

5141

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

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

State: Mass.

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. 1
Hydrographic } 5141

LOCALITY

Nantucket Sound

Pollock Rip Channel to

Handkerchief Shoal

1901

CHIEF OF PARTY

C. A. Egnor

U. S. GOVERNMENT PRINTING OFFICE: 1920

5141

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES
DEC 28 1931
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REG. NO. 5141

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 1

REGISTER NO. 5141

State Mass.

General locality Nantucket Sound

Locality Pollock Rip Channel to Handkerchief Shoal

Scale 1:20,000 Date of survey Aug. - Sept., 1931

Vessel M. V. NATOMA

Chief of Party C. A. Egner

Surveyed by C. A. Egner and G. R. Shelton

Protracted by D. H. Konichak

Soundings penciled by D. H. Konichak

Soundings in ~~fathoms~~ feet

Plane of reference M. L. W.

Subdivision of wire dragged areas by _____

Inked by D. H. Konichak

Verified by _____

Instructions dated July 16, 1931, 19

Remarks: _____

D E S C R I P T I V E R E P O R T

S H E E T N O . O N E

P O L L O C K R I P C H A N N E L A N D T H E S H O A L S
D E F I N I N G I T S L I M I T S ,

M A S S .

1 9 3 1

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I N S T R U C T I O N S :

This survey was made under the Director's Instructions dated July 16, 1931.

L I M I T S :

The area surveyed included Pollock Rip Channel and the limiting shoals from Latitude 41 35.5 Southerly to 41 31.0, thence Southeasterly to 41 28.0; and from Longitude 69 53.0 Easterly to 70 05.7 and Monomoy Island. There were a few soundings taken from prior work to assist in defining the limits. These were almost valueless due to the change in bottom configuration.

METHODS:

The signals were located by ordinary plane-table methods. The launch and Motor Sailer were used off the east shore to a distance of about two miles, and off the southern most tip to a distance of about one-half mile. A narrow strip about $3\frac{1}{2}$ miles from shore to buoy "16" was also sounded with the launch. All soundings were taken with a hand lead, the weight being increased because of the strong currents. Lines were run normal to the beach at 200 meter intervals and channel lines later run parallel to the beach to see if a channel closer to shore was feasible. The erratic currents and strong rips made it extremely difficult to run lines properly when no ranges were available, and occasioned numerous splits to obtain the desired intervals.

Buoys "A", "B", "C", and "D" were planted by the ship to supplement shore control. These were placed at strategic points, as their positions on the sheet indicate. A special report as to their construction and effective anchor depth has already been submitted.

The ship was used for that area outside of the launch limits. Channel lines were run at 100 meter intervals in depths under seven fathoms, and at 200 meter intervals in depths over seven fathoms. 50 meter lines were used over critical areas and shoals. In general, no crossing lines were run. Hand lead soundings were used throughout.

DANGERS:

The channel, as now outlined, has a controlling depth of thirty feet after the buoy changes hereinafter mentioned take place. The area between Buoys "4" and "6" has many shoal depths and until the positions of these buoys are changed, is extremely dangerous to navigation.

It is respectfully suggested that buoy "4" be moved South (true) about 200 meters into a depth of 36 feet. A line between buoys "4" and "6" will then fall sufficiently far south of the shoal soundings between these buoys so as to render them much less dangerous.

Tide rips and cross currents make it inadvisable to use Pollock Rip Slue in preference to the Main channel.

TIDE GAUGES:

A portable automatic tide gauge was maintained at the entrance to Powder Hole for the duration of the work, for the reduction of soundings.

DISCREPANCIES:

Extensive changes in configuration of the bottom made it practically impossible to join up previous surveys as outlined in the Instructions. Material changes in depth throughout the area surveyed indicate the need for a resurvey of the entire area.

ANCHORAGES:

A satisfactory anchorage is not to be found off the east shore of Monomoy Island, but the NATOMA usually anchored in deep water west of Monomoy Point Coast Guard Station. This anchorage is subject to the effect of rips and cross currents and might prove unsatisfactory in a heavy seaway.

STATISTICS:

Statute miles of sounding lines	710.4
Sq. Stat. " " " "	35.4
Number of soundings	17,522
Number of positions	3,711

LANDMARKS:


Submitted with Seasons Report on Form 567 "Landmarks for Charts"

Respectfully submitted,



D. H. Konichek
Aid, C. & G. Survey.

Approved and forwarded;



Jack C. Sammons
Chief of Party.

