

5222

plus 5222A Add Wk; WD

U. S. COAST & GEODETIC SURVEY
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Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. Patton, Director

State: Conn. _____

DESCRIPTIVE REPORT

Topographic	} Sheet No. 3 5222
Hydrographic	

*Includes additional
Work done in 1933*

LOCALITY

Scott Cove to
Stamford Hbr. to Eastward Approaches

Long Island Sound

1932

CHIEF OF PARTY

S. B. Grenell, Jr., U. S. C. & G. S.

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET # 3

Project HT-103, Long Island Sound,

1 9 3 2

INSTRUCTIONS:

Dated April 18, 1932.

LIMITS & JUNCTIONS:

The south and west borders of the sheet are determined by the limits of chart # 221. On the east the sheet makes a junction with Hydrographic Sheets # 1 and # 2.

SURVEY METHODS:

All hydrography on this sheet was done aboard launch # 66 by the standard hand lead method with double sextant angle control on objects located by topography and third order triangulation.

The work progressed westward from the limits of sheets # 1 and # 2 with a system of 100 meter lines out to the 10 fathom curve and 200 meter lines beyond to the limit of the chart. In the shoal areas the lines were split as many times as necessary for the required development. In addition, cross lines and channel lines were run for added detail.

ADDITIONAL DEVELOPMENT:

Where the hydrography seemed to indicate important changes from the charted depths, a careful development and search for least water was made. The following is a list of some of the more important points investigated:

Scott Cove: 280 meters ne of signal ZIP a least depth of 4 feet (Pos.28s) was found on a detached ledge as reported by local yachtsmen.

Darien River Entrance: 340 meters W $\frac{1}{2}$ S from signal WEST a careful search revealed a least depth of 2 feet on a boulder (Pos.105r) in a charted depth of 3 feet.

915 meters, 250 degrees true from signal WEST a least depth of 5 feet (Pos. 1s) was found on a detached boulder in surrounding depths of 17 to 19 feet.

1120 meters, 241 degrees true from signal WEST a least depth of 2 feet (Pos. 19s) was found on a detached boulder in a charted depth of 4 feet.

Wescott Cove: A split (Pos. 48 to 50r) was run over a charted depth of 4 feet near the entrance to the cove but no shoal indication was found.

See the note on the smooth sheet relative to the authority for the charted depth. SEE H-1698 for authority. 4 ft spot verified by drag party, H5222.WD(1933) P.23

NOTE: The bottom along this section of the Connecticut coast is studded with ledge rock and boulder formations which are often not indicated by the regular system of sounding lines. All shoal indications should be carefully investigated and where the depths constitute a danger to navigation either the wire or pipe drag should be used in connection with the hand lead to assure determination of least water.

PIPE DRAG: Three small areas - as outlined in red on the sheet - were covered with the pipe drag as an aid in determining least water or checking the existance of charted shoals. The pipe drag was found to be exceptionally useful for this work and the writer recommends the extensive use of this short drag for critical shoal development.

The notes in red on the smooth sheet give all the information the reviewer will require in checking the pipe drag areas.

The shoal south of Shippan Point has a charted depth of 1 foot, but in passing by this during minus tides no indication of any area awash were noted. A detailed handlead investigation gave a least depth of 5 feet, but a later search aided by the pipe drag gave a least depth of $3\frac{1}{2}$ feet on top of a large boulder. It is recommended that 3 feet be charted. The 5 foot sounding (Pos. 3b) is the least water found over the charted wreck.

* 2 ft rock located, 4522.2 W.D. (1933) ^{1/20}

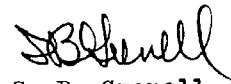
COAST PILOT NOTES:

This sheet was carefully reviewed by Lieut. J. M. Smook and the Chief of Party in order to determine additions and corrections for a new edition of Coast Pilot which Lieut. Smook was revising at the time this report was being written.

STATISTICS:

Volume	Mileage (stat.)	Soundings	Positions
I	59.4	1934	380
II	53.8	1883	374
III	60.8	2079	405
IV	49.4	1847	360
V	12.0	660	141
Totals	235.4	8403	1660

Respectfully submitted,


S. B. Grenell,
Jr. H & G Engr.

So. Norwalk, Conn.,
June 27, 1932.

To: The Director,
U. S. C. & G. Survey,
Washington, D. C.

From: Lieut. (j.g.) S. B. Grenell.

Subject: Mahogany lead line. (A report.)

On my requisition of March 23, 1932, there was forwarded to me at Stamford, Conn. two coils of mahogany lead line. This line was made up in 15 and 20 fathom lengths as described below.

Sections of the required length were cut off, coiled and suspended in sea water for 24 hours, then straightened out and marked while wet. It was noted that the line shrank about 1 foot in 10 fathoms during the preliminary soaking and that when dry after marking retained the length as marked.

This line after 7 hours of sounding was again checked and was found to have shrunk an additional amount of 2 feet per 10 fathoms with an interesting development; the fabric covering had shrunk so much that the compression had forced out small bights of the wire core through the covering at intervals of 1 to 2 feet.

Thinking that this was probably the limit of shrinkage I had the line remarked and used it the following day with the result that there was a further shrinkage of 1 foot per 10 fathoms with more of the wire bights being forced through the covering. This made a total shrinkage of 4 feet per 10 fathoms and seemed to be the limit of shrinkage but the leadline was now useless as the bights of wire projecting through the covering tore the leadsman's hands.

This is my first experience with this type of leadline having so much shrinkage. In 1931 a similar type of line was used by the wire drag tender the entire season with a shrinkage for the entire season of only 0.2 or 0.3 foot per 10 fathoms.

I am forwarding under separate cover a sample of the line discussed above the maker's label attached.

Upon examining the sample it will be noted that an attempt was made to cover the wire bights with leather but this was too confusing to the leadsman to be practicable. The wire bights not covered by leather came through after the line was marked the second time.

There is forwarded herewith a requisition including one coil of leadline with a reference note to this communication.

S. B. Grenell,
Chief of Party.

200

January 27, 1933

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
5 volumes of sounding records for

HYDROGRAPHIC SHEET 5222

Locality Scott Cove to Stamford Harbor, Long Island Sound

Chief of Party: S. B. Grenell in 1932

Plane of reference is mean low water reading

2.8 ft. on tide staff at South Norwalk

20.3 ft. below B. M. 3

1.0 ft. on tide staff at Stamford

13.7 ft. below B. M. 2a

Height of mean high water above plane of reference at South Norwalk is
7.1 ft; at Stamford 7.3 ft.

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 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.

Chief, Division of Tides and Currents.

SECTION OF FIELD RECORDS

REPORT ON HYDROGRAPHIC SHEET No. H-5222

MARCH 9, 1933.

CHIEF OF PARTY - S. B. GREENELL.

SURVEYED IN - JULY & AUG. 1932.

SURVEYED BY - S. B. GREENELL, J. C. PARTINGTON, W. F. DENNE.

PROTRACTED BY - H. J. SEABORG.

SOUNDINGS PLOTTED BY - H. J. S.

VERIFIED & INKED BY - W. H. DAMFORD.

1./ The sounding records were found to be neat, legible, complete and to conform to the requirements of the Hydrographic Manual.

2./ The protracting was found to be very well done and the position numbers fairly small and legible.

3./ The soundings were spaced rather poorly - being consistently below their proper position, the error seeming to be cumulative between positions. Errors were usually found also - when the time interval changed

between positions. Approximately 15% + had to be replotted.

4/ The sounding line crossings were found to be adequate.

5/ The development in channels and on shoals was found to be sufficient. (see # 15 of this report)

6/ It was possible to draw the usual depth curves.

7/ The sheet was fairly clean and the work was legible.

