6566

6566

Form 504
Rev. April 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Topographic / *Hydrographic* } *Sheet No.* H - 6566

State MASSACHUSSETTS

LOCALITY

CASHES LEDGE,

ATLANTIC OCEAN

19 40

CHIEF OF PARTY

Fred. L. Peacock

U. S. GOVERNMENT PRINTING OFFICE 102221

Form 537
Ed. Dec. 1930

REG. NO. H6566

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

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. 21

REGISTER NO. H - 6566

State MASSACHUSETTS

General locality ~~ATLANTIC OCEAN~~ Gulf of Maine

Locality CASHES LEDGE

Scale 1:20,000 Date of survey Aug.11, Sept.5-9, 1940

Vessel Ship OCEANOGRAPHER

Chief of Party Lieut. Comdr. 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 C.E.Dennis 12/5/41

Verified by " " "

Instructions dated March 8, 1940

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

U. S. GOVERNMENT PRINTING OFFICE

U.S. COAST & GEODETIC SURVEY

L.O. COLBERT, DIRECTOR

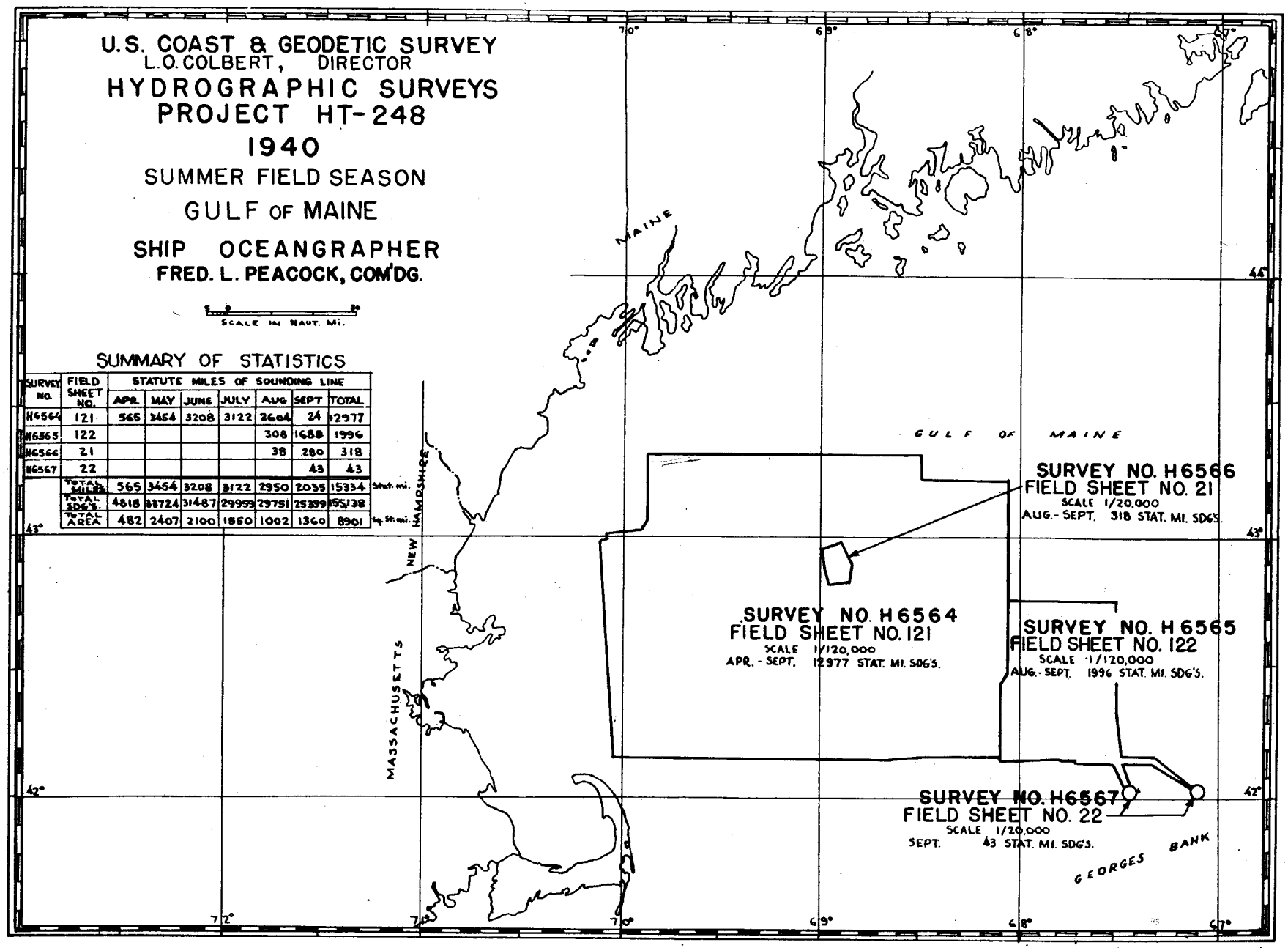
HYDROGRAPHIC SURVEYS
PROJECT HT-248
1940
SUMMER FIELD SEASON
GULF OF MAINE

SHIP OCEANGRAPHER
FRED. L. PEACOCK, COM'DG.

SCALE IN NAUT. MI.

SUMMARY OF STATISTICS

SURVEY NO.	FIELD SHEET NO.	STATUTE MILES OF SOUNDING LINE							
		APR.	MAY	JUNE	JULY	AUG	SEPT	TOTAL	
H6564	121	565	3454	3208	3122	2604	24	12977	
H6565	122					308	1688	1996	
H6566	21					38	280	318	
H6567	22						43	43	
	TOTAL MILES	565	3454	3208	3122	2950	2035	15334	Stat. mi.
	TOTAL SDG'S.	4818	33724	31487	29959	29751	25399	155138	
	TOTAL AREA	482	2407	2100	1560	1002	1360	8901	Sq. St. mi.



M-1247-0

DESCRIPTIVE REPORT

To Accompany

HYDROGRAPHIC SHEET NO. 6566

INSTRUCTIONS:

This survey was executed under authority of the Director's Instructions dated March 8th, 1940, for Project No. H.T. 248.

CONTROL:

The following in reference to control appears on page 9 of the Season's Report, Project H.T. 248, Gulf of Maine, 1940, ship OCEANOGRAPHER, Fred. L. Peacock, Commanding:

> "Along Cashes Ledge the buoy control consisted of a broken line of buoys spaced one and one-half to three and one-half miles apart throughout the entire 20 miles of its length. This row of buoys was taut-wired and sun-azimuthed and imtimately connected to the main shheme. Cashes Ledge Whistle Buoy waa connected to this row of buoys."

