

3975

Diag. Cht. No. 1206-2

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. Office No. H-3975

LOCALITY

State NEW HAMPSHIRE & MAINE

General locality APPROACHES TO PORTSMOUTH HARBOR

Locality HARBOR

194 17

CHIEF OF PARTY

J. H. Peters

LIBRARY & ARCHIVES

DATE OCTOBER 11, 1917

3975

(Cont.)

Department of Commerce  
Coast and Geodetic Survey

E. Lester Jones  
Superintendent

Description Report

to accompany  
Hydrographic Sheet No. 3976-

Approaches to Portsmouth  
New Hampshire

By

Wire Drag Party No. 1

J. H. Potter, Chief of Party

1917

Scale 1-20,000

# PROGRESS CHART

SHOWING CONDITION OF RECORDS OF

Hydrographic Sheet No. 3975 Field No. 3

Wire drag survey of Approaches to Portsmouth Harbor

Scale 1 - 20,000

Date of Survey \_\_\_\_\_

Surveyed by J. H. Peters

Day	DATE	Signaled angles compared	Distances entered	Distances checked	Length of upright entered	Length of upright checked	Correction entered	Correction checked	Drag depth entered	Drag depth checked	Reducers entered	Reducers checked	Effective depth entered	Effective depth checked	Effective depth diagram entered	Effective depth diagram checked	Positions plotted	Dragged strip traced	Tracing checked	Area subdivided	Subdivision checked	Transferred and inked	Compared with chart
A	May 14	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
B	" 15	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
C	" 16	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
D	" 21	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
E	" 22	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
F	" 31	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
G	June 1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
H	" 6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
I	" 13	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
J	" 15	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
K	" 16	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
L	" 20	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
M	" 21	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	" 22	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
O	" 29	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P	July 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Q	" 3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
R	" 5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
S	" 12	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
T	" 14	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
U	" 17	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
V	" 23	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
W	" 26	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
X	" 27	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Y	" 31	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Z		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
A		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

# PROGRESS CHART

SHOWING CONDITION OF RECORDS OF

Hydrographic Sheet No. 3975 Field No. 3

Wire drag survey of Approaches to Portsmouth Harbor  
Scale 1-20,000 Date of Survey \_\_\_\_\_  
royed by J. H. Peters

Day	DATE	Signaled angles compared	Distances entered	Distances checked	Length of upright entered	Length of upright checked	Correction entered	Correction checked	Drag depth entered	Drag depth checked	Reducers entered	Reducers checked	Effective depth entered	Effective depth checked	Effective depth diagram entered	Effective depth diagram checked	Positions plotted	Dragged strip traced	Tracing checked	Area subdivided	Subdivision checked	Transferred and inked	Compared with chart
A	August 4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
B	" 6	L			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
C	" 7	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
D	" 8	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
E	" 11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
F	" 14	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
G	" 17	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	B. D.		
H	" 20	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
I	" 21	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
J	" 22	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
K	" 25	L			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
L	" 29	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
M	" 13	L			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
N	" 14	L			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
O	" 19	L			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
P	" 20	L			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

# Description Report

& accompanying

Hydrographic Sheet No. 3978

Approaches to Portsmouth N. H.

## Locality -

This sheet covers the approaches to Portsmouth Harbor, extending north <sup>along land</sup> nearly including York Islands, to parallel 43-06 South along New Hampshire Coast to parallel 42-30, <sup>including also</sup> the S. E. and S. W. approaches from the open sea and the area surrounding the Isle of Shoals.

## Depth Sounded -

The prevailing effective depth is <sup>about</sup> 150 ft. at S. W. in the open channels, ranging to 60 feet in the open water to the S. W. and outside Isle of Shoals. In the shallow water around Isle of Shoals and York Islands, varying depths were used, going as close ~~to bottom~~ as practicable.

## Shoals -

Numerous shoals, some of them very important were located especially in

S. E. approach, where, a rocky ridge,  
with boulders and cobbles, extends  
westward from York. In several instances,  
depths twenty feet less than those charted  
were found.

