

7059

WIRE DRAG

Diag'd. on Diag. Ch. No. 1207-2

Form 504

U. S. COAST AND GEODETIC SURVEY
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey WIRE DRAG
Field No. 1145 Office No. H-7059 W.D.

LOCALITY

State Massachusetts
General locality _____
Locality Approaches to Boston Harbor

194 5

CHIEF OF PARTY

G.L. Anderson and I.E. Rittenburg

LIBRARY & ARCHIVES

DATE March 28, 1946

B-1870-1 (1)

7059

WIRE DRAG

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. H-7059 WD

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.

REGISTER No. H-7059 WD

Field No. 1145

State Massachusetts

General locality Massachusetts Bay

Locality Approaches to Boston Harbor

Scale 1:10,000 Date of survey June - Sept. 1945

Instructions dated Feb. 17, 1940; Supplemental Instructions dated Apr 23, 1945, June 8, 1945 and July 18, 1945

Vessel HILGARD and WAINWRIGHT

Chief of party G. L. Anderson and I. E. Rittenburg

Surveyed by Ship's Officers

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

Protracted by A. Kaupa

Soundings penciled by A. Kaupa

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

REMARKS: This sheet was processed in the Hydrographic Section of the Southeastern District, Norfolk, Virginia.

DESCRIPTIVE REPORT

to accompany

H-7059 WD

WIRE DRAG SURVEY FIELD NO. 1145

USC&GSS HILGARD * G. L. Anderson, Commanding
USC&GSS WAINWRIGHT - I. E. Rittenburg, Commanding

AUTHORITY:

This wire drag survey was executed under Instructions for Project H. T. 246 dated February 17, 1940 and letters reference 22/MEK 1995 WA 4, 1995 HI 4 dated 23 April 1945, 8 June 1945 and 18 July 1945.

DATE OF SURVEY:

The field work on this survey was begun on 25 June 1945 and ended on 26 September 1945. The party was engaged on a special wire drag investigation in Maine during the period from 30 July to 14 August.

SCOPE AND JUNCTIONS:

This survey covers the approaches to Boston Harbor, the offshore limit joins the wire drag surveys on Sheet H 3780 made in 1915, the inshore limits extend to Roaring Bull, Green Island, Aldridge Ledge, South Side of South Channel, West side of North Channel, and northwestward along the approximate three fathom line to Latitude $42^{\circ} 24'.25$ the northern limit of the proposed new chart of Boston Harbor. Three splits from previous work in the vicinity north of buoy 2 (North Channel) and one split near buoy 2 (South Channel) were covered.
**partially covered*

CONTROL:

Charted Landmarks previously located by triangulation were used as control. ~~_____~~
~~_____~~ A tripod was erected over triangulation station Green Island Bolt USE. Signal TAG is located in 1940 air photo survey.

SURVEY METHODS:

The WAINWRIGHT was used as the Guide Vessel and the HILGARD as the End Vessel until 14 August. Afterwards the HILGARD was used as the Guide Vessel and the WAINWRIGHT as the end vessel. Launch 101 was used as the Tender until 6 July, after which it was laid up for clutch repairs for the rest of the season. After 6 July Army Launch M 461 was used as tender for the remainder of the season.

Standard dual control methods were used. The drag strips were controlled by three point fixes on shore objects. Lift was determined on each section of the drag by tests from the tender, using a graduated rod coated with a mixture of white lead and tallow, and suspended from a float by means of a graduated wire.

LOBSTER POTS:

Before wire drag was begun in the area the Coast Guard and the State Bureau of Fisheries were contacted relative to clearing certain areas of lobster pots during wire drag operations. The areas to be wire dragged were divided into sections. Charts showing these sections were posted in 12 conspicuous places frequented by lobstermen. Printed notices of wire drag operations were mailed to all persons licensed to fish in one section. When one section was completed a new notice was mailed to all concerned releasing the completed section and adding the new section to be dragged.

TIDES:

A portable automatic Tide Gage was installed and maintained on the U. S. Army Wharf at Fort Dawes, Deer Island. This gage was in Continuous operation throughout the period of wire dragging. Mean low water on the staff as furnished by the Washington Office is 2.3 feet. Values from this gage were used without time or range correction for the reduction of records.

