

4805

Diag. Cht. No. 1206-2

Form 504	
DEPARTMENT OF COMMERCE	
U. S. COAST AND GEODETIC SURVEY	
....., Director	
State: Maine.....	
S. & G. SURVEY L. & A. NOV 10 1928 Acc. No.	
DESCRIPTIVE REPORT	
Topographic Hydrographic	Sheet No. 4805
LOCALITY	
East of Portsmouth, N.H.	
Northeast of Isles of Shoals	
1928	
CHIEF OF PARTY	
G. C. Mattison	

GOVERNMENT PRINTING OFFICE

S-115

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4805

C. & G. SURVEY
L & A
NOV 5 1928
Acc. No.

DESCRIPTIVE REPORT

to accompany

Hydrographic Sheet No. 4805

Field Sheet No. 3.

From Boon Island, Maine to
Isles of Shoals, ^{maine}New Hampshire.

G. C. Mattison,
Chief of Party,
U.S.C. & G.S.S. Lydonia.

1928.

DESCRIPTIVE REPORT TO ACCOMPANY,

HYDROGRAPHIC SHEET No. _

AUTHORITY:

Instructions from Director dated May 18, 1928.

SURVEY METHODS:

Positions were obtained by sextant angles on shore objects all of which were located by triangulation. Three buoys were established (see report of C. O. dated August 24, 1928) but were not used by the ship except for a few positions. The buoys were also located by triangulation. ✓

Soundings were taken with the Fathometer. This instrument was working poorly at the beginning of the season and adjustments were made to it by Mr. Turner of the Submarine Signal Corporation and by Dr. Dorsey. During the period of adjustment vertical casts were taken frequently and reduced by a value of the lag computed by comparing simultaneous vertical casts and Fathometer soundings in addition to the usual temperature and salinity corrections. After the Fathometer was again working properly the soundings were corrected for temperature and salinity alone. (See special report on correction dated September 19, 1928). ✓

As the Fathometer is located in the radio room directly under the bridge where the plotting was done it was necessary to have the recording done in the radio room. A bell was rung on the bridge at the exact time of the position. The angles were recorded on a sheet of paper by the left angle man who then telephoned them to the recorder. After the end of the day the record was compared with the left angle man's sheets as an additional check. ✓

DISCREPANCIES:

The crossings as a rule are good. A few crossings of one or two fathoms were found but were in an area where the bottom is rather irregular and where a slight shift in position would make the crossing good. The bottom in the vicinity of the shoals is very irregular. ✓

LANDMARKS:

Boars Head Standpipe is a tall slender black standpipe on the highest point of Great Boar Head, Hampton Beach. It is quite conspicuous and unmistakable. Δ Tow is a low standpipe near Hampton and shows on the skyline. ✓

Isles of Shoals Lighthouse is a white cylindrical tower located on White Island. It is a fairly good mark even at a distance. ✓

Isles of Shoals Coast Guard Station (Δ Ap) is located in the highest point of Appledore Island. It is a small white building surmounted by a cupola, and shows about twelve miles (statute) on a clear day. ✓

Wentworth Hotel is a long white building surmounted with several square copolas. Inshore it is quite good but offshore it shows on the skyline and is hard to distinguish.

Portsmouth Navy Yard Prison is the most prominent building on the section of the coast. It shows offshore as a large square brownish tower topped with the frusture^m of a pyramid. It can be seen 18 to 20 miles (statute) on a clear day.

North tower of Portsmouth lift bridge is a tall steel skeleton tower. There are two of these towers on the bridge and offshore this is an identifying feature. The towers are almost as conspicuous as the Navy Yard Prison.

△ York which⁷⁶ church spire is a slender spire showing against a background of trees. When the sun shines it is quite prominent but can hardly be distinguished offshore on cloudy days. Sometimes in the afternoon when the sun gets behind it, it may be identified. It is the only spire in the vicinity.

Cape Neddick Lighthouse is a white cylindrical tower on a small islet off the eastern point of Cape Neddick. Inshore it is fairly conspicuous as it shows on the tangent but offshore is not easily identified as there are several white buildings near it. York spire is a better landmark.

Passaconaway Inn is a many gabled large white building on a low hill near York Beach. Offshore it resembles somewhat a ship in full sail.

Bald Head Cliff House is a long flat white building with a small cupola. It is a good mark inshore but offshore the cupola cannot be distinguished and the building not easily identified.

