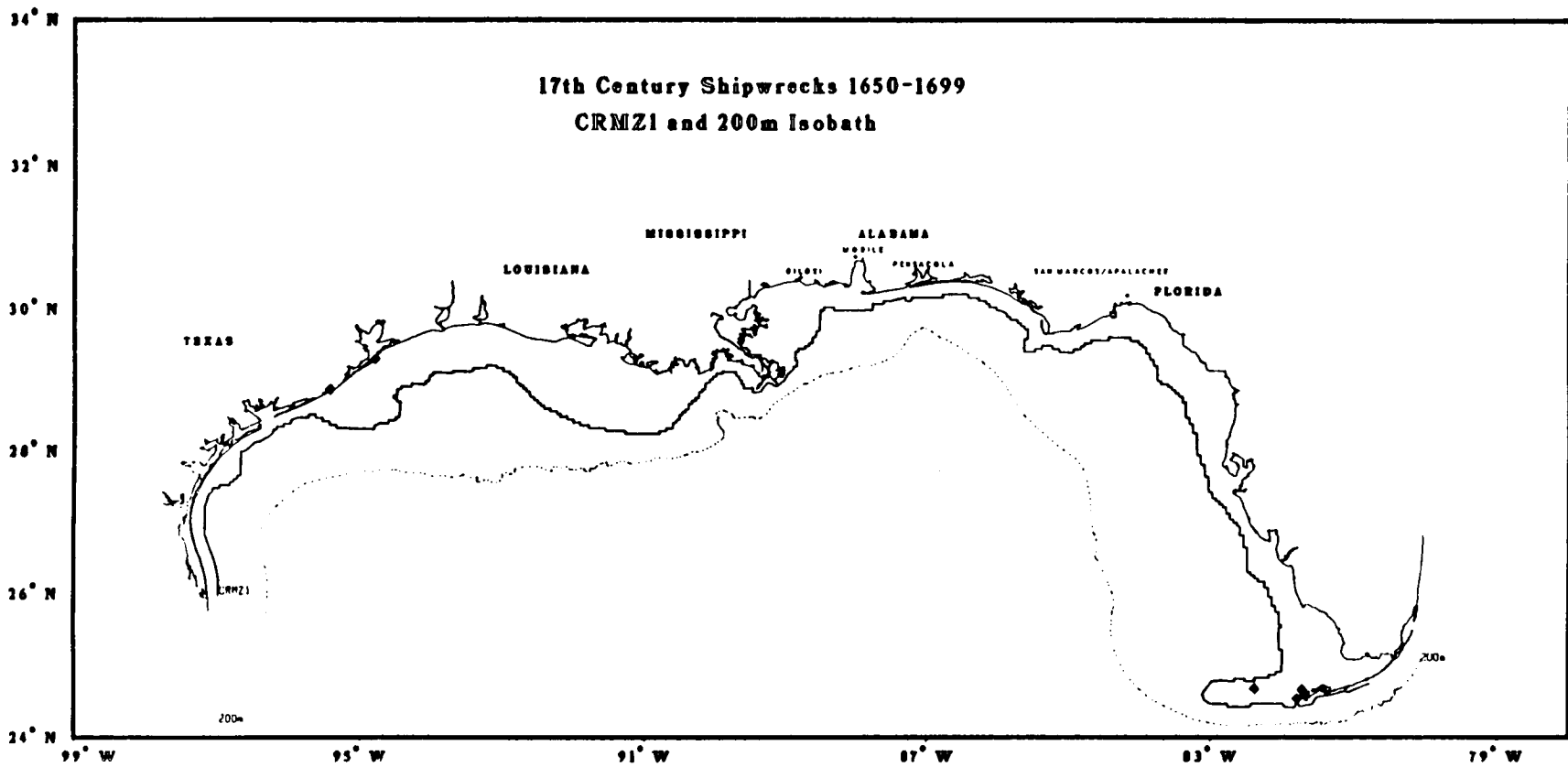


FIGURE H-1. 17th Century Shipwrecks 1600-1649 CRMZI and 200m Isobath.



**FIGURE H-2. 17th Century Shipwrecks 1650-1699 CRMZ1 and 200m Isobath.**

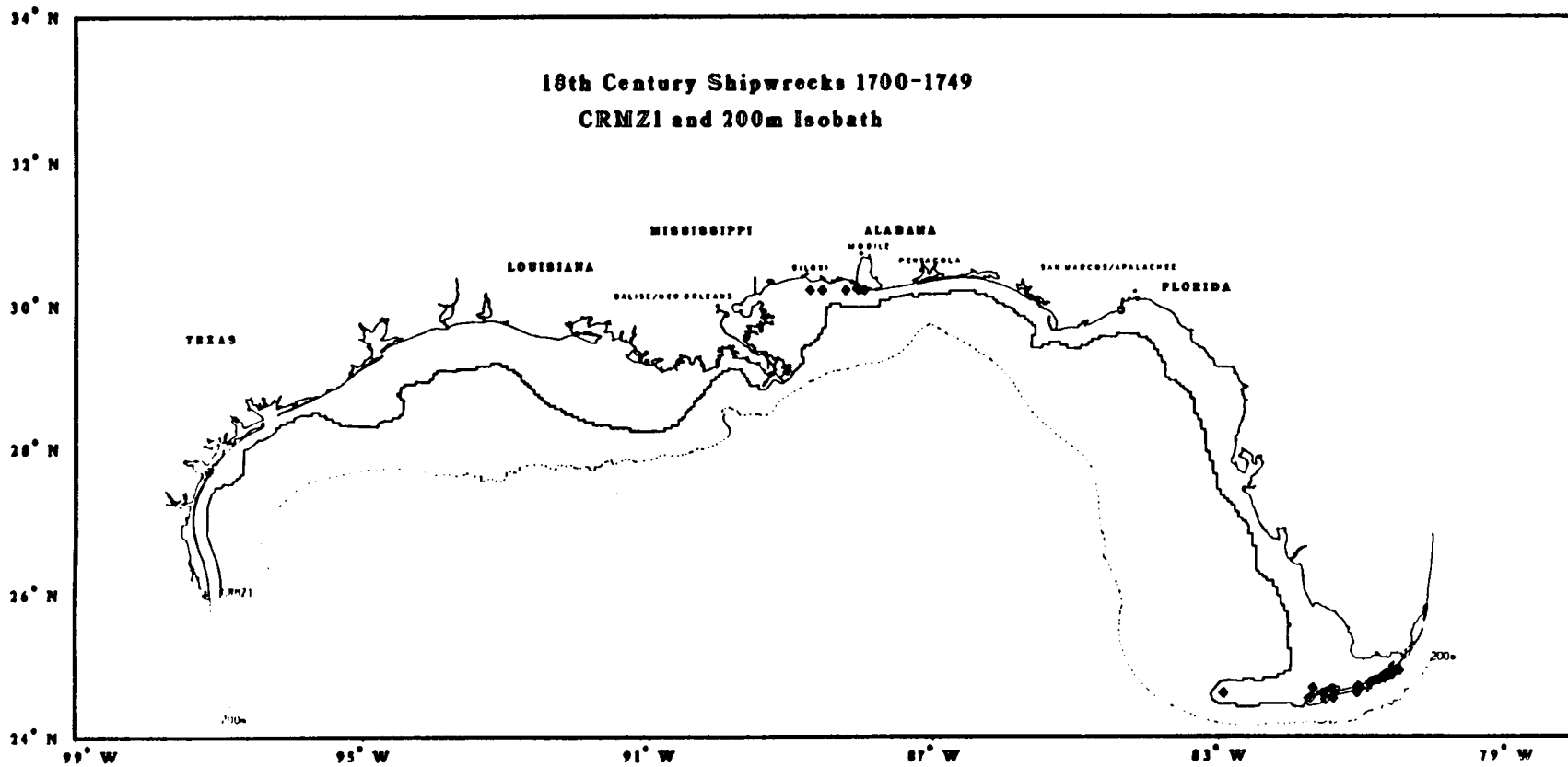


FIGURE H-3. 18th Century Shipwrecks 1700-1749 CRMZ1 and 200m Isobath.

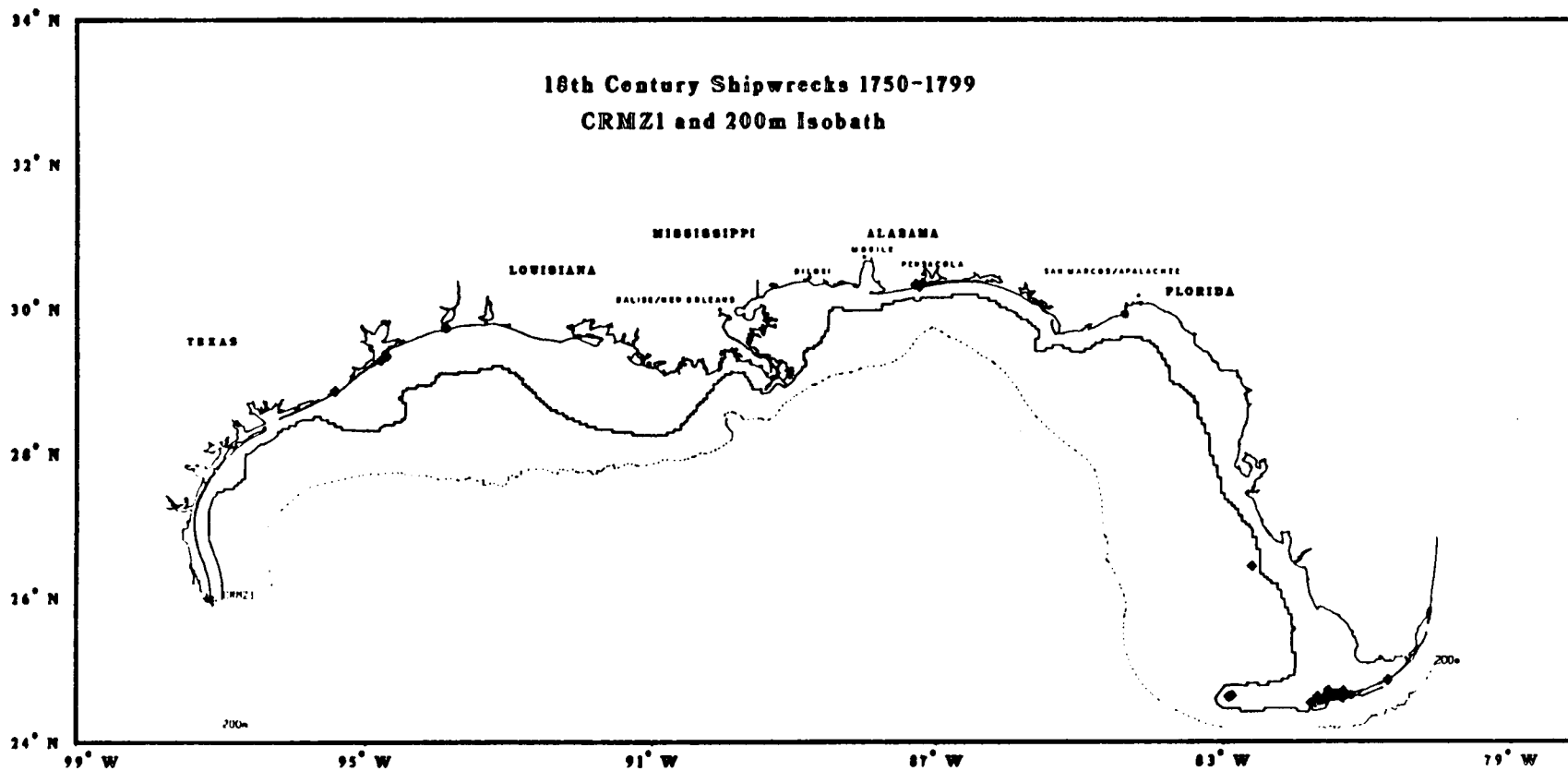


FIGURE H-4. 18th Century Shipwrecks 1750-1799 CRMZ1 and 200m Isobath.

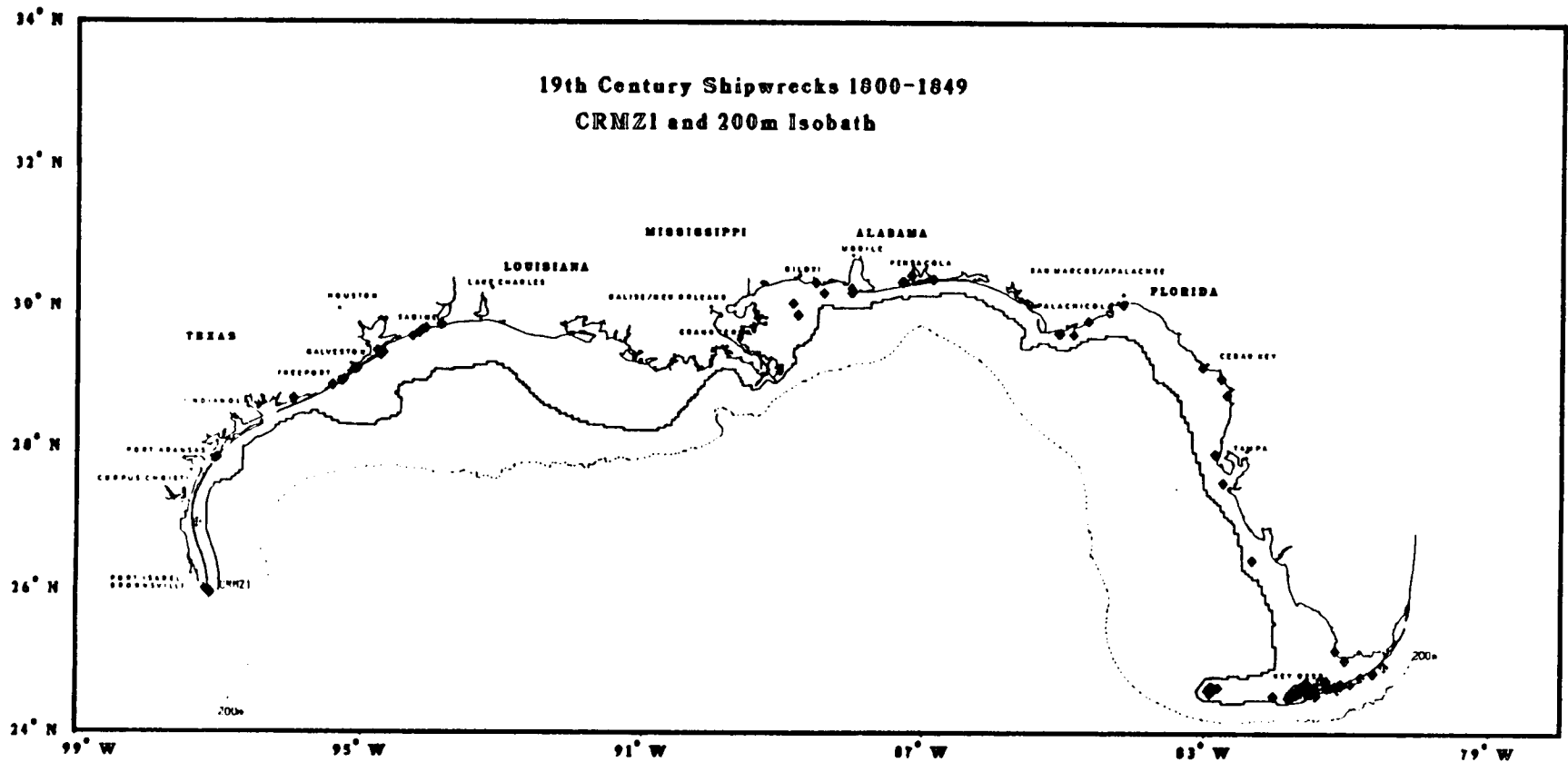
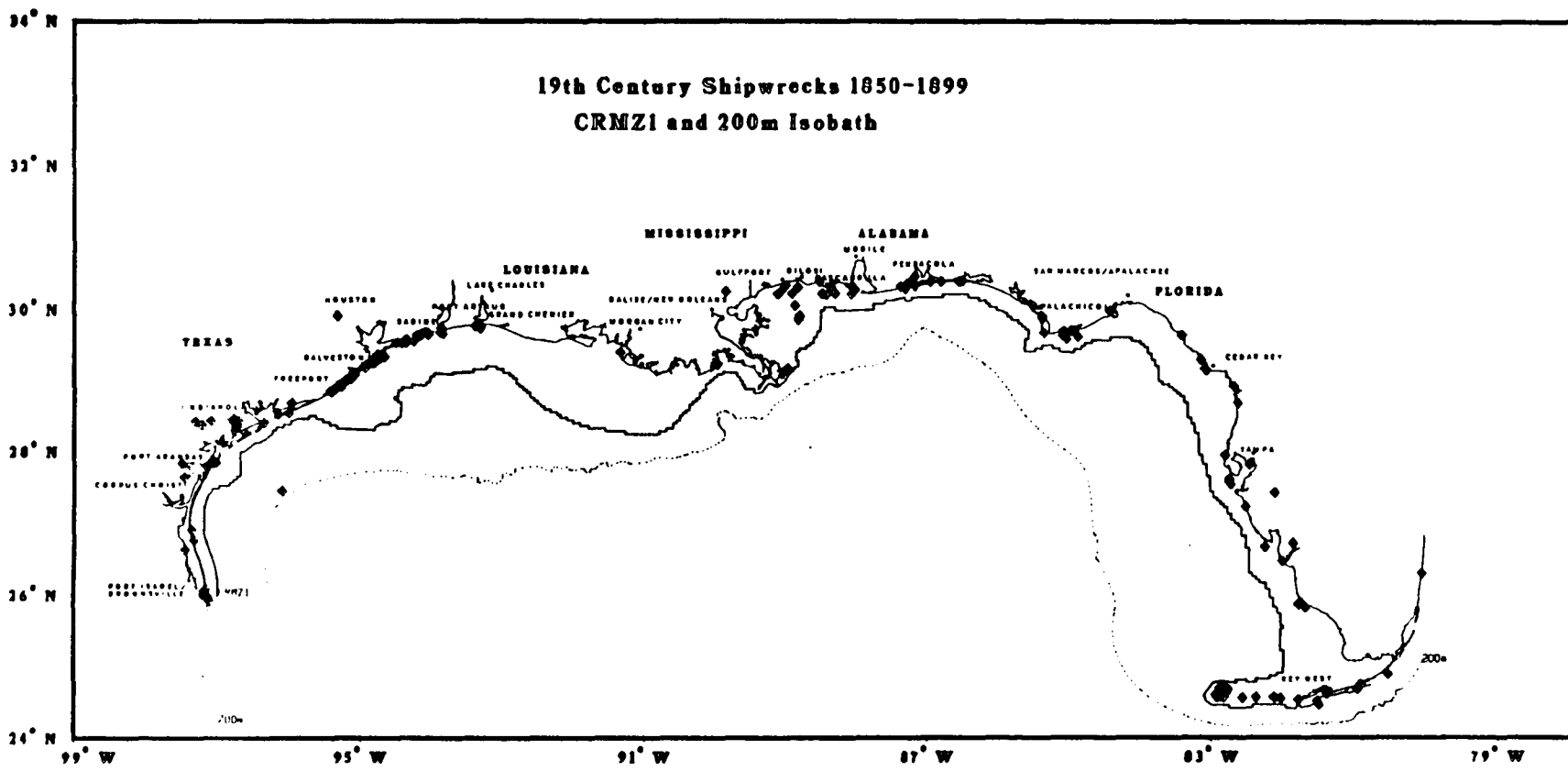


FIGURE H-5. 19th Century Shipwrecks 1800-1849 CRMZ1 and 200m Isobath.





**FIGURE H-6. 19th Century Shipwrecks 1850-1899 CRMZI and 200m Isobath.**

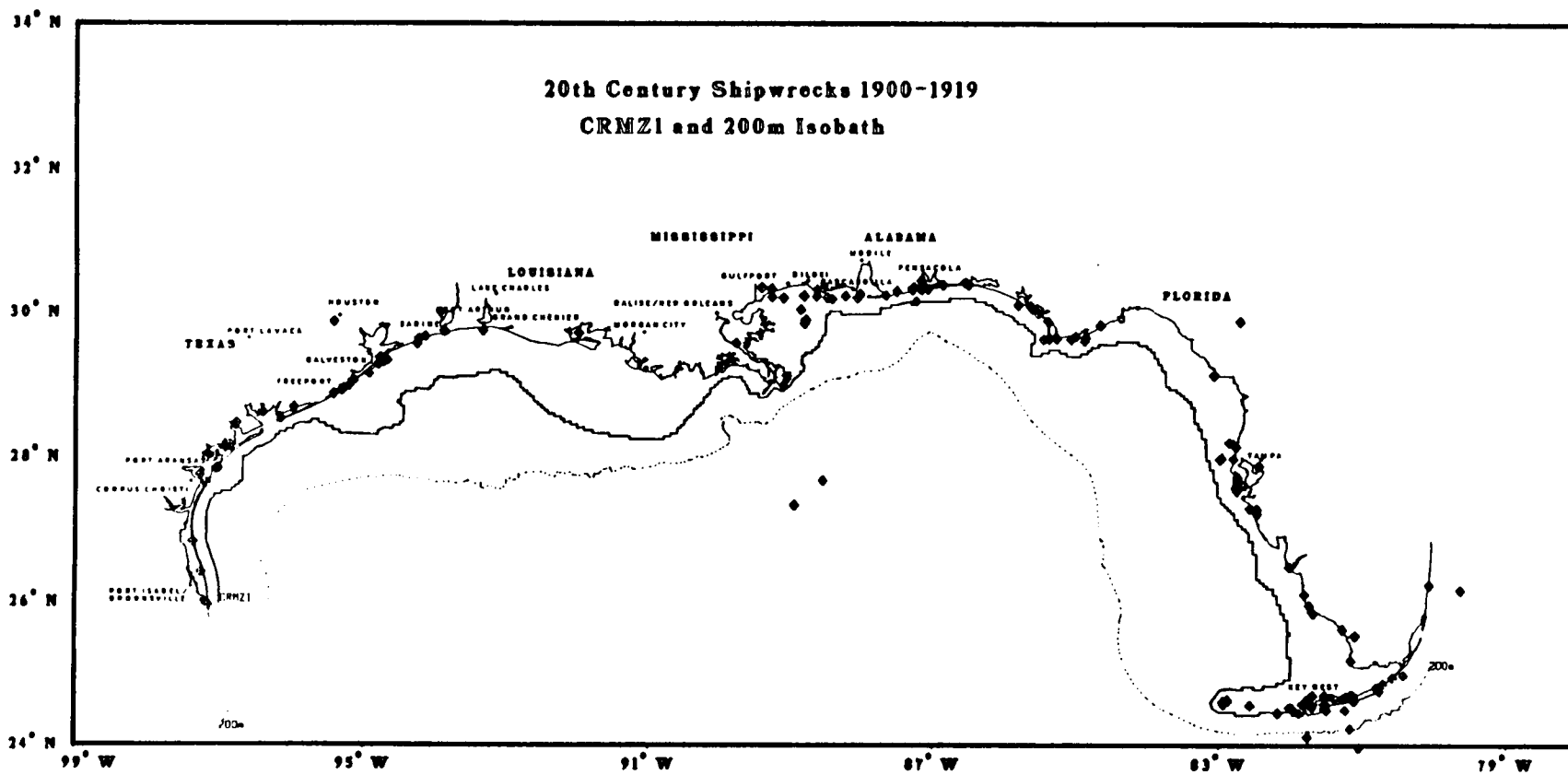


FIGURE H-7. 20th Century Shipwrecks 1900-1919 CRMZ1 and 200m Isobath.

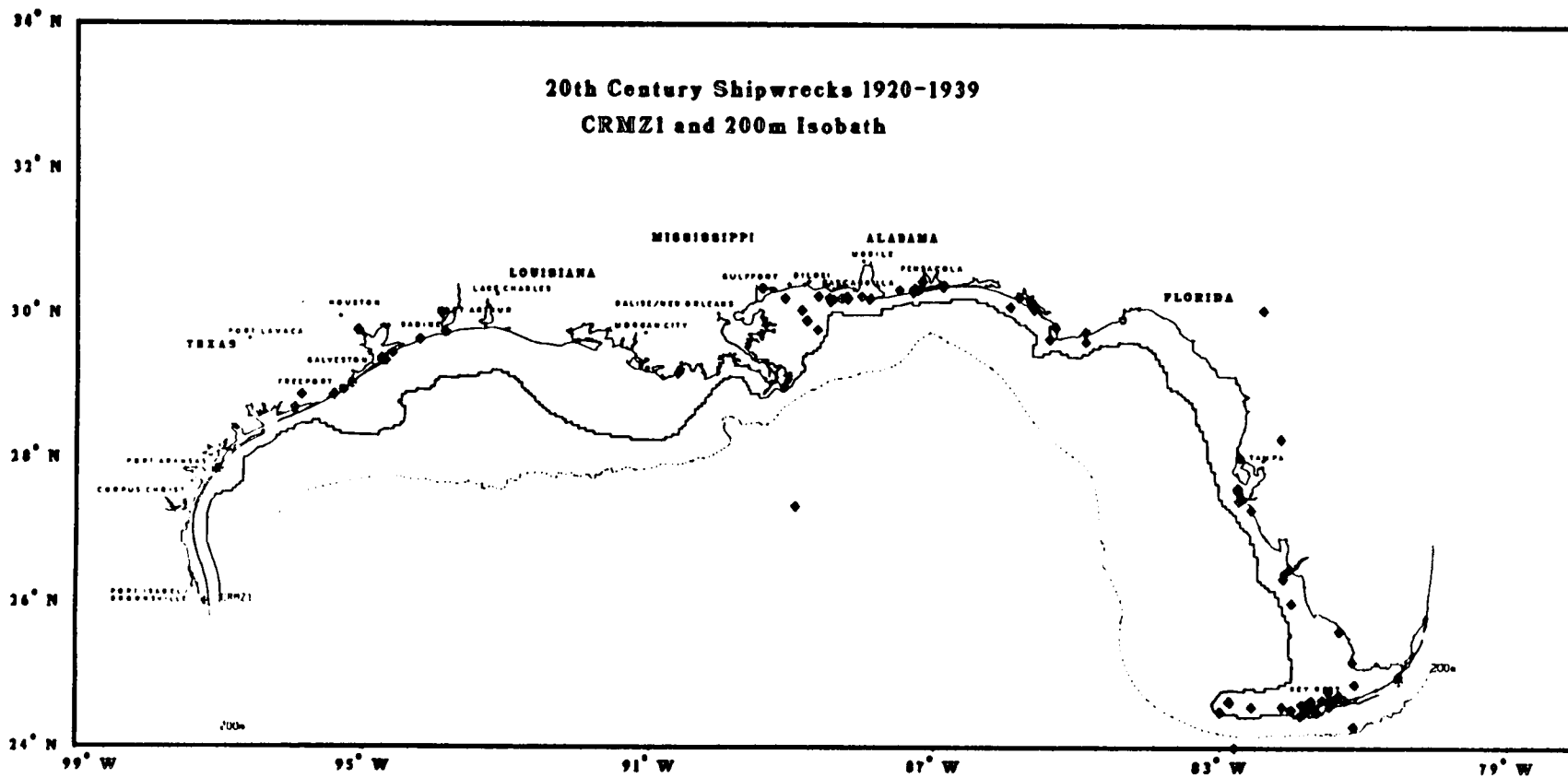


FIGURE H-8. 20th Century Shipwrecks 1920-1939 CRMZI and 200m Isobath.