#### Control -

The survey was controlled by  
hydrographic marks previously located  
by triangulation and by some  
existing signals set in by sextant.  
Several stations were renewed or relocated  
by triangulation done by J. D. Graham.

#### Tidal Reductions -

The tidal reduction in the sounds  
was obtained from semi-hourly readings  
of a staff gauge located in Peppercorn  
Cove, Kittens Point. The datum used  
is Mean Low Water as established at  
Portland, Maine.

#### Splits -

Several splits have been left un-  
corrected in this work, due to the  
fact that the party was disbanded  
at short notice when the transfer of  
means, field equipment to the Army and  
navy took place in the latter part of  
September.

Currents -

Current observations were taken by the current pole at several stations, from the latter part of July to early in September.

Observations -

The limits of a safe channel to the open sea were established at the request of the navy department. This work was of a confidential nature. Some work was also done in breaking ranges, at the request of the commandant at the Portsmouth navy yard.

Much difficulty was caused while dragging off gunk, by the heavy growth of kelp, which accumulated on the ground wire in such quantities that progress of the launches was stopped, and the crew appeared to be aground. A slow process of underhauling the drag by the tugs and clearing <sup>up</sup> the seaward off lead to be resorted to.

The party headquarters were at Kittery Point wharve and the launches were moved here.

The party was ~~discontinued~~

Respectfully submitted,  
Edward W. Wilbur  
and C. G. S.

To the Superintendent -

U. S. Geological and Geologic Survey  
Washington, D. C.

Statistics for Hydrocyanic Acid # 2975

Day	Mr. Angles	Mr. Staf	Mr. ...
A	348	8.4	1
B	Respect. K ...		0
C	126	4.0	4
D	36	0.7	3
E	204	6.5	4
F	267	6.0	1
G	120	5.6	1
H	177	2.7	3
J	47	1.7	2
K	161	1.4	4
L	12	0.4	1
M	196	3.5	7
N	161	4.5	0
O	91	1.5	8
P	189	3.3	3
Q	290	5.3	6
R	132	2.0	4
S	73	5.3	4
T	262	5.2	3
U	320	5.0	8
V	344	7.6	1
W	159	2.0	2
X	336	6.0	3
Y	204	2.8	7
Z	341	5.1	3
A'	275	5.5	0
B'	220	3.0	0
C'	341	4.9	4
D'	84	1.8	2
	5458	109.9	

ADDRESS  
U. S. COAST AND GEODETIC SURVEY  
WASHINGTON, D. C.

REFER TO NO.

*J.S.S.P.*  
HYDROGRAPHY ETC., (HT)

CHARTS (H) ←

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

February 20, 1918.

*3* LIBRARY

Place with descriptive report  
of hydrographic sheet No. 3973

*F*  
Drawing Section.

Division of ~~Hydrography~~ & Topography: *Hes*

Division of Charts:

Tidal reductions have been approved in  
9 volumes of Wire-Drag record and Soundings

HYDROGRAPHIC SHEET 3975

Approaches to Portsmouth, N.H.,  
J.H.Peters in 1917.

Plane of reference is  
Mean low water, reading

3.0 ft. on tide staff at Kittery Pt., Me.

*L. P. Shidy*

Acting Chief, Section of  
Tides and Currents.

## Report on Inking H3975 (W.D.)

The plotting and pencilling of drag strips and plotting of soundings were done by the field party. The inking of soundings and drag strips was done in the office. Inking of drag work has not been verified. The records were well kept and the character of the surveying good. Instances of incomplete information and discrepancies will be mentioned below in detail.

Throughout the work there was no direction of bight given at beginning of line. In general, this could be supplied from the boat sheet.

E' day (Aug. 10) was rejected and no reason given, and another day (Aug. 11) is lettered E'.

Signal "Toll" used in record on S day is not found on the sheet and probably is the same as "Ger".

There were numerous cases of the drag grounding and no soundings recorded and in other cases where soundings were recorded they frequently show water deeper than the effective drag depth, indicating that the shallowest spot was not found.

