

6982

Diag'd. on Diag. Ch. No. 1203-2

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. GI-2144 Office No. H-6982

LOCALITY

State Maine

General locality Approach to Penobscot Bay

Locality East of Monhegan Island

1944

CHIEF OF PARTY

L. P. Raynor

I. E. Rittenburg

LIBRARY & ARCHIVES

DATE April 17, 1945

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. H-6982

HYDROGRAPHIC TITLE SHEET # 1
1944

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

REGISTER No. H-6982

Field No. GI-2144

State Maine

General locality Coast of Maine

Locality Approaches to Penobscot Bay // East of Monhegan Island

Scale 1:20,000 Date of survey August - October, 1944

Instructions dated May 7, 1941, Sup. Inst. March 16, 1943 and March 11, 1944

Vessel GILBERT, LYDONIA & Launch No. 79

Chief of party L. P. Raynor & I. E. Rittenburg

Surveyed by Ships' Officers

Soundings taken by fathometer, graphic recorder, ~~hand lead, wire~~

Protracted by G. P. Barr

Soundings penciled by G. P. Barr

Soundings in ~~fathoms~~ feet at MLW ~~MLW~~

REMARKS: This sheet was processed in the Hydrographic Section, Supervisor
S. E. District

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET H-6982 (Field GI-2144)

Approaches to Penobscot Bay, Me.

Ship LYDONIA, L. P. Raynor, Commanding
M.V. GILBERT, I. E. Rittenburg, Commanding

Scale: 1:20,000

NOTE:

This descriptive report was written from information furnished by the field parties and supplemented by additional data obtained at this office. ✓

PROJECT:

C.S. 265. The authority for this survey is contained in the Instructions from the Director dated May 7, 1941, and Supplemental Instructions dated March 16, 1943 and March 11, 1944. ✓

SURVEY LIMITS & DATES:

This is a survey of the approaches to ~~the~~ Penobscot Bay, Maine, and lies approximately between Burnt Island, Monhegan Island and Metinic Island. It is joined on the north ^{west} by H-6984, on the north and west by H-6969, on the west by H-6861, ~~on the south and west by H-6976 (H-6861 insert)~~

Several sounding lines were run eastward of Southeast Breaker and south Metinic Island. The area in the vicinity of Allen Shoal was developed on H-6992, scale of 1:10,000. ✓

The field work was begun in August and completed in October, 1944. ✓

VESSELS & EQUIPMENT:

This survey was accomplished by the Ship LYDONIA, M. V. GILBERT and Launch No. 79. The following fathometers were used, -

<u>Ship</u>	<u>Fathometer</u>	<u>Model</u>	<u>No.</u>
GILBERT	Submarine Signal	808	53
*LYDONIA	Dorsey	1	1
Launch 79	Submarine Signal	808	75

* The Bludsworth Depth Recorder No. 82 was operated simultaneously with the Dorsey.

TIDES & CURRENT STATIONS:

Marigrams from Burnt Island tide station at Latitude $43^{\circ} 52.33'$; Longitude $69^{\circ} 17.73'$ were used in reducing soundings for the area on this survey. No time or height correction were used. ✓

Mean low water on staff is 2.6 feet. ✓

No current stations were established on this survey. ✓

SMOOTH SHEET:

The smooth sheet of this survey was plotted in the Hydrographic Section at the Southeastern District. ✓

The survey is not completed and needs to be extended to the east and south to limits specified in the Instructions of March 11, 1944. Since the area surveyed is to be wire dragged (the 60 foot spot transferred to the boat sheet from a previous survey and shown at Latitude $43^{\circ} 48.90'$ and Longitude $69^{\circ} 13.90'$ has been covered by W.D. 3185), it is believed that the present survey is adequate for charting purposes, although had weather and time permitted, some split lines would have been run to more adequately develop the depth curves. ✓

58 ft on
smooth sheet

On that portion of the survey accomplished by the Ship LYDONIA, soundings were obtained by the Dorsey Fathometer Type 1, No. 1, As the bottom was uneven with steep slopes, it is difficult even for an experienced observer to be sure whether the depth was on the 0-120, 120-240 or 240-360 foot range. To correct any errors that might be made on this account, the Bludsworth depth recorder No. 82 was operated on the port side of the ship and on the fathom scale. Several corrections were made in the record after scanning the fathograms from this machine. Such corrections have been fully explained in the sounding records. If the Bludsworth soundings were shallower than those obtained by the Dorsey they were plotted on the smooth sheet, otherwise, soundings obtained by the Dorsey fathometer are plotted. ✓

It should be understood that the soundings obtained by the Dorsey fathometer are official ones, as no bar checks of the Bludsworth could be made. Comparisons between the Dorsey soundings and those from the Bludsworth will roughly indicate differences, but the fish for the Bludsworth was 40 feet aft and 20 feet to port of the transceiver for the Dorsey. Simultaneous soundings are about 45 feet apart, and the fish passed over the bottom 20 feet to port of where the transceiver was in 2 or 3 seconds with the ship at full speed. ✓

CONTROL STATIONS:

The control for this survey was obtained from previously established triangulation stations, air-photo compilations and sextant cuts or fixes.

SHORELINE & TOPOGRAPHY:

The shoreline and topography was obtained from the following ✓
air-photo compilations,-

- T-5620
- 5621
- 5679
- 8003
- 8004
- 8007

SOUNDINGS:

See heading Smooth Sheet.

CONTROL OF HYDROGRAPHY:

Positions of soundings are located by three point sextant fixes, ✓
taken on shore signals, and plotted with a three-arm protractor.

ADEQUACY OF SURVEY:

(See second paragraph under heading "Smooth Sheet".)

CROSSLINES:

Considering the irregularity of the bottom in the area covered ✓
by this survey, the crossings, in general, are considered to be
in good agreement.

DANGERS & SHOALS:

No new shoals were found that are dangerous to navigation. ✓

IDS CORRECTIONS:

The IDS corrections entered in the sounding records consist of
the following, -"S" (Squat) a constant of 0.4 feet at the usual
sounding speeds; "D" (Draft), difference between the initial ✓
setting of the fathometer at 10.00 feet and the depth of the trans-
ceiver below the surface; "I" (Index), a constant, difference
between direct measurement of depth (leadline) and fathometer
reading after correcting for "D", temperature and salinity. This
quantity was found to be 0.75 ft. for this season.

COMPARISON WITH PRIOR SURVEYS:

While considerably less depth was found in the vicinity of Latitude
43° 45.5' and Longitude 69° 16.0' than found on Survey H-823 (a) (1865) ✓
or as charted, the existence of ^{uncharted} breakers as reported on the Chart
Review is definitely disproved by the present survey. S3
✓
Red

Respectfully submitted,

Adore M. Zeskind
Adore M. Zeskind
Cartographic Engineer

Norfolk, Va.
April 12, 1945
Approved & Forwarded

Paul C. Whitney
Paul C. Whitney
Supervisor SE Dist.

STATISTICS

Statistics for Hydrographic Survey H-6982 (1944) --- Project
CS-265 - - - Ship LYDONIA, Launch # 79, and M.V. GILBERT

LYDONIA

Date 1944	Vol. No.	Day Letter	Soundings HL & Wire	Positions	Sounding lines Miles Statutes
Sept. 22	2	A1 (red)	0	1	
Sept. 27	2	A	0	31	12.2
29	2	B	0	155	45.9
30	2	C	0	70	24.5
30	3	C	0	34	11.0
Oct. 1	3	D	0	162	49.3
3	3	E	0	81	23.6
2	4	E	0	79	23.5
3	4	F	0	220	60.0
4	5	G	0	158	49.7
5	5	H	0	17	4.5
6	5	J	0	89	28.3
				1097	332.5

LAUNCH # 79

Oct. 2	6	a (blue)	0	65	11.5
	6	b	0	42	7.5
				107	19.0

GILBERT

Aug. 7	1	A (blue)	0	12	4.7
8	1	B	0	163	63.4
9	1	C	0	126	51.8
10	1	D	0	12	5.5
				313	125.4

Total 1517 476.9

Total Square Statute Miles 48.0

LIST OF SIGNALS
H-6982

Triangulation

BURNT ISLAND 2, 1934

MARSHALL PT.L.H. - 1860, 1934

MONHEGAN LT. 1859 - 1934

Topographic

Aim

Ant

Bug

Cut # - T-5679

Eel * - T-8003

* Fog a - T-5620

* Greene

Hit

Ho

a Joe

Nic (Vol. 1)

Owl

Roe

Swan

Hydrographic

Con

Rad

Red

Seb

Yak

Beacon

APPROVAL SHEET

The sounding records were inspected daily by the Chief of Party and are approved. The boat sheet was inspected daily and after soundings were plotted and is approved.


