

4610

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Form 504

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
E. LESTER JONES, Director

C. & G. SURVEY
L. C. A.
MAR 22 1927
Acc. No.

State: New Jersey

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. ²¹
Hydrographic } 4610

LOCALITY

Sandy Hook
~~Off Sandy Hook, N. J. Coast~~

Off Sandy Hook and Sandy
~~Hook and Raritan Bays~~

Hook and Raritan Bays

192 6.

CHIEF OF PARTY

R. F. A. Studds

GOVERNMENT PRINTING OFFICE

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET "21"

Off Sandy Hook, and Lower New York Harbor, Sandy Hook and Raritan Bays.

INTRODUCTION

This sheet comprises test lines and development of charted shoals in Raritan and Sandy Hook Bays, Lower New York Harbor and inshore development and test lines east of Sandy Hook.

The scale is 1 to 20,000.

METHODS, ETC.

Test lines east of Sandy Hook covered the area surveyed by Lt. Comdr. F. G. Engle in 1915 and was for the purpose of determining what changes had occurred since that date. These were spaced a mile apart, running east and west.

The inshore development east of Sandy Hook was for the purpose of charting the depths in a small area near the beach, west of the 1915 survey. Lines were run in this area parallel to the beach, getting in as closely as possible without endangering the launch. A motor dory would probably have been more suitable for work of this nature, and might have been able to go in closer.

The remaining work consisted of running lines along the axes of various channels entering New York Harbor, test lines along ridges in Sandy Hook and Raritan Bays and across the bar of False Hook Channel, and the development of various shoal spots selected from depths shown on Chart 369.

The Launch ELSIE was used for all the sounding with the exception of an examination for ruins of an old pier off Shoal Harbor, which was done with the skiff and an outboard motor. A phosphor-bronz center, mahogany hand lead line was used with a 12 lb. lead in deep water and a 7 lb. lead in shoaler water.

CONTROL

Objects located by triangulation and topography this season, and recovered triangulations stations were used for the control of the survey. Sextant angles, taken simultaneously by two observers were used for fixing the position.

TIDES

An automatic gauge at Sandy Hook was kept in continuous operation thruout the period when hydrography was in operation. A series of simultaneous observations with Sandy Hook were made at Highlands to get the establishment of the latter place. A plain staff was erected at Belvedere Beach for the reduction of soundings in the western portion of the area surveyed. Currents were observed at Highlands Bridge.

RESULTS

A tracing of field reduced soundings made from the boat sheet was compared with soundings obtained from a photostat of Lt. Commander Engle's Survey of 1915 and with soundings transferred from the chart. No disagreement was found in the test lines that would warrant a resurvey. Shoal spots were well developed and in general the shoals searched for were not found. A spot which reduces to 0' was found in the investigation of the ruins in the vicinity of Shoal Harbor.

With the exception of a 4' crossing in the vicinity of Position 21B, the soundings agreed well on the cross lines. This 4' crossing was probably caused by a choppy sea.

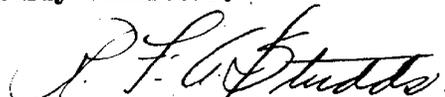
MENACES TO NAVIGATION

Wrecks along the coast of Sandy Hook and in various parts of Sandy Hook and Raritan Bays were located by topography and are shown on the topographic sheets of this season's survey. These wrecks should be charted.

AIDS TO NAVIGATION

Various landmarks for charts have been listed and are submitted with the Descriptive Report accompanying the Topographic Sheets for their particular localities. The location of buoys are given in the sounding records and attention is invited to the Chief of Party's letter dated December 16, 1926, subject: "Buoys in Lower New York Harbor and Entrance to New York Harbor", in which is given complete information concerning them.

Respectfully submitted:


R.F.A. Studds,
Jr. H & G E,
Chief of Party.

STATISTICS FOR HYDROGRAPHIC SHEET "21"

| Month, 1926 | Letter | Volume | Positions | Soundings | Miles, stat. | Vessel |
|-------------|--------|--------|-----------|-----------|--------------|--------------|
| July 22 | A | 1 | 139 | 501 | 23.7 | Launch ELSIE |
| " 28 | B | 1 | 29 | 147 | 6.0 | " " |
| August 5 | C | 1 | 16 | 71 | 3.4 | " " |
| " 10 | D | 1 | 57 | 227 | 9.2 | " " |
| " 11 | E | 2 | 36 | 130 | 5.5 | " " |
| " 30 | F | 2 | 32 | 98 | 4.3 | " " |
| September 7 | G | 2 | 63 | 265 | 8.9 | " " |
| " 10 | H | 2 | 84 | 427 | 9.9 | " " |
| " 13 | K | 2 | 33 | 145 | 3.6 | " " |
| " 13 | K | 3 | 14 | 74 | 2.1 | " " |
| " 14 | L | 3 | 12 | 65 | 1.8 | " " |
| " 15 | M | 3 | 82 | 386 | 10.4 | " " |
| " 29 | N | 3 | 27 | 126 | 4.0 | " " |
| Totals..... | | | 624 | 2662 | 92.8 | |

April 12, 1927.