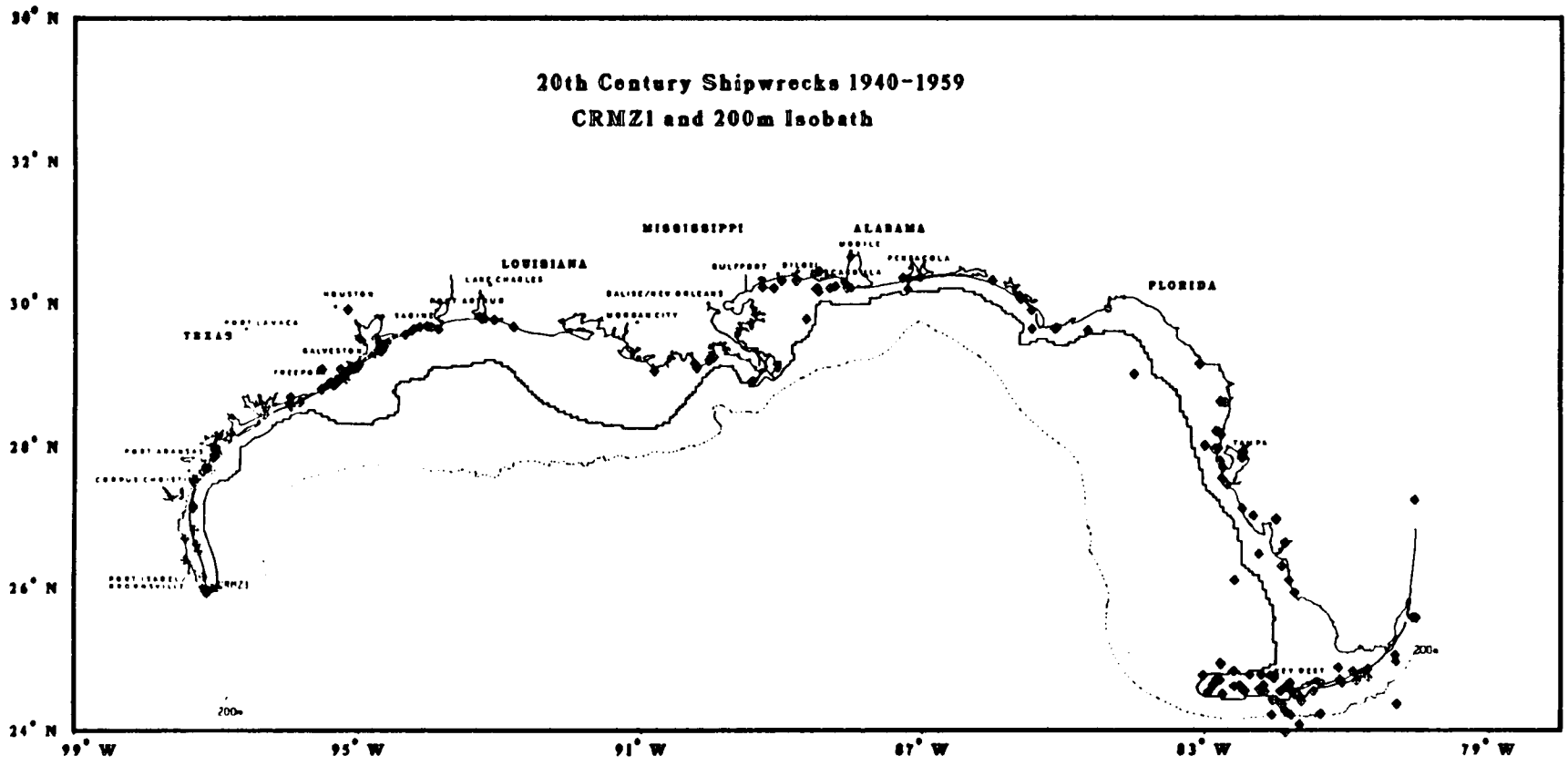


FIGURE H-9. 20th Century Shipwrecks 1940-1959 CRMZ1 and 200m Isobath.

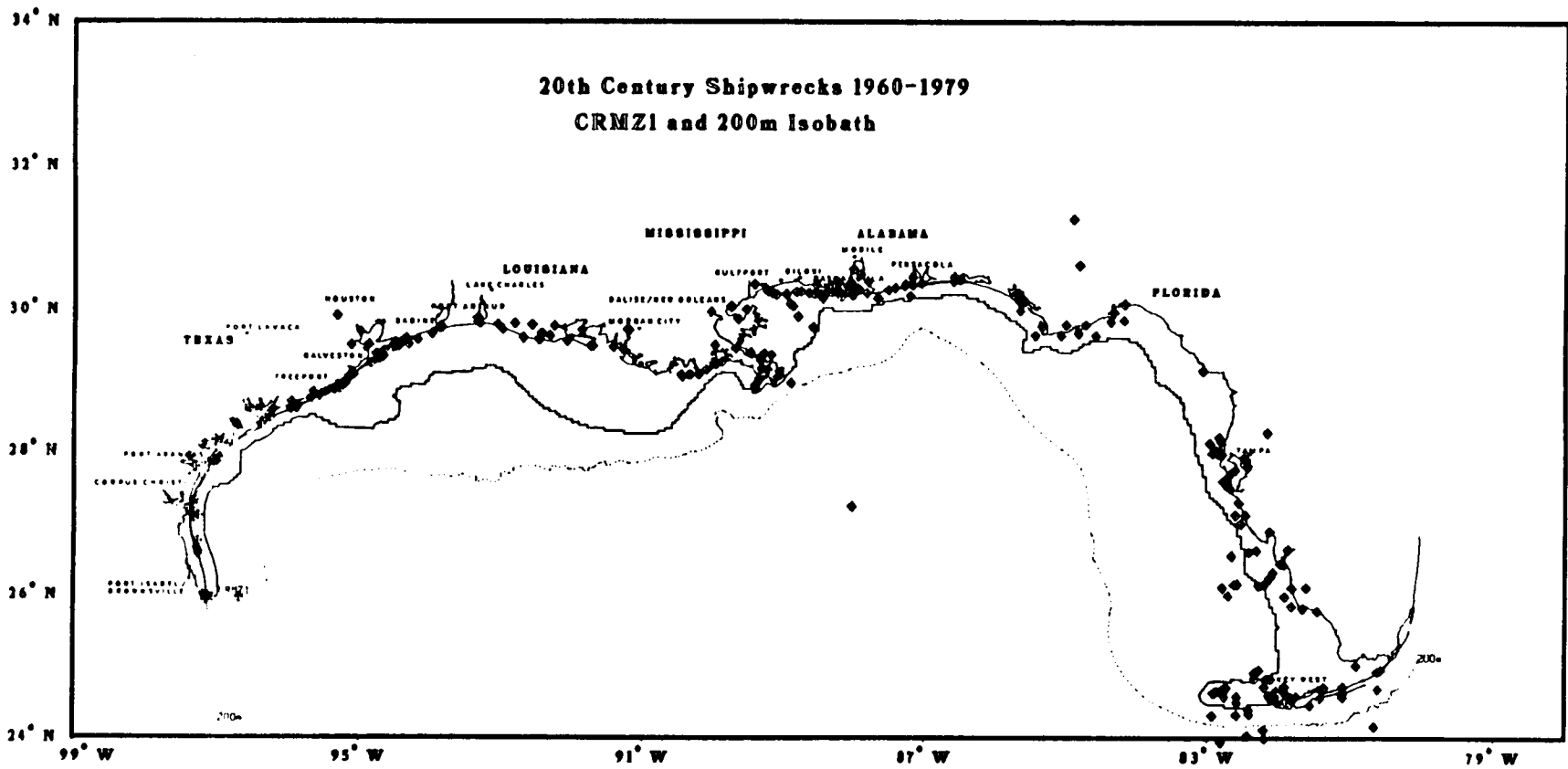
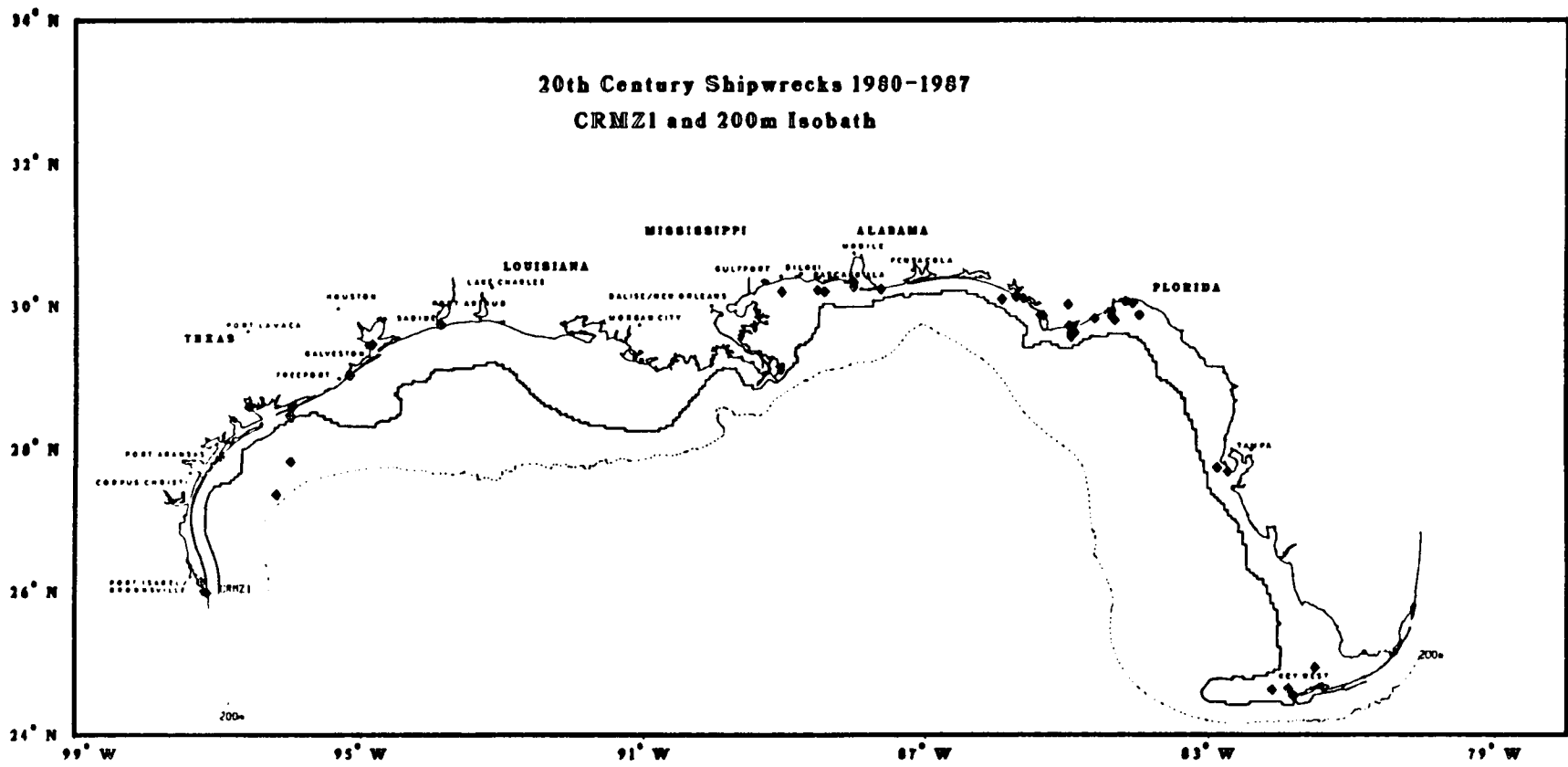
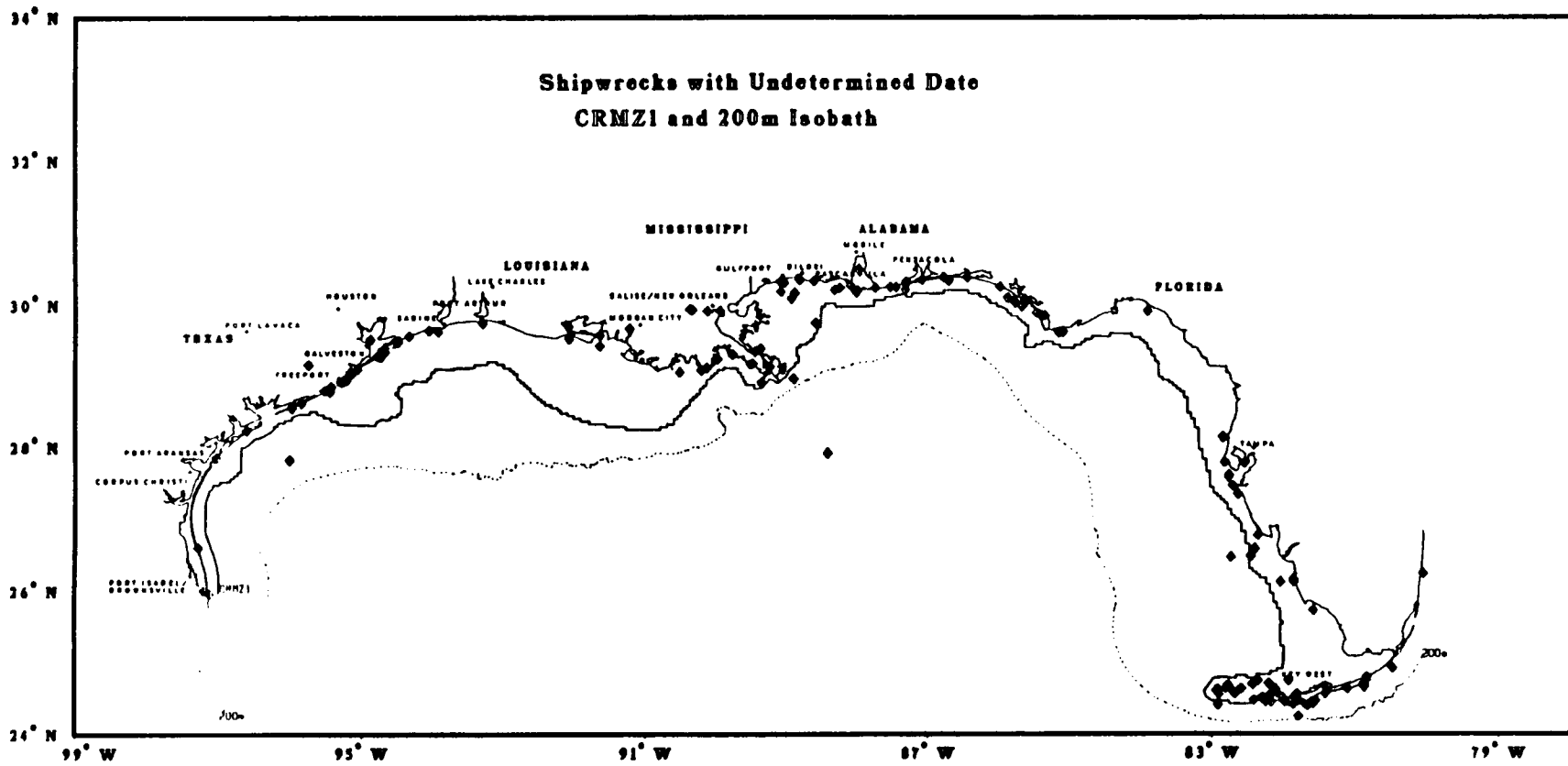


FIGURE H-10. 20th Century Shipwrecks 1960-1979 CRMZ1 and 200m Isobath.



**FIGURE H-11. 20th Century Shipwrecks 1980-1987 CRMZ1 and 200m Isobath.**



**FIGURE H-12. Shipwrecks with Undetermined Date CRMZ1 and 200m Isobath.**

## **APPENDIX I**

**Data for AMC Analyses, 0.5 and 1° Quadrats -  $K \geq 10$ ; 50**



Table I-1.

Data for AMC Analysis;  $K \geq 10$  (K = # Shipwrecks), 1° Quadrats'.

Latitude	Longitude	K
244961	804084	87
243431	813726	389
243657	824100	270
243323	831333	18
253444	813459	27
252673	823389	20
252607	833963	20
255159	963321	11
255683	970878	141
262701	815330	21
262074	822619	48
264210	833261	11
262552	861986	12
263700	881510	10
262578	964852	35
261777	970932	210
273462	824186	110
273424	831923	22
272694	872140	10
274349	953745	10
274266	964230	82
274130	970915	210
282211	824549	26
283145	833651	60
283181	841925	13
283666	883159	15
285034	892815	103
284443	903301	79
283786	912624	68
283930	922714	30
284079	932590	16
283550	943647	41
284709	952838	279
281910	962900	184
280824	970829	13
291656	832010	28
293293	843981	51
294039	852195	62
293386	862513	11
292615	872221	10
293715	884412	70
291824	893467	88
290855	902329	52
291598	913344	43
292409	923165	81
293895	933468	187
292280	943395	389

Table I-1  
(continued).

Latitude	Longitude	K
290808	950917	73
300526	853946	40
302290	864191	26
301924	872055	119
301223	882544	163
301447	891443	48

**Table I-2.**  
**Data for AMC Analysis;  $K \geq 50$ , 1° Quadrats.**

Latitude	Longitude	K
248296	806833	87
245729	816243	388
246132	826858	270
259465	971491	142
263518	824407	50
262986	971582	210
275802	827004	110
277139	967077	82
276915	971552	210
285261	836124	60
288411	894712	103
287427	905522	79
286328	914388	68
287884	954762	279
283209	964869	184
295520	846652	51
296760	853683	62
296210	887372	70
293066	895799	88
291453	903908	52
294035	925290	81
296515	935798	187
293834	945690	389
291373	951563	73
303231	873455	119
302072	884263	163

**Table I-3.**  
**Data for AMC Analysis;  $K \geq 10$ ,  $0.5^\circ$  Quadrats.**

Latitude	Longitude	K
243935	822550	15
246490	812702	96
246421	821610	52
247053	831919	12
259587	971499	139
263468	821226	21
261370	971473	153
267303	971818	56
271883	972726	22
277879	831247	11
277894	970857	170
281854	832583	10
283683	963459	95
281466	971096	12
287697	832266	12
288960	893421	68
287707	902467	33
288125	912220	27
288016	922992	14
288841	952978	185
285545	962543	18
291693	831261	19
292956	892680	30
290702	902526	30
292065	913269	15
292868	922131	26
293885	931847	22
292466	942615	30
290743	951176	64
297223	843445	10
296923	852542	47
296351	892447	12
297165	932699	58
296271	941678	83
303381	872707	96
302168	882319	100
302487	892025	45

**Table I-4.**  
**Data for AMC Analysis; K>50, 0.5° Quadrats.**

Latitude	Longitude	K
246490	812702	96
246421	821610	52
259587	971499	139
261370	971473	153
276303	971818	56
277894	970857	170
283683	963459	95
288960	893421	68
288841	952978	185
290743	951176	64
297165	932699	58
296271	941678	83
303381	872707	96
302168	882319	100

## **APPENDIX J**

**Factor Analyses, Data Matrices and Factor Scores**  
**Chronological Factors**  
**Areal Factors**

## Chronological Factors

**Table J-1.**  
**Factor Analysis for Chronological Factors : X<sub>1</sub> ... X<sub>7</sub>.**

Summary Information

Factor Procedure	Principal Component Analysis
Extraction Rule	Method Default
Transformation Method	Orthotran/Varimax
Number of Factors	3

Oblique Factor Scores: Columns 9 - 11

**Table J-2.**  
**Correlation matrix.**

	Wrecks ...	Wrecks ...	Wrecks ...	Wrecks ...	Age Olde...	Ports,M...	Major S...
Wrecks 2...	1						
Wrecks 1...	.513	1					
Wrecks 1...	.547	.189	1				
Wrecks 1...	.528	.235	.982	1			
Age Olde...	.343	.253	-.096	-.142	1		
Ports, Ma...	.208	.296	-.163	-.156	.61	1	
Major St...	.382	-.001	.135	.077	.502	.046	1

**Table J-3.**  
**Partials in off-diagonals and Squared Multiple R in diagonal.**

	Wrecks ...	Wrecks ...	Wrecks ...	Wrecks ...	Age Olde...	Ports,M...	Major S...
Wrecks 2...	.604						
Wrecks 1...	.468	.415					
Wrecks 1...	.192	-.313	.972				
Wrecks 1...	-.069	.306	.976	.971			
Age Olde...	.077	.167	.205	-.247	.64		
Ports, Ma...	.124	.04	-.156	.128	.615	.494	
Major St...	.305	-.234	.058	-.063	.516	-.338	.453

**Table J-4.**  
**Measures of Variable Sampling Adequacy.**  
 Total matrix sampling adequacy: .551

Wrecks 20th ...	.754
Wrecks 19th ...	.505
Wrecks 18th ...	.539
Wrecks 17-1...	.544
Age Oldest P...	.517
Ports, Major	.503
Major Storms	.441

Bartlett Test of Sphericity- DF: 27    Chi Square: 146.369    P: .0001

**Table J-5.**  
**Eigenvalues and Proportion of Original Variance.**

	Magnitude	Variance Prop.
Value 1	2.676	.382
Value 2	2.067	.295
Value 3	1.1	.157
Value 4	.626	.089

**Table J-6.**  
**Eigenvectors.**

	Vector 1	Vector 2	Vector 3	Vector 4
Wrecks 20th...	-.533	.102	-.009	.216
Wrecks 19th...	-.339	.186	-.561	.602
Wrecks 18th...	-.495	-.361	.051	-.294
Wrecks 17-...	-.489	-.376	-.021	-.272
Age Oldest P...	-.207	.582	.173	-.177
Ports, Major	-.115	.526	-.335	-.579
Major Storms	-.248	.26	.735	.252



**Table J-7.**  
**Unrotated Factor Matrix.**

	Factor 1	Factor 2	Factor 3
Wrecks 20th...	.871	.146	-.01
Wrecks 19th...	.554	.267	-.588
Wrecks 18th...	.81	-.519	.054
Wrecks 17-...	.799	-.541	-.022
Age Oldest P...	.338	.837	.181
Ports, Major	.187	.756	-.351
Major Storms	.406	.374	.771

**Table J-8.**  
**Communality Summary.**

	SMC	Final Estimate
Wrecks 20th...	.604	.78
Wrecks 19th...	.415	.725
Wrecks 18th...	.972	.928
Wrecks 17-...	.971	.932
Age Oldest P...	.64	.848
Ports, Major	.494	.73
Major Storms	.453	.899

**Table J-9.**  
**Orthogonal Transformation Solution-Varimax.**

	Factor 1	Factor 2	Factor 3
Wrecks 20th...	.675	.448	.353
Wrecks 19th...	.352	.762	-.145
Wrecks 18th...	.96	-.071	.037
Wrecks 17-...	.964	-.043	-.038
Age Oldest P...	-.14	.595	.689
Ports, Major	-.218	.807	.177
Major Storms	.143	-.057	.936

**Table J-10.**  
**Oblique Solution Primary Pattern Matrix-Orthotran/Varimax.**

	Factor 1	Factor 2	Factor 3
Wrecks 20th...	.726	.518	.418
Wrecks 19th...	.392	.786	-.085
Wrecks 18th...	.968	-.001	.09
Wrecks 17-...	.969	.023	.016
Age Oldest P...	-.071	.625	.717
Ports, Major	-.164	.808	.208
Major Storms	.19	-.001	.948

**Table J-11.**  
**Oblique Solution Reference Structure-Orthotran/Varimax.**

	Factor 1	Factor 2	Factor 3
Wrecks 20th...	.716	.511	.414
Wrecks 19th...	.387	.777	-.084
Wrecks 18th...	.955	-.001	.089
Wrecks 17-...	.956	.023	.016
Age Oldest P...	-.07	.617	.71
Ports, Major	-.162	.797	.206
Major Storms	.188	-.001	.938

**Table J-12.**  
**Primary Intercorrelations-Orthotran/Varimax.**

	Factor 1	Factor 2	Factor 3
Factor 1	1		
Factor 2	-.119	1	
Factor 3	-.099	-.092	1

**Table J-13.**  
**Variable Complexity-Orthotran/Varimax.**

	Orthogonal	Oblique
Wrecks 20th...	2.315	2.474
Wrecks 19th...	1.491	1.495
Wrecks 18th...	1.014	1.017
Wrecks 17-...	1.007	1.002
Age Oldest P...	2.05	1.985
Ports, Major	1.247	1.22
Major Storms	1.055	1.08
Average	1.454	1.468

**Table J-14.**  
**Proportionate Variance Contributions.**

	Orthogonal	Oblique		
	Direct	Direct	Joint	Total
Factor 1	.431	.441	-.037	.403
Factor 2	.307	.324	-2.800E-4	.323
Factor 3	.262	.276	-.003	.273

**Table J-15.**  
**Factor Score Weights for Oblique Transformation Solution-Orthotran/Va...**

	Factor 1	Factor 2	Factor 3
Wrecks 20th...	.264	.207	.161
Wrecks 19th...	.138	.497	-.256
Wrecks 18th...	.387	-.056	.025
Wrecks 17-...	.389	-.025	-.035
Age Oldest P...	-.069	.24	.391
Ports, Major	-.096	.468	-.021
Major Storms	.047	-.213	.69

**Table J-16.**  
**Factor Score Weights for Orthogonal Transformation Solution-Varimax.**

	Factor 1	Factor 2	Factor 3
Wrecks 20th...	.244	.182	.136
Wrecks 19th...	.123	.498	-.287
Wrecks 18th...	.387	-.083	.007
Wrecks 17-...	.391	-.05	-.054
Age Oldest P...	-.101	.226	.382
Ports, Major	-.12	.474	-.039
Major Storms	.024	-.246	.697

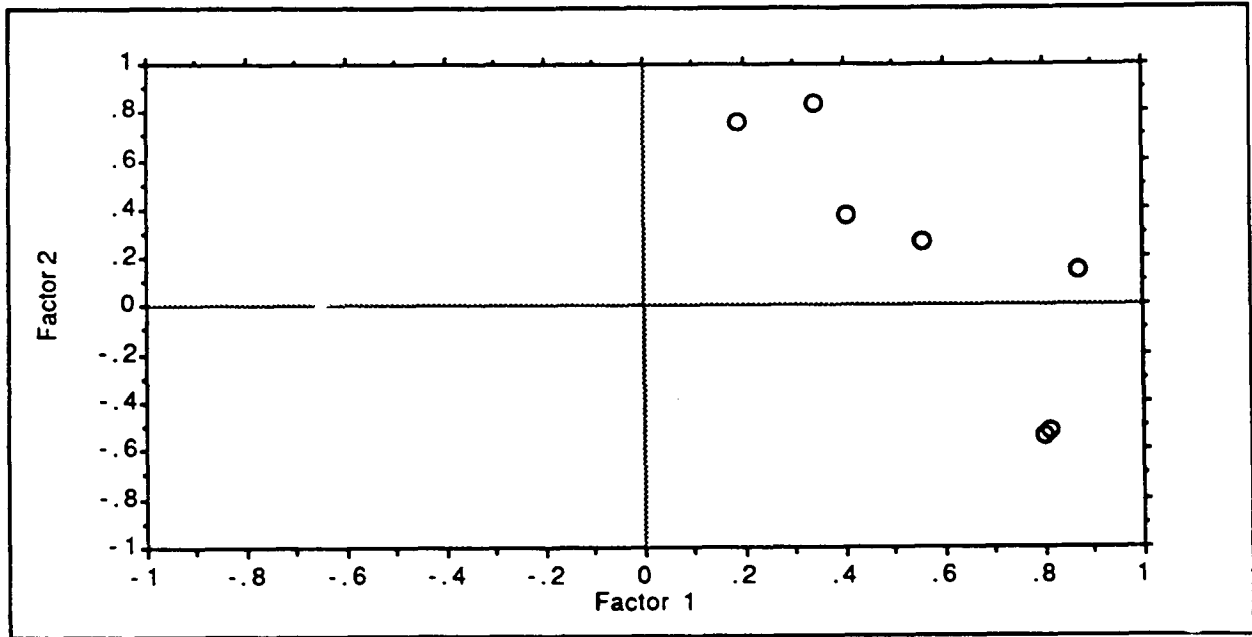


Figure J-1. Unrotated Orthogonal Plot: Factor 1 vs Factor 2.