HYDROGRAPHIC STATISTICS FOR SHEET #1
POLLOCK RIP CHANNEL

1931	Day	Vol.	Boat	Miles Sn'dg.lines	Sn'dgs. No. of	Pos. No. of	Add. Miles
Aug. 4	A	1	Ship	45.7	686	136	33.5
5	B	1	"	28.7	358	113	24.5
6	C	1	"	25.8	546	88	17.0
6	C	2	"	16.1	326	54	12.5
7	D	2	"	17.3	272	74	27.5
11	E	2	"	33.0	529	105	39.7
12	F	2	"	10.1	201	54	11.2
13	G	2	"	10.0	211	54	
13	G	3	"	9.0	194	53	23.3
14	H	3	"	13.9	250	65	27.0
17	J	3	"	37.4	600	132	39.6
18	K	3	"	36.1	623	136	36.8
18	K	4	"	3.2	36	12	8.5
19	L	4	"	7.3	111	35	17.3
20	M	4	"	35.5	730	148	32.2
21	N	4	"	30.1	706	142	55.8
25	P	5	"	8.4	244	47	31.5
31	Q	5	"	32.3	615	158	53.7
Sept. 1	R	5	"	37.4	841	198	28.0
8	S	6	"	11.2	249	57	22.8
9	T	6	"	30.0	622	167	35.2
16	U	6	"	7.4	150	38	40.0
TOTALS				485.9	9100	2066	617.6

HYDROGRAPHIC STATISTICS FOR SHEET NO. 1

POLLOCK RIP CHANNEL, MASS.

Date 1931	Day	Vol.	Boat	Miles Sn'dg. Lines	Sn'dgs. No. of	Pes. No. of	Add. Miles
Aug. 4	a	1	Launch	16.0	568	102	4.0
5	b	1	"	17.7	824	152	5.5
6	c	1	"	8.1	305	63	3.5
6	c	2	"	11.7	512	86	10.1
7	d	2	"	11.8	448	92	12.5
11	e	2	"	15.0	624	107	11.0
12	f	3	"	4.7	192	33	12.0
13	g	3	"	13.0	459	77	17.3
14	h	3	"	4.5	181	32	10.5
18	j	3	"	19.6	648	125	8.0
19	k	4	"	20.6	681	132	17.0
20	l	4	"	17.1	691	157	15.4
21	m	4	"	7.6	240	46	6.8
21	m	5	"	10.7	360	68	8.5
25	n	5	"	2.0	96	17	7.5
31	p	5	"	13.4	482	99	15.0
Sept. 1	q	5	"	14.9	492	115	13.6
1	q	6	"	5.8	173	44	6.0
9	r	6	"	10.3	446	98	13.0
TOTALS				224.5	8422	1645	197.2

January 28, 1932.

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
12 volumes of sounding records for

HYDROGRAPHIC SHEET 5141

Locality Nantucket Sound, Pollock Rip Channel to Handerchief Shoal, Mass.

Chief of Party: C. A. Egner in 1931

Plane of reference is

1.4 ft. on tide staff at Monomoy Point, reading
16.6 ft. below B. M. 10

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No., entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

J. Hammer

Acting Chief, Division of Tides and Currents.

April 15, 1932

Section of Field Records
Report on H-5141
Pollock Rip Channel to Haulkuchief Shoal
Instructions dated July 16, 1931 (Nations)
Surveyed in 1931

Chief of Party - C. A. Eger

Surveyed by - C. A. E. & G. R. Shelton

Protected by - D. H. Kossichek

Soundings plotted by - D. H. K.

Verified & inked by - Harold W. Murray

1. The records, plan & character of development fulfill the requirements of the Hydrographic Manual.
2. The plan and extent of development satisfies the specific Instructions except that it would have been desirable if an additional line had been run between pos. 126A & 70D in lat. $41^{\circ}31'$, long. $70^{\circ}01.3'$; and also several pockets to the northeast in the main channel.
3. Crossings are adequate and satisfactory. Agreement in general varies from 2 to 4' and in specific instances varies considerably due to the rapid change of the bottom.
4. Depth curves can be satisfactorily drawn except the

60 ft. curve in lat. $41^{\circ}32'$

5. Field plotting in general was poor. Many errors were obvious at sight. The line 18-23B in lat. $41^{\circ}31.6'$, long $70^{\circ}01'$ was plotted within 30 m. of pos 109-113B, ✓ the resultant soundings outlining a marked ledge which was thought to be fucus in a sandy area. An investigation was made which warranted shifting of the line (18-29B) to about 100 m southeast. Coincident with this, the only strong fixes, 21 & 27B, which had been rejected, agreed excellently and were retained.