Specific instances are as follows:

No.	Pos	Location	Eff. depth	Remarks
✓ 1.	10P	Lat 43° 01' Long 70° 34'	62'-72'	G Sndg 81'. Sndgs of 51' & 57' have incomplete angles. Cleared with 60'. This spot not covered by hydrographic survey. Deep water all around.
✓ 2.	6T	43-06 70-35	35'-41'	G No sndg recorded but 33' & 35' on B.S. 40' in this vicinity on H. 3032
✓ 3.	13T	43-05 70-35	various	G. No sndg, no buoy number given
✓ 4.	4X	43-03 70-42	40'	G But least depth found is 44'. Cleared with 37' 7/4 fms on H2361
✓ 5.	35X	43-01 70-42	31'	G between 1-2 No sounding 6 fms on H2361 Cleared with 20'

	Pos.	Location	Off. Depth	Remarks
✓ 6.	42X	43-01 70-42	20'	G Shoalest sndg 24' cleared with 20'. 21' sndg nearby.
✓ 7.	36C'	43-04 70-37	31'	G. No sndg. Deep water shown on H 3032.
✓ 8.	9D'	43-04 70-38	38'	No sndgs between 7-F, the shoal sndgs of 25' about 75 meters S.W. of F. cleared with 23'-24'
✓ 9.	6M'	43-01 70-41	40'	Shoalest sndg. 48'. 8 1/2 fms on H 2361. cleared with 45'
✓ 10.	26M'	42-59 70-43	36'-38'	No note of G but height of drag indicates G. No sndgs. Deep water shown on H 294
✓ 11.	130'	43-04 70-39	25'	G Shoal sndg 29'. H 3032 shows 31' cleared with 24'
✓ 12.	32Q'	43-06 70-38	30'	G at 2. Sndg 33' Some question about fix of sndg. H 3032 shows 34' in this vicinity.
✓ 13.	37Q'	43-05 70-39	27'-30'	G between N-1. No sndgs. Least depth in this vicinity. on H 3032 is 34'

Other places where the drag grounded and no sndgs taken are indicated on the smooth sheet by pencil notes.

Frank M. Albert, Draftsman  
Section of Field Records

July 26, 1923

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
WASHINGTON

September 26, 1924.

Verification of H. 3975

Approaches to Portsmouth Harbor, Maine

By A. L. Shalowitz, Cartographer

1. This sheet was plotted and pencilled by the field party. The inking was done by A. Baer and F. M. Albert. The area and depth sheet was prepared by F. M. Albert without verifying the inking of the drag work.

2. In verifying this sheet only the high spots were considered. None of the protracting was checked except where a grounding occurred or where a position looked very doubtful. The subdivisions of the drag strips were accepted as shown.

3. The verification consisted primarily in closely scrutinizing the records for drag groundings. Each day's work was gone over and when a grounding occurred it was followed up to see that a sounding was indicated at the point of grounding. Where no sounding was taken by the tender, a note was made on the A. and D. sheet of the point of grounding giving the depth to be charted which in all cases was the effective depth of grounding. There are one or two instances where 1 or 2 feet less is charted than the grounding depth. This was caused by the different interpretation placed upon a drag grounding at the time the preliminary study was made of the soundings on this sheet. Attention will be called to these below.

4. Another phase of the verification consisted in the examination of the beginnings of drag strips for the proper direction of bights of drag. The records were consistently lacking in throwing any light upon the direction of the bight. The boat sheet generally showed the bight of the drag outward, that is concave towards the direction of progress. This is a dangerous procedure and should be discouraged unless the drag has been under way some little time before the first position is taken. Otherwise the bight should be indicated by a straight line. This is exactly what was followed in the verification. Where the records indicated that the drag was being towed before the first position was taken the full bight of the drag was plotted. Also when a grounding occurred and the drag cleared and the line continued. Otherwise the first positions were connected by a straight line. Several additional splits were thus developed on the A. and D. sheet as well as various cases of insufficient overlap.

5. The overlaps between adjacent strips were examined and where there was an inadequate amount a notation was made on the A. and D. sheet.