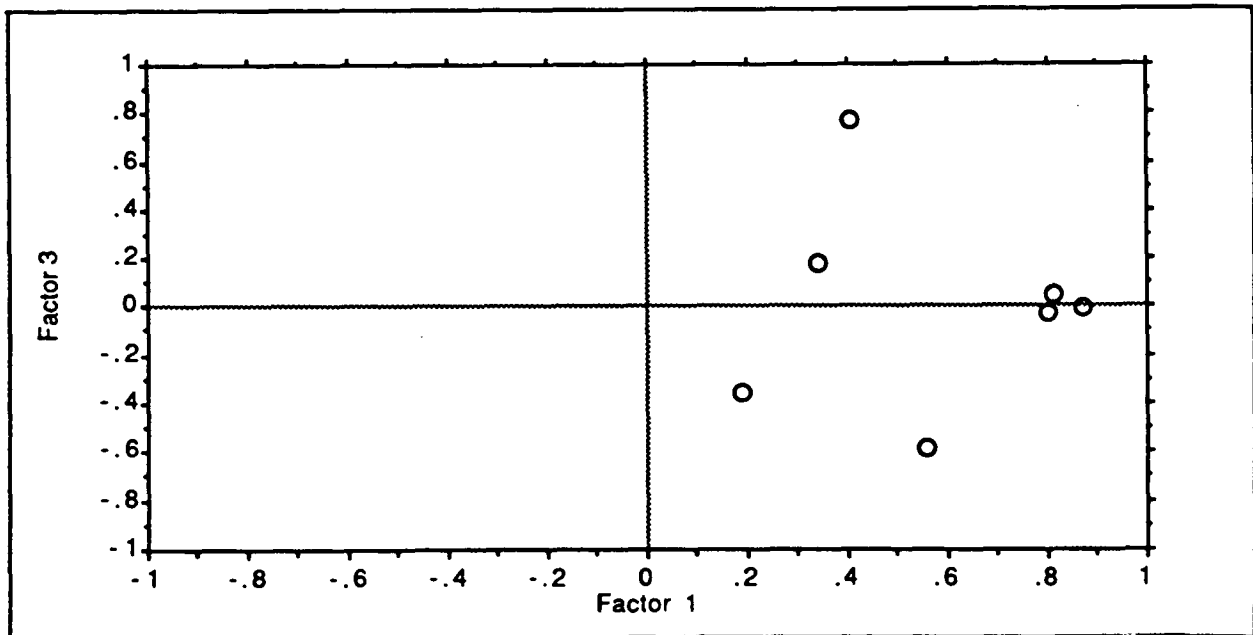


Figure J-2. Unrotated Orthogonal Plot: Factor 1 vs Factor 3.

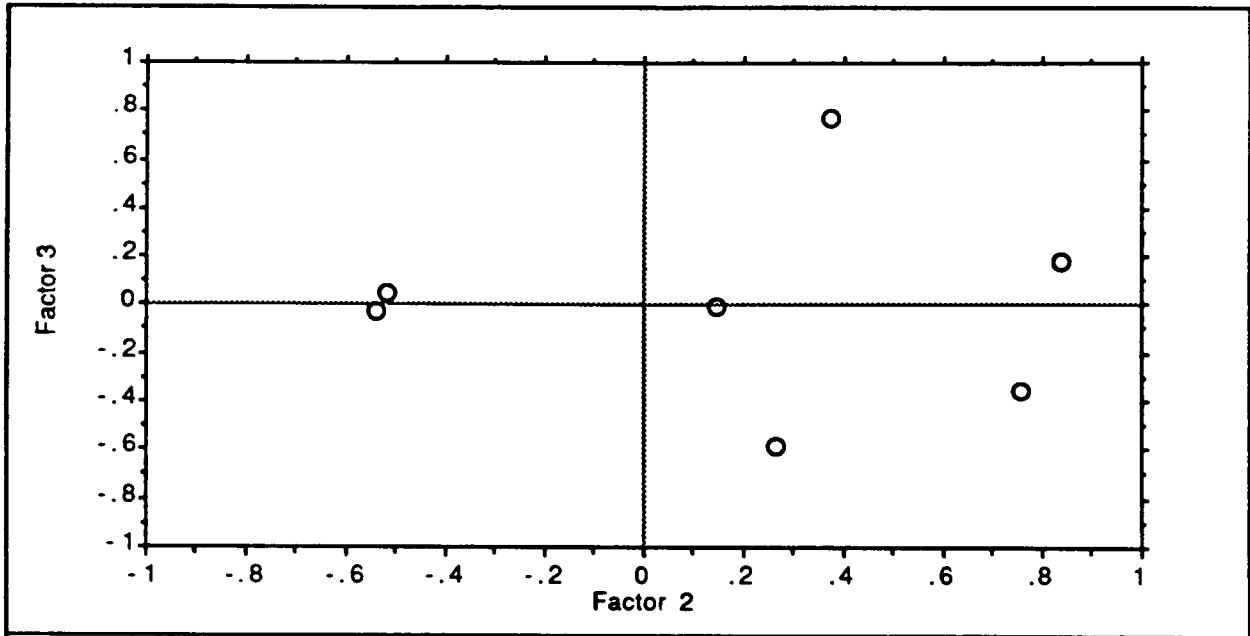


Figure J-3. Unrotated Orthogonal Plot: Factor 2 vs Factor 3.

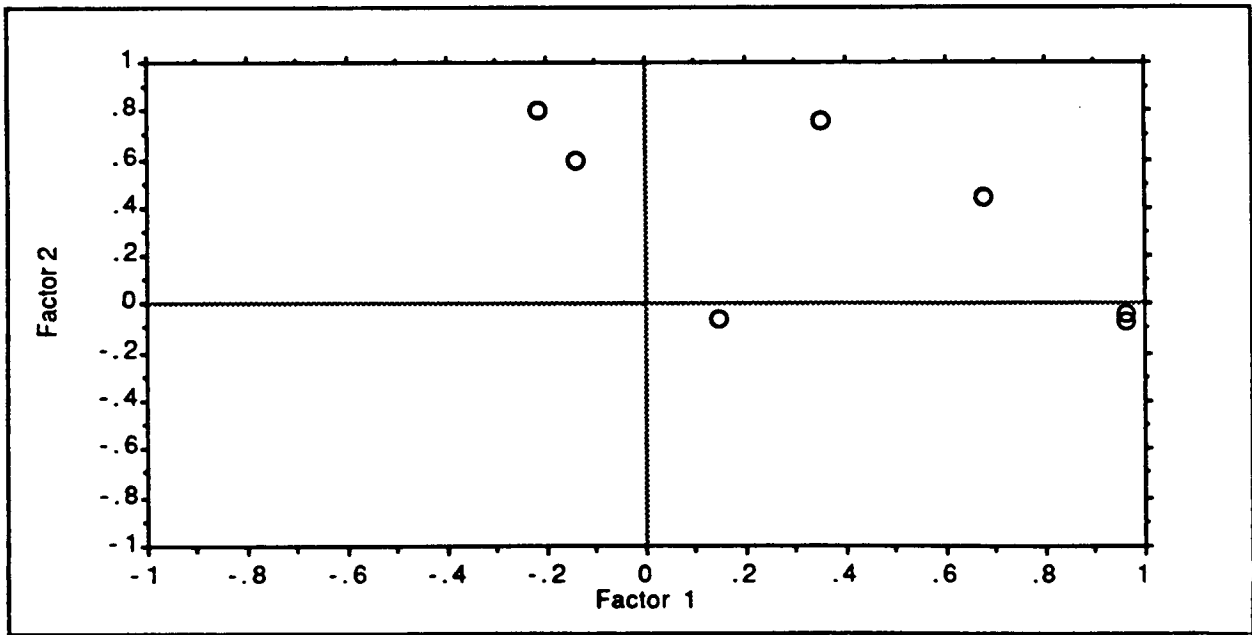


Figure J-4. Rotated Orthogonal Plot: Factor 1 vs Factor 2.

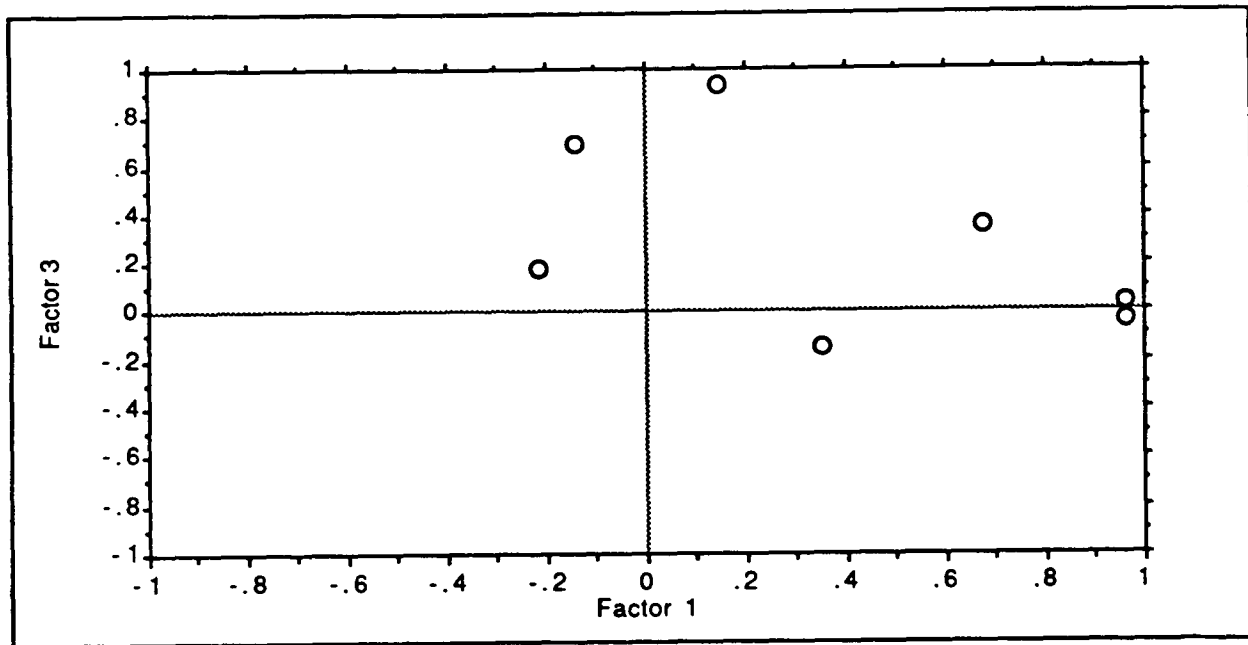


Figure J-5. Rotated Orthogonal Plot: Factor 1 vs Factor 3.

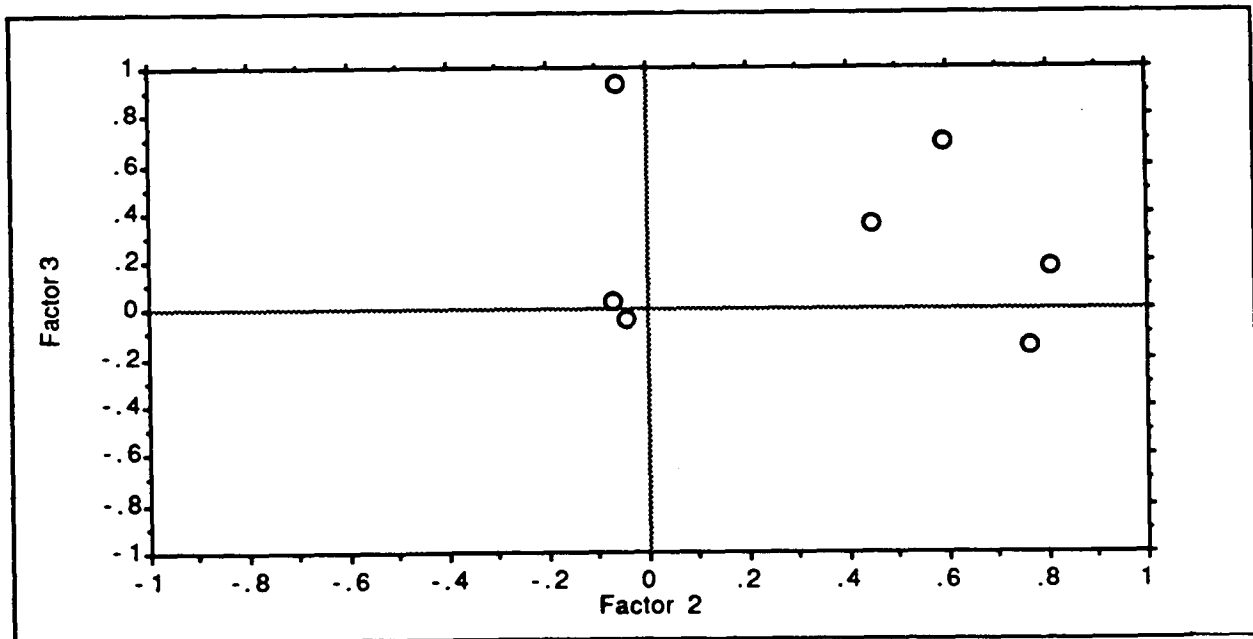


Figure J-6. Rotated Orthogonal Plot: Factor 2 vs Factor 3.

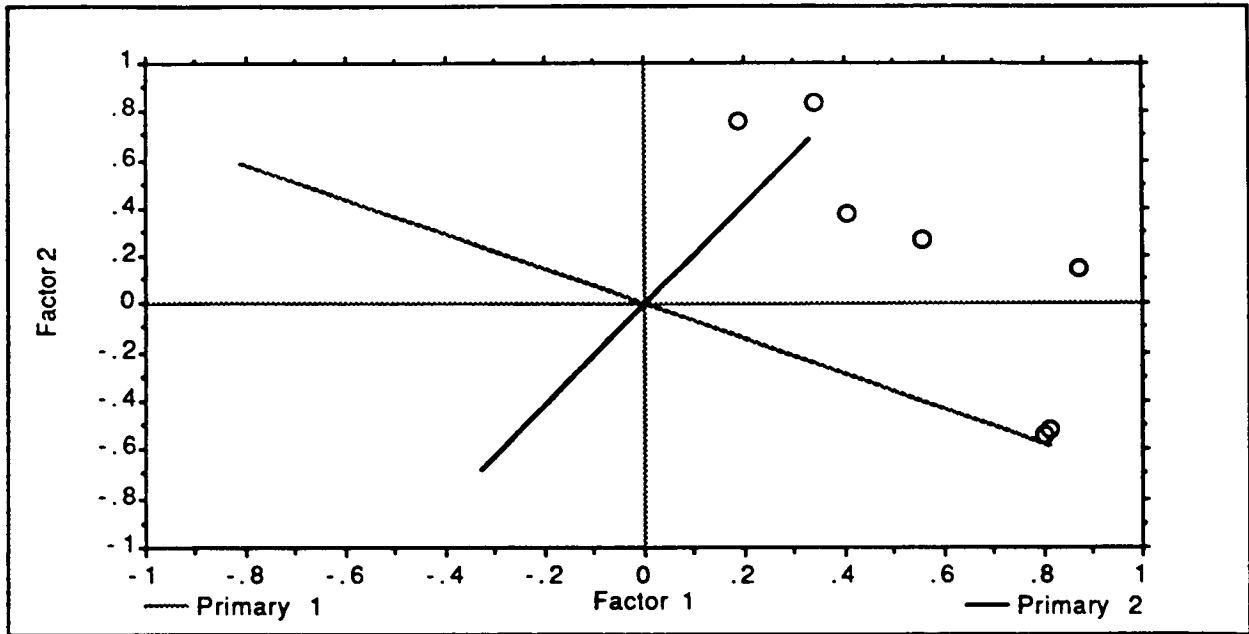


Figure J-7. Transformed Oblique Plot: Factor 1 vs Factor 2.

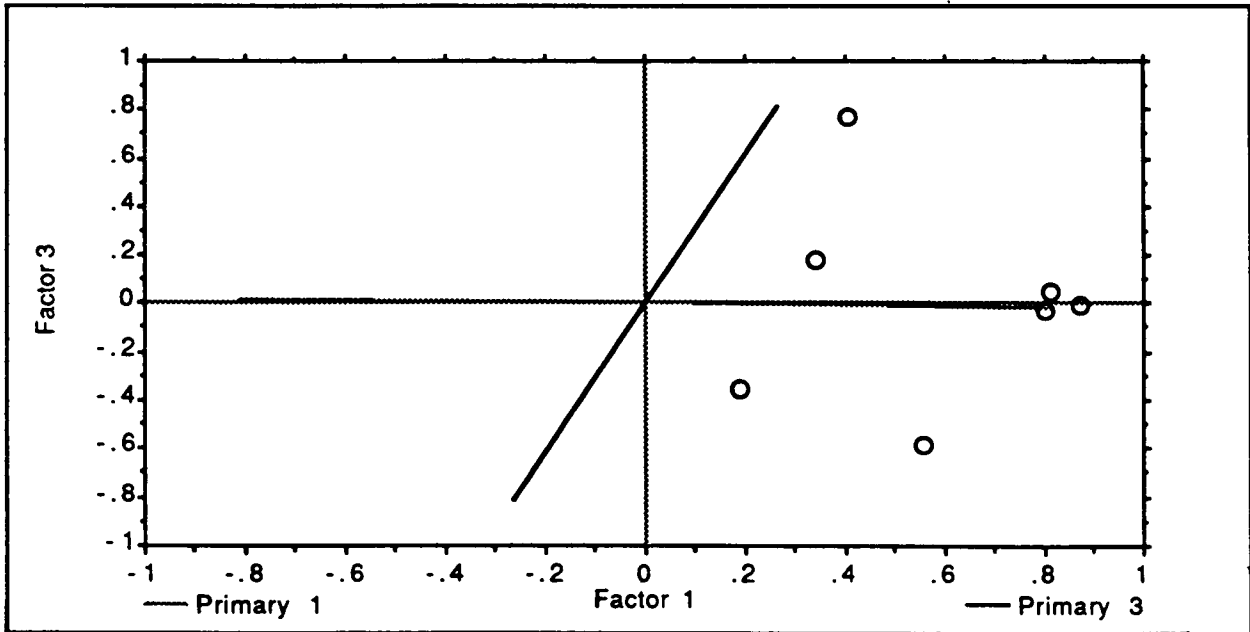


Figure J-8. Transformed Oblique Plot: Factor 1 vs Factor 3.



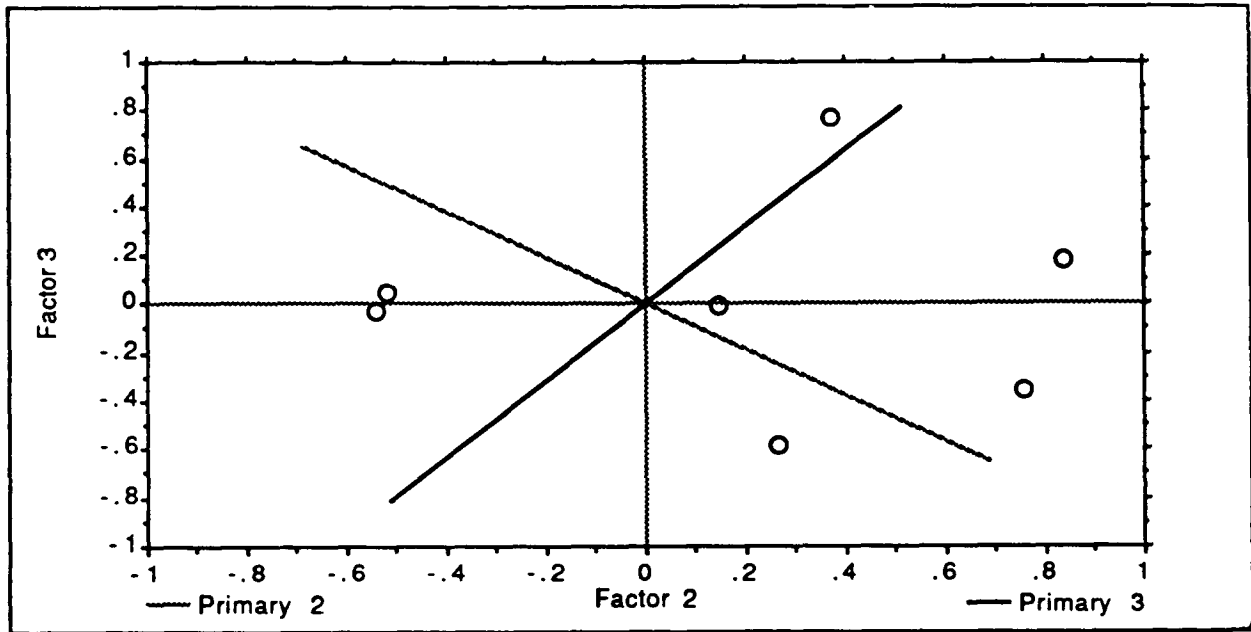


Figure J-9. Transformed Oblique Plot: Factor 2 vs Factor 3.

Table J-17.

**Raw Data for Seven Chronological Variables for Twenty-Six Gulf of Mexico  
Areas, Brownsville to the Florida Keys.**

	Wrecks 20th C.	Wrecks 19th C.	Wrecks 18th C.	Wrecks 17-18th C.	Age Oldest Port	Ports, Major	Major Storms	Column 8
1	13	38	0	0	149	1	13	•
2	10	57	0	4	88	1	8	•
3	11	42	0	0	142	1	15	•
4	47	69	0	2	144	1	10	•
5	61	64	0	0	153	1	9	•
6	102	117	0	0	167	1	12	•
7	50	29	0	0	148	1	9	•
8	0	0	0	0	0	0	9	•
9	0	0	0	0	0	0	12	•
10	24	0	0	0	138	1	7	•
11	126	0	0	0	270	1	26	•
12	21	12	0	0	270	1	26	•
13	57	42	0	0	118	3	9	•
14	39	23	12	0	288	1	21	•
15	30	0	0	0	168	1	3	•
16	0	0	0	0	0	0	12	•
17	15	11	0	0	34	1	9	•
18	0	0	0	0	0	0	0	•
19	0	0	0	0	0	0	14	•
20	0	0	0	0	0	0	13	•
21	53	0	0	0	113	1	21	•
22	0	0	0	0	0	0	10	•
23	10	0	0	0	148	2	7	•
24	11	0	0	0	0	0	6	•
25	22	14	43	15	166	1	12	•
26	156	57	87	29	0	0	15	•

Area 1 = Brownsville; Area 26 = Dry Tortugas - Coastal Areas in 1 Degree increments.

## Areal Factors

**Table J-18.**  
**Factor Analysis for Gulf area factors1: X<sub>1</sub> ... X<sub>6</sub>**  
**Summary Information**

Factor Procedure	Principal Component Analysis
Extraction Rule	Method Default
Transformation Method	Orthotran/Varimax
Number of Factors	2

Orthogonal Factor Scores: Columns 8 - 9

Note: 5 cases deleted with missing values.

**Table J-19.**  
**Correlation matrix.**

	Hurrican...	Ports	Routes	Hazards	Energy	Wrecks
Hurricanes	1					
Ports	.498	1				
Routes	-.505	-.496	1			
Hazards	-.299	-.329	.856	1		
Energy	.64	.171	-.643	-.478	1	
Wrecks	-.072	.567	-.215	-4.9E-20	-.25	1

**Table J-20.**  
**Partials in off-diagonals and Squared Multiple R in diagonal.**

	Hurrican...	Ports	Routes	Hazards	Energy	Wrecks
Hurricanes	.655					
Ports	.595	.659				
Routes	-.267	.064	.905			
Hazards	.337	-.218	.873	.84		
Energy	.315	-.123	-.563	.312	.7	
Wrecks	-.419	.583	-.591	.566	-.39	.681

**Table J-21.**  
**Measures of Variable Sampling Adequacy.**  
 Total matrix sampling adequacy: .498

Hurricanes	.553
Ports	.556
Routes	.53
Hazards	.464
Energy	.627
Wrecks	.246

Bartlett Test of Sphericity- DF: 20    Chi Square: 43.067    P: .002

**Table J-22.**  
**Eigenvalues and Proportion of Original Variance.**

	Magnitude	Variance Prop.
Value 1	3.023	.504
Value 2	1.537	.256
Value 3	.856	.143

**Table J-23.**  
**Eigenvectors.**

	Vector 1	Vector 2	Vector 3
Hurricanes	.424	-.135	-.644
Ports	.371	.505	-.291
Routes	-.534	-.022	-.327
Hazards	-.451	.086	-.603
Energy	.43	-.4	-.163
Wrecks	.092	.748	.053

**Table J-24.**  
**Unrotated Factor Matrix.**

	Factor 1	Factor 2
Hurricanes	-.738	-.167
Ports	-.645	.626
Routes	.929	-.027
Hazards	.784	.107
Energy	-.748	-.495
Wrecks	-.161	.927

**Table J-25.**  
**Communality Summary.**

	SMC	Final Estimate
Hurricanes	.655	.572
Ports	.659	.808
Routes	.905	.864
Hazards	.84	.626
Energy	.7	.805
Wrecks	.681	.884

**Table J-26.**  
**Orthogonal Transformation Solution-Varimax.**

	Factor 1	Factor 2
Hurricanes	.753	.076
Ports	.412	.799
Routes	-.872	-.321
Hazards	-.777	-.148
Energy	.867	-.232
Wrecks	-.142	.93

**Table J-27.**

**Oblique Solution Primary Pattern Matrix-Orthotran/Varimax.**

	Factor 1	Factor 2
Hurricanes	-.795	-.079
Ports	-.114	.833
Routes	.822	-.179
Hazards	.792	.001
Energy	-1.051	-.46
Wrecks	.551	1.107

**Table J-28.**

**Oblique Solution Reference Structure-Orthotran/Varimax.**

	Factor 1	Factor 2
Hurricanes	-.675	-.067
Ports	-.097	.707
Routes	.698	-.152
Hazards	.672	.001
Energy	-.892	-.39
Wrecks	.468	.94

**Table J-29.**

**Primary Intercorrelations-Orthotran/Varimax.**

	Factor 1	Factor 2
Factor 1	1	
Factor 2	-.529	1

**Table J-30.**  
**Variable Complexity-Orthotran/Varimax.**

	Orthogonal	Oblique
Hurricanes	1.02	1.02
Ports	1.498	1.037
Routes	1.267	1.095
Hazards	1.072	1
Energy	1.142	1.369
Wrecks	1.047	1.467
Average	1.174	1.165

**Table J-31.**  
**Proportionate Variance Contributions.**

	Orthogonal	Oblique		
	Direct	Direct	Joint	Total
Factor 1	.63	.663	.015	.678
Factor 2	.37	.429	-.107	.322

**Table J-32.**  
**Factor Score Weights for Oblique Transformation Solution-Orthotran/Va...**

	Factor 1	Factor 2
Hurricanes	-.303	-.089
Ports	.113	.51
Routes	.265	-.069
Hazards	.288	.04
Energy	-.467	-.337
Wrecks	.405	.713

**Table J-33.****Factor Score Weights for Orthogonal Transformation Solution-Varimax.**

	Factor 1	Factor 2
Hurricanes	.266	-.026
Ports	.073	.454
Routes	-.286	-.115
Hazards	-.268	-.016
Energy	.337	-.227
Wrecks	-.141	.589



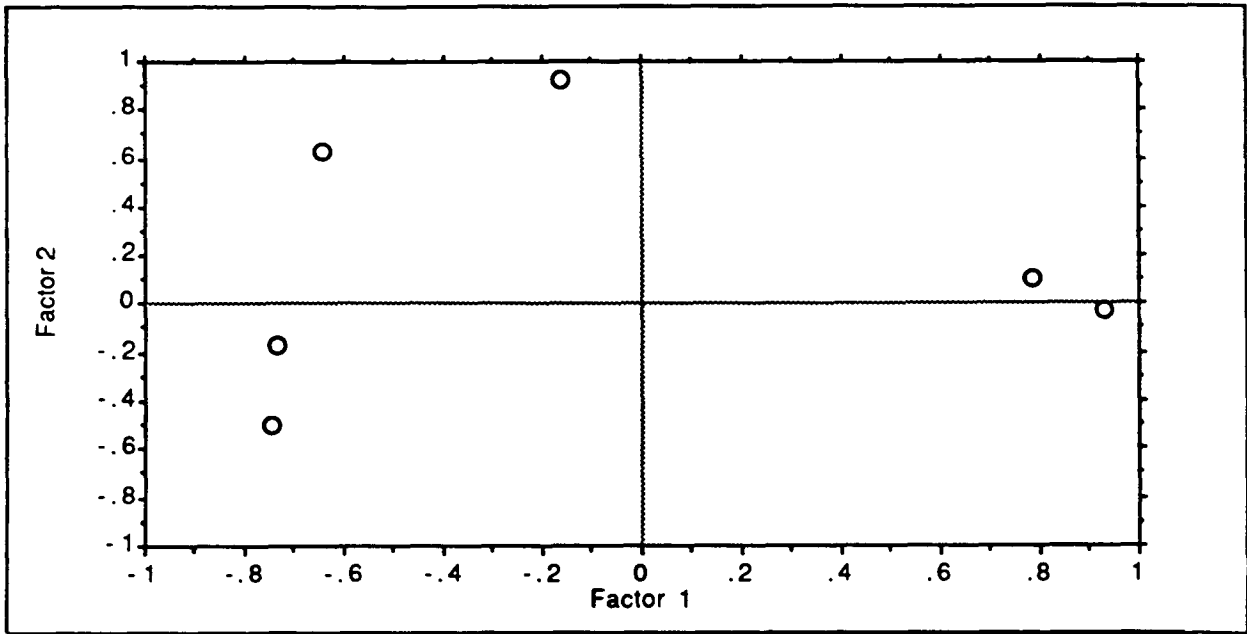


Figure J-10. Unrotated Orthogonal Plot: Factor 1 vs Factor 2.