Pos. 1-7A were not plotted in the field but were plotted in the Office by the verifier with corrections as shown in the records.

In plotting of soundings, lines were frequently confused with others, especially in congested areas. Inshore, the spacing of soundings was very poor.

6. It should be born in mind that special instructions were received as to the method of procedure in verifying this sheet. This accounts for the lightness of the work in the main channel from long. $69^{\circ}54'$ to $69^{\circ}57'$. Interpolation was extensively used and where available, indicative soundings were plotted to verify the numerous shoals.

7. Upon receipt of this sheet, the verifier was instructed to

make a comparison of information relative to buoys and the shoaling in lat $41^{\circ}33.6$, long $69^{\circ}56.8$

The buoys listed on the Engineer's Blueprint #24615 (changed April, 1931) were reduced from a 3,000 scale to 20,000 and plotted on this sheet H-5141 for comparison. All information was then reduced to a 40,000 scale and plotted on the chart #250. Considerable shifting and changes had occurred. The only buoys remaining practically unchanged were #12, 7, 1 & 4. ✓

8. The shoaling in lat $41^{\circ}33.6$, long $69^{\circ}56.8$ is of recent development and is a menace to navigation as it protrudes slightly beyond the channel line marked by buoys #4 & 6. (See Chief of Party's recommendations) This shoal was verified promptly and the sheet presented to the proper authorities. ✓
9. The shoaling with least depth of 29 ft in lat $41^{\circ}32.6$, long $69^{\circ}58.7$ (nos. 81B, 17D & 5T) is likewise of major importance. Upon transfer to the chart #250, this shoal falls in the vicinity of a 42 ft sounding. Correction to the chart was applied immediately. The shoaling falls approximately 110 m. outside the channel limits reached by buoys #7 & 9. One of the buoys should be moved. ✓
10. The shoal indication of 28 ft in lat $41^{\circ}33'$, long $69^{\circ}57.4$.

is a detached sounding of pos. 27R.

11. The sheet abounds with shoal indications. Practically all of the soundings were questioned by the chief of Party and appraised promptly. The main channel to the northeast possesses several shoal spots with least depth of 30 ft.

12. A note of change of position by the Light Tender *bell* buoy #9 on Aug. 12, 1931 was found in the records on page 39, Vol #1. The new position plotted by the verifier, is now approximately 120 m to the north in lat. $41^{\circ}32'.25$, long $69^{\circ}59'.35$. As the old signal buoy was used as a signal prior to Aug. 12, 1931 by the launch, it was encircled in blue and marked "Bell."

The same buoy on the chart is approximately 250 m. to the south. This buoy merits immediate attention because of the 29 ft shoal to the northeast.

13. A note on the removal of "White Star Buoy #4A" in lat. $41^{\circ}33'.8$, long $69^{\circ}54'.7$ may be found in Vol #4, page 2. This buoy is not on the present chart.

14. Pos. 135c (Launch) in lat. $41^{\circ}33'.38$, long $69^{\circ}59'.3$ is thought to be erroneous and consequently omitted because of its indeterminate nature. Excellent agreement of soundings, however, may be obtained by

using O HOT instead of O TUCK.

15. The line 88-94c (Lanuch) in lat. $41^{\circ}32.8$, long $70^{\circ}01.6$, does not at present agree with the cross-lines. According to the soundings, it should fall about 100 m west. The reviewer is requested to look into this line.

89-91c plotted
92-93c rejected

16. The plotting of the line 146 to 152b in lat $41^{\circ}31.8$, long $70^{\circ}01.5$ was very confusing; the 10 & 15 ft sounding of pos 152 falling in a group of 40's, 160 m northwest of O Teen. The present location is believed to be correct with the exception of the 11/15 ft crossing at 150 b. Trawler trouble may account for the erratic timing intervals.

Not back sounding adjacent depths

17. Pos. 1-4B (Ship) in lat $41^{\circ}31.6$, long $70^{\circ}01.5$ was rejected. There is an average discrepancy of 10 or more feet with other sounding lines. Since the angles are weak and the sheet has shrunk, it is impossible to move the line southeast where it undoubtedly was run.

