2861, 2866, & 2867.

Department of Commerce and Labor

COAST AND GEODETIC SURVEY

O. H. Tittmann
Superintendent.

State: Va

DESCRIPTIVE REPORT.

Hyd^C Sheet No. 2861, 2866-7

LOCALITY:

Lower Chesapeake Bay and Willoughby Bay

1906-7

CHIEF OF PARTY:

J. B. Miller

2866 2867

2866-7

Diag. Ch. No. 1222-2

Form 504

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

State:

11—5613

DESCRIPTIVE REPORT.

Hyd Sheet No. 2866-7

LOCALITY:

See Hyd. 2861

191

CHIEF OF PARTY:

2866 2867 2866-7

Department of Commerce and Labor

Coast and Geodetic Survey

O. H. Tittmann, Superintendent.

Report on

Hydrographic Sheets Field Nos. 1, 2, and 4,

Reg. Nos. 2866, 2867, 2861.

Lower Chesapeake Bay and Willoughby Bay, Virginia,

1 9 0 6 - 7.

J. B. Miller, Assistant, Chief of Party.

Department of Commerce and Labor

Coast and Geodetic Survey

O. H. Tittmann, Superintendent.

Report on

Hydrographic Sheets Field Nos. 1,2 and 4,
Reg. Nos. 2866,2867, and 2861.
Lower Chesapeake Bay and Willoughby Bay, Virginia,

1 9 0 6 - 7.

J. B. Miller, Assistant, Chief of Party.

I HAVE the honor to report as follows upon hydrographic sheets, field numbers 1,2,and 4, lower Chesapeake Bay, and Willoughby Bay, Virginia, 1907.

2. The entire work consists of resurveys and since no
RESURVEYS change whatever in the hydrographic features of the area was found; and the results merely verify the published charts, and coast pilot, it is considered desirable to report only upon the methods and control.

3. The survey depends upon the many primary triangula-
CONTROL tion points about the shores of this part of the bay. On sheet 1 the only new points used were Lin and Willoughby Spit Beacon, or ⊙ Wil; determined by triangulation for the purpose; and ⊙ Mid, a water signal of gas pipe used but one day, and fixed by sextant angles found in the sounding record of that day. On sheet 2 the new points are Buckroe Tank, or ⊙ Roe, determined by theodolite angles plotted on the sheet; and ⊙ Shoe, a gas pipe water signal determined by sextant angles found in the sounding record preceding its use. On sheet 4 the signals are from the topographic sheet of Willoughby Bay by Assistants French and Ritter in 1907.

4. The three point position was used thruout, and on
METHODS sheets 1 and 2 especial care was taken to obtain accurate sextant angles; a third observer being occupied constantly in verifying the other two alternately: the results showing the angles to be correct within one minute. This was considered to be essential, because of the great distance of some of the signals compared to the interval of 200 meters between the sounding lines. At any other season of the year it would no doubt have been possible to establish an extensive system of water signals over the lower bay: eight such signals were destroyed by storms, before any use could be made of them.

5. A system of 200 meter lines in both directions was
SOUNDINGS used, with many closer developments. In all work with the ship two leadsmen were employed, the positions being taken on the starboard sounding, as shown in the record. In many cases the exceptionally bad and rough weather during which the sounding was done must be considered in interpreting the soundings; for work during this, the most stormy season of the year, must necessarily be less accurate than in fine weather.

6. Tidal reducers for sheet 1 are found in Fisherman
TIDES Island, Thimble Shoal automatic, and Old Point Comfort records; the former being used wherever possible, with no time correction. No time correction is used for Thimble Shoal automatic gauge; but the Old Point Comfort gauge is subject to a correction of -1 hour for the whole lower bay, at this season of the year, as shown by simultaneous observations. The same remarks apply to the reducers for sheet 2, except that Thimble Shoal automatic gauge is used wherever possible. This automatic record is of little value except to furnish reducers; its accuracy being greatly impaired by the exposed location and inclement weather. Reducers for sheet 4 are found in Willoughby Spit records: at this station two gauges were in use; and there are two readings for the datum plane. All the gauges mentioned were connected by extensive simultaneous observations with the Old Point Comfort plane fixed by 26 years of observations; and the plane of reference thus well determined and marked at each station.