6. Attention is called to the following:

a. At position 4D in the vicinity of lat.  $40^{\circ} 01 \frac{1}{2}'$  and long.  $70^{\circ} 42 \frac{1}{2}'$  the drag struck at the N buoy at an effective depth of 38 feet. The boat sheet shows 29 feet in this locality, but no record could be found for this sounding. By order of the Chief of Section, 29 feet should be charted. O Kd by A.L.G.

b. At 11-0 in the vicinity of lat.  $43^{\circ} 03 \frac{1}{2}'$ , long.  $70^{\circ} 36'$  the note in the drag record gives the grounding at Buoy No. 3 which was set at 32 feet. The sounding of 42 feet obtained on this grounding plots at Buoy No. 5 which was set at 44 feet. However, 32 feet should also be charted at No. 3 as the note in the record cannot be disregarded on such a critical sounding. O Kd by A.L.G.

c. At 6 T in lat.  $43^{\circ} 06'$ , long.  $70^{\circ} 35'$  the drag grounded at buoy No. 1 at an effective depth of 35 feet. At 9 Z in the same vicinity the drag grounded at N set at 34 feet. 33 feet was charted here from a preliminary report. No sounding was obtained here and in conformity with the new rule 34 feet should be charted in place of the 33.

d. At 13 T in the vicinity of lat.  $43^{\circ} 05'$ , long.  $70^{\circ} 34 \frac{1}{2}'$  the record notes G from K but does not say at what buoy. It may be inferred, however, that that portion of the drag closer to the end launch grounded. And this portion was set to 44 feet effective. One half of this area which was being dragged to 44 feet was later covered by a 45 foot drag so that it is not very likely that the drag grounded here. But the remaining portion of the 44 foot area was only covered by a 35 foot drag. It is therefore assumed that the drag grounded at a point midway between this 44 foot area.

e. At position 30 U in lat.  $42^{\circ} 59'$ , long.  $70^{\circ} 36'$  the drag grounded at buoy No. 1 set at 50 feet. The least sounding obtained was 52 feet. A sounding of 50 feet should be charted here.

f. At 49 V in lat.  $43^{\circ} 02 \frac{1}{2}'$ , long.  $70^{\circ} 36'$  the drag grounded at buoy No. 6. This buoy, according to the records, had already been hooked up to 32 feet so that 32 feet should be charted here. O K d by A.L.G.

g. At 4 X and 6 X in vicinity of lat.  $43^{\circ} 02 \frac{1}{2}'$ , long.  $70^{\circ} 41 \frac{1}{2}'$ , the drag grounded set at 40 feet. At 4 x a least sounding of 44 feet was obtained. At 6 X which is close by, no sounding was obtained. In both cases 40 feet should be charted.

h. At 12 X in lat.  $43^{\circ} 02'$ , long.  $70^{\circ} 42'$  the drag grounded at buoy No. 1 set at 33 feet effective. The least water obtained was 34 feet. 33 feet should therefore be charted.

l. At 35 X in lat.  $43^{\circ} 01'$ , long.  $70^{\circ} 42 \frac{1}{2}'$  the drag grounded between buoys No. 1 and No. 2 at an effective depth of 31 to 35 feet. As it is not definitely known where the grounding took place, the shoalest effective depth should be charted, namely 31 feet. There may be much less water here as this spot was only cleared at 20 feet.

j. At 42 X in vicinity of lat.  $43^{\circ} 01 \frac{1}{2}'$ , long.  $70^{\circ} 42'$  drag grounded between buoys No. 2 and No. 3 set at 20 feet effective depth. The least sounding obtained on this day was 24 feet although on Y day 21 feet was obtained in this same place. A 20 foot sounding should be charted here.

k. At 22 Z in vicinity of lat.  $43^{\circ} 04 \frac{1}{2}'$ , long.  $70^{\circ} 35 \frac{1}{2}'$  the drag grounded at buoy No. 2 set at 36 feet effective. A 36 foot sounding should be charted here.

l. At 36 Z in vicinity of lat.  $43^{\circ} 04'$ , long.  $70^{\circ} 36'$ , the drag grounded at buoy No. 2 set at 33 feet effective. No sounding was obtained, but from a preliminary report 32 feet was charted. According to present practice a 33 foot sounding should be charted here in place of the 32.