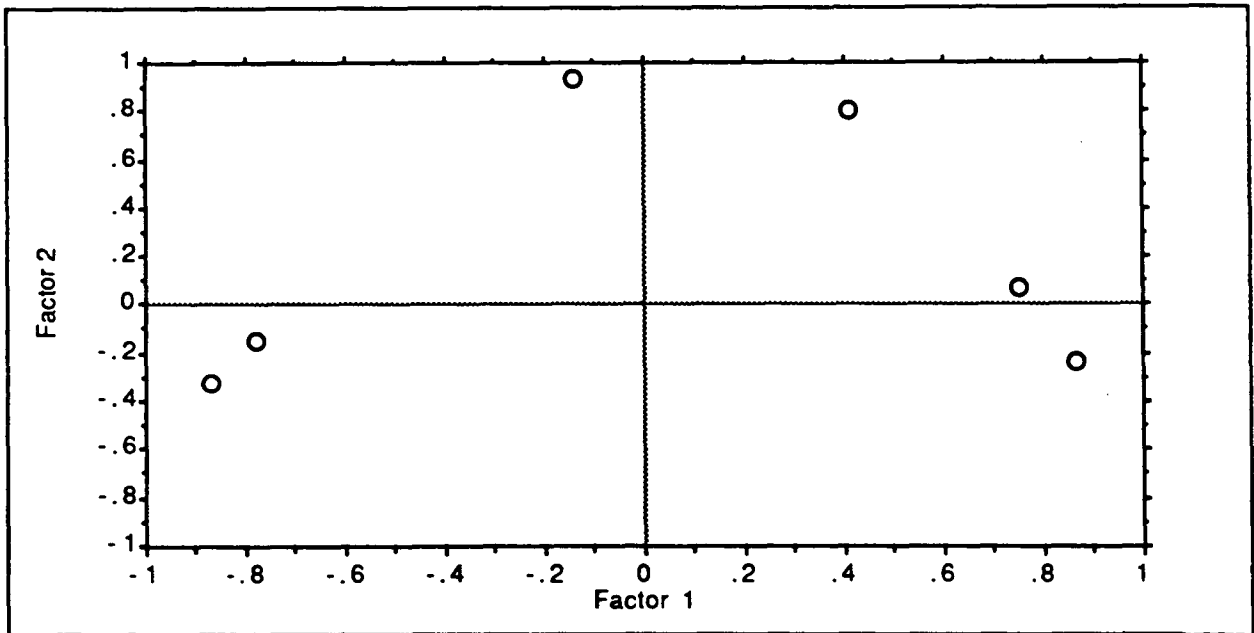


Figure J-11. Rotated Orthogonal Plot: Factor 1 vs Factor 2.

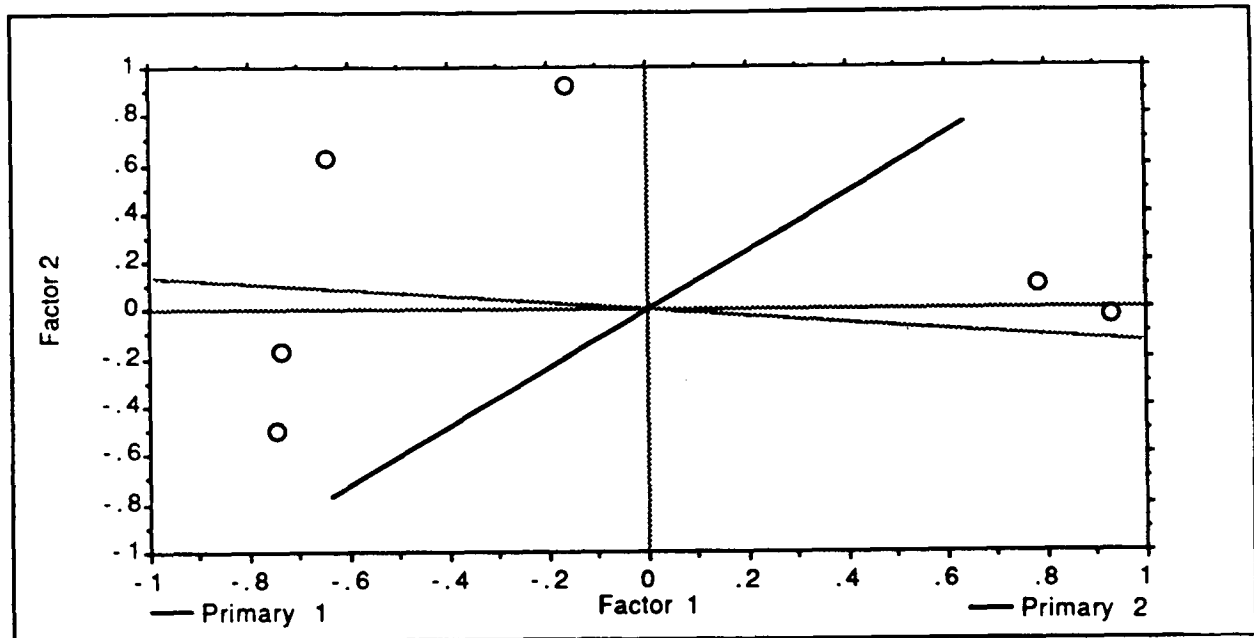


Figure J-12. Transformed Oblique Plot: Factor 1 vs Factor 2.

Table J-34.

Raw Data for Six Variables for Ten Areas, Northern Gulf of Mexico.

	Hurricanes	Ports	Routes	Hazards	Energy	Wrecks
1	10	1	2	0	3	3
2	10	2	2	0	3	12
3	10	6	2	0	1	27
4	5	2	3	3	2	15
5	15	4	3	2	2	6
6	13	1	3	2	3	4
7	4	0	3	0	0	6
8	4	2	3	0	2	6
9	4	1	4	5	0	4
10	4	0	4	5	0	17
11	•	•	•	•	•	•
12	•	•	•	•	•	•
13	•	•	•	•	•	•
14	•	•	•	•	•	•
15	•	•	•	•	•	•

1: Rio Grande; 2: Western Area; 3: Central Area; 4: Central Louisiana; 5: Miss./Alabama; 6: West Florida; 7: Big Bend; 8: Middle Ground; 9: Southwest Florida; 10: Dry Tortugas.

## **APPENDIX K**

### **Ground Truthing Data**

**Groundtruthing Characterization of Side-Scan Sonar Contacts and/or  
Magnetic Anomalies: Instrumental and Observational Data**

## Site #1

1. Location: 101 GA 332/SP 107 (Read: "Line 101, Galveston Area Lease Block 332/Shot Point Number 107") 28° 47'54.91" N/95°. 09' 26.48" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic Anomaly
3. Instruments: EG & G, V Geometrics G-866 proton magnetometer, Starfix Navigation
4. Magnetometer Cycle Time: 1.5 sec; Scale = 100/1000 nt
5. Side-scan sonar range: -
6. Depth of water: 21 m (70 ft)
7. Depth of sensor: 16 m (52 ft)
8. Number of tracks: 3 logged; 9 total
9. Track spacing: 20 m (characterization); 50 m (survey)
10. Track directions: N-S
11. Vessel speed: 2.5 m/s (5 kts.)
12. Ground-truthed: yes
13. Documentation: Analog magnetometer and navigation records
14. Description: Point source anomaly with little duration (a). Steep gradient much like noise spike but during June 1988 relocation survey on two lines (b,c) was possible. Ground truthing in August 1988 was not able to relocate the object. Source unknown.

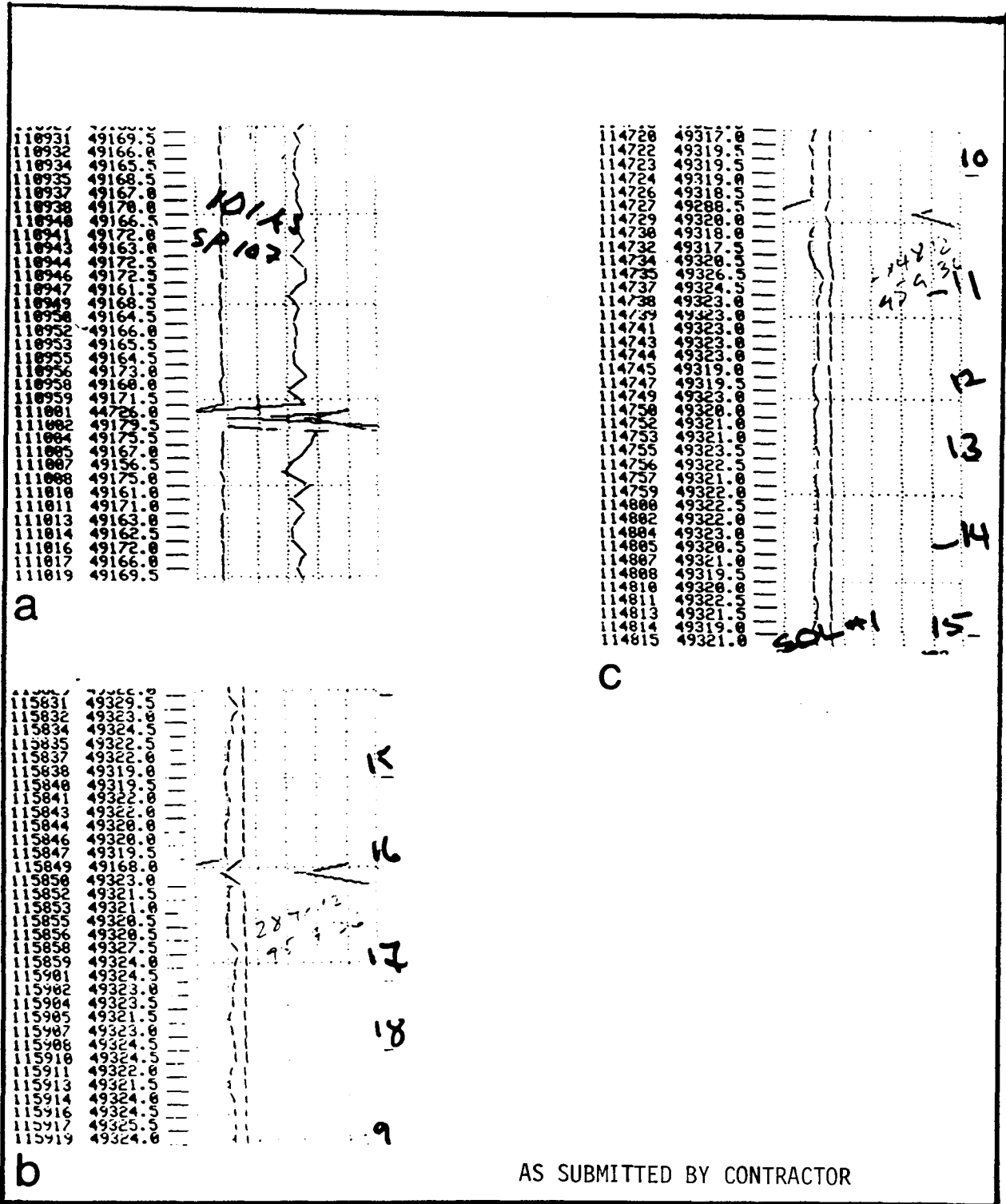


FIGURE K-1.

Site #1 (a) resurvey anomaly (b,c) small anomaly detected during ground truthing.

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**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

## Site #2

1. Location: 107 GA 332/ SP 106 28° 45'45.09" N 95°09' 20.39" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic Anomaly
3. Instruments: EG & G, Geometrics G-866 proton magnetometer, EG & G Geometrics 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 s; scale = 100/1000 nt
5. Side-scan sonar range: 75 m
6. Depth of water: 21 m (70 ft)
7. Depth of sensor: 16 m (52 ft)
8. Number of tracks: 5 (logged); 13 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S, E-W
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: yes
13. Documentation: Analog and digital records of magnetometer and navigational data.  
Analog data for side scan sonar
14. Description: The steep magnetic gradient as shown in (a) was not repeated in relocation survey of the site (b,c). A relatively strong (50 nt) dipole feature (b) lies nearby smaller features (c) Groundtruth attempts did not locate any features above the sea floor. Metal detector readings were obtained by divers within a 60 meter diameter search circle. These contacts were of small and sharply localized; Depth to the sources was estimated as less than 0.5 meter. Probable Source: cable.

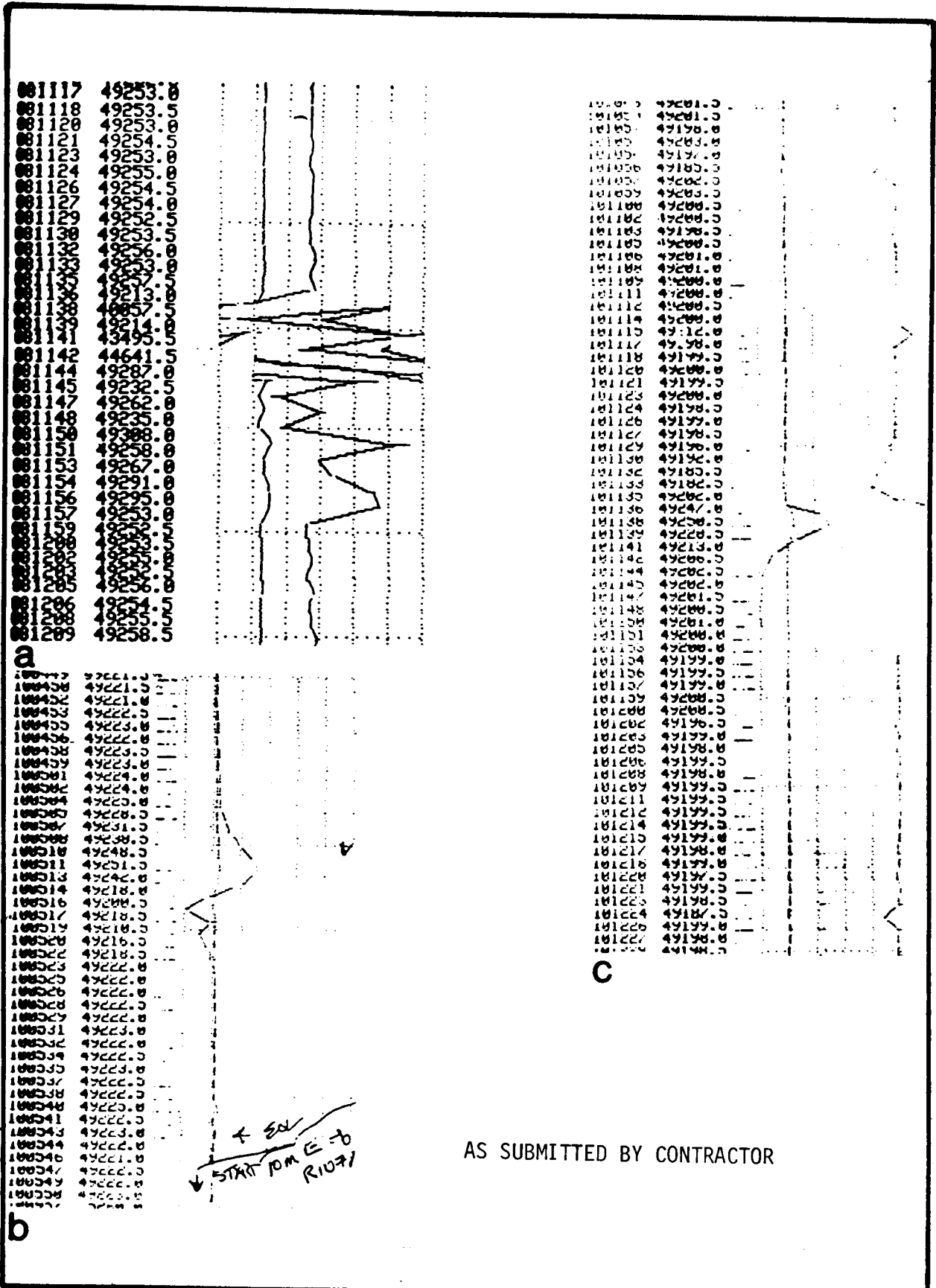


FIGURE K-2. Site #2 (a) resurvey anomaly (b,c) anomalies detected during ground truthing.



**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

## Site #3

1. Location: 108 GA 332/ SP 106 28° 47' 57.16" N 95° 09' 13.26 W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic Anomaly
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G Model 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec; scale: 100/1000
5. Side-scan sonar range: 75 m
6. Depth of water: 21 m (70 ft)
7. Depth of sensor: 16 m (51 ft)
8. Number of tracks: 3 (total)
9. Track spacing: 20 m (characterization); 50 m (survey)
10. Track directions: N-S
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: no
13. Documentation: analog magnetometer and side scan record.
14. Description: Block resurvey in March 1988 detected large anomaly with intense gradient (3.a) that had an 8 second duration. The August resurvey found only a small (17 nt) anomaly (b) which was not at the original survey's coordinates. No attempt to groundtruth the anomaly was made. Probable Source: debris in anchorage area.

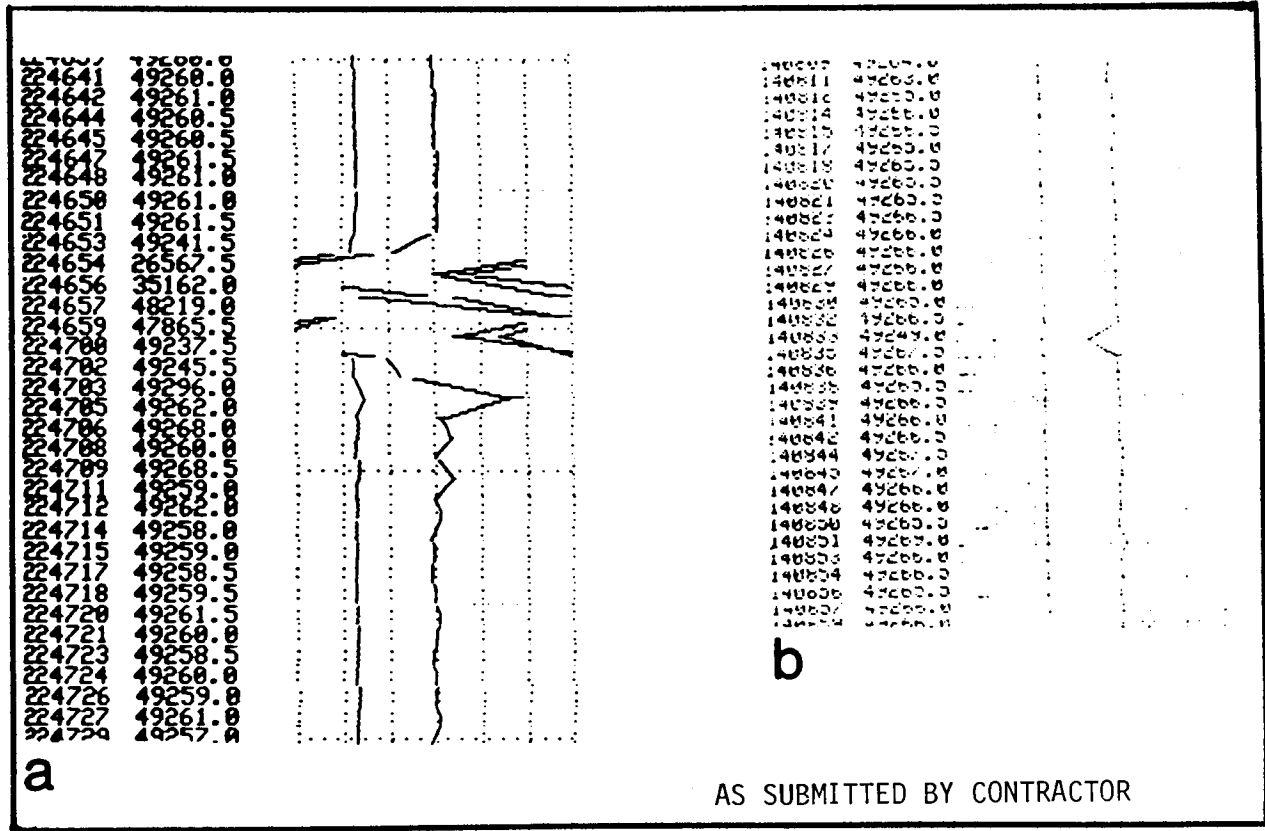


FIGURE K-3. Site #3 (a) resurvey anomaly (b) anomaly detected during ground truthing.

**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #4

1. Location: 109 GA 332/ SP 103 28° 48'00.16" N 95° 09'11.45" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic Anomaly
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G Model 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 21 m(70 ft)
7. Depth of sensor: 16 m (50 ft)
8. Number of tracks: 1 (total)
9. Track spacing: 50 m (survey)
10. Track directions: S-N
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: no
13. Documentation: analog magnetometer and side scan sonar record
14. Description: Anomaly found in block resurvey was small (34 nt) monopole feature (a). The anomaly was not relocated. Source: unknown.

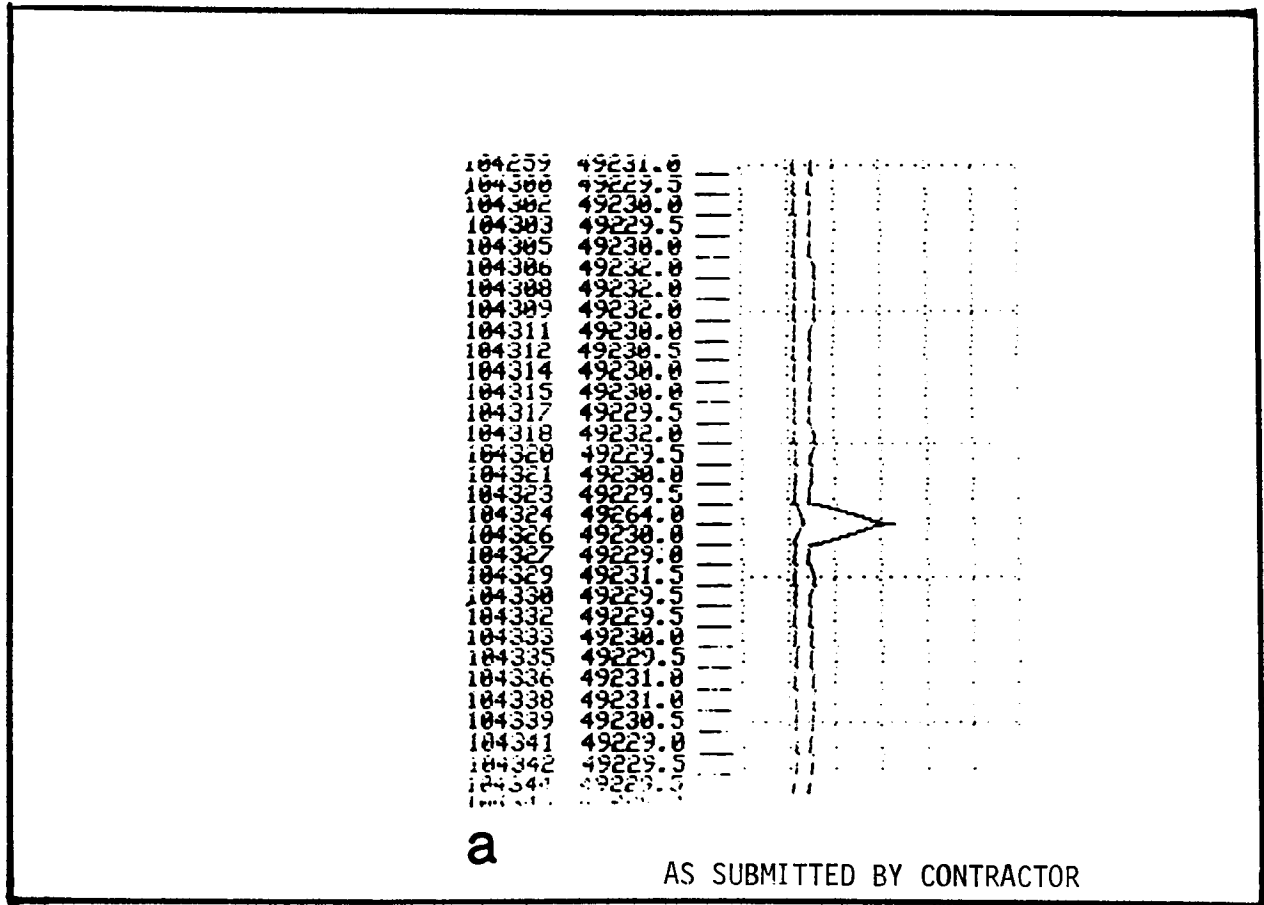


FIGURE K-4. Site #4 (a) resurvey anomaly.

**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #5

1. Location: 110 GA 324, SP 124-126 28° 45'7.20" N 94° 47'1.8" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic Anomaly
3. Instruments: EG & G Geometrics G-866 proton magnetometer, Starfix navigation, EG & G 259-4 side scan sonar
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: -
6. Depth of water: 22 m(76 ft)
7. Depth of sensor: 15 m (48 ft)
8. Number of tracks: 3 logged
9. Track spacing: 20 m (characterization); 50 m (survey)
10. Track directions: N-S
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: yes
13. Documentation: Analog magnetometer, side scan sonar and navigation records
14. Description: Anomaly of small magnitude (-11 nt) but with 4.5-6.0 second duration (a,b). Small feature a shot point 9 on relocation survey line (c) and shot points 4 (d) are at the same coordinates. A narrow linear side scan sonar feature was seen at this point but it appears to be a trawl scar. Dives on these coordinates found nothing. Source: unknown.