INSHORE AREA NORTHWARD FROM NORTH CHANNEL:

Drag strips were run parallel to the depth curves in the areas which are comparatively free of charted shoals. To cover the irregular shoal areas extending out from Winthrop Head and Grovers Cliff drag strips were run from off-shore towards the beach. Successive groundings at shoals depths were made until the desired distance from shore was covered.

SPLITS NORTH OF ENTRANCE TO NORTH CHANNEL:

On*position 5 Q the drag hung on a buoyed mine which was located 720 meters 008° true from North Channel buoy No. 2. A second buoyed mine located 796 meters 355° true from North Channel buoy No. 2 was discovered on position 6 R. These mines were floating about 12 feet below the surface. The wire drag party assisted Army personnel from Fort Warren in recovering these mines. Positions 6 to 44 Q have been rejected. They were obtained while investigating the mines. The area was covered at greater depths on positions 1 to 10 S. *(vicinity lat. 42° 22.6, long 70° 56.1)*

In dragging the holiday from previous surveys located about one mile North of North Channel buoy No. 2 positions 22-33 P were rejected because of drag sagging and grounding due to excessive bight in the drag. This was redragged to a greater depth under favorable conditions, positions 30-35 R.

The drag strips 11-16 S and 17-26 S were run to investigate obstructions reported by a fisherman.

AREA NORTH AND EAST OF GREEN ISLAND:

Two temporary spherical buoys located 960 meters 318° true and 1270 meters 016° true from station GREEN grounded the drag on positions 11 Y and 32 Y. These buoys were removed with permission of C.O. Fort Warren.

MIDDLE GROUND AREA:

This is the area which lies between the North and South Channels and is one of strong currents and very broken bottom. Due to the strong currents and practically all lines were run with the current. A and B days were run to determine the position of the ^{depth} ~~area~~ shown on Chart 246 in Lat. 42° 22'.1 Long. 70° 54'.95

On E day line 28 to 32 the 17 ft. ^{depth} sounding in Lat. 42° 21.25' Long. 70° 55'.1 was cleared with an 13 ft. drag. On lines 33-37 E the tender was broken down and no tests were obtained. Since the current and the size of drag were the same as on the previous line, the same lift was used as on the line 28 to 32 E. The grounding on 37 E with a depth of 14½ ft. in Lat. 42° 21'.4, Long. 70° 54'.95 was in an area previously cleared to 16½ ft. This spot was redragged to a depth of 15 ft. on 10-18 H day. It is therefore recommended that this 14½ ft. grounding be ignored as it was probably due to sag. clearances reduced to 14ft over 14ft hang - (14) pined

- 3 -
See tracing in D.R. for these lines

In Lat. $42^{\circ} 20'.72$, Long. $70^{\circ} 56'.0$ the grounding of pos. 14 K with an effective depth of 16 ft. (sounding obtained by the tender of ^{*17 ft.} pos. 2k) proves the existence of the old 16 and 17 ft. soundings charted (See 3rd par. of Direction letter dated 18 July, 1945) While no fix was taken by the tender on the grounding, its position can be obtained from the cuts to "g" taken from both launches along the line 13-17 K. The position falls halfway between the two doubtful soundings mentioned in par. 3 of Directors letter. The 14 ft. sounding charted immediately north of these 2 soundings appears to be disproved as it falls in an area cleared previously by $16\frac{1}{2}$ ft. If the same displacement of soundings is used as is evidenced by the position of the 17 ft. sounding above, the 14 ft. sounding falls in an area cleared previously to 15 ft. On the line 18-23 K the end buoy was dragged across the 8 and 10 ft. shoal as shown on the boat sheet. The end buoy continued bumping across the shoal until it finally cleared. The sounding of $12\frac{1}{2}$ ft. at pos. 3 k was cleared by 10 ft. on a previous days work. *17 plotted
sect. 4-F
rejected

At pos. 2 L a drag of $16\frac{1}{2}$ ft. bumped bottom between buoys 1 and 2. This proves the old 16 ft. sounding charted in Lat. $42^{\circ} 20'.55$, Long. $70^{\circ} 56'.08$. 17 on
4-6648
is adequate

On M day no effective dragging was done but a grounding and sounding of 17 ft. was obtained in Lat. $42^{\circ} 21'.0$, Long. $70^{\circ} 55'.8$, pos. 1 m. This verifies the charted 18 ft. sounding in this vicinity and had previously been cleared at $16\frac{1}{2}$ ft. on line 29-32 K, which was rejected, as at that time the grounding was believed due to sag.

