8603

Diag. Cht. No. 8603.

Form 504

U. S. DEPARTMENT OF COMMERCE

COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. EX-20-2-61 Office No. H-8603

LOCALITY

State Massachusetts

General locality Atlantic Ocean

Locality Nantucket Shoals

19 61

CHIEF OF PARTY

Kenneth A. MacDonald

COMM-DC 61300

1 Vols

Form 537
(Ed. June 1946)

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.

REGISTER No. H-8603 ✓

Field No. EX-20-2-61

State Massachusetts

General locality Atlantic Ocean

Locality Nantucket Shoals

Scale 1:20,000 Date of survey 1961

Instructions dated 27 Nov. 1959 and 15 Dec. 1960

Vessel Ship GILBERT

Chief of party Kenneth A. MacDonald

Surveyed by K.A. MacDonald, M.E. Jones, J.H. Blumer

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

Fathograms scaled by personnel, Ship GILBERT

Fathograms checked by personnel, Ship GILBERT

Protracted by A.G. ATWILL (NORFOLK PROCESSING OFFICE)

Soundings penciled by A.G. ATWILL " " "

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

REMARKS: All corrections entered and checked.

U. S. GOVERNMENT PRINTING OFFICE 16—66520-1

GM

NOTES TO ACCOMPANY DESCRIPTIVE REPORT
HYDROGRAPHIC SURVEY H-8603
Field No. EX-20-2-61
NANTUCKET SHOALS, MASSACHUSETTS

Ship GILBERT Kenneth A. MacDonald, Comdg.

Scale: 1:20,000
1961

Surveyed by:
LCDR K.A. MacDonald
LTJG M.E. Jones
LTJG J.H. Blumer

A. PROJECT

Project No. OPR-401, Nantucket Shoals, Massachusetts
Instruction dates: 27 November 1959 and 15 December 1960

B. AREA SURVEYED

The survey limits and general area are indicated on the attached Index of Hydrographic Sheets. This survey is identified by the black crosshatching at the corners.

Nantucket Shoals are in general sandy, with heavy currents and tide rips. There are usually heavy to moderate seas and frequent foggy days.

The dates of the survey are 18 June to 1 July, inclusive.

The area covered by these notes covers only the shoaler areas of the sheet assigned to the Ship GILBERT. Photostatic copies of the GILBERT's work were furnished by the EXPLORER. For data involving junctions with prior and contemporary surveys see the Ship EXPLORER's report on this sheet.

C. SOUNDING VESSEL

All the sounding was done by the Ship GILBERT, using a red-letter day.

D. SOUNDING EQUIPMENT

All echo sounding was done using 808-type fathometer No. 162 SPX, calibrated for 820 fathoms/second. A hand lead was used to check least depths on dangerous shoals.

Bar checks were made on the GILBERT to determine velocity corrections. These were combined with temperature and salinity data taken by the EXPLORER in determining the final corrections.

The equipment used on this sheet operated well.

E. SMOOTH SHEET

The smooth sheet is to be constructed and plotted by the Norfolk District Office.

F. CONTROL

All sounding was controlled by Raydist electronic equipment. The two shore stations were established by the Ship EXPLORER and were as follows:

CHAT - Lat. 41° 40' 11.59", Long. 69° 59' 53.78"
MART - Lat. 41° 22' 08.225", Long. 70°31' 54.232"

The Raydist was calibrated twice each trip at Nantucket Island by three-point sextant fixes. In addition, two or three calibration buoys were maintained on the working grounds. These buoys were anchored with very little scope in shoal depths, using a heavy cement block, with a Danforth anchor on a short lead attached to the block. These buoys could not set more than a small faction of a lane, and were used to check and if necessary to reset the lane count each morning and evening, and at any other time when the lane count was in doubt. The dials affecting fractions of lanes were never touched when checking these buoys, only on full lane counts. These buoy checks are all recorded in the sounding volume.

On the northern part of the GILBERT's portion of the work, the crosslines show small discrepancies at junctions. Following is an abstract of buoy checks with explanatory remarks and conclusions:

checks O.K. with Explorer Smooth Work in Hand

Day	Buoy 6 1717.48 RED	Buoy 6 1547.75 GREEN	Buoy 5 1535.10 RED	Buoy 5 1477.3 GREEN
A, June 18. Set buoy	1717.48	1547.75		
Evening	1717.2	1547.5 OK		
B, 19 June. Morning	1717.30	1547.75		
Evening	1717.55	1547.70 OK		
C, 20 June. Morning	1717.50	1547.85		
Lost lanes, pos. 80			1533.10	1479.2
Reset lane count			1535.2	1477.75 reset
Lost lanes, pos. 180			1535.4	1477.6 reset

Day	Buoy 6 1717.48 RED	Buoy 6 1547.75 GREEN	Buoy 5 1535.10 RED	Buoy 5 1477.3 GREEN
D, 21 June. Morning			1535.3	1477.9 reset
10:46			1535.0	1477.2 OK
Evening			1535.2	1477.2 OK
E, 22 June. Morning			1535.3	1477.4 reset
Lost lane pos. 112	1716.4	1548.6		
Reset	1717.3	1547.5	1535.1	1477.3 v.g. Both buoys check.

Calibrated at Nantucket, 29 June 1961, then proceeded to working grounds and calibrated buoys.

29 June	1718.4	1546.45	1536.73	1472.25

At this point new positions were assumed as it was thought buoys must have moved during a storm while ship was in port. This was disproved later.

	1718.40	1546.45	1536.73	1472.25
F, 30 June. Morning Reset.	1718.35	1546.45		

Crossline did not check. Ship ran to buoy GI No. 1, which was missing. Ship then ran to Nantucket and re-calibrated. Crossline rejected.

Calibrated at Nantucket morning of 1 July. Close watch maintained on Raydist on run to working grounds.

G, 1 July. 0900	1717.30	1547.30	1535.30	1473.15	bad

This is a good check on original position of buoy No. 6, which is considered to have been good all the time. Buoy 6 was picked up this date.

When buoy 5 was picked up a few days later, it was found that the cement block had broken off, leaving only the Danforth on too short a scope to set up. This buoy had been dragging back and forth in the current.

CONCLUSION: Crosslines are good and should be held. Control is good for all work up to position 80 C.

The work from 80 C through D day shows small but definite discrepancies at crossline junctions. This is due to the dragging of buoy No. 5 with the current. If the smooth plotter feels that the discrepancies are excessive, this work should be adjusted to fit the crosslines. See Addendum

G. SHORELINE

There is no shoreline within the limits of this survey.

H. CROSSLINES

About 6% of the crosslines were run with good agreement at crossings in the southern portion of the sheet. However, in the northern portion there are small discrepancies which have been discussed under F, CONTROL.

I, J, K. JUNCTIONS, COMPARISONS

See EXPLORER's report.

