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Form 504
Rev. April 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Topographic }
Hydrographic } Sheet No. H-6565

State Massachusetts

LOCALITY

Atlantic Ocean

Gulf of Maine

1934

CHIEF OF PARTY

Fred. L. Peacock

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REG. NO.
H6565

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. 122

REGISTER NO. 6565

State Massachusetts

General locality Atlantic Ocean

Locality Gulf of Maine

Scale 1-120,000 Date of survey Aug. 14 - Sept. 21, 1940

Vessel Ship OCEANOGRAPHER

Chief of Party Lieut. Com. Fred L. Peacock,

Surveyed by Ship's Officers

Protracted by I.M. Zeskind

Soundings penciled by I.M. Zeskind

Soundings in fathoms & feet

Plane of reference Mean Low Water

Subdivision of wire dragged areas by

Inked by G.B. Littlepage

Verified by G.B. Littlepage

Instructions dated March 8, 1940

Remarks: Plotted and soundings penciled at the Norfolk Processing Office under the supervision of H.A. Karo and J.H. Brittain.

U.S. COAST & GEODETIC SURVEY
 L.O. COLBERT, DIRECTOR
 HYDROGRAPHIC SURVEYS
 PROJECT HT-248

1940

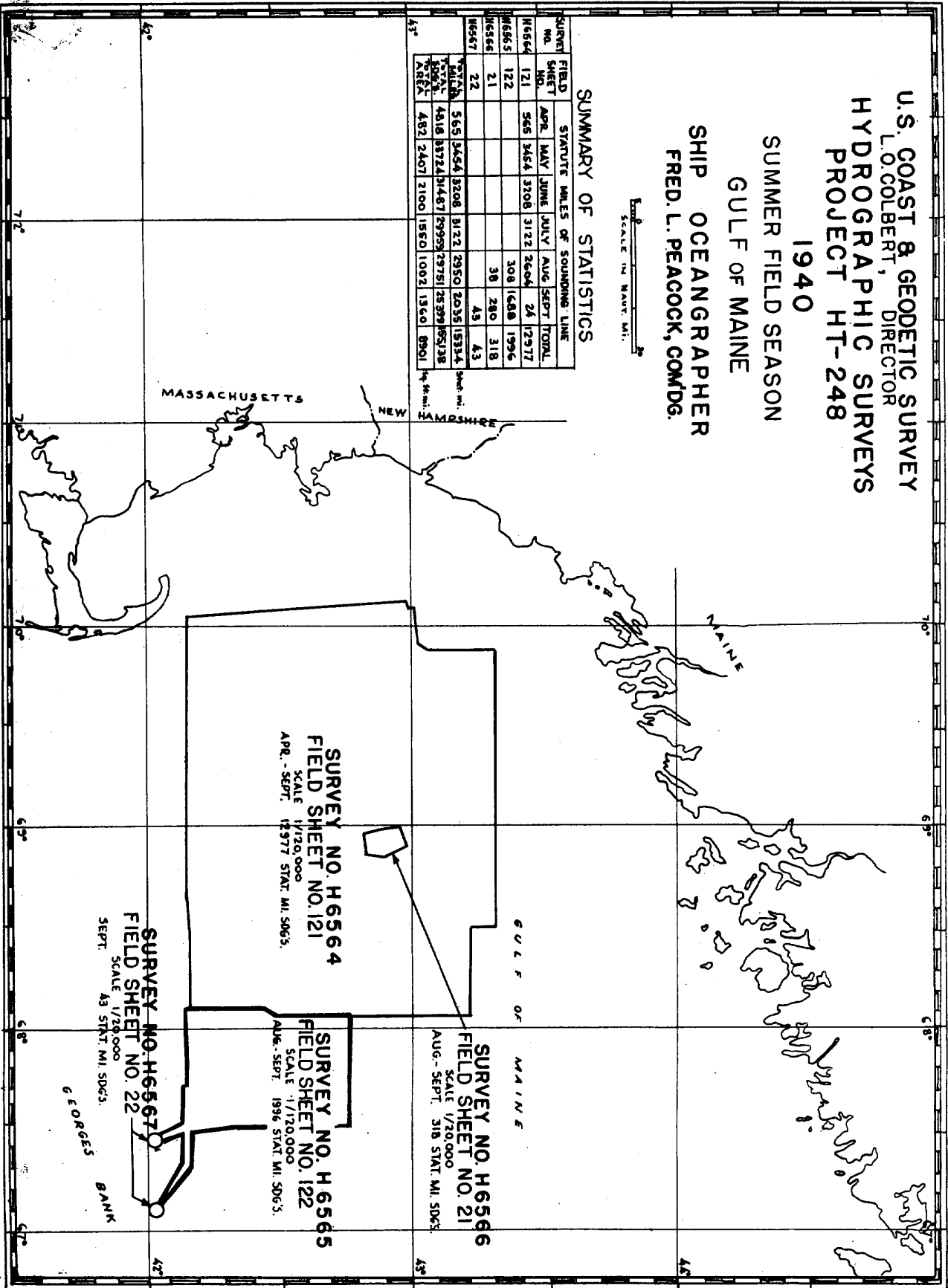
SUMMER FIELD SEASON
 GULF OF MAINE

SHIP OCEANOGRAPHER
 FRED. L. PEACOCK, COMDR.

Scale in Naut. Mi.

SUMMARY OF STATISTICS

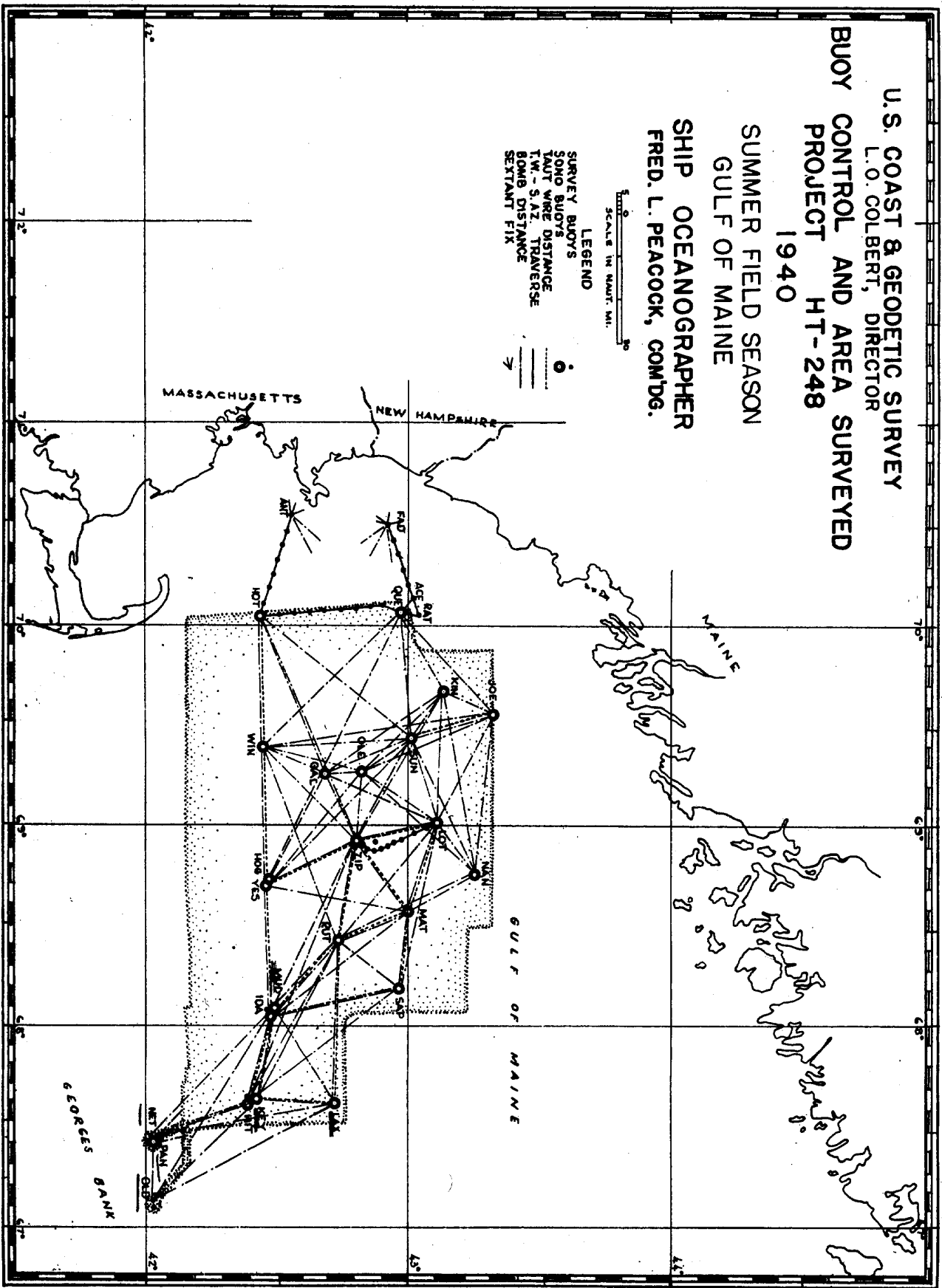
SURVEY NO.	FIELD SHEET NO.	STATUTE MILES OF SOUNDING LINE					AUG. SEPT. TOTAL	
		APR.	MAY	JUNE	JULY	AUG.		
H6564	121	565	3464	3208	3122	2604	24	12977
H6565	122					306	1688	1996
H6566	21					38	280	318
H6567	22						43	43
TOTAL		565	3464	3208	3122	2950	2035	15334
SOUNDING AREA		4818	18724	31487	29959	29751	28399	105128
STATUTE AREA		482	2407	2100	1850	1002	1360	8901



