

5307

5307

Form 504
U. S. COAST AND GEODETIC SURVEY
DEPARTMENT OF COMMERCE
DESCRIPTIVE REPORT

Type of Survey *Hydrographic*
Field No. Office No. *5307*

LOCALITY
State *New York*
General locality *Hudson*
Locality *River*

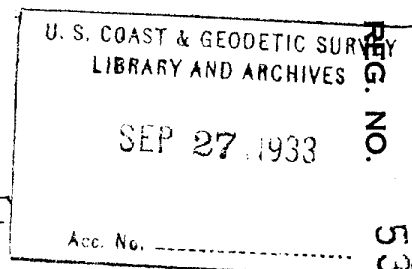
1983
CHIEF OF PARTY
C. A. Egnor

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DATE

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

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. 1

REGISTER NO. 5307

State New York

General locality Hudson River est. point

Locality Con Hook to Constitution I.

Scale 1/5:000 Date of survey July, 1933

Vessel M. V. NATOMA

Chief of Party C. A. Eger

Surveyed by C. R. Bush, J. C. Sammons

Protracted by F. A. Nielsen

Soundings penciled by C. A. Eger

Soundings in ~~fathoms~~ feet

Plane of reference Hudson River Datum

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated May 17, 1933, 19

Remarks:

D E S C R I P T I V E R E P O R T

T O A C C O M P A N Y

H Y D R O G R A P H I C - S H E E T 1 (F I E L D)

H U D S O N R I V E R , N E W Y O R K

P R O J E C T N O . 1 4 7 , 1 9 3 3

M . V . N A T O M A

C . A . E G N E R , C O M ' D G

I N S T R U C T I O N S
A N D A U T H O R I T Y :

The work on this sheet was done as a part of the season's work on Combined Operations by the Motor Vessel NATOMA on the Hudson River from June to November 1933. Since it was a continuation of the work done on this project in the Summer's of 1930 and 1932 and was executed under similar conditions, the instructions for the previous work were considered to apply. Therefore, excepting the case of tidal observations, the Instructions for which were date June 18, 1933, no definite instructions govern the area surveyed this year.

*July 22, 1930
NATOMA*

L I M I T S :

The work done on this sheet joins and overlaps the work of this party on sheet No. 5^{H-5286} of last seasons work (1932) at the south, and to sheet No. 2^{H-5308} of this seasons work to the north. It extends from Con Hook Light to Constitution Island, and hydrography was done from the east to the west shore line within this area.

SURVEY
METHODS:

Most of the work on this sheet was done with the Motor Launch and usual hydrographic party. In areas too shoal for the Motor Launch, the large skiff and outboard motor were used. Both hand lead and machine soundings were used on this sheet. As there is considerable current in this area all hand lead soundings were taken either at slack water or with the launch running at dead slow speed with the current. As it was necessary to kill the headway of the launch before machine soundings could be taken, sounding lines were run in both directions while sounding by this method. ✓

Sounding lines were spaced 50 meters apart and run parallel to the channel. ✓

TIDES:

All soundings on this sheet were reduced for tide from data obtained from portable automatic gages located at Highland Station and at Cold Spring, N.Y. A line was arbitrarily drawn due east from West Point Light and all soundings south of this line were reduced from data obtained from the Highland Station gage while all soundings north of this line were reduced from data obtained from the Cold Spring gage. The tide staffs of both of these stations were tide to the Bench Marks of the line of First Order levels along the New York Central Railroad and no appreciable discrepancy was noted in plotting the soundings from using this method.

CHANGES
NOTED:

No natural changes in depth from previous surveys were noted, except that this party did not obtain a sounding as deep as the deepest one shown on the chart. The road bed of the New York Central Railroad has been widened to accomodate 4 tracks and fills have been widened, resulting in some change in the shore-line. ✓

DANGERS
TO NAVIGATION:

The rock shown at the northern limits of the sheet and north of Triangulation Station Constitution Island is further developed on sheet No. 2. South from Triangulation Station ALE there is a

submerged breakwater of rock awash at extreme Low Water. It is in shallow water and of little importance. Topographic Signal SLIP is the stack of a ferry boat which is sunk in ferry slip. Buoys mark the limits of the shoal areas off Topographic Signals FUN and SLIP.