L. ADEQUACY OF SURVEY

The GILBERT's portion of the sheet is considered complete and adequate to supersede prior surveys for charting, except for crossline discrepancies discussed under CONTROL.

M. AIDS TO NAVIGATION

There are no fixed aids or landmarks within the limits of the survey.

There are two floating aids, on Davis South Shoal, a nun buoy, N 2, and a black and red can. Both buoys were located roughly 1/3 mile south or southeast of the charted position on chart 1107. Buoy characteristics are as charted. It is recommended that buoy N 2 be moved about 1/3 mile south of its present position to put it off the 15-foot shoal.

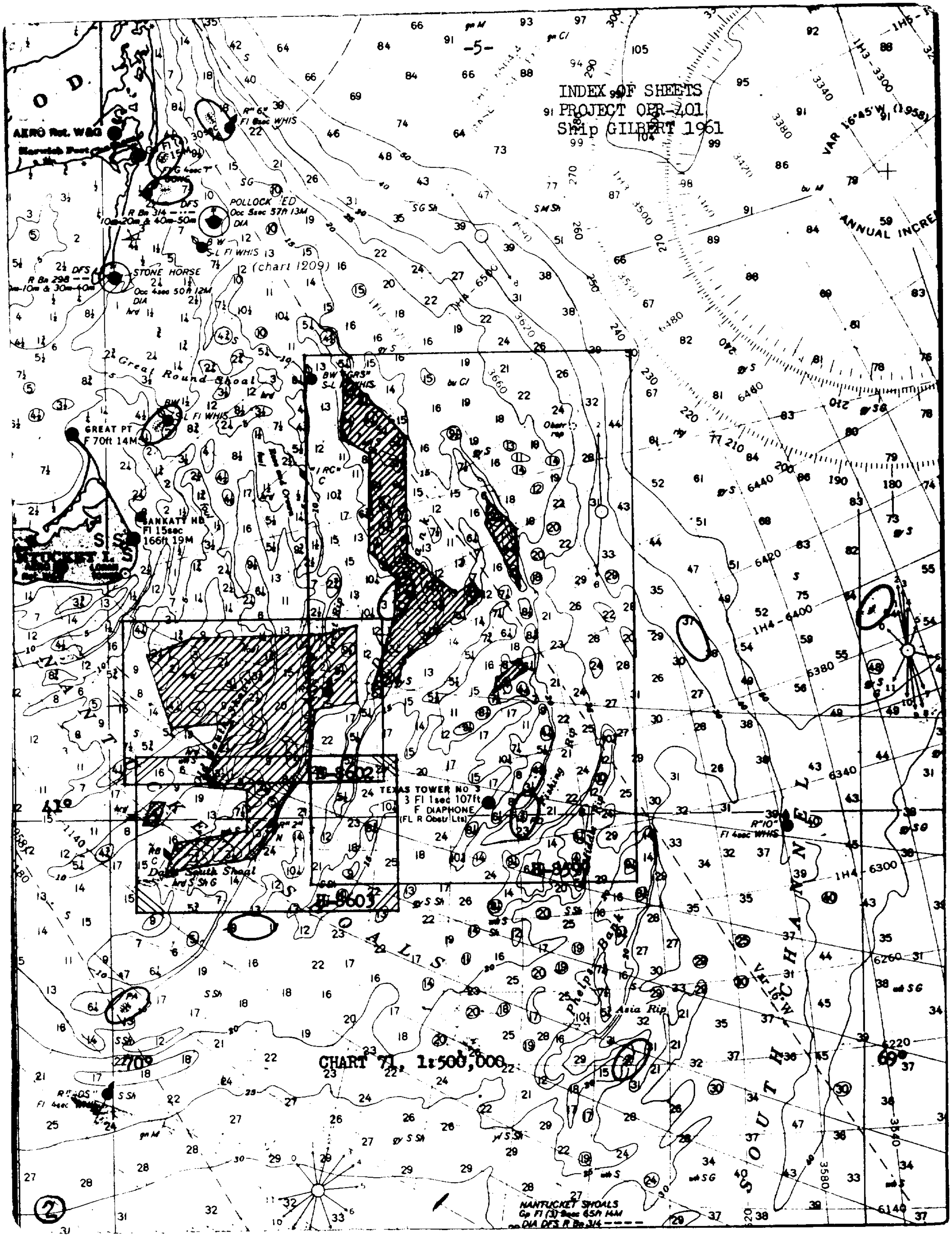
N. STATISTICS

Following are the GILBERT's statistics:

906 positions
296 nautical miles of sounding lines
205 square nautical miles

Kenneth A. MacDonald

Kenneth A. MacDonald, LCDR
Commanding Ship GILBERT


-5-
INDEX OF SHEETS
PROJECT OPR-701
Ship GILBERT 1961
CHART 71, 1:500,000
TEXAS TOWER NO 3
3 Fl 1sec 107ft
F DIAPHONE
(FL R Obstr Lts)
SANKATY HD
Fl 15sec
166ft 19M
GREAT PT
F 70ft 14M
POLLOCK RIP
STONE HORSE
Great Round Shoal
Davis South Shoal
Phelps Bank
Asia Rip
NANTUCKET SHOALS
ANNUAL INCRE
SOUTH CHANNEL
2

TIDE NOTE

All tide reducers were obtained from the standard tide gage at Boston. Hourly heights were obtained from the Ship EXPLORER or the Boston District Office. A ratio of 0.1 was applied. No time correction was made.

