8845

Diag. Cht. No. 1209-3.

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. Wh 10-3-64 *Office No.* H-8845

LOCALITY

State MASSACHUSETTS

General locality NANTUCKET ISLAND

Locality SOUTH SHORE

19 64-65

CHIEF OF PARTY

H.R. LIPPOLD, JR. & J.P. RANDALL

LIBRARY & ARCHIVES

DATE 27 JUN 1967

B-1870-1 (1)

8845

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-8845

Field No. Wh 10-3-64

State MASSACHUSETTS

General locality NANTUCKET ISLAND

Locality SOUTH SHORE, NANTUCKET AND TUCKERNUCK ISLANDS

Scale 1:10,000 Date of survey 4/7/64 to 4/23/65

Instructions dated 11 March 1963

Vessel USC&GS SHIP WHITING

Chief of party H.R. LIPPOLD, JR. - 1964 & J.P. RANDALL - 1965

Surveyed by SHIPS OFFICERS

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

Fathograms scaled by SHIPS PERSONNEL

Fathograms checked by SHIPS PERSONNEL & NORFOLK PROCESSING BRANCH

Protracted by DAN R. MUNFORD

Soundings penciled by DAN R. MUNFORD

Soundings in fathoms feet at MLW MLLW

REMARKS:

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

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-8845
FIELD NO. WH-10-3-64

South Shore, Nantucket Island, Mass.

Scale 1:10,000 Ship WHITING, CSS-29

Surveyed By:

1964 Season		1965 Season	
CDR	H. R. Lippold, Jr., Cmdg	LCDR	James P. Randall, Cmdg
LT	James Collins	LT	Ralph J. Land
LT	L. E. Pickens	LTJG	J. D. Boon
LTJG	D. G. Hickerson	LTJG	J. E. Dropp
LTJG	J. D. Boon, III	LTJG	R. M. Petryczanko
ENS	R. M. Petryczanko	LTJG	P. L. Richardson
ENS	J. L. Gammon		

A. Project

Authorization for this survey is contained in revised instructions for Project OPR-369, dated 11 March 1963, amended 19 June 1963, and supplemented 7 April 1964 and 23 April 1965.

B. Area Surveyed

The area surveyed is included between Latitudes 41° 13.0'N and 41° 17.5'N and between Longitudes 70° 11.5'W and 70° 18.0'W. Sounding were taken along the southern coasts of Nantucket and Tuckernuck Islands and inside Maddaket Harbor at the western end of Nantucket. Hydrography began on October 6, 1964 and was suspended October 11, 1964. It was resumed June 16, 1965 and completed August 18, 1965.

The contemporary surveys are H-8760 (1:10,000, 1963) to the east and H-8846 (1:12,500, 1965) to the west. The prior surveys are:

Registry No.	Scale	Date
H-8497	1:10,000	1959
H-2094	1:10,000	1891
H-2093	1:10,000	1891
H-1942	1:20,000	1889
H-445	1:40,000	1854

Soundings from these surveys and the chart are entered on the boatsheet in azure blue pencil.

C. Sounding Vessels

Soundings were taken using the ship, launches I & II, and a skiff. Day-letters were assigned as follows: Ship - violet, capital; Launch I - blue, lower-case; Launch II - red, lower-case; skiff - green, lower-case.

D. Sounding Equipment

Ship soundings were taken during the 1964 season with a Raytheon DE-723 fathometer, unit no. 262, using an initial setting of 10.0 feet. Corrections to soundings were derived by leadline comparison. Depths ranged from 30 to 75 feet.

Abstract not furnished

Launches I & II used Ratheon DE-723 fathometers, units numbered 250 and 249 respectively during the 1964 season. Launch II used unit number 262 during the 1965 season. The skiff was operated only in 1965 and used a DE-723 fathometer, unit number 213, and a sounding pole. Corrections to fathometer soundings were obtained from bar checks averaged over selected time intervals. All fathometer corrections are presented in Table I.

E. Smooth Sheet

The plotting of the smooth sheet is to be done by the Norfolk Processing Office.