8/ The field plotting was completed to the extent prescribed in the Hydrographic Manual. (see # 12 for exception)

9/ The junctions with H 5220 + H 1732-a + H 5221 were found to be satisfactory.

10/ Soundings and groundings from Wire Drag sheets No. 5219 + 5142 were transferred to this sheet by use of proportional dividers. The groundings were encircled in green. (See note under title)

11/ Three small areas on this sheet were covered by Pipe Drag by the field party - at the time of the drag survey No. H-5219 - The records for this work are found in Volume #9 - H-5219. These areas are shown on this sheet - enclosed by dashed red lines with amplifying notes in red ink. The minimum depths found by the pipe drag were (~~transferred~~) plotted on this sheet (within these three areas) - in red. The three point fixes controlling these areas were verified.

12/ The verifier was forced to transfer a number of rocks and islands from the topographic sheets covering this area as the smooth sheet was not complete in this respect.

13/ Numbers of arrows from position numbers to pin pricks (positions) were found on this sheet - Frequently they were large enough to obscure the soundings and consequently were eliminated.

14./ Attention is called to the absence of any information regarding the character of the bottom except the notes - hard, soft and rocky.

15./ So many discrepancies were found in the location of shoals and rocks - in the comparison of the older surveys with this survey that it was brought to the attention of Mr A. L. Shalowitz - and as a result additional work in this area has been authorized for the 1933 season.

Respectfully submitted

Warren H. Bamford

SECTION OF FIELD RECORDS
Preliminary Review of H. 5222.
Long Island Sound, Connecticut.
Surveyed in 1932

Instructions dated April 18, 1932. (S. B. Grennell).

1. In reviewing this sheet it was found that there were so many ~~involving~~ shoals and rocks on old surveys (prior to 1916) that were left unsettled, that it was considered advisable (after consultation between the various chiefs in the Division of H., T. and Charts) to refer the work back to the field for additional investigation. To that end a boat sheet has been prepared in the office and on it shown all the rocks and shoals from the old surveys that needed further investigation as well as areas on the new survey that were incomplete. The objective being a modern, basic survey of the area, all important information from surveys prior to 1916 or from miscellaneous sources are to be investigated and either verified or disproved. It is hoped in this way to obtain information for charting that will be based on modern surveys and modern methods.
2. The number of points to be examined were so numerous that it would serve no useful purpose to enumerate them here. They will all be considered in the final review of the sheet.
3. In view of the incompleteness of the present survey, it is recommended that no rocks or shoals shown on the charts at the present time be removed until the additional work is received and final recommendations made.
4. Reviewed by - A. L. Shalowitz.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5222

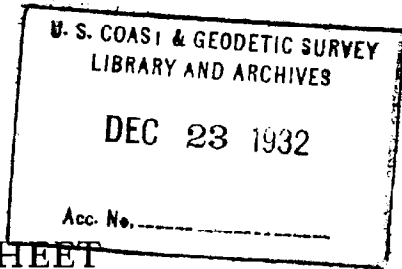
The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet	.1660
Number of positions checked	.254
Number of positions revised	.6..
Number of soundings recorded	.8403
Number of soundings revised	.1590 (approx)
Number of signals erroneously plotted or transferred	NONE

Date: March 9-1933

Cartographer: Warren H Bamford

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY



REG. NO. 5222

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. 3

REGISTER NO. 5222

State Connecticut

General locality Long Island Sound

Scott Cove to Stamford Hbr., and Approaches
Locality ~~Scott Cove to Stamford Hbr., and Approaches~~

Scale 1:10 000 Date of survey July 25 - Aug. 24 1932

Vessel Project HU-103

Chief of Party S. B. Grenell, Jr., H. & G. E.

Surveyed by S. B. Grenell, J. C. Partington, W. E. Deane

Protracted by H. J. Seaborg

Soundings penciled by H. J. Seaborg

Soundings in ~~fathoms~~ feet

Plane of reference M.L.W.

Subdivision of wire dragged areas by

Inked by Warren H. Bamford

Verified by W.H.B.

Instructions dated April 18, 1932

Remarks: Launch #66 used in this work

5222

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

~~WD~~ a
JUN 26 1934

Additional work (Hydrography Plotted
Acc. No. _____)

on H 5222

5222

Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. Patton, Director

State: Conn.

DESCRIPTIVE REPORT
~~Hydrographic~~ } Sheet No. 5222
Hydrographic } Additional work

LOCALITY
Scott Cove to Stamford Harbor

193 3

CHIEF OF PARTY
Harold A. Cotton Lieut. Commander

Additional work

5222a

Additional work

To _____
Wire Tray Sheet

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SHEET No. 3
and
DRAG SHEET No. 1

INSTRUCTIONS

This survey was executed in compliance with Directors Instructions dated March 23, 1933 - Project H.T. 134.

LIMITS OF SHEET

This sheet extends along the north shore of Long Island, from Scott Cove on the east to beyond Stamford Harbor on the west. It covers the same area as hydrographic sheet No. 3 of the preceding season (1932) by Lieut. S.B. Grenell.

SCOPE OF WORK

All work in the area covered by this sheet was supplemental to the above Hydrographic Sheet No. 3 of Lieutenant S.B. Grenell. The additional work desired was indicated on a sheet prepared for this purpose in the Washington Office. The hydrography and low water examinations were smooth plotted on this sheet from the Washington Office while the drag work was plotted on a separate sheet.

THIS REPORT COVERS BOTH HYDROGRAPHY AND DRAG WORK.

Both the Pipe Drag and Rope Drag were used for dragging. Positions up to and including 9 day are pipe drag while those after that time are all Rope Drag.

Special reports are being submitted covering the general features of both the pipe drag and the rope drag.

HYDROGRAPHY

GENERAL

Much of this supplemental work consisted of locating the low water line and the innumerable rocks (sunken and awash) which abound over this area generally. As it is decidedly preferable to do such hydrography during periods of low water, advantage was taken of all such low water periods to do as much as possible of the work. The general scheme was to thus locate rocks and low water line during any low water period occurring during the day and to run the sounding lines at other times.

Many of the rocks were located during the periods of early morning low waters occurring during the first part of May. For this purpose, a party stayed on the working grounds during this period - using one of the drag boats for quarters.

About the western portion of the sheet, a great deal of low water line and many rocks were located by topography - this has been assembled on a supplemental sheet. (74698a)

Some of this work was straight Plane Table topography, executed originally on the boat sheet but transferred soon afterwards to this supplemental sheet. The remainder of the topography was recorded as a distance (rod) and direction (sextant) to the points in question and smooth plotted

on this supplemental sheet. Work on this sheet was done on the following days. - May 11th (B), 13th (Y), 15th (E) and 17th (I).

PECKS POINT

Low water line located by Plane Table and numerous rocks located. Peck Point Rock ($1\frac{1}{2}$ ft) found by drag.

STAMFORD HARBOR

Low water line along both east and west side of harbor located by Plane Table; also numerous rocks and shoal areas in the harbor similarly located. Considerable sounding and dragging done. It is believed the combined work constitutes a thorough investigation of all rocks in the harbor.

SHIPPAN POINT

The low water line about Shippan Point was located by Plane Table. A great mass of rocks extend from nearly half a mile off Shippan Point. The outermost rocks in this area, as well as some of the more prominent inside rocks were also located by Plane Table. The western side of this area was also wrapped with a long drag with an effective depth of 10 feet for the purpose of determining the outer limit of the reef.

From local inquiry, it was definitely determined that Forked Rock is the rock at position "25 C", -see sounding record. Mr. Okeson further states that this is the only rock in the locality which fits the name.

The shoals beyond the rocky area noted above were examined by sounding and also with the drag; results are summarized in the Descriptive Report for the drag work.

Off the point a third of a mile east of Shippan Point proper, a great number of rocks awash were located by the Plane Table; these are not shown on the chart.