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Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET 4610

Locality: NEW JERSEY.

Chief of Party: R.F.A. Studds

Plane of reference is M L W

2.5 ft. on tide staff at Sandy Hook

2.4 ft. do Belvedere Beach.

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of each day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

R.F.A. Studds
Chief, Division of Tides and Currents.

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 11-DFM

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

December 27, 1927.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4610

Sandy Hook and Raritan Bays, New Jersey

Surveyed in 1926

Instructions dated May 7, 1926 (R. F. A. Studds)

Chief of Party, R. F. A. Studds.

Surveyed by R. F. A. S.

Protracted by R. F. A. S.

Soundings plotted by K. G. Crosby.

Verified and inked by F. B. Kelly.

1. The records conform to the requirements of the General Instructions. Notes in the sounding books were copious and comprehensive.
2. The plan and extent of development followed closely that outlined in the specific instructions.
3. As the survey merely consisted of test lines to determine what changes have taken place and investigation of various charted shoals, complete depth curves cannot be drawn.
4. The sounding line crossings are generally good. ~~There is a 4-foot difference in crossings at the junction of the main channel and the south channel. This is explained by the Chief of Party as having been caused by a choppy sea.~~
5. The usual field plotting was done by the field party and was excellent.
6. The following information can be deduced from this survey:
 - a. The charted 4 foot sounding (authority, blueprint 16121 - (1916)) north of Keyport does not appear to have been sufficiently developed to warrant expunging from the charts. A very careful plotting from the original blueprint places the sounding about midway between two sounding lines 90 meters apart and on which

7 and 8 feet were obtained. While no indication of shoaling was noted on these lines it should also be remembered that on the blueprint the nearest line to the 4 foot spot was only 42 meters away and yet it showed no indication of shoaling. Later blueprints in this vicinity do not cover the spot. It is recommended that the 4 foot spot be retained on the charts until a further examination is made.

b. The 4 foot spot about 800 meters N.N.W. of Conaskonk Point (authority H. 1712) appears to be sufficiently disproved to remove from the charts.

c. The test lines run along the ridge north of Conaskonk Pt. show practically no change from the 1886 survey (H. 1712) and no additional work would seem to be necessary.

d. The test lines along the ridge north of Point Comfort show a deepening of 1 to 2 feet in the vicinity of the 30 foot curve. The 12 foot curve appears to have receded slightly. Inshore of this very little change appears to have taken place.

e. The charted 15 foot spot about 1 3/4 miles northeast of Point Comfort (authority H. 1712) is adequately disproved and should be removed from the charts.

f. The charted 10 foot spot between the 12 and 18 foot curves about 1 1/4 miles northeast of Point Comfort is adequately disproved and should be removed from the charts. The authority for this sounding is unknown. It does not appear on any of the Survey's field sheets. It first appeared on the charts sometime between 1883 and 1889 and probably came from some report not readily available at the present time.

g. The charted 10 foot spot about 3/4 mile NNE. of Conover Beacon was closely developed and found not to exist. It can therefore be removed from the charts. The authority for this sounding is the same as that mentioned for the 10 foot spot under (f) above.

h. The test lines over the flat to the north of Atlantic Highlands indicate a deepening of 1 to 1 1/2 feet from the survey of 1886 (H. 1712). The 18 foot curve moves inshore about 800 meters.

i. The charted 11 1/2 foot spot about 1/4 mile east of the end of the wharf at Atlantic Highlands (authority, H. 1712) was closely developed, but no indication of such depth was found. It should be noted, however, that although the development on the present survey is close, the development on the old survey was also close, three 11 1/2 foot soundings having been obtained within a space of 90 meters. It is therefore recommended that the 11 1/2 foot sounding be retained until a further examination definitely disproves its existence.

j. The test lines to the east of Sandy Hook show no marked change from the survey of 1915 (H. 3777) except at the southern end of False Hook and in False Hook Chammel just westward. The test lines in this vicinity indicate a deepening of from 1 to 5 feet.

k. The charted 19 foot sounding about 600 meters W x S of Sandy Hook (authority, blueprint 19208) cannot be considered as disproved by this survey and should be left on the charts until further examination. A careful transfer of the 19 to this sheet throws it in a blank area with soundings 50 to 75 meters away.