U.S. COAST & GEODETIC SURVEY
 L.O. COLBERT, DIRECTOR
BUOY CONTROL AND AREA SURVEYED
PROJECT HT-248
 1940

SUMMER FIELD SEASON
 GULF OF MAINE
 SHIP OCEANOGRAPHER
 FRED. L. PEACOCK, COMDG.

SCALE IN NAUT. MI.
 0 10 20
 LEGEND
 SURVEY BUOYS
 SMOO BUOYS
 TAUT WIRE DISTANCE
 T.W. - S.A.Z. TRAVERSE
 BOMB DISTANCE
 SEXTANT FIX



DESCRIPTIVE REPORT

TO ACCOMPANY

SHEET H-6565
(Field No.122)

DATE OF INSTRUCTIONS

The hydrography on this sheet was executed in accordance with instructions, Project HT 248, dated March 8, 1940.

DATE OF SURVEY

The work on this sheet was done from August 27 to September 23, 1940.

LOCALITY AND LIMITS

The area covered by this sheet is offshore in the Gulf of Maine, east of Boston, Mass., and southeast of Cashes Ledge. The limits are outlined in red on the attached sketch of Project HT-248.

SURVEY METHODS

The work on this sheet was done with the ship OCEANOGRAPHER. The hydrography was controlled by RAR using sone-radio buoys. The following in reference to control for this survey is quoted from the Season's Report, Project HT-248, Gulf of Maine, 1940, Ship OCEANOGRAPHER, Lt. Comdr. Fred L. Peacock.

"A special adaptation of the usual offshore control scheme was designed particularly for the Gulf of Maine area. The preliminary step was a 76 mile taut-wire, sun-azimuth traverse running offshore from an initial position determined by sextant angles on triangulation points a distance of 24 nautical miles, thence a distance of 34 nautical miles approximately parallel to the coast, thence 18 miles inshore to a final fixed position point off the Isle of Shoals. The buoys in this traverse were planted from three to three and one-half miles apart. This loop established an offshore base line, 30 nautical miles long, and 25 nautical miles off Cape Ann. From this base line the control was extended offshore by triangulation figures, and at the end of the season had been extended to a distance of 110 nautical miles east of the base line."

In the vicinity of the buoy line the RAR was supplemented by gyro compass bearings on buoys.

SMOOTH PLOTTING

Velocities

The methods of obtaining the velocities used for the RAR

distances on this sheet are described in the seasons report for this project (HT-248). The following is quoted from this report:

"The determination of the actual RAR velocities for the smooth plotting of the 1940 surveys on this project was under the immediate charge of Lieut. (j.g.) John C. Mathisson."

"Due to the rather unusual temperature gradients and the extreme irregularities of the bottom in this area, the actual velocities were frequently erratic, and the empirical formula based on bottom temperatures was unsatisfactory."