STATISTICS:

Statute miles of sounding lines	65.5
Number of soundings	1729
Number of positions	730

CONTROL:

Good control for this sheet was furnished by numerous triangulation stations, supplemented by well located topographic signals.

GENERAL:

Most of the launch work on this sheet was done with Mr. Bush in charge of the launch. Some of the developing and all of the skiff work was done with Mr. Sammons in charge. Soundings were taken along the face of all docks, and sub-plans showing sketches of the docks with soundings plotted in their proper place, are shown in pencil on the smooth sheet with arrows pointing to their proper location.

Attached to and forming a part of this report are List of Signals, Tidal Data sheet and Statistics Sheet.

Respectfully submitted,

Jack C. Sammons
 Jack C. Sammons
 Hyd. & Geod. Engr.

Approved and forwarded;

C. A. Egner
 C. A. Egner
 Chief of Party.

Hydrographic Sheet No. 1

Soundings between the following numbered positions, and on the days noted, were reduced from the gage at Cold Spring; all others on this sheet were reduced from the gage at Highland Station.

a day, Positions $5\frac{1}{2}$ to 33, $43\frac{1}{2}$ to 83
b " " 1 to 13, $79\frac{1}{2}$ to 107, $173\frac{1}{2}$ to 184
c " " $30\frac{1}{2}$ to $33\frac{1}{2}$, $100\frac{1}{2}$ to 102.
d " " 1 to 12
e " " 1 to 69, 92 to 97, 104 to 106.
f " " 50 to 82.
g " Entire day Cold Spring Gage.

HYDROGRAPHIC STATISTICS SHEET NO. 1, HUDSON RIVER

DATE 1933	Day	Vol.	Boat	Stat.Mi. of Sn'dg. Lines	No. of Sn'dgs.	No. of Positions
July 10	a	1	M/L	8.3	161	83
July 11	b	1	M/L	18.0	362	180
July 12	c	1	M/L	10.6	208	102
July 13	d	2	M/L	10.8	291	123
July 14	e	2	M/L	11.5	309	140
July 17	f	2	M/L	5.0	274	82
July 24	g	2	M/L	1.3	124	20
Totals				65.5	1729	730

Motor Vessel NATOMA

List of signals on Hydrographic Sheet No. 1 (Field) Hudson
River, N.Y. 1933.

Located by Triangulation:

CON HOOK LIGHT (HOOK)
CHIK
DOCK
LADY
CLOK
SECOR
HARD
MONAS
MONK
BLOCKHOUSE (BLOCK)
PETE
BARRACKS
PHILLIPS (PHIL)
WEST POINT LIGHT (WEST)
JOE
WARNERS ISLAND (WAR)
EX
ZIP
CHAN
CONSTITUTION ISLAND (CON)

Located by topography:

GIRL	DEN
SIG	JAIL
SHE	BOR
TRY	TIT
BOY	FEN
FLAG	TOBY
RED	ZOO
MAN	WIRE
BE	TOD
WATCH	WIL
GAB	KID
ON	DOG
LEE	MOD
WHITE	UP
IN	BAY
BEN	PIN
GIN	SLY
BOX	PARK
ROAD	DIL
RAIL	ALE
CROSS	RICE
POLE	GO
PEG	BUL
FIRE	SIT
TO	HI
BITE	TAT
ED	RE
COW	SOB *
Ate	PO
RAT	HAM
GAS	ADD
SLIP	LIN
TALL	PAL
CUD	OX
PEN	SHORT
COP	IKE
RYE	EV
WAS	MAX
LOG	
SAL	

* SHOWN ON SHEET
NO. 2 AS "SUB"

200

October 6, 1933.

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET 5307

Locality Con Hook to Constitution Island, Hudson River, New York

Chief of Party: C. A. Egner in 1933

Plane of reference is Hudson River Datum (mean low water during lowest
1.2 ft. on tide staff at Cold Spring river stages) reading
6.9 ft. below B. M. 4

0.8 ft. on tide staff at ~~Highland Station~~ ^{Manitou}
11.6 ft. below B.M. 1 (1932)

v. s. G. B

Height of mean high water above plane of reference is 2.9 feet.

