

4307

Diag. Cat. No. 1205-S

4307

Form 304 DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY	
State: <u>Maine</u>	
DESCRIPTIVE REPORT.	
Wire Drag. Hydrog.	Sheet No. <u>4307</u>
LOCALITY:	
<u>C. Elizabeth</u>	
<u>Portland Head to Wood I. Light</u>	
<hr/> 19 ²³ <hr/>	
CHIEF OF PARTY:	
<u>O. W. Swainson</u>	

DESCRIPTIVE REPORT TO ACCOMPANY WIRE DRAG
SHEET "B" (1923)

The wire drag work represented by Sheet "B" was performed between the months of July and November, 1923, under orders dated June 2, 1923.

AREA COVERED. The area covered by this sheet includes the in-shore drag work between Portland Head Lighthouse and Wood Island Lighthouse. It overlaps Sheet 3677 of the 1914 survey on the north and east, Sheet "A" (1923) on the east, and Sheet "C" (1923) on the south.

METHODS EMPLOYED. The control used was guide launch control exclusively. End launch positions were taken occasionally to check the computed distances. During the first few days considerable difficulty by the end launch position failed to check the computed distances. The towline length was adjusted and the distances recomputed for these days.

In the survey of Richmond Island Harbor, the end launch was anchored with a 75 foot anchor while the guide launch circled around it. This was necessary because of the limited extent of the Harbor.

The method used in figuring effective depths is described in detail in Book ^{Part 2} 1 of the records accompanying Sheet "A".

CONTROL. The majority of the signals used were located by tertiary triangulation. A few signals were located by plane table and sextant cuts. The signal "Doc" on Richmond Island was found to coincide approximately with the signal "Rich", located by the 1914 survey. Although both signals were supposed to be the south chimney of the house, the 1914 signal is nearer the north chimney.

TIDES USED. Automatic tide gauges were installed temporarily on Old Orchard Pier and on the fish wharf at Bideford Pool. A tide staff was erected on Richmond Island and readings were taken every half hour by

...disproved in that locality. For the work in the
... High tides were secured from the automatic station on
... Railway Pier at Portland, Maine.

SHOALS. At the beginning of the season a sounding tender was
used to determine the depth and nature of shoals. The shoals were found
in general, to be of such small extent that the sounding tender was eliminat-
ed entirely and the soundings taken by the dragmaster when clearing the drag.
The least depth was thought to be sufficient in most cases. In a few cases
the positions of shoals failed to plot within reasonable limits of the approx-
imate location of the shoal. At position 28 S. two soundings taken by the
tender plot outside the far buoy. This was probably due to the fact that
the drag was aground for two hours and was carried out by the current. It
is also probable that the shoal was of large extent and that the least depths
on it were found outside the far buoy. At position 3 S. a sounding was ob-
tained which indicated a lesser depth than that at which the drag was set
yet the drag was not aground. It is possible in this case that the drag
slipped over the shoal.

Record says
"Got 4"
Final
O.K.
A.L.S.

The results of the survey did not show many marked differences
from those obtained by previous hydrographic surveys. A depth of 36 feet,
(approximate location: Lat. $43^{\circ} 31'$, Long. $70^{\circ} 15'$) shown on the chart was
disproved by passing over it with the drag ^{through} ~~three~~ times. A shoal depth of
33 feet was obtained (approximate location, Lat. $43^{\circ} 31'$, Long. $70^{\circ} 16'$)
where the chart showed depths ranging from 60 to 90 feet. Shoal depths
in the vicinity of Negro Island Ledge were disproved. The positions obtain-
ed checked the charted positions very closely but depths were obtained in
most cases less than the figures shown on the chart.

RECORDS. The records of the wire drag work were filled out in the prescribed form with one exception. No separate sounding record was kept. The soundings were entered in the wire drag records at the approximate position at which they were taken.

Forwarded
O. W. Swainson
Chief of Party

STATISTICS FOR WIRE DRAG SHEET B.

DATE 1923	LETTER	VOLUME	POSITIONS	SOUND-INGS	MILES STATUTE	TIDES	REMARKS
July 24	A ✓	1	38	1	4	Rich. Id.	
July 27	B ✓	1	49	3	4	" "	
July 30	C ✓	1	40	3	4	" "	
July 31	D ✓	1	17	1	2	" "	
Aug. 1	E ✓	1	25	3	3	" "	
" 3	F ✓	1	19	0	2	" "	
" 6	G ✓	2	46	1	4	" "	
" 7	H ✓	2	43	3	4 $\frac{1}{2}$	" "	
" 8	J ✓	2	49	3	2	" "	
" 9	K ✓	2	30	6	3	" "	
" 13	L ✓	3	41	1	4	" "	
" 14	M ✓	3	51	3	3.7	" "	
" 16	N ✓	3	24	1	2	" "	
" 27	O ✓	3	47	3	4	Portland	
" 28	P ✓	3	41	1	5	"	
" 30	Q ✓	4	66	2	5	"	
Sept. 19	R ✓	4	53	4	5	Old Orchard	
" 20	S ✓	4	52	5	4	" "	
" 24	T ✓	5	71	4	5	Bidd. Pool	
" 25	U ✓	5	49	1	5	" "	
" 26	V ✓	5	50	0	4	" "	
" 27	W ✓	5	98	0	9	Old Orchard	
" 28	X ✓	6	72	2	7	" "	
Oct. 25	Y ✓	6	20	0	1	Bidd. Pool	
Oct. 26	Z ✓	6	37	2	3	" "	
Oct. 29	AA ✓	6	34	1	4	" "	

1162 54 103.2

All Soundings in Feet.