WESCOTT COVE

About a quarter mile off the point between Cove Harbor and Westcott Cove, there is an extensive reef which was located in detail with the Plane Table.

About the north side of the entrance into Westcott Cove, the low water line was located by the Plane Table. This work included the location of an off-lying patch of rocks which are not shown on the present chart.

COVE HARBOR

Numerous rocks were located about Cove Harbor.

The channel into the slip is not well defined and has apparently silted during recent years. The best water is along the sounding line lzz - 4 zz but there is shoaler water close by on either side. A crossing of a 1932 sounding line with this line gives 4 feet against 7 feet, but it is believed the lines actually cross a little to the northward, where the old line

also gives 7 feet, This channel passes through an old shoal which was dragged and found non-existent - see Drag Report. (Par. 27)

The line 1ZZ to 4ZZ should have been extended further south. Do not show depth across bar. R. 29

The limiting depth is five feet just off the entrance, but it is only with care and possible difficulty that this depth can be carried into the slip.

DARIEN RIVER

Soundings were taken up the Darien River on high water. At low water the river was found to become dry a very short distance above the mouth.

LONG NECK POINT

The low water line was determined and numerous off-lying rocks located by sextant positions.

SCOTT COVE

Low water line was determined by Plane Table on boat sheet from which it was transferred to smooth sheet.

Numerous rocks off the entrance to Scott Cove were located by Sextant.

SHOAL SOUTH A HULL

About 300 meters south of triangulation station HULL an old blue ledge is shown. It was not possible to properly investigate this ledge on account of a bathing platform occupying this position, but the presence of this bathing platform makes the existence of a ledge here quite doubtful. About 100 meters to the westward, a ledge was found which is probably the ledge in question.

HYDROGRAPHY RECORDED IN DRAG RECORDS

Occasional hydrography was executed by parties engaged upon drag work with the result that some sounding and location of low water line will be found in the Drag Records. Following is a list of such work.

Volume #2	Volume #3
June 7 "h" day	June 28 "Q" day-Pos. 1 - 59
	June 28 "Q ₁ " day Pos. 1 - 17;
Volume #3	June 29 "R" day - Pos. 1 - 10
Sept. 23 "ZZ" day	Sept. 13 "t" day - Pos. 3 - 9
Pos. 1 - 4	Sept. 23 "Z" day - Pos. 1 - 15
Sept. 21 "X" day	June 23 "M" day - Pos. M3
Pos. 1X	

DRAG WORK

PLOTTING DRAG STRIPS

The type of dragging necessary for such verification work as accomplished on this sheet required relatively narrow strips and generally quite a number of strips over the same area. As it is quite confusing to properly plot and interpret such overlapping narrow drag strips, each strip was first plotted separately on a piece of tracing paper and notation made on the same as to what had been accomplished by the particular strip.

A study of these strips quickly showed to what extent the area had been covered.

It was inevitable in this type of work but that there would be some duplication of work with different strips and some strips that actually accomplished little or nothing. Such strips were discarded in the smooth plotting. 2

All of the separate sheets of tracing paper on which the individual drag strips were originally plotted are enclosed in a separate folder and accompanying this report. L

SUMMARY OF DRAGGING

Results of dragging examinations are as noted below. For reference purposes, the various locations of work have been indicated by large green figures on the smooth sheet.

1. Lat. $41^{\circ} 00.7'$ Long $73^{\circ} 33.2'$
Found two 5 ft. and three $6\frac{1}{2}$ ft. spots near old (red & blue) L
6 ft. spots.

Cleared old red $5\frac{1}{2}$ ft. spot with $6\frac{1}{2}$ ft. drag
- found 7 ft. nearby (during hydrography). L
Cleared old red 10 and 11 ft. spots with $11\frac{1}{2}$ ft. drag. L
- found 13 & 14' nearby (during hydrography). L
Found 12 ft. about 200 meters S.W. old red 10 & 11 ft. spots. L
Found $3\frac{1}{2}$ ft. on old red $3\frac{1}{4}$ ft. spot - cleared with $3\frac{1}{2}$ ft. strip. L

(The 11 1/2 foot adq. of H. 1498 is not considered as cleared by 11 1/2 foot drag. By direction of Capt. Cartwright 5-11-49)

2. Lat. $41^{\circ} 01.5'$ Long $73^{\circ} 30.4'$

Found 8 and $9\frac{1}{2}$ ft. spots near old blue 10 ft. L
- Cleared with 6 ft.

3. Found 11 ft. near old blue 11 ft. spot. Lat. $41^{\circ} 01.6'$ Long. $73^{\circ} 30.1'$ L
Cleared with $10\frac{1}{2}$ ft. strip; 12 ft. strip touched.

4. Lat. $41^{\circ} 01.8'$ Long $73^{\circ} 30.8'$

Cleared upper old red $12\frac{1}{2}$ ft. spot with $13\frac{1}{2}$ ft. strip. L
Found 9 and 10' on lower old red $12\frac{1}{2}$ ft. spot. L
-also found an $8\frac{1}{2}$ ft. spot S.W. of 9 & 10'. L
Found $4\frac{1}{2}$ ft. on old red $4\frac{1}{2}$ ft. spot. L
Cleared all above with 5' strip. *may not have cleared $4\frac{1}{2}$ on edge of strip.*
Apparently small lift should be allowed for this drag strip; it was first work of the day.

5. Lat. $41^{\circ} 01.4'$ Long. $73^{\circ} 30.9'$

Found 9' spot just S.E. old red $8\frac{1}{4}$ ft. & $7\frac{1}{4}$ ft. spots L
Cleared (both old and new) with $7\frac{1}{2}$ ft. strip.

6. Lat. $41^{\circ} 01.9'$ Long. $73^{\circ} 30.4'$

Lower yellow - 2' spot cleared with $18\frac{1}{2}$ ft. and $2\frac{1}{2}$ ft. L
Found $4\frac{1}{2}$ ft. alongside lower yellow - 3' spot L
- Cleared with 4' strip L
Found $2\frac{1}{2}$ ft. and 3' spots nearby upper yellow 2 & 3' spots L
- Cleared with $2\frac{1}{2}$ ft. and 3' strip (not plotted)
Found $2\frac{1}{2}$ ft. nearby green* L