On "N" day, line 1-22 N were run to prove or disprove and find the least depth on the charted 14 ft. sounding in Lat. $42^{\circ} 21'.2$, Long. $70^{\circ} 55'.7$ in accordance with par. 4 of Directors letter dated 18 July 1945. A sounding of $17\frac{1}{2}$ ft. was obtained by the tender but the drag hung with effective depths of 17 and 13 ft. and cleared at 11 and $10\frac{1}{2}$ ft. This proves the 14 ft. sounding in question.

Respectfully submitted,

George L. Anderson
George L. Anderson

I. E. Rittenburg
I. E. Rittenburg

Pos.	Lat. & Long.	Charted Feet corrected for print of 9/6/48	Lead/ ^{and fathometer} sounding feet	Drag Hung. Feet	Drag cleared. feet
24W	42° 23' 1.8 70 56.38	23 20	21 not recorded	20.5	20.5 17.0
Did not hang on second crossing of 20.5 ft. drag.					
33W	42 23.8 70 56.0	34	29 not recorded	28.0	20.5
Vicinity 21 ft. shoal reason for not covering with deeper drag.					
25T	42 21.878 70 56.8	13	11.5 12.0	12.5 13.0	10
32AA	42 21.95 22.0 70 54.1	40	37 (fath.)	36.0	29.5
This position is 90 meters 25° true from North Channel buoy No. 2					
31GG	42 21.4 70 53.8	16	16 17	24.5	21 23 22.8
* 21 and 22.5 ft. drag depths slipped over this shoal. A ^{fourth} third attempt hung the ledge at 24.5 feet and a leadline sounding was obtained (17 ft). Two strips 22 ft and 23 ft did not ground.					
17FF	42 21.9 70 52.6	25	22	23	21
32FF	42 21.7 70 52.4	20	20 21	22.5 23.0	21
Drag set at 21 ft. slipped over shoal without grounding.					
A & B days	42 22.1 70 54.9	-	-	35.5	33.5 23
K day	42 20.72 70 56.0	16 17	17	16	14.5
L day	42 20.55 70 56.08	16 17	-	16.5 NP	-
M day	42 21.0 70 55.834	18	17	17	16.5
N day	42 21.2 70 55.749	14	17.5	13	11

George L. Anderson

T. E. Rittenburg

CONFIDENTIAL SIGNALS

(Army towers)

TOW(Outer Brewster, 1943) is Δ Outer Brewster, E.C.R., 1943

GRO is Δ Heath, 1943

1945

STATISTICS
for
PROJECT C.S. 246
SHEET NO. WA-HI 1145

DATE	DAY LETTER	NO. POSITIONS	NO. SOUNDINGS		STATUTE MI. DRAG
			H.L.	FATH	
June 25	A	11	0	0	1.1
" 29	B	4	0	0	0.35
July 2	C	50	1	0	4.6
" 3	D	32	2	0	2.9
" 5	E	37	1	0	2.1
" 6	F	14	0	0	0.9
" 10	G	19	0	0	1.4
" 12	H	55	0	0	4.2
" 13	J	26	0	1	2.0
" 20	K	28	3	0	1.9
" 23	L	3	0	0	0.4
" 24	M	0	0	1	0.0
" 25	N	44	2	0	3.5
Aug. 20	P	33	0	0	3.8
" 21	Q	44	0	2	1.4
" 22	R	42	0	6	2.6
" 28	S	42	0	8	3.5
" 29	T	62	0	0	3.6
" 31	U	44	3	0	3.0
Sept. 4	V	44	3	0	3.6
" 6	W	56	0	4	3.3
" 7	X	40	0	0	2.7
" 10	Y	32	0	1	1.8
" 12	Z	5	0	0	0.4
" 13	AA	32	0	1	2.6
" 14	BB	29	0	0	2.3
" 20	CC	22	2	3	0.8
" 21	DD	15	2	0	1.0
" 24	EE	64	1	0	4.5
" 25	FF	44	3	0	2.8
" 26	GG	43	4	0	2.6
TOTALS		1052	27	27	72.6