STOCK NO. 37
(4-30-57)
COMM-DC 28424

ABSTRACT OF BAR CHECKS, PROJECT OPR-401
HYDROGRAPHIC SURVEYS Nos. H-8599, H-8602, H-8603

21 May thru 31 July 1961 808 Fathometer 162 SPX

Date	15'	20'	30'	40' "A" Scale	40' "B" Scale	50' "A" Scale	50' "B" Scale	60'	Remarks
21 May	+0.40	+0.40	-0.20						poor
24 May	+0.35	-0.15	-0.60	-0.75	-1.70	-0.80	-2.00		fair
25 May	+0.20	+0.10	-0.35	-0.40	-1.00	-0.60	-1.10	-1.20	fair
4 June	+0.50	+0.25	+0.15	0.00	0.00	-0.50	-0.10	-0.70	poor
5 June	+0.20	-0.05	-0.75	-1.00	-1.00	-1.50	-1.50	-2.20	poor
6 June	+0.30	+0.50	+0.25	+0.10	+0.50	-0.50	-0.30	-0.40	good
8 June	+0.20	+0.20	-0.80	-1.00	-1.00	-1.35	-1.20	-1.20	good
19 June	+0.20	+0.30	0.00	+0.05	-1.00	-0.20	-1.10		fair
20 June	+0.20	+0.15	-0.20	-0.25	-1.05	-0.45	-1.15	-1.20	fair
2 June	+0.10	0.00	-0.35	-0.50	-1.15	-1.00	-1.55	-1.70	good
30 June	+0.20	+0.20	-0.30						fair
1 July	+0.30	+0.35	+0.05	+0.10	-1.00	-0.05	-1.20	-1.20	good
2 July	+0.30	+0.15	0.00	-0.35	-1.30	-0.50	-1.70	-1.70	poor
5 July	+0.20	+0.10	-0.55	-1.00	-1.45	-1.10	-1.80	-2.00	fair
4 July	+0.15	+0.05	-0.40	-0.75	-1.10	-0.90	-1.20		poor
6 July	+0.35	+0.40	+0.10	0.00	-1.20	-0.45	-1.40	-1.80	good
15 July	0.00	-0.05	-0.45	-0.95	-1.00	-1.10	-1.40	-1.40	full fuel tanks
17	+0.25	+0.25	-0.05	-0.25	-1.15	-0.90	-1.30	-1.10	good
18 July	+0.40	+0.30	+0.05	0.00	-1.00	-0.45	-1.15	-1.40	fair
19 July	+0.20	+0.20	-0.15	-0.45	-1.15	-0.70	-1.50	-1.70	good
20 July	+0.35	+0.15	0.00	-0.15	-1.15	-0.50	-1.35	-1.50	poor
28 July	+0.35	+0.30	+0.25	+0.15	-0.60	-0.05	-0.75		fair
29 July	+0.30	+0.30	+0.05	0.00	-0.80	-0.15	-0.85	-0.80	fair
2 July	+0.20	+0.20	0.00	-0.15	-1.25	-0.55	-1.50	-1.20	fair
31 July	+0.40	+0.30	+0.20	+0.05	-0.90	-0.10	-1.10	-1.00	good
TOTAL	+6.60	+4.90	-4.05	-7.50	-22.45	-14.40	-28.20	-25.40	
MEAN	+0.264	+0.196	-0.162	-0.326	-0.976	-0.626	-1.226	-1.337	

Form No J-100-5

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN FEET, ~~METERS~~

VELOCITY CORRECTIONS
U.S. Coast and Geodetic Survey

Ship GILBERT
K. A. MacDonald, Comdg.

These corrections are to be used between 21 May 1961 and 31 July 1961 in the locality Nantucket Shoals

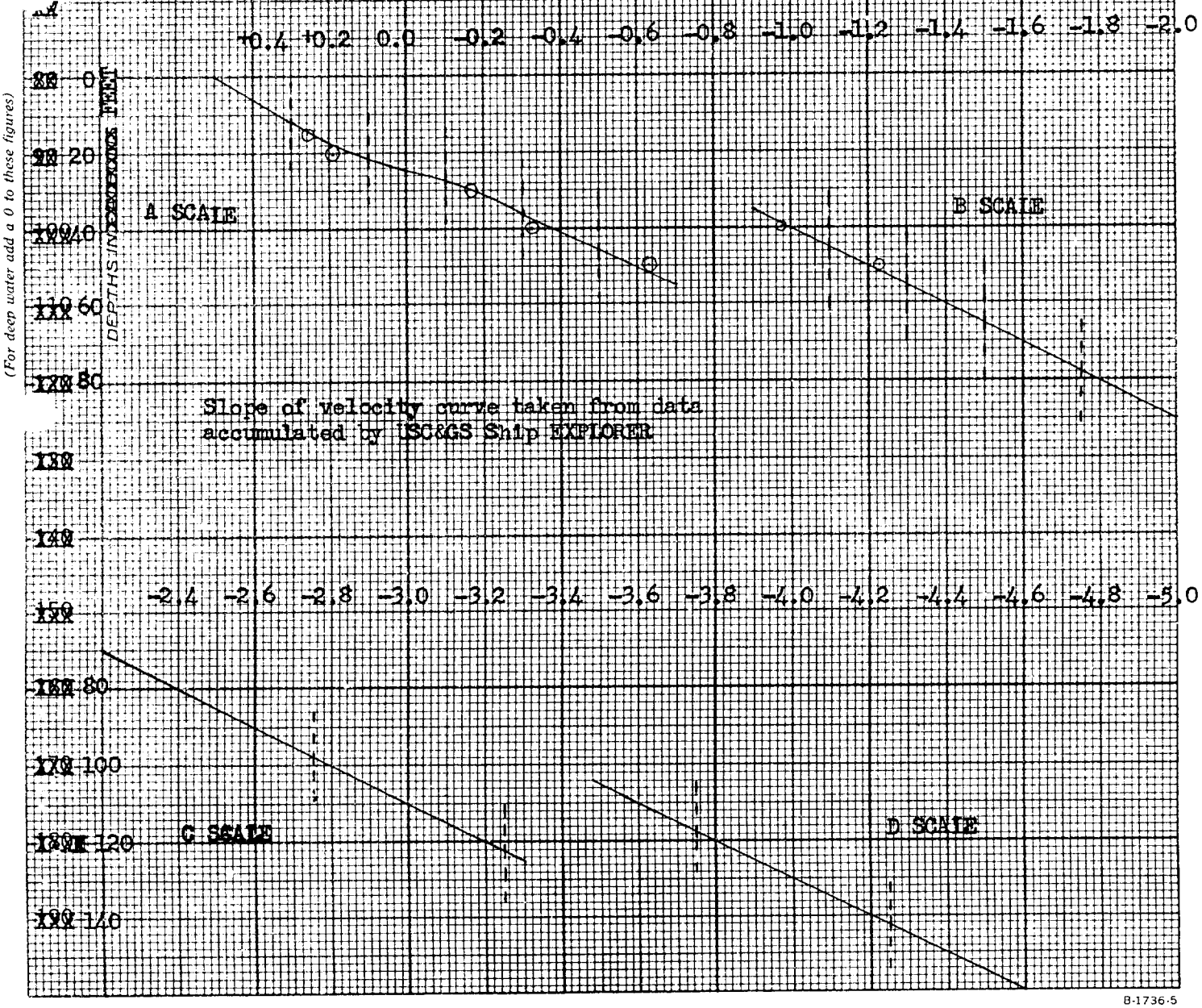
for hydrographic surveys Nos. EX-20-1-61, EX-20-2-61, and EX-40-1-61.

