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U.S. COAST SURVEY
A.D. BACHE Supdt.

PRELIMINARY CHART
OF
DELAWARE AND CHESAPEAKE BAYS
AND THE
SEA COAST FROM CAPE HENLOPEN TO CAPE CHARLES

Heliotype Copy No. 1 by G. Mathieu U.S.C.S.

TIDES

	Cape May Lighthouse	Nahsaw's River	New Castle	Delaware Breakwater	Old Point Comfort	Fokes Looknow	Annapolis	Bodkin Light	Baltimore Jackson wharf
Corrected Establishment	VIII^h XX^m	XI^h 11^m	XI^h 11^m	XII^h 00^m	XI^h 11^m	XI^h 11^m	XI^h 11^m	XI^h 11^m	XI^h 11^m
Rise of Highest Tide observed above the plane of reference	6. 8^ft.	8. 1^ft.	6. 4^ft.	0. 4^ft.	2. 6^ft.	2. 6^ft.	3. 2^ft.	0. 4^ft.	3. 1^ft.
Fall of Lowest Tide do. below do.	1. 4.	0. 9.	2. 3.	1. 0.	1. 7.	1. 8.	2. 4.	1. 6.	2. 2.
Fall of Mean Low Water of Spring Tides below do.	0. 5.	0. 4.	0. 0.	0. 0.	0. 3.	0. 4.		0. 2.	0. 2.
Height of do. of Neap Tides above do.	0. 1.	0. 6.	0. 2.	0. 1.	0. 3.	0. 4.		0. 1.	0. 2.
Mean Rise and Fall of Tides	4. 8.	5. 9.	6. 5.	3. 3.	2. 5.	1. 4.	0. 9.	1. 0.	1. 3.
Mean do. of Spring Tides	6. 0.	6. 9.	6. 9.	3. 5.	3. 0.	1. 7.	0. 11.	1. 2.	1. 5.
Mean do. of Neap Tides	4. 3.	5. 0.	6. 6.	3. 0.	2. 0.	0. 7.	0. 8.	0. 8.	0. 9.
Mean Duration of Rise / Reckoning from the middle of one	6^h 17^m	6^h 21^m	6^h 40^m	6^h 45^m	6^h 20^m	6^h 39^m	6^h 17^m	6^h 28^m	6^h 24^m
Mean do. of Fall / Stand to the middle of the next	6^h 15^m	6^h 17^m	6^h 43^m	6^h 46^m	6^h 20^m	6^h 39^m	6^h 52^m	6^h 32^m	6^h 33^m
Mean do. of Stand.	0^h 30^m		0^h 47^m	0^h 26^m	0^h 30^m	0^h 30^m	0^h 34^m		

The Triangulation was executed by A.D.Bache Supdt. E.Blunt, J.Ferguson, J.W.Werner, F.H.Gerdes, J.Farley, J.E. Johnstone Capts. U.S.Topl. Engrs. & T.J.Page Lieut. U.S.N. Assists between 1839 & 1853
The Topography was executed by F.H.Gerdes, A.D.S. Beasley, H.L.Whiting, G.D.Wise, R.H.D Cutts Assists. R.S.B.Glade, J.C. Nailson, J.Saik, K.S.A.Wainwright Sub Assists.between 1841 & 1854
The Hydrography was executed by the parties of Lieuts T.R.Gedney, G.S.Blake, C.H.M.Blair, G.M.Bache, S.P.Lee, R.F.Kondo, R.Rache, J.C.Mayo, H.Wainwright, & W.P.M.Arthur U.S.N. Assists between 1841 & 1854
The Magnetic observations were made by T.J.Lee, Capt. U.S.Topl. Engrs, J.E.Hilgard, C.A.Schott, J.Hewston. R.J.Locke in 1845 & 7 & 53 & 55.