F. Control

All hydrography was controlled visually. Visual signals include those located over triangulation stations, topographic signals, and hydrographic signals (see List of Signals, Table III). Topographic signals were located on Planimetric Manuscripts T-11219 & T-11220 by photo party #6420 (Mr. Bob Tibbetts) assigned to the project by Washington. It shall be noted that launch II's 1965 hydrography was entirely visual but it utilized the HIRAN arcs of station MAD as guidelines only to improve the uniformity of sounding line spacing and to reduce the time lost by reruns and splits.

G. Shoreline

The shoreline was first transferred in 1964 from blueline manuscripts T-11219 and T-11220 which were then based on photographs as late as 1961. Major shoreline changes have recently occurred as shown by a comparison of the high water line based on later 1964 infared photographs and the present shoreline as observed in the field during 1965. The defference is very pronounced in the vicinity of Smith Point at the western entrance to Maddaket Harbor where obviously changed shoreline was walked and sextant fixes taken where necessary. A comparison with shoreline based on older photographs (April 1961) proves that a channel opened from seaward into the southeast corner of Maddaket Harbor sometime between 1961 and 1964 thereby cutting off the western tip of Nantucket to form Ester Island (Hurricane Ester is believed to have initiated the separation in September 1961).

On the Boatsheet, Black indicates the 1961 shoreline, scarlet red the 1964 shoreline, and carmine red the 1965 sextant traverses.

H. Crosslines

Crosslines were run to the extent of about 10 percent. Agreement was generally within 1 foot, with the exception of the area south of signal RAT which had some disagreement, probably attributable in part to heavy swells and breakers there.

I. Junctions

The junction with H-8760 appears to be good, soundings generally agreeing within 1 or 2 feet. H-8846 agrees closely with this survey except for some shifting of the 60 foot depth curve which is irregular in this area.

J. Comparison with Prior Surveys

The only presurvey review item, a wreck indicated at Lat. 41° 17.0'N, long. 70° 15.5'W was located farther inshore at Lat. ~~41° 17.41~~'N, Long. 70° 15.~~73~~'W. The wreck consists of a weathered piece of machinery having about a 6 foot diameter projecting 2 feet above mean low water. It is not normally visible due to surrounding shoals and usually heavy breakers in this area.

Prior survys in this area, with one exception (H-8497, 1959), date back to the last century and as expected, do not conform with the present survey; however, most of the differences are found in depths less than 30 feet, depths greater than this generally agreeing. The most significant change has occurred along the shoreline which appears to have receded in most places. The present survey agrees with H-8497 (1:10,000, 1959) within Maddaket Harbor except for a new channel dredged between Eel Point and the entrance to Hither Creek during the latter part of July 1965. The new channel depth varies between 5 and 10 feet. Locally, some discrepancies occur between 1964 and 1965 work; e.g., at lat. 41° 16.8'N, long. 70° 15.6'W 18 - 21 foot soundings were obtained in 1964, 9 - 12 foot soundings were obtained in 1965. A special development was run here (j day, Launch II, 1965).

K. Comparison with the Chart

A comparison of soundings was made with C&GS chart 265, 3rd ed., 6/7/65 (1:40,000). The comparison shows little change in offshore areas beyond the 30 foot curve. Inside this limit, several differences do occur; e.g., consistent 21 - 23 soundings were obtained at latitude 41° 16.6'N, long. 70° 15.6'W where a single 8 foot depth is indicated. A charted 12 foot depth at lat. 41° 15.9'N, 70° 12.8'W cannot be confirmed; instead, depths of 20 feet or more are found.

M. Aids to Navigation

There are no fixed or floating aids to navigation with the limits of this survey except for a number of private markers and one privately maintained light within Maddaket Harbor. The markers are indicated on the boatsheet. The light (flashing red) is located at Lat. 41° 17.52'N, long. 70° 14.57'W on the end of a wooden pier at the southeast corner of Tuckernuck Island. This light is operated by Mr. Walter S. Barrett only during the period 18 June to 30 September. Location was by sextant fix(also on photos).

N. Tides

During the 1964 season, a portable automatic gage was installed at Edgartown, Massachusetts at lat. 41° 23.20'N, long. 70° 30.19'W and its records applied to this survey with a minus 15 minute time correction. The time meridian was 60°W and mean low water was 2.3 foot above staff zero.