Condition of records satisfactory except as noted below:

Hammer
Chief, Division of Tides and Currents

SECTION OF FIELD RECORDS
Report on Verification of Hydrographic Sheet 5307
Con Hook to Constitution Island - Hudson River.
Surveyed in 1933.
Sounding Machine - Hand lead.
Instructions dated May 17, 1933.
Vessel M. V. Natcha. ^m

Chief of Party - C. A. Egner.
Surveyed by - C. R. Bush, J. C. Sammons.
Protracted by - F. A. Nielson.
Soundings by - C. A. Egner.
Verified and inked by - A. F. Johnson.

1. Records and Notes.

The field records were quite full and easily read and followed. Very few errors were found in signals recorded, angles, or soundings.

In a few cases rocks appeared on the smooth sheet without reference in the sounding record. All were located on the topographic sheet except one near Signal Ed, lat. $41^{\circ}22'39''$, long. $73^{\circ}57'35''$.

This rock is very close to plane and was shown on Boat sheet.

Soundings along the docks were taken but their positions with respect to the dock were not fixed by dimensions.

Bottom characteristics were not given for the deep water and were few and scattered in shallow water.

2. Accuracy of Protracting.

The smooth sheet was compared with a tracing of the boat sheet. Only a few positions were found sufficiently far off to indicate the necessity of checking. The protracting of 22 positions was verified. A few positions were in error as the verified position checked the boat sheet, time and range much better than the plotted positions. In most cases of difference from the boat sheet, the smooth sheet was found correct.

3. Plotting of Soundings.

A few errors in the plotting of soundings on the smooth sheet were found. Other soundings had to be corrected for office changes in tide reducers. No poor crossings of sounding lines were found. A few soundings appeared out of place but not in direct contradiction to others at the same point. One of these between 79c and 80c may have been recorded incorrectly. The recorded 11.2 fathoms was probably 7.2 which agrees with a sounding on an adjacent line. It was omitted in inking.

In the few cases of odd time intervals the field plotter disregarded the time and plotted soundings equally spaced. These were corrected.

4. Field Drafting.

The field drafting was of good quality, neat and legible.

Depth curves were raggedly drawn. These were smoothed and the 24 foot and 36 foot curves omitted in inking.

Special mention must be made of the large holes made in protracting. These interfered with inking soundings and gave the sheet a bad appearance.

Conclusion.

The work of the field party appears to have followed the Hydrographic Manual. In many areas, however, insufficient soundings were taken to determine the position of the depth curves. The northern limit of the sheet was well covered by the adjoining survey and some soundings were transferred so as to locate these curves properly.

Submitted by - A. F. Johnson.

Examined and approved:

Chief, Field Records Section.

Chief, Division of Charts.

Chief, Field Work Section.

Chief, Division of H. & T.

SECTION OF FIELD RECORDS

Review of Hydrographic Surveys Nos. 5307 & 5308.
Con Hook to Cornwall on the Hudson, Hudson River, New York.
Surveyed in 1932.
Instructions dated July 22, 1930 (Natoma).

Chief of Party - C. A. Egner.
Surveyed by - C. R. Bush & J. C. Sammons (H. 5307); J.C.S. (H. 5308).
Protracted by F. A. Nielson.
Soundings plotted by - C. A. Egner.
Verified and inked by - A. F. Johnson.

1. Records.

The records for these surveys are in conformity with the provisions of the Hydrographic Manual with the following exceptions:

a. The deep water area on H. 5307 is almost completely lacking in bottom characteristics. Of the two sounding volumes for this sheet the first volume and a half contains no more than a half dozen notations as to character of bottom.

b. Tide reducers were extended to the nearest foot for depths under 10 fathoms instead of the nearest half foot as called for in paragraph 134 of the Manual. These have been changed by the division of tides at the instance of the Section of Field Records and the soundings corrected accordingly.

c. Date of establishment of triangulation stations were omitted from the smooth sheet (see paragraph 23 of Hydrographic Manual).

In connection with the sounding records for these sheets it is noted that in a number of cases the notation "Rock" or "Rocks" was entered when the surrounding depth of water indicated that "rky" was probably more correct. It is wondered whether the use of the term "rock" in these cases was merely a loose use of the correct term, or whether the leadsman actually felt an isolated rock.

