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Diag. Cht. No. 1206-2

Form 504					
DEPARTMENT OF COMMERCE					
U. S. COAST AND GEODETIC SURVEY					
....., Director					
<table border="1"><tr><td>G. S. S. SURVEY</td></tr><tr><td>L. & A.</td></tr><tr><td>AUG 22 1928</td></tr><tr><td>Acc. No.</td></tr></table>		G. S. S. SURVEY	L. & A.	AUG 22 1928	Acc. No.
G. S. S. SURVEY					
L. & A.					
AUG 22 1928					
Acc. No.					
State: Maine					
DESCRIPTIVE REPORT					
<i>Topographic</i> <i>Hydrographic</i>	} Sheet No. 4800				
WIRE DRAG					
LOCALITY					
Off Portsmouth, N.H.					
East of Boon Island and					
Isles of Shoals					
1928					
CHIEF OF PARTY					
C.K. Green					

GOVERNMENT PRINTING OFFICE

4800

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DESCRIPTIVE REPORT TO ACCOMPANY
FIELD SHEET 1. 4800
SPECIAL WIRE DRAG SURVEY FOR NAVY DEPARTMENT.

INSTRUCTIONS.

Instructions dated May 21, 1928.

SURVEY METHODS.

Standard 1/8 inch bottom wire was used, the 1500 foot tow-line being a continuation of the bottom wire. The small uprights were made of two 125 foot sections of 3/32 inch aircraft cord and one 100 foot upper section of 3/16 inch wire rope, with swivels between the sections. The large uprights were of similar lengths, and made of 1/4 inch aircraft cord. The buoys were made of 50 and 30 gallon oil drums, fitted with buoy hoists. 180 pound weights were used on large uprights, and (after D day) 105 pound weights on the small uprights. Special floats, 4 1/2 inches in diameter, made of 16 gage steel with four disc stiffeners, were used. The floats weighed about 7 pounds and had a buoyancy of 5 1/2 pounds. The equipment was excellent and no drag failures were experienced.

Dual control was used throughout, and the amount of pull recorded at each position on both launches. The speed of the drag through the water was about .8 knots.

CONTROL

Three floating signals were planted by the LYDONIA, these in addition to triangulation stations Boon, Ap, and Isle, and Boon Ledge whistle buoy, furnished the control. The positions of the buoys were computed from simultaneous theodolite cuts from Boon Id. and Ap. The positions shown in solid line triangles are from observations taken at opposite phases of tide from those shown in broken line triangles. The solid line positions were used in plotting the sheet; the broken line positions used to ascertain minimum overlap. The minimum overlap is 1200 feet.

EFFECTIVE DEPTH

The lift in the end section was from 2 to 8 feet, and in the other sections from 2 to 5 feet, when 105 pound small weights were used.

A buoy tester attached to the bottom wire, and at the surface, to a buoy trailing back of the drag, was tried out and found to be unsuccessful. The maximum lift was determined by the use of a test rod fitted with hooks at the bottom and a stranded sounding wire upright to a buoy at the surface. This floating tester was set to a depth a few feet above the drag depth, and put adrift in front of the various sections. When the drag passed under the tester, the tender would tow it ahead to the path of the next section. For the purpose of checking the tester, the upright with rod and hooks was lowered 2 feet at a time until it hooked the bottom wire.

The effective depth of all the strips except the last (N day) was between 325 feet and 340 feet. However, as the maximum depth required was 325 feet, the depth diagrams were made out to that depth. The effective depth of N day was 315 feet,

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GROUNDINGS.

The soundings at groundings are recorded in the Tender sounding record.

On position 24 N the drag grounded between buoys 1 and 2, the guide launch engine stalled and the drag slipped off before a sounding could be obtained. While attempting to pick up this grounding again, N buoy went aground (pos. 29 N) further to the westward, and a sounding obtained. These groundings occurred at the western limit of the submarine trial course and are at the point of the shoal extending westward. The grounding was therefore not re-dragged. Drag strip 25N to 29N was not inked in, and should only be used to locate sounding 1-n. (See note page 23 volume 3).

GENERAL

While dragging, it was noted that passenger vessels on a daily schedule passed directly over the area dragged. These were large vessels presumably on the Boston to Portland run. Freighters were observed passing over the area also. When these facts were called to the attention of Navy officers at the Portsmouth yard, it was the unofficial opinion of some that the area should be marked on the chart by a legend as a submarine testing ground, but that it should not be outlined as a restricted area. The testing ground will be used by the submarines but rarely. It is recommended that this matter be considered by the office, and taken up with the Navy Department if necessary.

While in the field, the Portsmouth Navy Yard gave the party every assistance possible.

The upright lengths of buoys and testers were repeatedly checked by two officers. Each days hock-up was checked by the Chief of Party at the time of setting out the drag.

Chas. K. Green

Chas. K. Green,
Chief of Party.

ADDITIONAL TRIANGULATION INFORMATION.

The positions of the 4 buoys used for signals on this sheet were computed from 4 separate sets of cuts as follows;

(a) June 8, by party from the LYDONIA, observations taken about three hours apart.

(b) June 21 and 22, by W. D. party, observations taken on different days; heavy swell prevented landing at "Boon" June 21.

(c) July 2, by W. D. party, simultaneous observations.

(d) July 24, by W. D. party, simultaneous observations.