A Scale DEPTH	CORR.
0-12	+0.4
-23	+0.2
-28	0.0
-36	-0.2
-45	-0.4
-55	-0.6

B Scale DEPTH	CORR.
35-45	-1.0
-55	-1.2
-65	-1.4
-78	-1.6
-90	-2.0

C Scale DEPTH	CORR.
70-98	-2.5
-123	-3.0
-125	-3.5

D Scale DEPTH	CORR.
105-118	-3.5
-143	-4.0
-160	-4.5



Slope of velocity curve taken from data accumulated by USC&GS Ship EXPLORER

(For deep water add a 0 to these figures)

B-1736-5

Smooth Plotter's chart Comparisons—

H-8603-

Addendum EXPLORER DR # K

COMPARISONS

		CODE NO. FOUND ON 1107 STD.	SS	CHART 1107 (5/8/61)
41°01.78	69°54.65	(1)	38'	in area of 60' curve
41°02.05 ✓	69°50.15	(2)	29'	S. Tip of Old South Shoal Fours 1/2 mile North
41°02.48	69°45.25	(3)	30'	Shoalest shown 48'
41°00.22	69°49.70	(4)	35'	shoalest shown in area 45'
41°02.27 ✓	69°49.20	(5)	51'	48' This general area
41°03.17 ✓	69°45.05	(6)	18'	not charted (see template #2
41°01.95 ✓	69°47.10	(7)	21'	not charted (" " "
41°02.27	69°50.40	(8)	18'	not charted (" " "
40°58.40	69°48.2.2	(9)	15'	Not charted
40°57.80	69°52.88	(10)	19'	charted 16½' This area not found
40°57.00	69°53.75	(11)	55'	charted 27' This area not found
40°57.70	69°50.00	(12)	17'	charted 19.5'
40°57.99	69°48.62	(13)	19'	Not charted

2 of 6

ABSTRACT OF RAYDIST CORRECTIONS

OPR-401

Ship GILBERT H-8603

Day Letter	Date	Correction	
		RED	GREEN
A	18 June	-0.02	0.10
B	19 June	-0.02	0.10
C	20 June	-0.02	0.10
D	21 June	-0.02	0.10
E	22 June	-0.02	0.10
F	30 June	-0.16	0.16
G	1 July	-0.16	0.16

LIST OF STATIONS ON H-8603 (EX-20-2-61)

Name	Origin
GREEN	MART (USC&GSS EXPLORER)
RED	CHAT (USC&GSS EXPLORER)

To accompany H-8603 (1961)

U.S. DEPARTMENT OF COMMERCE
Coast and Geodetic Survey
Washington 25, D.C.

October 1,1962

MEMORANDUM

To: All U.S.C.& G.S. Ships

From: Chief, Instrument Division

Subject: Setting of "Initial" on DE-723 Survey Fathometer

A direct signal path to the "D.C. Write" circuit in t[illegible] the DE-723 Survey Fathometer provides a reference mark which is independent of the gain and by-passes the receiving amplifier circuitry. We have found that in order to get a correct depth recording, the initial (draft) setting should be set one foot less than the active draft of the ship. For example, if the ship's draft is 12 feet, the "initial" of the DE DE-723 Fathometer should be set for 11 feet.

T. J. Hickley
Chief, Instrument Division

H-8603 (1961)

Ship EXPLORER

Fathometer 808

A Scale
Table No. 5

Depth (Fms)	Corr.	Positive Constant
2-7	-0.1	+0.4 = +0.3
7.1-12	-0.2	+0.4 = +0.2
12.1-22	-0.3	+0.4 = +0.1
22.1-27	-0.4	+0.4 = 0.0
27.1-32	-	

Fathometer 723

Table No. 6

Depth (Fms)	Corr.
2-7	0.0
7.1-17	+0.1
17.1-27	+0.2
27.1-32	+0.3

H-8603 (1961)

Ship GILBERT

Fathometer 808

A Scale
Table No. 1

Depth (Ft.)	Corr.	Positive Constant
0-12	+0.4	+0.6 = +1.0
12.1-23	+0.2	+0.6 = +0.8
23.1-28	0.0	+0.6 = +0.6
28.1-36	-0.2	+0.6 = +0.4
36.1-45	-0.4	+0.6 = +0.2
45.1-55	-0.6	+0.6 = 0.0

B Scale
Table No. 2

Depth (Ft.)	Corr.	Positive Constant
35-45	-1.0	+2.0 = +1.0
45.1-55	-1.2	+2.0 = +0.8
55.1-65	-1.4	+2.0 = +0.6
65.1-78	-1.5	+2.0 = +0.5
78.1-90	-2.0	+2.0 = 0.0

C Scale
Table No. 3

Depth (Ft.)	Corr.	Positive Constant
70-98	-2.5	+3.5 = +1.0
98.1-123	-3.0	+3.5 = +0.5
123.1-125	-3.5	+3.5 = 0.0

D Scale
Table No. 4

Depth (Ft.)	Corr.	Positive Constant
105-118	-3.5	+4.5 = +1.0
118.1-143	-4.0	+4.5 = +0.5
143.1-160	-4.5	+4.5 = 0.0

APPROVAL SHEET

The boat sheet and records are complete and approved. The boat sheet and sounding volumes were examined daily during the survey.

The portion of this survey assigned to the Ship GILBERT is complete and adequate, and no additional field work is recommended. Other portions of this survey were completed by the Ship EXPLORER.

Kenneth A. MacDonald
ICDR, C&GS
Commanding Ship GILBERT

NORFOLK PROCESSING OFFICE
LIST OF
FLOATING AIDS TO NAVIGATION

H-8603

BUOY	LATITUDE	LONGITUDE	DEPTH	POS. NO.	DATE
Fishing Buoy No. 2	40-58.89	69-47.92	28'	119B(red)	6/19/61
Davis South Shoal West Buoy	56.85	54.02	50'	89E(red) 91E(blue)	6/22/61 8/28/61

NORFOLK PROCESSING OFFICE
ADDENDUM
To Accompany

HYDROGRAPHIC SURVEY H-8603 (EX-20-2-61)

GENERAL

This appears to be an excellent basic survey. Soundings are in good agreement at crossings considering the extremely irregular character of the bottom in this sand-wave area.

The smooth plot was started aboard Ship Explorer and, when received at this office, all Explorer positions had been plotted. Personnel of this office plotted all Gilbert positions and all soundings on the work of both vessels. Rather extensive rescanning was done on Explorer fathograms to pick up peaks and deeps and to bring crossings into agreement.

DISCREPANCIES

The suspected displacement mentioned in paragraph F - Gilbert report, caused by the dragging of calibration buoy 5 and affecting positions 80 thru 256C and all of D day, apparently does not exist. These questionable positions and soundings were first plotted on a transparent overlay for a comparison of junctional soundings, cross lines, and depth curves. After it was determined that no displacement was apparent the positions and soundings were plotted on the smooth sheet. The overlays are being forwarded for further confirmation of this opinion during verification.

Depth discrepancies on cross line 63 thru 88E, mentioned in paragraph H - Explorer report, were eliminated on the smooth sheet by careful rescanning of the fathograms on lines in this area.

Norfolk, Va.
3 Jan. 1963

Respectfully submitted,

Hugh L. Proffitt

Hugh L. Proffitt
Cartographer

8603

Diag. Cht. No. 1107.