Plane of Reference of Rich. Id. Staff - Mean low water.

Lowest Tide on Rich. Id. Staff.

Highest Tide on Rich. Id. Staff

Plane of Reference of Old Orchard Gauge - Mean low water.

Lowest tide on Old Orchard Gauge - M

Highest tide on Old Orchard Gauge

Plane of Reference of Bidd. Pool Gauge - Mean low water.

Lowest tide on Bidd. Pool Gauge

Highest tide on Bidd. Pool Gauge

Vessels Used - OGDEN and RODGERS.

Boat sheet accompanies smooth sheet.

January 26, 1924.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
6 volumes of ~~sounding~~ records for
wire drag
HYDROGRAPHIC SHEET 4307

Locality: Vicinity Cape Elizabeth, Maine.

Chief of Party: O. W. Swainson, in 1923.

Plane of reference is Mean low water reading.

3.6 ft. on tide staff at Richmond's Island.

1.9 " " Auto Gauge at Old Orchard.

3.7 " " " " Biddeford Pool.

8.7 " " " " Portland.

For reduction of soundings, 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.


Chief, Division of Tides and Currents.

Report on Verifying Wire Drag Sheet 4307.

1. The area covered by this sheet is very broken and dragging must have been very difficult with strong currents increasing the task. This may be the cause of some of the defects listed below.

2. The condition of the records was fair with the following exceptions:

- a.) The effective depths were omitted for the major portion of the records.
- b.) The soundings at the end of O, and Q days have no time indicated and many were impossible to plot.
- c.) The soundings should have been grouped in a separate volume rather than scattered thru the drag records.

3. The method and character of surveying were below standard as follows:

- a.) The "bottom wire" was not carried close enough to the sea floor, in a large number of places.
- b.) Stops were made without "ending line". Some specific instances are 36A, 17J, and 22J, and though noted that "tension was kept on drag" the value of this method is doubtful.
- c.) Frequent instances occur where no soundings are taken when drag goes aground, and several groundings where soundings were obtained, have not been redragged to insure that the least depth has been found.
- d.) Two signals were called "RAM"
- e.) Systematic tests of upright while dragging were not made. All the tests are listed below to have them in one group and to show rational values of lift.

DAY LETTER	G										J	L	P
Section no.	1	2	5	7	6	5	3	4	2	3	5	4	4
Eff. depth (unreduced)	30	30	25	30	30	25(20)	25	25	20	30(20)	22	15	
Drag test	30	29.5	24	30.8	28	25	24	23	20	30	21.5	15	

10. A great number of positions were taken by the end launch but as no buoy directions were taken in connection therewith an entirely independent fix for the F buoy is not available. However, an approximate direction may be assumed and in most cases would give a wider drag strip than obtained by the Guide Launch fixes. This shows that the work is on the side of safety. However an accurate value of the towline is always necessary because the distance computed is magnified about 6027 times due to the geometry of the figure used in computing.

4) The above list shows that the 1' lift, which was applied to all effective depths, was sufficient in all but two instances.

4 The field plotting was, as a whole, very good. The failure to observe the $\frac{1}{40}$ th rule (a fault often found in field sheets) necessitated considerable changing in the office. The lights as plotted at beginning of lines conformed to the notes in the record. On 14-49 J day an incorrect drag length of 2700 feet was used instead of 2100 feet (vol. 2, p. 32) and disregard of $\frac{1}{40}$ th rule necessitated entirely replotting this strip. A similar mistake was made on L day. On 27M the drag was changed but no hookup recorded and was assumed as 30 feet N to F.

5. Where there is a note of drag aground but no sounding taken, the effective depth (or length of upright) is plotted and circled in green. Such spots require further surveying.

6. Insufficient overlaps are indicated by green arrows and surrounded by dotted curves.

7. Two spots which are noted as probably being anchors should be investigated. One near 44 M where the drag grounded at 11 feet but later cleared with 18 feet. The other at 30K where the drag grounded with 8 feet and subsequently cleared with 10 feet. The exact location of the ground of the latter is somewhat doubtful.

8. The junction with adjoining sheets is satisfactory except at one place (indicated on A. and D. sheet) with H3677.

9. The verifier has compiled a complete list of groundings which is appended to this report. The circumstances of each grounding is concisely stated for ready reference. A photostat copy can be made for the convenience of any subsequent drag parties working in this locality.

