Electrotype Copy No. 1 by G. Mathiot U.S.C.S.

PRELIMINARY CHART
OF PART OF
THE SEA COAST OF VIRGINIA
AND
ENTRANCE TO CHESAPEAKE BAY

From a Trigonometrical Survey

under the direction of A. D. BACHE Superintendent of the

SURVEY OF THE COAST OF THE UNITED STATES

Triangulation by JOHN FARLEY Assistant

Topography by G. D. WISE Assist. & J. SEIB Sub. Assistant

Hydrography by the Party under the command of

Lieut. J. J. ALMY U.S.N. Assist.

Scale 1/200,000

1855

COAST SURVEY OFFICE U.S.
Price 20 cents

Verified
H. W. Benham, Capt. of Engrs.
Asst. C.S. In charge of Office.

TIDES

Corrected Establishment, Old Point Comfort .... VIIIh XVIIm
Rise of Highest Tide observed above the plane of reference .... 4.8 Ft.
Fall of Lowest Tide .... *do* .... *below* .... *do* .... *do* 1.7
Fall of Mean Low Water of Spring Tides below .... *do* 0.6
Height of Mean Low Water of Neap Tides above .... *do* 0.1
Mean Rise and Fall of Tides 2.5
Mean .... *do* .... *of Spring Tides* 3.0
Mean .... *do* .... *of Neap Tides* 2.0
Mean Duration of Rise | *Reckoning from the middle of one* 6h 01m
Mean .... *do* .... *of Fall* | *stand to the middle of the next* 6h 25m
Mean .... *do* .... *of Stand* 0h 14m

Mean Rise and Fall of Tides at Metomkin Inlet 3.5 ft. – at Wachapreague Inlet 3.8 ft. – and at Ship Shoal Inlet 3.1 ft.

Abbreviations used in the bottoms of this Chart

Materials in Capitals	Colors or Shades two small letters	Other qualities three small letters
M. for Mud	bk. for black	hrd. for hard
S. - Sand	wh. - white	sft. - soft
G. - Gravel	rd. - red	fne. - fine
Sh. - Shells	yl. - yellow	crs. - coarse
P. - Pebbles	gy. - grey	brk. - broken
Sp. - Specks	bu. - blue	sml. - small
	dk. - dark	
	lt. - light	

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

In the description of buoys P.S. signifies perpendicular stripes – B. black and R. red.

CURRENTS

No.	Station	1st. Quarter Set	1st. Quarter Drift	Maximum Set	Maximum Drift	3d. Quarter Set	3d. Quarter Drift	Flood or Ebb
1	Near Shark Shoal	S. 72° W. N. 45° E.	0.1 0.2	West N. 63° E.	0.2 0.2	N. 76½° W. N. 60° E.	0.1 0.2	Flood Ebb
2	East of Middle Ground	N. 50° W. N. 58° E.	0.3 0.5	N. 30° W. N. 72° E.	0.4 0.7	N. 45° W. N. 81° E.	0.3 0.4	Flood Ebb
3	1¼ mile N. of Cape Henry Lt. Ho.	N. 40° W. S. 73° E.	0.4 0.3	N. 45° W. S. 78° E.	0.8 0.8	N. 50° W. N. 80° E.	0.7 0.3	Flood Ebb
4	Lynn Haven Roads	West N. 72° E.	0.5 0.4	N. 72° W. East	1.1 1.2	N. 54° W. S. 27° E.	0.6 0.8	Flood Ebb
5	Between Tail of Horse Shoe & Horse Shoe	N. 72° W. S. 78° E.	0.8 0.8	N. 45° W. S. 59° E.	1.2 1.2	N. 27° W. South	0.9 0.6	Flood Ebb
6	Nd. & Ed. of Light Boat	N. 54° W. N. 72° E.	0.6 0.6	N. 63° W. S. 81° E.	0.9 1.7	N. 45° W. East	0.6 1.0	Flood Ebb
7	Between Old Pt. & Rip-Raps	S. 81° W. N. 81° E.	1.2 1.1	S. 72° W. N. 45° E.	1.9 1.7	S. 72° W. N. 47° E.	1.2 0.9	Flood Ebb
8	East of Back River Lt. Ho.	N. 36° W. S. 40° E.	0.7 0.8	N. 18° W. S. 18° E.	1.5 1.1	N. 9° E. S. 4° E.	1.2 0.6	Flood Ebb
9	Tail of York Spit	West S. 45° E.	0.4 0.6	N. 23° W. South	0.7 0.8	N. 5° W. S. 13° W.	0.5 0.3	Flood Ebb
10	Channel East of York Spit	N. 45° W. S. 9° E.	0.3 0.8	N. 12° E. South	0.9 0.9	N. 27° E. S. 30° W.	0.4 0.5	Flood Ebb