7. Lat. $41^{\circ} 01.1'$ Long $73^{\circ} 33.2'$
 Found 3' nearby old red $2\frac{1}{4}'$ spot
 Found 3' nearby old red 5' spot; also $4\frac{1}{2}'$, $\frac{two}{2}$ - 5 & $6\frac{1}{2}'$ spot
- 8 Rock Point - Lat. $41^{\circ} 01.3'$ Long $73^{\circ} 33.2'$
 Cleared old red $5\frac{1}{2}'$ with 7' - 9' around. with 7' drag.
9. Lat. $41^{\circ} 01.6'$ Long $73^{\circ} 32.5'$
 Found two 1' spots near green rocks
(plotted as rocks on M.L.H.)
10. Lat. $41^{\circ} 01.7'$ Long. $73^{\circ} 32.1'$
 Found $2\frac{1}{2}'$ spot near green rocks *Rocks mark located T. 46 98^a (1933)*
11. PECK POINT ROCK Lat. $41^{\circ} 01.3'$ Long. $73^{\circ} 32.9'$
 Cleared red $2\frac{1}{2}'$ and blue rock with $6\frac{1}{2}'$
 Found $1\frac{1}{2}'$ nearby old red $3/4'$ spot.
12. Lat. $41^{\circ} 00.6'$ Long $73^{\circ} 32.6'$
 Found 9' nearby old yellow 10'
13. THE COWS - Lat. $41^{\circ} 00.3'$ Long $73^{\circ} 31.4'$
 Found 7' on old red $6\frac{1}{2}'$ spot.
 Cleared with $5\frac{1}{2}'$
 Found 12' alongside old blue 12' spot
 Cleared with $11\frac{1}{2}'$
14. THE COWS- Lat. $41^{\circ} 00.4'$ Long $73^{\circ} 31.4'$
 Found $2\frac{1}{2}'$ on old red $6\frac{1}{2}'$; maybe part of wreck, See Record. *(minion line)*
 (Old red $6\frac{1}{2}'$ and blue rock 3 nearby) *(Bottom given as 20 fathoms)*
 Found $3\frac{1}{2}'$ by brown $3\frac{1}{2}'$
 Cleared above with 3' strip
 Cleared old red ~~and~~ rocks and $1-3/4'$ spot with $1\frac{1}{2}'$ strip.
 Also found two $4\frac{1}{2}'$ and two $5\frac{1}{2}'$ spots.
15. Lat. $41^{\circ} 00.8'$ Long. $73^{\circ} \overset{32.0}{\del{29.9}}$
Red rocks were found to have been incorrectly plotted on H. 1698 (Tracing of 1894)
 Two red rocks cleared by 4' strip.
 - these formed a protruding point of rocky area to eastward -
 wrapped 10 ft. strip along west side rocky area of Shippan Point -
 numerous soundings along grounded drag.
 Cleared blue rock with 10' drag.
16. NAT ~~ROCK~~CLOCKS ROCK Lat. $41^{\circ} 02.2'$ Long $73^{\circ} 29.5'$
 Found 3' on old red 4' spot
17. Lat. $41^{\circ} 02.5'$ Long $73^{\circ} 29.1'$
 Found 6 & 7' (hydrography) about old red $5\frac{1}{4}'$.
 Cleared area with $4\frac{1}{2}'$ drag.
18. Lat. $41^{\circ} 02.4'$ Long $73^{\circ} 29.2'$
 Actual position old red $4-3/4'$ spot cleared by 6'
 -numerous rocks found just to southward.
19. Lat. $41^{\circ} 01.9'$ Long $73^{\circ} 28.9'$
 Found 29' on brown 28'
 - Cleared with 25' drag.
 This strip somewhat excessive width but work does not appear questionable. Work was done in strong current so that small discrepancies would appear if angles were not taken strictly on schedule. Also length of rope sections were found to increase with use.

20. Lat. $41^{\circ} 02.7'$ Long. $73^{\circ} 27.9'$
 Old yellow 9' spot cleared with $11\frac{1}{2}'$ strip
 Found 7' about 100 meters to northward
 - Cleared with $5\frac{1}{2}'$ strip.
 Found 8 and 10' about old red $10\frac{1}{2}'$
 - Cleared with $5\frac{1}{2}'$ strip.
 Found $6\frac{1}{2}'$ and 3' respectively on old red $6\frac{1}{2}'$ and green 3'
 - Cleared with $2\frac{1}{2}'$ drag.
 Found $1\frac{1}{2}'$ near old green 2' spot *Plotted as rock awash M.L.V.
 Old red $8-1\frac{1}{4}'$ spot - cleared with $13\frac{1}{2}'$ drag
21. Lat. $41^{\circ} 01.1'$ Long $73^{\circ} 33.1'$
 Wrapped shoal with 2' drag to determine limits
 - Several soundings taken on grounding.
22. Vic Highwater Rock - Lat. $41^{\circ} 01.1'$ Long $73^{\circ} 32.5'$
 Located numerous rocks awash
 - Determined limits by dragging from north and south.
23. Lat. $41^{\circ} 00.9'$ Long. $73^{\circ} 32.4'$
 Determined southern limit shoal area.
 - Two zero feet spots south of two old red rocks
Zero spots plotted as rocks awash
24. Lat. $41^{\circ} 01.8'$ Long $73^{\circ} 32.4'$ FLINT ROCKS
 Found three $1\frac{1}{2}'$ spots about old red rock.
Two of them plotted as rocks awash
25. Lat. $41^{\circ} 02.4'$ Long $73^{\circ} 29.6'$
 Cleared old blue rock with $4\frac{1}{2}'$
 - Found numerous rocks awash outside.
26. Lat. $41^{\circ} 01.9'$ Long $73^{\circ} 29.9'$
 Found $4\frac{1}{2}'$ spot near old red $4-3\frac{1}{4}'$ and old blue 2'
 - Old blue 2' cleared with 6' strip. *Old 2' sdg, 991836 not on chart.*
 Found two $5\frac{1}{2}'$ nearby old red 5' spot
 Six' strip cleared three old blue 6', one old blue 5' and
 one old red $5\frac{1}{2}'$.
 Four (4') ft. and five (5) spots found nearby old red $4\frac{1}{2}'$, $5-1\frac{1}{4}'$
 and $5\frac{1}{2}'$ spots during hydrography.
27. Lat. $41^{\circ} 02.5'$ Long $73^{\circ} 30.3'$
 Old red rocky patch covered by $3\frac{1}{2}'$ strip.
 - Grounded on S.E. side shoal ($2-2\frac{1}{2}'$ and 3' shoals).
28. Soundings on shoal area to north of Stamford Light - Lat. $41^{\circ} 00.9'$ Long $73^{\circ} 32.6'$
29. Lat. $41^{\circ} 00.9'$ Long. $73^{\circ} 33.9'$
 Searching for old red 10' spot 250 meters south of triangulation
 station HULL. *Old 10' ft spot was incorrectly plotted on H. 1698 (1886-74/1893), should have been 16 ft. sdg.*
 Found $12\frac{1}{2}'$ considerably north of old positions.
 Covered old 10' spot with 13' drag. It was difficult to get
 strong positions in this area, but it is believed the 10' spot was sufficiently
 covered to remove from chart. *Drag work not needed, since 10' sdg is known to be erroneous.*
30. Lat. $41^{\circ} 00.9'$ Long $73^{\circ} 32.8'$ TODD ROCK
 Covered rocky area with $2\frac{1}{2}' - 3'$ strip
 - Grounded and slipped off $1\frac{1}{2}'$ spot *plotted as rock awash (pos. 59J)*
 - Extreme N.E. side of strip not well determined and accordingly
 shown dotted

STATISTICS

	Miles (Stat)	Positions	Soundings	Area
HYDROGRAPHY	30.0	677	2772	1-1/4
Drag	15.5	510	201	0.6

Respectfully submitted

Harold A. Cotton, Lieutenant Commander,
Chief of Party No. 3

Lac.

March 30, 1934.

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
7 volumes of sounding records ~~for~~ and 6 volumes Wire Drag, for

HYDROGRAPHIC SHEET 5222 (Additional Work)

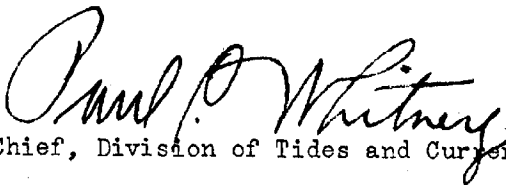
Locality Scott Cove to Stamford Harbor, Conn., Long Island Sound

Chief of Party: H. A. Cotton in 1933
Plane of reference is mean low water, reading
5.0 ft. on tide staff at Coscob Harbor
10.6 ft. below B. M. 1

2.6 ft. on tide staff at South Norwalk
20.4 ft. below B.M. 3

Height of mean high water above plane of reference is 7.2 feet.

Condition of records satisfactory except as noted below:


Chief, Division of Tides and Currents

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET
INCLUDING DRAG SHEET

REG. NO. ~~5222~~ 5222
additional work

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. 5222 *additional work*

State Conn.