Some why plotted to agree with adjacent depths

18. In the Lanuch work, particularly of m, p & q day in the southwest portion of this sheet, the plotter has frequently confused O Wis with Δ Life. All positions of doubtful character were checked but not necessarily every position as the soundings are not so important.

The resulting error is in the direction of the lines run and the corrected position invariably falls about 20-30 m to the south west. Upon transfer to the chart, the error will, to practical purposes, be eliminated. A very marked difference, however, occurs in the shoal development within the limits of the ship's work in lat. $41^{\circ} 30'.4$. As this borders on the edge of the channel, strict attention was given to timing intervals in the search for inboard positions. In general, crossings are not materially improved nor curve delineations.

19. A poor selection of signals is prevalent in the ship's work to the southwest causing difficulty in plotting and verifying. The selection may be due in part to channel traffic.
20. Considerable shrinkage is present in the sheet. Distortion is present in the western portion and also at the junction of the launch & ship lines in long $69^{\circ} 56'$ in which the revised positions fall east and have a tendency to increase disagreement of soundings.
21. Checking of the topographic signals by the verifier was difficult as the projection lines on the Topo. (T-4623) are so heavy in weight that they are equivalent

to about 7 m. of length on a 1-20,000 scale. Several signals are out by from 5 to 10 m. A study was made of the affected positions and the signal positions accepted as they affected relatively important soundings of the launch work. Signals "How" & "Do" cause the greatest change.

The shore line was extended to cover the limits of the survey.

It appears that the N. Chatham Lighthouse in lat. $41^{\circ}40'.3$ was used on the Boat sheet and the S. Chatham Lighthouse on the smooth sheet. The latter is the correct one.

22. The reviewer will have some difficulty in following out the positions of the ship's work in congested areas due to the many pin pricks which do not designate correct positions. The cause of this is unknown.
23. In accordance with specific instructions, no overlays nor comparisons with previous surveys were made because of the rapid changes in the bottom.

Respectfully submitted: Harold W. Murray

DEPARTMENT OF COMMERCE

AND REFER TO No. 82-DRM

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

SECTION OF FIELD RECORDS

Review of Hydrographic Sheet No. 5141

Pollock Rip Channel to Handkerchief Shoals, Nantucket Sound, Mass.

Surveyed in Aug.-Sept., 1931

Instructions dated July 16, 1931 (NATOMA)

Chief of Party, C. A. Egner

Surveyed by C.A.E. and G. R. Shelton

Protracted and soundings plotted by D. H. Konichek

Verified and inked by H. W. Murray.

1. The records conform to the provisions of the Hydrographic Manual except that there were not enough bottom characteristics in the first part of the launch work.
2. The plan and extent of development satisfy the specific instructions. The failure to make satisfactory junction with adjacent areas is explained in the Descriptive Report. An additional line should have been run in approx. latitude $40^{\circ}31'$, longitude $70^{\circ}01'$, to strictly comply with the spacing requirements of the instructions. No channel lines were run in Pollock Rip Slue but the cross channel lines give it a good development.
3. Soundings: The shoal areas represented on this sheet are extremely changeable. In general the depths given by the soundings are consistent. An exception, possibly due to unstable conditions, is found in latitude $41^{\circ}35'.2$, longitude $69^{\circ}58'.3$ where there is a 19 foot spot between a 22 and 25 and with a 33 on a cross line southward of the shoal. The 1902 survey shows an 18 foot shoal with depths of 30 feet nearby about 200 meters northeast of this locality where the present survey shows all deep water, i.e., 30 feet or more.
4. Depth curves: The usual depth curves were drawn on the sheet. In addition a number of 19 foot spots were indicated with broken blue line curves. The shoal areas are so irregular that to show a complete satisfactory system of curves would require a much larger scale, and a much closer development than was called for in the instructions.

5. Junctions, etc.: There are no adjacent contemporary surveys. A comparison with Chart 250 and some of the survey sheets from which that chart was compiled shows great change. Monomoy Point has built out as much as 200 meters to the southeast; Shovelful Shoal is much smaller in area and has deeper water over it; the entrance to the channel between Shovelful Shoal and Handkerchief Shoal is almost 1 mile northeast of the present position of buoy N14; the areas less than 18 feet of both Bearse Shoal and Pollock Rip are much less and some of the high spots of the shoals seem to have been washed down. A ~~29~~²³ foot spot rising out of depths of over 40 feet in latitude $41^{\circ}32'.6$, longitude $69^{\circ}58'.7$ just south of a 42 on the chart and on the south edge of the main channel may be a newly formed shoal.