Note. *The observations were made as far as practicable when the influence of the wind was small. The bearings are True. The drifts are in Nautical miles, shown on the chart by figures near the ends of the current arrows.*

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 5¼ fms. The channel between Cape Henry and the Middle Ground is about 4½ miles wide. Large class vessels working in or out must beware of the 3½ fms. shoal lying 3½ miles Northwd. & 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 Southwd. & Eastwd. standing to the Northwd. till Willoughby's Pt. woods ranges with, or opens to the Northwd. of Cape Henry, deepens the water into Cape Henry Channel, and the bottom changes from hard to sticky and soft. Approaching from the Northwd. & Eastwd. inshore, after passing Smith's Id. Lt. Ho. keep it well open with the woods to the Southwd. keeping in not less than 3½ fms. to avoid Nautilus Shoal. Vessels making the land to the Southwd. of Cape Henry during a strong North Wester should not approach it nearer than 8 miles, as the ebb tide then sets strong to the Southwd. along shore. Stretch well off on the Port tacks, and bring Cape Henry to bear West. The woods of Smith's Id. appear broken and uneven from a distance seaward when bearing from W.¼N. to W.¼S. with other bearings they appear even and solid.*

If bound into Hampton Roads, *bring Cape Henry Lt. Ho. to bear S. dist. 1½ miles and steer W.N.W.½W. keeping Willoughby's Lt. Boat a little on the Port bow. If the tide is running flood, steer ¼ point more to the Southwd. if ebb ¼ point more to the Northwd. As Old Pt. Lt. Ho. opens to the Northwd. of the Lt. Boat change course gradually for the Lt. Ho. leaving the Lt. Boat two or three ships lengths to the Southwd. When the E. end of Rip Raps is on with Sewall's Pt. steer midway between the Rip Raps and Old Pt. Lt. Ho. for Hampton Roads, and anchor in from 7 to 10 fms. Old Pt. Lt. Ho. bearing from N.E.¼N. to N.E.¼E. dist. one two or three miles. Moor with open hawse to the Northwd. & Eastwd. Keeping Old Pt. Lt. Ho. a little open to the Southwd. of the Lt. Boat clears the Tail of the Horse Shoe, and when within three or four miles of the Lt. Boat keeping it in range with the Lt. Ho. carries clear of the Southern edge of the Horse Shoe. When beating in the neighbourhood of the Lt. Boat, beware of the Thimble on the opposite side of the channel bearing from it N. by E. & N.N.E. from Old Pt. Lt. Ho. E. by N. and Old Pt. Comfort Sand Hill East.*

If bound to Baltimore *bring Cape Henry Lt. Ho. to bear S.S.E.½E. dist. 2 miles, or just shut in the beach to the Southwd. of it. Steer N.N.W.¾W. till Back R. Lt. Ho. bears S.W. by W. then a N.¼E. course will clear Wolf Trap Lt. Boat. The soundings decrease gradually in approaching the Horse Shoe, but change suddenly on the W. side of the Middle Ground. If bound into York R. the lead and compass must be the principal guides. Keep the Port hand going in, as on that side the soundings decrease gradually, but it is steep to on the side of York Spit.*

To enter by the N. Channel. *It is better for steamers than sailing vessels as the ebb tide runs strong and there are cross tides. Bring Smith's Id. Lt. Ho. to bear N. dist. 3½ miles and the W. end of Smith's Id. N.W.¼W. dist. 3 miles being in 3 fms. water. Steer W.¼S. keeping the breakers on the Starbd. hand from ½ to a mile dist. This course leads about midway between the Isaacs Breakers and Nautilus Shoal crossing 15 ft. When Guy's Pt. (the Northernmost point of trees in sight) just opens to the Westwd. of the N. end of Fisherman's Id. haul to the Northwd. and steer with the Pt. a little on the starbd. bow (passing Fisherman's Id. ¼ mile dist. on the Starbd. hand) till abreast of Butler's Bluff, when haul to the Northward & Westward. Keep the lead going while passing through. There is a shoal of 11 ft. on the range of E. end of Fisherman's Id. on with W. end of the Isaacs. Entering N. Channel from the Southwd. and Westwd. to clear the S. end of the Inner Middle, keep Richardson's House (the nearest to Cape Charles with a poplar by it) over and to the Eastwd. of the N. end of Fisherman's Id. To avoid the North end of the Inner Middle keep the S. W. end of Smith's Id. shut in with the point of woods at Cape Charles.*

Coming down Chesapeake Bay bound into Hampton Roads to avoid the Thimble and other shoal water on the Horse Shoe, bring Willoughby's Lt. Boat and the Rip Raps in range. If bound from Hampton Roads to James R. keeping the S.E. angle of Ft. Monroe just open to the Southwd. of Old Pt. Lt. Ho. clears Hampton Bar, and the shoal water further up Willoughby's Point just shut in to the Southwd. of Sewall's Pt. clears the Southern edge of Newport News Middle Ground.