Form 504

U. S. DEPARTMENT OF COMMERCE

COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. EX-20-2-61 *Office No.* H-8603

LOCALITY

State MASSACHUSETTS

General locality ATLANTIC OCEAN

Locality NANTUCKET SHOALS

1961

CHIEF OF PARTY

EDMUND L. JONES, CAPT., C&GS

COMM-DC 61300

8603

Form 537
(Ed. June 1946)

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.

REGISTER No. H-8603

Field No. EX-20-2-61

State MASSACHUSETTS

General locality ATLANTIC OCEAN

Locality NANTUCKET SHOALS

Scale 1:20,000 Date of survey 8-20-61 to 9-28-61

Instructions dated 27 November 1959

Vessel SHIP EXPLORER

Chief of party EDMUND L. JONES, CAPT., C&GS

Surveyed by C.A. BURROUGHS, K.W. JEFFERS, J.S. MIDGLEY, G.A. MAUL
R.J. LAND & D.J. FLORWICK

Soundings taken by fathometer, ~~graphic recorder, hand lead, wire~~ 808 & DE-723

Fathograms scaled by SHIP PERSONNEL

Fathograms checked by SHIP PERSONNEL & N.P.O.

Protracted by SHIP'S OFFICERS (Bridge Watch)

Soundings penciled by A.G. ATWILL (NORFOLK PROCESSING OFFICE)

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

REMARKS:

U. S. GOVERNMENT PRINTING OFFICE 16—66520-1

DESCRIPTIVE REPORT

To Accompany Hydrographic Survey

H-8603, EX 20-2-61

1961 - Scale 1:20,000

USC&GS Ship EXPLORER

E. L. JONES, Comdg.

SURVEYED BY: C. A. Burroughs, K. W. Jeffers, J. S. Midgley, G. A. Maul, R. J. Land, and D. J. Florwick

A. PROJECT:

Hydrography was accomplished in accordance with instructions for Project CS-401, dated 27 November 1959; Revised Instructions -- Project CS-401, dated 4 December 1959; Supplemental Instructions -- Project OPR-401, dated 1 March 1961; Amended Instructions -- Project OPR-401 dated 10 March 1961; Supplemental Instructions -- Project OPR-401, dated 17 March 1961; Amended Instructions -- Project OPR-401, dated 13 April 1961; and Amended Instructions -- Project OPR-401, dated 1 August 1961.

B. AREA SURVEYED:

This survey covers North Central Nantucket Shoals, Davis South Shoals, bounded by Latitudes 40° 56' N to 41° 03' N and by Longitudes 69° 42' W to 69° 57'W. There was no coastline within the limits of this sheet.

Ship hydrography was started on 20 August and completed on 29 August 1961. The bottom samples were obtained on 28 August and 29 August 1961.

Junctions were made with 4 contemporary surveys and with 4 prior surveys. Contemporary surveys are as follows:

EX 20-1-61	H-8602
EX 40-2-61	H-8600
EX 40-3-61	H-8601
EX 40-1-61	H-8599

Prior surveys are as follows:

H-6713	1:20,000	1940
H-6558	1:40,000	1940
H-6713	1:20,000	1940
H-6439	1:60,000	1939

C. SOUNDING VESSEL:

The Ship EXPLORER was used to obtain all soundings on this sheet.

D. SOUNDING EQUIPMENT:

A DE-723, Raytheon, fathometer, serial number 61-29, was used for most of the soundings on this sheet. The DE-723 was calibrated for 800 fathoms per second. The initial was set at 2.0 fathoms. An 808 fathometer, serial number 57-20, was used to obtain the remaining soundings. The 808 fathometer was calibrated for 820 fathoms per second with the initial set at 2.0 fathoms. The following summary is furnished to show which fathometer was used:

Date	Positions	Fathometer
8/20/61	1-27A	808
8/21/61	1-111B	808
8/23/61	1-39C	808
	40-59C	DE-723
	60-62C	808
	63-80C	DE-723
	81-84C	808
	85-256C	DE-723
8/27/61	1-392D	DE-723
8/28/61	1-215E	DE-723
8/29/61	1-19F	DE-723
8/29/61	20-39F	808

Further information concerning the fathometers and the methods of correction are contained in Special Report "Corrections to Echo Soundings".

E. SMOOTH SHEET:

The smooth sheet, scale 1:20,000, was ruled in the Washington Office on the ruling machine on 25 October 1961. The Raydist curves were ruled on 27 October 1961. All smooth sheet positions were plotted after all corrections had been entered in the Sounding Volume and checked.

F. CONTROL:

Horizontal control was obtained by the use of Raydist, Model GA-38. The stations were located by the Boston District Office with a Tellurometer Traverse as follows:

Station CHAT (Red Station or R1)
Latitude: 41° 40' 11.59"N
Longitude: 69° 59' 53.78"W
Azimuth CHAT-MART 53° 17' 10.0"N

Station MART (Green Station or R2)
Latitude: 41° 22' 08.225"N
Longitude: 70° 31' 54.232"W
Azimuth MART-CHAT 232° 55' 57.0"

The base line was determined by computation to be 55,677.26 meters or 1,226.40 lanes. The arcs and all computations were based on a frequency of 3300.4 KC, resulting in a lane width of 45.3990 meters or

148.9476 feet. Reference should be made to Special Report "Raydist Operations - 1961" for further information on the equipment and its operation during the season.

G. SHORELINE:

There is no shoreline within the limits of this sheet.

H. CROSSLINES:

There is 92.2 nautical miles of crosslines on this survey giving a total of 22.6 percent of the total hydrography. Minor discrepancies were resolved on the fathogram as this is an area of extremely rough profile. Discrepancies not resolved on the smooth plot are confined to one crossline beginning with Fix 63E, Latitude 41° 02.5'N, Longitude 69° 54.9'W, and Fix 88E, Latitude 40° 56.0'N, Longitude 69° 54.8'W. See Addendum - Soundings are not penciled in this area but the fixes are plotted. The fathograms were rescanned, plotting rechecked, and all correction values checked but 11 crossing discrepancies cannot be resolved. Time did not permit additional study of this problem.

I. JUNCTIONS:

Junctions were made with prior surveys H-6713, H-6558, H-6713, and H-6439 and with contemporary surveys H-8602, H-8600, and H-8601. All comparisons and junctions are in good agreement and no adjustments are required.

J. COMPARISON WITH PRIOR SURVEYS:

A comparison was made with prior surveys H-6713, H-6558, H-6713, and H-6439. All areas are in good general agreement. Shoal locations and least depths are in general agreement. Some overall change in bottom configuration is noted. This is believed due to erosion and deposition on shoals caused by currents. No listing was made of individual minor discrepancies.