L. P. Raynor

Chief of Party

RECORD OF TEMPERATURES, SALINITIES, AND THEORETICAL VELOCITIES

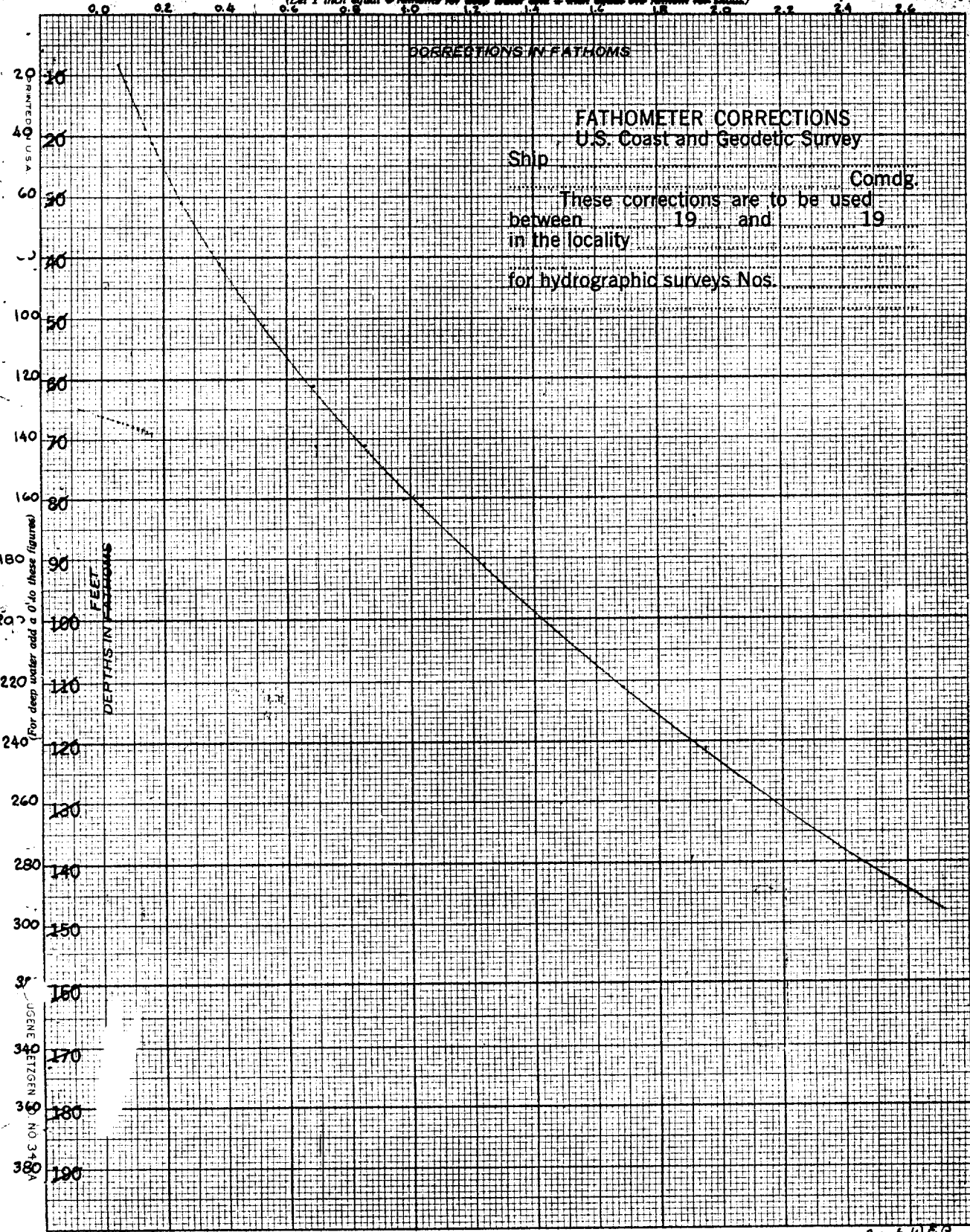
Ship or party SHIP LYDONIA L. P. RAYNOR, Chief of party. SEPT. 27, 1944
 Locality 3 M. SOUTH OF BURNT ISLAND Project CS-265 Survey No. _____

Date	Time	Latitude and longitude	* Depth	TEMP. AT DEPTH		SPECIFIC GRAVITY		AT TEMP.		† Salinity	Velocity at temp.	CORRECTIONS		Velocity (theoretical)	Therm. No.	Hydro. No.	Remarks (weather, bottom, etc.)
				Obs. °C	Cor. °C	Obs.	Cor.	Obs. °C	Cor. °C			Sal. M./Sec.	Pres. M./Sec.				
1944	14-00	43-57.41	35.4	9.4	9.3	1.0252		12.3		33.4			3892	172		sett. gy. m. AIR TEMP 58.5 F	
SEPT 27		Bottom	206	10.3	10.2	1.0256		12.0		33.8						BRIGHT, CLEAR	
			150	11.2	11.1	1.0251		12.4		33.2						WIND SE-1	
			90	12.1	12.0	1.0249		12.8		33.1						SEA - SMOOTH	
			60	12.4	12.3	1.0248		12.6		32.9						HIGH TIDE @ 1923 9 FT.	
			42	12.8	12.7	1.0247		13.0		32.8						SEA - SMOOTH	
			6													SEA - SMOOTH	

* If depth recorded in bottom indicate fath. 0.65 f.
 † Expressed in parts/1000. If by titration indicate thus: 34.15 T

9.4 188
(Let 1 inch equal 1/2 fathoms for deep water and 1 inch equal 0.4 fathom for shoal)

Sept. 27-1884



Comp WBR
ELM

$\frac{5}{7+2} = \frac{1}{2} = 4.5$	14.1	32.4 ✓	7.0
9.5	14.0	32.5	12.0
14.5	13.9	32.5	17
19.5	13.8	32.5	22
24.5	13.7	32.5	27
29.5	13.6	32.5	32
34.5	13.4	32.5	37
39.5	13.3	32.5	42
44.5	13.2	32.5	47

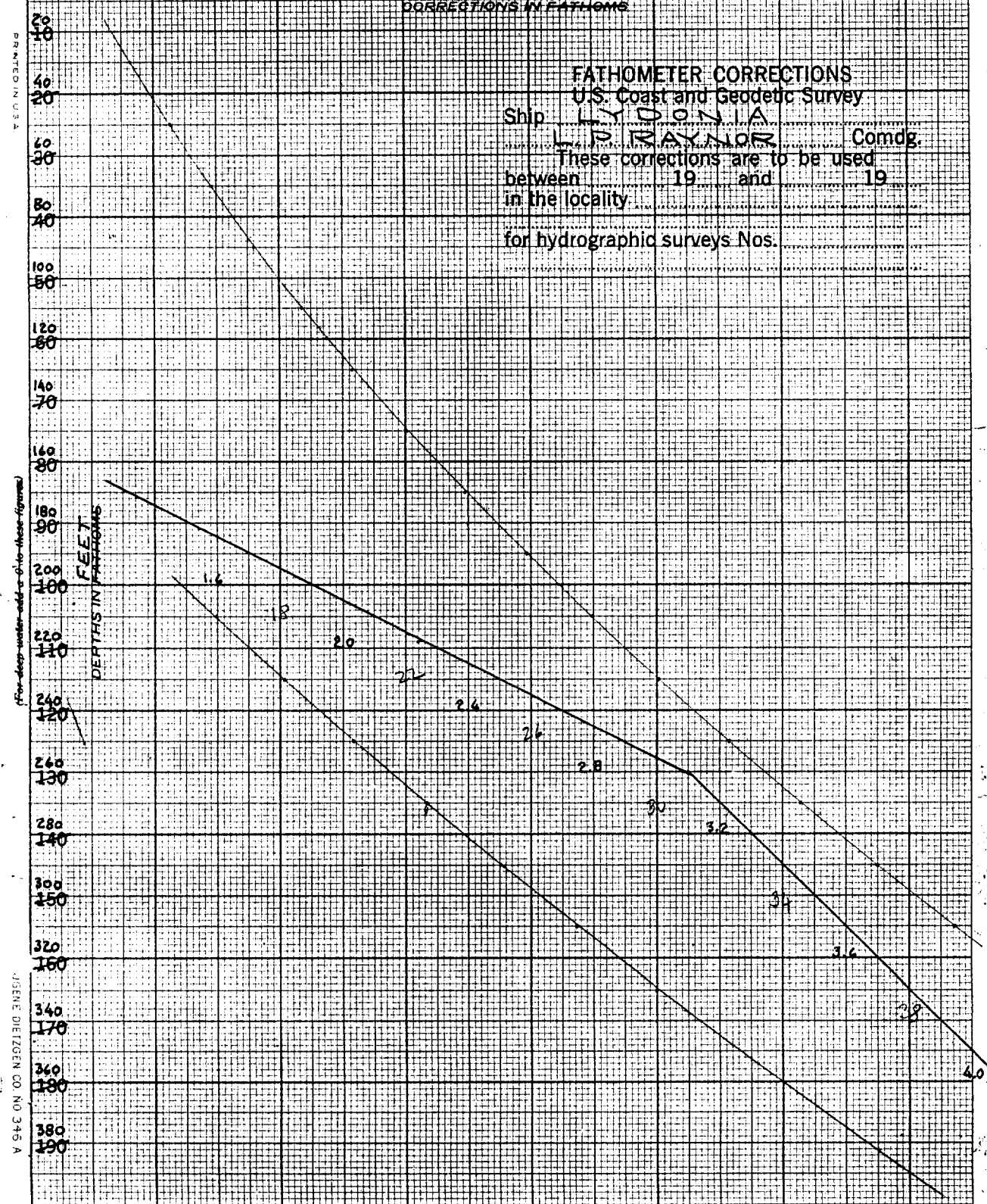
$\frac{ft}{ft} = \frac{fm}{ft}$
 41
 30
 20
 10
 2
 30

oct 5-1944

0.0 2 - 0.4 (Let 1 inch equal 4 feet for deep water and 1 inch equal 0.4 fathom for shoal.) 2.0 2.4 2.6 2.8

FATHOMETER CORRECTIONS

Ship U.S. Coast and Geodetic Survey
LYDONIA Comdg.
L.P. RAYNOR
These corrections are to be used
between 19 and 19
in the locality
for hydrographic surveys Nos.

