This nautical chart has been designed to promote safe navigation. The National Ocean Service encourages users to submit corrections, additions, or comments for improving this chart to the Chief, Marine Chart Division (N/CS2), National Ocean Service, NOAA, Silver Spring, Maryland 20910 - 3282.

HORIZONTAL DATUM

The horizontal reference datum of this chart is North American Datum of 1983 (NAD 83) and for charting purposes is considered equivalent to the World Geodetic System 1984 (WGS 84). Geographic positions referred to the North American Datum of 1927 must be corrected an average of 0.407" northward and 1.347" eastward to agree with this chart.

Formerly C&GS 1218, 1st Ed., Feb. 1913 G-1954-852

SOUNDINGS IN FEET

Nautical Chart Catalog No. 1, Panel E

12304

LORAN-C OVERPRINTED

(CONTINUED ON CHART 12311)

DELAWARE RIVER CHANNEL DEPTHS

TABULATED FROM SURVEYS BY THE CORPS OF ENGINEERS - REPORT OF OCT 1996

NAME OF CHANNEL	CONTROLLING DEPTHS FROM SEAWARD IN FEET AT MEAN LOWER LOW WATER (MLLW) LEFT OUTSIDE QUARTER	LEFT INSIDE QUARTER	RIGHT INSIDE QUARTER	RIGHT OUTSIDE QUARTER	DATE OF SURVEY	PROJECT DIMENSIONS WIDTH (FEET)	LENGTH (NAUT MILES)	DEPTH MLLW (FEET)
BRANDYWINE RANGE	35.9	39.3	39.6	38.6	8-96	1000	10.94	40
MAIN MAULL RANGE	39.5	40.5	39.5	39.5	8-96	1000	3.39	40
CROSS LEDGE RANGE	40.1	43.3	43.2	39.5	8-96	1000	3.39	40
LISTON RANGE (BELOW SHIP JOHN LIGHT)	40.3	40.7	41.5	40.0	6-96	1000	5.57	40
LISTON RANGE (ABOVE SHIP JOHN LIGHT)	40.5	40.5	41.7	39.3	8-96	1000-800	12.42	40

NOTE - CONSULT THE CORPS OF ENGINEERS FOR CHANGES SUBSEQUENT TO THE ABOVE INFORMATION

COHANSEY RIVER

Controlling depths were 5 feet to Fairton; thence 6 feet to approximately 600 yards south of Bridgeton, thence 1 foot to Bridgeton. March 1988-April 1990

LORAN-C

GENERAL EXPLANATION

LORAN-C FREQUENCY ..... 100kHz.
PULSE REPETITION INTERVAL
9960 ..... 99.600 Microseconds
STATION TYPE DESIGNATORS: (Not individual station letter designators).
M ..... Master
W ..... Secondary
X ..... Secondary
Y ..... Secondary
Z ..... Secondary
EXAMPLE: 9960-X

RATES ON THIS CHART

9960-X 9960-Y 9960-Z

Loran-C correction tables published by the National Imagery and Mapping Agency or others should not be used with this chart. The lines of position shown have been adjusted based on survey data. Every effort has been made to meet the ¼ nautical mile accuracy criteria established by the U.S. Coast Guard. Mariners are cautioned not to rely solely on the lattices in inshore waters.

LORAN LINEAR INTERPOLATOR

POLLUTION REPORTS

Report all spills of oil and hazardous substances to the National Response Center via 1-800-424-8802 (toll free), or to the nearest U.S. Coast Guard facility if telephone communication is impossible (33 CFR 153).

CAUTION

SUBMARINE PIPELINES AND CABLES

Charted submarine pipelines and submarine cables and submarine pipeline and cable areas are shown as:

Pipeline Area — Cable Area

Additional uncharted submarine pipelines and submarine cables may exist within the area of this chart. Not all submarine pipelines and submarine cables are required to be buried, and those that were originally buried may have become exposed. Mariners should use extreme caution when operating vessels in depths of water comparable to their draft in areas where pipelines and cables may exist, and when anchoring, dragging or trawling.

Covered wells may be marked by lighted or unlighted buoys.

MAURICE RIVER

After crossing the bar, the controlling depth to Mauricetown was 8 ft in Dec. 1985; thence reported to be 6 feet to Millville in 1967.

Numerous buoys are not charted because they are frequently shifted in position.

Above Mauricetown the channel is marked by buoys which are not charted.

(a) Numerous uncharted wrecks exist along the banks of the river.