7. The three sheets are all completed except an area covering the Middle Ground Shoal, on the east side of sheet 1, where no cross lines were run; this portion is covered by 200 meter lines in one direction only. It should be noted in this locality that

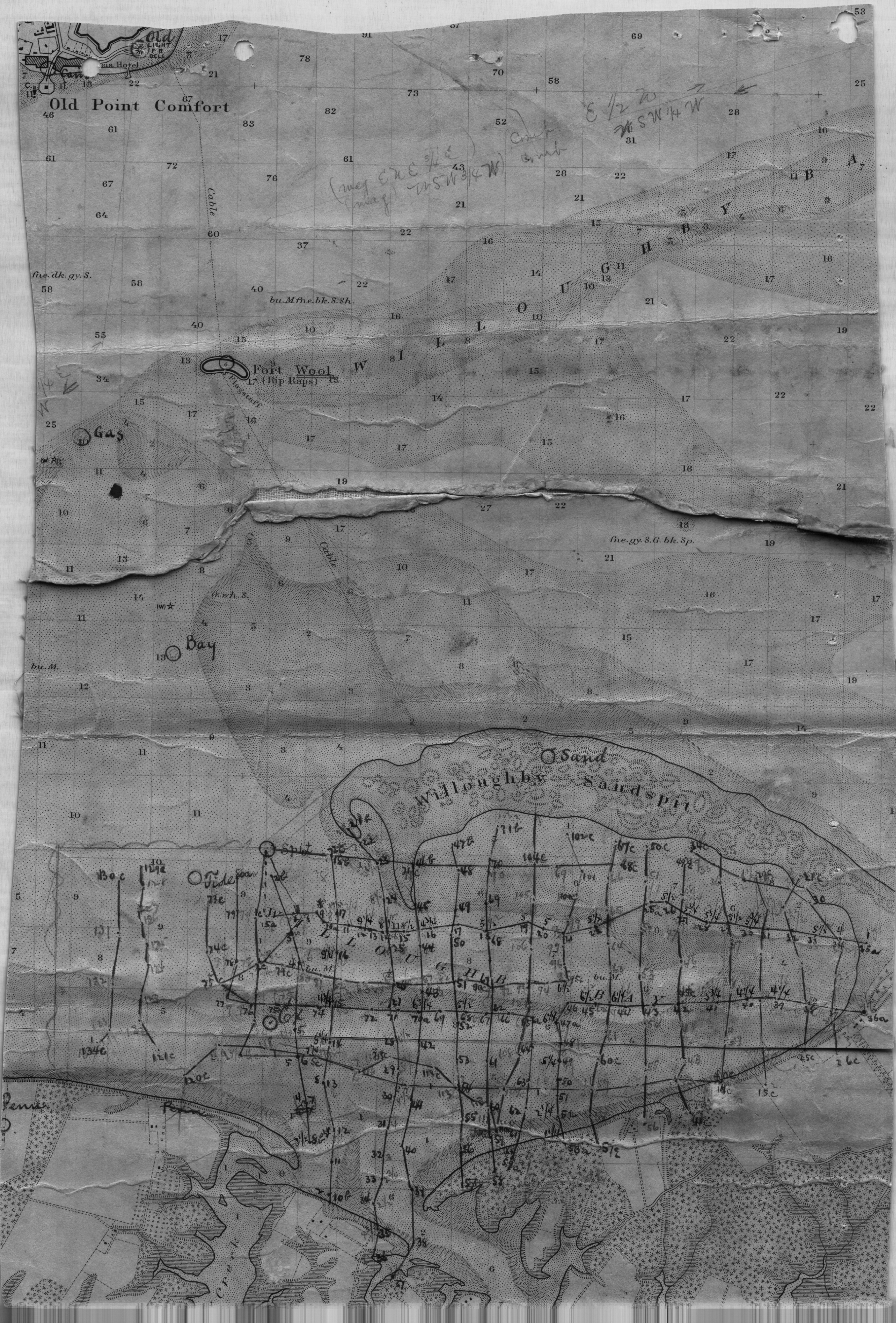
7.(cont'd) the wreck buoy shown on chart 133 about two miles west of bell buoy No. 4 does not exist: as has already been reported.

8. Regarding the commerce passing thro these wellknown waters it is perhaps superfluous to report. Vessels bound from the sea to all points in Chesapeake Bay and the James River pass thro; including all the Baltimore, Newport News, and Norfolk traffic. Willoughby Bay is used as an anchorage by the Hampton Roads Yacht Club: and as a landing place by the ferry steamer to Norfolk. At the time of the survey the entrance, north of the red beacon, had but 8 feet at low water; but dredging was in progress to deepen it to 15 feet, as a channel to the Jamestown Exposition pier.