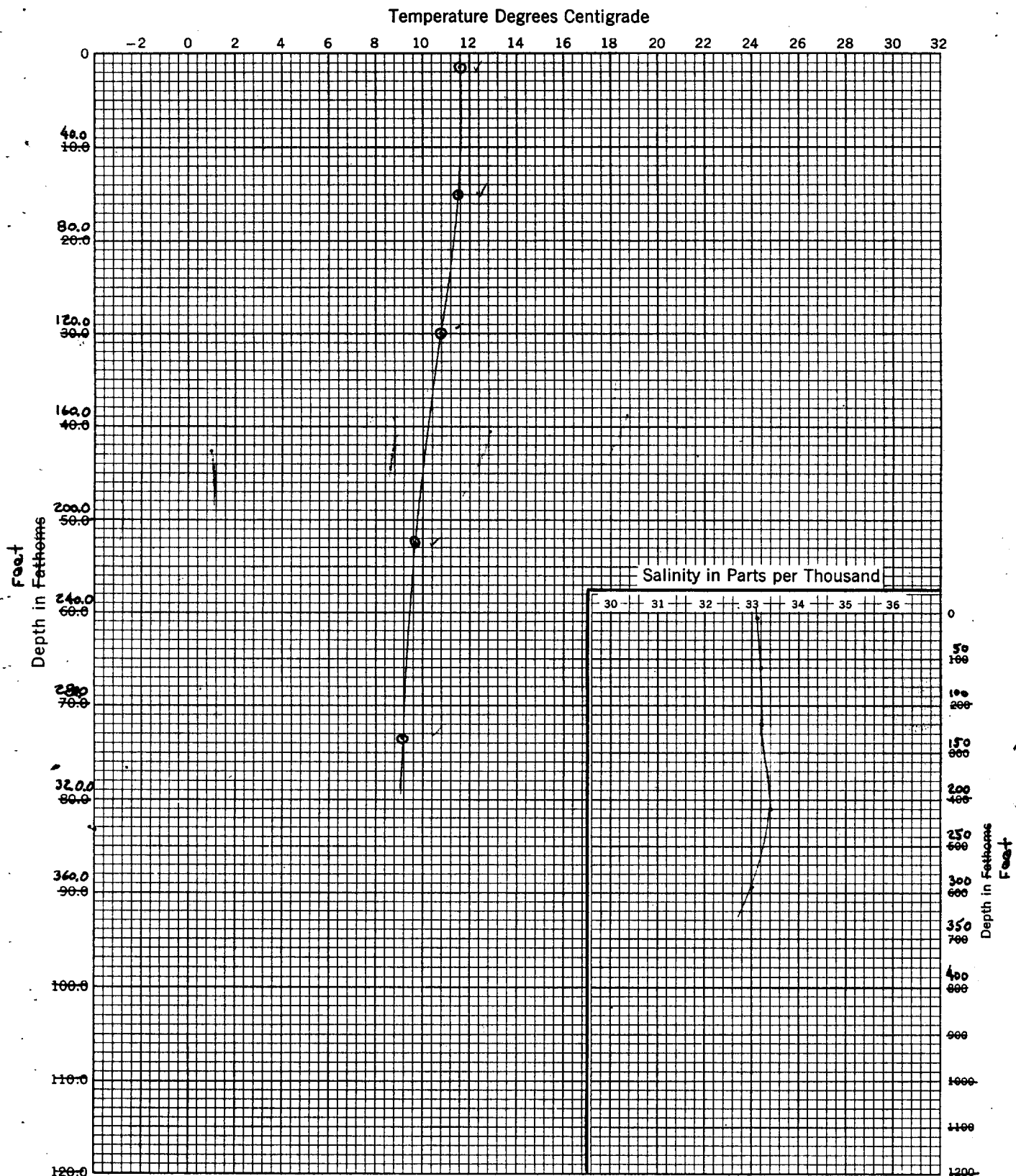


For deep water add 0.1 to these figures

JOSEPH DIETZEN CO. NO. 345 A

Comp. WER

GRAPH OF TEMPERATURES AND SALINITIES
U.S. COAST AND GEODETIC SURVEY



Ship... LYDONIA

... L. P. RAYNOR Com'd'g.

Date... Oct. 5, 1944

Locality... 1/2 mile NE Monhegan Island.

Thermometer (Makers) No. 380927

Hydrometer No. 1172

Serial No.

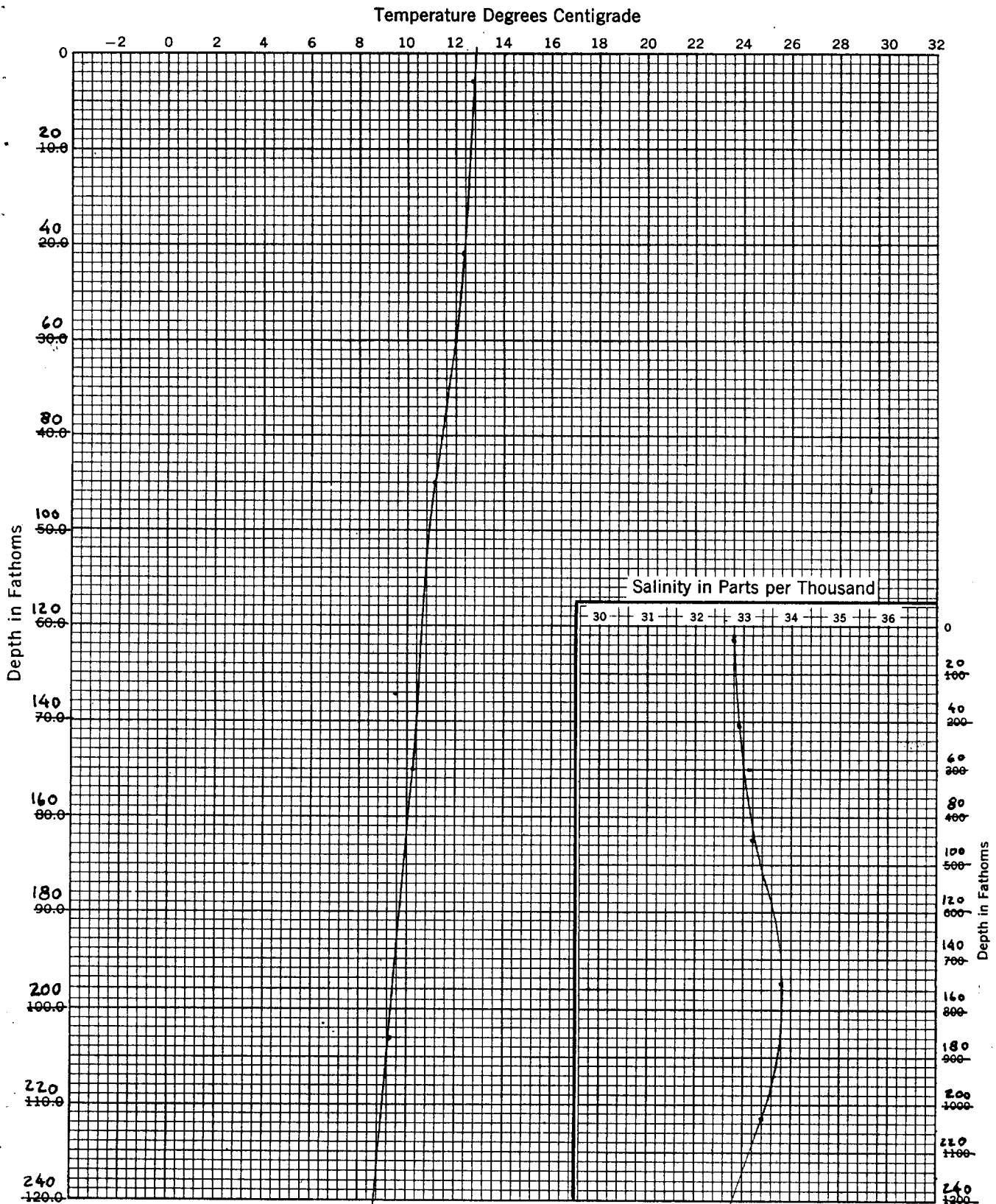
Position: Lat. 43° 46.65'

Long. 69° 17.60'

Salinities by... W.E. Randall

Plotted by: WER

GRAPH OF TEMPERATURES AND SALINITIES
U.S. COAST AND GEODETIC SURVEY



Ship..... LYDONIA

..... L. P. RAYNOR ..Com'd'g.

Date..... Sept. 27, 1944

Locality 3 miles S. of Burnt Id.

Thermometer (Makers) No. 38092

Hydrometer No. 1172

Serial No.

Position: Lat. °

Long. °

Salinities by RCD

*comp WBR
- ELN*

Box 1896, Baltimore 3, Maryland

22
22 East
90
80
23

OT 23 AM 9:30

For Report H 6982

27
24
1

Ship LYDONIA

October 21, 1944

To: Supervisor, Southeastern District
U. S. Coast and Geodetic Survey
418 Post Office Building
Norfolk 10, Virginia

From: Commanding Officer
Ship LYDONIA

Subject: Bludsworth fathograms - H 6982

All recorded soundings by the ship on Survey GI 2144 - H 6982 were obtained with the Dorsey fathometer, Type 1 - No. 1. The Bludsworth depth recorder was operated on the fathom scale at the same time as a check, since over the uneven bottom in this area, it was often difficult in many cases for the fathometer reader to determine the correct depth, i.e., whether the sounding was in the 0-120 foot range, 120-240 foot range, or even 240-300 foot range.

In one or two cases scanning the Bludsworth fathograms indicated a recorder's error and you may find it desirable to compare all the records with these fathograms but it is not believed necessary since depth curves and line crossings check reasonably well.

It should be understood that the soundings obtained by the Dorsey fathometer are official ones as no bar check of the Bludsworth could be made. Comparisons between the Dorsey soundings and those from the Bludsworth machine will roughly indicate differences ^{and} the fish for the Bludsworth is 40 feet aft and 20 feet to port of the transceiver for the Dorsey. Simultaneous soundings are about 45 feet apart, and the fish passes over the bottom 20 feet to port of where the transceiver was in 2 or 3 seconds with ship underway at full speed. ✓

L. P. Raynor
Commander, USC&GS
Commanding Ship LYDONIA

CC: Director

TIDE NOTE FOR HYDROGRAPHIC SHEET

1 May 1945

~~Division of Hydrography and Topography~~

✓ Division of Charts: Attention: H. W. MURRAY

Plane of reference approved in
6 volumes of sounding records for

HYDROGRAPHIC SHEET 6982

Locality Approaches to Penobscot Bay, Coast of Maine.

Chief of Party: I. E. Rittenburg and L. P. Raynor in 1944
Plane of reference is mean low water reading
1.7 ft. on tide staff at Port Clyde
13.5 ft. below B. M. 1
2.6 ft. on tide staff at Burnt Island
17.4 ft. below B. M. 1

Height of mean high water above plane of reference is 9.0 feet.

Condition of records satisfactory except as noted below:

C. K. Allen

Chief, Division of Tides and Currents.

Surveys Section (Chart Division)

HYDROGRAPHIC SURVEY NO. **H6982**

Records accompanying survey:

Boat sheets ..2.; sounding vols. .6...; wire drag vols.;
 bomb vols.; graphic recorder rolls ..12.;
 special reports, etc.

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

Number of positions on sheet	151.6
Number of positions checked	285.
Number of positions revised	.10.
Number of soundings recorded	96.00
Number of soundings revised (refers to depth only)	.28.
Number of soundings erroneously spaced	.14.
Number of signals erroneously plotted or transferred	.16.
Topographic details	Time } see report for
Junctions	Time } additional work.
Verification of soundings from graphic record	Time

BYRON CANDAGE ----- 333
 Verification by JOHN M. ALDEN Total time ~~7.0.5~~ Date 7-11-45
 By A.B.W.