K. COMPARISON WITH CHART:

The survey was compared with C&GS Chart 71. All soundings are in good general agreement. No new dangers to navigation are recommended. The charted shoal (C&GS Chart #71) of 7½ fathoms, latitude 41° 00.5'N, longitude 69° 49.7'W, was not found. This point is in the junction area with the work accomplished by the GILBERT. The shoalest point found was 38 feet. On H-6558 the shoalest sounding is 39 feet at this point. 47' to 50' found - 35' to 36' to southward -

L. ADEQUACY OF SURVEY:

This survey is complete and adequate to supersede prior surveys for charting purposes.

M. AIDS TO NAVIGATION: See Gilbert Report.

There is one floating aid to navigation located by the Ship EXPLORER in the southwest quarter of the sheet, Latitude 40° 56.49'N, Longitude 69° 53.59'W. The Coast Guard Light List, 1961 VolumeI, shows "Davis South Shoal West Buoy" in 48 feet of water, Latitude 40° 57.3'N, Longitude 69° 55.0'W, black and red horizontal bands; 1st Cl. Can. The buoy located on C&GS Chart 71, (2nd Edition, 14 November 1949, Revised 10 October 1960) corrected by Notice to Mariners through 11 March 1961 shows R B/C Buoy, Latitude 40° 57.4'N, Longitude 69° 55.1'W. The location of the buoy is not in agreement with either the Light List or the C&GS Chart, as determined by this survey.

N. STATISTICS:

The Ship EXPLORER accomplished 406.5 nautical miles of hydrography in 4 days with a total of 1201 positions. Area in square miles is 35.0. A total of 27 bottom samples were taken in the sheet limits.

O. REFERENCE TO REPORTS:

The following tabulation of special reports pertinent to this descriptive report is furnished:

Corrections to Echo Soundings submitted 6 November 1961
Raydist Operations, 1961 submitted 19 October 1961

Respectfully submitted:

for Donald J. Florwick
Ensign, C&GS

TIDE NOTE

To Accompany Hydrographic Survey

H-8603 EX 20-2-61

USC&GSS EXPLORER

Tide reducers were based on the standard tide gage at Boston, Massachusetts. A range ratio of 0.2 was used with no time corrections. Time and range correction values were furnished by the Washington Office. Hourly Heights were furnished by the Boston District Office. The time meridian used for the survey was 75 degrees West, Z.D. plus 5.

GEOGRAPHIC NAME LIST

To Accompany Hydrographic Survey

H-8603 EX 20-2-61

USC&GSS EXPLORER

There were no new geographic names recommended for this sheet. One name, taken from the C&GS Chart is penciled in the southwest quarter of the sheet. C&GS Chart is No. 71 (2nd Edition, November 14, 1949, revised 10 October 1960). This name is DAVIS SOUTH SHOAL.

SUMMARY OF DRAFT CORRECTIONS

SHEET EX 20-2-61

PROJECT OPR-401

USC&GSS EXPLORER E. L. JONES, COMDG.

1961

DATE	DAY	CORRECTION
8/20	A	∕ 0.2
8/21	B	∕ 0.2
8/23	C	∕ 0.1
8/27	D	∕ 0.4
8/28	E	∕ 0.3
8/29	F	∕ 0.3

LIST OF SIGNALS

To Accompany Hydrographic Survey

H-8603 EX 20-2-61

USC&GSS EXPLORER

There were two stations used in the radist controlled, offshore survey as follows:

CHAT: Red Station (RI)	Latitude:	41° 40' 11.59" N.
	Longitude:	69° 59' 53.78" W.
MART: Green Station (R2)	Latitude:	41° 22' 08.225" N.
	Longitude:	70° 31' 54.23" W.

SUMMARY OF RAYDIST CORRECTIONS

SHEET EX 20-2-61

PROJECT OPR-401

USC&GSS EXPLORER E. L. JONES, COMDG.

1961

DATE	DAY	POSITIONS	R_1	R_2
8/20	A	1- 27	∓ 3.2	∓ 1.3
8/21	B	1-111	∓ 2.2	∓ 0.3
8/23	C	1-190	- 3.8	∓ 1.3
		191-256	- 3.8	∓ 0.3
8/27	D	1- 54	∓ 1.2	∓ 0.3
		55-392	∓ 2.2	∓ 0.3
8/28	E	1- 33	∓ 2.2	∓ 0.3
		34- 49	∓ 2.2	- 2.7
		50-139	∓ 2.2	- 3.7
		140-215	∓ 2.2	- 2.7
		216-293	∓ 0.2	∓ 1.3
		294-300	∓ 0.2	∓ 0.3
		301-328	∓ 1.2	∓ 1.3
		329-334	∓ 0.2	∓ 1.3
		335-361	∓ 0.7	∓ 0.3
		362-376	∓ 0.2	- 0.7
8/29	F	1- 39	∓ 0.2	- 0.7

SUMMARY OF VELOCITY CORRECTIONS

SHEET EX 20-2-61

PROJECT OPR-401

USC&GSS EXPLORER E. L. JONES, COMDG.

1961

DEPTH (fms)	CORRECTION 820 f/s	CORRECTION 800 f/s
2- 7	- 0.1	0.0
7.1-12	- 0.2	∕ 0.1
12.1-17	- 0.3	∕ 0.1
17.1-22	- 0.3	∕ 0.2
22.1-27	- 0.4	∕ 0.2
27.1-32	-	∕ 0.3

APPROVAL SHEET

To Accompany Hydrographic Sheet

H-8603 EX 20-2-61

USC&GSS EXPLORER

The smooth sheet for this survey and the accompanying records have been examined and are approved. The work was done under fairly close personal supervision with an examination of the ship boat sheet and records daily. The field work is considered complete and adequate and no additional work is recommended.

Edmund L. Jones
CAPT, C&GS
Comdg. Ship EXPLORER

EHC

FORM C&GS-712
(4-62)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

4/8/63

Nautical Chart Division: R. H. Carstens

Plane of reference approved in
9 volumes of sounding records for

HYDROGRAPHIC SHEET 8603

Locality Nantucket Shoals, Massachusetts

Chief of Party: K. A. Mac Donald(1961)

Plane of reference is mean low water

ft. on tide staff at

ft. below B. M.

Height of mean high water above plane of reference at the working ground is: 1.0 ft.

Condition of records satisfactory except as noted below:

J. M. Symons
Chief, Tides and Currents Branch

USCOMM-DC 16543-P62

FORM 197
(3-16-55)

GEOGRAPHIC NAMES

Survey No. H-8603

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K BGN	
Davis South Shoal	✓	1107							✓	1
Nantucket Shoal	✓									2
										3
										4
										5
					George W. Baca					6
					Geographic Names					7
					6 February 1963					8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

9 Volumes Exh. 1961

VERIFIER'S REPORT OF HYDROGRAPHIC SURVEY NO. H-8603

The verifier should deal with the present hydrographic survey only, as the reviewer considers its relation to previous surveys and published charts. He should be thoroughly familiar with Chapters 3, 7 and 9 of the Hydrographic Manual.