Jan. 28, 1925

F. M. Albert, Draftsman
Section of Field Records

H. 4307 Wire Drag
List of Groundings

Pos. No.	Lat. Long. to nearest minute			Effective depth feet	Cleared by feet	Remarks
	°	'	"			
25A	48	29	70 16	55	21	G Record poorly written but apparently G at 1 Deep water (over 100') on H. 699. Not far Chart 1205
26A	48	30	70 16	69	35	G Sounding 58 feet
7B	48	32	70 17	30-32	Not redragged	G (N + 200') Sndg. 31' (not located by angle)
14B	48	32	70 17	30	20	G (N - 1) No sounding
26B	48	31	70 18	65	41	G at 7. Sounding 61'
28B	48	31	70 18	66	41	No note of G but sounding 56 feet obtained
30B	48	31	70 18	66	41	G about 5. No sndg. This ground may be same as G at 9 sounding 53 feet
37B	48	31	70 18	67	58	
70	48	30	70 18	40	Not redragged	No G mentioned in records but sndg. of 37' of
170	48	30	70 17	68	38	G at 8, 9, & F No sndg. Hook up had just been from 52' to 58'. No sndg. was shown because position was rejected & distance angles 77'
220	48	31	70 17	65	Not redragged	G at 4 Sndg. 56' Either shallowest depth not of drag just touching (Note Eff. Depth = 66' lift correction)
240	48	31	70 17	65	21	G between 9-F No sndg. Pos. 23-240 Not into smooth sheet. Towline parted
220	48	32	70 16	47	50	*N* dragging bottom N upright (reduced) 67 f.
4D	48	32	70 17	50	35-45	G at N no sndg. about 62' on H. 4303
7D	48	32	70 16	45	36	G at 2 & 3 sndg. 41'
8E	48	31	71 17	38 at 5 48 at 7	32 32	G at 5 (7) Sndg. 51' plots at 7 Probably least sounding not obtained
15F	48	31	70 15	66-76	59	G at 2.5 as upright at 3 was being raised (d) No sndg. Deep water (over 100' on H. 430)
11G	48	31	70 17	46	21	G at F sounding 46 feet
16G	48	31	70 17	32	23	G at F sndg. 35' (Sndg. at 9E ₂ 33') Perhaps least depth not obtained
11H	48	31	70 16	60	31	G near 6 sndg. 64'. Probably least depth not obtained
13H	48	31	70 16	61	31-41-40	G between 4-5 sndg. 55'
25H	48	32	70 15	17	Not redragged	G at N sndg. 14'
27H	48	32	70 15	17	Not redragged	G at 1 no sounding
10J	48	32	70 15	58	40	G at N no sndg. at N but 53' obtained about meters west of N and maybe location of lead
13J	48	32	70 15	upright = 58' 45	40	G at 2 sndg. 52'

H. 4307 Wire Drag
List of Groundings

Remarks	Decision
G Record poorly written but apparently G at N. No. sndg. Deep water (over 100') on H. 699. Not far from 27' on Chart 1205	No buoy position for N but plot) Omit sndg. 55' at distance of tow line from launch position ^{to least depth}
G Sounding 58 feet	O.K. ✓
G (N + 200') Sndg. 31' (not located by angles)	Plot sounding 31' ✓ ^{Drag possibly placed}
G (N - 1) No sounding	Plot sounding 30' ✓
G at 7. Sounding 61'	O.K. ✓
No note of G but sounding 56 feet obtained	O.K. ✓
G about 5. No sndg. This ground may be same as 2SB	O.K. ✓
G at 9 sounding 53 feet	O.K. ✓
No G mentioned in records but sndg. of 37' obtained	O.K. ✓
G at 8, 9, & F No sndg. Hook up had just been deepened from 52' to 68'. No sndg. was shown because launch position was rejected & distance angles marked "wrong"	Should be resurveyed ^{Break line at 16C} Position 17C rejected by third party and both boats were stopped at this position ^{ALS}
G at 4 Sndg. 66' Either shallowest depth not obtained or drag just touching (Note Eff. Depth = 66' without lift correction)	Stat 66 feet ✓
G between 9-17 No sndg. Pos. 23-24C Not inked on smooth sheet. Towline parted	Plot sounding 65 feet ✓
"N" dragging bottom N upright (reduced) 67 feet	Plot sounding 67 feet ✓
G at N no sndg. about 62' on H. 4308	Plot sounding 50 feet ✓
G at 2 & 3 sndg. 41'	O.K. ✓
G at 5 (7) Sndg. 51' plots at 7 Probably shallowest sounding not obtained	Plot sndg. 38' at 5 ✓
G at 2.5 as upright at 3 was being raised (shortened) No sndg. Deep water (over 100' on H. 4308)	Plot sndg. 76 feet ✓
G at F sounding 46 feet	O.K. ✓
G at F sndg. 35' (Sndg. at 9E ₂ 33') Perhaps shallowest depth not obtained	Plot sounding 32 feet ✓
G near 6 sndg. 64'. Probably least depth not obtained	Plot sounding 60 feet ✓
G between 4-5 sndg. 55'	O.K. ✓
G at N sndg. 14'	O.K. ✓
G at 1 no sounding	Plot sounding 17 feet ^{Omit. Probably an extension of 14 ft. sdg. at 20H. Strip rejected but not}
G at N no sndg. at N but 53' obtained about 100 meters west of N and maybe location of least depth	Plot sndg. 58' at N ^{whether sounding cleared}
G at 2 sndg. 52'	O.K. ✓