m. At 39 Z in lat. ~~32~~<sup>43</sup>  $03 \frac{1}{2}'$ , long.  $70^{\circ} 35 \frac{1}{2}'$  the drag grounded at buoy No. 6 set at 33 feet effective. The shoalest sounding obtained was 38 feet. The clearance depth was 31 feet. A 33 foot sounding should be charted here.

n. At 36 C<sup>1</sup> in lat. ~~70~~<sup>43</sup>  $04'$ , long.  $70^{\circ} 36 \frac{1}{2}'$  the drag grounded at buoy No. 5 set at 31 feet. No sounding was obtained here. 31 feet should be charted here.

o. At 6 M<sup>1</sup> in lat.  $43^{\circ} 01'$ , long.  $70^{\circ} 41 \frac{1}{2}'$  the drag grounded at buoy No. 6 set at 40 feet effective. The cut to the ground does not exactly check the position of buoy No. 6. However 40 feet should be charted here.

p. At 26 M<sup>1</sup> in the vicinity of lat.  $42^{\circ} 59 \frac{1}{2}'$ , long.  $70^{\circ} 43'$  the bight of the drag as plotted on the smooth sheet and on the boat sheet would indicate a grounding between buoys No. 6 and No. 7. There is no note in the record of a grounding at this position, but the line ends here and following that is a U. C. which would indicate that the drag was aground here. According to the plotting, the drag grounded set at 36 feet and cleared at 34 feet. 36 feet should be charted.

q. At 5 N<sup>1</sup> in lat.  $43^{\circ} 04 \frac{1}{2}'$ , long.  $70^{\circ} 37'$  the drag grounded at buoy No. 3 at a depth of 23 feet. Although the plotting shows it was later cleared at 23 feet it is very likely that a 22 foot drag cleared it since the grounding occurs close to a tidal change. A 23 foot sounding should be charted here.

r. At 20 N<sup>1</sup> in lat. 43° 04 1/2', long. 70° 38' the drag grounded at buoy No. 2 set at 25 feet. A 23 feet sounding was shown on boat sheet and this sounding is already charted. Strictly speaking the grounding depth is 25 feet and according to present practice this should be charted but owing to the fact that the grounding might have taken place between buoy No. 2 and buoy No. 3 which was set at 23 feet, the 23 foot sounding was retained.  
O Kd by A.L.G.

s. At 13 O<sup>1</sup> in lat. 43° 04', long 70° 38 1/2', the drag grounded at buoy No. 2 set at 25 feet. This spot was cleared at 19 and 24 feet. From a preliminary study a 24 foot sounding was charted. To be in conformity with the present rule 25 feet should be charted.

t. At 32 Q<sup>1</sup> in lat. 43° 05 1/2' long. 70° 38' the drag set at 30 feet grounded at buoy No. 2. The least depth found was 33 feet but 30 feet should be charted.

u. At 37 Q<sup>1</sup> in the vicinity of lat. 43° 05', long. 70° 39', the drag grounded between buoys N and 1 at an effective depth between 27 and 30 feet. A sounding of 27 feet was obtained 400 meters to the eastward of the grounding and in an area subsequently swept by a 30 foot drag. From a careful study of the time of grounding and the time of taking the sounding as well as the time of making the next hook-up it was concluded that the right angle for this sounding must be in error and so the sounding of 27 feet (3 Q<sup>1</sup> in the sounding record) was plotted with the left angle and on the right of the drag. The sounding of 27 feet now charted to the eastward should be expunged.

v. The sounding of 35 feet in lat. 43° 03 1/2', long. 70° 36' obtained just before the beginning of "J" day should be charted. This position was plotted by using O Cas instead of O Was, as recorded, as this latter signal does not appear on the sheet. The location of the sounding justifies this assumption as the record indicates that a grounding must have taken place when the drag was first set out since the first position is rejected in the records and a U. C. follows it.

w. In lat. 43° 02', long. 70° 38' the boat sheet shows a sounding in red of 43 feet. No record could be found for this and since it is not critical it was omitted.