Agamenticus Mt. is a high (673) rounded hill - the highest and most southerly of a group of three. It is easily identified and very prominent. There is a watch tower near the highest point but it can not be distinguished ordinarily except well inshore.

△ Peak is the center and sharpest of the three hills. It is roughly about half the height of Agamenticus.

Boon Island Lighthouse is a grey stone tower. It is prominent from all directions.

Star Island Hotel is a large long white building. It is fairly conspicuous from the northward. There were not opportunities to see it from other directions.

DANGERS:

There are no dangers to navigation in the area examined. ✓
There are numerous shoals but none shallow enough to be a danger.

MISCELLANEOUS:

There is a considerable amount of refraction in this area. It occurs almost any part of the day but usually in the late afternoon. ✓

During the season - June, July and August the greater part of the time was foggy. ✓

Soundings were taken and reducers applied in fathoms and tenths. In the absence of any definite instructions the tenths of fathoms were converted to feet in accordance with the following table:

0.1	fathom	-	0'
0.2	"	}	1'
0.3	"		
0.4	"	}	2'
0.5	"		
0.6	"	}	3'
0.7	"		
0.8	"	}	4'
0.9	"		
1.0	"		6'

It was necessary to put the shoreline on the tracing of this sheet given to the Navy Yard at Portsmouth for temporary use so it was transferred from the chart of this region and inked on the sheet.

As the instructions for Fathometer do not consider soundings under 15 fathoms as correct all soundings less than this were considered as misses and shown on the sheet with an "M".

The area surveyed was 195 square statute miles.

△ Lag on sheet #3 is the same object as △ Hotel on sheet #6.

Respectfully submitted,

E. R. McCarthy

E. R. McCarthy,
Jr. H. & G. Engineer,
U.S.C. & G. Survey.

1st Endorsement.
Respectfully forwarded.

G. C. Mattison

G. C. Mattison,
H. & G. Engineer,
Commanding Officer,
USC&GSS Lydonia.

S T A T I S T I C S S H E E T # 3.

Day	Date	Vol.	Boat	Mileage	Soundings	Positions	Remarks Temperature & salinity observations
A	June 1	1	-	-	-	-	2
B	7	1	LYDONIA	15.3	104	33	2
C	8	1	"	63.0	514	134	
D	9	1	"	1.1	13	4	1
E	12	1	"	23.5	232	79	3
F	13	1	"	31.4	274	99	2
G	15	2	"	105.6	911	232	June 14 - 1 temperature.
H	16	2	"	33.4	291	69	
J	18	3	"	5.4	46	13	1
K	21	3	"	65.8	538	132	
L	22	3	"	42.9	368	114	
M	July 2	4	"	29.5	337	99	2
N	3	4	"	2.7	17	11	
P	6	4	"	37.6	396	93	
Q	7	4	"	26.6	417	79	
R	9	4-5	"	69.7	873	202	
S	11	5	"	24.0	457	55	
T	12	5	"	8.8	102	22	1
U	13	5	"	43.4	610	98	1
V	16	6	"	21.9	480	118	1
W	17	6	"	39.4	475	120	1
X	18	6-7	"	67.4	1040	237	
Y	20	7	"	28.7	359	92	1

Day	Date	Vol.	Boat	Mileage	Soundings	Positions	Remarks Temperature & salinity observations
Z	July 24	7-8	LYDONIA	101.3	1174	283	
A'	25	8	"	38.5	358	82	
B'	26	8	"	49.1	647	160	3
C'	30	9	"	19.4	105	46	
D'	Aug. 8	9	"	77.1	937	152	1
E'	20	10	"	12.5	144	26	
F'	23	10	"	21.0	245	34	
G'	24	10	"	34.4	488	67	
H'	27	11	"	4.0	46	9	
Total:				1139.9	12998	2994	

Area surveyed 195 square statute miles.

Tidal note --- Field Sheet # 3.

A portable tide gauge was established on Star Island on May 29, 1928 and was used for reduction of records from A Day - June 1st until G' Day - August 24.

Location: Latitude $42^{\circ} 58.7'$ Longitude $70^{\circ} 36.8'$

Highest tide observed 15.2' June 18 23.3 hr.
June 20 0.0 hr.

Lowest tide observed 2.6' June 18 4.8 hr.

Plane of reference on tide staff 4.65

The automatic gauge at Portland was used for reducers on H' Day - August 27 - as the Star Island gauge had been discontinued on August 24.