H. 4307 Wire Drag
List of Groundings

Pos.	Lat. Long.		Effective depth	Cleared by	Remarks
	to nearest minute				
No.	°	'	feet	feet	
26J	43	33 70 15	12	Not redragged	N dragging bottom No sndg. 14-19 feet on
29J	43	33 70 15	12	not redragged	Stopped to clear N No sndg. over 15' on
38J	43	33 70 15	13-18	10	G at 1 No sndg. (upright of No.1 off. depth 24' on H. 4303)
49J	43	33 70 15	27	11	G at N (24' noted in record but not plotted Falls outside of 30' curve on H. 4303)
5K	43	33 70 15	(17 at 1 & 2 to F)	10	G at 2-1.5 Sndg. at about buoy 4 of 16' N & 2 were capsized but drag not hung up
13K	43	33 70 15	23	not redragged	G at 2 & 3 on shoal but came off when start No sndg.
23K	43	33 70 16	25	not redragged	G at about 7. Sndg. 23'
28K	43	33 70 16	22-27	10 not redragged	G at 3 sndg. 22' upright 27'
30K	43	33 70 16	(S at 5) 8-18	10?	G at 5 no sndg. Position not definite. Rec apparently hung up on old anchor. Appro location covered with 10' drag
36L	43	33 70 13	23	not redragged	G at N. Sounding 10'
4M	43	33 70 14	16	not redragged	G at N No sounding
10M	43	33 70 13	25	21	G at 5 F set to 32' instead of 30 (unreduced Sounding 28 feet)
15M	43	33 70 13	22	not redragged	G at 3 Sounding 11 feet
30M	43	33 70 13	19	9	G at 1 No sounding
38M	43	33 70 12	20	11	G at 6 No sndg. Two sndg. taken near F bit near position of "6"
44M	43	34 70 12	11	10 & 18 7	G at N No sndg. Probably aground on old a See note Vol. 3 p. 34
6N	43	33 70 11	9	8	G at 5 sndg. 19' Drag hung up in kelp
18N	43	33 70 11	25	12	G at 8 no sndg. 32' near this spot on H. 4 Sndg. 25' on H. 3677
40	43	36 70 11	16	15	G at 5 sounding 16 feet
70	43	36 70 11	20	40 on H. 3677 21'	Stopped to clear N upright. No mention of " that were taken unable to plot. a third outside of drag
370	43	36 70 12	27	13 - 18	"G" at N Sndg. 23' plots 150 meters WSW of
430	43	36 70 12	14	12	"G" at F no sndg. Some doubt that F actual
470	43	36 70 12	15	6 - 7	G at 4 on 9' sndg. obtained at position 70
24P	43	36 70 12	19-24	13	G at 4 sndg. 22' upright at 4 24' (reduced)
2Q	43	36 70 12	28	6 - 15	G 5-F on shoal pos. 1-2Q Rejected in record No sounding Near charted shoal

H. 4807 Wire Drag
List of Groundings

Remarks	Decision
N dragging bottom No sndgs. 14-19 feet on H. 4808	Plot sounding 12 feet ✓
Stopped to clear N No sndg. over 18' on H. 4808	Plot sounding 12 feet ✓
G at 1 No sndg. (upright of No. 1 off depth of 18') 24' on H. 4803	Plot sounding 18 feet ✓
G at N (24' noted in record but not plotted on sheet) Falls outside of 30' curve on H. 4803	Plot sounding 24 feet ✓
G at 2-1.5 Sndg. at about buoy 4 of 18' Note says 1 & 2 were capsized but drag not hung up	Plot sndg. 17' between 1 & 2 ^{omit} regarding
G at 2 & 3 on shoal but came off when started line No sndg.	Leave as is. May have been aground ✓ on 24' sndg. of 49J
G at about 7 Sndg. 23'	O.K. ✓
G at 8 sndg. 22' upright 27'	O.K. ✓
G at N no sndg. " 27'	Plot sounding 27' at N ✓
G at 5 no sndg. Position not definite. Record says apparently hung up on old anchor. Approximate location covered with 10' drag	Plot sounding 8' ✓
G at N. Sounding 10'	O.K. ✓
G at N No sounding	Plot sounding 16 feet ✓
G at 5 F set to 32' instead of 30 (unreduced) Sounding 28 feet	Plot sndg. 25' at buoy 5 ✓
G at 3 Sounding 11 feet	O.K. ✓
G at 1 No sounding	Plot sndg. 19 feet ✓
G at 6 No sndg. Two sndg. taken near F but not near position of "6"	Plot sndg. 20' at buoy 6 ✓
G at N No sndg. Probably aground on old anchor See note Vol. 3 p. 34	Plot sounding 11 feet ✓
G at 5 sndg. 19' Drag hung up in kelp	Leave as is ✓
G at 8 no sndg. 32' near this spot on H. 4803 Sndg. 25' on H. 3677	Plot sounding 25 feet ✓
G at 5 sounding 16 feet	O.K. ✓
Stopped to clear N upright. No mention of "G" 2 sndg. that were taken unable to plot. a third plots far outside of drag	Plot sounding 20' at N ✓
"G" at N Sndg. 23' plots 150 meters WSW of N	O.K. ✓
"G" at F no sndg. Some doubt that F actually aground'	Plot sounding 14' at F ✓
G at 4 on 9' sndg. obtained at position 70'	O.K. ✓
G at 4 sndg. 22' upright at 4 24' (reduced)	O.K. ✓
G 5-F on shoal pos. 1-2Q Rejected in record No sounding Near charted shoal	Leave as is ✓