Review by *J. F. Jordan* Time Date
 See report in
 1945 work

NAUTICAL CHARTS BRANCH

SURVEY NO. 6982

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
6/26/45	312	Street	Before After Verification and Review <i>critical edgs. only.</i>
7/16/45	1203	SA Mc Gann	Before After Verification and Review <i>critical edgs.</i>
5/5/47	313 Reconst.	W. Everett	Before After Verification and Review
1/22/48	70	H. MacEwen	Before After Verification and Review <i>a few critical soundings only.</i>
5/3/48	1204	H. MacEwen	Before After Verification and Review <i>nothing applied</i>
8/30/48	322	W. Everett	Before After Verification and Review
Nov. 53	1000	A. F. Stegman	Before After Verification and Review <i>thru chart 1106</i>
5-8-63	Reconst 1203	M. Rogers	Before After Verification and Review <i>thru 313, 322</i>
			Before After Verification and Review
			Before After Verification and Review

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

Processing Office, Norfolk

H-6982
35
1541

COMPUTATION OF G.P.

15.25

"BAK"

H-6982

~~BOOK~~

SHEET F-114

seconds in 166.1
 BAK ϕ 1519.3 (332.2)
 1 1118.6 (221.8)

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

α	2	to 3	9	30		α	3	to 2	189	30
$2dL$		δ	+ 34	03		$3dL$		δ	- 36	51
α	2	to 1	48	33		α	3	to 1	152	39
$\Delta\alpha$				- 1		$\Delta\alpha$				- 1
									180	00
d'	1	to 2	228	32		d'	1	to 3	332	38
										00.0

FIRST ANGLE OF TRIANGLE

ϕ	43	53	36.84	2	17.21	λ	69	07	35.58
$\Delta\phi$			47.61			$\Delta\lambda$		01	14.53
ϕ'	43	52	49.23	1	BAK	λ'	69	08	50.11

Logarithms		Values in seconds		Logarithms		Values in seconds		Logarithms		Values in seconds	
α	3.34632			$\phi(\phi+\phi')$	43-53			α	3.36771		
$\text{Cos } \alpha$	9.82084							$\text{Cos } \alpha$	9.94852		
B	8.51055							B	8.51056		
h	1.67771	1st term	47.61					h	1.82679	1st term	67.11
s^2				$\text{Sin } \alpha$	9.87479			$\text{Sin } \alpha$	9.66221		
$\text{Sin}^2 \alpha$				N'	8.50902			$\text{Sin } \alpha$	8.50902		
C				$\text{Sec } \phi'$	0.14219			$\text{Sec } \phi'$	0.14219		
h^2		2d term	+	$\Delta\lambda$	1.87232		74.53	$\Delta\lambda$	1.68113		47.99
D				$\text{Sin } \frac{1}{2}(\phi+\phi')$	9.84085		51.7	$\text{Sin } \frac{1}{2}(\phi+\phi')$	9.84072		
				$-\Delta\alpha$	1.71317			$-\Delta\alpha$	1.52185		33.3
		3d term	+								
		$-\Delta\phi$									

INVERSE POSITION COMPUTATION

$$s_1 \sin \left(\alpha + \frac{\Delta\alpha}{2} \right) = \frac{\Delta\lambda_1 \cos \phi_m}{A_m}$$

$$s_1 \cos \left(\alpha + \frac{\Delta\alpha}{2} \right) = \frac{-\Delta\phi_1 \cos \frac{\Delta\lambda}{2}}{B_m}$$

$$-\Delta\alpha = \Delta\lambda \sin \phi_m \sec \frac{\Delta\phi}{2} + F(\Delta\lambda)^2$$

in which $\log \Delta\lambda_1 = \log (\lambda' - \lambda)$ - correction for arc to sin*; $\log \Delta\phi_1 = \log (\phi' - \phi)$ - correction for arc to sin*; and $\log s = \log s_1 +$ correction for arc to sin*.

		NAME OF STATION			
1. ϕ	43 - 53 36.84	Metinic	λ	69 - 07 - 35.58	
2. ϕ'	43 - 51 - 42.12	M. E. T.	λ'	69 - 08 - 02.13	
$\Delta\phi (= \phi' - \phi)$	- 01 - 54.72		$\Delta\lambda (= \lambda' - \lambda)$	00 - 26.55	
$\frac{\Delta\phi}{2}$	57.36		$\frac{\Delta\lambda}{2}$	13.28	
$\phi_m (= \phi + \frac{\Delta\phi}{2})$	43 - 52 - 39.48		$\Delta\lambda$ (secs.)	26.55	
$\Delta\phi$ (secs.)	114.72				
	2.059639			1.424064	
$\log \Delta\phi$			$\log \Delta\lambda$		
cor. arc-sin	-		cor. arc-sin	-	
$\log \Delta\phi_1$	2.059639		$\log \Delta\lambda_1$	1.424064	
$\log \cos \frac{\Delta\lambda}{2}$			$\log \cos \phi_m$	9.857828	
$\text{colog } B_m$	1.489446		$\text{colog } A_m$	1.490981	
$\log \left\{ s_1 \cos \left(\alpha + \frac{\Delta\alpha}{2} \right) \right\}$	3.549085	(opposite in sign to $\Delta\phi$)	$\log \left\{ s_1 \sin \left(\alpha + \frac{\Delta\alpha}{2} \right) \right\}$	2.772873	
			$\log \left\{ s_1 \cos \left(\alpha + \frac{\Delta\alpha}{2} \right) \right\}$	3.549085	
$\log \Delta\lambda$	1.424064	$3 \log \Delta\lambda$	$\log \tan \left(\alpha + \frac{\Delta\alpha}{2} \right)$	9.223788	
$\log \sin \phi_m$	9.840809	$\log F$	$\alpha + \frac{\Delta\alpha}{2}$	9 - 30 - 14.0	
$\log \sec \frac{\Delta\phi}{2}$		$\log b$	$\log \sin \left(\alpha + \frac{\Delta\alpha}{2} \right)$	9.217785	
$\log a$	1.264873		$\log \cos \left(\alpha + \frac{\Delta\alpha}{2} \right)$	9.993998	
a	18.4		$\log s_1$	3.555087	
b			cor. arc-sin	+	
$-\Delta\alpha$ (secs.)			$\log s$	3.555087	
$\frac{-\Delta\alpha}{2}$	9.2				
$\alpha + \frac{\Delta\alpha}{2}$	9 - 30 - 14.0				
α (1 to 2)	9 - 30 - 23.2				
$\Delta\alpha$	-18.4				
	180				
α' (2 to 1)	189 - 30 - 04.8				

* Use the table on the back of this form for correction of arc to sin.
Metinic - MET

MET Metinic

NOTE.—For $\log s$ up to 4.52 and for $\Delta\phi$ or $\Delta\lambda$ (or both) up to 10', omit all terms below the heavy line except those printed (in whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places.

Table of arc-sin corrections for inverse position computations

$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$	$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$	$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$
4.177	1	2.686	5.223	124	3.732	5.525	497	4.034
4.327	2	2.836	5.234	130	3.743	5.530	508	4.039
4.415	3	2.924	5.243	136	3.752	5.534	519	4.043
4.478	4	2.987	5.253	142	3.762	5.539	530	4.048
4.526	5	3.035	5.260	147	3.769	5.543	541	4.052
4.566	6	3.075	5.269	153	3.778	5.548	553	4.057
4.599	7	3.108	5.279	160	3.788	5.553	565	4.062
4.628	8	3.137	5.287	166	3.796	5.557	577	4.066
4.654	9	3.163	5.294	172	3.803	5.561	588	4.070
4.677	10	3.186	5.303	179	3.812	5.566	600	4.075
4.697	11	3.206	5.311	186	3.820	5.570	613	4.079
4.716	12	3.225	5.318	192	3.827	5.575	625	4.084
4.734	13	3.243	5.326	199	3.835	5.579	637	4.088
4.750	14	3.259	5.334	206	3.843	5.583	650	4.092
4.765	15	3.274	5.341	213	3.850	5.587	663	4.096
4.779	16	3.288	5.349	221	3.858	5.591	674	4.100
4.792	17	3.301	5.356	228	3.865	5.595	687	4.104
4.804	18	3.313	5.363	236	3.872	5.600	702	4.109
4.827	20	3.336	5.369	243	3.878	5.604	716	4.113
4.857	23	3.366	5.376	251	3.885	5.608	729	4.117
4.876	25	3.385	5.383	259	3.892	5.612	743	4.121
4.892	27	3.401	5.390	267	3.899	5.616	757	4.125
4.915	30	3.424	5.396	275	3.905	5.620	771	4.129
4.936	33	3.445	5.403	284	3.912	5.624	785	4.133
4.955	36	3.464	5.409	292	3.918	5.628	800	4.137
4.972	39	3.481	5.415	300	3.924	5.632	814	4.141
4.988	42	3.497	5.422	309	3.931	5.636	829	4.145
5.003	45	3.512	5.428	318	3.937	5.640	845	4.149
5.017	48	3.526	5.434	327	3.943	5.644	861	4.153
5.035	52	3.544	5.440	336	3.949	5.648	877	4.157
5.051	56	3.560	5.446	345	3.955	5.652	893	4.161
5.062	59	3.571	5.451	354	3.960	5.656	909	4.165
5.076	63	3.585	5.457	364	3.966	5.660	925	4.169
5.090	67	3.599	5.462	373	3.971	5.663	941	4.172
5.102	71	3.611	5.468	383	3.977	5.667	957	4.176
5.114	75	3.623	5.473	392	3.982	5.671	973	4.180
5.128	80	3.637	5.479	402	3.988	5.674	989	4.183
5.139	84	3.648	5.484	412	3.993	5.678	1005	4.187
5.151	89	3.660	5.489	422	3.998			
5.163	94	3.672	5.495	433	4.004			
5.172	98	3.681	5.500	443	4.009			
5.183	103	3.692	5.505	453	4.014			
5.193	108	3.702	5.510	464	4.019			
5.205	114	3.714	5.515	474	4.024			
5.214	119	3.723	5.520	486	4.029			

INVERSE POSITION COMPUTATION

$$s_1 \sin \left(\alpha + \frac{\Delta\alpha}{2} \right) = \frac{\Delta\lambda_1 \cos \phi_m}{A_m}$$

$$s_1 \cos \left(\alpha + \frac{\Delta\alpha}{2} \right) = \frac{-\Delta\phi_1 \cos \frac{\Delta\lambda}{2}}{B_m}$$

$$-\Delta\alpha = \Delta\lambda \sin \phi_m \sec \frac{\Delta\phi}{2} + F(\Delta\lambda)^3$$

in which $\log \Delta\lambda_1 = \log (\lambda' - \lambda)$ - correction for arc to sin*; $\log \Delta\phi_1 = \log (\phi' - \phi)$ - correction for arc to sin*; and $\log s = \log s_1 +$ correction for arc to sin*.