General locality Long Island Sound

Locality Scott Cove to Stamford Harbor

Scale 1:10000 Date of survey May - June & Sept, 19 33

Vessel Shara Party No. 3 Project HT 134

Chief of Party Harold A. Cotton

Surveyed by W.F. Deane and F. E. Okeson

Protracted by Hydro. W.O. Hinkley - H.J. Seaborg-Drag

Soundings penciled by Hydro. W.O. Hinkley -

Soundings in ~~fathoms~~ feet

Plane of reference _____

Subdivision of wire dragged areas by W.F. Deane - F.E. Okeson

Inked by J.D. Groff *S.E. Perkins*

Verified by H.A. Cotton *HWM + WNB + S.E.P.*

Instructions dated March 23, 19 33

Remarks: _____

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5222 Add. Wk.

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet	.677
Number of positions checked	301
Number of positions revised	28
Number of soundings recorded	2772
Number of soundings revised	17
Number of signals erroneously plotted or transferred	—

Date:..... June 22nd 1934

Cartographer:..... S. E. Perkins

Verification of pretracting Verification & inking of rocks & shoals)	by H. W. MURRAY	Time: 17 hrs.
Verification of inking by	S. E. PERKINS	Time: 90½ hrs.
Review by		Time:

H-5222 Additional Work (1933)

There is an excessive number of details regarding rocks awash, reefs and connecting lines between located rocks which purport to include foul areas or reefs, which often contain hydrography conflicting with the outlines. It is difficult, if not impossible, to properly interpret this information in the office. The field party should have done this before submitting the work to the office.

A handwritten signature in cursive script, reading "E. P. Ellis".

E. P. Ellis

REPORT ON H-5222

Additional Work (1933)

The additional work applied to H-5222 was derived from three sources.

- (a) Additional Work Boat Sheet (to be destroyed)
This sheet was made in the office and sent to the field with areas indicated where further development was desired. (The field party also made a copy of this sheet which was used in the field as a boat sheet).
- (b) A Topographic Sheet 4698a (called a supplemental sheet in the field party's report),
This sheet was originally considered a Boat Sheet, but has now been changed and is recorded as T-4698a.
- (c) Wire Drag Survey (1933) H-5222 WD

(a) Additional Work Boat Sheet

The protracting and soundings were verified by H. W. Murray and S. E. Perkins. The soundings were again verified by Perkins at the time the tracing was made, This was necessary since most of the soundings were left in pencil and were difficult to read through the tracing paper. On the whole the protracting and plotting were well done.

All soundings were transferred except when the area was too congested. Shoaler depths were always given precedence when conflicting depths fell too close to each other to show both.

All positions, ^{numbers} were transferred, ^{in red} except those for rocks in congested areas, where only those which were described were given position numbers. Where reefs were described by connecting positions, only one or two positions were noted.

Additional signals used by the additional work party were transferred by the verifier. Station HULL (1933) was plotted from the Field Computations.

The line between positions 42 - 43E gives no indication of going under a pier. The pier extends across the sounding line and is correct according to T-4698. No correction has been made.

Line close to end of pier, may have gone around (N. side of Shipman Pt)
A day, page 12 vol 6 Add. Wk 5222, is not on 5222. This day should be plotted on H-5221.

When verifying Q, day, pos. 10 to 17, Cone was used instead of Cone, in order to better agree with the boat sheet.

Forked Rock, as indicated on H-5222 originally, was found to be incorrect. The name Forked Rock applies to another rock farther south and east. (see Pos. 25c)

The name as now indicated agrees with original location H 1698 (1894) and with chart 221
Reef from 1 - 7z vol. 7 Add. Wk 5222 has not been completely indicated by the verifier. Since there are sounding lines conflicting with this delineation, a decision as to how to show this information awaits the consideration of the reviewer.

One position in error. Reef as now plotted does not conflict with soundings.
On pages 5 - 7, h day, Vol. 6, The soundings were not indicated as negative. They were reduced correctly but the minus sign was omitted.

Positions 20λ and 21λ are rocks covered by 3 feet of water. These were transferred from T-4698a. The Add. Wk Boat Sheet gives rocks wash at these positions. However, no other information on these rocks could be found in the volumes. Apparently the wrong symbol was applied when the Field Party transferred the rocks from the T-4698a to the Boat Sheet.

The shoreline at the northern extremity of the Darien River, as established by hydrography, conflicts with topo 4698. This should be considered when the air Photo Compilation is completed.

It would seem logical that Smith Reef is of the same formation as other reefs in the vicinity (rocky ledge). However, the symbol used on T-4698 and on H-5222 has not been changed because of a lack of definite information.

*** The transferred rocks were plotted in accordance with the rules in "Treatment of Rocks on Hydrographic Surveys" (May 1, 1934) A. L. S.

Position of a rock 81c on H-1698b transferred to the 5222 boat sheet in the office in green ink, and inked over in black by the field party, was found to be wrongly plotted. The correct position for this rock is position 1λ on T-4698a.

Some rocks shown in brown ink on H-5222 which were transferred from H-1698, were verified by this recent survey and are, therefore, now shown in black.

(b) T-4698 (Supplemental sheet)

This sheet was applied in the same manner as any transfer might be. ^{see next page}

(The tracing was made by W. H. Bamford, and applied to H-5222 by) S. E. Perkins.

That is, no position numbers were transferred, except in cases where rocks were covered by 2 or more feet of water. Since these were indicated on T-4698a as sunken rocks, but were applied to H-5222 with the sounding and RK (see ***) it was necessary to give the position numbers to avoid confusion. A note, in the volumes, is given where these interpretations have been made. No changes were made on the topographic sheet (T-4698a). The days are indicated by Greek letters and are to be found in Vols. 1 and 2, Add. Wk H-5222. A note attached to the topo sheet gives the volume numbers for the different days.

An island is shown on T-4698 ^{W.S.W.} south and west of ~~Station~~ Station RAY. A reef at this locality was located on T-4698a. 26γ is the pos. near the island. This ~~reef bars 3 ft.~~ ^{is a wash} at M. L. W. and there is no mention made of an island. The island was left on the sheet and the ^{reef} ledge symbol extended from it to the positions given for the extremities of the reef.

(c) H-5222 WD

The protracting and verifying of the drag sheet was done by H. W. Murray and W. H. Bamford.

The Tracing was made by S. E. Perkins.

General Remarks

The depth curves were changed to comply with the new information.

Sunken rocks shown as covered by $\frac{1}{2}$ - $1\frac{1}{2}$ feet of water, were transferred to H-5222 as rocks awash. (see ***)

When discrepancies in position for the same rock existed between the new topographic sheet (T-4698a) and the hydro. 5222 or the 1932 topo (T-4698), the T-4698a was given most consideration. When T-4698 (1932) differed with H-5222, the topographic sheet was given most weight.

Respectfully Submitted,



S. E. Perkins

June 22, 1934

SECTION OF FIELD RECORDS

REPORT ON WIRE DRAG SHEET NO. 5222

JUNE 1-1934

SURVEYED IN - MAY - SEPT. 1933.

CHIEF OF PARTY - HAROLD A. COTTON.

SURVEYED BY - W. F. DEANE & F. E. OKESON.

PROTRACTED BY - J. D. GROFF.

VERIFIED BY - WARREN H. BAMFORD & H. W. MURRAY.

1. / The protracting and plotting was found to have been well done.
2. / The soundings as inked on the smooth sheet (wire drag) by the field party were plotted to the nearest half foot and were so small that they were almost illegible. The soundings were replotted to the nearest whole foot and large enough to be legible.
3. / There was found on the sheet a note ^{in pencil} which is reproduced as follows.

3 CONTD.

(STA. PLOTTED BY W.O.H. JUNE 2, 1933
" ✓ " H.J.S. JUNE 7, 1933)

This was the only data referring to the plotting and checking of the control signals that was found on the sheet. This matter was referred to Mr A.L. SHALOWITZ and at his suggestion - all the Δ stations and Topographic signals were assumed to have been checked by the field party.