For the 1965 season, a copy of hourly heights from New London, Connecticutt was furnished by Marine Data Division to be used inside Maddaket Harbor with a plus 2 hour time correction and 0.9 range ratio, while elsewhere a plus 1½ time correction and 0.6 range ratio is to be used. The time meridian was 60°W and staff zero (New London) is 3.4 feet below mean low water.

O. Other

Settlement and squat corrections are presented in Table II.

P. Adequacy of Survey

This survey is complete and adequate and should supercede all prior survey although it is certain that changes have occurred to the inshore areas since the completionlof the survey as evidenced by differences between 1964 and 1965 work on the same sheet.

Q. Statistics

	Vessel	Number of Positions	Nautical Miles Sounding Lines
1964 Season	Launch I	504	63.1
	Launch II	308	42.3
	Ship	811	133.8
		1623	239.2

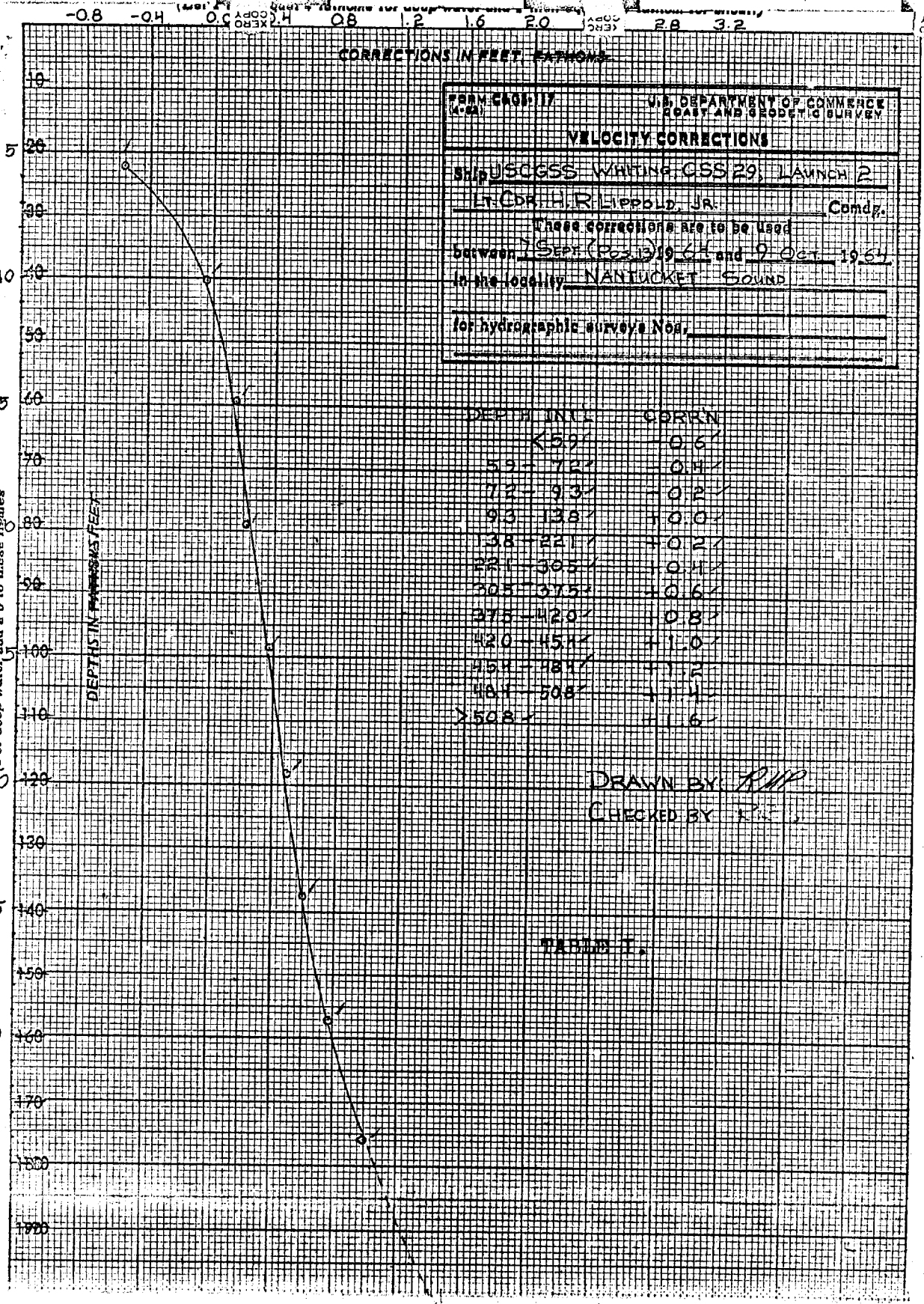
Number of Bottom Samples: 16
Total Area Surveyed: 14 Sq. Naut. Mi.