Respectfully Submitted,

J. B. Mellen

Asst., C. & G. S.



Old Point Comfort
Fort Wool
(Rip Raps)
Flagstaff
Cable
WILLOUGHBY BAY
Willoughby Sandspit
fne. dk. gy. S.
bu. M fne. bk. S. Sh.
fne. gy. S. G. bk. Sp.
O. wh. S.
bu. M.
Gas
Bay
Sand
Spit
Tide

1982

FORM 167.

Treasury Department,

COAST AND GEODETIC SURVEY,

Washington, D. C., ..., *190*

Respectfully { *returned* / *referred* / *forwarded* } *to*

2—4548

Add Tide Note

9-24-08

Department of Commerce and Labor

Verification of Hydr Sheet 2861-

The area of the survey is fairly well covered by an irregular system of lines; but without special development of shoal indications

By direction of the Inspector of Charts, several soundings were rejected because of apparent errors of ± 1 fathom in reading lead line —

9-24-08

No. 205
(Ed. 4-20-06—500,000.)

2861

T I T L E.

Coast and Geodetic Survey

O. H. Tittmann, Superintendent,

Field Sheet 4.

H y d r o g r a p h y

of

Willoughby Spit, Virginia.

by

Party in charge of Jas. B. Miller, Assistant, C. & G. Survey.

Steamer "ENDEAVOR".

Begun March 28th 1907.

Ended April 5th 1907.

Scale, 1:10000.

(Books forwarded for plotting in the office).

Willoughby Bay,

Date.	Letter.	Vol.	Soundings,	Angles,	Miles,	hours,	Boat used.
Mar. 28,	a.	1.	~~770~~ 770	154	8.2	3.0	Whalebot.
" 28,	a.	3.	960	160	5.0	4.00	Dinghy.
" 29,	b.	1&2	1824	338	17.0	9.0	Whaleboat.
" 30,	b.	~~2&3~~ 383.	1608	268	12.2	9.0	Dinghy.
" 30,	c.	2.	672	166	14.5	3.5	Gasoline launch.
~~Mar~~ Apr. 3,	d.	4.	233.	40	1.5	1.0	Whaleboat.
" 4,	e.	4.	1451	300	11.1	7.8	Whaleboat.
" 4,	c.	5.	1125	233	8.2	6.0	Dinghy.
" 5,	f.	4.	239	60	2.4	1.0	Whaleboat.
Totals:-			8882.	1719.	80.1	44.2	

(4 Geographic square miles)

2867

ADDRESS ALL COMMUNICATIONS TO
SUPERINTENDENT, COAST AND GEODETIC SURVEY,
WASHINGTON, D. C."

EM

Department of Commerce and Labor
COAST AND GEODETIC SURVEY
Washington

2866 2867

December 4, 1907.

Hydrography in lower part of Chesapeake Bay by Steamer Endeavor, Oct. 1906 - Apl. 1907. Hydrographic sheets Nos. 2866 and 2867.

This work on being plotted in the office, is found quite defective as to crossings, and the irregularity in this respect is so extensive that it appears to be impracticable to make a satisfactory adjustment. The discrepancies are appreciable for charting purposes for depths such as are comprised in this area.

On verification of the sheets, Mr. Watkins has concluded that the defects are probably due to excessive speed of sounding vessel, as explained in attached memorandum. A large part of the work appears to have been done at a speed of 8 knots. It is doubtful if correct up and down casts can be obtained with ordinary lead and line at such speeds, even with special precautions (which there were not).

It would seem also that such extensive irregularity of crossings throughout a number of month's work, should have been noted at once and investigated by the field party.

This memorandum is submitted with suggestion that it be brought to the Superintendent's attention, in order that the officers immediately responsible for the work may be advised

for their information, and that similar defects both as to speed of sounding and as to failure to keep sufficient track of the work at the time it is done be guarded against either by general or specific instructions as to hydrographic work.

Chief of D. & E. Division.

Sheet No. 2.

U. S. Coast and Geodetic Survey,

O. H. Tittmann, Superintendent,

H Y D R O G R A P H Y

of

Lower Chesapeake Bay ~~and the Horseshoe,~~
The Horseshoe and Vicinity
Virginia

by the

Party in charge of Jas. B. Miller, Assistant, C. & G. Survey.

Str. ENDEAVOR.

Begun October ~~25th~~ 1906.

Ended April 13th 1907.