4. / The standard projection and signal data stamp was omitted from the sheet by the field party.

5. / All drag strips were outlined in black ink and effective depths were shown in red to the nearest half foot - this is contrary to the instructions for plotting "drag" work - but as this work is either rope drag or pipe drag work - and

not equal to the standard wire drag work - it was not considered advisable to make any changes in the color scheme used.

6./ Throughout the sheet, at the beginning of each drag strip - the outline of the drag was assumed to be a straight line connecting the 1st & last buoy of the drag - this necessitated the changing of the outline of the drag - as plotted by the field party.

7./ Four buoys were located by the drag party and were plotted on the drag sheet - one of these was a large red buoy and was marked "PRIVATE BUOY".

Respectfully Submitted
Warren H Bamford

Partial Report on
Supplementary Sheet H-5222 (ADDL. WK.)

JUNE 4-1934

1./ Almost all positions that could be checked - were checked by the verifier and no errors were found in the plotting. Two of the greek letter days "B" and "G" could not be checked due to the lack of data in the records - The plane table positions of these rocks were accepted as correct.

2./ The area surrounding Grass Island - Lat. $41^{\circ}-01' + 1070$ m. and Long. $73^{\circ}-32' + 600$ m. (approx.) was indicated on the supplementary sheet by the field party by a dashed line. This area was referred to as a reef in the sounding volumes for this sheet and as several other smaller

Page 2

rocky ledges are referred to as reefs - it was considered advisable to indicate this area by using the rocky ledge symbol.

NOTE: - This disposition was approved by K.T. ADAMS (Chief of Field Records Section)

Several other areas outlined in dashed line by the field party were also shown by use of the rocky ledge symbol.

3./ a tracing was made of this supplementary sheet and all the information was transferred to H 5222 smooth sheet - in black ink - position numbers were also transferred but in red ink. The tracing is to be retained to assist the compiler - but the supplementary sheet is to be destroyed.

4./ The area off SHIPPAN POINT was outlined with a dotted line connecting three point fix positions of numerous rocks - on the supplementary sheet - the outline was transferred to H5222 - but a dashed line was used instead of the dotted line. The area within the dashed line was marked FOUL AREA.

5./ The supplementary sheet was verified and the tracing made by W.H. Bamford - The work contained on the tracing was transferred to the H5222 smooth sheet by L. E. Perkins.

Respectfully Submitted
Warner H. Bamford

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5222 (1932-3) AND NO. 5222aW.D. (1933)

Scott Cove to Stamford Harbor, Long Island Sound, Connecticut
Original instructions dated April 18, 1932 (S.B.Grenell)
Supplemental instructions dated March 23, 1933 (H.A.Cotton)

Hand Lead Soundings and 3 Point Fixes

Chief of Party - S. B. Grenell (1932), H. A. Cotton (1933)
Surveyed by - (S. B. Grenell, J. C. Partington, W. F. Deane (1932)
 (W. F. Deane, F. E. Okeson (1933)
Protracted by - H. J. Seaborg (1932), H. O. Hinkley (1933)
Soundings plotted by - H. J. Seaborg (1932), H. O. Hinkley (1933)
Drag work plotted by - W. F. Deane, F. E. Okeson
Verified by - W. H. Bamford, H. W. Murray, S. E. Perkins
Inked by - W. H. Bamford, S. E. Perkins

1. Condition of Records.

The records of 1932 and 1933 generally comply with the provisions of the Hydrographic Manual. However, in the records of the additional work of 1933 there is a great deal of detail concerning rocks and reefs which lacks clearness. Connecting lines between located rocks were supposed to outline foul areas or reefs, but there were frequently plus soundings in these areas. This information is difficult to properly interpret in the office. One example of this is the reef in lat. $41^{\circ}02.3'$, long. $73^{\circ}29.6'$. This is shown as a solid rocky reef on T-1737 (1885-6), but T-4698 (1932) shows a sanded area with some scattered rocks. Pos. 12 to Pos. 82 in the additional work records of H-5222 (1932-3) define the limits of the shoal and refer to it as a reef. The records should contain definite statements regarding such areas in order that they may be properly charted.

The records for the drag examinations, H-5222aW.D. 1932, are incomplete in that on several of the drag soundings, which may have been obtained on rocks, no bottom characteristics were recorded.

2. Compliance with Instructions for the Project.

The original instructions of April 18, 1932, were not closely complied with by the 1932 field party. Rocks and shoals shown on the surveys prior to 1914, which were left unsettled were so numerous that the work was referred back to the field for additional investigation. The character and extent of the additional work of 1933 satisfy the instructions of March 23, 1933.

3. Sounding Line Crossings.

The inshore areas are very rocky and broken and the soundings agree as well as can be expected in bottom of such irregularity. In the deeper areas adjacent sounding lines agree very well.

4. Depth Curves.

The usual depth curves may be completely drawn from the information furnished.

5. Junctions with Contemporary Surveys.

The junctions on the east with H-5220 (1932) and H-5221 (1932-3) are satisfactory.

The junction on the west with H-5402a (1933) is satisfactory and the soundings are in good agreement but there is a discrepancy of about 30 meters in the position of the reef in lat. $41^{\circ}00.9'$, long. $73^{\circ}33.6'$. The limits of this reef appear to be well determined by fixes on both H-5402a (1933) (pos. 71r to pos. 74r) and H-5222 (1932-3) (pos. 3t to pos. 7t) and a study of the records did not disclose the reason for this difference. The descriptive report for H-5222 (1932-3) states that the original position of this reef, which is shown on H-9 (1836) about 100 meters east of the new positions, could not be investigated because of a bathing platform.

The junction on the south with H-1732a (1914-6) is very satisfactory.

6. Comparison with Prior Surveys.

a. H-4 (1836-7), H-8 (1836-7) and H-9 (1836)

Comparison with these surveys shows no features which need be carried forward. These sheets may be superseded within the area covered by H-5222 (1932-3).

b. H-1698 (1886-7 and 1893)

This is the most complete survey of the numerous prior surveys covering this area. It is not everywhere in agreement with the present survey and the following chart changes are traceable to it.

(1) A 10 foot sounding shown on Chart 222 in approximate lat. $41^{\circ}01'$, long. $73^{\circ}33.5'$ was found to be erroneous when investigated in the 1886 sounding records of H-1698 (1886-7 and 1893) (pos. 10). This sounding should have been 16 feet and the 10 foot spot should be removed from the chart.

(2) A cluster of rocks shown on Chart 222 in lat. $41^{\circ}01.17'$, long. $73^{\circ}33.4'$ originate from H-1698 (1886-7 and 1893). Investigation revealed that these rocks had been incorrectly plotted from a note in the 1886 sounding records of H-1698 (pos. 33m blue). Soundings of 11 feet were obtained in this area on H-5402a (1933). These rocks should be removed from the chart.

(3) A sounding of 5 feet shown on Chart 222 in approximate lat. $41^{\circ}01.3'$, long. $73^{\circ}33.2'$ is from the 1886 sounding records (pos. 25 in blue) of H-1698 (1886-7 and 1893). The sounding is probably erroneous as it has been cleared by a 7 foot drag (H-5222aW.D. 1933) and should be removed from the chart.

(4) A 10 foot sanded spot shown on Chart 222 in approximate lat. $41^{\circ}00.7'$, long. $73^{\circ}33.3'$ is from the 1886 sounding records of H-1698 (1886-7 and 1893). The fix (pos. 53o red) is quite weak and it is possible that it is either out of position or one fathom in error. As it was cleared by an $11\frac{1}{2}$ foot drag, H-5222aW.D. 1933), the 10 foot sounding should be replaced on the chart by the depths from the present survey (13 to 16 feet.).