"The method used during this season's work, to determine the best possible values of velocities for use in the several parts of the area, and to take into account seasonal variation, was based primarily on taut-wire measurements combined with simultaneous bomb distances. The results of this method were studied in relation to the depths, sea water temperatures, and salinities, and what appeared to be the most probable general velocities were adopted. A separate study was made for each two-week's trip to the working grounds."

Due to the fact that there were no serial temperatures taken for trip No. 10 beyond longitude $68^{\circ} 00'$, trip No. 9 velocity curve overlays were used to supplement those of trip No. 10 where needed. Four meters were subtracted from the amounts shown on Trip No. 9 velocity curves.

Buoys NET, PAN & OLD

In plotting the smooth sheet it was believed that the arc intersections were improved if the above mentioned buoys were moved to the locations as shown on this sheet. Buoy NET was located by taut-wire from buoy KEY and bomb distances from buoys LAX AND MUD. The positions of buoys PAN and OLD were dependent on buoy NET. The relation by bearing and bomb distance between buoys NET and PAN was held and buoy OLD plotted on bombed distance from buoys PAN and KEY.

Revised.
See Rev.,
Par. 1 b.

Buoy HIT "A"

Buoy HIT "A" is plotted on this sheet according to the geographic position furnished by the ship OCEANOGRAPHER.

Buoy HIT "B"

Buoy HIT "A" as originally planted was found to have moved north by east of its original position sometime between the time of planting, August 22, and "C" day, August 27, 1940. Its new position (HIT "B") was determined by the bombed distance from buoy "IDA" and distance from buoy "KEY" as shown on the Boat Sheet. All arcs on this

sheet involving buoy HIT are drawn from buoy HIT "B". Except for the above, the location of the buoys is that furnished by the ship OCEANOGRAPHER.

Distance circles were drawn on the smooth sheet for each sono buoy at intervals of 10 seconds corresponding to a velocity of 1470 meters per second. The circles were drawn in pencil. Distance arcs for the positions were drawn in colored ink, each buoy having a distinctive color. Gyro compass bearings to buoys were shown by black dashed lines. The distance arcs for the positions were plotted in seconds, each distance being corrected to the uniform velocity of 1470 meters per second.

The sounding lines were dead reckoned on tracing paper and super-imposed over the bomb arcs. For small differences the bomb arcs were assumed to be correct, but were rejected where obviously in error.

Bottom Characteristics

The only bottom characteristics shown on this sheet are those listed on page No. 2 of volume No. 1. Although bottom characteristics are listed throughout the sounding volumes, it was not apparent how these bottom characteristics were obtained as the ship was not stopped to ascertain the bottom characteristics by sounding lead. It appears that these bottom characteristics may have been obtained from the fathometer rolls by the shading of the fathometer curves.

See attached
Letter dated
Nov. 7, 1940

Fathometer Corrections

The corrections for draft, temperature and salinity were combined and entered in the sounding records as one correction, while that for index and settlement were combined and entered as another correction. The fathometer correction computations are being submitted with other miscellaneous data for this project.

TIDE DATA

For the purpose of determining tide reducers, hourly heights of the Portland, Me., gage were used. The tide on the working grounds was assumed to occur one-half hour earlier than that at Portland with the range 0.8 that of Portland.

DISCREPANCIES

Considering the fact that the bottom is bumpy in the area covered by this sheet, the crossings are considered to be in good agreement. However, attention is called to the following,-

<u>Sounding</u>	<u>Location</u>	<u>Positions</u>
88 fath.	Lat. 42 ^{43.5'} 40.38'	67-68 N
	Long. 68 00.60'	2-3 G

Although this sounding is surrounded by deeper soundings, a 91 fathom sounding on the line 81 - 82 D which crosses nearby, indicates a shoaling in this area and confirms the 88 fathom sounding above mentioned. *88 fm sig. well confirmed*

JUNCTIONS WITH CONTEMPORARY SURVEYS

This sheet joins H-6564 ⁽¹⁹⁴⁰⁾ on the west and sheet H-6567 ⁽¹⁹⁴⁰⁾ on the south which shows development around buoys NET and OLD. As these two adjoining sheets have not yet been completed, no comparison of junctions is possible at this time.