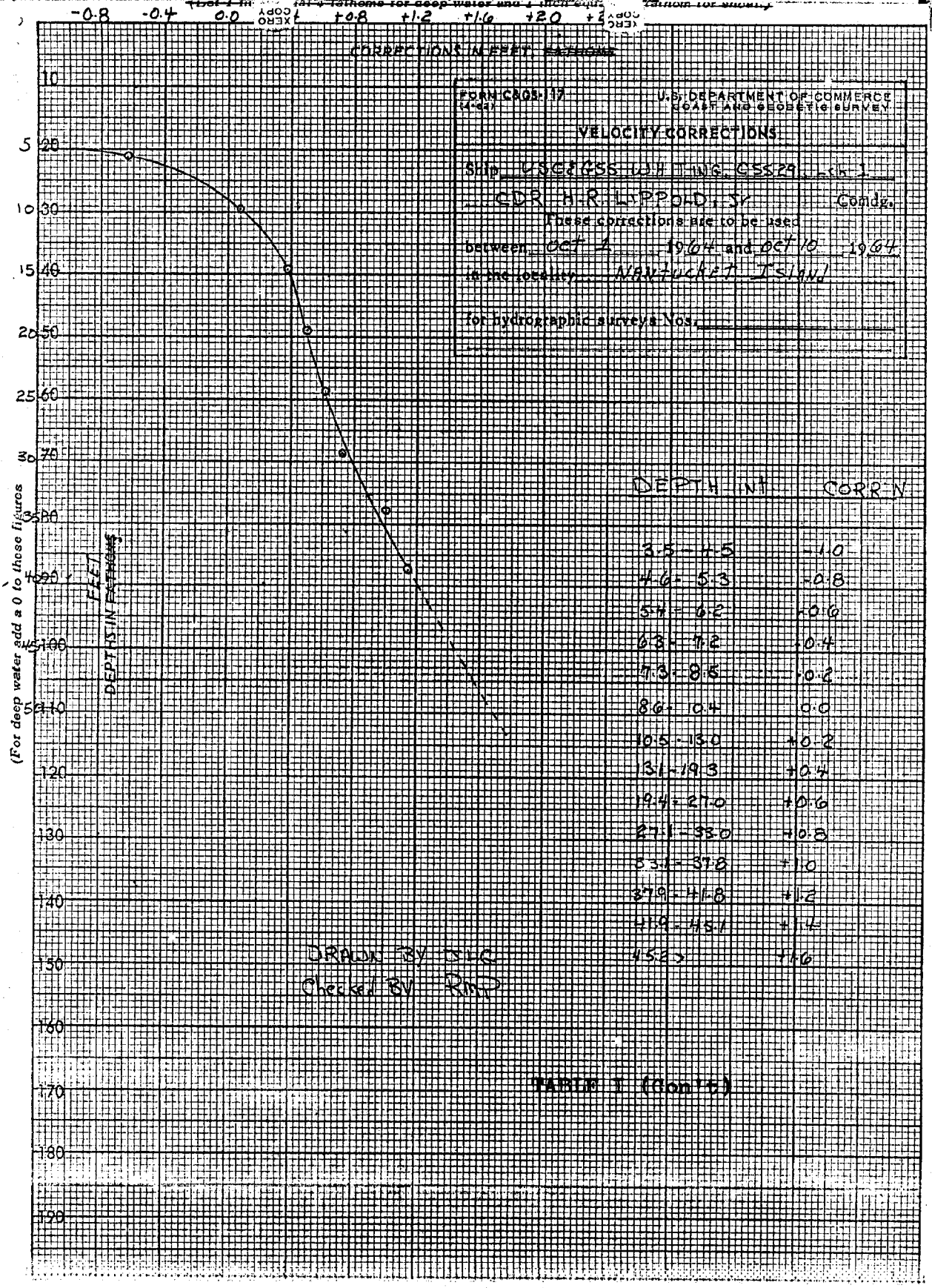
1965 Season	Launch II	787	111.9
	Skiff	957	130.8
		1744	242.7

Number of Bottom Samples: 25
Total Area Surveyed: 5.5 Sq Naut. Mi.