*The 10 foot sounding
next to the 10h on H-1698
is not disproved by an
11 1/2 foot drag and is retained.
By direction of Chief Cartographer
S.M.A. 5-11-43*

(5) A 6 foot sanded spot shown on Charts 221 and 222 in lat. $41^{\circ}01.0'$, long. $73^{\circ}32.75'$ is a single sounding on a line from the 1886 records (pos. 4o to pos. 5o) of H-1698 (1886-7 and 1893). The present survey shows from 10 to 12 feet at this point and the soundings surrounding the old 6 do not agree with the present ones. The 6 foot sounding should be disregarded in future charting.

(6) The 1 foot sounding shown on Chart 221 on The Cows south of Shippan Pt. is actually $1\frac{3}{4}$ feet in the 1887 records (pos. 14a steam cutter) of H-1698 (1886-7 and 1893). A 2 foot sounding was obtained by the drag party, H-5222a W.D. (1933), about 50 meters E.N.E. of the position of the old $1\frac{3}{4}$ foot sounding. The old position was developed on another day in 1887 and the least depth found was 7 feet and the soundings obtained by the hydrographic parties of 1932 and 1933 indicate that the $1\frac{3}{4}$ foot sounding is out of place and the 2 foot drag sounding is correct. The 2 foot sounding from H-5222aW.D. (1933) should be charted and the old $1\frac{3}{4}$ foot sounding omitted.

(7) The 6 foot spot, which is charted on the southern extremity of The Cows, is actually 6.6 feet in the 1887 records (pos. 68c whaleboat) of H-1698 (1886-7 and 1893). The drag party, H-5222aW.D. (1933) obtained 7 feet in the same spot. The new 7 foot sounding should be used for charting in preference to the old 6.6 foot sounding.

(8) A 7 foot sanded spot shown on chart 221 in approximate lat. $41^{\circ}01.47'$, long. $73^{\circ}30.9'$ originates from the 1886 records of H-1698 (1886-7 and 1893). This sounding was cleared by the drag with depths of $7\frac{1}{2}$ and 10 feet, H-5222aW.D. (1933), and is considered disproved. A 9 foot sounding obtained by the drag party about 60 meters S.S.E. of the 7 foot spot should be charted and the 7 foot sounding removed.

(9) A 9 foot sanded spot, shown on Chart 221 in lat. $41^{\circ}01.55'$, long. $73^{\circ}30.4'$ is actually $9 \frac{3}{4}$ feet in the 1886 sounding records of H-1698 (1886-7 and 1893). The drag party, H-5222 (1933), examined this area but did not clear this sounding with a depth sufficient to disprove it. (Cleared by 6 foot strip, just missed by $11 \frac{1}{2}$ foot strip). They found an 8 and 9 foot rock about 100 meters southeast of it. It is possible the old $9 \frac{3}{4}$ foot sounding is one fathom in error as it was recorded as 2 fathoms-1 foot in a row of 3 fathom soundings (pos. 19R and 20R). If this was true, it would check the new depth of 16 feet at this point. The $9 \frac{3}{4}$ foot sounding is considered very doubtful but has been carried forward to the present survey because it was not definitely disproved.

(10) A 5 foot sanded spot shown on Chart 221 in approximate lat. $41^{\circ}02.5'$, long. $73^{\circ}29.1'$ is actually 5.8 feet in the 1886 records of H-1698 (1886-7 and 1893). The new work shows 6 foot depths close by and the old 5 foot sounding should be superseded by the soundings from H-5222 (1932-3).

(11) A 3 foot sanded spot shown on Chart 221 in lat. $41^{\circ}01.95'$, long. $73^{\circ}30.35'$ is from the 1886 sounding records of H-1698 (1886-7 and 1893). This sounding was obtained on a sounding line running east and west (pos. 4K to pos. 5K) and the speed of the boat was noted as not being uniform. The new work located a 2 foot rock to the westward and a rocky ledge to the eastward, and the 3 foot sounding would be in agreement if moved in either direction. As there are shoaler depths on each side of it, the old 3 foot sounding should be disregarded because of its indefinite location.

(12) A cluster of sunken rocks shown on Chart 221 in lat. $41^{\circ}02.37'$, long. $73^{\circ}29.5'$ are from H-1698 (1886-7 and 1893) and H-9 (1836). These were cleared by a $4 \frac{1}{2}$ foot drag, H-5222aW.D. (1933), but rocks were located close by. The delineation of rocks and reefs as shown in this area on H-5222 (1932-3) should supersede all previous determinations.

(13) A cluster of sunken rocks is shown on Charts 221 and 222 in lat. $41^{\circ}00.9'$, long. $73^{\circ}32.75'$ with the name Saul Rock. These rocks were not definitely located but were added to H-1698 (1886-7 and 1893) from a note in the 1887 records of that sheet, (pos. 2A Steam Cutter). On the new survey a rock with $1 \frac{1}{2}$ foot over it at M.L.W. (shown as a rock awash) was located and other soundings obtained on the new work agree with the estimated depths over the old sunken rocks. The position of these sunken rocks was cleared with a 3 foot drag. (H-5222aW.D. 1933). The sunken rock symbols should be superseded by the new delineation as shown on H-5222 (1932-3).

H-1698 (1886-7 and 1893) may be superseded by H-5222 (1932-3) within the area covered by that sheet.

c. H-1698 (Tracing of 1894).

H-1698 (Tracing of 1894) was examined and no features were found which need be carried forward; however, two rocks shown on this tracing in lat. $41^{\circ}00.8'$, long. $73^{\circ}32.0'$ should be mentioned because they were found to have been incorrectly plotted. The correct position of these rocks check closely with those shown on H-5222 (1932-3). The erroneous position of these rocks is indicated on Chart 221 by a small sanded spot which should be expunged. H-1698 (Tracing of 1894) should be superseded by H-5222 (1932-3). (Covers same area) ✓

d. H-1698a (1911).

H-1698a (1911), a survey of Cove Harbor, is on a larger scale and more detailed than the new work. It shows greater depths in the entrance. However, the Descriptive Report of H-5222 (Additional Work p.2) states that "the channel into the slip is not well defined and has apparently silted during recent years". H-1698a (1911) should be superseded by the recent work, H-5222 (1932-3). ✓

e. H-1698b (1914).

H-1698b (1914) is the most recent of the older surveys and it is not intended that this survey should be superseded although it is not considered quite as accurate as the new work because sextant located signals were used largely for control. The most critical soundings and a few rocks from H-1698b (1914) have been added to H-5222 (1932-3) in blue in order that H-5222 (1932-3) may be fairly complete within this area. In other areas the soundings from H-1698b (1914) may be used for charting when needed to supplement those of the recent survey. However, the delineation of rocks and reefs on H-5222 (1932-3) is much more complete and should supersede those shown on H-1698b (1914) within the area covered by H-5222 (1932-3). Only those features on H-1698b (1914) which were found to be incorrect will be mentioned here.

(1) A rock awash shown on H-1698b (1914) in lat. $41^{\circ}01.6'$, long. $73^{\circ}32.38'$ was found to have been erroneously plotted (pos. 81C). The correct position of this rock as shown on H-5222 (1932-3) was located on T-4698a (1933). ✓

(2) The 4 foot sanded spot shown on Chart 221 and 222 in lat. $41^{\circ}01.5'$, long. $73^{\circ}32.65'$ was found to have been incorrectly plotted from the records of H-1698b 1914 (pos. 62A). This sounding should have been 7 feet and the 4 foot spot should be removed from the chart. ✓

(3) A rock awash (charted) in lat. $41^{\circ}02.0'$, long. $73^{\circ}30.43'$ is from H-1698b (1914). The records (pos.3X) show that this rock should have been plotted as a 2 foot rock instead of a rock awash. The drag party, H-5222a W.D. (1933), examined this area and a 2' spot (bottom characteristic not given) was located a little south of the old position. The new determination of the 2 foot spot should be charted and the old rock awash symbol expunged. ✓

f. T-1707 (1885-6) and T-1737 (1885-6).