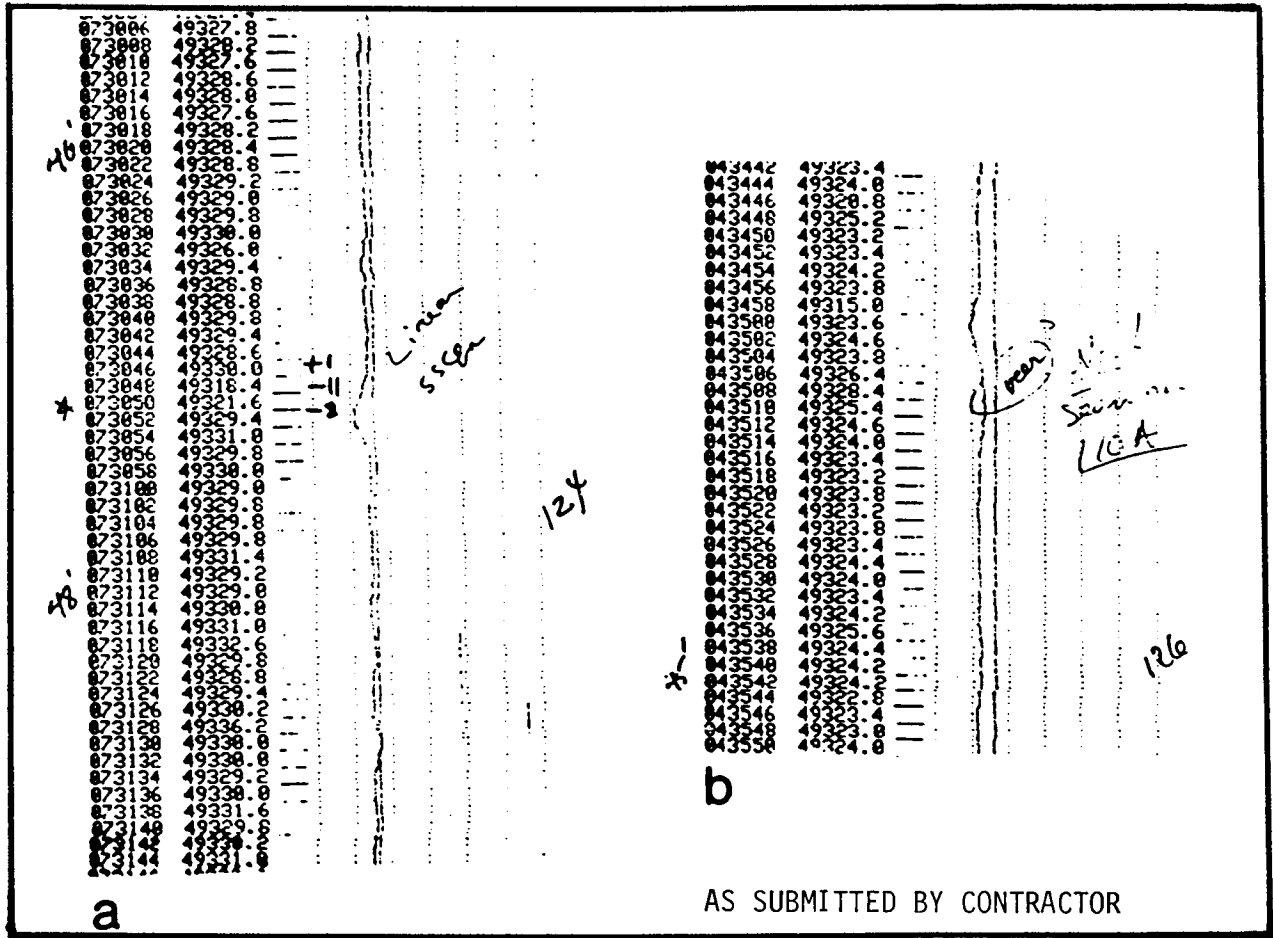


FIGURE K-5. Site #5 (a,b) resurvey anomaly.

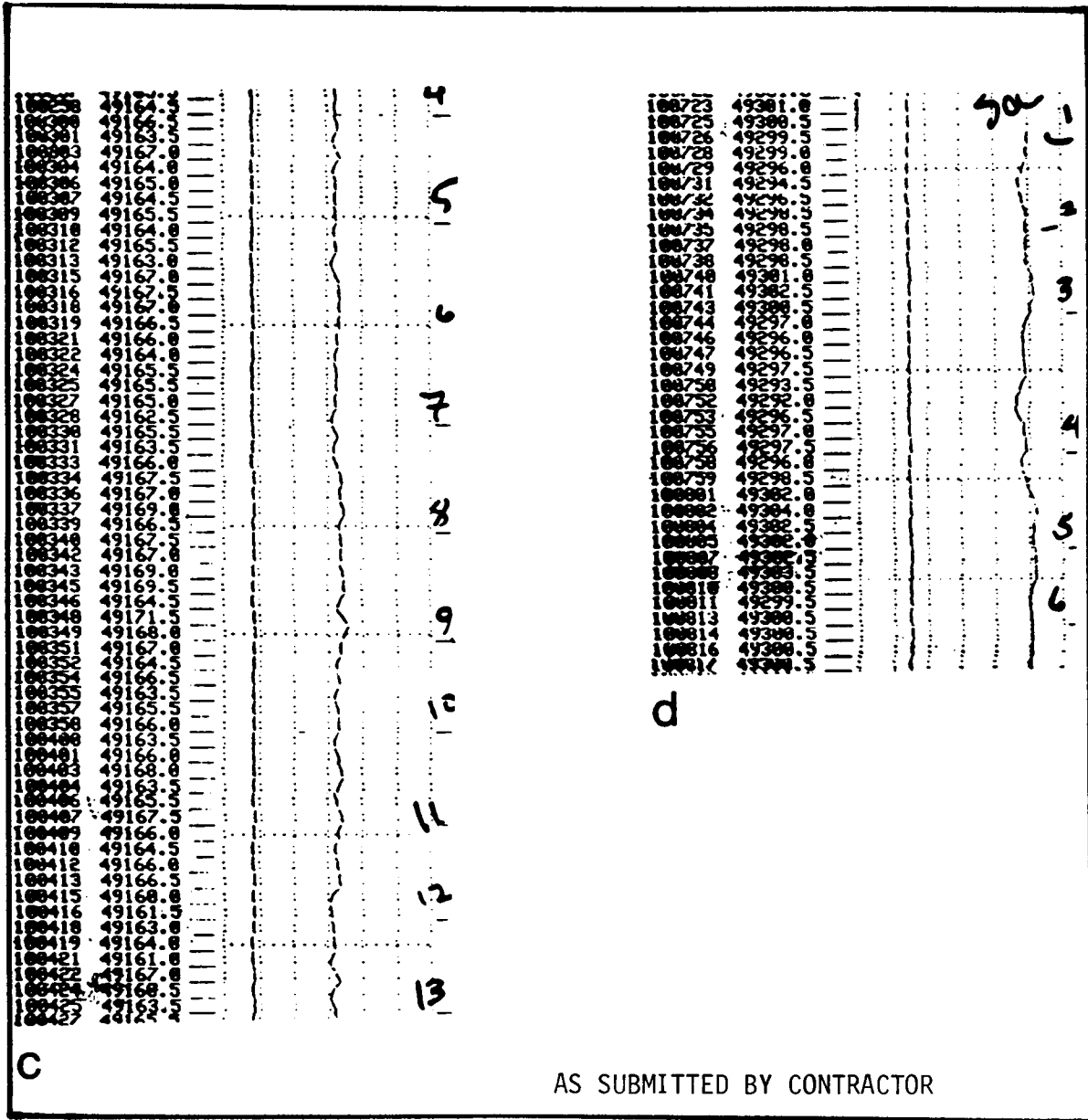


FIGURE K-6. Site #5 cont. - (c,d) magnetometer record of anomaly location during ground truthing.

**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #6

1. Location: 116 GA 332/ SP 128 28° 46'49.5" 95° 09'01.4"
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic Anomaly
3. Instruments: EG & G Geometrics G-866 proton magnetometer, Del Norte 542 Trisponder, EG & G 260 side scan sonar
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 21 m (70 ft)
7. Depth of sensor: 16 m (51 ft)
8. Number of tracks: 2 logged; 6 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: no
13. Documentation: Analog-digital magnetometer and navigation data. Side scan sonar data is analog.
14. Description: Anomaly is small feature (13 nt, 2 s amplitude & duration) (see a,b,c). No groundtruthing was attempted. Probable Source: ferric debris in anchorage area.





## Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies

### Site #7

1. Location: 125 GA 332/ SP 156 28° 48'10.85" N 95° 08'41.48" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic Anomaly
3. Instruments: EG & G Geometrics G-866 proton magnetometer, Del Norte 542 Trisponder, EG & G 260 Side scan sonar
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range:-
6. Depth of water: 21 m (70 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 3 logged; 11 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S, E-W
11. Vessel speed: 2.5 m/s (5 kts.)
12. Ground-truthed: yes
13. Documentation: Analog and digital magnetometer and navigation records. Side scan sonar
14. Description: Cluster of small anomalies scattered within 50-75 meter area. The features are small (ca. 20 nt) (b) with only brief duration ( $\leq 4.5$  s) Ground truthing detected no features above the sea floor. Metal detector survey was negative. Probable Source: debris in anchorage area.

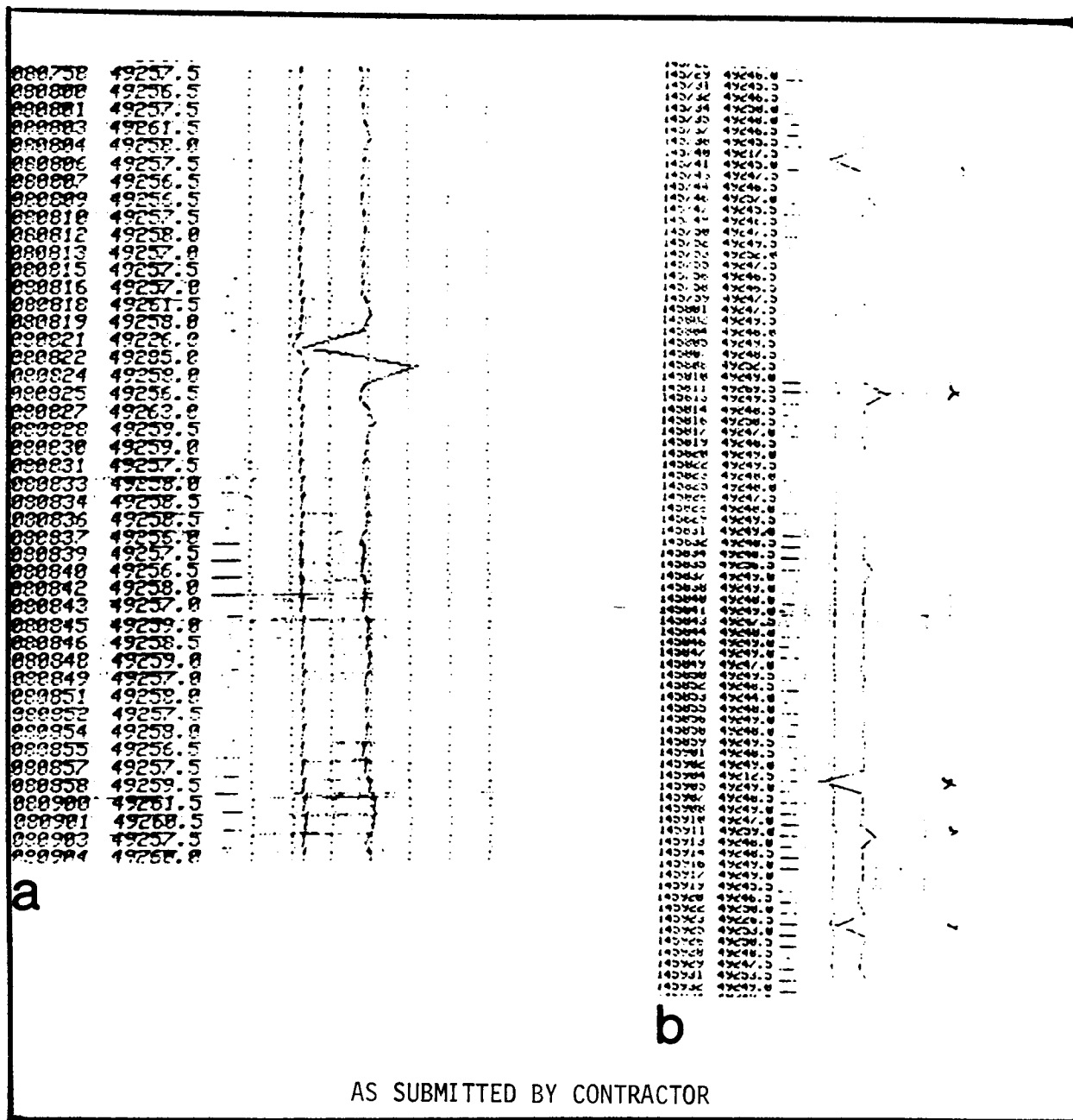


FIGURE K-8. Site #7 (a) resurvey anomaly (b) anomalies detected during ground truthing.

**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #8

1. Location: 137 GA 332/ SP 144 28° 47' 27.31" N 95° 08'21.06" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic anomaly
3. Instruments: EG & G G-866 proton magnetometer, Del Norte 542 Trisponder, EG & G 260 side scan sonar
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20m (68 ft)
7. Depth of sensor: 15 m (51 ft) ?
8. Number of tracks: 3 logged; 5 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S, E-W
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: no
13. Documentation: Analog and digital magnetometer and navigation data. Analog side scan sonar records.
14. Description: Dipolar feature (27, -30 nt) detected in block resurvey (a). This anomaly was seen on relocation/characterization survey (b, c). The maximum reading obtained during relocation was 29 nanoteslas (nt) which is in good agreement with the resurvey data. Probable Source: debris in anchorage area.

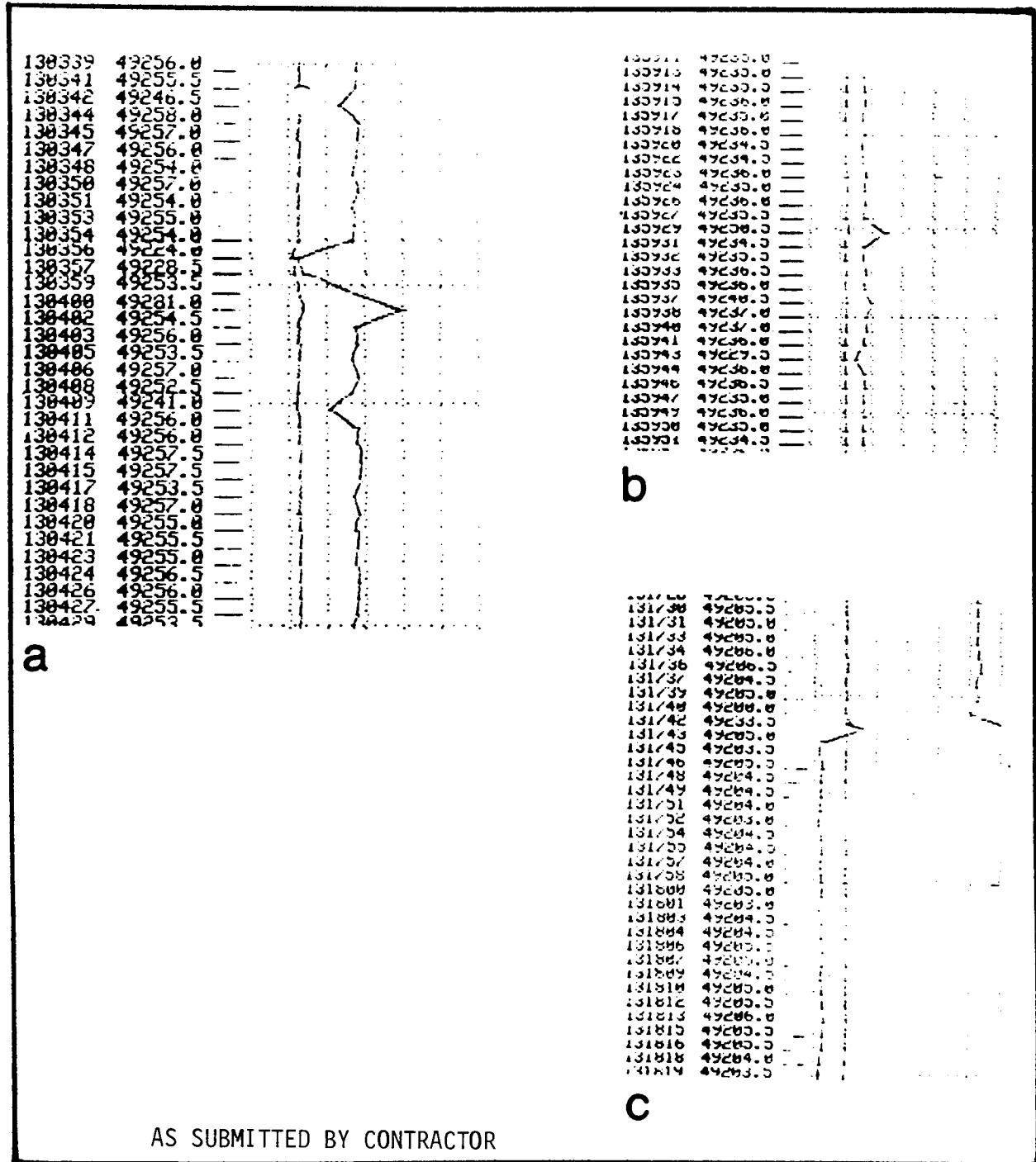


FIGURE K-9. Site #8 (a) resurvey anomaly (b,c) anomaly detected during ground truthing.

**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #9

1. Location: 148 GA 332/ SP 106 28° 45'40.32" N 95° 08'4.24" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): magnetic anomaly
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 m (68 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 3 logged; 6 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S, E-W
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: no
13. Documentation: Analog-digital magnetometer and navigation data. Analog side scan sonar data.
14. Description: The sharp, strong feature (94 nt) seen on block resurvey (a) was relocated as a broad low amplitude feature (b) The anomaly was not groundtruthed. Probable Source: possible cable.

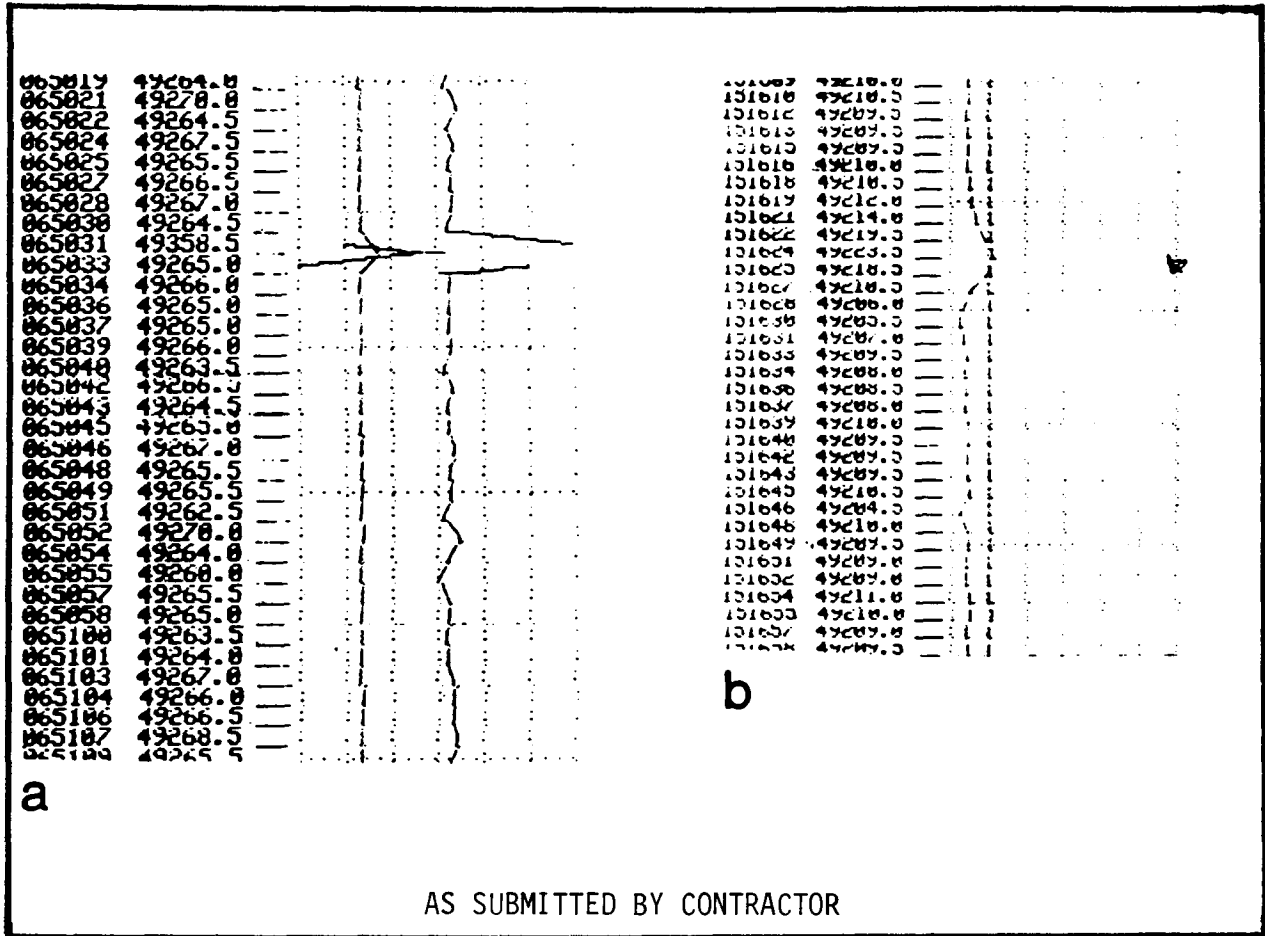


FIGURE K-10. Site #9 (a) resurvey anomaly (b) anomaly detected during ground truthing.

**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #10

1. Location: 149 GA 313/ SP 106 28° 48'13.29" N 95° 07'57.13" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic anomaly and side scan sonar contact
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 m (67 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 7 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S, E-W
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: no
13. Documentation: Analog magnetometer and side scan sonar data.
14. Description: Strong anomaly (a) detected on block resurvey not found on relocation. The anomaly shown in (b) is near these coordinates but was only detected on one line. Side scan sonar contact is interpreted as a trawl scar. Source: unknown.



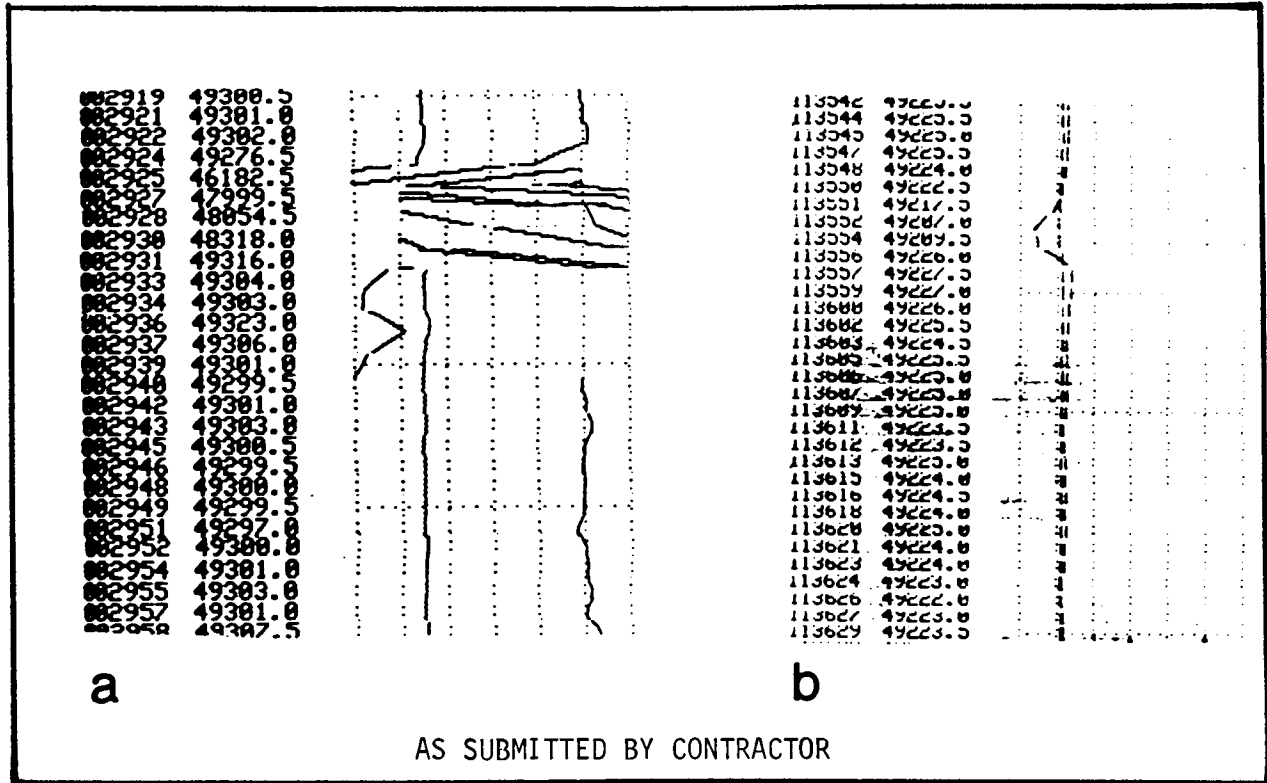


FIGURE K-11. Site #10 (a) resurvey anomaly (b) anomaly detected during ground truthing.

## Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies

### Site #11

1. Location: 152 GA 313/ SP 114 28° 48'39.75"N 95° 07'50.59" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic anomaly and side scan sonar
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 m (67 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 3 logged; 5 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S (4), E-W
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: yes
13. Documentation: Analog-digital magnetometer and navigation data. Analog side scan sonar and bathymetry data.
14. Description: Originally located on block resurvey (a) as three large circular depressions with linear feature adjacent to them. Upon relocation a low amplitude monopolar anomaly was found (c, d). Divers relocated the features with the exception of a definite source for the magnetic anomaly. Source: scars from large jack-up rig. Depressions over 1.5 meters deep (b).