Respectfully submitted,

John D. Boon III
LTJG, USESSA


-0.8 -0.4 0.0 0.4 0.8 1.2 1.6 2.0 2.8 3.2
CORRECTIONS IN FEET. FATHOMS.
DEPTHS IN FATHOMS FEET
(For deep water add a 0 to these figures
FORM C&GS-117 (4-62)
U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
VELOCITY CORRECTIONS
Ship USCGSS WHITING CSS 29, LAUNCH 2
LT CDR. H R LIPPOLD, JR. Comdr.
These corrections are to be used
between 7 SEPT (POS.) 1964 and 9 OCT. 1964
in the locality NANTUCKET SOUND
for hydrographic surveys Nos.
DEPTH INT'L CORRN
K59' -0.6'
59 - 72' -0.4'
72 - 93' -0.2'
93 - 138' 0.0'
138 - 221' +0.2'
221 - 305' +0.4'
305 - 375' +0.6'
375 - 420' +0.8'
420 - 454' +1.0'
454 - 484' +1.2'
484 - 508' +1.4'
>508' +1.6'
DRAWN BY: RMP
CHECKED BY: [illegible]
TABLE I.



FORM C&GS-117 (4-64)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

VELOCITY CORRECTIONS

Ship USC&GS WHITING C&GS 29 Sht. 1

CDR H.R. LIPPOLDT, JR. Comdg.

These corrections are to be used between Oct 4 1964 and Oct 10 1964

in the locality NANTUCKET ISLAND

for hydrographic surveys Nos.

DEPTH IN FEET	CORRN
3.5 - 4.5	-1.0
4.6 - 5.3	-0.8
5.4 - 6.2	-0.6
6.3 - 7.2	-0.4
7.3 - 8.5	-0.2
8.6 - 10.4	0.0
10.5 - 13.0	+0.2
13.1 - 19.3	+0.4
19.4 - 27.0	+0.6
27.1 - 33.0	+0.8
33.1 - 37.8	+1.0
37.9 - 41.8	+1.2
41.9 - 45.1	+1.4
45.2 >	+1.6

DRAWN BY D.L.C.
CHECKED BY R.M.P.

TABLE I (Con't)

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

-.4 -.7 0 +.2 +.4 +.6 +.8 +1.0 1.2 +1.4 +1.6 +1.8 +2.0

CORRECTIONS IN FEET, FATHOMS

DEPTHS IN FATHOMS (For deep water add a 0 to these figures)

5 10 20 10 30 15 40 20 50 25 60 30 70 35 80 40 90 45 100 50 110 55 120 60 130 65 140 70 150 75 160 80 170 85 180 90 190

A SCALE

B SCALE

FORM C&GS-1117 (1962) — U.S. DEPARTMENT OF COMMERCE, COAST AND GEODETIC SURVEY

VELOCITY CORRECTIONS

Ship USC&GS WAINWRIGHT, VL-2

CDR J. P. RANDALL, Comdg.

These corrections are to be used between 25 JUNE 1965 and 24 JULY 1965 in the locality

for hydrographic survey's Nos.

TABLE I (Con't)