Total square statute miles dragged - 9.2

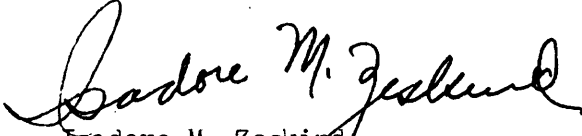
A D D E N D U M

to accompany

WIRE DRAG SHEET H-7059 (Field No. Wa Hi 1145)

This sheet was processed in the Hydrographic Section of the
Southeastern District, Norfolk, Virginia.


Respectfully submitted,



Isadore M. Zeskind
Cartographic Engineer

Norfolk, Va.
March 26, 1946

Approved & Forwarded



Paul C. Whitney
Supervisor SE District

GEOGRAPHIC NAMES

Survey No.

H7059 WIRE DRAG

Name on Survey

On Chart No.
 On previous survey No.
 On U. S. quadrangle Maps
 From local information
 On local Maps
 P. O. Guide or Map
 Rand McNally Atlas
 U. S. Light List

Name on Survey	A	B	C	D	E	F	G	H	K	
<u>Boston Harbor</u>										1
<u>Broad Sound</u>										2
<u>North Channel</u>										3
<u>South Channel</u>										4
										5
<u>The Graves</u>									US&B	6
<u>Green I.</u>										7
<u>Middle Brewster I.</u>										8
<u>Deer I.</u>				(location of tide gage)						9
<u>Grovers Cliff</u>										10
										11
										12
										13
				Names underlined are approved 11-2-49						14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO **H7059**. WIRE DRAG

Records accompanying survey:

Boat sheets .2...; sounding vols. 1....; wire drag vols. .12..;
bomb vols.; graphic recorder rolls;
special reports, etc. 1 A. & D. Sheet and 1 overlay.....
.....

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

Number of positions on sheet
Number of positions checked
Number of positions revised
Number of soundings revised
(refers to depth only)
Number of soundings erroneously spaced
Number of signals erroneously plotted
or transferred
Topographic details Time
Junctions Time
Verification of soundings from
graphic record Time

Preliminary RDS 4/18/46 - 60 hrs.
Verification by *J. G. Jordan* Total time } Date *10/31/49*..
J. G. Jordan Time } *225 hrs*
Reviewed by Date *10/31/49*..

Hwm

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~

April 23, 1946

Division of Charts: H. W. MURRAY

Plane of reference approved in
13 volumes of sounding/records for
and wire drag

HYDROGRAPHIC SHEET 7059

Locality Approaches to Boston Harbor, Massachusetts

Chief of Party: G. L. Anderson and I. E. Rittenburg in 1945
Plane of reference is mean low water, reading
2.3 ft. on tide staff at Deer Island
14.8 ft. below B. M. 1

Height of mean high water above plane of reference is 9.3 feet.

Condition of records satisfactory except as noted below:

E. K. Green
Chief, Division of Tides and Currents.

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7059WD

FIELD NO. 1145

Massachusetts, Approaches to Boston Harbor
Surveyed from June to September, 1945 Scale 1:10,000
Project No. CS-246

Wire Drag

Control:

Visual fixes on shore signals

Chief of Party - G. L. Anderson and I. E. Rittenburg
Surveyed by - G. L. Anderson and I. E. Rittenburg
Plotted by - A. Kaupa
Verified by - G. F. Jordan
Reviewed by - G. F. Jordan, October 31, 1949
Inspected by - R. H. Carstens

1. Shoreline and Signals

The control for this survey originates with triangulation stations established 1860 to 1943.

The shoreline is from air photographic survey T-5774 (1938).

2. Junctions with Wire Drag Surveys

Junctions were effected with H-6609 (1940) W.D. and H-3780 (1915) W.D. on the east and north and with H-7158 (1946) W.D. on the south. Drag strip junctions for the entire area of the present survey are discussed in paragraph 5, below.