COMPARISON WITH PREVIOUS SURVEYS

A comparison was made with Chart No. 1106. Due to lack of sufficient development on this chart, an accurate comparison could not be made between the sheet and the chart. In general, where soundings appear on both the sheet and the chart, the soundings on the sheet are shoaler. In lat. 42 ^{09.27} and long. 67 ^{09.71}, the 18 fathom sounding on the chart shows as a 21 fathom sounding on this sheet. *See Rev. par. 5*

Retain 18 on Chart. H.W.M.

Respectfully submitted,

Isadore M. Zeskand

Isadore M. Zeskand,
Asst. Cartographic Engr.

Norfolk, Va.,
June 24, 1941.

Approved and forwarded.

H. Arnold Karo
H. Arnold Karo,
Officer in Charge,
Norfolk Processing Office.

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POST-OFFICE ADDRESS: Room #600 Flatiron Bldg., Norfolk Processing Office, Norfolk, Va.

TELEGRAPH ADDRESS:

EXPRESS ADDRESS:

1941 OCT - 3 - AM 10:15

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

2nd October, 1941.

To: The Director,
U.S. Coast & Geodetic Survey,

From: Officer in Charge,
Norfolk Processing Office,
Norfolk, Va.

Subject: Positions of Buoys OLD, NET & PAN, Sheet H-6565. (1940)

In reply to your letter of September 30, 1941, reference 82-DRM, requesting positions of the above named buoys, the following is a list of the positions as given to us by the ship OCEANOGRAPHER.

<u>OLD</u>	Lat. 42 02' 42.90"	1324 m (527 m)	/
	Long. 67 06' 49.74"	1144 m (236 m)	
<u>NET</u>	Lat. 42 02' 16.46"	508 m (1343 m)	/
	Long. 67 27' 43.39"	998 m (382 m)	
<u>PAN</u>	Lat. 42 03' 11.80"	364 m (1487 m)	/
	Long. 67 26' 26.53"	610 m (770 m)	

H. Arnold Karo
Officer in Charge,
Norfolk Processing Office.

By *I.M. Zeskind*
I.M. Zeskind

STATISTICS FOR SHEET H-6565

Ship OCEANOGRAPHER 1940

Project HT-248

Letter Day	Date 1940	Statute Miles	Soundings	Positions
A	Aug 14	95.0	950	54
B	22	148.9	1379	92
C	27	63.0	691	43
D	Sept 10	126.4	1307	84
E	11	184.8	1757	112
F	12	113.5	1191	85
G	18	25.0	231	14
H	19	158.7	1782	92
J	20	284.8	2002	192
K	21	240.0	2165	145
L	22	215.6	2143	143
M	23	228.3	2324	147
N	24	111.6	1183	82
Totals		1995.6	19105	1285

*Beak
7/2/41*

82-DRM

September 30, 1941

To: Officer in Charge,
U. S. Coast and Geodetic Survey,
Processing Office, 600 Flatiron Bldg.,
Norfolk, Virginia.

From: The Director,
U. S. Coast and Geodetic Survey.

Subject: Positions of buoys.

Please send to this office positions as furnished you by the Ship
HYDROGRAPHER for the buoys "Old", "Net", and "Pan," hydrographic
sheet H-6565, Field No. 122.

(Signed) J. H. HAWLEY

Acting Director.

IN REPLY ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY
AND NOT THE SIGNER OF THIS LETTER

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

November 7, 1941

AND REFER TO No.

MEMORANDUM to accompany Descriptive Report, H-6565.

The bottom characteristics for which a plotting position was determined in the area of this sheet (H-6565 (1940)) were obtained at the buoy positions and at the position of each serial temperature. These and their positions were tabulated in one of the sounding records and they are the only ones that should be plotted on the smooth sheet.

The bottom characteristics listed throughout the sounding volumes, which are referred to in this descriptive report, were obtained from the profile of the Hughes sounding machine records. These were recorded so that areas of sedimentary layers could be identified from the sounding records for possible use in plotting the limits of such areas. "SL" or "SM", I don't remember which, was used to indicate this type of bottom.

John C. Mathisson.

J. C. Mathisson

LCC
RAC

TIDE NOTE FOR HYDROGRAPHIC SHEET

Coastal Surveys

July 31, 1941

Division of ~~Hydrography and Topography~~

✓ Division of Charts: Attention: Mr. H. R. Edmonston.