1. The descriptive report was consulted and appropriate notes were made in soft pencil regarding action taken. ✓

2. Soundings originating with the survey and mentioned in the descriptive report have been verified, including latitude and longitude. ✓

3. All reference to survey sheets mentioned in the descriptive report include the registry number and year. ✓

4. Geographic names of hydrographic features if on sheet are in slanting lettering and of topographic features in vertical lettering. ✓

5. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken. ✓

6. All positions verified instrumentally were check marked in the sounding records. ✓

7. All critical soundings are clear and legible and are a little larger than the adjacent soundings. ✓

8. The metal protractor has been checked within the last three months. ✓

9. The protracting and plotting of all bad crossings were verified. ✓

10 All detached positions locating critical soundings, rocks or buoys were verified. ✓

11. The boat sheet was compared with the smooth sheet. ✓

12 The spacing of soundings as recorded in the records was closely followed. ✓

13. The bottom characteristics were shown on outstanding shoals. ✓

14. The reduction and plotting of doubtful soundings were checked. ✓

15. The transfer of contemporary topographic information was carefully examined. ✓

16. All junctions were transferred and overlapping curves made identical. ✓

17. The notation "JOINS H- (19--)" was added in ink for all contemporary adjoining or overlapping sheets now registered. Those not verified are shown in pencil. ✓

18. The depth curves have been inspected before inking. ✓

19. All triangulation stations and transfer of topographic and hydrographic signals were checked. ✓

20. Heights of rocks were checked against range of tide. ✓

21. Rocks transferred from topographic surveys have a dotted curve where shown thereon. Rocks located accurately by hydrographer are encircled by dotted red curve. ✓

22. Unnecessary pencil notes have been removed. ✓

23. Objects on which signals are located and which fall outside of the low water line have been described on the sheet. ✓

24. The low water line and delineation of shoal areas have been properly shown. ✓

25. Degree and minutes values and symbols have been checked. ✓

26. Questionable soundings have been checked on the fathograms ✓

27. Source of shoreline and signals (when not given in report). ✓

28. All notes on sheet are in accordance with figure 171 in the Hydrographic Manual. ✓

29. All aids located, with those on contemporary topographic sheets, have been shown on survey. ✓

30. Depth curves were satisfactory except as follows: ✓

31. Sounding line crossings were satisfactory except as follows: ✓

32. Junctions with contemporary surveys were satisfactory except as follows: ✓

33. Condition of sounding records was satisfactory except as follows: ✓

34. The protracting was satisfactory except as follows: ✓

35. The field plotting of soundings was satisfactory except as follows: ✓

36. Notes to reviewer: This survey was verified in the form of automation by digitizing.

Verified by Geo A. Kozemczak Date 10 Nov - 69

FORM C&GS-946
(REV. 11-65)
(PRESC. BY HYDROGRAPHIC MANUAL 20-2, 6-94, 7-13)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
NAUTICAL CHART DIVISION

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-8603

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET & Pos. Overlay	1 Penciled 1 Gerber Plotter	BOAT SHEETS	2
DESCRIPTIVE REPORT	1	OVERLAYS	5

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	8 (Fath)					
CAHIERS	2 (plotting records)	2 (abstracts)				
VOLUMES		9				
BOXES			2			