The 14 foot spot shown on the chart in latitude $41^{\circ}32'.1$, longitude $69^{\circ}57'.5$ was not found by the present survey. The survey of 1912 (H. 3031 a) located it; an examination of the locality in 1916 (H. 3881) did not find it, but has a 24 foot sounding and general conditions as shown on the present survey. The 14 foot spot probably does not exist as such at the present time. The shoal areas of Pollock Rip has moved southward from 200 to 500 meters.

Many changes in positions of aids to navigation were found.

6. Recommendations: It is recommended that, for charting purposes, this survey supersede all previous surveys of the area covered. All adjustments with adjacent areas should be made on the older surveys.

The area in the immediate vicinity of the 14 (in pencil on this sheet) in latitude $41^{\circ}32'.1$, longitude $69^{\circ}57'.5$ should be further investigated when surveys are taken up again in Nantucket Sound. It should not, however, be placed on the chart, or if used should be made ED, as 24 feet is the least water found by the survey on this shoal.

see also
p. 3

7. Field protracting was generally poor. The verifier found a number of positions rejected by the field party that plotted with good agreement with corrected lines: for example, 18-29 B. The sheet shows evidence that many erasures and changes in position plotting were made by the field draftsman; also an excessive confusion in the use of signals was noted by the verifier. (Verifier's report, paragraphs 18 and 22.)
8. Reviewed by R.J. Christman, April 1932.

The 14 foot sounding, shown on chart 250 in lat. 41° 32'.1, long. 69° 57'.5, was first shown on H. 3031a (1912). * An examination by the U. S. Engineers in 1917 (letter 147, 1917) missed the 14 foot spot by 100 meters, but it does show 18 feet 300 meters to the northeastward. H. 5141 shows a deepening of the locality of both the 14 and 18 foot spots. A comparison of the four surveys shows that this area is constantly changing and, as the last survey shows a consistent deepening, the Chief of Field Records Section recommends that both the 14 and 18 foot soundings should be omitted from the charts. If this channel south of Pollock Rip becomes of importance in the future another examination of the area noted above should be made.

As indicated in paragraph 9, H. 5141 should supersede all previous surveys.

The 28 foot sounding in lat. 41° 33', long. 69° 57'.5 was carefully checked. It is an isolated sounding, without corroboration by other soundings, but the data available does not warrant its rejection. It should be charted. As its location makes it one of the most important soundings in the new survey, it should be developed if opportunity offers in the near future.

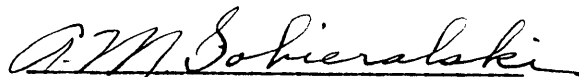
Inspected by E. P. Ellis.


Memorandum re H. 5141, by A. L. Shalowitz

Comparison with blue print 24615: A comparison has been made with the dredged areas outlined on Engineers' blue print, 24615, to determine whether our survey indicates any shoaler water than 33.5 feet, the depth to which the dredging was supposed to be carried. It was found that several soundings as shoal as 22 feet fell within these areas, so it became a matter of importance as to whether the dredging preceded our survey in those areas or vice versa. The dredging was done during August 1931 (the exact date is unknown) and our survey was made during August and September of the same year. A study of the records shows that most of the shoal soundings were taken either on the 31st of August or during September. Two soundings (a 30 on pos. 36 M and a 26 on pos. 19 N) were taken on August 20 and 21 respectively, and while the dredging may have been subsequent to those dates, it is believed that those soundings should be charted. It is therefore recommended that the new survey H. 5141 supersede blue print 24615.

Junction with present chart 250: The survey should have been carried farther to the eastward to deep water. As the survey stands at present it is impossible to effect a junction with the chart and a break will have to be indicated.

Approved:


Chief, Section of Field Records


Chief, Section of Field Work

* An examination in 1916 (H. 3881) failed to find it.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. *5141*.....

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

Number of positions on sheet	<i>3711.</i>	
Number of positions checked	<i>1441.</i>	←
Number of positions revised	<i>261.</i>	
Number of soundings recorded	<i>17,522</i>	
Number of soundings revised	<i>4287.</i>	
Number of signals erroneously plotted or transferred	<i>✓?</i>	

Date: *April 13, 1932*.....

Cartographer: *Harold W. Murray*.....