		NAME OF STATION					
1. ϕ	43- 51 57.46	Burnt Id. 2	λ	69- 17- 42.49			
2. ϕ'	43 53 36.84	METINIC	λ'	69- 07- 35.58			
$\Delta\phi (= \phi' - \phi)$	1- 39.38 ✓		$\Delta\lambda (= \lambda' - \lambda)$	- 10 - 06.91 ✓			
$\frac{\Delta\phi}{2}$	49.69 ✓		$\frac{\Delta\lambda}{2}$	05- 03.5 ✓			
$\phi_m (= \phi + \frac{\Delta\phi}{2})$	43- 52- 47.15 ✓						
$\Delta\phi$ (secs.)	99.38 ✓		$\Delta\lambda$ (secs.)	- 606.91 ✓			
log $\Delta\phi$			log $\Delta\lambda$				
cor. arc-sin	-		cor. arc-sin	-			
log $\Delta\phi_1$	1. 997 299 ✓		log $\Delta\lambda_1$	2. 783 124 ✓ ⁿ			
log cos $\frac{\Delta\lambda}{2}$			log cos ϕ_m	9. 857 812 ✓			
colog B_m	1. 489 446 ✓		colog A_m	1. 490 981 ✓			
log $s_1 \cos \left(\alpha + \frac{\Delta\alpha}{2} \right)$	3. 486 745 ✓	(opposite in sign to $\Delta\phi$)	log $s_1 \sin \left(\alpha + \frac{\Delta\alpha}{2} \right)$	4. 131 917 ✓ ⁿ			
			log $s_1 \cos \left(\alpha + \frac{\Delta\alpha}{2} \right)$	3. 486 745 ✓ ⁿ			
log $\Delta\lambda$	2. 783 124 ✓	3 log $\Delta\lambda$	log tan $\left(\alpha + \frac{\Delta\alpha}{2} \right)$	10. 645 172 ✓			
log sin ϕ_m	9. 840 826 ✓	log F	$\alpha + \frac{\Delta\alpha}{2}$	257- 14- 40.8 ✓			
log sec $\frac{\Delta\phi}{2}$		log b	log sin $\left(\alpha + \frac{\Delta\alpha}{2} \right)$	9. 989 148 ✓			
log a	2. 623 950 ✓		log cos $\left(\alpha + \frac{\Delta\alpha}{2} \right)$	9. 343 976 ✓			
a	420.7		log s_1	4. 142 769 ✓			
b			cor. arc-sin	+			
$-\Delta\alpha$ (secs.)	420.7		log s				
$\frac{\Delta\alpha}{2}$	210.4						
$\alpha + \frac{\Delta\alpha}{2}$	257- 14 40.8 ✓						
α (1 to 2)	257- 11- 10.4						
$\Delta\alpha$	7 00.7						
	180						
α' (2 to 1)	77- 18- 11.1	Metinic - Burnt Id. 2					

* Use the table on the back of this form for correction of arc to sin.
Burnt Id. 2 - Metinic

NOTE.—For log s up to 4.52 and for $\Delta\phi$ or $\Delta\lambda$ (or both) up to 10', omit all terms below the heavy line except those printed (in whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places.

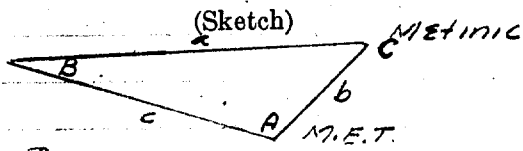
Table of arc-sin corrections for inverse position computations

$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$	$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$	$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$
4.177	1	2.686	5.223	124	3.732	5.525	497	4.034
4.327	2	2.836	5.234	130	3.743	5.530	508	4.039
4.415	3	2.924	5.243	136	3.752	5.534	519	4.043
4.478	4	2.987	5.253	142	3.762	5.539	530	4.048
4.526	5	3.035	5.260	147	3.769	5.543	541	4.052
4.566	6	3.075	5.269	153	3.778	5.548	553	4.057
4.599	7	3.108	5.279	160	3.788	5.553	565	4.062
4.628	8	3.137	5.287	166	3.796	5.557	577	4.066
4.654	9	3.163	5.294	172	3.803	5.561	588	4.070
4.677	10	3.186	5.303	179	3.812	5.566	600	4.075
4.697	11	3.206	5.311	186	3.820	5.570	613	4.079
4.716	12	3.225	5.318	192	3.827	5.575	625	4.084
4.734	13	3.243	5.326	199	3.835	5.579	637	4.088
4.750	14	3.259	5.334	206	3.843	5.583	650	4.092
4.765	15	3.274	5.341	213	3.850	5.587	663	4.096
4.779	16	3.288	5.349	221	3.858	5.591	674	4.100
4.792	17	3.301	5.356	228	3.865	5.595	687	4.104
4.804	18	3.313	5.363	236	3.872	5.600	702	4.109
4.827	20	3.336	5.369	243	3.878	5.604	716	4.113
4.857	23	3.366	5.376	251	3.885	5.608	729	4.117
4.876	25	3.385	5.383	259	3.892	5.612	743	4.121
4.892	27	3.401	5.390	267	3.899	5.616	757	4.125
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5.003	45	3.512	5.428	318	3.937	5.640	845	4.149
5.017	48	3.526	5.434	327	3.943	5.644	861	4.153
5.035	52	3.544	5.440	336	3.949	5.648	877	4.157
5.051	56	3.560	5.446	345	3.955	5.652	893	4.161
5.062	59	3.571	5.451	354	3.960	5.656	909	4.165
5.076	63	3.585	5.457	364	3.966	5.660	925	4.169
5.090	67	3.599	5.462	373	3.971	5.663	941	4.172
5.102	71	3.611	5.468	383	3.977	5.667	957	4.176
5.114	75	3.623	5.473	392	3.982	5.671	973	4.180
5.128	80	3.637	5.479	402	3.988	5.674	989	4.183
5.139	84	3.648	5.484	412	3.993	5.678	1005	4.187
5.151	89	3.660	5.489	422	3.998			
5.163	94	3.672	5.495	433	4.004			
5.172	98	3.681	5.500	443	4.009			
5.183	103	3.692	5.505	453	4.014			
5.193	108	3.702	5.510	464	4.019			
5.205	114	3.714	5.515	474	4.024			
5.214	119	3.723	5.520	486	4.029			

TRIANGLE COMPUTATION USING TWO SIDES AND INCLUDED ANGLE

$$\left[\frac{a}{b} = \tan(45^\circ + \phi) \quad (\text{Call longer side } a) : \quad \tan \frac{1}{2}(A_p - B_p) = \tan \phi \tan \frac{1}{2}(A_p + B_p) : \quad c = \frac{a \sin C_p}{\sin A_p} \right]^*$$

C_p		Log a	4.142 769	Log m
Sph. excess		Log b	3.555 087	Log sin C_p
C_p	67 - 47 - 47.9	Log tan $(45^\circ + \phi)$	10.587 682	Log a
$\frac{1}{2} C_p$	33 - 53 54.0	$(45^\circ + \phi)$	75° 30' - 39.2	Log b
$90^\circ - \frac{1}{2} C_p = \frac{1}{2}(A_p + B_p)$	56 - 06 - 06.6	ϕ	30 - 30 - 39.2	Log sph. ex.
$\frac{1}{2}(A_p - B_p)$	41 15 - 06.0	Log tan ϕ	9.770 337	Sph. excess
Sum = A_p	97 21 12.0	Log tan $\frac{1}{2}(A_p + B_p)$	10.172 676	
Diff. = B_p	14 51 00.0	Log tan $\frac{1}{2}(A_p - B_p)$	9.943 013	
C_p	67 47 47.9	Burnt Id 2	(Sketch)	Metinic



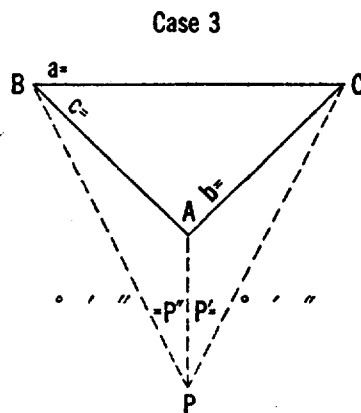
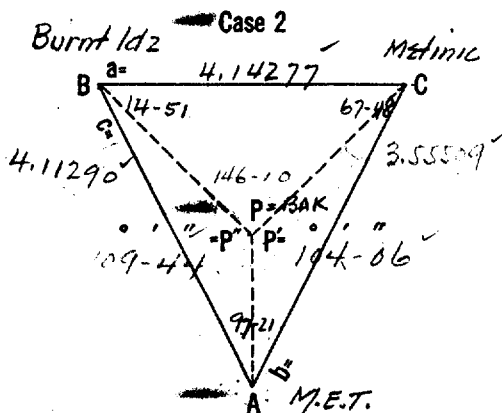
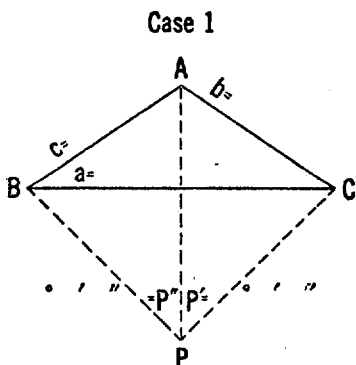
Log a	4.142 769		
Log sin C_p	9.966 540	Metinic - Burnt Id 2	77 - 18 - 11.1
Colog sin A_p	0.003 586	Metinic - Met	9 - 30 - 23.2
Log c	4.112 895	Metinic	67 - 47 47.9

CHECK COMPUTATION

NO.	STATION	SPHERICAL ANGLE	SPHERICAL EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
2-3					4.142 769
1	M.E.T.	97 - 21 - 12.0			0.003 586
2	Burnt Id 2	14 - 51 - 00.0			9.408 731
3	Metinic	67 - 47 - 47.9			9.966 540
1-3					3.555 086
1-2					4.112 895
2-3					
1					
2					
3					
1-3					
1-2					

* The subscripts s and p on this form refer to spherical and plane angles respectively.