(b) Obstruction reported extending across eastern half of the river at shipbuilding company about 5 miles above the mouth

FORTESCUE CREEK

Controlling depth for centerline is 2 feet from Delaware Bay to Downe Avenue Bridge. Sept 1986

TIDAL INFORMATION

Place Name	(LAT/LONG)	Height referred to datum of soundings (MLLW) Mean Higher High Water	Mean High Water	Mean Lower Low Water	Extreme Low Water
		feet	feet	feet	feet
Cape May Point, NJ	(38°56'N/74°58'W)	5.4	4.9	0.2	-4.0
Breakwater Harbor, DE	(38°47'N/75°07'W)	4.7	4.3	0.2	-3.9
Murderkill River Ent., DE	(39°04'N/75°24'W)	5.7	5.3	0.1	-4.9
Woodland Beach, DE	(39°20'N/75°28'W)	6.4	6.1	0.2	-4.0

(895)

ABBREVIATIONS (For complete list of Symbols and Abbreviations, see Chart No. 1.)

Aids to Navigation (lights are white unless otherwise indicated):

AERO aeronautical; Al alternating; Bl black; Bn beacon; C can; DIA diaphone; F fixed; Fl flashing; G green; IQ interrupted quick; Iso isophase; LT HO lighthouse; M nautical mile; m minutes; MICRO TR microwave tower; Mkr marker; Mo morse code; N nun; OBSC obscured; Oc occulting; Or orange; Q quick; R red; Ra Ref radar reflector; Bn radiobeacon; R TR radio tower; Rot rotating; s seconds; SEC sector; St M statute miles; VQ very quick; W white; WHIS whistle; Y yellow

Bottom characteristics:

Blds boulders; bk broken; Cy clay; Co coral; G gravel; Grs grass; gy gray; h hard; M mud; Oys oysters; Rk rock; S sand; so soft; Sh shells; sy sticky

Miscellaneous:

AUTH authorized; ED existence doubtful; Obstn obstruction; PA position approximate; PD position doubtful; Rep reported; Subm submerged

Wreck, rock, obstruction, or shoal swept clear to the depth indicated.

(2) Rocks that cover and uncover, with heights in feet above datum of soundings.

COLREGS: International Regulations for Preventing Collisions at Sea, 1972.

Demarcation lines are shown thus: — — —

HEIGHTS

Heights in feet above Mean High Water.

AUTHORITIES

Hydrography and topography by the National Ocean Service, Coast Survey with additional data from the Corps of Engineers, Geological Survey, and U.S. Coast Guard.

CAUTION

Improved channels shown by broken lines are subject to shoaling, particularly at the edges.

SUPPLEMENTAL INFORMATION

Consult U.S. Coast Pilot 3 for important supplemental information.

NOTE A

Navigation regulations are published in Chapter 2, U.S. Coast Pilot 3. Additions or revisions to Chapter 2 are published in the Notices to Mariners. Information concerning the regulations may be obtained at the Office of the Commander, 5th Coast Guard District in Portsmouth, Virginia, or at the Office of the District Engineer, Corps of Engineers in Philadelphia, Pennsylvania. Refer to charted regulation section numbers.

CAUTION

BASCULE BRIDGE CLEARANCES

For bascule bridges, whose spans do not open to a full upright or vertical position, unlimited vertical clearance is not available for the entire charted horizontal clearance.

CAUTION

Mariners are warned to stay clear of the protective riprap surrounding navigational light structures, shown thus:

RACING BUOYS

Racing buoys within the limits of this chart are not shown hereon. Information may be obtained from the U.S. Coast Guard District Offices as racing and other private buoys are not all listed in the U.S. Coast Guard Light List.

PLANE COORDINATE GRID

(based on NAD 1927)

The New Jersey State Grid is indicated on this chart at 40,000 foot intervals thus: + + The last three digits are omitted.

CAUTION

Temporary changes or defects in aids to navigation are not indicated on this chart. See Notice to Mariners.

During some winter months or when endangered by ice, certain aids to navigation are replaced by other types or removed. For details see U.S. Coast Guard Light List.

OYSTER GROUNDS

CAUTION - Numerous stakes and obstructions exist within these areas

NOTE B

DANGER AREA

Area is open to unrestricted surface navigation but all vessels are cautioned neither to anchor, dredge, trawl, lay cables, bottom, nor conduct any other similar type of operation because of residual danger from mines on the bottom.

CAUTION

FISH TRAP AREAS AND STRUCTURES

Mariners are warned that numerous uncharted duck blinds and fishing structures, some submerged, may exist in the fish trap area. Such structures are not charted unless known to be permanent.

Regulations to assure clear passage to and through dredged and natural channels and to established landings are prescribed by the Corps of Engineers in the Code of Federal Regulations.

Definite limits of fish trap areas have been established in some areas and those limits are shown thus: — — —

Where definite limits have not been prescribed the location of fishing structures is restricted only by the regulations.