H. 4307 Wire Drag

List of Groundings

Pos. No.	Lat. to nearest minute	Long. to nearest minute	Effective depth	Cleared by	Remarks		
No.	°	'	feet	feet			
6Q	48	35	70	11	38	Not redragged. Not cleared on H. 3677	G at 1 no sounding Sndg. 34 feet on H. 367
31Q	48	35	70	12	18-23	11	G at 5 sounding 17 feet
37Q	48	35	70	12	11	Zero feet	G at 2 sounding 6 feet
56Q	48	35	70	12	21	13	G 1-2 no sounding
57Q	48	35	70	12	12	13	G at 2 pos. rejected in record no sounding
61Q	48	35	70	12	13	not redragged	G at F no sounding
2-3R	48	30	70	16	64	21	G at F no sounding Over 70' on H. 4303 but with 49' & 27' about 1/2 mile N.W.
17R	48	29	70	17	76-86	77	G at 3 no sounding Record states "3 upright so there is probably no shoal here
25R	48	28	70	18	58&68	39 (at buoy 7) " " " N	G at N & 7 no sounding at N or 7 but 49' son 9. Over 70' shown on H. 4303 Less water (4303 W. D.)
43R	48	28	70	19	88	88 on H. 4309 34	G at F no sounding. H. 4303 shows 75-90 f.
45R	48	27	70	19	48	24 on H. 4309 14&(18 on H. 4309) at F	G at N sounding 38 feet
48R	48	27	70	19	32, 47	14 at N & 1 on H. 4309	G at N, F & 1 Sndg. 29' at N. No sndg. at 1. F buoy F is close to 60' curve
53R	48	28	70	20	14-24	not cleared	G at 1 & 2. Sndg. 29' upright No. 2, 34'
3S	48	28	70	19	61	48 on H. 4309 34	G at 4. Sndg. 59'
17S	48	29	70	18	58	37 at 5 47 at 7	G at 5. Sndg. 57' at 7. Record says least depth not have been obtained
28S	48	29	70	18	47	33	G at 7. Sndg. 42' and 44' but they plot outside path of drag. Sndg. positions? H. 4303 shows over 70 feet
45T	48	30	70	18	68	30	G at F. Sounding 60 feet
51T	48	30	70	18	70	26	G at 2. Sounding 70 feet
58T	48	30	70	18	26	Not redragged	G at F. Sounding 26 feet
61T	48	30	70	18	28	Not redragged	G at F. No sounding
68T	48	30	70	18	49	15	G at 6. Sounding 32 feet. G as upright was changed from 30 feet to 50 feet
23U	48	30	70	18	31	Not redragged	G at F. No sndg. May have hooked lobster pot grounded on reef very close to F buoy. 20 37 feet on H. 4303

H. 4307 Wire Drag

List of Groundings

Remarks	Decision
G at 1 no sounding Sndg. 34 feet on H. 8677	Plot sounding 38 feet <i>omit on charted</i>
G at 5 sounding 17 feet	O.K. ✓
G at 2 sounding 6 feet	O.K. ✓
G 1-2 no sounding	Plot sndg. 21' bet. buoys 1 & 2 ✓
G at 2 pos. rejected in record no sounding	This spot should be redragged ✓
G at F no sounding	Plot sounding 18 feet ✓
G at F no sounding Over 70' on H. 4303 but a shoal with 49' & 27' about 1/2 mile N.W.	Plot sndg. 64' bet. pos. 2 & 3 ✓
G at 8 no sounding Record states "8 uprights sunk" so there is probably no shoal here	No sounding shown ✓
G at N & 7 no sounding at N or 7 but 49' sounding at 9. Over 70' shown on H. 4303 Less water (57') on H. 4308 W. D.	Plot. sndg. 68' at 26 R at N - omit ✓ No. sndg. plotted at 7 <i>on charted 57'</i>
G at F no sounding. H. 4303 shows 75-90 feet	Plot sounding 88 feet <i>omit on charted less depth</i>
G at N sounding 38 feet	O.K. ✓
G at N, F & 1 Sndg. 29' at N. No sndg. at 1, no sndg. at F buoy F is close to 60' curve	Plot sndg. 47' at F ✓ Sndg. 29 ft. O.K.
G at 1 & 2. Sndg. 29' upright No. 2, 34'	O.K. ✓
G at 4. Sndg. 59'	O.K. ✓
G at 5. Sndg. 57' at 7. Record says least depth may not have been obtained	Plot sndg. 58' at buoy 5 ✓
G at 7. Sndg. 42' and 44' but they plot outside of path of drag. Sndg. positions? H. 4303 shows over 70 feet	Plot 47' at buoy 7 ✓
G at F. Sounding 60 feet	O.K. ✓
G at 2. Sounding 70 feet	O.K. ✓
G at F. Sounding 26 feet	O.K. ✓
G at F. No sounding	Plot sounding 23 feet ✓
G at 6. Sounding 32 feet. G as upright was being changed from 30 feet to 50 feet	O.K. ✓
G at F. No sndg. May have hooked lobster pots or grounded on reef very close to F buoy. 20 to 37 feet on H. 4303	Plot sounding 31 feet <i>omit</i>