COMPUTATION OF THREE-POINT PROBLEM



Cases 1 and 2

P'	104-06
P''	109-44
A	97-21
Sum	311-11
1/2 Sum	155-36

Case 3

P'	
P''	
Sum	
A	

$S = 180^\circ - \frac{1}{2} \text{sum} =$

24-24

$S = \frac{1}{2} (A - \text{sum}) =$

Log c =	4.11290
Log sin P' =	9.98671
Colog b =	6.44491
Colog sin P'' =	0.02628

Sum = log tan Z = 10.57080

Z =	74-58
Z + 45° =	119-58

Log cot (Z + 45°) =	9.76086
Log tan S =	9.65669

Sum = log tan ε = 9.41755 (sign N)

ε	14-39
S	24-24

(Tan ε+)
S + ε = angle ABP
S - ε = angle ACP

(Tan ε-)
S - ε = angle ABP
S + ε = angle ACP

BPA	109-44
ABP	9-45
PAB	60-31

APC	104-06
PCA	39-03
CAP	36-51

PCB	28-45
CBP	5-06
BPC	146-10

180-00 180-00 180-01
(For explanation of this form see Special Publication No. 138, pages 191 and 192, or Special Publication No. 145, pages 98-100)

9.989148

4 142769

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

CHECK COMPUTATION

α	2	to 3	257	11	104	α	3	to 2	27	18	11.1
2d L		δ	+ 14	51	00.0	8d L		δ	- 67	47	47.9
α	2	to 1	272	02	10.4	α	3	to 1	9	30	23.2
$\Delta\alpha$				6	42.1	$\Delta\alpha$					18.4
				180	00	00.0			180	00	00.0
α'	1	to 2	52	08	52.5	α'	1	to 3	189	30	04.8

ϕ	43	51	57.46	2	Burnt Ids	λ	69	17	42.49	ϕ	43	53	36.84	8	17.1010	λ	69	07	35.58
$\Delta\phi$			15.34			$\Delta\lambda$		9	40.37	$\Delta\phi$			54.72			$\Delta\lambda$			26.55
ϕ'	43	51	45.12	1	N.E.T	ϕ'	43	51	42.12	ϕ'	43	51	42.12	1		ϕ'	69	08	02.13

Logarithms	+	4.112895	Values in seconds	1st term	14.93	Logarithms	+	43-51-51.3	Values in seconds	1st term	114.72	Logarithms	+	43-52-39.5
	+	8.550611					+	9.993995					+	3.555086
B	8.510555					B	8.510553					B	8.510553	
h	1.174067					h	2.059635					h	2.059635	
α'	8.2256					α'	7.1102					α'	7.1102	
Sin α'	9.9994					Sin α'	8.4358					Sin α'	8.4358	
C	1.3869					C	1.3872					C	1.3872	
	9.6119													
2d term	+ 0.41					2d term	+ 9.846703					2d term	+ 9.846889	
3d term	+ 15.34					3d term	+ 402.1					3d term	+ 114.72	
$\Delta\phi$						$\Delta\phi$	- 2.604406					$\Delta\phi$	- 1.264887	
h ²						h ²						h ²		
D						D						D		

COMPUTATION OF TRIANGLES

State: _____

11-9121

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
	2-3						3.55509
1	BAK	104-06					0.01328
2	METINIC	39-03					9.79934
3	MET	36-51					9.77795
	1-3						3.36771
	1-2						3.34632
	2-3						4.11290
1	Bak	109-44					0.02628
2	M.E.T.	60-31					9.93977
3	Burnt Idz	9-45				Δ, 1' 00070	9.22878
	1-3						4.07895
	1-2						3.36796
	2-3						
	1						
	2						
	3						
	1-3						
	1-2						
	2-3						
	1						
	2						
	3						
	1-3						
	1-2						

Do not write in this margin

6982

6982

Diag'd. on Diag. Ch. No. 1203-2

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. GI-2144 Office No. H-6982

LOCALITY

State Maine

General locality Approach to Penobscot Bay

Locality East of Monhegan Island

1945

CHIEF OF PARTY

L. P. Rayner

LIBRARY & ARCHIVES

DATE Feb. 4, 1946

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET #2
1945

REG. NO. H6982

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. GI 214

REGISTER NO. H-6982

State MAINE

General locality ~~COAST OF MAINE~~

Locality APPROACHES TO PENOBSCOT BAY *East of Monhegan Island*

Scale 1 : 20,000 Date of survey ~~7 June~~ ^{15 May} to 11 Oct., 1945

Vessel SHIP LYDONIA and Launches Nos. 79 and 82

Chief of Party L. P. Raynor

Surveyed by E. B. Latham

Protracted by A.G. Atwill

Soundings penciled by A^SC. Atwill

Soundings in ~~FATHOMS~~ feet

Plane of reference MLW

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated 7 May 1941 Supplemental: 16 Mar. 1943
11 Mar. 1944, 19

Remarks: This sheet was process^{ed} in the Hydrographic Section of the S.E. District, Norfolk, Va.

SHIP LYDONIA WORK ADDENDA REPORT SHEET H-6982

A. PROJECT CS-265

Reported previously.

B. SURVEY LIMITS AND DATES

The part of the sheet not surveyed in 1944 as described in previous report, except that surveyed by launches in the vicinity of Roaring Bull Ledge and Southeast Breaker.

C. VESSEL AND EQUIPMENT

Ship LYDONIA, using Dorsey III Fathometer No. 36.

D. TIDE AND CURRENT STATIONS

Tide staff at Burnt Island and auto-portable tide gage at Matinicus Harbor.

E. SMOOTH SHEET

To be plotted by the Norfolk Processing Office.

F. CONTROL STATIONS

From previous report.

G. SHORE LINE AND TOPOGRAPHY

Covered by previous report.

H. SOUNDINGS

Soundings were taken by Dorsey III Fathometer No. 36. All corrections have been furnished the processing office.

I. CONTROL OF HYDROGRAPHY

Three point fixes on shore objects. Conventional methods were used.

J. ADEQUACY OF SURVEY

Survey is adequate for charting purposes and supersedes previous surveys.

K. CROSSLINES

Eight or ten percent of lines run were crosslines. Satisfactory crossings were obtained, considering the nature of the bottom.

L-M COMPARISON WITH PREVIOUS SURVEYS AND CHARTS

Chart 312, print date 5/15/43.

In the area covered by the ship's work on this survey, the charted soundings ~~are agreed~~

ings agreed in general with those obtained this year. Due to a more intensive development, the bottom contours, ^{of the present survey} can now be drawn more accurately from the recent ~~which~~ ²⁷⁹ can supersede all previous ones.

The area westward and southward of Metinic Island and between LY115 and the work of the LYDONIA and GILBERT (1944-1945) was surveyed by the ship's launches. This is an area of broken ground including Southeast Breaker, Haddock Ledge and Roaring Bill Ledge. From the more intensive work on this survey the area has been more adequately developed and several dangers to navigation determined.

N. DANGERS AND SHOALS

The shoals in the area mentioned in the preceding paragraph have been developed carefully and this survey should be used for charting purposes. Attached to this report are copies of Form 786 listing the dangers that have been found and reported to the Washington Office.

All applied to Chart 312 W.A.B. 2/8/46

The rocky shoal of ³⁰ 32 feet determined by the ship in Lat. 43-52-(790m) Long. 69-05-(830m) was later developed on LY115 but no lesser depths were found. ^{52.42'} _{57.2'}

P. AIDS TO NAVIGATION

See previous report.

Q. LANDMARKS FOR CHARTS

No landmarks for charts were discovered in this survey.

R. GEOGRAPHIC NAMES

None recommended. ⁸¹⁴

S - Z Do not apply.

Respectfully submitted,

E. B. Latham

E. B. Latham
Lieut. Comdr., USC&GS

Approved and forwarded;

L. P. Raynor

L. P. Raynor
Commander, USC&GS
Commanding Ship LYDONIA

ADDENDA TO DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SHEET H-6982 (Field No. GI 2144)

Approaches to Penobscot Bay, Me.

A. PROJECT

Previously reported.

B. SURVEY LIMITS AND DATES

Area is in the vicinity of Roaring Bull Ledge ^{and} SE Breaker.

Launch work was begun on 15 May 1945 and ended on 11 July 1945. Junctions were made with Ship work in 1944 and 1945 and work by the Ship GILBERT in 1944, with Sheet F115, launch work, scale 1:10,000 and WD survey Sheet No. 3185, 1910 ^{H-7054 (1945)}

C. VESSEL AND EQUIPMENT

Sounding was done by Launches Nos. 79 and 82 attached to and working from the Ship LYDONIA. 808 portable depth recorders Nos. 75 and 76 were used.

D. TIDE AND CURRENT STATIONS

Tidal observations were obtained from automatic portable tide gage at Matinicus Harbor and tide staff at Burnt Island. Dates each were used to be supplied by the processing office from reference to sounding record. Time and height differences to be supplied by the Division of Tides and Currents.

E. SMOOTH SHEET

Smooth sheet is to be plotted by the Norfolk Processing Office.

F. CONTROL STATIONS

To be supplied by the processing office.

Station BAK was located by sextant ^{angles} ~~cuts~~ and position computed. Computations are ~~submitted with Sheet No. F115.~~ ^{included with this report}

G. SHORELINE AND TOPOGRAPHY

Not applicable. See Review

H. SOUNDINGS

Soundings were taken by 808 portable depth recorders with checks by hand lead in ^{some} critical spots. Bar checks were taken whenever conditions

were such that, ^{good} results were obtained. Due to adverse conditions bar checks corrections were averaged for each field trip. Tables of echo sounding corrections for each launch have been prepared and are submitted with the records.

I. CONTROL OF HYDROGRAPHY

Hydrography was controlled by three point fixes on shore objects. ✓
Conventional methods were used.

J. ADEQUACY OF SURVEY

This survey is considered adequate for charting purposes and should ✓
supersede previous surveys.

K. CROSSLINES

Eight to ten percent of the line run were crosslines. ✓

L. M. COMPARISON WITH PRIOR SURVEYS AND CHARTS

Chart 312, Print Date 5/15/43.

Hooper Shoal, 17 feet charted depth, at Lat. 43-53.2, Long. 69-10.5. ✓
Least depth found during hydrography is 17 feet at Lat. 43-53.28,
Long. 69-10.53.