x. In the vicinity of lat. 43° 03', long. 70° 34 1/2' the boat sheet shows a sounding of 44 feet. No record could be found for this. According to the smooth plotting a 59 foot drag grounded here and a 44 foot drag cleared it. As the depth is not critical it was disregarded.

y. In the vicinity of lat. 43° 02 1/2', long. 70° 35 1/2' the boat sheet shows two soundings of 40 feet and one of 44 feet. No record could be found for these. As the charts show less water here, these soundings were omitted.

z. In lat.  $43^{\circ} 03'$ , long.  $70^{\circ} 36'$  the boat sheet shows a  $32 \frac{1}{2}$  foot sounding. No record could be found for this. An effective depth of 31 and 33 feet was carried over this spot. It is possible, however, that the 33 foot drag was aground before the dragging was begun but no sounding recorded. As this is a critical depth 32 feet should be charted. O. K.d by A.L.G.

a<sup>1</sup>. In the vicinity of lat.  $43^{\circ} 04 \frac{1}{2}'$  and long.  $70^{\circ} 39'$  the boat sheet shows a 24 foot sounding in red. No record could be found for this and no grounding took place here although the drag was forced to stop several times to clear kelp. A 21 foot drag cleared this spot. However, 24 feet should be charted.

A. L. Shalantz .

E. J. G.

ADDRESS THE DIRECTOR  
U. S. COAST AND GEODETIC SURVEY

AND REFER TO No. 4-DRM

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

September 27, 1924.

SECTION OF FIELD RECORDS

Report on Wire Drag Sheet No. 3975

Approaches to Portsmouth Harbor, N. H.

Surveyed in 1917

Instructions dated April 13, 1917

Chief of Party, J. H. Peters.

Surveyed by J. H. Peters.

Protracted by L. D. Graham, E. M. Wilbur.

Inked by A. Baer, F. M. Albert.

Area and Depth sheet by F. M. Albert.

Verified by A. L. Shalowitz, F. M. Albert.

1. The depth and extent of dragging generally satisfy the specific instructions except that in a number of places the drag should have been set closer to the bottom. This was particularly true of the northwestern portion of the sheet where the effective depths range from 20 to 31 feet in depths considerably greater. Also in the passage between Lunging Island and White Island there seems to be a depth of at least 35 feet, but the effective drag depth carried through here was only 26 feet. In the passage between Duck Island and Appledore Island the controlling drag depth in the middle of the channel was only 22 feet. At the southwestern corner of the sheet between Concord Pt. and Straw Pt. the drag should have been carried closer to the 3 fathom curve.
2. The least water was found on all shoals discovered except as follows:
  - a. The 57 foot sounding in latitude  $43^{\circ} 06' 1/2''$ , long.  $70^{\circ} 34' 1/2''$  was effectively covered by the drag on H. 3974.
  - b. The 34 foot sounding (grounding depth) in lat.  $43^{\circ} 06'$ , long.  $70^{\circ} 35'$  was not cleared. However, this is so close to the York Ledge as to hardly need any further dragging.
  - c. The 16 foot sounding in lat.  $43^{\circ} 05' 1/2''$ , long.  $70^{\circ} 36''$ . This is a part of the York Ledge and is unnecessary to drag over.

d. The 30 foot sounding (grounding depth) in lat.  $43^{\circ} 05' 1/2''$ , long.  $70^{\circ} 38'$  was not cleared. A 30 foot drag grounded here but 33 feet was the least water obtained. As there is deeper water inside, this spot should be dragged over.

e. The 21, 27, and 29 foot soundings in latitude  $43^{\circ} 05'$ , long.  $70^{\circ} 39'$  are apparently a part of the same shoal. A 27 and 22 foot drag grounded here, and 21 feet was the least depth obtained. There is a split in the work here caused by the grounding. As there is much deeper water inshore of the 21, it is important that this split be covered and the least water obtained on this shoal.

f. The 21 foot sounding in lat.  $43^{\circ} 04' 1/2''$ , long.  $70^{\circ} 39' 1/2''$  is just outside the limits of the drag. It is a part of a charted shoal and need not be dragged over.