2. Instruction for the Project.

The work on these sheets was done as a continuation of the work outlined in the instructions issued in 1930. The plan of the survey and extent of development of the area conform in general to the instructions for the project except as follows:

a. No cross lines were run on either of the sheets. The instructions call for quarter mile cross lines over areas where channel lines are run.

b. The channel lines on H. 5308 are spaced 100 meters apart instead of 50 meters. It should be noted that in a corresponding area the 1857 survey (H. 631) shows approximately one third more soundings than the present survey.

c. The shoal area to the northwestward of Constitution Id. and the channel in Laundry Cove are insufficiently developed. These will be considered more fully under additional work.

H. 5307 & H. 5308 - 2.

3. Depth Curves.

The usual depth curves can generally be completely drawn except in the area to the northwestward of Constitution Id. and in some stretches along the shore where the slope is very steep. There are also certain portions of the flatter areas where the low water curve cannot be delineated.

4. Junctions with Surveys.

A good junction exists between these two surveys H. 5307 and H. 5308. The junction between H. 5307 and H. 5286 on the south is also satisfactory. No surveys have as yet been received for work to the northward of H. 5308.

5. Field Drafting.

The usual amount of field plotting was accomplished and was generally satisfactory. However, it was observed that whenever soundings were taken at irregular intervals they were almost without exception plotted uniformly. The plotter also omitted all bottom characteristics from this sheet.

On sheet H. 5307, the prick points marking the boats positions were larger than necessary.

6. Comparison with old surveys.

a. The Survey of 1857 (H. 630, 631, 632). This survey is in many respects in greater detail than the present survey. However, no close comparison was regarded as necessary because of the date of the survey and the fact that practically all lines were run across the river. In areas of strong currents, as this area is known to have, depths obtained on such lines have been proven to be subject to a varying degree of error. (Hydrographic Manual pg. 132). With the exception of the shoal to the northwestward of Constitution Island, on which additional work is being requested, no critical depths are involved. Some deeper and some shoaler depths may exist on the old survey, but because of their uncertain accuracy they will not be carried forward to the new survey.

b. The Survey of 1905 (H. 2742). This survey is on a scale of 1-10,000 and is a very sparse development of the area. A general comparison of the two surveys shows good agreement. The only critical area on this survey is the shoal to the northwestward of Constitution Id. The 1905 survey shows a 16½ foot sounding about 100 meters south of the rock awash that falls close to an undeveloped 27 foot indication on the present survey. This 16 has been transferred to the new survey in blue and should be retained on the charts pending additional work in this area. Near the western shore between latitude 41°24'30 and 41°25' there are several soundings on the 1905 survey that are considerably deeper than the present ^{Survey} ~~these soundings are~~ on a lines running across the river and may have been affected by adverse currents. They have not been transferred to the new survey.

6. Chart 282 (edition of 1931). The charted 63 foot sounding about 250 meters west of Constitution Id. in lat. 41°24'.3 long. 73°57'.8 originates with the survey of 1857 (H. 631 pos. 57g). Such depth was not found on the present survey nor on the 1905 survey, but it is not conclusive that it does

not exist. The surrounding depths of 87 to 96 feet on the 1857 survey are in close agreement with the depths on the new survey. The 63 is believed to be an erroneous sounding and will not be carried forward to the new survey. It will be examined when additional work is done in the vicinity.

7. Additional Work.

The following additional work is recommended to satisfactorily complete the survey of this area:

a. A detailed development of the area surrounding the shoal to the north-westward of Constitution Id. (H. 5308) to permit the definite drawing of all curves to and including the 30 foot curve. The 16 foot sounding and vicinity mentioned in paragraph 6, b of this review should be examined for possible shoaler water.

b. A closer development of the channel in Foundry Cove particularly at the entrance to enable the definite drawing of the 6, 12 and 18 foot curves. This channel is not an Engineer's project.

c. An examination of the charted 63 foot sounding from the 1857 survey as mentioned in paragraph 6, c of this review.

d. Additional lines in the blank area to the north of Little Stony Point.

e. If a navigable entrance exists to the head of Foundry Cove then lines should be run inside the Cove to determine the depth of water.