? → Metinic Ledge, Sheet F115. 25 foot charted depth at Lat. 43-52.35,
Long. 69-09.5, verified by a 25⁴ foot sounding at Lat. 43-52.25, Long.
69-09.45, and 23 feet²¹ at Lat. 43-52.2, Long. 69-09.05.

Rock awash at Lat. 43-51.55 Long. 69-08.32⁵. This feature, identified *sub. reef*
as a sunken rock rather than a rock awash was located by cuts on Sheet (2ft sdg)
F115, and the location verified by DR between strong fixes on Sheet 6982 *agrees*
Ship Sheet. The two locations are within 30 meters as plotted on the *7-960 (1864)*
boat sheets and the feature should be compared when smooth plotting is
done. The position of the feature as found is in reasonable agree-
ment with the charted position but the rocks should be charted as a
sunken rock.

Charted 27 foot depth at Lat. 43-51.1, Long. 69-09.62 was verified by a
least depth of 26⁴ feet found at this position.

The Charted 28 foot depth at Lat. 43-51.3, Long. 69-09.25 was verified
by least depth of 24² feet found at 43-51.3²², Long. 69-09.18²⁰.

The charted sounding of 28 feet at Lat. 43-51.1, Long. 69-09.3, was ~~not~~
verified, but the position is close to shaller depths found.

The 13 foot depth charted at Haddock Ledge, Lat. 43-49.45, Long. 69-09.8,
was verified by a least depth of 15 feet found in Lat. 43-49.47⁵, Long.
69-09.74³. *111*

N. DANGERS OR SHOALS

Form 786, Advance Report of Dangers to be Charted has previously been ✓
submitted. *Copies attached*

O. COAST PILOT INFORMATION

The area is not generally traversed except by fishermen and lobstermen. ✓
See Report on Sheet F115, Metinic Island.
H-7054/

P. AIDS TO NAVIGATION

The buoy at Roaring Bull Ledge; depth should be supplied from smooth plotting. ✓

Q. LANDMARKS FOR CHARTS ✓

None.

R. GEOGRAPHIC NAMES

All features on the sheet are named. No new geographic names are involved. ✓

S. Z Do not Apply.

Respectfully submitted, .

E. B. Latham

E. B. Latham
Lieut. Comdr. USC&GS

Approved and forwarded,

E. P. Raynor

E. P. Raynor
Commander, USC&GS
Commanding Ship LYDONIA

APPROVAL SHEET H-6962

The boat sheet was inspected daily, and the sounding records frequently. Both are approved.



L. P. Raynor, Comdr. USC&GS
Commanding Ship LYDONIA

ADDITIONAL REMARKS FOR DESCRIPTIVE REPORT SHEET NO. 6982.

Attention of the smooth plotter is directed to the fact that, due to limitations of control, work done by the launch was plotted on the Ship's sheet for area south of Metinic Green Island.

ADVANCE REPORT OF DANGERS TO BE CHARTED

E-0008 Datum **MA 1927** Locality **Coast of Maine, Metinic Island** State **Maine** Date **7-18-46**
 Survey (Sheet) No. **7118** I recommend that the following dangers to navigation be charted. The positions given have been checked after listing. Checked by **Chief of Party**
Chart Letter 478 (1945) ✓

Type of Danger	Depth (Feet)	Latitude and Longitude		† From Charted Object or Natural Feature	Distance (Meters)	Object or Feature	‡ Chart Used	Print Date	Date of Location	Remarks
		°	'							
Shoal	26	45-55	00-09	848	1240	Black Rock	512	2-2-45	7-18-46	not recorded in 1106 - near a 1 1/2 sds. Sh. P 118 ✓ Added 4 3/4 m. SW 1105
Shoal	29	45-55	00-09	19	1825	Black Rock	512	2-2-45	7-18-46	Sh. P 118 ✓
Shoal	25	45-51	00-03	780 ?	1300	Metinic Green II 512	512	2-2-45	7-7-46	20 ft shoal located 6/12/45 through Letter 478/45. Sh. E-0008 19 charted now through H-6982 W.A.B. 2/8/46 19 study on 1106 with position.

* Record least depth over danger reduced to plane of reference of charted soundings, using observed tides, if available.
 † Record location both by geographic position and by true bearing with distance from object or natural feature shown on chart.
 ‡ Use largest scale chart and note print date given in lower left corner of chart.
 NOTE - This form to be used during the season for prompt reports of uncharted dangers. If reports have been sent by wire, fill out this form and mail with confirm. Enter dates of wires under "marks". Copies of reports on this form should be retained and submitted with the descriptive report.

ADVANCE REPORT OF DANGERS TO BE CHARTED

Survey (Sheet No. 6002) Datum MA 1988 Locality Yachtie Island State Utah Date 4 July 1945
 I recommend that the following dangers to navigation be charted. The positions given have been checked after listing. Checked by L. V. Burns III
Chart Letter 496 (1945) Sealed by E. B. Latham
 L. V. Burns
 Chief of Party

Type of Danger	Depth (Feet)	Latitude and Longitude		† From Charted Object or Natural Feature		‡ Chart Used		Date of Location	Remarks	
		°	'	Seconds In Meters	True Bearing	Distance (Meters)	Object or Feature			No.
Shoal	20	43	51	760	880	1100	Yachtie Ocean Tents	48-27	12 June 1945	Reds by Predicted Lines - Survey developed - 1/2 day Positions about 4 deg
				990						Lantern 88
										Least depth found with H.L. 50 feet.
										Definitely identified as bathymetric

* Record least depth over danger reduced to plane of reference of charted soundings, using observed tides, if available.
 † Record location both by Geographic position and by true bearing with distance from object or natural feature shown on chart.
 ‡ Use largest scale chart and note print date given in lower left corner of chart.
 NOTE - This form to be used during the season for prompt reports of uncharted dangers. If reports have been sent by wire, fill out this form and mail with confirm
 Enter dates of wires under "marks". Copies of reports on this form should be retained and submitted with the descriptive report.

ADVANCE REPORT OF DANGERS TO BE CHARTED

Approaches to Penobscot Bay

Survey (Sheet) No. H 6982 Datum M.L.W. Locality Maine Island State Maine Date 14 June 1945
 I recommend that the following dangers to navigation be charted: The positions given have been checked after listing: Checked by ---
Chart Letter 406 (1945) ✓
L. P. Baynor Comdr. USCGS
Chief of Party

2

Type of Danger	*Depth (feet)	Latitude and Longitude		† From Charted Object or Natural Feature	Distance (Meters)	Object or Feature	‡ Chart No.	Chart Used		Date of Location	Remarks	
		°	'					Seconds in Meters	Print Date			
Boat	15	45 50	69 11	1066	194	266°	1150	S.E. Breaker	512	45-2/2	13 June	Applied to WAG Chart 312 2/1/41 Replaced by 12 ft depth 12 meters S.W. of 15 ft spot Chart 312 Date 12/22/40
Boat	25	45 52	69 09	266	65	800°	1570	Maine Green Island	512	45-2/2	12 June	Reduced to 21 ft Charted 2/1/41 Soundings reduced by ✓
Boat	30	45 50	69 09	216	1076	145°	1330	S.E. Breaker	512	45-2/2	10 June	predicted tides at No correction for 29 ft No correction for 29 ft Chart 312
Boat	20	45 50	69 09	246	1150	145°	1186	S.E. Breaker	512	45-2/2	10 June	Portland, Maine ? 4 3/4 knots Charted

* Record least depth over danger reduced to plane of reference of charted soundings, using observed tides, if available.
 † Record location both by geographic position and by true bearing with distance from object or natural feature shown on chart.
 ‡ Use largest scale chart and note print date given in lower left corner of chart.
 NOTE - This form to be used during the season for prompt reports of uncharted dangers. If reports have been sent by wire, fill out this form and mail with confirm-
 Enter dates of wires under "remarks". Copies of reports on this form should be retained and submitted with the descriptive report.

STATISTICS, SHEET H6982
 Ship LYDONIA 1945 Work

DATE	DAY		VOL.	SDGS.	POS.	ST. MI.	TOTAL STAT.
	SHIP	82				79	SDGS.
5/15			6	1	10	2.3	7.4
5/16			6		72	12.7	20.0
6/7	L		7		208	68.0	89.1
6/7		a	9		168	26.5	46.0
6/8		b	9-10	8	152	36.6	64.3
6/8	M		7-8		168	22.2	96.2
6/9	N		8		151	54.0	83.9
6/9		c	10		153	37.7	71.8
6/10	P		8		93	23.0	50.0
6/12		d	12		56	13.1	21.4
6/13		e	12	1	157	40.0	69.9
6/13	Q		8-14		124	34.4	61.7
6/21		f	12-13	5	122	29.9	69.6
6/23		g	13	3	29	3.8	31.0
6/24		h	13		79	17.7	30.0
6/25	R		14		140	39.5	89.0
7/7		j	15	4	57	14.5	24.9
7/11		k	15		36	6.0	34.7
7/11	S		16		166	55.5	100.3
8/23	T		16		65	20.5	66.0
9/20	U		16		33	11.3	112.7
10/11	V		16		99	29.3	73.0
TOTALS:				22	2338	648.5	1312.9

1043

LIST OF SIGNALS - 1945 Work - H-6982

Triangulation Stations

BURNT ISLAND 2, 1934
MARSHALL PT. L.H., 1860, 1934
METINIC, 1858, 1934
MONHEGAN LT., 1859, 1934

Topographic Stations

Bow T-8006
Daw T-8006
Fog T-5620
Gray T-8006
Green T-8004
Joe T-5620
Jug T-8006
Nic Vol. 1
Oak T-8004
Wit T-8003

Hydrographic Stations

Bea
Bak ✓ Vol. 13, pg. 36
Seb ✓

A D D E N D U M

to accompany

HYDROGRAPHIC SURVEY H-6982 (Field No. Gi-2144) ADD. WORK

Rock Awash, Roaring Bull Ledge, Vol. 11 pg. 64 latitude 43°51.64'
and longitude 69°12.00'

A note in the above mentioned sounding record refers to a 20 meter square rock on this ledge. However this information does not definitely locate the position of this rock. The shoalest sounding in this area is 6½ ft. No rock awash symbol is shown on the smooth sheet. *Recorded 0.4ft, 41-42d, Vol.7, plotted by verifier as rock awash.