3. Comparison with Hydrographic Surveys

Conflicts between the effective drag depths and soundings on hydrographic surveys H-6643 (1940), H-6863 (1945) and H-6644 (1940) were resolved during verification of the present survey, except in three places in depths greater than 25 feet where effective depths are only 1 foot deeper than soundings.

Most of the revisions were at the ends of strips where a comparison with hydrographic surveys revealed the true delineation of the drag at groundings. In several instances the effective depths of sections were reduced to eliminate conflicts with soundings and groundings, as for example at the 14-ft. grounding at lat. $42^{\circ} 21.42'$, long. $70^{\circ} 54.97'$, where 15- and 16-ft. strips had been shown clearing a 14-ft. grounding.

The 17-ft. reef in lat. $42^{\circ} 21.38'$, long. $70^{\circ} 53.80'$, was cleared without any indication of grounding by two drag strips with 22- and 23-ft. effective depth (also, 24-ft. on H-7158). Another 23-ft. strip indicated a temporary grounding and a 26-ft. strip finally grounded on the reef. Plotted clearances over the reef have been reduced to 17 feet, the depth obtained during investigation on the present survey. The 16-ft. sounding charted here originates with H-2146 (1892) and is actually $16\frac{1}{2}$ ft. in the records. This sounding is superseded by 17 ft. on the present survey obtained during intensive investigation.

4. Comparison with Chart 246 (Print date of Sept. 6, 1948)
Chart 240 (Print date of Sept. 5, 1949)

a. Hydrography

Most of the charted hydrography originates with the surveys already discussed in paragraph 3 above and requires no further consideration. Consideration of other charted hydrography follows:

- (1) The following charted soundings originating as groundings on the present survey before final verification have been either rejected or revised in depth or position:

15 ft.	in lat. $42^{\circ} 23.53'$,	long. $70^{\circ} 57.27'$
- 20 ft.	in lat. $42^{\circ} 23.15'$,	long. $70^{\circ} 57.17'$
- 22 ft.	in lat. $42^{\circ} 23.20'$,	long. $70^{\circ} 57.20'$
19 ft.	in lat. $42^{\circ} 22.14'$,	long. $70^{\circ} 56.72'$
19 ft.	in lat. $42^{\circ} 22.17'$,	long. $70^{\circ} 56.57'$
18 ft.	in lat. $42^{\circ} 22.05'$,	long. $70^{\circ} 56.33'$
38 ft.	in lat. $42^{\circ} 22.57'$,	long. $70^{\circ} 55.08'$
15 ft.	in lat. $42^{\circ} 21.20'$,	long. $70^{\circ} 54.94'$
14 ft.	in lat. $42^{\circ} 20.74'$,	long. $70^{\circ} 55.80'$
19 ft.	in lat. $42^{\circ} 20.97'$,	long. $70^{\circ} 55.10'$
29 ft.	in lat. $42^{\circ} 21.12'$,	long. $70^{\circ} 54.69'$

The 38-ft. sounding listed above was on a mine which was removed before completion of the survey.

- (2) The 28-ft. sounding charted in lat. $42^{\circ} 21.55'$, long. $70^{\circ} 54.40'$ is not disproved by the present survey. This sounding was discussed in the review of H-6643 and was recommended for investigation. The sounding was originally 24 feet on H-2146 (1892) and was superseded on the chart by 28 feet in compliance with a notification by the Corps of Engineers in Chart Letter No. 406 (1903) that South Channel was cleared to 28 feet. This additional information is included only as a matter of summary.

b. Aids to Navigation

The buoys on the present survey and on the chart are in substantial agreement except for the buoy on the present survey in lat. $42^{\circ} 20.73'$, long. $70^{\circ} 54.86'$ which is 100 meters southeast of its charted position. The charted buoys adequately mark the features intended.

c. Dredged Channels

Effective depths and soundings on the present survey do not conflict with the charted controlling depths in North Channel.