SCALE

1:20000.

Soundings plotted and inked by H. L. Simons

2866

Statistics, sheet No. 2.

Date.	Letter.	Vol.	Soundings.	Angles.	Miles.	Hours.	Boat used.
06. Oct. 25,	A.	1.	851	292	29.2	8.5	"ENDEAVOR".
" 29	B.	1&2.	537	194	19.6	5.2	"
Nov. 7,	C.	2.	1089	354	35.0	8.5	"
" 8,	D.	2&3.	1335	462	41.8	8.0	"
" 13,	E.	3.	203	76	7.1	1.5	"
" 16,	F.	3.	646	208	20.0	5.0	"
" 17,	G.	3&4.	1451	468	41.0	7.8	"
" 19,	H.	4.	265	86	9.0	1.8	"
" 21,	I.	4.	288	74	8.0	1.2	"
" 22,	K.	4.	654	216	21.0	5.5	"
" 26,	M.	4.	460	56	6.1	1.0	"
" 27,	N.	4&5.	1147	390	37.6	8.8	"
" 28,	O.	5.	320	108	10.5	2.2	"
" 30,	P.	5&6.	937	290	32.1	7.8	"
Dec. 3,	Q.	6.	124	32	2.3	.5	"
" 4,	R.	6.	313	106	9.7	2.0	"
" 5,	S.	6.	880	280	30.0	8.0	"
" 10,	U.	6.	86	30	3.2	.5	"
" 12,	V.	6.	514	170	17.8	4.2	"
" 13,	W.	6&7.	1002	320	32.5	7.8	"
" 14,	X.	7.	742	230	25.0	6.2	"
" 17,	Y.	7.	153	56	5.0	.8	"
" 22,	Z.	7&8.	795	270	27.0	8.0	"
" 26,	A'	8.	369	124	12.8	2.5	"
" 27,	B'	8.	404	142	15.5	3.2	"
" 28,	C'.	8.	555	184	19.0	4.5	"
07. Jan. 2,	D'.	8.	259	86	9.3	2.2	"
" 4,	E'.	8&9.	268	86	7.6	1.8	"
" 10,	G'.	9.	229	74	7.7	1.2	"
" 21,	H'.	9.	1097	362	34.5	8.2	"
" 24,	I'.	9.	341	84	8.8	2.0	"
" 29,	K'.	9.	317	106	9.7	2.5	"
" 31,	L'.	9&10.	564	190	17.9	4.0	"
Feb. 5,	M'.	10.	336	122	12.3	1.5	"
" 8,	N'.	10.	964	324	31.5	4.2	"
" 11,	O'.	10&11.	813	288	30.2	3.8	"
" 12,	P'.	11.	776	262	27.2	4.0	"
" 15,	Q'.	11&12.	1727	604	58.0	8.0	"
18,	R'.	12.	1033	344	22.9	5.2	"
" 28,	S'.	12&13.	1112	334	39.9	5.2	"
Mar. 4,	T'.	13.	661	238	23.8	4.3	"
" 7,	U'.	13.	199	64	6.5	.8	"
" 11,	V'.	13.	172	50	6.0	.8	"
" 16,	X'.	13.	44	18	1.6	.2	"
" 20,	Z'.	13&14.	778	261	25.8	5.2	"
" 21,	Y'.	14.	770	266	27.3	5.5	"
Apr. 8,	C".	14.	121	42	4.0	.5	"
" 10,	D".	14.	676	212	22.4	3.8	"
" 11,	E".	14&15.	1795	608	59.4	8.2	"
" 13,	F".	15.	98	32	3.2	.4	"
Totals:-			31,270	10,275	1015.3	204.5	

75 Square statute miles

2866

VEC
May 11,1907.

HYDROGRAPHIC SHEET No. 2866.

Lower Chesapeake Bay, The Horseshoe and Vicinity, Virginia, by Assistant J. B. Miller in 1906-7.

TIDES

	Old Point Comfort	Thimble Shoal Light House	Northend Point
	ft.	ft.	ft.
Mean low water, or plane of reference on staff	0.1	1.8	1.6
Lowest tide observed " "	-3.1	0.4	0.9
Highest " " " "	7.8	5.3	5.5
Mean range of tide	2.5	2.5	2.3

Applied - Hyg - 12/9 -07

2866

EM

Department of Commerce and Labor

COAST AND GEODETIC SURVEY

Washington

2867

December 4, 1907.

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Chief of D. & E. Division.