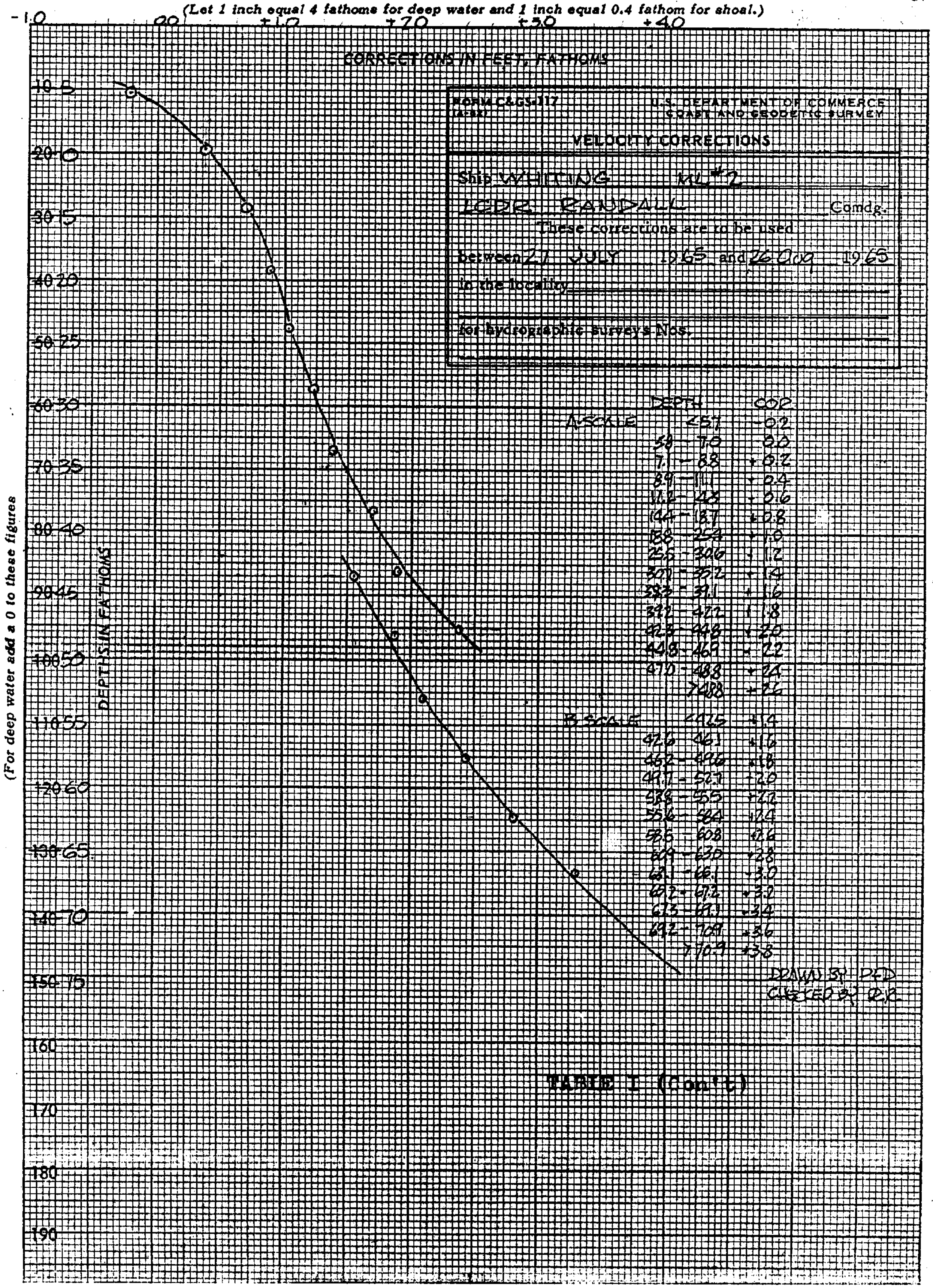
	DEPTH	INT	CORRN
A SCALE		<4.5	-0.4
	4.6	5.2	-0.2
	5.3	6.2	0.0
	6.3	7.7	+0.2
	7.8	10.4	+0.4
	10.5	14.5	+0.6
	14.6	18.9	+0.8
	19.0	24.6	+1.0
	24.7	31.0	+1.2
	31.1	39.2	+1.4
	39.3	48.7	+1.6
B SCALE		<41.4	+1.0
	41.5	47.0	+1.2
	47.1	53.5	+1.4
	53.6	61.0	+1.6

DRAWN BY:

CHECKED BY: RTS

K&E 20 X 20 TO THE INCH 7 X 10 INCHES KEUFFEL & ESSER CO. 4F 240 M.A.

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



FORM C&GS-717 (4-62)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

VELOCITY CORRECTIONS

Ship WHITING ML #2

LCDR RANDALL Comdg.