5. Condition of the Survey

- a. The Descriptive Report and sounding records are complete and comprehensive.
- b. Smooth-plotting of the survey was well done.
- c. One area of insufficient overlap and six small splits are indicated on the survey, as follows:
 - (1) The insufficient overlap in lat. $42^{\circ} 21.51'$, long. $70^{\circ} 54.38'$, results from a revision of the end bight on a drag strip on the adjoining wire drag survey H-3780 (1915). The length of the rejected bight was shorter than the drag length and covered depths shoaler than the effective depth of the drag. The insufficient overlap is in an area of 41-ft. depths.
 - (2) The split between the present survey and H-3780 (1915) W.D. in lat. $42^{\circ} 21.71'$, long. $70^{\circ} 55.75'$, may have been covered by strip 16-21P on the present survey. The starting bight of this strip is recorded and plotted as a straight line, whereas the boat sheet shows a curved line. The split falls in the area between these lines.

- (3) The split in lat. $42^{\circ} 20.45'$, long. $70^{\circ} 56.3'$, is very small and is in 70-ft. depths.
 - (4) The splits at the buoys in lat. $42^{\circ} 20.64'$, long. $70^{\circ} 55.65'$, and lat. $42^{\circ} 20.78'$, long. $70^{\circ} 55.18'$, are on the edge of the channel in 30-to 60-ft. depths.
 - (5) The splits at the buoys in lat. $42^{\circ} 21.94'$, long. $70^{\circ} 54.12'$, and lat. $42^{\circ} 21.84'$, long. $70^{\circ} 53.76'$, are in areas of submerged ridges having depths 6 to 8 feet shoaler than surrounding 45-ft. depths.
- d. In paragraph 3 above, reference is made to a reef at 17-ft. depth in lat. $42^{\circ} 21.38'$, long. $70^{\circ} 53.80'$, which was cleared by two strips of 22-and 23-ft. effective depth on the present survey and one strip of 24-ft. effective depth on adjoining survey H-7158 (1946) W.D. These 5-to 7 ft. discrepancies between soundings on the reef and the effective depths at which the reef was apparently cleared are mentioned here as a matter of record.

6. Compliance with Project Instructions

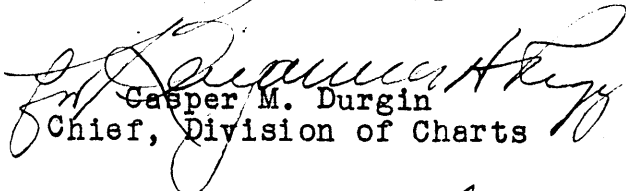
The survey adequately complies with the project instructions.

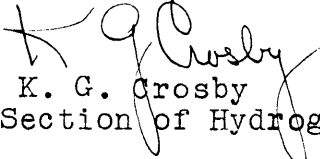
7. Additional Field Work


No additional field work is recommended.

Examined and approved:


H. R. Edmonston
Chief, Nautical Chart Branch


Casper M. Durgin
Chief, Division of Charts


K. G. Crosby
Chief, Section of Hydrography


W. M. Scaife
Chief, Division of Coastal Surveys

56'
22'
56'

54'
22'



42° 21'
70° 54'

OVERLAY

WIRE DRAG SURVEY H-7059
LAUNCHES WAINWRIGHT & HILGARD

- 29H-55 H
- 1K-28 K
- 1L- 3L
- 1N-10N
- 23N-44N

These soundings and groundings are shown on the smooth sheet

NAUTICAL CHARTS BRANCH

SURVEY NO. H7059 WIRE DRAG

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
4/22/46	^{old} 246	JTW alker	Before After Verification and Review <i>Partially</i>
6/21/46	1207	J Richardson	" " " " " "
			Before After Verification and Review
8/12/46	^{new} 240	La McGinn	Before After Verification and Review <i>partially</i>
2/13/47	^{Reconst.} 246	Steg. - J Walker	Before After Verification and Review After Preliminary verification - Completely applied
Oct. '48	1207	J. M. Albert	<i>Compared with cht. 246 (48-76) for critical changes.</i> Before After Verification and Review
22 Mar 50	246	Nichols	Before After Verification and Review <i>Completely applied.</i>
4/19/50	1207	Ricigari	Before After Verification and Review <i>Completely applied thru Ch 246.</i>
7/6/51	240	JTW alker	Before After Verification and Review <i>Completely</i> <i>Thru Ch 246</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.