> "The scopes of the buoys prevented an entirely precise survey of this area. The survey is, however, adequate for any present charting needs, but future needs may require a more detailed survey. An entirely satisfactory survey would require that the control buoys be anchored so that they would hold their positions and that their swinging scopes would be entirely negligible."

The position of buoy "ZIG" as given by position 1 a (red) was used. There were a number of bearings taken to this buoy when the ship was in the vicinity of the buoy, all of which fell northwast of the position as shown on the smooth sheet. Since no good intersections were obtained by the bearings (probably due to scope), it was deemed advisable to use that given by position 1 a.

SURVEY METHODS:

The usual standard visual control method of sextant fixes was used throughout, except where bearings and dip angles were given. The Dorsey Fathometer III was used for the depths obtained by the ship OCEANOGRAPHER, while the portable Depth Recorder was used to obtain the depths of the hydrography done by the ship's launch.

On page 8, under the heading "Soundings" in the above mentioned report, the following appears:

> "With the possible exception of one or two intervals of a few minutes each, all soundings were read from the Dorsey Model III Fath-

ometer. However, the Hughes Recording Echo Sounder was operated alongside the Dorsey Model III Fathometer at all times when hydrography was in progress . . . . . "

"The Hughes instrument was of great assistance in obtaining the correct soundings on the Dorsey Model III in the extremely irregular bottom encountered. It was especially helpful in the areas where echoes from two strata were being received."

The main system of sounding lines were run approximately east and west, with the exception of some of the work on C day (red) which was run in a northwest direction. Development lines were run north and south.

SMOOTH PLOTTING:

Where fixes were given, the plotting was done by a steel 3-arm protractor. Where only bearings and dip angles were given, the bearings and distances as computed by the ship were used. Scope was only taken into consideration on F day (red), since the direction of current was only given for that day.