g. The 23 foot sounding (grounding depth) in lat.  $43^{\circ} 04' 1/2''$ , long.  $70^{\circ} 38'$  was not cleared. A good sized split occurs in the work here. There is a strong probability that much less water exists here and it should be dragged over.

h. The 26 foot sounding northeast of Murray Rock buoy in lat.  $43^{\circ} 04' 1/2''$ , long.  $70^{\circ} 36' 1/4''$  was not cleared. However this sounding appears to be a part of a charted shoal of less depth and hence no dragging over this is necessary.

i. The 28 foot sounding in lat.  $43^{\circ} 04'$ , long.  $70^{\circ} 40'$  is a part of a charted shoal of much less water and no dragging over is necessary.

j. The 25 foot sounding in lat.  $43^{\circ} 03' 1/2''$ , long.  $70^{\circ} 38'$  and the 26 foot sounding in lat.  $43^{\circ} 03' 1/4''$ , long.  $70^{\circ} 38' 1/2''$  were not cleared to determine the least water. Two large splits in the work occur around these soundings. Much deeper water surround these spots and there are strong probabilities that less water exists here.

k. The 20 foot sounding in lat.  $43^{\circ} 00'$ , long.  $70^{\circ} 36' 1/2''$ . This sounding is outside the limits of the drag and lies at the termination of the reef making out from Eastern Rocks. It is unnecessary to drag over this.

l. The 51 foot sounding in lat.  $43^{\circ} 00' 1/2''$ , long.  $70^{\circ} 36' 1/2''$  is just outside the limits of the drag. There appears to be deeper water inside of this sounding. The drag should be carried closer to Duck Island so as to cover this spot as well as the 42 foot sounding about  $1/3$  mile to the eastward.

m. There are several soundings along the edge of the drag around Appledore Island upon which the least water was not found. With the exception of the 27 foot sounding in lat.  $43^{\circ} 00'$ , long.  $70^{\circ} 37'$  all of these are close to the shore and need no further consideration. The 27 foot sounding lies about  $1/4$  mile north of

the north end of Appledore Island and well over toward the middle of the passage way between Appledore and Duck Islands. This spot should be dragged over as there may be shoaler water here that might prove menacing to boats using this passage.

n. The soundings along the edge of the drag around Lunging Island are too close to the reef to need any further consideration.

o. The 37 foot sounding just south of the southernmost point of Star Island is too close inshore to need additional dragging.

p. The 42 foot sounding in lat.  $42^{\circ} 58 \frac{1}{4}'$ , long.  $70^{\circ} 36 \frac{1}{2}'$  should be cleared. A 51 foot drag grounded here. The spot is well offshore and lies in the middle of the passage between Cedar Island and Cedar Island Ledge.

q. The 23 foot sounding in lat.  $42^{\circ} 58 \frac{1}{4}'$ , long.  $70^{\circ} 36'$  is probably a continuation of Cedar Island Ledge and needs no further examination.

r. The 42 foot sounding just north of Anderson Ledge in lat.  $42^{\circ} 58'$ , long.  $70^{\circ} 36'$  should be dragged over.

s. The 45 foot sounding in lat.  $42^{\circ} 58'$ , long.  $70^{\circ} 36'$  is at the edge of Anderson Ledge and needs no further consideration.

t. The 35 foot sounding in lat.  $42^{\circ} 58'$ , long.  $70^{\circ} 37 \frac{1}{2}'$  lies too close to the reef from White Island to need additional dragging.

u. The 31 foot sounding in lat.  $43^{\circ} 03'$ , long.  $70^{\circ} 40 \frac{3}{4}'$  and the 26 foot sounding in lat.  $43^{\circ} 03'$ , long.  $70^{\circ} 41'$  should be dragged over to determine the least water.

v. The 37 foot sounding in lat.  $43^{\circ} 03'$ , long.  $70^{\circ} 42'$  has been covered on H. 3976.

w. The group of soundings outside the limits of the drag in the vicinity of lat.  $43^{\circ} 02'$ , long.  $70^{\circ} 42'$  have all been covered on H. 3976.

x. The group of soundings outside the limits of the drag in approximately lat.  $43^{\circ} 00 \frac{1}{2}'$ , long.  $70^{\circ} 43 \frac{1}{2}'$  should be dragged over to obtain a maximum safe depth over this area.

y. The 38 foot sounding in lat.  $42^{\circ} 59'$ , long.  $70^{\circ} 44'$  has been covered on H. 3974.

z. The 40 foot sounding (grounding depth) in lat.  $43^{\circ} 01'$ , long.  $70^{\circ} 41 \frac{1}{2}'$  was not cleared to determine the least water. A large split in the work occurs here and since deeper water surrounds this spot it is important that a drag be passed over this to determine the shoalest depth.