SAILING DIRECTIONS

To enter Delaware Bay from the Eastward. The Light Boat near S the Bank bearing North, dist. 1 mile, steer for Henlopen Lt. W by S. (S.76°W.) Soundings varying from 7 to 9 fms. When they deepen to 10 fms. or over Henlopen Lt. 3 miles dist. steer N.W. (N.44°W.) to bring Henlopen Lt. & the Sea-on on the Cape in range, being careful, particularly in light winds & on the Flood, which sets to the Westd. not to run to the Westd. of the range, the Shoals being near. Keep up the Bay on this range which passes to the Eastd. of the Buoy of the Brown Shoal, the soundings shoaling gradually from 15 to 8 fms. till Brandywine Shoal Lt. Ho. bears N.N.W. (N.22°W.), when steer for it passing about a 1 mile to the Westd.

Bound into Breakwater Harbor from the Southd. Pass Ree & Chicken, at a mile distance 2 miles from shore, close hand in, bearing close to Cape Henlopen which is held, from the Eastd. being Henlopen Lt. Ho. to bear W. by S. (S.78°W.) and stand in. Enter the Harbor at about mid-ch between the Breakwater and Ice-breaker according to the wind and tide. Do not anchor in the Harbor but anchor close to the main work. Breakwater Lt. Ho. bearing N. by W. (N.1°W.) Holding ground good in all parts of the Harbor.

From Brandywine Lt. Ho. to Cross Ledge Lt. Boat.—Course on the Flood is N.N.W. (N.22°W.) On the 8 fm. N.N.W. (N.22°W.) pass the Lt. Boat to the Westd. and continue the course to the Buoy on the Middle 4 fm. 3 miles. These courses carry about mid-channel between the Playground & Cross Ledge. From the Buoy on the middle to Romkey Rock Bar, the Thrum Cap (the Lower of two small Islets) clumps of trees on the Western shore, bearing S.W. (S.45° W.) the course is N.W. (N.45° W.) on the Flood and S.E. on the Ebb. Romkey Rock Buoy to Listons Pt. there is 5 miles. Romkey Rock Buoy to Listons Pt. bear on the Flood and S.E. on the Ebb. Romkey Rock Buoy to Listons Pt. there is 5 miles. Big South-the easiest (S.N.W. (N.45° W.) between Romkey Rock & Lt. Ho. & Listons Pt. there is 5 miles. the shoalest water in channel, way from the Cape to the Pot Patch. From Listons Tree bearing South, to give Romp Pt. Bar a good berth, steer for Fort Penn Turret, a little to the Westd. of Reedy Id. Lt. for 11 miles, or till a house on the Delaware shore, with two poplars near it, bears S.W. by W. (S.58°W.) then the course is N. by E. 1/2 E. (N. to E. 1/2 E.) to Reinghorough Pt. bearing East.

For further directions, see Chart of Delaware Bay and River Sizle 20 by 20.

NOTE

The Courses and Bearings without the brackets are Magnetic, those within are True. The distances are in Nautical miles. The soundings are expressed in feet to 18 feet, or within the dotted curves, beyond it in fathoms, and show the depth at mean low water-the plane of reference. The characteristic soundings only are given on the map, they are selected from the numerous soundings taken in the survey, so as to represent the figure of the bottom.

SAILING DIRECTIONS

To enter Chesapeake Bay by Cape Henry Channel. Bring Cape Henry Lt. Ho. to bear from W. by S. to W.N.W. and stand for it. Between these bearings there is not less than 5½ fms. The channel between Cape Henry and the Middle Ground is about 4½ miles wide. Large class vessels working in or out must be aware of the 3½ fms. shoal, lying 3½ miles Northeast & Eastwd. of Cape Henry Lt. Ho. Keep the lead going after striking 12 fms. The beach from the Lt. Ho. Southerly must not be approached nearer than a mile. When inshore to the Southd. & Eastwd. standing to the Northwd. till Willoughby's Pt. would range with, or open to the Northwd. of Cape Henry, deepen the water into Cape Henry Channel, and after passing Smiths Id. Lt. Ho. keep it well open with the woods to the Southd. keeping in not less than 3½ fms. to avoid Southsea Road. Vessels making the land to the Southd. of Cape Henry during a strong North Water, should not approach it nearer than 3 miles, as the ebb tide than sets strong to the Southd. along the shore. Stretch well off on the Port tacks and bring Cape Henry to bear West. The woods of Smiths Id. appear broken and uneven from a distance seaward, when bearing from W.N.W. to W.S.W. with other bearings they appear even and solid.