l. The charted 30 foot sounding on the Main Channel range in latitude $40^{\circ} 28 \frac{3}{4}'$, longitude $74^{\circ} 00 \frac{1}{2}'$ (authority, blueprint 19208) appears to no longer exist. Depths of 37 to 40 feet were obtained here although a 32 foot sounding surrounded by deeper water was found about 80 meters to the south of this point.

m. Test lines in the Main Channel show no radical changes. A slight deepening seems to have taken place near the range of the West Chammel.

n. Test lines in West Channel show a deepening of 1 to 4 feet over the present charted depths.

o. A comparison of the test lines in Swash and South Channels with the latest edition of chart No. 369 shows a general deepening throughout. It should be noted in particular that the 22 foot sounding on the range in South Chammel and about $1 \frac{3}{4}$ miles northwest of Scotland Light Vessel seems no longer to exist. Also, the 20 foot sounding on the range in Swash Channel and about $\frac{1}{2}$ mile southeast of Rooster Shoal Light seems no longer to exist. In each of these cases, however, the development is not sufficiently complete to warrant removing them from the charts.

p. The soundings taken off Port Monmouth to investigate the ruins of a pier shown on the present charts would seem to indicate that the foundation probably still exists. A rock with zero feet at M.L.W. was obtained in the vicinity of the ruins and, as stated in the sounding record (Vol. 3, page 15), may be part of the ruins shown on the chart. It is also observed by the surveyor that such shoals might easily be missed with the sounding pole and "probably the old foundation still exists." Therefore it is recommended that the ruins of the pier still be retained on the charts.

7. Attention is called to the fact that in lat. 40° 27' 1500 meters, long. 74° 07' 270 meters, a 3 foot sounding exists (authority, H. 1712, position 11 D blue) which has never been shown on the Survey's charts. Although the sounding is questioned in the original record it is not certain whether the field party doubted it or whether the office draftsman did. The surrounding soundings would seem to indicate that an error of 1 fathom was made in reading the headline, but there is nothing to prove this and it is recommended that a 3 foot sounding be shown on the next edition of chart 369 unless in the meantime an examination disproves its existence. It should be noted that the 3 1/4 foot sounding was erroneously plotted on the original sheet (H. 1712). The sounding was taken on position (11 D) and the line continued for an additional sounding. Therefore the 3 1/4 belongs where the 8 was plotted. The 8 should be omitted as the time when the sounding was taken is not recorded and its position is therefore indefinite. The correct location is now shown on the sheet.
8. Additional work is required in the places enumerated in the preceding paragraphs. A study should be made of the various changes that have taken place in this locality as outlined above and if considered of sufficient importance a resurvey should be made of these areas.
9. Character and scope of field operations - good.
Field drafting - excellent.
10. Reviewed by A. L. Shalowitz, November, 1927.

Approved:

A. L. Giacomin

Chief, Section of Field Records (Charts)

L. O. Pollock

Chief, Section of Field Work (H. & T.)

Memorandum -

In chart correction use only developments on shoals and new hydrography. All other sounding lines are informatory test lines.

A. L. G. 100

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 11-DRM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

November 5, 1927.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4610

Sandy Hook

Surveyed in 1926

Instructions dated

Chief of Party, R. F. A. Studds.

Surveyed by R. F. A. S.

Protracted by R. F. A. S.

Soundings plotted by K. G. Crosby.

Verified and inked by F. B. Kelly.

1. The records conform to the requirements of the General Instructions.
2. Since this is a special job, i.e., test lines and developments of charted shoals, the plan and character of development are peculiar to this one job.
3. Shoal development crossing lines show a good agreement.
4. Few depth curves could be drawn.
5. One hundred and ninety fixes were checked and none were found wrong.
6. There are no junction sheets.
7. Field drafting - excellent.
8. Report by F. B. Kelly, November, 1927.

Approved:

Chief, Section of Field Records (Charts)

Chief, Section of Field Work (H. & T.)

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 4610

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 21

REGISTER NO. 4610

State.....New Jersey.....

General locality.....**Sandy Hook**
~~North East Coast of New Jersey~~

Locality.....**Off Sandy Hook and Sandy Hook and Raritan Bays**
~~off Sandy Hook and Lower New York Harbor, Sandy Hook to Keyport, N.J.~~

Scale 1-20,000..... Date of survey.....July-²²September 29, 192 6

Vessel.....Launch ELSIE.....

Chief of Party.....R.F.A. Studds.....

Surveyed by.....R.F.A. Studds.....

Protracted by.....R.F.A. Studds.....

Soundings penciled by.....K. G. Crosby.....

Soundings in ~~fathoms~~ feet

Plane of reference.....Mean Low Water.....

Subdivision of wire dragged areas by.....-.....

Inked by.....

Verified by.....

Instructions dated.....May 7....., 192 6.

Remarks:.....Tracing showing comparison with previous surveys
.....submitted with this sheet.....