Bound up Elizabeth R. to Norfolk, keep Willoughby's Lt. Boat a little open to the Northwd. of the Rip Raps, to clear the shoal between the Rip-Raps and Sewall's Pt. keep in not less than 4½ fms. as it is steep to. To clear Bush's Bluff Shoal keep Old Pt. Lt. Ho. a little open to the Westwd. of Sewall's Pt. till abreast of Bush's Bluff Woods, when haul up for the Lt. Boat leaving it on the Starbd. hand. A mark at night for having cleared the shoal is when abreast of the broad clear opening in the woods just to the Southwd. of it.

DANGERS

The attention of mariners is particularly directed to the position, extent, and depth of water on Smith's Id. and Shark Shoals and the Middle Ground as shown by the chart. There is a shoal with 16 ft. E.N.E. from False Cape dist. 1½ miles with 5½ fms. inside.

The Middle Ground *commences about 6 miles N.E.½E. from Cape Henry Lt. Ho. gradually shoaling from seaward to 4 fms. and extending to the Westwd. and Northwd. & Westwd. up the Bay 15 miles. It is very steep to on the Western side, suddenly shoaling from 7 and 6 fms. to 18 and 16 ft.*

The Horse Shoe *is a triangular shaped shoal making out from the shore between Back R. and Old Pt. The Eastern extremity, called the Tail of the Horse Shoe, is 9¼ miles from Old Pt. Lt. Ho. There is from 9 ft. to 3½ fms on the shoal.*

Willoughby's Bank *is a narrow shoal off Willoughby's Pt. and the Rip-Raps, 3½ miles long, extending E.N.E. and W.S.W. with from 6 to 13 ft. on it. There is a channel of 18 ft. between it and the S. shore.*

The Thimble *is a small but dangerous shoal with 10 and 11 ft. on the S. edge of the Horse Shoe 2½ miles E. of Old Pt. Sand Hill. There are 6 fms. close to on the S. side. A red buoy with Thimble on it marks the shoal.*

York Spit *is about a mile in width with from 5 to 13 ft. on it, extending out from between Mob Jack Bay and York R. At 5½ miles from land, there is a spot with 9 ft. at 6 miles it deepens beyond 3 fms.*

New Pt. Shoal *4 miles S.E. of New Pt. Comfort Lt. Ho. with 16 ft. on it is ¾ of a mile long, and ⅓ wide, extending E.N.E. and W.S.W.*

The Inner Middle Shoals *near Cape Charles are most deceptive and dangerous. They are 4½ miles long and from one to 1½ wide, the depth varying from 3 to 12 ft. It breaks on the shoalest part only with a swell setting from seaward.*

Nautilus Shoal *lies 2 miles S. by E.¼E. from the E. end of the Isaacs. The point of woods at Cape Charles on with Guy's Pt. is a range for it. There is 10 ft. water on it.*

NOTE

As the variation of the Compass is less than a quarter of a point in the lower part of the Bay, the courses and bearings given are True. The distances are in Nautical miles. The soundings are expressed in feet to 18 ft. or within the dotted surface, beyond it in fms. and show the depth at mean low water – the plane of reference. The characteristic soundings only, are given on the chart, they are selected from the numerous soundings taken in the survey so as to represent the figure of the bottom.

Name and Locality	Latitude	Longitude West from Greenwich Observatory In arc	Longitude West from Greenwich Observatory In time
Hog Island Light House	37° 23' 17"	75° 41' 35"	5h 02m 46s.3
Smith's Island .... do	37° 07' 48"	75° 52' 12"	5h 03m 28s.8
Cape Henry .... do .... do	36° 55' 29"	76° 00' 12"	5h 04m 00s.8

The Triangulation was executed in .... 1850-51 & 52
The Topography .... *do* .... *do* .... *in* .... 1852-53 & 54
The Hydrography .... *do* .... *do* .... *in* .... 1852-53 & 54
Variation of the Magnetic Needle at Sand Shoal Inlet in Jan. 1854 .... 2° 06' W.

Redd. Drng. by L. D. Williams, A. Shoepf, & A. Balbach

Engd. by E. Yeager, H. S. Barnard, A. Petersen, & App. R. F. Bartle

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