If bound into Hampton Roads bring Cape Henry Lt. Ho. to bear S. dist. one mile, and steer N.N.W. (N.22°W.) to pass Willoughby's Lt. Boat a little on the Port bow. If the tide is running Flood, steer 1 point more to the Southd. if ebb 1 point more to the Northd. As Old Point Lt. Ho. opens to the Northwd. of the Lt. Boat change courses gradually for the Lt. Ho. leaving the Lt. Boat two or three ships lengths to the Southd. When the E. end of Rip Raps is on with Sewells Pt. steer midway between the Rip Raps and Old Pt. Lt. Ho. for Hampton Roads and anchor in from 7 to 10 fms. Old Point Lt. Ho. bearing from N.E. by N. to N.N.E. dist. one mile or three miles. Moor with open hawse to the Northwd. & Eastwd.

If bound to Baltimore. Bring Cape Henry Lt. Ho. to bear S.S.E. dist. 2 miles, or just shut in the beach to the Southd. of it. Steer N.N.W. till Rock Lt. Ho. bears S.W. by W. then a N.E. course will clear Wolf Trap Lt. Boat, and narrow close to Smiths Pt. Lt. Boat, leaving Woodrull Pt. Lt. Boat on the Port hand. From Smiths Pt. Lt. Boat bearing West, dist. 1 Mile, to Pt. Lookout bearing West, dist. 8 miles the course is N.W. From thence steer N. by W. ½ W. to Cove Pt. Lt. Ho. bearing West dist. 11 miles. From this bearing, change course to N.N.W. till Sharpes Id. Lt. Ho. comes to bear W. by S. ½ S. Steer for Poplar Id. Lt. ... from Poplar Id. steer N. by E. ½ E. ... ay lower ... Upper S. Ho. Bank Buoy, then a N.N.W. course leads to Entrance Buoy, near the mouth of the Patapsco River.

Name and Locality	Latitude	Longitude West from Greenwich	Longitude West from Washington
Cape Henlopen Light House	38° 46' 55"	75° 06' 45"	5° 09' 33"
Egg Island Light House	39° 10' 31"	75° 22' 01"	5° 09' 28"
Reedy Island Light House	39° 30' 00"	75° 33' 45"	5° 09' 21"
Assateague Light House	37° 53' 15"	75° 24' 15"	5° 07' 46"
Cape Henry Light House	36° 55' 59"	76° 00' 15"	5° 08' 08"
Smith's Point Light House	37° 55' 15"	76° 15' 35"	5° 08' 40"
Sharp's Island Light House	38° 30' 45"	76° 22' 35"	5° 07' 35"
Poole's Island Light House	39° 17' 23"	76° 25' 44"	5° 06' 03"

Statute Miles
Nautical Miles
Scale of Yards

Abbreviations used in the bottoms of this Map

Materials in Capitals	Colors or Shades two small letters	Fine or coarse two small letters
M for Mud	bk.-for Black	hrd.-for hard
S. - Sand	wh. - white	stf. - soft
G. - Gravel	rd. - red	blu. - blue
Sh. - Shells	yl. - yellow	crs. - coarse
F. - Fiddler	gy. - grey	stky - sticky
Sp. - Spooks	bu. - blue	brk. - broken
C. - Clay	dk. - dark	sml. - small
	lt. - light	
	br. - brown	

Note. The principal materials and their qualities are represented by larger letters than the subsidiary.

Var. 2°58' W.

Engd by J.E.N. Throop, A.C. Kondrup & R. Ogsbie.

Reduced & Drawn by A. Boschke