No bottom characteristics were listed in the sounding records, therefore, none are shown on this sheet. See prior surveys

The following procedure was used for plotting the lines for "A" day (red). All lines in the vicinity of the work for "A" day were run in and the soundings placed on these lines. "A" day was then plotted a line at a time, the lines and soundings being first placed on tracing paper, using courses and log factors, and this tracing was then superimposed on the smooth sheet and the most probable locations for the positions were pricked through.

DISCREPANCIES:

"E" day (red) in the vicinity of Latitude 42 51' and Longitude 68 57.5': These lines were plotted according to the fixes as given in the sounding records, however, there appears to be something wrong with these fixes, and it is suggested that these lines be plotted according to the surrounding hydrography, disregarding fixes where found to be in apparent error. | See Rev., Par. 2

LEAST DEPTH - Cashes Ledge:

In the vicinity of latitude 42 53.61' and longitude 68 56.69' a least depth of 5 fathoms 29 feet was found. However, in this same general vicinity there were a number of soundings in the neighborhood of 6 fathoms. | See Rev., Par. 6.

JUNCTIONS WITH CONTEMPORARY SURVEYS:

This sheet is surrounded by sheet No. H 6564, (1940) which is in work at present in this office, and therefore, no comparison could be made.

STATISTICS:

See statistical sheet appended to this report.

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.

Respectfully submitted,

Isadore M. Zeskind

Isadore M. Zeskind,
Asst. Cartographic Engr.

Norfolk, Va.
October 22, 1941.

Approved and forwarded.

H. Arnold Karo

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

STATISTICS FOR SHEET H-6566

Ship OCEANOGRAPHER 1940

Project HT-248

Oceonographer

Letter Day	Date 1940	Statute Miles	Soundings	Positions
A	Aug 11	37.5	562	144
B	Sept 5	49.8	1323	128
C	6	64.5	~~1224~~ 1812	165
D	7	52.7	1513	184
E	8	60.4	1299	182
F	9	4.6	153	27
	Totals	269.5	~~6074~~ 6662	830
		Launch		
A	Sept. 5	17.8	845	75
B	6	27.3	1499	126
	Totals	314.6	9,006	1031

GEOGRAPHIC POSITIONS

The geographic positions of the buoys used for control on this sheet are as follows:

NAME	LATITUDE	LONGITUDE
Axe	42 48' 07.95"	68 55' 24.31"
Zip	42 48' 18.38"	68 55' 52.97"
Fad	42 50' 03.62"	68 55' 03.78"
Elf	42 51' 39.04"	68 54' 40.87"
Dig	42 53' 18.62"	68 54' 27.18"
Can	42 54' 41.10"	68 55' 09.92"
Vix	42 55' 59.42"	68 55' 52.09"
Box	42 57' 17.41"	68 56' 27.98"
Unk	42 59' 03.32"	68 57' 26.66"

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. June 1937

TIDE NOTE FOR HYDROGRAPHIC SHEET

November 13, 1941

~~Division of Hydrography and Topography.~~

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

Plane of reference approved in
5 volumes of sounding records for

HYDROGRAPHIC SHEET 6566

Locality Cashes Ledge, Gulf Of Maine

Chief of Party: F. L. Peacock in 1940
Plane of reference is mean low water reading
8.6 ft. on tide staff at Portland
19.0 ft. below B. M. 1

Tide on the working ground was assumed to occur ½ hour earlier than at Portland with the range 0.8 that of Portland.

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.

U. S. GOVERNMENT PRINTING OFFICE 154327

GEOGRAPHIC NAMES

Survey No. H6566

Name on Survey	On Chart No. A,	On previous survey No. B,	On U. S. quadrangle Maps C,	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Cashes Ledge										1
Gulf of Maine										2
Ammen Rock										3
										4
										5
										6
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Names underlined in red approved by L. Heck on 1/5/42

M 234

	Remarks	Decisions
1	See Chief Ltr 23 9/1914 from Annapolis	429688-89
2	Cashes/Cashe Ledge Pending with U.S.C.&G.S: apply Cashes Ledge Pending decision.	
3	Applies to 5 fm. sounding and	429688-89
4	immediate vicinity.	
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M 234		

Surveys Section (Chart Division)

HYDROGRAPHIC SURVEY NO. H6566

Records accompanying survey:

Boat sheets .(2).; sounding vols. .(5).; wire drag vols. ....;

bomb vols. .(1)..; graphic recorder rolls .(3)..; 5 Hughes rolls

special reports, etc. .....