Positions from observations (a) and (c) check well. Positions (b) should not be used. Positions (d) differ from (c) a maximum of 70 meters due to tidal currents. Positions (c) are shown on the sheet in full line triangles. Positions (d) are shown on the sheet in broken line triangles and were not used in plotting (except to check overlaps).

The triangulation done by the wire drag party was computed and checked in the field, and smooth copies filed in the office Aug. 15, 1928.

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SPECIAL WIRE DRAG SURVEY

PORTSMOUTH N. H.

TIDES

Information on the tides cannot be furnished at this date (Aug. 18). The tide records will be furnished by the LYDONIA at a later date. The reducers entered in the drag volumes were taken from the automatic tide gage at Isles of Shoals, established by the LYDONIA during the latter part of May, 1928. The reducers as entered in the records were checked in the field. The tide rolls were not available for the reducers for the last two days of dragging (N and M days). The reducers for these two days were taken from the predicted tides for Isles of Shoals, which are probably close enough for reducers in over 50 fathoms.

Currents

An endeavor was made on July 26th to determine the difference between the surface and the bottom currents. A 35 pound weight submerged to a depth of 300 feet and supported by a 1/8 inch wire to a buoy at the surface, and a surface current pole were set adrift in the center of the trial course. The buoys, which were submerged until they just watched, were located at half hourly intervals by sextant fixes. Their paths are shown in blue ink on the boat sheet for the 4 hour period of observations. B line is the path of the weight at 300 feet, and A line the path of the surface pole.

The fixes during the observations are recorded in a sounding volume (marked currents), which is submitted with the drag records.

*Insufficient
information
re currents - AB*

SPECIAL WIRE DRAG SURVEY.

STATISTICS FOR SHEET, FIELD NO. 1.

Day	Date 1928	No. of positions.		No. of angles.		Miles dragged.	
		G.L.	E.L.	G.L.	E.L.	(Stat.)	Soundings
A.	June 8	41	44	120	132	5.3	0
B	June 11	17	19	51	57	2.1	0
C	June 15	52	53	156	159	7.0	0
D	June 16	42	42	126	126	2.0	0
E	June 23	44	44	156	132	5.8	0
Totals for June 1928		196	202	609	606	22.2	0
F	July 7	36	37	109	111	5.8	0
G	July 9	28	28	90	84	5.0	1
H	July 17	42	48	130	148	6.4	0
J	July 18	21	23	65	69	3.5	1
K	July 20	24	18	62	57	4.0	0
L	July 21	43	45	125	135	5.4	2
M	July 30	20	21	60	63	3.0	0
N	July 31	30	31	87	93	2.7	1
Totals for July 1928		244	251	728	760	35.8	5
Totals for sheet.		440	453	1337	1366	58.0	5

A to D , Volume # 1.
 E to L , Volume # 2.
 L to N , Volume # 3.

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

September 10, 1928.

SECTION OF FIELD RECORDS

Report on Wire Drag Sheet No. 4800

Special Wire Drag Survey for Navy Department

Off Portsmouth, New Hampshire

Surveyed in June and July, 1928

Instructions dated May 21, 1928

Chief of Party, C. K. Green.

Surveyed by C. K. Green.

Protracted by C. F. Ehlers.

Inked by C. K. Green and J. F. Fay.

Verified and Area and Depth Sheet by R. L. Johnston.

1. The records are clear and well kept. They conform to the requirements of the General Instructions.
2. The methods and character of operations fulfill the requirements of the General Instructions.
3. The depth and extent of dragging satisfies the specific instructions.
4. The least water was found on all shoals, within the limits of the work, except the grounding at position 24 N, on which no sounding could be obtained. The drag depth, 319 feet, is shown at this point.

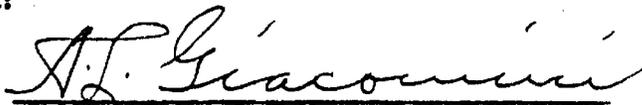
* The drag strip which ends at position 19 H might have been extended further south, in order either to disprove or to ground on the 288 foot sounding shown on chart 1206 in Lat. 42° 59', Long. 70° 23'.4. The 298 foot spot mentioned in the instructions is well outside the limits of this work.

* The Chief of Party was authorized to omit this work as the area was covered thoroughly by the hydrographic survey. See letter dated July 17, 1928, 10-LE, subject Field Work addressed to Lieut. Charles R. Green.

G. M. S.

5. The overlaps are very large at all times. In testing the projecting on fixes where buoy signals were used, the positions were plotted using both positions of the buoy signal, and the overlap was found to be ample whichever position the buoy happened to be in.
6. There are no splits within the limits of this work and further dragging within these limits is unnecessary.
7. The positions of the four signal buoys were computed from theodolite cuts, and checked in the field. The solid line triangles are the positions used in plotting the sheet. The broken line triangles show their position at the opposite stage of the tide.
8. Character and scope of drag operations - excellent.
Field drafting - excellent.
9. Reviewed by R. L. Johnston.
10. Inspected by A. L. Shalowitz.

Approved:


Chief, Section of Field Records (Charts)


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

Copy for Section of Field Records files.

September 5, 1928.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
9 volumes of sounding records for

HYDROGRAPHIC SHEET 4890

Locality: **COAST OF MAINE**

Chief of Party: **O. K. Green, 1928.**
Plane of reference is **M L W**
4.6 ft. on tide staff at **Isles of Shoals.**

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.

Paul P. Whitney

Chief, Division of Tides and Currents.