NOAA VHF-FM WEATHER BROADCASTS

The National Weather Service stations listed below provide continuous marine weather broadcasts. The range of reception is variable, but for most stations is usually 20 to 40 miles from the antenna site.

Atlantic City, N.J.	KHB-38	162.40 MHz
Salisbury, Md.	KEC-92	162.475 MHz
Lewes, Del.	WXJ-94	162.55 MHz

AIDS TO NAVIGATION

Consult U.S. Coast Guard Light List for supplemental information concerning aids to navigation

RADAR REFLECTORS

Radar reflectors have been placed on many floating aids to navigation. Individual radar reflector identification on these aids has been omitted from this chart.

NOTE S

Regulations for Ocean Dumping Sites are contained in 40 CFR Parts 220-229. Additional information concerning the regulations and requirements for use of the sites may by obtained from Environmental Protection Agency (EPA). See U.S. Coast Pilots appendix for addresses of EPA offices.

SOURCE

a	1945-94	NOS Surveys 1:10,000
b	1970-84	NOS Surveys 1:20,000
c		Miscellaneous Surveys
d	1983-96	Corps of Engineers Surveys
e		No Contemporary Surveys

SOURCE DIAGRAM

The outlined areas represent the limits of the most recently surveyed hydrographic information that has been evaluated for charting. Charted hydrography may originate from these and prior surveys.

UNITED STATES - EAST COAST

NEW JERSEY - DELAWARE

DELAWARE BAY

WARNING

The prudent mariner will not rely solely on any single aid to navigation, particularly on floating aids. See U.S. Coast Guard Light List and U.S. Coast Pilot for details.

Mercator Projection
Scale 1:80,000 at Lat. 39°06'
North American Datum of 1983
(World Geodetic System 1984)

SOUNDINGS IN FEET
AT MEAN LOWER LOW WATER

CAUTION

Only marine radiobeacons have been calibrated for surface use. Limitations on the use of certain other radio signals as aids to marine navigation can be found in the U.S. Coast Guard Light List and National Imagery and Mapping Agency Publication 117.

Radio direction-finder bearings to commercial broadcasting stations are subject to error and should be used with caution.

Station positions are shown thus:
⊙(Accurate location) ○(Approximate location)

NOTE C

TRAFFIC SEPARATION SCHEME

One-way traffic lanes overprinted on this chart are RECOMMENDED for use by all vessels traveling between the points involved. They have been designed to aid in the prevention of collisions at the approaches to Delaware Bay, but are not intended in any way to supersede or alter the applicable Rules of the Road. Separation zones are intended to separate inbound and outbound traffic and to be free of ship traffic. Separation zones should not be used except for crossing purposes. When crossing traffic lanes and separation zones use extreme caution.

NOTE D

PRECAUTIONARY AREA

Traffic within the PRECAUTIONARY AREA may consist of cruising pilots and vessels making the transition between operating in Delaware Bay and one of the traffic lanes. Mariners are advised to exercise extreme care in navigating within this area. The normal Pilot Cruising Area is outlined by a triangular magenta band.

CAUTION

Numerous uncharted duck blinds, stakes, piles, signs and pipes, some submerged, may exist in the area of this chart.

Lighted dredging buoys are not charted as they are frequently moved.

NOTE X

The 12 nautical mile territorial sea was established by Presidential Proclamation 5928, December 27, 1988, and is also the outer limit of the U.S. contiguous zone for the application of domestic law. The 3 nautical mile line, previously identified as the outer limit of the territorial sea, is retained because the proclamation states that it does not alter existing State or Federal law. The 9 nautical mile natural resources boundary off Texas, the Gulf coast of Florida, and Puerto Rico, and the 3 nautical mile line elsewhere remain the inner boundary of the Federal fisheries jurisdiction and limit of states' jurisdiction under the Submerged Lands Act (P.L. 83-31; 67 Stat. 29, March 22, 1953). These maritime limits are subject to modification, as represented on future charts. The lines shown on the most recent chart edition take precedence.

CAUTION

This chart has been corrected from the Notice to Mariners published weekly by the National Imagery and Mapping Agency and the Local Notice to Mariners issued periodically by each U.S. Coast Guard district to the date shown in the lower left hand corner.

37th Ed., Dec 28/96 ■

12304
LORAN-C OVERPRINTED

SOUNDINGS IN FEET

Published at Washington, D. C.
U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE
COAST SURVEY

(Delaware Bay)
SOUNDINGS IN FEET - SCALE 1:80,000

12304
LORAN-C OVERPRINTED

(JOINS CHART 12214)

Inner neatline 92.52 cm. N.S. x 75.69cm. E.W.

ED. NO. 37

NSN 7642014010327 12HA12304
NIMA STOCK NO.