.....

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

Number of positions on sheet		1031
Number of positions checked		91
Number of positions revised		1
Number of soundings recorded		9006
Number of soundings revised (refers to depth only)		2686 (added)
Number of soundings erroneously spaced		105
Number of signals erroneously plotted or transferred		—
Topographic details	Time	0
Junctions	Time	0
Verification of soundings from graphic record	Time	~~3 hr~~

Verification by C.E. Dennis Total time 73 hr. Date 12/5/41.

Review by Harold W. Murray Time 32 hrs Date 12/19/41.

FORM M-238

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT
~~PHOTOSTAT OF~~

No. H H6566
~~No. H~~

received Nov. 5, 1941
registered Nov. 6, 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			
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62			
63			
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83			
88			
90			

RETURN TO

82	R. W. Knox

RWK.

DIVISION OF CHARTS

SURVEYS SECTION

REVIEW OF HYDROGRAPHIC SURVEY — REGISTER NO. 6566 (1940)
FIELD NO. 21

Massachusetts, Gulf of Maine, Cashes Ledge
Surveyed in August - September 1940, Scale 1:20,000
Instructions dated March 8, 1940 (OCEANOGRAPHER)

Soundings: Dorsey III — Control: Visual fixes on 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 - C. E. Dennis
Reviewed by - Harold W. Murray, December 17, 1941
Inspected by - H. R. Edmonston

1. Shoreline and Signals

a. This is an offshore survey and no shoreline is shown.

b. Horizontal control consists of three-point fixes, bearings and dip angles on survey buoys located by taut wire and sun azimuths.

2. Sounding Line Crossings

Agreement of sounding line crossings is satisfactory.

The Descriptive Report, page 2, mentioned that E-day work (positions 113 to 162) seemed to be at variance with the adjacent soundings and suggested that the office replot the soundings in accordance with the surrounding hydrography disregarding such angles as would appear to be in error.

The fixes controlling the lines usually consisted of two angles and one additional check angle but as a rule any position plotted with any two of the combination would not be verified by the third angle.

The smooth sheet as plotted was based on the right and left angles only. The verifier replotted the work based on the right and check angles. The maximum difference in position noted was about one-fourth mile.

The reviewer tested each assumption by laying down the rejected angle as a cut. Specifically considering positions 138 to 153, practically all the cuts with the check angle intersected satisfactorily at a point 0.1 mile south of signal FAD, which point may have been a marker buoy or some other object difficult to distinguish from signal FAD. This, then, would appear to be the correct solution of the discrepancy in recorded angles.

The possibility of an index error in the sextant is eliminated by the fact that an occasional fix will plot satisfactorily with all three angles and in addition because the angle of difference is not constant.

Most of the positions on the smooth sheet are therefore based on the recorded right and left angles, the check angle having been in most cases ignored. Considering the fact that the bottom is quite lumpy, agreement of depths is considered acceptable. Line 144-148 E, formerly plotted in latitude 42°51.2', longitude 68° 57.5' was replotted using the right and check angles. In this replotting the left angles successively intersected at a point about 1.3 miles northwest of signal AXE. The replotted line, falling about one-fourth mile further north materially improved general agreement of soundings and course and, moreover, eliminated two crossline discrepancies.

3. Depth Curves

The depth curves may be satisfactorily drawn.

4. Junctions with Adjacent Surveys

The junction with the surrounding sheet, H-6564 (1940) will be considered when that sheet is received from the field.

5. Comparison with Old Surveys

H-1303a (1875), H-1303b (1875) and H-1305 (1854-75), Scales 1:400,000 and 1:40,000

H-1305 is a compilation of sounding lines and investigations of eight surveying parties and also includes H-1303a and b. H-1303b is a larger scale but very sparse development of Cashes Ledge. This material is the principal basis for present chartings in this area.