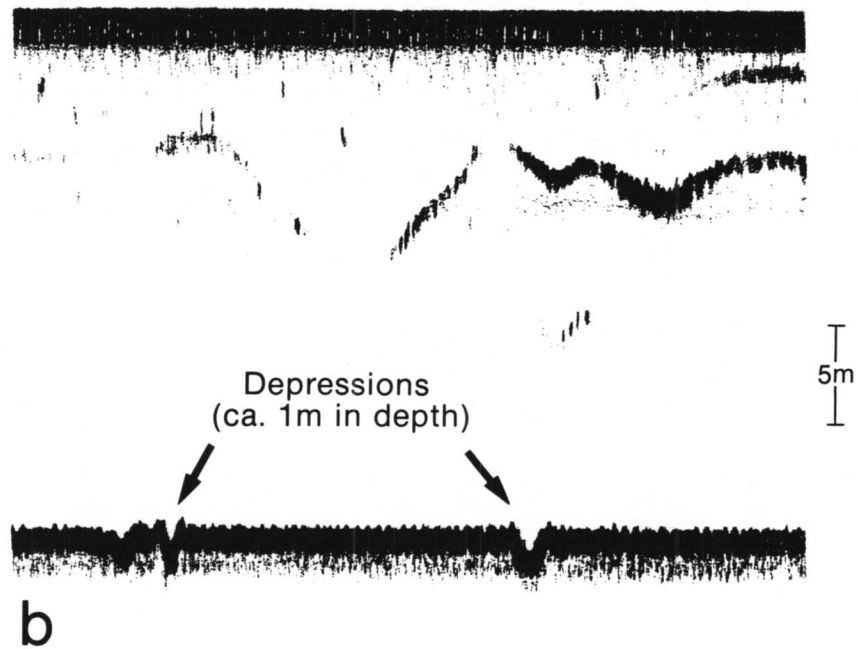
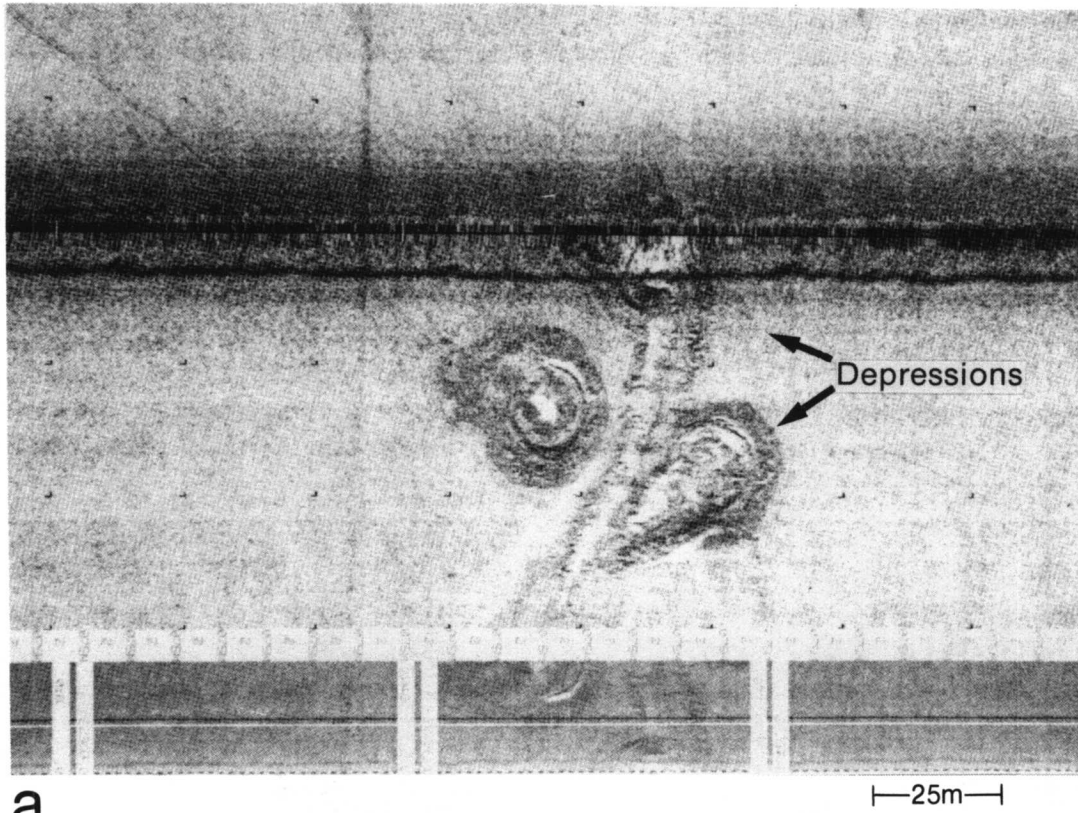


FIGURE K-12 Site #11 (a) sonograph of sea floor depressions found on resurvey; (b) fathometer record of depressions (2).

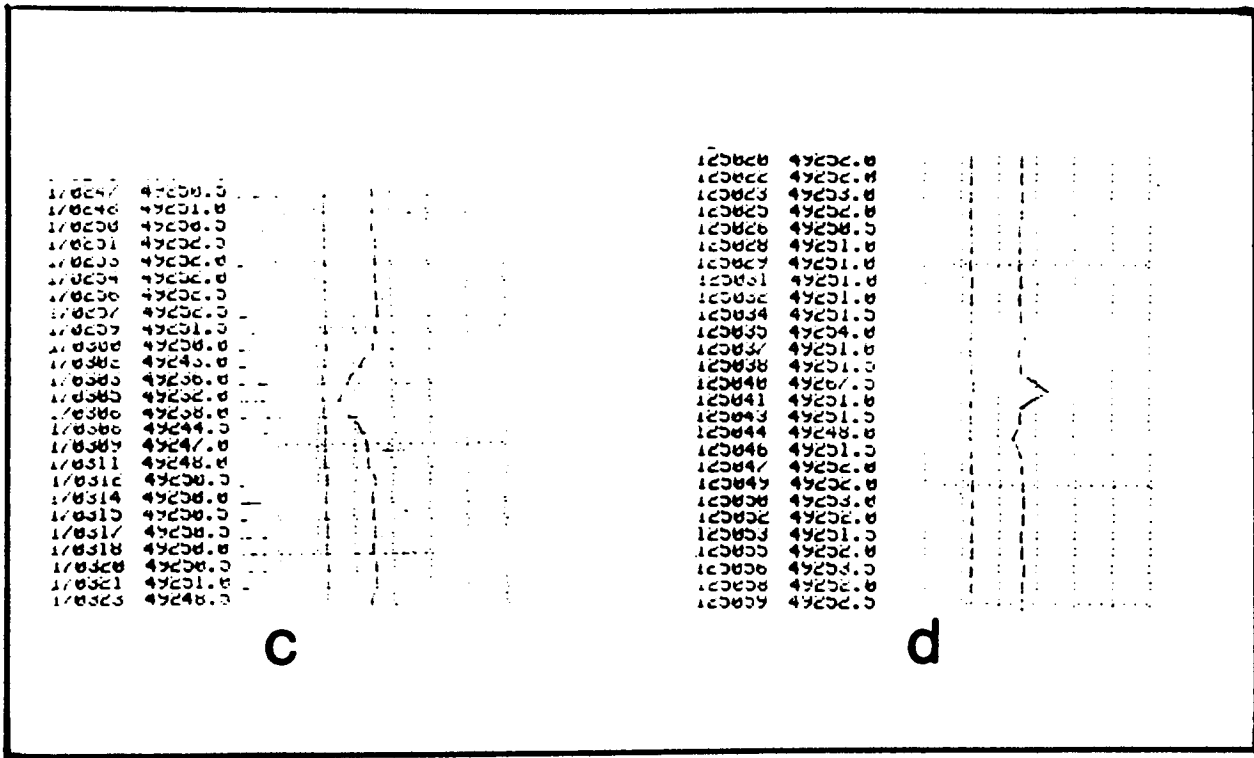


FIGURE K-13. Site #11 cont. - (c,d) small anomaly associated with sea floor depressions.

**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

## Site #12

1. Location: 163 GA 313/ SP 162 28° 50'45.50" N 95° 07'40.38" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Side scan sonar
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 m (66 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 3 logged; 5 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: yes
13. Documentation: Analog-digital magnetometer and navigation data. Analog side scan sonar data. Videotape of feature.
14. Description: 60+ meters linear feature with radiating depressions out to 100 meters (a). Small anomaly of 15 nt. Groundtruthing of feature found a shallow ( $\leq$  50 cm) trench roughly 2 meters in width. No metal objects found to correlate to the observed anomaly. Probable Source: Ship anchor scar with "rays" the result of chain "chase".

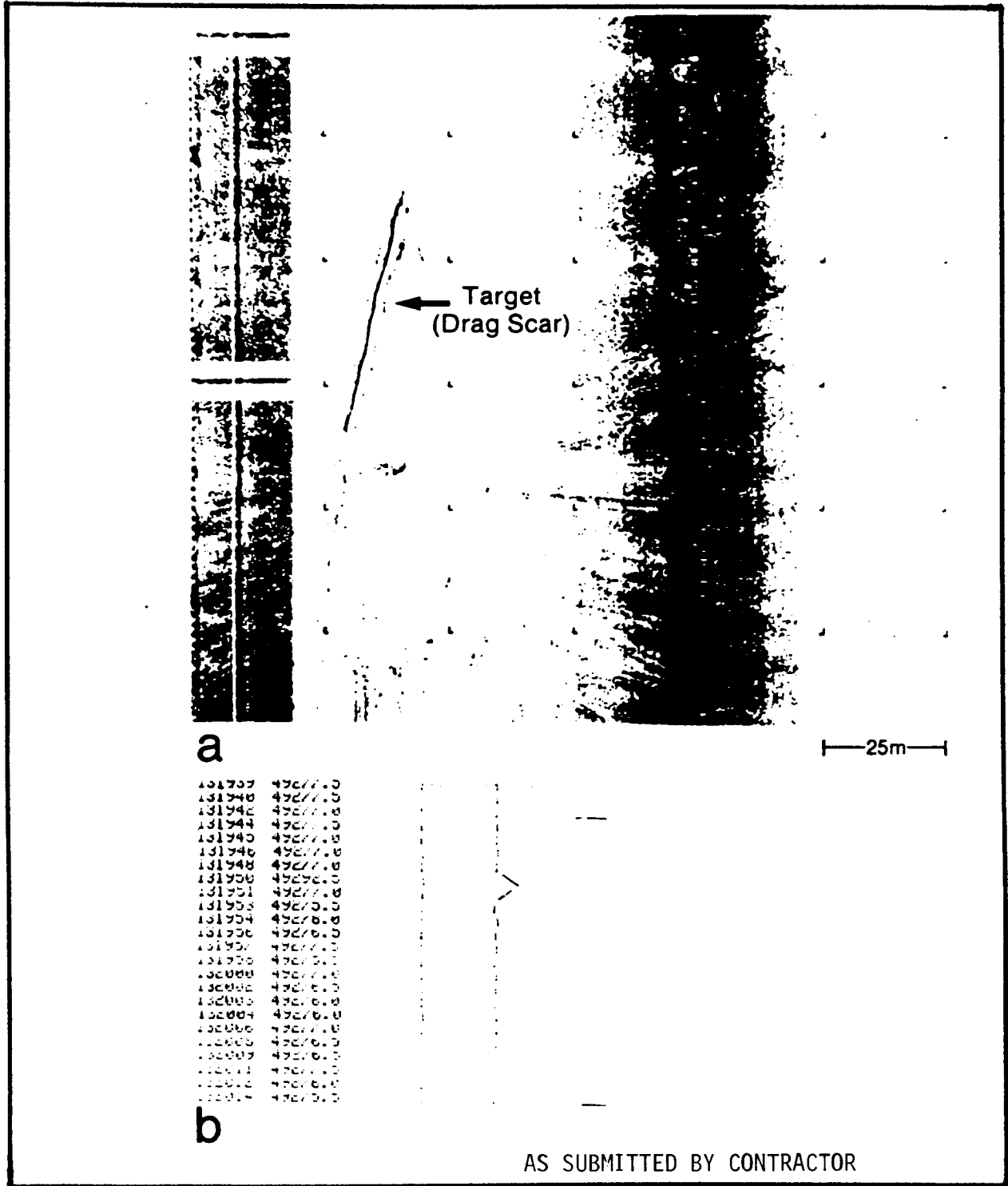


FIGURE K-14. Site #12 (a) sonograph of drag scar depression (b) associated (?) anomaly.

**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #13

1. Location: 175 GA 313/ SP 126 28° 49'29.03" N 95° 07'06.38" N
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic anomaly
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 m (66 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 3 logged; 7 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S, E-W
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: yes
13. Documentation: Analog-digital magnetometer and navigation data. Analog side scan sonar data. Videotape of feature.
14. Description: Relatively broad (6 sec. duration), monopolar feature (a). This feature was relocated (b,c) and gave the same signature (shape). Divers found a buried strand wire cable. Source: cable.

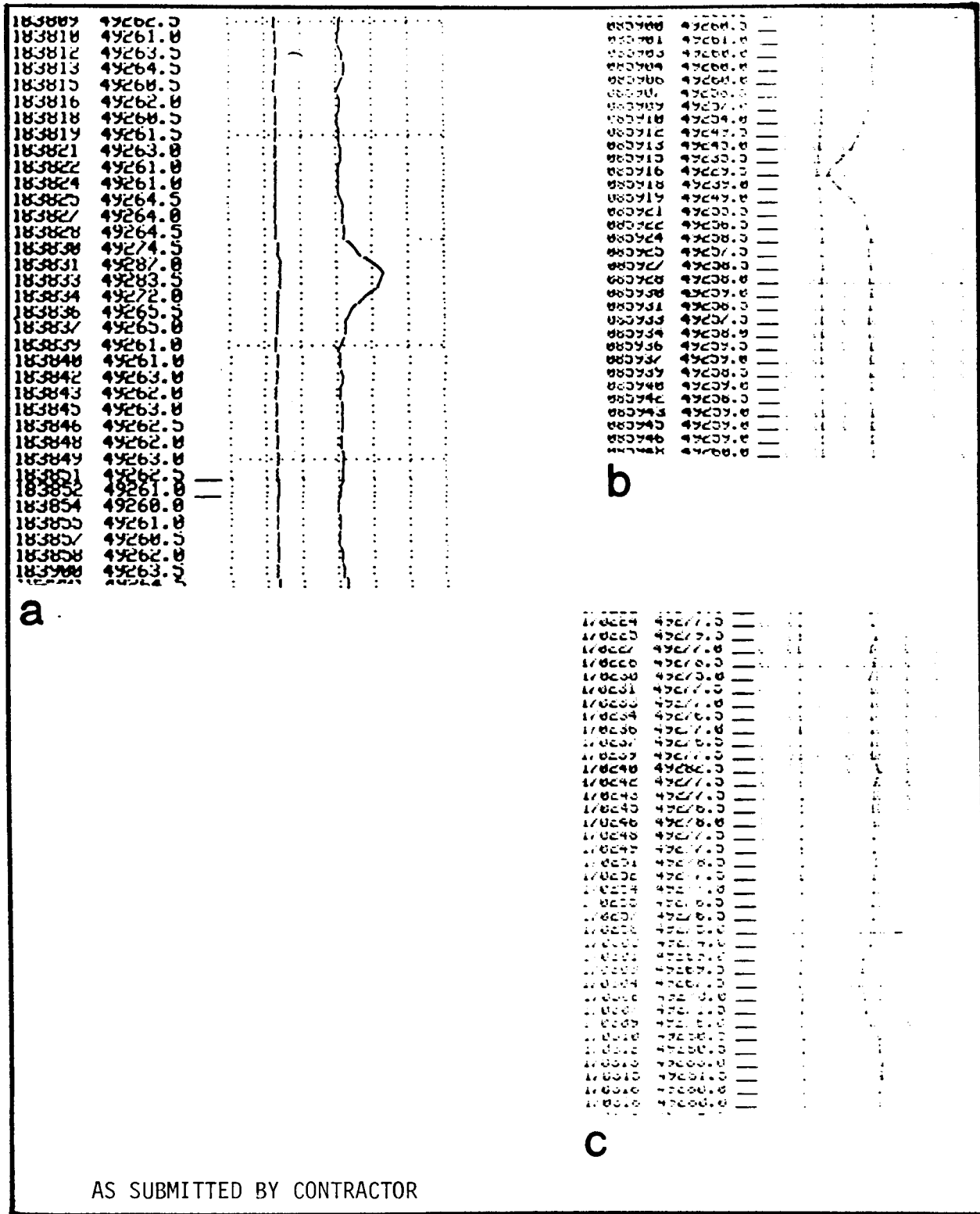


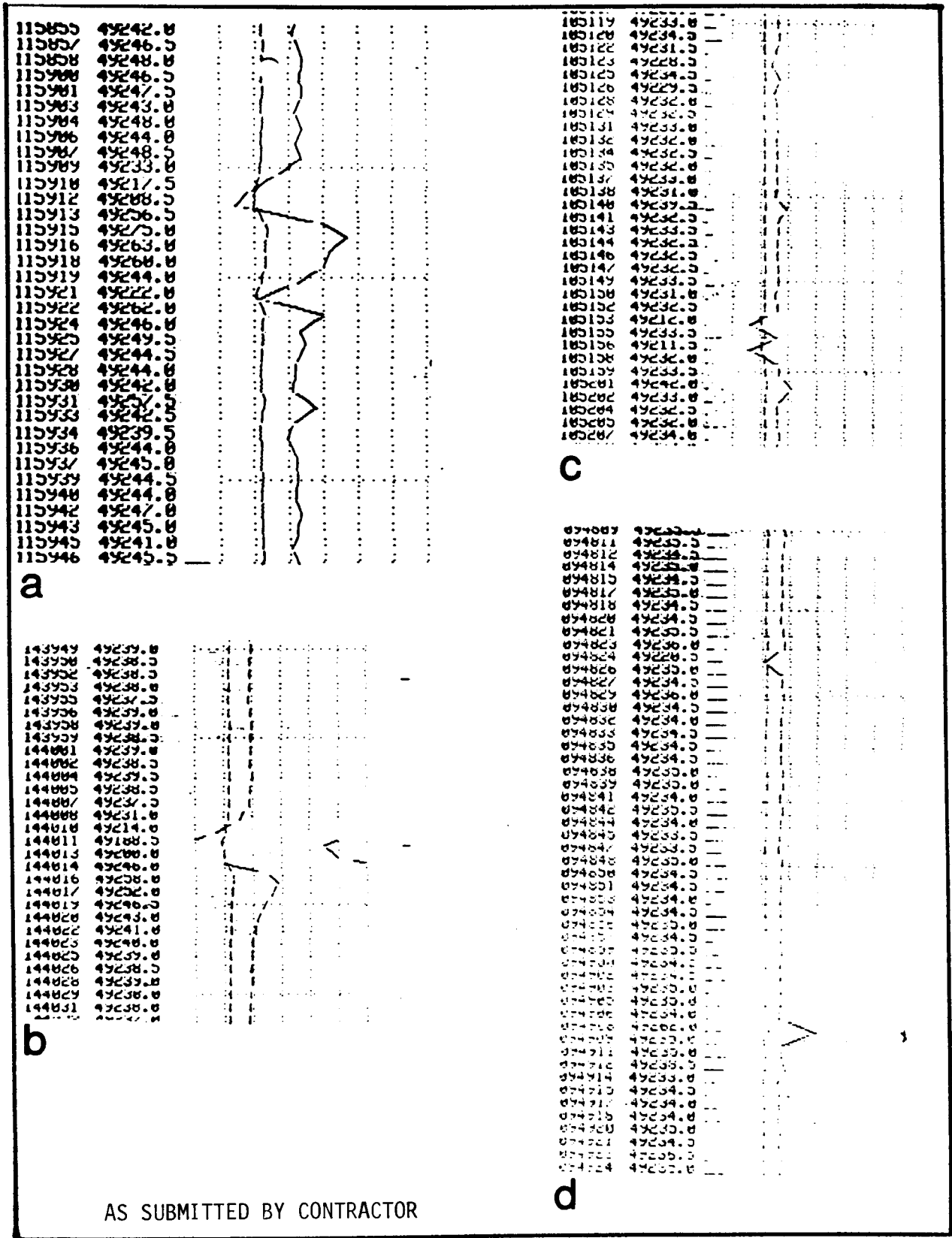
FIGURE K-15. Site #13 (a) resurvey anomaly (b,c) anomaly detected during ground truthing.



**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #14

1. Location: 185 GA 313/ SP 145 28° 48'42.45" N 95° 06'49.79" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic anomaly
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 m (66 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 3 logged; 15 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S, E-W
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: yes
13. Documentation: Analog-digital magnetometer and navigation data. Analog side scan sonar data.
14. Description: Small cluster of anomalies (a) located during block resurvey. These were relocated on relocation surveys (b,c,d). One anomaly (b) is dipolar in shape. Groundtruthing was carried out within a 104 meter diameter area about the coordinates for the site. No anomalies could be relocated with metal detector. Source: unknown.



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FIGURE K-16. Site #14 (a) resurvey anomaly (b-d) anomalies detected during ground truthing.

**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #15

1. Location: 192 GA 313/ SP 110 28° 48'26.65" N 95° 06'37.27" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): side scan sonar contact
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 m (66 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 3 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: no
13. Documentation: Analog-digital magnetometer and side scan sonar data.
14. Description: A side scan sonar contact, (a) originally seen on the block resurvey, was relocated (b) and attempts to characterize the feature were made. A low amplitude anomaly (c) was located on 2 of 3 relocation tracks. Maximum deflection was 18 (nt). This anomaly could not be located to a precision necessary for groundtruthing. It's association with the side scan sonar contact was questionable as well. Source: unknown.

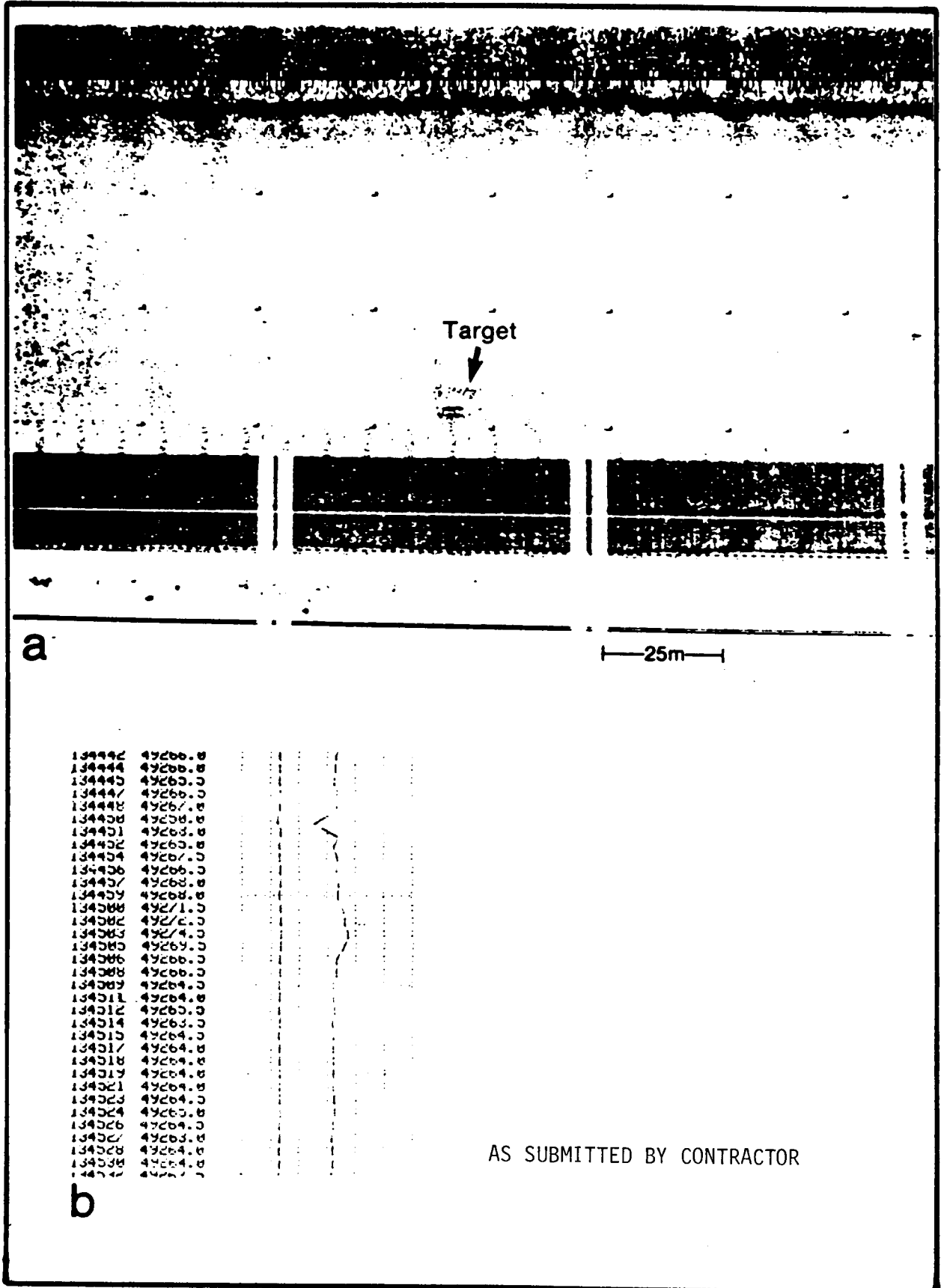


FIGURE K-17. Site #15 (a) sonograph of resurvey contact (b) associated anomaly (?).

**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #16

1. Location: 194 GA 313/ SP 120 28° 48'52.06" N 95° 06'37.61"W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic anomaly and side scan sonar contact
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 m (66 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 2 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: no
13. Documentation: Analog magnetometer and side scan sonar data.
14. Description: A side scan sonar contact (c) and magnetic anomaly (a) found during block resurvey could not be relocated. A small anomaly (b) was found near this coordinate but no side scan contact was detected. Source: unknown.

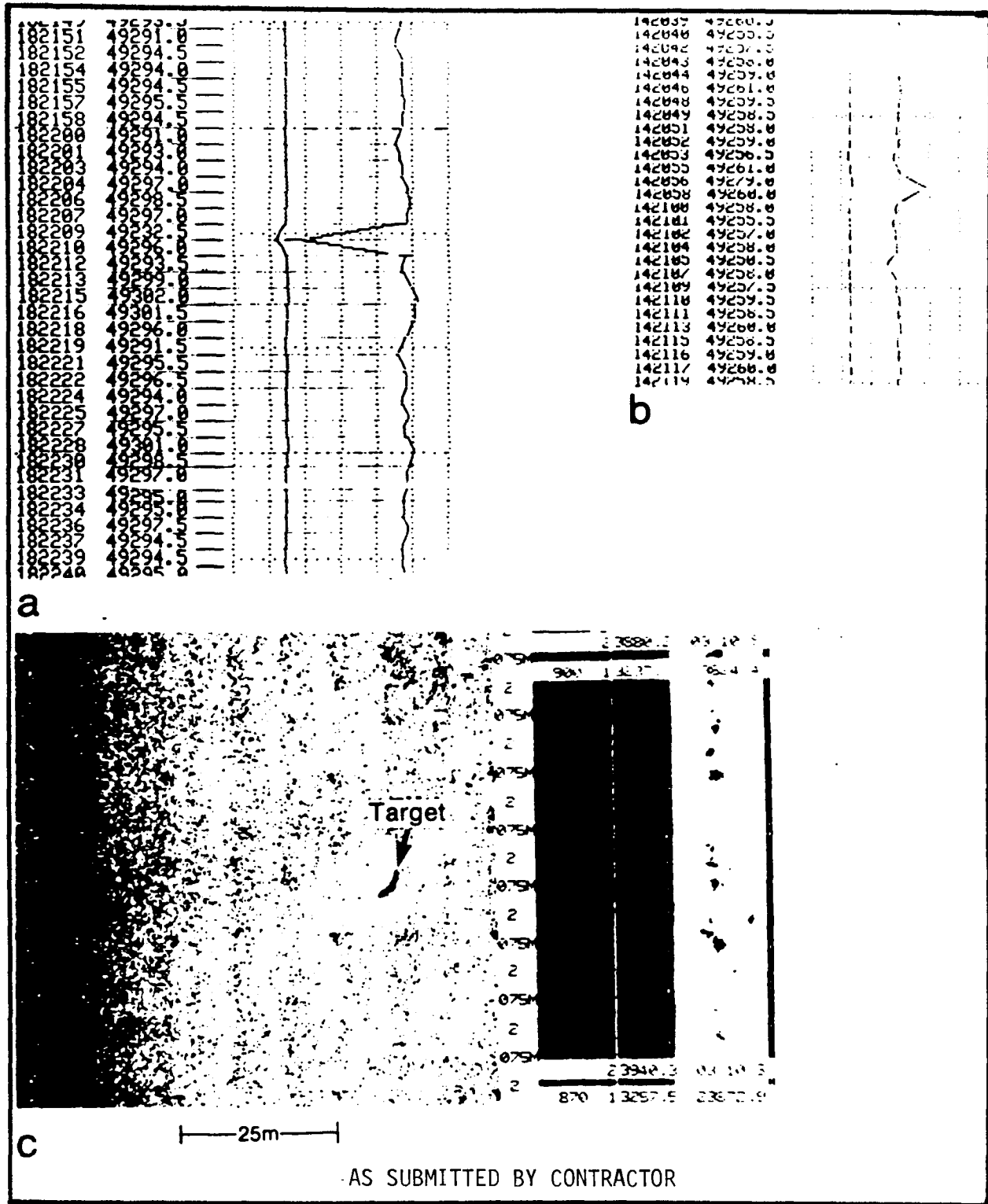


FIGURE K-18. Site #16 (a) resurvey anomaly (b) anomaly detected during ground truthing (c) sonograph of resurvey contact.