Location: Latitude $43^{\circ} 39.5'$ Longitude $70^{\circ} 14.8'$

MEMORANDUM TO ACCOMPANY


SHEET No. 3.

The boat sheet was inspected daily while the field work was being done, and the records were under the immediate supervision of either the Chief of Party, officer at Fathometer or officer in charge of bridge.

The inshore work on this sheet was done on those days when visibility would not permit work being done offshore as called for in the instructions.

Some trouble was experienced with the Fathometer, and it was subjected to considerable adjustment. On some days it was necessary to use comparisons with vertical casts as a basis for reduction of soundings. This is explained in a separate report.

The smooth sheet and records have been examined and are approved.


G. C. Mattison,
Commanding Officer,
U.S.C. & G.S.S. Lydonia.

gcm/o

E.A.L.

Copy for Section of Field Records files.

October 5, 1928.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
11 volumes of sounding records for

HYDROGRAPHIC SHEET 4905

Locality: EAST COAST OF NEW ENGLAND, NORTH OF ISLES OF SHOALS, N.H.

Chief of Party: G. C. Mattison in 1928.

Plane of reference is M L W

4.6 ft. on tide staff at Star Island, Isles of Shoals, N.H.
8.7 " " " " " Portland, Maine.

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.

Saul Whitney
Chief, Division of Tides and Currents.

Section of field work,
Report on Sheet # H4800

Chief of Party G. C. Mattison
Survey by " " "
Retraced by E. R. McCarthy, M. C. Dickette
Sounding plotted by E. R. McCarthy
Verified & indexed by John G. Ladd

1. The records conform to the requirements of the General Instruction except that frequently the notes ^{in regard to} of turning were omitted.
2. The plan and character of development fulfills the requirements of the General Instruction.
3. The sounding line crossings are adequate.
4. The usual depth curves could be drawn.
5. The field plotting was complete to the extent prescribed in the General Instruction, except for the following, -
In many cases the position numbers were at least $\frac{1}{2}$ inch from the position and a few cases ~~there~~ a parallel line case

between the position and the position number and they were not crowded. It was nearly impossible to find the the position numbers on the boat sheet and as a result it was impossible to use it as a guide or to even follow it except in very open work.

6. Important areas within the limits of the sheet were sufficiently developed.

7. It should be decided whether the work done previous to position 97C should be retained or rejected because of the note on page 30 Vol. 1, about error of 20 mi in \sin used for lift angle. (See review).

8. The character and scope of the surveying was very good and the field plotting was fairly accurate. 31 position were found to be inaccurately plotted.

The soundings less than 90 ft which were not inked and the numerous names around the Isles of Shoals ~~were~~ (see descriptive report) were rejected by the field as there were less than 15 fathoms and rejection was approved by E.P. Ellis.

John E. Ladd

Nov. 12

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

February 14, 1929.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4805

Northeast of Isles of Shoals

Surveyed in 1927

Instructions dated May 18, 1928 (LYDONIA)

Chief of Party, G. C. Mattison.

Surveyed by G. C. M.

Protracted by E. R. McCarthy, M. G. Ricketts.

Soundings plotted by E. R. M.

Verified and inked by John G. Ladd.

1. The purpose of this survey was to determine a suitable location for a submarine trial course. As it was uncertain whether a wire drag could be efficiently operated at a depth of 325 feet, it was originally intended to survey the selected trial course with fathometer lines spaced not more than 100 meters apart. The successful working of the drag made a departure from the specific instructions feasible and this accounts for the wider spacing of the lines within the dragged area.
2. The records in general conform to the instructions for field work.
3. The plan, character and extent of development satisfy the specific instructions. The numerous indications of shoaling have for the most part been adequately developed or have been covered by drag work (old and new) to a sufficient depth to insure safety to surface navigation. The indications that have not been so covered or developed will be mentioned under the paragraph for additional work.
4. The sounding line crossings are generally adequate. Differences occur in places where the bottom is very irregular.
5. The usual depth curves could be drawn.
6. The usual field plotting was completed by the field party. Greater care should be exercised in the placing of the position numbers with respect to the line. A position number too far

away is just as unwise as a number placed too close to the line.