These corrections are to be used

between 21 JULY 1965 and 26 AUG 1965

in the locality

for hydrographic surveys Nos.

	DEPTH	COR
A SCALE	<5.7	-0.2
	5.8 - 7.0	0.0
	7.1 - 8.8	+0.2
	8.9 - 11.1	+0.4
	11.2 - 14.3	+0.6
	14.4 - 18.7	+0.8
	18.8 - 25.4	+1.0
	25.5 - 30.6	+1.2
	30.7 - 35.2	+1.4
	35.3 - 39.1	+1.6
	39.2 - 42.2	+1.8
	42.3 - 44.8	+2.0
	44.8 - 46.9	+2.2
	47.0 - 48.8	+2.4
	>48.8	+2.6
B SCALE	<42.5	+1.4
	42.6 - 46.1	+1.6
	46.2 - 49.6	+1.8
	49.7 - 52.7	+2.0
	52.8 - 55.5	+2.2
	55.6 - 58.4	+2.4
	58.5 - 60.8	+2.6
	60.9 - 63.0	+2.8
	63.1 - 66.1	+3.0
	66.2 - 67.2	+3.2
	67.3 - 69.1	+3.4
	69.2 - 70.9	+3.6
	>70.9	+3.8

DRAWN BY PFD
CHECKED BY RR

TABLE I (Con't)

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

0 4 8 12 16

CORRECTIONS IN FEET, FATHOMS

FORM C&GS-117 (8-62) — U.S. DEPARTMENT OF COMMERCE, COAST AND GEODETIC SURVEY

VELOCITY CORRECTIONS

Ship USC&GSS HOLTING SKIFF

LCDR V. P. CANDALE Comdg.

These corrections are to be used between 1 JULY 1965 and 24 JULY 1965 in the locality

for hydrographic surveys Nos.

DEPTH INT	CORR'N
< 11.5	+0.2
11.5 – 21.5	+0.4
21.6 – 31.7	+0.6
> 31.7	+0.8

DRAWN BY:

CHECKED BY: RPD

TABLE I (Con't)

5 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190

DEPTHS IN FATHOMS FEET

(For deep water add a 0 to these figures

20 X 20 TO THE INCH 4F '40
7 X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.

SQUAT & SETTLEMENT

Squat and settlement tests were run on the ship WHITING and one of its launches on November 24, 1964. The method used was the same for each vessel. A self leveling level was set up on the dock at Moon Engineering Company, in Norfolk, Virginia and first the launch and then the ship was run by at different speeds and readings taken on a rod held over the transducers. On the launch the rod was held directly over the transducer, whereas on the ship the rod was held on the outboard rail on first one side then the other, and the results then averaged.
Following is the results of the squat and settlement tests:

Speed	Correction(in feet)
LAUNCHES	
R.P.M.	
0000--1000	0.0
1001--2400	+0.2
2401--3000	0.0
SHIP WHITING	
Console setting combined pitch & speed	
000-3.8	0.0
3.8--4.2	+0.2
4.2--5.0	+0.4
5.0--6.0	+0.6
6.0-7.2	+0.8
7.2-10.0	+1.0

TABLE II.