**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #17

1. Location: 197 GA 313/ SP 147 28° 48'41.48" N 95° 06'27.54" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic anomaly
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 m (66 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 2 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: no
13. Documentation: Analog magnetometer and side scan sonar data.
14. Description: The magnetic anomaly (a) found during block resurvey could not be relocated. Source: unknown.

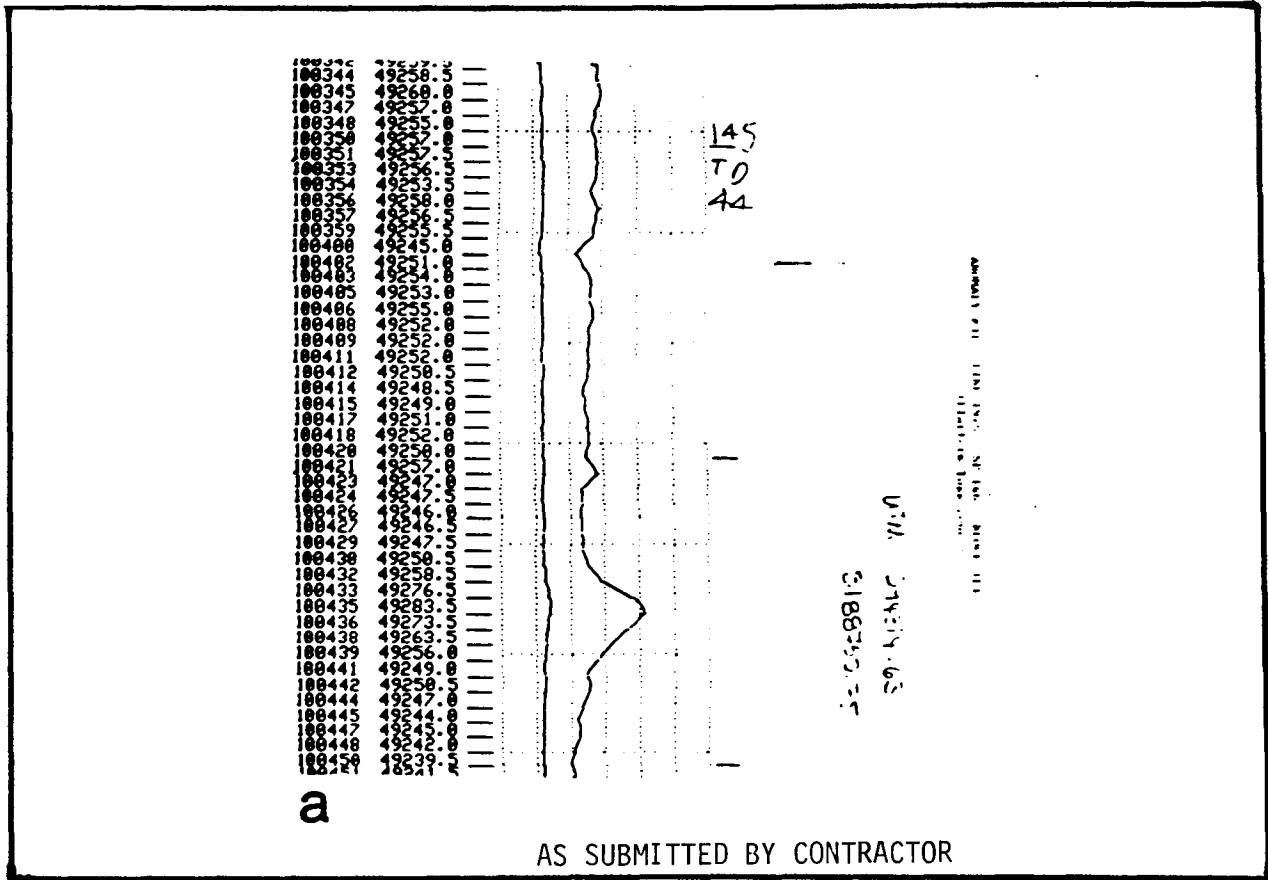


FIGURE K-19. Site #17 (a) resurvey anomaly.



**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #18

1. Location: 202 GA 313/ SP 118 I94403 N 3188498. E (UTM)
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic anomaly and side scan sonar contact
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 m (66 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 3 logged; 10 total
9. Track spacing: 10 m
10. Track directions: N-S, E-W
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: yes
13. Documentation: Analog-digital magnetometer and navigation data. Analog side scan sonar data. Videotape of the feature.
14. Description: A side scan sonar contact (a) and magnetic anomaly (b,c) were located during block resurvey near the existing production well Su-GA-313. The relocation survey confirmed this feature . The magnetic anomaly can be seen against the larger gradient of the platform (d,e). Source: two-door refrigerator.

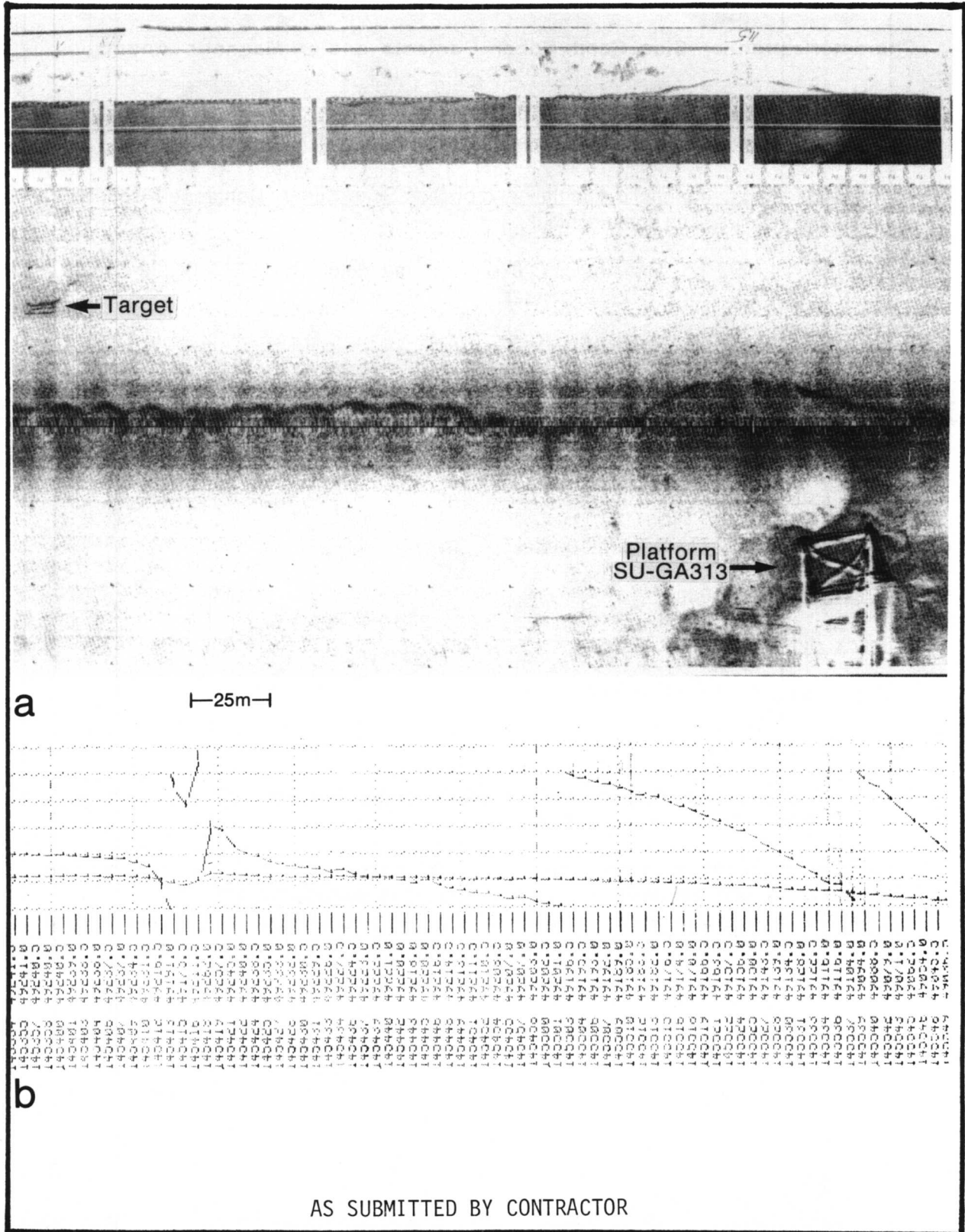


FIGURE K-20 Site #18 (a) sonograph showing platform and toss zone feature; (b) anomaly detected during ground truthing (not platform's influence on local gradient).

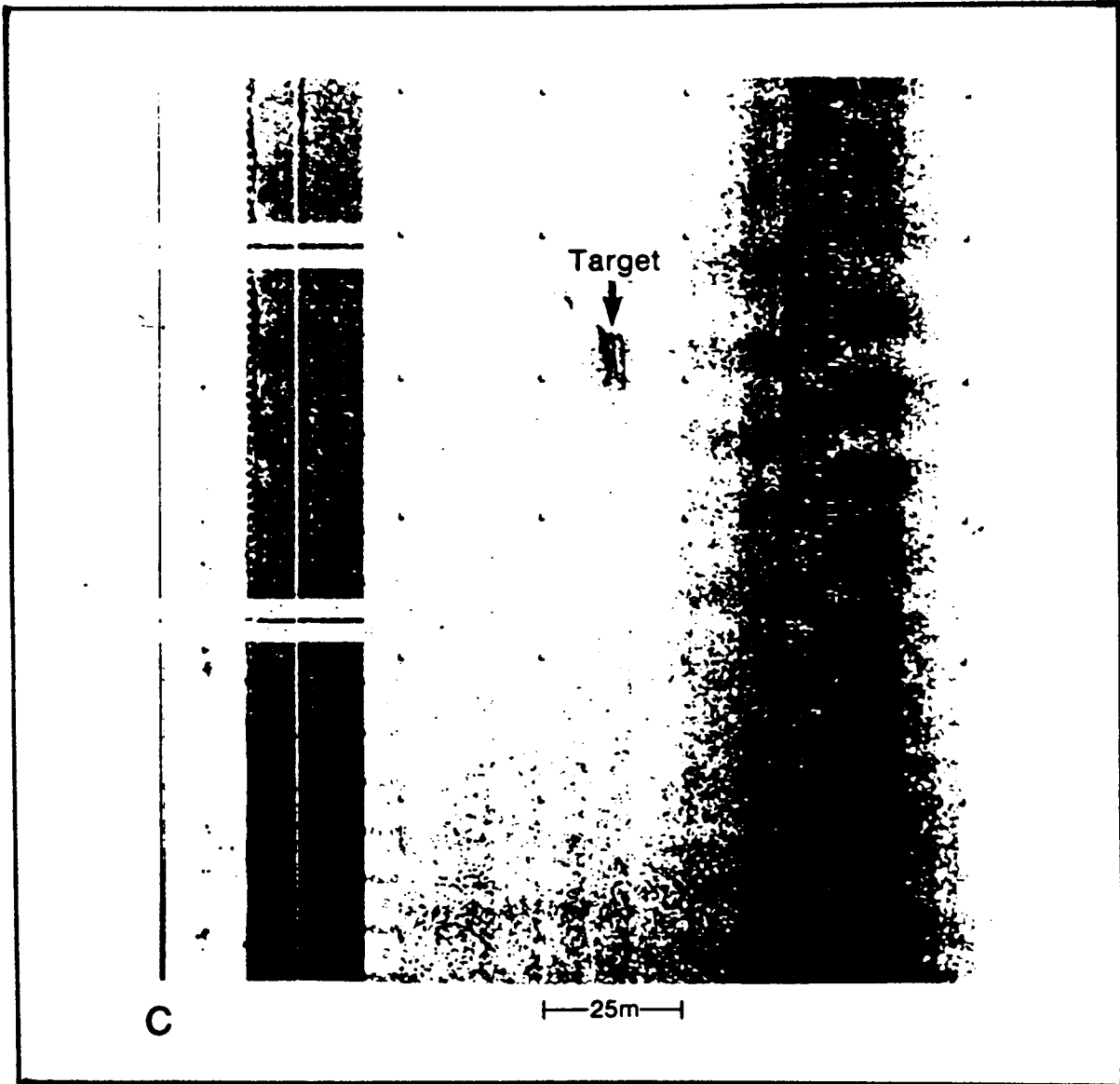


FIGURE K-21. Site #18 cont. - (c) sonograph of side scan contact (refrigerator).



**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #19

1. Location: 205 GA 313/ SP 115 294719.84 N 3188838.5 E (UTM)
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic anomaly and side scan sonar contact.
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 m (66 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 3 logged; 4 total
9. Track spacing: 10 m
10. Track directions: N-S(4), E-W
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: yes
13. Documentation: Analog-digital magnetometer and navigation data. Analog side scan sonar data. Videotape of the feature.
14. Description: The site is two features termed "A" and "B". 205A is believed to be the same icebox located between lines 202 and 203. This feature more correctly lies between 203 and 204. The icebox was 38 meters from 205B whose characteristics as an anomaly are dipolar with some duration (a,b) and whose sonogram shows some relief ( $\leq .5$  m). Divers identified a 55 gal. drum as the principal source for 205B.

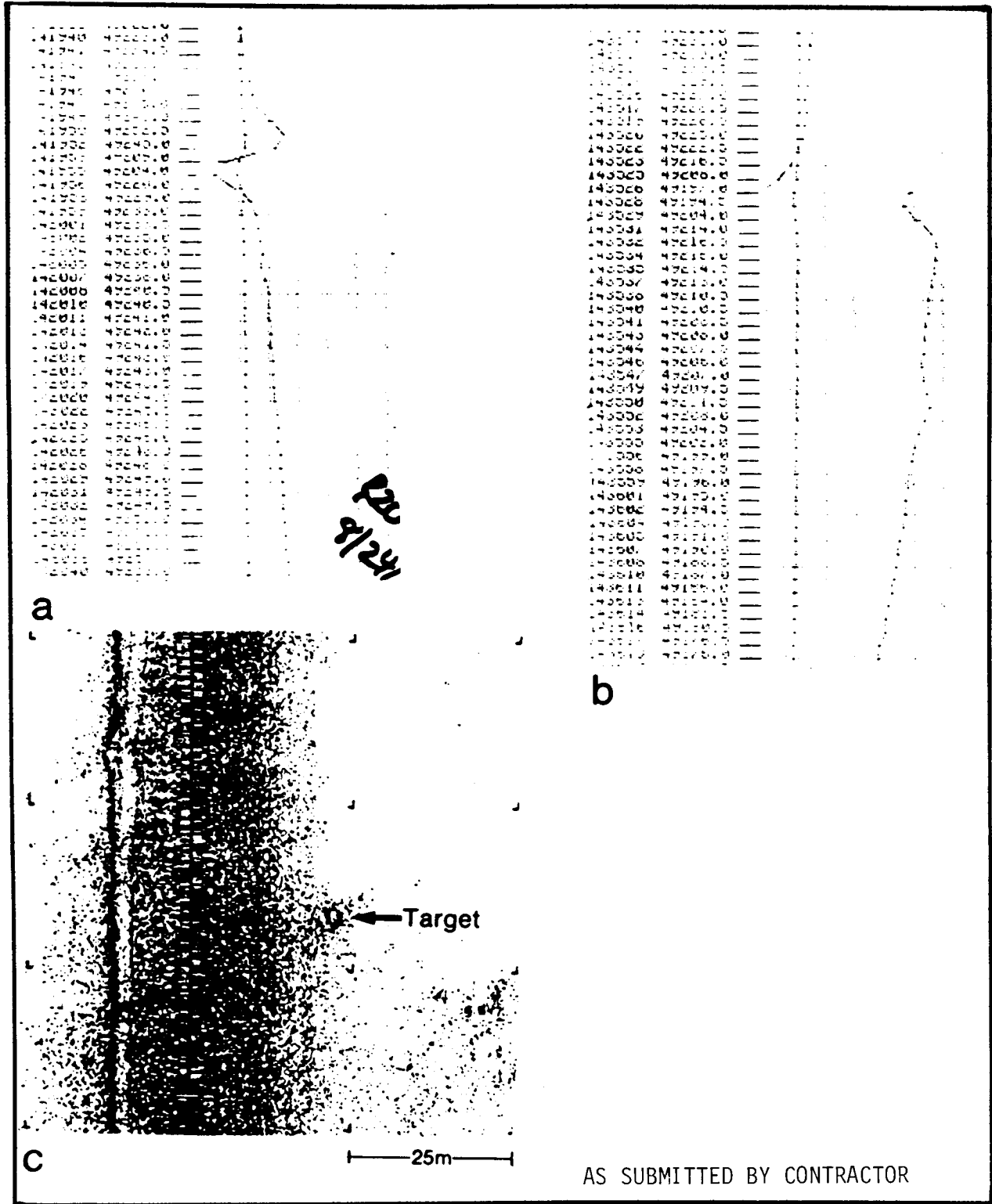


FIGURE K-23. Site #19 (a,b) anomaly associated with side scan sonar contact (c).

**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #20

1. Location: 207 GA 313/ SP 147 294814.56 N 3188891.25 E (UTM)
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Side scan sonar contact and magnetic anomaly
3. Instruments: EG & G Geometrics g-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 (66 ft)
7. Depth of sensor: 15 (50 ft)
8. Number of tracks: 3 logged; 10 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S, E-W
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: yes
13. Documentation: Analog-digital magnetometer and navigation data. Analog side scan sonar data. Videotape of the feature.
14. Description: Feature was found in resurvey near present production platform.. The signature shows classic dipolar shape (a,b) and diminishes rapidly with distance (c), where 30 meters reduces the amplitude to ambient field strength. Divers found a 55 gallon barrel, a bucket and beer cans near the target shown in (d).

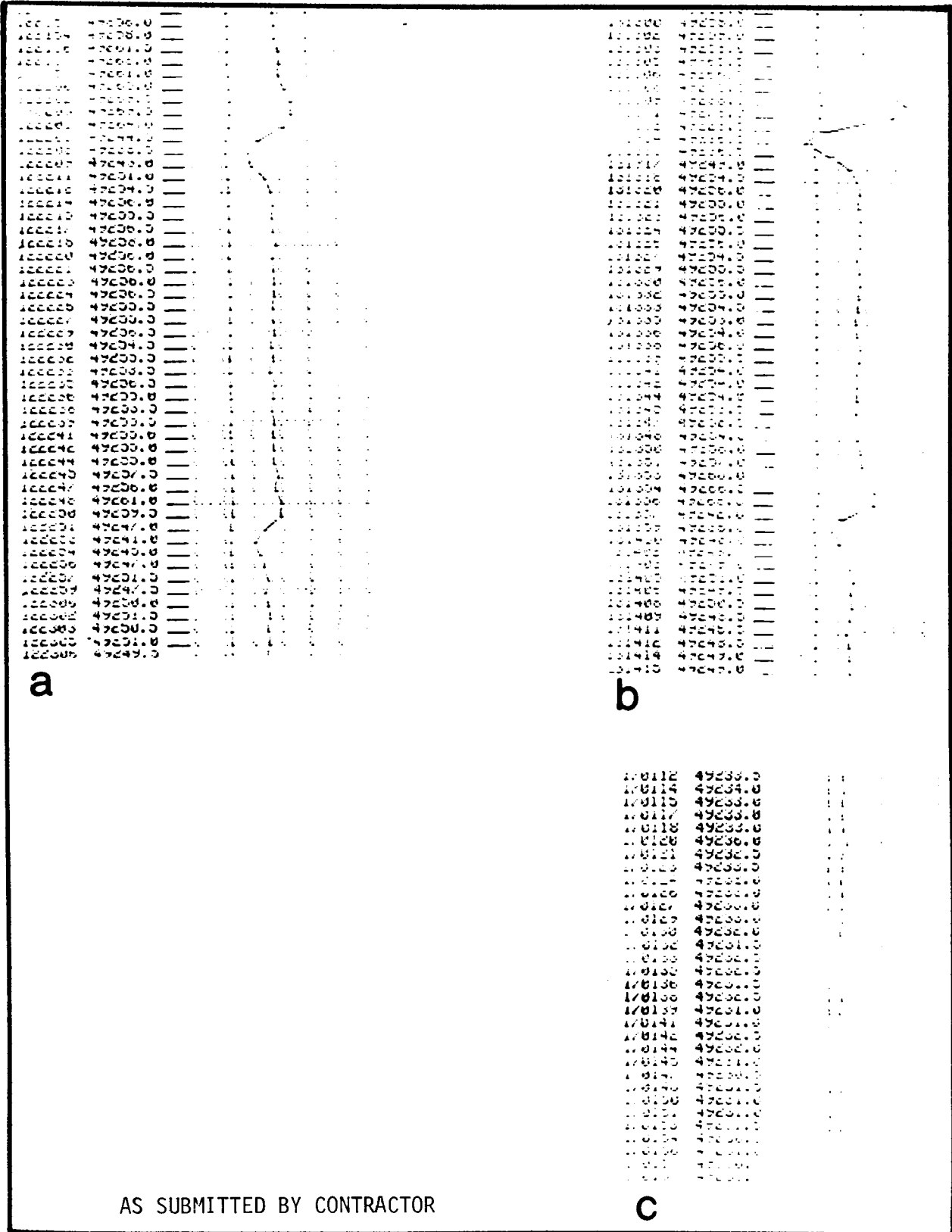


FIGURE K-24. Site #20 (a-c) anomaly detected on adjacent 10 meter survey lines, (c) represents 30 meter distance from anomaly.



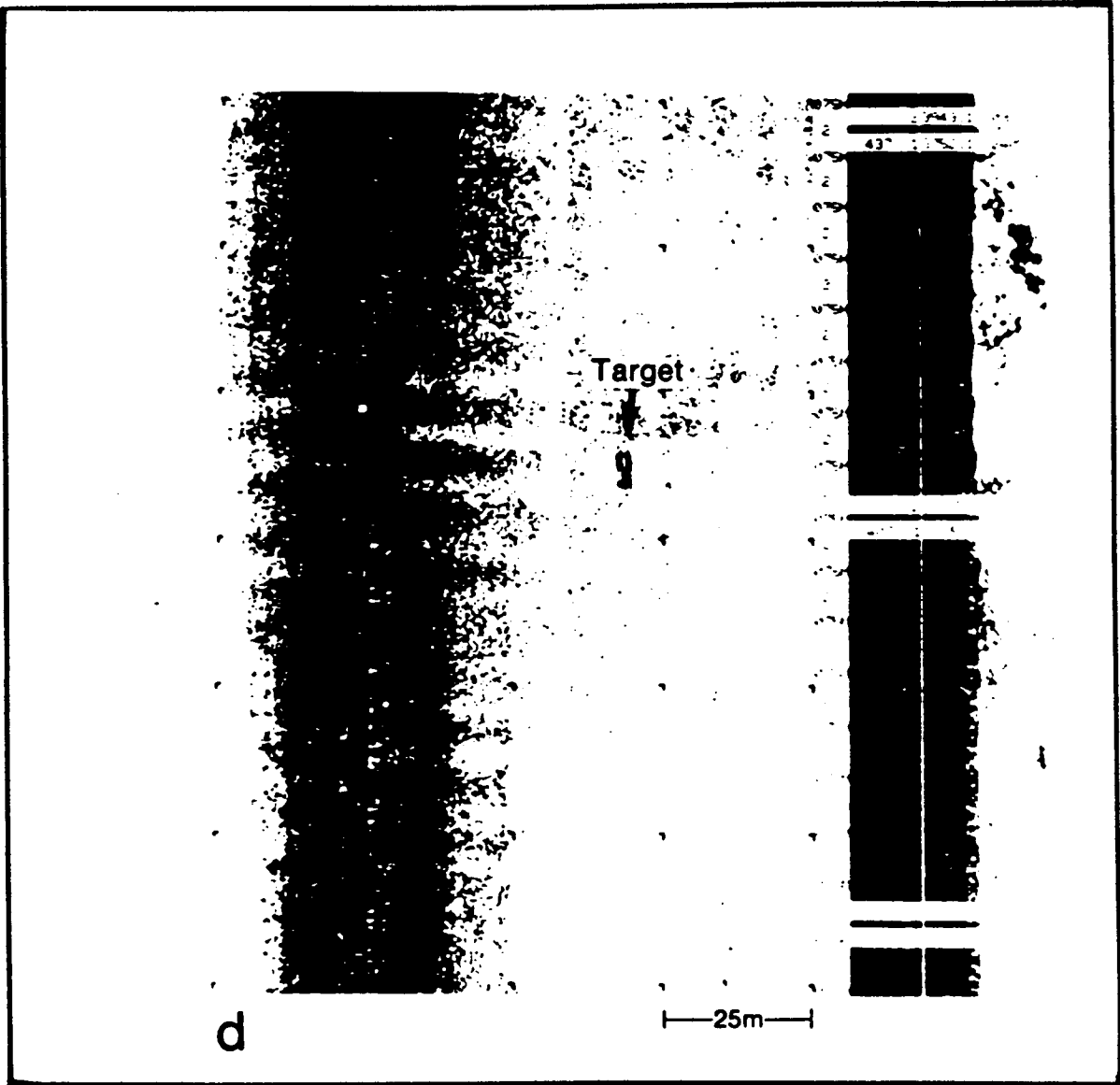
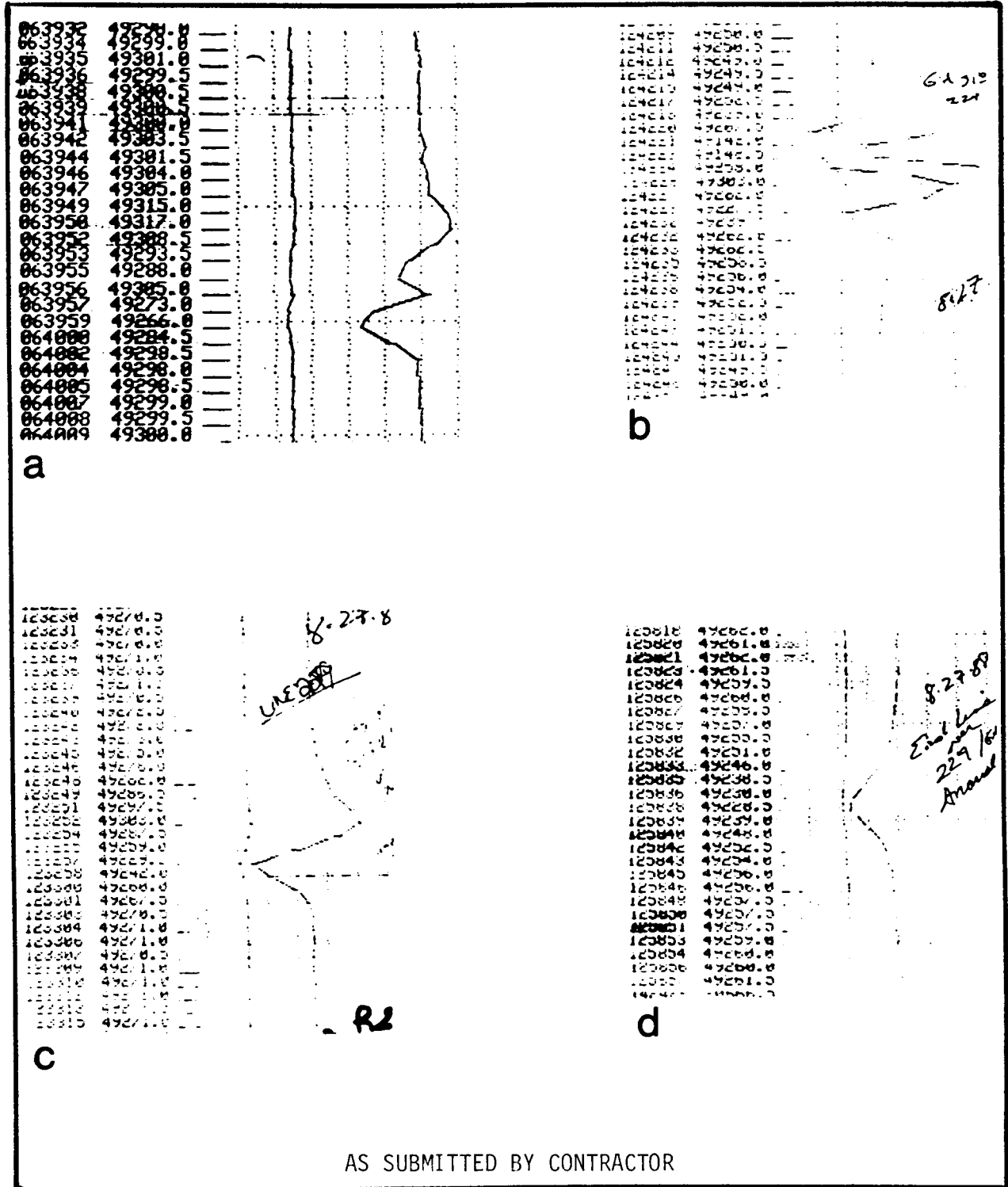


FIGURE K-25. Site#20 cont. - (d) sonograph of contact (barrel).