Agreement of depths with the present survey is generally poor because of the less accurate dead reckoning control. A few soundings agree quite favorably but others indicate a displacement in position of nearly a mile. The least depth on Cashes Ledge is 5 fms. which agrees with the present survey but differs approximately 1.5 miles in geographic position. (See Par. 6, below.) The present survey supersedes these surveys.

6. Comparison with Chart 70 (New Print dated October 10, 1941)

a. Hydrography

The charted 4-1/2 fms., least depth on Cashes Ledge in latitude 42°53', longitude 68°55', falls in depths of about 43 fms. and 1.5 miles SE x E of the least depth of 5 fms. on the present survey.

The 4-1/2-fm. sounding originates with an investigation by C. H. Davis in 1849 and is described in the annual Coast Survey Report of 1844-1850, Library No. GS1 83 C65, pages 78-79, Section 5. The report states that lesser depths were obtained by local fishermen but some doubt existed as to whether the small lead, 3-1/2 pounds, penetrated or sufficiently pressed down the heavy kelp which covered the rock. No mention of kelp, however, appears in the sounding records or on the boat sheet of the present survey.

The position of this sounding in the above report was given as latitude 42°56', long. 68°51.5', a point which falls approximately five miles northeast of the 5-fm. spot on the present survey and in an area covered by H-6564 (1940) which has not been received from the field. This rock was called Ammens Rock.

Chart Letter No. 23 of 1914, containing considerable correspondance, states that the Lighthouse Bureau intended to mark the rock with a whistle buoy but was unable to locate it in this position although the investigation, consisting of a drag line and hand lead soundings, appeared to be quite extensive. However, no difficulty was experienced in locating the 5-fm. spot, then called Sigsbee Rock, which originated with H-1303b (1875) considered in paragraph 5 above. It was then concluded that both rocks were actually one and the 4-1/2-fm. sounding was therefore arbitrarily shifted to the 5-fm. spot on H-1303b and so charted.

It is possible that a lesser depth than 5 fms. exists on this shoal. For charting purposes, it is advisable in the interests of safety to retain the Coast Survey sounding of 4-1/2 fms. on the chart but shift its position to that of the 5-fm. spot on the present survey in latitude 42°53.6', longitude 68°56.7'. Wire dragging of this shoal is desirable but not possible because of the kelp noted in the 1849 report. The present survey work here was accomplished with a fathometer and the present condition of the bottom is not known, no bottom characteristics having been recorded.
Kelp added to sheet from traces on fathograms. 6/23/43 H.W.M.

b. Aids to Navigation

The position of the charted whistle buoy marking Ammen Rock is not specifically mentioned in the records accompanying the present survey. The taut-wire sun-azimuth computations which have not been received from the field may contain some reference and a request for additional information has been sent to the Norfolk Processing Office. *Information submitted*

7. Compliance with Project Instructions

The survey satisfactorily complies with the Project Instructions.

8. Condition of Survey

Bottom characteristics for charting purposes may be obtained from prior surveys covering this area.
Additional characteristics added from data submitted with H-6564 (1940) 6/23/43 H.W.M.

9. Addition Field Work Recommended

This is a satisfactory survey for the purposes intended. Mention is made that shoaler depths may easily exist on the numerous detached shoals or lumps such as the 14-1/2 fms. in latitude 42°51.3', longitude 68°55.6'; the 16 fms. in latitude 42°51.0', longitude 68°57.3' or the 22 fms. in latitude 42°58.2', longitude 68°56.8' but it seems unlikely that such depths will be menacing to navigation. Wire dragging of the 5-fm. area in latitude 42° 53.6', longitude 68°56.7' is desirable but probably not feasible because of the heavy kelp previously noted here. (See par. 6, above.)

10. Superseded Surveys

H-1303a	(1875)	in part
H-1303b	(1875)	" "
H-1305	(1854-75)	" "

Examined and Approved:

Robert W Knecht
Chief, Surveys Section

F. S. Borden
Chief, Division of Charts

J P Rayner
Chief, Section of Hydrography

G Rude
Chief, Division of
Coastal Surveys

Applied to chart	1106	Feb. 5, 1942	g.H.S.
" " "	70	Feb. 7, 1942	g.H.S.