S.E. Breaker, latitude 43°50.70' and longitude 69°10.35'

The three rocks awash shown on the smooth sheet were transferred from those shown in color on the boat sheet. No reference to rocks awash in this vicinity was made in the sounding records.

*charted as ledge
from H. 823a (1863)*

Rock Awash - Metinic Green Island, latitude 43°51.60' and longitude 69°08.11', 18 k (red)

The rock awash symbol is not shown on the smooth sheet as the location of position 18 k (red) may not be accurate due to the fact that the fix as given is poor? *Fix is strong and plots near H.W.L., but disagrees with boat sheet position. Both positions unimportant.*


Sunken Rock - Metinic Green Island, latitude 43°51.54' and longitude 69°08.27'; 21-22 k (red), 61k (red)

In lieu of sunken rock symbol shown on the boat sheet, a 2 ft. sounding is shown on the smooth sheet.

Area East and Southeast of Metinic Island

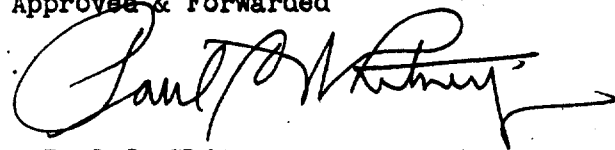
In the area east and southeast of Metinic Island some difficulty at times was experienced in accurately determining position locations because of slim angles, swingers or near swingers. Positions in this area were determined by using signals GRAY or BOW and some signals on Metinic Island, usually GREEN and EOG (i.e., see positions 97 to 114 M red). It was also necessary to use extensions to the protractor in this area.

Respectfully submitted,


Isadore M. Zeskind
Cartographic Engineer

Norfolk, Va.
Feb. 1, 1946

Approved & Forwarded



Paul C. Whitney
Supervisor SE District

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. 6982

FIELD NO. GI-2144

Maine, Approach to Penobscot Bay, East of Monhegan Island
Surveyed in Aug. to Oct., 1944 and Scale 1:20,000
May to Oct., 1945
Project No. CS-265

Soundings:

Control:

Fathometer:
Dorsey III
808

Three-point fixes on shore
signals

Chief of Party - L. P. Raynor and I. E. Rittenburg
Surveyed by - L. P. Raynor, I. E. Rittenburg, E. B. Latham
G. W. Lovesee and C. R. Reed
Protracted by - G. P. Barr and A. G. Atwill
Soundings plotted by - G. P. Barr and A. G. Atwill
Verified and inked by - G. B. Woolley, J. M. McAlinden and
B. Candage
Reviewed by - G. F. Jordan, October 3, 1946
Inspected by - H. W. Murray

1. Shoreline and Control

Shoreline and control originate with air photographic surveys T-5620, T-5621, T-5679, T-8003, T-8004 and T-8007. Additional signals were located with sextant and theodolite.

2. Sounding Line Crossings

The agreement of depths at crosslines is satisfactory.

3. Bottom Configuration

The irregularity of the bottom is emphasized by innumerable detached depth curves. Important reefs lie within approximately three miles of the southwest and west shore of Metinic Island.

4. Adjoining Surveys

Satisfactory junctions are effected on the southeast with H-7057 (1945), on the west with H-6992 (1944) and H-6861 (1943-44), and on the northwest with H-6969 (1944) and H-6984 (1944). Junction on the north will be considered when H-7054 (1945) is verified.

5. Comparison with Prior Surveys

H-823a (1863) scale 1:40,000; H-823b (1867) scale 1:20,000
H-1051 (1866-68) scale 1:20,000; H-1836 (1888) scale 1:40,000

Depths on these prior surveys agree generally with present depths. Irregularity of the bottom and slight displacements in position of prior soundings cause minor disagreements.

a. H-823a (1863)

- (1) An uncharted 20-3/4-fm. sounding at lat. 43° 51.6', long. 69° 03.4', falls in depths of 199 feet and is considered to be in error by 10-fm. The present survey development here is adequate.
- (2) The 24-1/4-fm. sounding (145 ft. on chart 312) at lat. 43° 50.5', long. 69° 05.35', is actually 147 feet in the records. The 147 is carried forward in irregular depths of 162 feet.
- (3) The 10-3/4-fm. sounding (64 ft. on chart 312) at lat. 43° 50.4', long. 69° 09.1', should be disregarded. This sounding together with consecutive soundings of 11-3/4 and 12-1/2 fm. on line fall in present depths of 78 to 87 feet. These three prior soundings are considered to be in error.

These prior surveys are superseded except for three soundings and except for bottom characteristics, which have been carried forward.

6. Wire Drag Surveys

- a. H-3528 (1913)W.D. overlaps the present survey on the east. The effective drag strips do not conflict with the present survey.
- b. H-3185 (1910)W.D. overlaps the present survey on the north. The effective drag strips do not conflict with the present survey. The 27-ft. sounding carried forward from this survey at lat. 43° 52.15', long. 69° 12.33', was cleared by 27-ft. effective depth..

7. Comparison with Chart 312 (Print date of August 4, 1945)
Chart 1203 (Print date of July 6, 1946)

Comparison with the smaller scale chart 1203 is restricted to the area southward of lat. $43^{\circ} 45'$.

a. Hydrography

Charted hydrography is from prior surveys discussed in paragraph 5, above. Critical soundings have been charted from the present survey before verification and review.

- (1) Three charted rocks awash at lat. $43^{\circ} 51.6'$, long. $69^{\circ} 11.9'$, represent a reef symbol on H-823a which is superseded by a single rock awash on the present survey. Sounding records of the present survey note that the rock is 20-ft. square at M.L.W.
- (2) The notation "bare" (or awash) at half-tide appended to S.E. Breaker in lat. $43^{\circ} 50.7'$, long. $69^{\circ} 10.3'$ should be retained on the charts. According to the Chart Standard of 1916, this information was obtained from Coast Pilot notes. The present survey does not indicate the amount that the reef uncovers.
- (3) The charted rock awash at lat. $43^{\circ} 51.55'$, long. $69^{\circ} 08.27'$, represents breakers located separately on T-960 (1864) and on H-823b (1867). The present survey shows 2 feet on a sounding line passing over the breaker. On page 2 of the Descriptive Report, the hydrographer recommends superseding the charted rock awash with a sunken rock symbol. Adjoining survey H-7054 (1945) took cuts on this feature at a minus 1-ft. tide and noted only breakers here. The 2-ft. sounding with notation "breakers" should therefore supersede the charted rock awash.

b. Aids to Navigation

Charted aids to navigation are verified by the present survey and satisfactorily mark the features intended. No new dangers which might require aids were found.

8. Condition of Survey

- a. The sounding records and Descriptive Report are complete in all detail.
- b. Smooth plotting was very good.

- c. No information on S.E. Breaker at lat. $43^{\circ} 50.7'$, long. $69^{\circ} 10.4'$, was obtained on the present survey. Hydrographic signal "SEB" is undoubtedly a high part of the reef, but was not described. The boat sheet shows three rocks awash in red ink which were apparently transferred from the chart. The reef shown here on H-823a (1863), 1:40,000 scale, has been carried forward in slightly modified form in red ink.

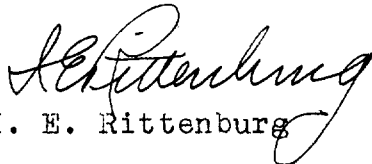
9. Compliance with Project Instructions

The survey adequately complies with the project instructions.

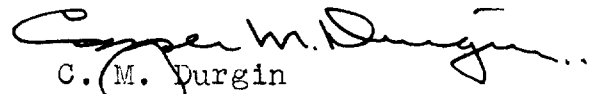
10. Additional Field Work

This is a basic survey and no additional work is recommended. Proposed extension of wire-drag surveys to cover most of the area of the present survey is anticipated.

Examined and approved:



I. E. Rittenburg
Chief, Nautical Chart Branch



C. M. Durgin
Chief, Division of Charts



K. G. Crosby
Chief, Section of Hydrography



C. K. Green
Chief, Division of Coastal Surveys

2404

TIDE NOTE FOR HYDROGRAPHIC SHEET

21 March 1946

~~Division of Hydrography and Topography:~~

Division of Charts: H. W. MURRAY

Plane of reference approved in
10 volumes of sounding records for

HYDROGRAPHIC SHEET 6982

Locality Matinic Island, Approaches to Penobscot Bay, Maine

Chief of Party: L. P. Raynor in 1945

Plane of reference is mean low water, reading
2.8 ft. on tide staff at Matinicus (Wheaton) Island
12.5 ft. below B. M. 5 (1945)

Height of mean high water above plane of reference is 9.2 feet.

Condition of records satisfactory except as noted below:

H. A. Murrell
Chief, Division of Tides and Currents.

GEOGRAPHIC NAMES

Survey No. **H6982**

Name on Survey	Source										
	A	B	C	D	E	F	G	H	K		
<u>Penobscot Bay</u>											1
<u>Monhegan Island</u>											2
<u>Burnt Island</u>											3
<u>Metinic Island</u>											4
<u>Roaring Bull</u>											5
<u>SE Breaker</u>											6
<u>Haddock Ledge</u>											7
<u>Metinic Green Island</u>											8
<u>Hooper Shoal</u>											9
											10
											11
											12
											13
<u>Matinicus I.</u>											14
<u>Wheaton I.</u>											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25
											26
											27

Names underlined in red approved
by L. Heck on 10/31/46

} location of tide staff would seem
to be preferably:
Wheaton I. Matinicus Harbor

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. **H6982**

Records accompanying survey:

(in Addition too)

Boat sheets ..**2**.; sounding vols. ¹⁰....; wire drag vols.;
 (in addition too)
 bomb vols.; graphic recorder rolls ¹¹....;
 special reports, etc.

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

Number of positions on sheet	2338.
Number of positions checked	.100.
Number of positions revised2.
Number of soundings revised (refers to depth only)	...20.
Number of soundings erroneously spaced6.
Number of signals erroneously plotted or transferred0.
Topographic details	Time ...14hrs
Junctions	Time ...30hrs
Verification of soundings from graphic record	Time ...16hrs

Verification by *A. B. Woolley* Total time ^{1944 work} $\frac{405}{606}$ hrs Date ^{7/11/45} *Sept. 23, 1946*

Reviewed by *J. F. Jordan* Time *46*... Date *Oct. 3, 1946*