**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #21

1. Location: 229 GA 313/ SP 108 28° 48'20.34" N 95° 05'29.39" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic anomaly
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 m (66 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 5 logged; 15 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: N-S, E-W
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: yes
13. Documentation: Analog-digital magnetometer and navigation data. Analog side scan sonar.
14. Description: Feature found on block resurvey (a) is strong, broad dipolar anomaly. Relocation verified this (b,c) shape and strength for the anomaly with a gradual fall off 20 meters from the maximum deflection seen (d). Divers located a buried pipe 5.8 meters in length and 15-20 cm in diameter.



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FIGURE K-26. Site#21 (a) resurvey anomaly (b-d) anomaly detected during ground truthing.

**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #22

1. Location: 231 GA 313/ SP 155 28° 48'13.02" N 95° 05'29.99" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): magnetic anomaly
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 m (66 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 6 total
9. Track spacing: 10 m
10. Track directions: N-S
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: no
13. Documentation: Analog magnetometer and side scan sonar data
14. Description: The anomaly located by block resurvey (a) could not be found by relocation work. A small anomaly was detected (b,c,d). The amplitude, shape and duration differ significantly for the respective surveys. No side scan sonar contact was found and no groundtruthing was attempted. Source: unknown.



**Characterization of Side Scan Sonar Contacts and/or Magnetic Anomalies**

Site #23

1. Location: 305 GA 332/ SP 110 28° 47'36.34" N 95° 08'38.77" W
2. Type of feature: (Magnetic Anomaly and/or Side-Scan Sonar Contact): Magnetic anomaly and side scan sonar contact
3. Instruments: EG & G Geometrics G-866 proton magnetometer, EG & G 260 side scan sonar, Del Norte 542 Trisponder
4. Magnetometer Cycle Time: 1.5 sec
5. Side-scan sonar range: 75 m
6. Depth of water: 20 m (66 ft)
7. Depth of sensor: 15 m (50 ft)
8. Number of tracks: 3 logged; 9 total
9. Track spacing: 10 m (characterization); 50 m (survey)
10. Track directions: E-W, N-S
11. Vessel speed: 2.5 m/s (5 kts)
12. Ground-truthed: yes
13. Documentation: Analog-digital magnetometer and navigation data. Analog side scan sonar data. Videotape of feature.
14. Description: The block survey located a dipolar anomaly on an east-west tie line. Relocation surveys refined the characterization of the anomaly (b,c,d) and obtained acoustical data from fathometer and side scan sonar (e,f). The divers found an 8 meter mainmast of a shrimp trawler together with attached chain, cable and debris (bucket, cans).

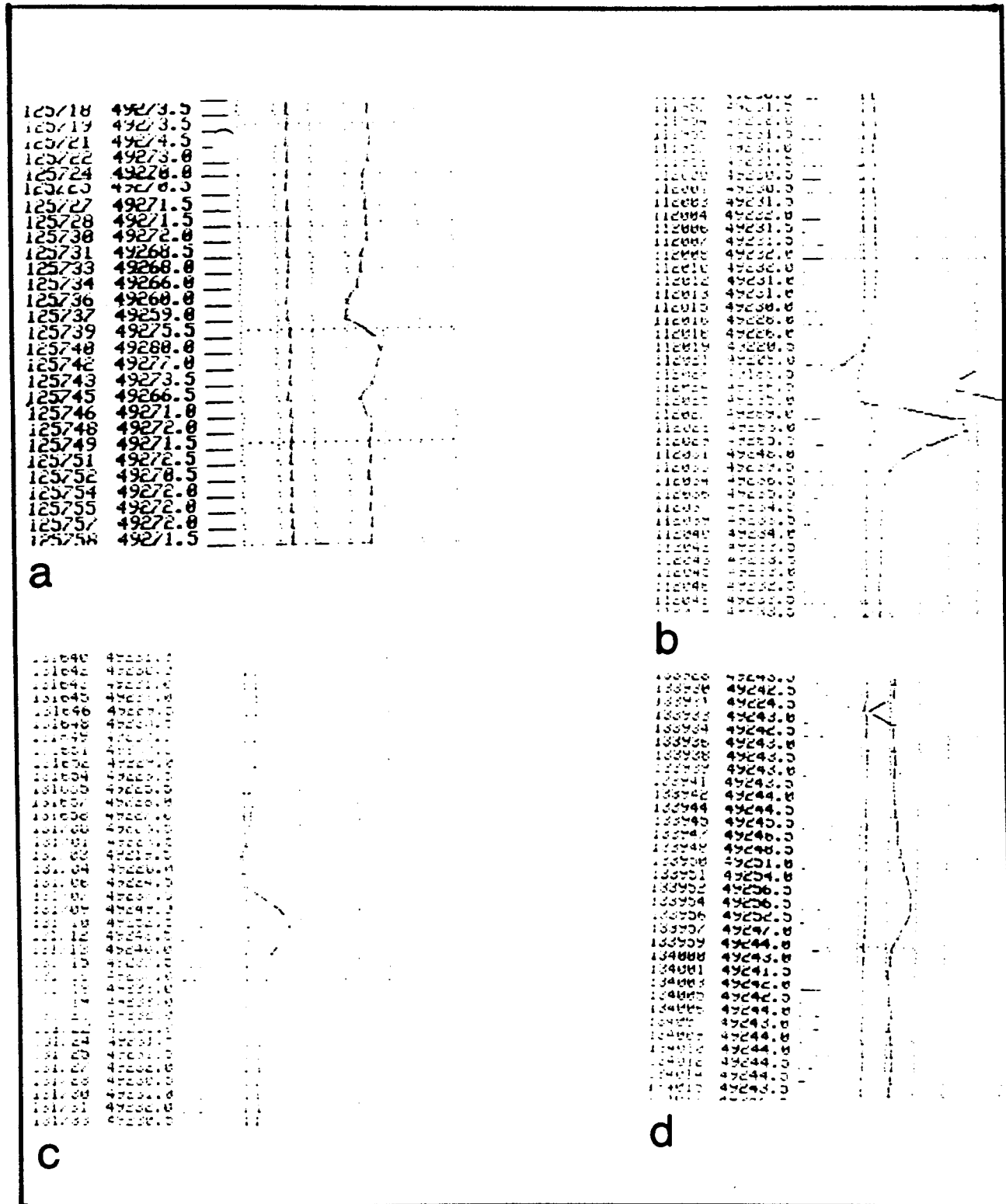


FIGURE K-28. Site #23 (a) resurvey anomaly (b-d) anomaly detected during ground truthing.

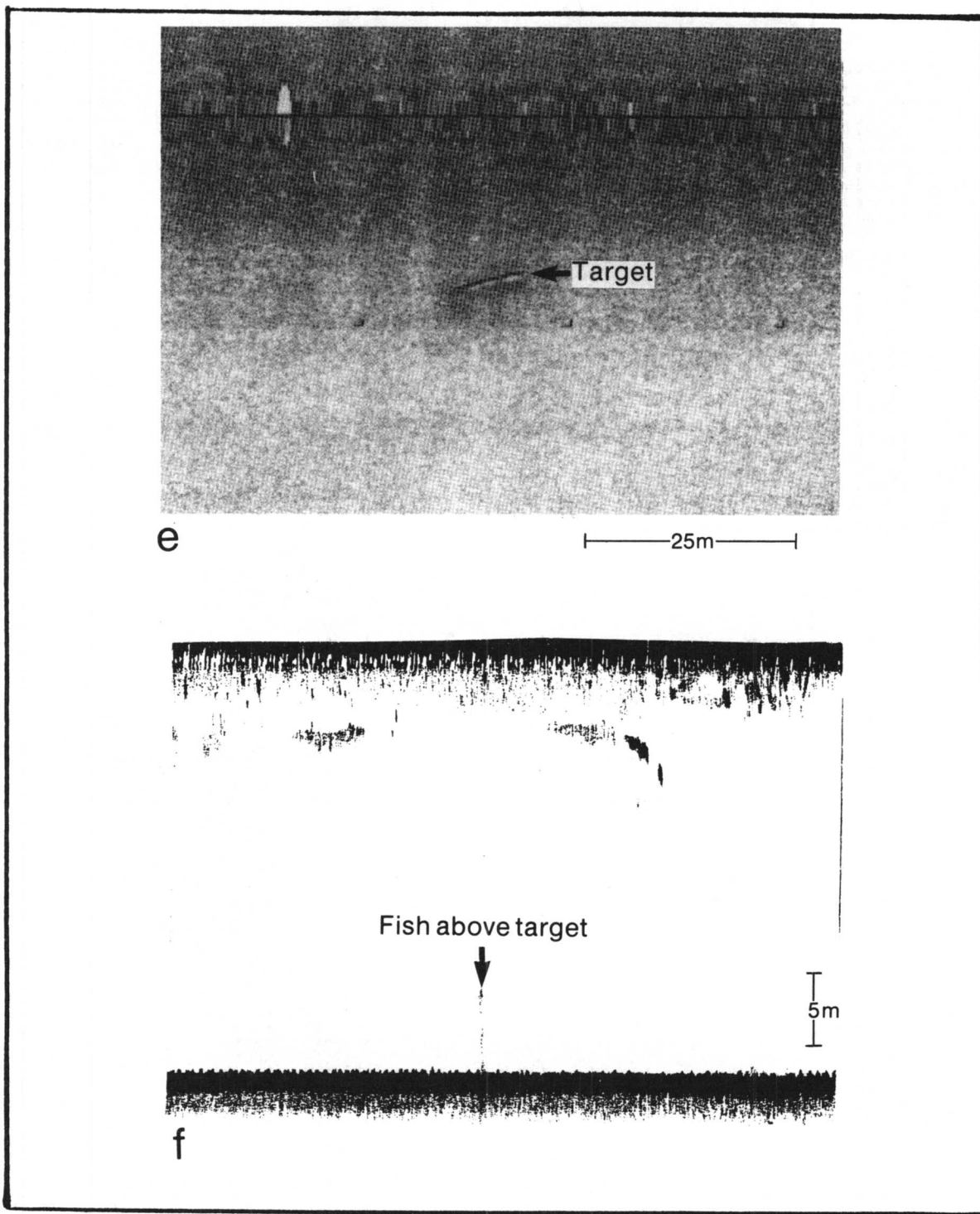


FIGURE K-29 Site #23 cont. - (e) sonograph of contact (mast); (f) fathometer record of feature (note fish).



## **APPENDIX L**

### **Formulae**

Table L-1.

**GENERALIZED PEAK AMPLITUDE AND DEPTH-TO-SOURCE FOR VERTICALLY  
POLARIZED ANOMALIES (after Von Frese 1986).**

*Generalized Anomaly*

MA = MM/z<sup>n</sup>, where

MM = magnetic moment (cgs) of the anomaly source,

z = effective distance (cm) between the source and the point of observation, and

n = amplitude decay rate factor.

*Depth-to-Source*

z = ((-n)\*(MA))/(d(MA)/d(z)), where (d(MA)/d(z)) = vertical first derivative of MA, and

n = 3 for dipoles, or 2 for monopoles and linear anomalies.

*Monopolar Anomaly*

MA<sub>m</sub> = MM/z<sup>n</sup> = (SK\*F<sub>e</sub>\*A<sub>n</sub>)/(z<sub>t</sub><sup>2</sup>), where

SK = unit volume magnetic susceptibility contrast (cgs) between the source and the country soil,

F<sub>e</sub> = applied geomagnetic field strength,

z<sub>t</sub> = depth to the top of the source that is assumed to be a vertical cylinder of great relative depth extent, and

A<sub>n</sub> = horizontal cross-sectional area (cm<sup>2</sup>) of the source.

*Dipolar Anomaly*

MA<sub>d</sub> = MM/z<sub>n</sub> = (2\*SK\*F<sub>e</sub>\*V<sub>s</sub>)/z<sub>c</sub><sup>3</sup>), where

z<sub>c</sub> = depth to the center of the source that is assumed to be a sphere of small relative geometric proportions, and

V<sub>s</sub> = spherical source volume (cm<sup>3</sup>)

Table L-1  
(continued).*Linear Anomaly* $MA_1 = MM/z_n = (SK \cdot F_e \cdot A_v)/z_c^2$ , where $z_c$  = depth to the central axis of the source that is assumed to be a horizontal cylinder of large relative lateral extent, and $A_v$  = vertical cross-sectional area ( $cm^2$ ) of the source.

## **APPENDIX M**

### **Factor Analysis for Pattern Recognition in Anomalies**

**Table M-1.**  
**Factor Analysis for Pattern: X<sub>1</sub> ... X<sub>4</sub>.**  
**Summary Information**

Factor Procedure	Principal Component Analysis
Extraction Rule	75% Variance Rule
Transformation Method	Orthotran/Varimax
Number of Factors	2

Oblique Factor Scores: Columns 18 - 19

**Table M-2.**  
**Correlation matrix.**

	# peaks	Anomaly...	Anomaly...	Maximu...
# peaks	1			
Anomaly Area	.747	1		
Anomaly Du...	.555	.913	1	
Maximum A...	.014	.607	.819	1

**Table M-3.**  
**Partials in off-diagonals and Squared Multiple R in diagonal.**

	# peaks	Anomaly...	Anomaly...	Maximu...
# peaks	.921			
Anomaly Area	.492	.92		
Anomaly Du...	.655	.278	.968	
Maximum A...	-.879	.182	.87	.952

Table M-4.  
**Measures of Variable Sampling Adequacy.**  
 Total matrix sampling adequacy: .542

# peaks	.375
Anomaly Area	.833
Anomaly Du...	.589
Maximum A...	.399

Bartlett Test of Sphericity- DF: 9 Chi Square: 64.894 P: .0001

Table M-5.  
**Eigenvalues and Proportion of Original Variance.**

	Magnitude	Variance Prop.
Value 1	2.901	.725
Value 2	1.029	.257

Table M-6.  
**Eigenvectors.**

	Vector 1	Vector 2
# peaks	-.395	-.721
Anomaly Area	-.57	-.149
Anomaly Du...	-.576	.146
Maximum A...	-.433	.66

Table M-7.  
Unrotated Factor Matrix.

	Factor 1	Factor 2
# peaks	.673	.732
Anomaly Area	.971	.151
Anomaly Du...	.981	-.148
Maximum A...	.737	-.67

Table M-8.  
Communality Summary.

	SMC	Final Estimate
# peaks	.921	.988
Anomaly Area	.92	.965
Anomaly Du...	.968	.984
Maximum A...	.952	.992

Table M-9.  
Orthogonal Transformation Solution-Varimax.

	Factor 1	Factor 2
# peaks	.027	.994
Anomaly Area	.632	.752
Anomaly Du...	.837	.532
Maximum A...	.996	-.02

Table M-10.  
**Oblique Solution Primary Pattern Matrix-Orthotran/Varimax.**

	Factor 1	Factor 2
# peaks	3.422E-4	.994
Anomaly Area	.613	.736
Anomaly Du...	.824	.511
Maximum A...	.998	-.047

Table M-11.  
**Oblique Solution Reference Structure-Orthotran/Varimax.**

	Factor 1	Factor 2
# peaks	3.417E-4	.993
Anomaly Area	.612	.735
Anomaly Du...	.822	.51
Maximum A...	.996	-.047

Table M-12.  
**Primary Intercorrelations-Orthotran/Varimax.**

	Factor 1	Factor 2
Factor 1	1	
Factor 2	.053	1



Table M-13.  
Variable Complexity-Orthotran/Varimax.

	Orthogonal	Oblique
# peaks	1.001	1
Anomaly Area	1.943	1.937
Anomaly Du...	1.696	1.67
Maximum A...	1.001	1.004
Average	1.41	1.403

Table M-14.  
Proportionate Variance Contributions.

	Orthogonal	Oblique		
	Direct	Direct	Joint	Total
Factor 1	.533	.512	.018	.53
Factor 2	.467	.449	.021	.47

Table M-15.  
Factor Score Weights for Oblique Transformation Solution-Orthotran/Va...

	Factor 1	Factor 2
# peaks	-.311	.697
Anomaly Area	.147	.327
Anomaly Du...	.347	.104
Maximum A...	.629	-.34

Table M-16.  
Factor Score Weights for Orthogonal Transformation Solution-Varimax.

	Factor 1	Factor 2
# peaks	-.292	.689
Anomaly Area	.156	.331
Anomaly Du...	.35	.113
Maximum A...	.619	-.324

Table M-17.

Raw data for four variables for eleven  
shipwreck and modern debris cases.

	PEAKS	AREA	DURATION	AMPLITUDE
1	20	5000	40	80
2	15	1000	50	500
3	13	9000	234	2659
4	46	8700	152	16
5	10	375	12	20
6	2	40	15	30
7	6	90	8	33
8	9	160	23	63
9	9	100	34	58
10	2	15	4	30
11	8	90	21	52

1) SAN ESTEBAN; 2) BLACK CLOUD; 3) WILL O' THE WISP;  
4) 1715 WRECK; 5) 125GA313; 6) 175GA313; 7) 207GA313;  
8) 229GA313; 9) 305GA332; 10) 137GA332; 11) 185GA332

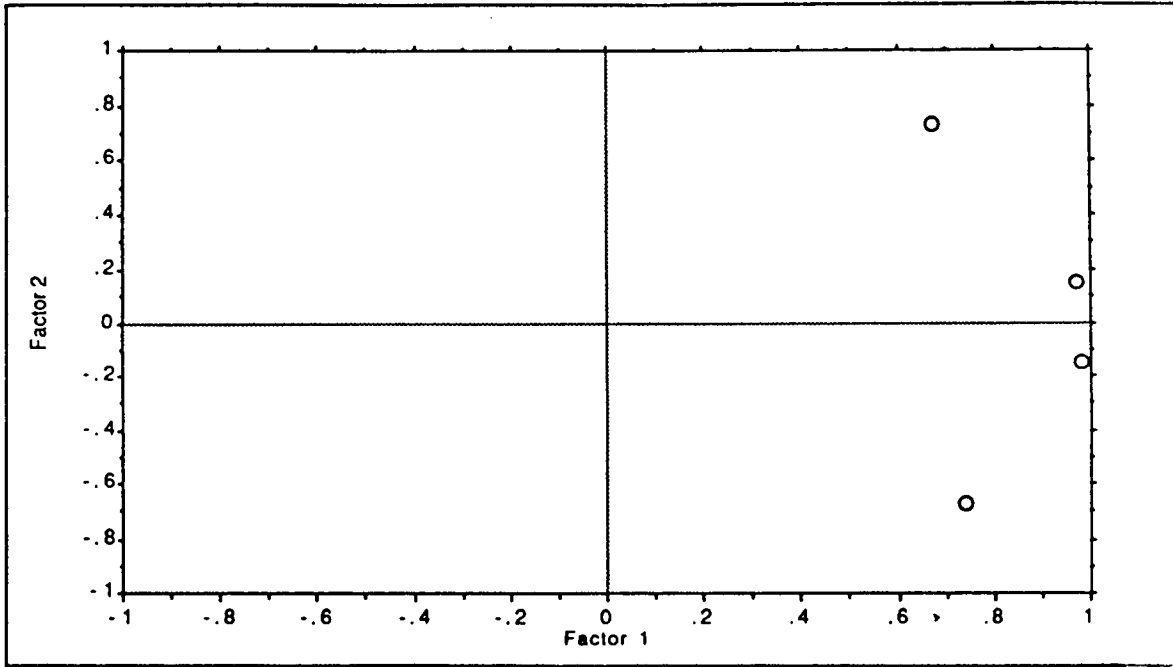


Figure M-1. Unrotated Orthogonal Plot: Factor 1 vs Factor 2.

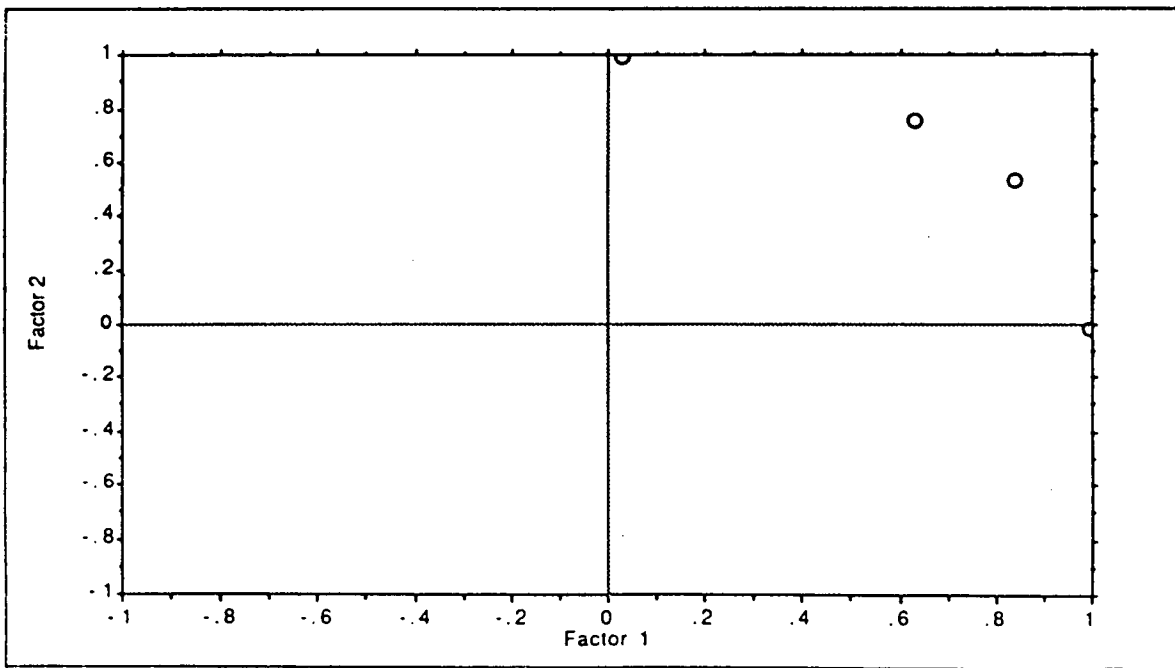


Figure M-2. Rotated Orthogonal Plot: Factor vs Factor 2.

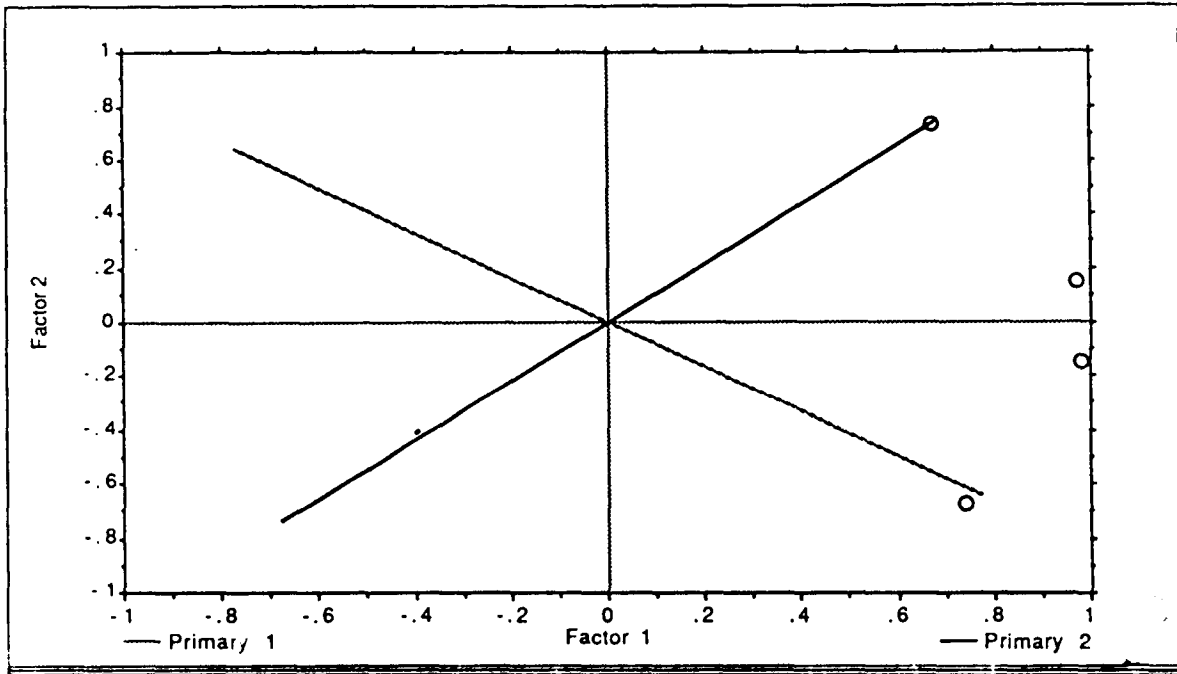


Figure M-3. Transformed Oblique Plot: Factor 1 vs Factor 2.



### **The Department of the Interior Mission**

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.



### **The Minerals Management Service Mission**

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The **MMS Royalty Management Program** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.