7. The junction with H. 4808 will be taken up when that sheet is reviewed. There are no other contemporary surveys.

A comparison was made with chart 1206 covering this area. In general there is a good agreement. There are some differences, principally in the soundings that were taken from H. 1305. As this sheet (H. 1305) was a compilation of numerous miscellaneous surveys which were mostly based on dead reckoning control, and since the sheet was plotted on a 1:400,000 scale, it is recommended that very little credence be given it in the light of the present survey. There are only two soundings of importance from this old survey that fall within the limits of the new survey. They are the 288 and 294 foot soundings (48 and 49 fathoms) in lat. $42^{\circ} 59'$ and lat. $42^{\circ} 58 \frac{1}{2}'$ respectively and long. $72^{\circ} 23'$. These are doubtless out of position and are probably located on the bank that was found about one mile to the southeastward. Considering the development that was made in this locality on the new survey, it is recommended that the above two soundings be removed from the charts.

Where the new work overlaps H. 667 it is recommended that, unless the development on the new survey completely disproves any shoals discovered on the old survey, the shoals should be retained on the charts. The inshore area is unusually irregular and shoals may exist even between closely spaced lines. The soundings of 19 fathoms in lat. $43^{\circ} 04'$, long. $70^{\circ} 32 \frac{1}{2}'$ and 13 fathoms in lat. $43^{\circ} 06 \frac{1}{2}'$, long. $70^{\circ} 32 \frac{1}{2}'$ (from H. 667) have both been investigated on the original sheet and are found to be correct. They should be retained on the charts as the present survey does not disprove them.

The work on H. 3032 (surveyed in 1909) is of course a modern survey and should be regarded on the same basis as the new survey.

8. No additional work seems necessary for the purpose intended. Practically the entire area covered by this survey has been wire dragged. The area between W.D. 4800 and W.D. 3974 contains no real indications of dangers and enough soundings have been taken in this area to give the navigator a fair representation of the bottom. The 172 foot sounding in lat. $42^{\circ} 58' 660$ m., long. $70^{\circ} 27' 240$ m. is the only spot in this area that might require further development.
9. Attention is called to the fact that the note in Voà. 1, page 30 of the sounding record that the left angle sextant was found to have a play of 20 minutes has been ignored in the final verification of the sheet. No correction could be applied to the angles since it is uncertain as to the amount the angle was actually in error each time. Furthermore, the

bottom at this particular place is fairly regular and lies within the area covered by the deep drag. No great violence is therefore occasioned by accepting the angles as recorded. (Approved by A.M.S.)

All fathometer soundings of less than 15 fathoms have been omitted from the smooth sheet where they fall inshore of the general 15 fathom curve. Where such soundings fall outside this curve and there are sufficient corroborating soundings to show that the shoal sounding is not a stray, they were accepted and are designated on the smooth sheet in red. This method of handling such soundings is of value in that important indications are not lost sight of and in addition it seems to verify shoals found on previous surveys. It should be remembered, however, that they are subject to a possible error and this fact should be considered whenever an absolute comparison with some other method of surveying, such as wire drag, becomes necessary.

10. Reviewed by A. L. Shalowitz, December, 1928.

Approved:

Chief, Section of Field Records (Charts)

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

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REG. NO.
4805

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. **4805**

State Maine

General locality East of Portsmouth, N.H.
~~East Coast of New England~~

Locality Northeast
~~North~~ of Isles of Shoals

Scale 1:40000 Date of survey June 1 - Aug. 27, 19 28

Vessel LYDONIA

Chief of Party G. C. Mattison

Surveyed by G. C. Mattison E. W. Eichelberg
E. B. Roberts H. A. Paton E. R. McCarthy

Protracted by E. R. McCarthy M. G. Ricketts

Soundings penciled by E. R. McCarthy

Soundings in ~~fathoms~~ feet

Plane of reference Mean Low Water

Subdivision of wire dragged areas by _____

Inked by _____

Verified by _____

Instructions dated May 18 1928, 19

Remarks: _____

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 4805

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

Number of positions on sheet .2994
Number of positions checked ~~31~~ 805
Number of positions revised .31.
Number of soundings recorded .12998
Number of soundings revised .180.
Number of signals erroneously
plotted or transferred .. none ..

Date: -- nov. 12 - 1928 --
Cartographer: -- John E. Lacey --

NAUTICAL CHARTS BRANCH

SURVEY NO. _____

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
21 Oct. 57	211	<i>H. MacEwen</i>	 After Verification <i>and Report on V.</i>
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
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			Before After Verification and Review

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 4805

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Number of positions checked ~~31~~ 805
Number of positions revised .31.
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Date: -- Nov. 12 - 1928 --

Cartographer: -- John E. Ladd --