Plane of reference approved in
8 volumes of sounding records for

HYDROGRAPHIC SHEET 6565

Locality Gulf of Maine, Atlantic Ocean

Chief of Party: F. L. Peacock in 1940

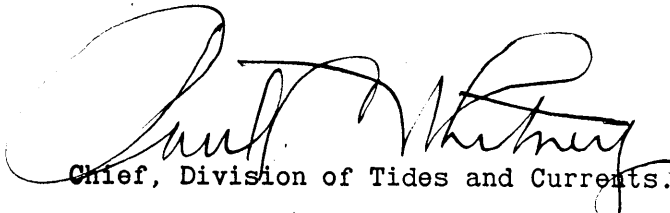
Plane of reference is mean low water reading

8.6 ft. on tide staff at Portland, Maine. Time +1/2 hour; Range ratio 0.8.

19.0 ft. below B. M. 31

Height of mean high water above plane of reference is 8.9 feet.

Condition of records satisfactory except as noted below:


Chief, Division of Tides and Currents.

GEOGRAPHIC NAMES
 Survey No. **H6565**

Name on Survey	A, On Chart No.	B, On previous survey No.	C, On U. S. quadrangle Maps	D, From local information	E, On local Maps	F, P. O. Guide or Map	G, Rand McNally Atlas	H, U. S. Light List	K
<u>Gulf of Maine</u>									1
									2
<u>Portland</u>									3
									4
									5
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Remarks

Decisions

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3	Location of tide staff	
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Names underlined in text
by L. Heck 01/31/42

Surveys Section (Chart Division)

HYDROGRAPHIC SURVEY NO. **H6565**

Records accompanying survey:

Boat sheets **.1**...; sounding vols. **..8**...; wire drag vols.;
 bomb vols. **..5**...; graphic recorder rolls **23 Hughes**;
 special reports, etc.

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

Number of positions on sheet	1285	
Number of positions checked	103	
Number of positions revised	94	
Number of soundings recorded	19105	
Number of soundings revised (refers to depth only)	} see verifier's report # 32
Number of soundings erroneously spaced	
Number of signals erroneously plotted or transferred	3	
Topographic details	Time ..0..	
Junctions	Time ..0..	
Verification of soundings from graphic record	Time ..0..	
Verification by <i>E. Sturtevant</i>	Total time 9.7 hrs	Date 10/20/41
Review by <i>Harold W. Murray</i>	Time 9 hrs	Date 11/5/41

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
 DESCRIPTIVE REPORT
~~PHOTOSTAT COPY~~

No. H **H6565**
~~No. H~~

{ received July 14, 1941
 registered July 29, 1941
 verified
 reviewed
 approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22			
24			
25			
28 28	L. MATHISSON	JCM	Bottom characteristics, Page 3; Do you know how these were obtained. JBR
30			
40			
62			
63			
82			
83			
88			
90			

RETURN TO

82	T. B. Reed
----	------------

✓ JBR.

DIVISION OF CHARTS

SURVEYS SECTION

REVIEW OF HYDROGRAPHIC SURVEY NO. 6565 (1940) FIELD NO. 122

Massachusetts, Atlantic Ocean, Gulf of Maine
Surveyed in August - September 1940, Scale 1:120,000
Instructions dated March 8, 1940 (OCEANOGRAPHER)

Soundings: Dorsey No. 3

Control: Sun Azimuth, Taut
wire, Sono Radio Buoys

Chief of Party - Fred L. Peacock
Surveyed by - Ship's Officers
Protracted by - I. M. Zeskind
Soundings plotted by - I. M. Zeskind
Verified and inked by - G. B. Littlepage
Reviewed by - Harold W. Murray, October 30, 1941
Inspected by - H. R. Edmonston

1. Shoreline and Signals

- a. This is an offshore survey and no shoreline is shown.
- b. The control for this survey is discussed in the Descriptive Report, pages 1 to 3.

On page 2, the Processing Office states that it was believed that the arc intersections of Buoys NET, PAN and OLD at the southeast end of the control scheme on both the present survey and H-6567 (1940) were improved if these buoys were shifted about 360 m. to the locations shown on the submitted smooth sheet. This shift utilizing part of the control data and excluding the balance of the data, when actually weight was given to all the data in the OCEANOGRAPHER'S final disposition, appeared to be an arbitrary one. The Processing Office was therefore requested to furnish a copy of the OCEANOGRAPHER'S final positions. These positions were used as the basic control and the affected sounding lines replotted. The revised plotting was considered very satisfactory and materially improved agreement with the older surveys. This revision was approved by Lieutenant Mathisson, formerly attached to the survey party and now in the office.