T-SHEET PRINTS *(List)*

SPECIAL REPORTS *(List)*

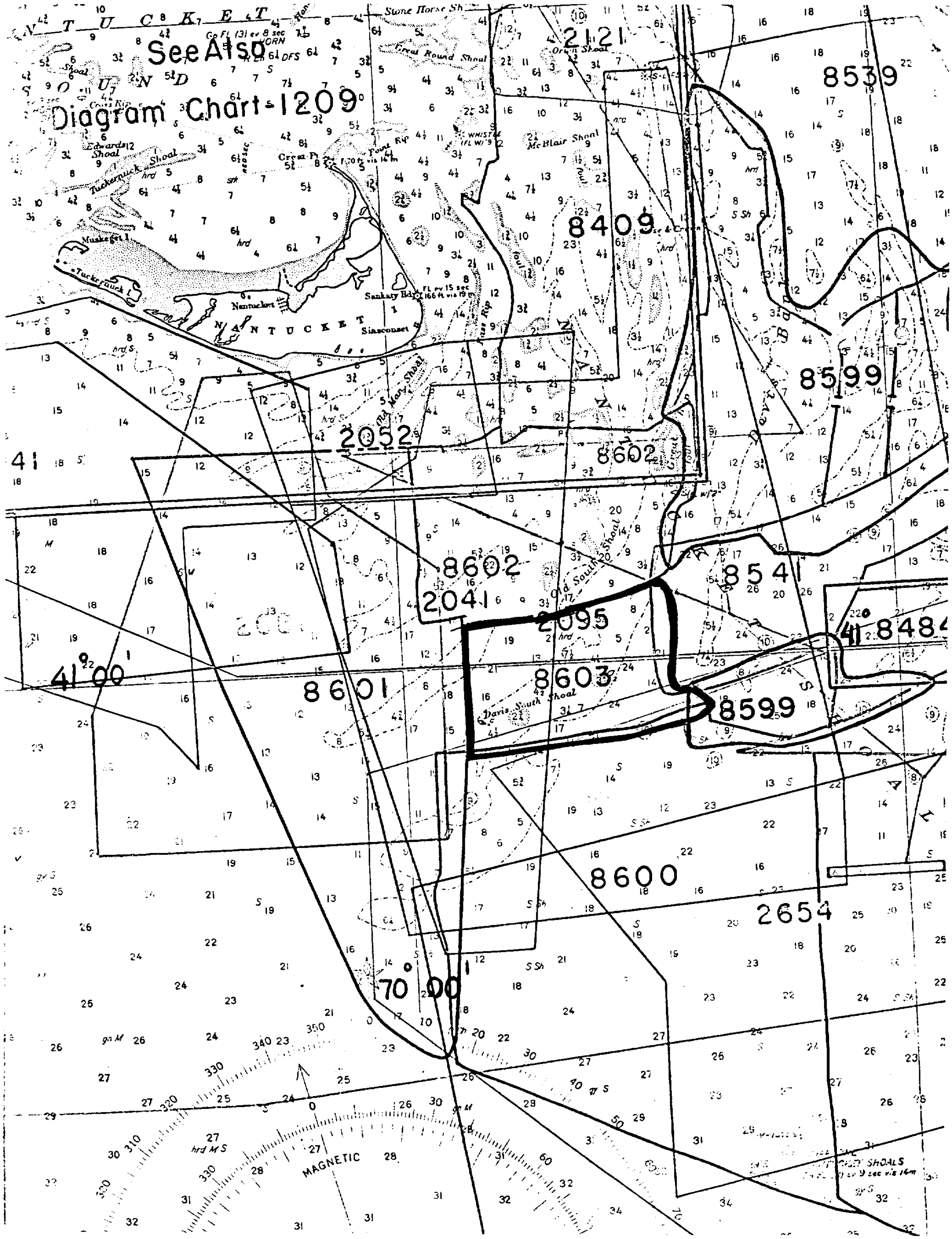
OFFICE PROCESSING ACTIVITIES

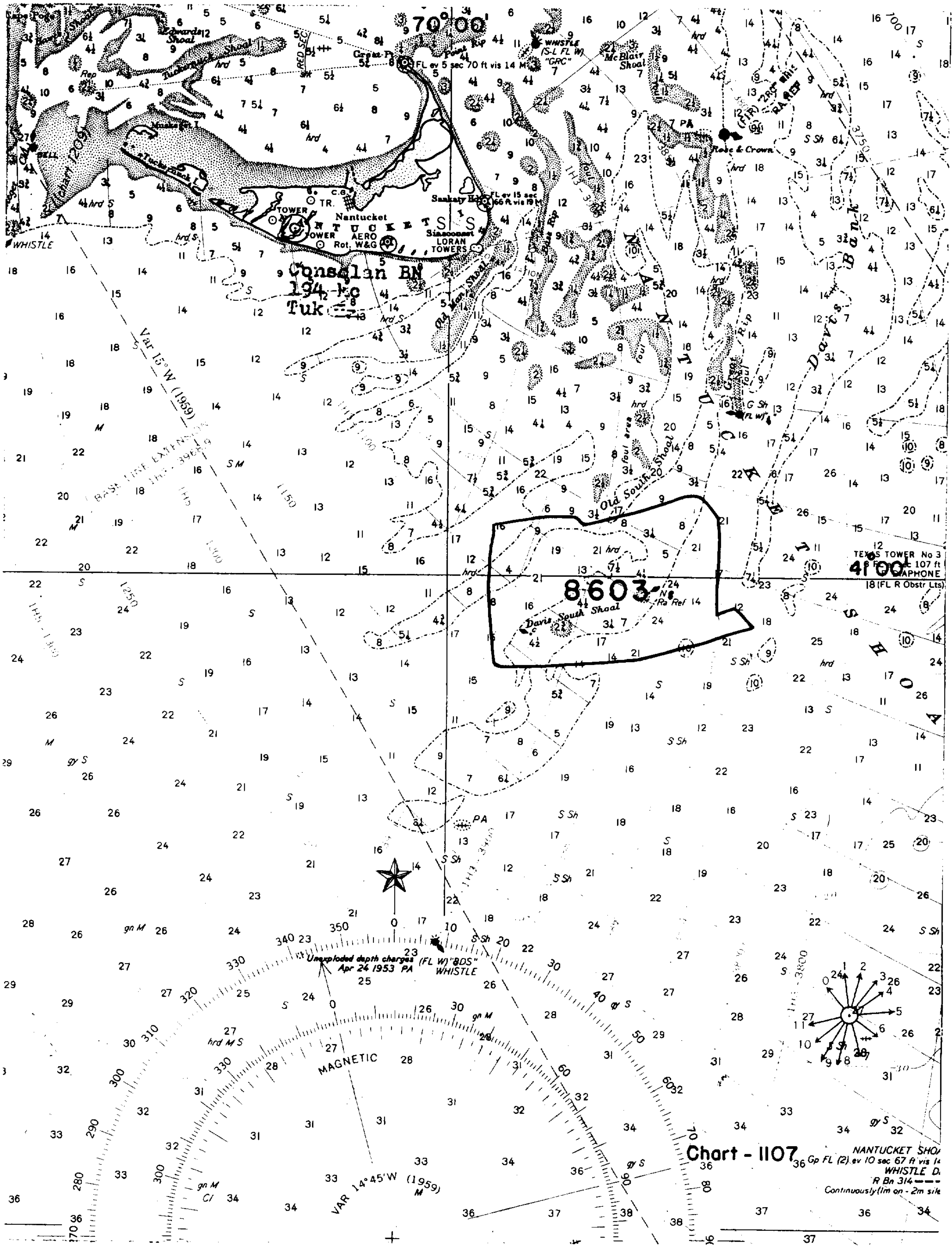
The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				2,095
POSITIONS CHECKED				
POSITIONS REVISED				
DEPTH SOUNDINGS REVISED		Gerber Digital Plotter		
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		0		
JUNCTIONS		24		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		28		
SPECIAL ADJUSTMENTS		20		
ALL OTHER WORK		320		
TOTALS		392		

PRE-VERIFICATION BY	BEGINNING DATE	ENDING DATE
VERIFICATION BY George A. Kozemzak	BEGINNING DATE 1 Mar. 68	ENDING DATE 10 Nov-69
REVIEW BY	BEGINNING DATE	ENDING DATE

USCOMM-DC 36271-P65


See Also
Diagram Chart-1209
2121
8539
8409
8599
2052
8602
8602
8541
2041
2095
8603
8601
8484
8599
8600
2654
41
41°00'
70°00'
NANTUCKET
Nantucket
Siasconset
Muskeget I
Tuckernuck Shoal
Edwards Shoal
Great Round Shoal
McBlair Shoal
Old South Shoal
Davis South Shoal
Stone Horse Sh
MAGNETIC


70°00'
41°00'
8603
Nantucket
Sankaty Hd
Siasconset
LORAN TOWERS
Consolan BN
194 kc
Tuk
Old South Shoal
Davis South Shoal
McBlair Shoal
Rose & Crown
Great Pt
Tuckernuck Shoal
Edwards Shoal
Muskeget I.
Tuckernuck I.
Old Man Shoal
TEXAS TOWER No 3
DIAPHONE
Var 15°W (1959)
VAR 14°45'W (1959)
MAGNETIC
Unexploded depth charges Apr 24 1953 PA
(FL W) "BDS" WHISTLE
Chart - 1107
NANTUCKET SHOA
Gp FL (2) ev 10 sec 67 ft vis 14
WHISTLE
R Bn 314
Continuously (1m on - 2m sile
WHISTLE
BELL
FL ev 5 sec 70 ft vis 14 M
FL ev 15 sec 166 ft vis 19 M
(S-L FL W) "GRC"
AERO Rot. W&G
TOWER
DAVIS BANK
NANTUCKET SHOALS

NAUTICAL CHARTS BRANCH

SURVEY NO. H-8603

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
4-10-63	1000	h.j. keeler	Before ~~After~~ Verification and Review Port. App'd. (No corr) JEKD
9/19/63	71	G.R.M.	Before ~~After~~ Verification and Review
			Part applied
12-29-65	1107	R.E. Elkins	Before ~~After~~ Verification and Review Partly Applied
			Revised a few soundings
7-1-66	1108	W.N. Wall	Before ~~After~~ Verification and Review Partly applied
			app thru 1107 orig #19
3/14/78	1108	Bill Wanless	Before ~~After~~ Verification and Review
			Drg #48 (Adequate Application)
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			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.