H. 4307 Wire Drag

List of Groundings

Pos.	Lat. to nearest minute	Long. to nearest minute	Effective depth feet	Cleared by feet	Remarks
49U	43 30	70 21	28	20	G at F. Sounding 32 feet Upright 36 feet
24W	43 31	70 20	12-27	Not redragged	This may not be a G. Note in record reads "C" and may mean the Guiding Launch stopped at be H Stopped
14X	43 31	70 21	15	--	G at F on fish trap
14X	43 31	70 21	20	Not redragged	G sounding 11 feet
59X	43 28	70 21	18	10	G sounding 14 feet
62X	43 28	70 21	19	10	G at 8. No mdg. probably same shoal as 59X
72X	43 28	70 20	21	Not redragged	G at F. Record says buoy drifted aground when up drag. No sounding
17Z	43 32	70 17	16 21	16	G at 7) G at 4) No mdgs. May have grounded on chart while reversing drag. Position approximate. Less water now charted
23Z	43 33	70 17	16	9	G at 7 sounding 14 feet
25Z	43 33	70 17	17	9	G at F no mdg. passed "close to" by a 20'
32Z	43 33	70 16	18	11	G at 3 sounding 16 feet
34A	43 33	70 16	17	11	G at 3 sounding 18 feet (upright 22 feet)

Lamy

H. 4807 Wire Drag

List of Groundings

Remarks	Decision
G at F. Sounding 32 feet Upright 35 feet	O.K. ✓
This may not be a G. Note in record reads "G stopped" and may mean the Guiding Launch stopped and should be H Stopped	No sounding plotted Correct strip between 23 + 25 W. Oiled by A.L.G.
G at F on fish trap	No sounding plotted ✓
G sounding 11 feet	O.K. ✓
G sounding 14 feet	O.K. ✓
G at S. No sndg. probably same shoal as 59X	O.K. ✓
G at F. Record says buoy drifted aground while taking up drag. No sounding	No sounding plotted ✓
G at 7) No sndgs. May have grounded on charted shoal G at 4) while reversing drag. Position .'. only approximate. Less water now charted	Leave as is ✓
G at 7 sounding 14 feet	O.K. ✓
G at F no sndg. passed "close to" by a 20' drag	Plot sounding 17 feet ✓
G at 3 sounding 16 feet	O.K. ✓
G at 3 sounding 18 feet (upright 22 feet)	O.K. ✓

Compiled by F.M. Albert

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

SECTION OF FIELD RECORDS

Report on Wire Drag Sheet No. 4307

Vicinity of Cape Elizabeth, Maine

Surveyed in 1923

Instructions dated June 2, 1923 (O. W. Swainson)

Chief of Party, O. W. Swainson.

Surveyed by O. W. S.

Protracted and inked by J. A. McCormick.

Verified and Area and Depth sheet by F. M. Albert.

1. The condition of the records was fair with the following exceptions:
 - a. For the major portion of the work, no entries were made in the columns marked "Length of upright", "Correction", and "Effective depth", making it necessary for the verifier to make the reductions.
 - b. The soundings entered at the end of "O" and "Q" days have no time indicated and many were impossible to plot due to defective data.
 - c. The soundings discovered by the drag are scattered throughout the wire drag records instead of entering all in a separate sounding record as required by paragraph 247 of the General Instructions.
 - d. There were instances where drag grounded but tension kept on drag yet no indications in the records that the drag was lifted over the shoal or when it was cleared.
2. The methods and character of operations were below standard in the following respects:
 - a. Systematic drag tests were not made, but based upon recorded tests made on a few days (which show a maximum lift of 2 feet in 25) a uniform correction of 1 foot was applied throughout the work.

b. Stops were made without "ending the line." This is poor practice and should be avoided as the releasing of tension on the drag would have a tendency for the drag to lift, thereby giving an uncertain effective depth. In all such cases the drag strip should be broken and a split shown.

c. There are 30 cases where groundings occurred but no soundings were obtained, and in some of these cases the area was not redragged.

3. The extent of dragging satisfies the specific instructions except that the area between Ram Island and Eagle Island has not been dragged.

The depth of dragging is much too shoal for the charted depths in this locality. This is particularly true of the area between Prouts Neck and Bluff Island, Saco Bay, and the area from Richmond Island to the northern limit of the sheet. The effective depths of the drag in some of these places range from 10 to 30 feet less than the charted depths. As the work now stands very few if any of the areas with depths less than fifty feet have been dragged to within 3 feet of the bottom which is the generally accepted practice. It might also be mentioned that across practically the entire entrance to Broad Cove the effective depth is 0 feet, and about half of the channel to the west of Willard Rock (Chart 325) has been dragged to an effective depth of 10 feet.