Sheet No. 1.

2867

U. S. Coast and Geodetic Survey,

O. H. Tittmann, Superintendent,

H Y D R O G R A P H Y

of

Lower Chesapeake Bay ~~and the Middle Ground~~, The Middle Ground and Vicinity Virginia

by the

Party in charge of Jas. B. Miller, Assistant, C. & G. Survey.
Str. ENDEAVOR.

Begun October 25th 1906.

Ended April 15th 1907.

SCALE

1:30000

Plotted by A. L. Simons

Statistics, Sheet No. 1.

Date.	Letter.	Vol.	Soundings.	Angles.	Miles.	Hours.	Boat used.
06-10-25,	A.	1.	466	162	15.8	2.2	"ENDEAVOR".
29	B.	1.	432	74	9.0	1.5	"
11-7	C.	1.	493	164	16.1	2.5	"
8,	D.	1.	555	166	15.0	2.0	"
13,	E.	1&2.	523	186	17.5	2.8	"
16,	F.	2.	616	206	19.2	3.8	"
21,	I.	2.	711	232	21.0	3.2	"
22,	K.	2.	372	104	12.0	2.0	"
23,	L.	2.	198	54	5.7	1.0	"
26,	M.	2&3.	573	204	21.9	4.0	"
27,	N.	3.	501	170	13.8	2.5	"
28,	O.	3&4.	1272	429	39.7	4.2	"
12-3,	Q.	4.	747	245	24.4	3.8	"
5,	S.	4.	492	170	15.8	2.2	"
6,	T.	4.	660	208	17.2	2.5	"
10,	U.	5.	853	294	29.0	3.5	"
17,	Y.	5.	288	106	9.5	1.5	"
26,	A'.	5.	588	192	19.2	3.8	"
27,	B'.	5&6.	804	258	26.2	4.2	"
07-1--9,	F'.	6.	494	218	21.7	3.5	"
10,	G'.	6.	1060	414	35.3	4.2	"
21,	H'.	7.	620	200	19.7	3.8	"
24,	I'.	7.	679	236	23.5	3.2	"
31,	L'.	7.	658	228	21.8	3.5	"
2--11,	O'.	7&8	987	348	32.3	4.8	"
12,	P'.	8.	733	222	22.3	4.2	"
18,	Q'.	8&9.	647	238	23.0	4.0	"
3--4,	T'.	9.	759	266	26.4	3.5	"
7,	U'.	9&10.	1456	510	46.5	6.5	"
11,	V'.	10.	1648	502	49.8	7.2	"
12,	W'.	10&11.	1241	432	42.9	5.5	"
16,	X'.	11.	583	178	18.5	3.5	"
19,	Y'.	11.	746	258	27.0	3.0	"
20,	Z'.	11&12.	819	289	27.6	3.2	"
21,	A".	12.	987	358	34.7	4.0	"
26,	B".	12.	338	108	11.5	1.2	"
4--8,	C".	13.	560	176	19.0	2.5	"
13,	F".	13.	1395	484	48.1	6.8	"
15,	G".	13&14.	918	356	35.8	4.8	
Totals:-			28,372	9649	935.3	135.1	

74 Square statute miles.

2867

V.E.C.
May 11, 1907.

HYDROGRAPHIC SHEET NO. 2867.

Lower Chesapeake Bay, The Middle Ground ~~Light House~~ and Vicinity, Virginia, by Assistant J. B. Miller in 1906-7.

TIDES

	Fisherman Island	Thimble Shoal Light House
	ft.	ft.
Mean low water, or plane of reference on staff	2.1	1.8
Lowest tide observed " "	0.9	0.4
Highest " " " "	6.1	5.3
Mean range of tide	2.8	2.5

Applied A. Ege 11/25-07

Fort Monroe

OLD LIGHT F.R. BELL

fine. blk. wh. S.

Old Point Comfort

FORBIDDEN ANCHORAGE

Cable

crs. fine. dk. gy. S.

bu. M fine. blk. S. Sh.

Fort Wool (Rip Raps)

Gas

dk. gy. S. fine. G.

MAGNETIC COMPASS

bu. M.

Hampton Roads Yacht Club

Yacht Club (capped tower)

Willoughby Spit

Tide

WILLOUGHBY

Penna. State Bldg Tower

Auditorium Dome

Sewall Pt.

Sewall Pt.2

Boat Basin

hyd c 2861

Willoughby Spit

Drawn by B. Miller 1907 - 12 mos