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a'. The 31 foot sounding (grounding depth) in lat. 43° 01', long. 70° 42 1/2', should be cleared by a deeper depth drag as only 20 feet effective was carried over this.

b'. The 50 foot sounding (grounding depth) in lat. 42° 59', long. 70° 36' should be cleared when the split in the work around this spot is covered.

3. The overlaps are sufficient except as shown on the Area and Depth Sheet. The junction between this sheet and H. 3976 is adequate. The junction with H. 3974 will be taken up in the review of that sheet.
4. There are a number of splits on this sheet. All are clearly indicated on the Area and Depth sheet. The most important of these are mentioned in paragraph 2 (e, g, j, z, b').

Other areas on this sheet that need further examination are outlined in paragraphs 1 and 2.

The drag should also be carried closer to the northwest side of Duck Island, closer to Cedar Ledge and to Anderson Ledge on the north and south. The breaks in the dragged areas around the Isle of Shoals should be covered as it is desirable to have continuous safe passages between and around these islands.

5. Attention is called to the following:

a. At 14 B' in vicinity of lat. 43° 01', long. 70° 35', the drag grounded set at 71 feet but no mention is made where. There is a split in the work at about the middle of the drag and the shoal may be located here.

b. At 31 N' and 44 N' in the vicinity of lat. 43° 04 1/2', long. 70° 39' the drag set at 14, 16 and 19 feet fouled on kelp. There is a 20 foot sounding close by from H. 3032. The kelp is probably growing kelp on this shoal. As there is no statement in the records that the drag grounded no shoaler sounding than the 20 already charted could be shown, but the split in the work in this vicinity should be carefully investigated at least with the hand lead for possible shoaler water.

c. The 48 foot sounding shown on the charts about 700 meters north of Lunging Island was taken from the boat sheet. There are no angles given in the records, only a note that it was taken between buoys No. 2 and No. 3. The drag work for this day was, however, rejected by the field party, so the position of the 48 is very approximate.

d. At 12 X in lat. 43° 02', long. 70° 42', the drag grounded at buoy No. 1 set at 33 feet. The least water obtained was 34 feet. The boat sheet shows a 28 foot sounding in the same vicinity, but no record could be found for this sounding. This is evidently the

depth at which the N buoy was hooked to. 28 feet has been charted here from the boat sheet location, but this spot was subsequently covered by an effective depth of 33 feet on H. 3976. The 28 should therefore be expunged from the charts and moved westward to agree with the 28 foot sounding now shown on chart 0329 which was taken from H. 2361.

e. In approximately lat.  $43^{\circ} 01'$ , long.  $70^{\circ} 34'$ , the drag set at 72 feet effective grounded. The tender obtained 3 soundings apparently in approximately the same locality. One was 81 feet for which the location was complete. The other two were 56 feet and 51 feet, but in both cases the angles were incomplete, besides one of the objects used being the end launch for which there was no location. On the adjoining sheet H. 3974 an 89 foot drag grounded in the same vicinity but 81 feet was the least sounding obtained. As the subsequent dragging did not unequivocally disprove the existence of the 51 foot sounding in this vicinity, it was decided after a consultation with the Chief, Section of Field Records and Chief, Section of Field Work to chart the 51 foot sounding in place of the 81 as now charted. (See Sounding Record for this sheet, page 24, vol. 1.)

6. Reference should be made to the verification report of A. L. Shalowitz attached hereto for information regarding the various groundings and depths to be charted.
7. Reviewed by A. L. Shalowitz, August, 1924.

applied to new chart 211 26 Nov. 1957. H. E. MacEwen