4. Attention will merely be called to the more important shoals discovered or previously known and groundings over which the least water has not been obtained. For all others, reference should be made to the Area and Depth Sheet.

a. The 21 ft. sounding (grounding) in lat. $43^{\circ} 35'$, long. $70^{\circ} 12'$ was cleared by a 13 ft. drag.

b. The 13 ft. sounding (grounding depth) in Broad Cove, lat. $43^{\circ} 34 \frac{3}{4}'$, long. $70^{\circ} 12 \frac{1}{4}'$ was not cleared.

c. The 17 ft. sounding in lat. $43^{\circ} 34 \frac{3}{4}'$, long. $70^{\circ} 11 \frac{3}{4}'$ was cleared by 11 ft.

d. The 18 foot charted sounding off Cape Elizabeth Light was cleared by a 12 foot drag.

e. The 20 foot sounding (grounding depth) between Cape Elizabeth and Taylor Reef, lat. $43^{\circ} 33 \frac{1}{2}'$, long. $70^{\circ} 11 \frac{3}{4}'$ was cleared by an 11 foot drag.

- f. Taylor Reef with 18 feet at its lower end was cleared by an 8 ft. drag.
- g. The 19 foot sounding (grounding depth) in Seal Cove, lat. $43^{\circ} 33 \frac{1}{4}'$, long. $70^{\circ} 13'$ was cleared by a 9 ft. drag and the 25 ft. sounding (grounding depth) 350 meters westward was not re-dragged.
- h. The 18 ft. sounding in Richmond Island Harbor, lat. $43^{\circ} 32 \frac{3}{4}'$, long. $70^{\circ} 15'$ was cleared by a 10 foot drag.
- i. The 17 ft. sounding (grounding depth) in lat. $43^{\circ} 33'$, long. $70^{\circ} 16 \frac{3}{4}'$ was cleared by a 9 ft. drag.
- j. The 65 ft. sounding (grounding depth), lat. $43^{\circ} 31 \frac{1}{4}'$, long. $70^{\circ} 16 \frac{1}{2}'$ was cleared by a 21 ft. drag.
- k. The 66 ft. sounding, lat. $43^{\circ} 31 \frac{1}{2}'$, long. $70^{\circ} 17'$ was not cleared. A split remains in the work here.
- l. The 32 ft. sounding (grounding depth), lat. $43^{\circ} 31'$, long. $70^{\circ} 16 \frac{3}{4}'$ was cleared by a 23 ft. drag. Thirty-three feet in now charted. This is a very important shoal.
- m. The 27 ft. shoal (Three Tree Ledge) was cleared by a 21 ft. drag.
- n. The 70 ft. sounding in lat. $43^{\circ} 30'$, long. $70^{\circ} 17 \frac{1}{2}'$ was cleared by a 26 ft. drag.
- o. The 32 ft. sounding in lat. $43^{\circ} 29 \frac{1}{2}'$, long. $70^{\circ} 18 \frac{1}{4}'$ was cleared by a 15 ft. drag.
- p. The 30 ft. sounding in lat. $43^{\circ} 28 \frac{1}{4}'$, long. $70^{\circ} 20'$ was cleared by a 21 ft. drag.
- q. The 32 ft. sounding in Saco Bay, lat. $43^{\circ} 29 \frac{3}{4}'$, long. $70^{\circ} 21 \frac{1}{2}'$ was cleared by a 20 ft. drag.
- r. The 29 ft. sounding in lat. $43^{\circ} 27 \frac{1}{4}'$, long. $70^{\circ} 19'$ was cleared by a 14 ft. drag on H. 4309.

5. It is desired to call attention to the following:

- a. At 7B in lat. $43^{\circ} 32 \frac{1}{2}'$, long. $70^{\circ} 16 \frac{1}{2}'$ the record says "G at N + 200 sdg. of 40'." No position was given for this nor was there any mention made of drag being cleared. As the reduced depth of the sounding is 31 ft. which was also the effective depth of the drag, and the grounding having occurred at a tidal change it is possible that the rise of the tide cleared the drag.

Position in
General Remarks
R.E.E.
2-18-54

b. At 44 M, lat. 43° 34', long. 70° 11 3/4' the drag grounded at N at 11 ft., but was cleared on following day by an 18 ft. drag from the opposite direction. A note in the record says a large anchor is reported to exist in this vicinity (See vol. 3, page 34). This area should be investigated.

Recommended for
investigation
in Review
H-6677(1941)
during 1942
season
G.F.J.
8/14/42

c. At 7-0 in lat. 43° 36', long. 70° 11' a note in the record says "Stopped to clear "N" upright." N was set at 20 ft. effective. Although soundings are recorded as having been taken between this position and the next position they do not plot near the N buoy, nor was the time given when they were taken. There seems to be considerable doubt as to the operation of the drag here judging from the question marks in the record. The point where N plots was cleared by a 41 ft. drag in 1914 by N. H. Heck (H. 3677). In view of this and also the fact that no grounding is actually mentioned as having taken place, there is no warrant for the charting of a 20 ft. sounding here. However, there is a sufficient degree of uncertainty to require a further investigation of this area.

adequately
covered by
H-6677(1941)
G.F.J.

d. At 43-0 in lat. 43° 35 3/4', long. 70° 11 3/4' there is some doubt as to whether the drag was actually aground at F since the end launch signalled ground and then annulled the message. It seems, however, that from the subsequent manoeuvring of the drag it must have been aground. Fourteen feet is therefore shown on the Area and Depth Sheet at F but this should be investigated.