Information is desirable as to the source of the value of the seconds in meters for triangulation station Blockhouse, the reference station given on H. 5307. There is a discrepancy between the sheet, the field computations and the old adjusted values as follows:

<u>Sheet</u>	<u>Field Computations</u> (1932)	<u>Old Value</u>
lat. 41°22' - 1828.2	41°22' - 1823.9	41°22' - 1827.3
long. 73°57' - 574.6	73°57' - 576.8	73°57' - 574.8

Note: The value on the sheet of the seconds in meters agrees with the 1933 field computations locating Blockhouse from the north. These computations were not in the office at the time this review was written.

8. Note to Compiler. The field computation listed above is the 1932 An. locating the point from the south. A.L.S.

The present surveys with the indicated additions from the old surveys contain all the information necessary for charting this area without any further reference to the old sheets. It should be considered the basic survey of the area and should supersede all previous surveys within its limits.

The large scale sketches of the various docks on the sheets are not drawn to scale. The soundings shown along these docks are in their approximately correct position being plotted in the positions as indicated on the sketches in the sounding records. No measured distances were given.

9. Reviewed by - A. L. Shalowitz, Nov. 1933.

A.L.S.
Chief, Field Records Section.

Examined and approved:

A.L.S.
Chief, Charts Division.

(Rec. add. to review)
~~Chief, Field Work Section.~~

~~Chief, Division of H. & T.~~

Addenda to Review H. 5307 and 5308.

The additional work accomplished on this sheet covers investigations called for in paragraphs 7, a, b, c, d and e of the original review. They will be considered in the indicated order.

Paragraph 7, a

The additional lines run in the area surrounding the shoal to the northwestward of Constitution I. has been productive in reducing the 29 foot indication on the original work to 16 feet. However, since the 16 was a regular sounding on line and not the result of a development there is still uncertainty as to the least depth existing here. The 16 foot sounding from the 1905 survey (H. 2742) shown in blue on the present survey has not been verified by the additional work. The soundings obtained on the line that runs across this 16 are not close enough to it to be considered a disapproval. In view of the 27 foot indication found close by in the original work on this sheet, the 16 is being carried forward to the new survey.

In addition to reducing the depths on the shoal indications, the additional work has also made material changes in the depth curves.

Paragraph 7, b

The additional work called for under this paragraph seems to have been misinterpreted by the field party. By "a closer development of the channel in Foundry Cove particularly at the entrance" was meant the channel as it left the deep water of the river to the railroad bridge and not the channel under the railroad bridge and into the head of the cove as the field party seemed to think. The latter item was covered by paragraph 7, e of the review in case "a navigable entrance exists" under the bridge.

The original work as submitted failed to show the controlling depth across the bar at the entrance and also the few soundings in the channel made the drawing of the depth curves uncertain. The additional lines materially change the delineation of the curves and blocks the entrance to the channel with a 5 foot depth.

Paragraph 7, c

The additional examination in the vicinity of the charted 63 foot sounding in lat. $41^{\circ}24'.3$ long. $73^{\circ}57'.8$ (authority H. 631) together with the fact that it was not found on the 1905 survey (H. 2742) is sufficient to establish its non-existence. It should therefore be omitted from future editions of the chart.

Paragraph 7, d

The additional lines intended under this paragraph ^{were} ~~was~~ inside the breakwater, but since the field party states that this is being "rapidly filled in with dirt", there is no longer any need for additional work.

Addenda to Review H. 5307 and 5308 - 2.


The additional lines run outside the breakwater will assist in a better definition of the depth curves.


Paragraph 7, e

The work intended under this paragraph in the head of Foundry Cove was contingent upon a navigable entrance existing under the railroad bridge. Since the latter does not exist (see paragraph 3 of the Descriptive Report on Additional Work), the need for the work was removed.

The additional examinations made in 1933 are plotted in black on the sheet, but the position numbers and day letters have been indicated in red.

Reviewed by - A. L. Shalowitz, Jan. 1934.


L. O. Colbert,
Chief, Section of Field Records.


Chief, Section of Field Work.

Examined and approved:


Chief, Division of Charts.


Chief, Division of H. & T.

APPLIED TO ALUMINUM-MOUNTED DRAWING OF THE
RECONSTRUCTION OF CHART NO. 282

F. M. Albert

Dec. 1934