2. Sounding Line Crossings

General agreement of sounding line crossings is excellent.

3. Depth Curves

The usual depth curves may be satisfactorily drawn.

4. Junctions with Surveys

- a. The junction on the southeast in the vicinity of Buoys OLD and NET with H-6567 (1940) is satisfactory. No soundings were actually transferred because of the difference in scales (10 times).
- b. The junction on the west with H-6564 (1940) will be considered in the review of that survey.
- c. The present survey joins four earlier 1930-32 surveys on the south. The junction on the southwest with H-5272 is very good except that a portion of the slow red light soundings, line 21-22B in lat. $42^{\circ}12'$, long. $67^{\circ}54'$ on this early survey are consistently deeper by as much as 9 fms. in depths of 131 fms. These deeper soundings on H-5272 should be omitted in charting.

The junctions on the south and southeast with H-5112b, H-5173 and H-5196 are satisfactory for small scale charting purposes but in some instances, a shift of approximately 500 m. is necessary to bring the shoals and depth curves into identical agreement. These differences are attributed primarily to the less rigid RAR control on the earlier surveys.

- d. The junctions with other surveys to the north and eastward of the present survey will be considered when that work is received from the field.

5. Comparison with Prior Surveys

H-1305 (1854-75), Scale 1:400,000

This sheet is a compilation of sounding lines run in different years by eight surveying parties and is the basis for present chartings in this area. Agreement of these soundings with the present survey is varied and generally very poor. In some cases, such as the 118 in depths of 142 fms. in lat. $42^{\circ}29'$, long. $67^{\circ}34'$ and the 86-fms. in depths of 120 fms. in lat. $42^{\circ}29'$, long. $67^{\circ}56'$, these early soundings vary as much as 34 fms. shoaler. These differences are attributed to inaccuracies in the dead reckoning control in the earlier work. The present survey is adequate to supersede H-1305; the bottom characteristics, however, may be retained and used to supplement the present survey wherever necessary.

6. Comparison with Charts 1106 (New Print dated June 30, 1941)
 1107 (" " " June 11, 1941)
 3075 (" " " April 18, 1941)
 3076 (" " " April 18, 1941).

a. Hydrography

The charted 72-fms. (Chart 1106 only) in lat. 42°27.2', long. 67°54.0' originates with B.P. 26334 which is a 1931 copy of Hydrographic Office Chart No. 941. No further information on this sounding is available at this time. The 72 falls in smooth bottom of 120 fms. and between sounding lines spaced one mile apart. The 72 is in the same vicinity as the 86 considered disproved in Paragraph 5 above. Inasmuch as such knolls on the bottom as have been developed on the present survey are characterized by broad bases, it is felt that the present survey development would reveal some indication of the 72-fms. if it exists at the depth and in the position as shown. The 72 is considered erroneous and should be deleted from the chart.

b. Aids to Navigation

The two charted aids to navigation at the southeast end of the present survey were considered in the review of the 1:20,000 scale sheet, H-6567 (1940). These aids are intentionally omitted on the present survey.

7. Compliance with Instructions for the Project

Satisfactory.

8. Condition of Survey

The verifier's report notes that the selection and spacing of the soundings on the smooth sheet was poor and necessitated considerable revisions.

9. Additional Field Work Recommended

This is an excellent survey and no additional field work is necessary. It seems unlikely that a further development of the single 99-fm. sounding in depths of 110 fms. in lat. 42°29', long. 67°37' will reveal depths substantially shoaler.

10. Superseded Surveys

H-1305 (1854-75)

In part (except bottom characteristics)

H-6565 (1940) - 4

Examined and Approved:

Robert W. King

Chief, Surveys Section

J. S. Borden

Chief, Division of Charts

J. P. Raymond

Chief, Section of Hydrography

G. H. Hude

Chief, Division of
Coastal Surveys

Applied	to	Cht.	3076	1-19-42
"	"	"	3075	1-20-42
"	"	"	1106	2-5-42
"	"	"	70	2-7-42
"	"	"	1107	4-25-42

X.P.
K.P.
J.H.S.
J.H.S.
J.H.S.