H-6677 (1941)
Survey is
adequate
G.F.J.

e. At 27 S in lat. 43° 29', long. 70° 18' the drag was aground at buoy No. 7 for 2 hours. A depth less than the effective depth of drag was obtained outside the far buoy. A 47 ft. sounding should be charted but the area should be investigated.

f. At 68 t in lat. 43° 29 1/2', long. 70° 18' the drag grounded at buoy No. 6 which had just been changed from 29 to 49 feet. Thirty-two feet was obtained at this point. There is some uncertainty as to the manoeuvring of the drag here so the line was ended at 68 t and begun again at 69 t. So that the 32 ft. spot while it may have been cleared by either 29 or 19 ft. is shown as definitely cleared by a 15 ft. drag. This is an important spot and should be investigated with a deeper drag.

g. The soundings of 58 and 52 feet at 10 J and 13 J respectively in lat. 43° 32', long. 70° 15' while shown on the Area and Depth sheet as cleared by a 40 ft. drag, should be redragged as the end of the 40 ft. strip is only 50 to 100 meters from the sounding so that any error in location of the end buoys would throw the bight of the drag on the other side of the shoal.

h. At position 57 Q in lat. 43° 35', long. 70° 12' the record says G at 2, which was set at 12 ft. effective. The position was rejected by the field party so that the position of the ground could not be plotted. There is also some uncertainty as to whether the drag actually grounded at No. 2 since on reversing to clear, the drag was being raised at buoy No. 6 which was then set at 21 ft. effective. It will be noted that this is buoy No. 2 reckoned from the far end. The area was later cleared at 13 ft. No sounding should be charted here for this grounding but the area should be investigated.

*adequately
covered by
H-6677 (1941)
G.F.D.*

i. At 6 N the drag grounded at buoy No. 5 set at 9 ft. effective. The least water obtained was 19 ft. A note by the Chief of Party says hung up in kelp. The depth at which the drag grounded was therefore omitted, but the area requires further investigation. An 8 ft. drag subsequently cleared it.

*43°33.5/70°11.5
undeveloped on
H-6677 (1941)
during 1941 season
G.F.D.*

j. At 30 K in lat. 43° 33 1/4', long. 70° 16 1/2' the record says "G at 5. Drag hung up on an old anchor apparently." The position of the grounding is in doubt owing to the doubtful location of the launches at this position. The buoy was set at 8 ft. effective so an 8 ft. sounding is shown on the Area and Depth Sheet in the most probable position. This spot was later cleared by a 10 ft. drag. This area should therefore be further investigated.

k. The 14 ft. sounding now charted in lat. 43° 35', long. 70° 11 1/4' is shown on the Area and Depth sheet as cleared by a 17 ft. drag. The authority for this sounding is H. 403 bis. The sounding should be retained on the charts on account of doubt as to whether the effective depth of the drag was actually 17 ft. as it passed over the spot. The drag had stopped to remove lobster pots at 8 Q and during that time the drag not being under tension may have lifted so that when the line was resumed the drag in its raised position may have passed over the spot.

*Recommended
for verification
and development
in 1942 season on
H-6677 (1941)
G.F.D.*

6. There are numerous cases of insufficient overlap on the sheet which are indicated by dotted green lines and green arrows on the Area and Depth Sheet. In general they fall in deep water or in areas where the bottom is fairly regular. The most important of these cases is perhaps the one falling in lat. 43° 36'.3, long. 70° 12'. The area here is irregular with a definite shoaling close to the point of inadequate overlap.
7. There are numerous splits on this sheet, all clearly indicated on the Area and Depth Sheet. Since so much additional work is required here, it is not deemed necessary to enumerate in this report all the splits that should be dragged over. Whenever instructions are prepared for drag work in this locality, the Area and Depth sheet can be superimposed on the published charts and a study made of the important areas.

8. The junction with H. 3677 is satisfactory except in the vicinity of lat. $43^{\circ} 31 \frac{1}{2}'$, long. $70^{\circ} 13 \frac{1}{2}'$ where a considerable split was left between the two sheets.

The junctions with H. 4308 and 4309 are adequate.

9. Additional work will be required in conformity with the above notes.
10. Reviewed by A. L. Shalowitz.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET
WIRE DRAG

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Register No. B. 4307

State Maine

General locality . . . Cape Elizabeth

Locality . . . Portland Head to Wood Island Light

Chief of party . . . O. W. Swainson

Surveyed by Wire Drag Party No. 1

Date of survey . . . July - October, 1923

Scale 1 - 20,000

Soundings in Feet

Plane of reference . . . Mean Low Water

Protracted by J. A. McCormick Soundings in pencil by

Inked by J. A. McCormick . . . Verified by F. M. Albert - Drag work
R. L. Johnston - Sndgs.

Records accompanying sheet (check those forwarded):

Des. Report, _____ Tide books, _____ Marigrams, 1 Boat sheets,

_____ Sounding books, 6 Wire-drag books, _____ Photographs.

Data from other sources affecting sheet

See chart accompanying "A" sheet

Remarks: The above tidal data forwarded November 23 and 28, 1923.