Rocks and reefs as shown on T-1707 (1885-6) and T-1737 (1885-6) generally agree fairly well in position with those located on the recent work.

(1) Some rocks awash in approximate lat. $41^{\circ}01.85'$, long. $73^{\circ}32.0'$ on T-1707 (1885-6) were carried forward to H-5222 (1932-3) in brown. The hydrographic party of 1933 ran several lines through this area without noting but one rock, but there was over 7 feet of tide at the time and there is a possibility that these rocks were not seen. ✓

(2) A reef is shown on Chart 221, in Cove Harbor in approximate lat. $41^{\circ}02.5'$, long. $73^{\circ}30.23'$. This reef originates from T-1737 (1885-6) and is indicated by sunken rock symbols on H-1698 (1886-7) and (1893). Two sounding lines on H-1698 (1886-7 and 1893) cross this spot without noting any rocks. This area was dragged to a depth of $3\frac{1}{2}$ feet, H-5222aW.D. (1933), and no depths under 2 feet were found. The drag soundings should be charted in place of the bare reef symbol. ✓

(3) Quite a lot of reef symbols are shown on T-1737 (1885-6) in the general vicinity of lat. $41^{\circ}02.5'$, long. $73^{\circ}29.5'$ that is not shown on the new survey. The shore line of the islands in this area have apparently changed radically. ✓

Within the area covered the delineation of rocks and reefs as shown on H-5222 (1932-3) supersede those on T-1707 (1885-6) and T-1737 (1885-6).

g. H-1699 (1886 and 1893).

H-1699 (1886 and 1893) covers only a small area on the western limits of this survey and may be superseded within the area covered by H-5222 (1932-3).

(1) A 21 foot sounding shown on H-1699 (1886 and 1893) is evidently incorrect and should be disregarded. This spot was closely developed, H-1699b (1914), without finding less than 25 feet and was cleared by the wire drag with a depth of 23 feet H-5142 (1932). This is mentioned only as a matter of record as the 21 foot sounding is not shown on Chart 222.

h. H-1699 (Tracing of 1894).

H-1699 (Tracing of 1894) shows only a few soundings in the vicinity of Hull Rock, which is charted as two feet on Chart 222 from a $2\frac{1}{2}$ foot sounding on H-1699 (Tracing of 1894). The drag party, H-5222a W.D. (1933), examined this area fairly intensively and their soundings (3 feet least depths) should be accepted.

i. H-1699b (1914).

H-1699b (1914) covers only a small area west of long. $73^{\circ}33'$. If needed for charting, soundings from H-1699b (1914) may be used provided the surrounding soundings are in agreement with H-5222 (1932-3).

j. H-5142 (1931).

All soundings found by the wire drag survey, H-5142 (1931) have been added to H-5222 (1932-3) in green.

k. H-5219 (1932).

All soundings from the wire drag survey, H-5219 (1932) have been added to H-5222 (1932-3) in red.

l. H-5222aW.D. (1933).

All rocks and soundings from the contemporary drag examinations, H-5222aW.D. (1933), have been added to H-5222 (1932-3) in purple.

7. Comparison with Chart No. 221 and 222.

The following chart changes from sources not traceable to our own surveys are noted.

a. Sanded soundings of 2 and 3 feet and a sunken rock symbol shown on Chart 221 in approximate lat. $41^{\circ}01.9'$, long. $73^{\circ}30.45'$ were located by H. C. Graves in 1913 (Letter No. 445-1913). They should be superseded by the soundings obtained on the recent drag examination of this area, H-5222aW.D. (1933), which are about the same depth but better controlled.

b. The 2 foot rock reported in Letter 347-1913 falls in about lat. $41^{\circ}01.77'$, long. $73^{\circ}30.44'$. The writer claims to have seen it exposed at a very low tide and to have located it with a transit. This position was cleared by an 18 foot drag, H-5222aW.D. (1933), and the existence of the rock definitely disproved. This is mentioned only as a matter of record as the 2 foot rock is not charted.

c. A 9 foot sanded spot is shown on Chart 221 in lat. $41^{\circ}02.56'$, long. $73^{\circ}28.0'$, by authority of Letter No. 161-1908. It is said to be a rock upon which a barge was damaged and was located with the sextant by an Engineer of the Connecticut Shell Fish Comm. This area was examined with the wire drag and the position of the 9 foot spot was cleared with an effective depth of $11\frac{1}{2}$ feet, H-5222aW.D. (1933). A 7 foot spot was found about 100 meters northward. The reported 9 foot spot should be removed from the chart and the new 7 foot depth charted. ✓

d. The sunken wreck symbol, shown on Chart 221 on "The Cows", was charted by authority of Letter No. 380-1917. It is said to be the wreck of a side wheel steamer and is fairly well located by sextant angles to natural objects. The wire drag party, H-5219 (1932) obtained a 5 foot sounding and noted wreckage at this position. The 5 foot sounding with the notation "wreckage" should be charted in place of the sunken wreck symbol. ✓

e. Most of the buoys as located on T-4698 (1932) and H-5222 (1932-3) are in slightly different positions than charted. Red buoys No. 2 and 4 in the entrance to Stamford Harbor have moved westward about 60 meters.

8. Field Plotting.

The prescribed amount of field plotting was accomplished by the 1932 field party. The protracting was well done but the soundings were not accurately spaced.

The protracting and plotting of the additional work of 1933 was well done on the whole.

The field plotting of the wire drag examinations on H-5222aW.D. (1933) was not very satisfactory for the following reasons. Soundings were inked on the smooth sheet where they should have been left in pencil. Soundings were so small that they were illegible and were taken out and replotted in the office. All drag strips were inked in black and effective depths shown in red instead of using the usual standard colors for both. As this is not intended for a thorough drag survey but was merely done to supplement the hydrography, it was not considered necessary to change the color scheme. No area and depth tracing was prepared by the field party and none was prepared in the office as it is not thought to be necessary. Inspection of the sheet will readily show the depths to which the areas were dragged.

9. Additional Field Work Recommended.

No additional work is recommended at this time.

10. Note to Compiler.

Todd Rock as shown on Charts 221 and 222 in approximate lat. $41^{\circ}00.85'$, long. $73^{\circ}32.8'$ appears to be slightly out of position. The position of this rock as located on W.D. 5219 (1932) checks fairly well with the position as strongly determined in the 1887 records (pos. 8A) of H-1698 (1886-7 and 1893). This position is approximately 40 meters south of its present charted position. ✓

It is noted that a 14 foot wire drag grounding from H-5142 (1931) should be charted in lat. $41^{\circ}00.85'$, long. $73^{\circ}30.3'$ in place of the 17 foot wire drag sounding from that sheet now shown on Chart 221. ✓

11. Superseding Old Surveys.

Within the area covered the present survey, with the indicated additions from previous surveys, will supersede the following surveys for charting purposes. ✓

H-4 (1836-7) - in part
H-8 (1836-7) - in part
H-9 (1836) - in part
H-1698 (1886-7 and 1893) - in part
H-1698 (Tracing of 1894) - in part
H-1698a (1911) - in part
H-1699 (1886 and 1893) - in part
H-1699 (Tracing of 1894) - in part

12. Reviewed by - R. L. Johnston, September 1934.

Supervised by - A. L. Shalowitz.

Examined and approved:

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Chief, Division of H & T.

Applied to charts 221 + 222
reexamined for rocks, reefs + low water detail only May 1949 - RDC -