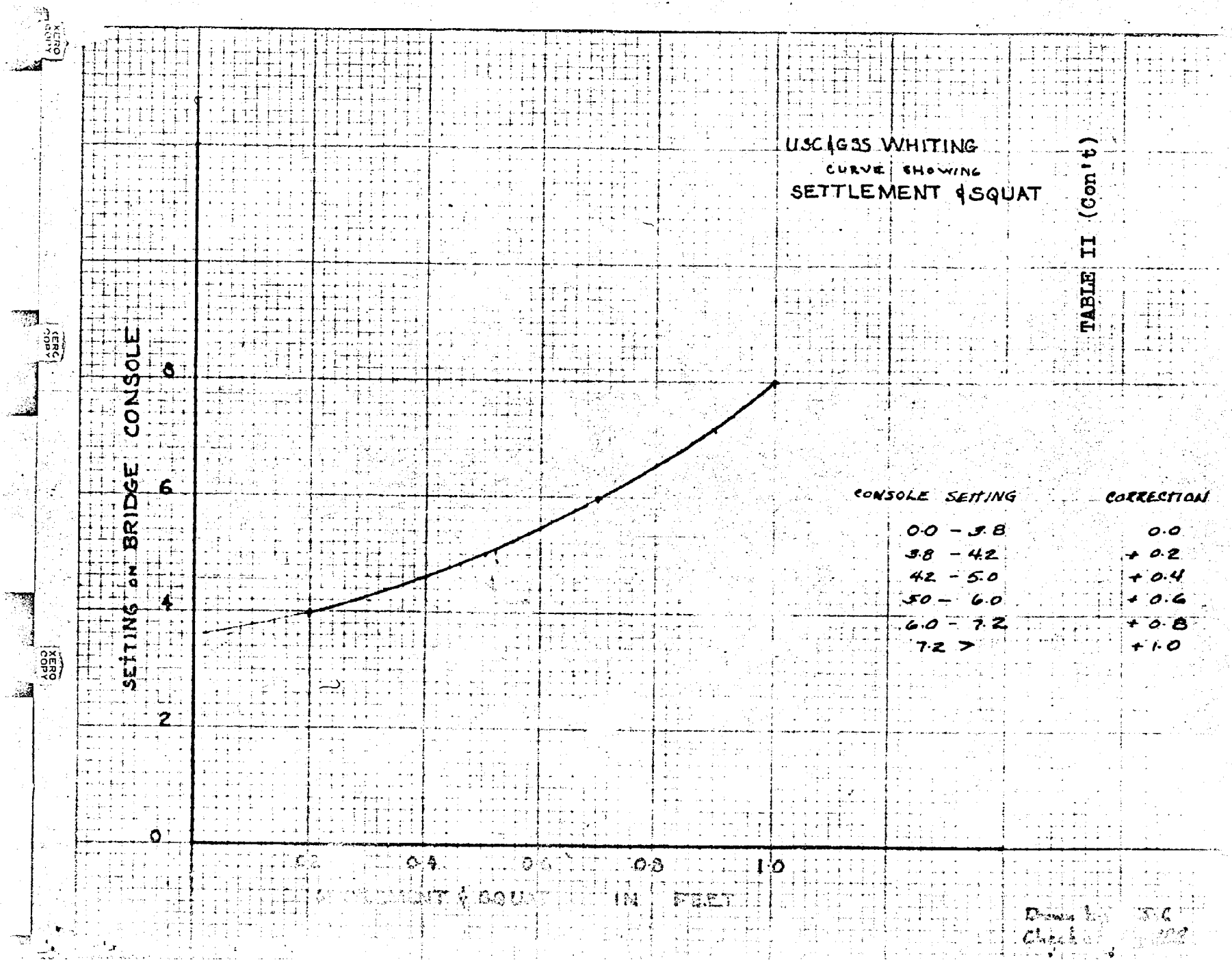


TABLE II (Con't)

CONSOLE SETTING	CORRECTION
0.0 - 3.8	0.0
3.8 - 4.2	+ 0.2
4.2 - 5.0	+ 0.4
5.0 - 6.0	+ 0.6
6.0 - 7.2	+ 0.8
7.2 >	+ 1.0

SQUAT & SETTLEMENT 1965

ML # 1 + 2

r.p.m.	Rod	ΔTide	r.p.m.	Ave. Rod - Ave Tide	Ave. Init.	Corr'n
0000	6.530	0.000	0000	6.531 - 6.531 =		+0.000
1000	6.720	0.027	1000	6.693 - 6.531 =		+0.162
1500	6.500	0.079 ~~0.053~~	1500	6.697 - 6.531 =		+0.166
2000	6.750	0.105 ~~0.079~~	2000	6.645 - 6.531 =		+0.114
2500	6.600	0.132 ~~0.105~~	2500	6.446 - 6.531 =		+0.085
1500	6.850	0.157 ~~0.132~~				
2500	6.640	0.183 ~~0.157~~				
1500	6.910	0.209 ~~0.183~~				
0000	6.830	0.235 ~~0.209~~				
0000	6.860	0.393 ~~0.23~~				
2500	6.830	0.417				

Corrections from Graph

r.p.m.	Corr'n
000 - 500	= 0.0
500 - 2025	= +0.2
2025 - 2500	= 0.0

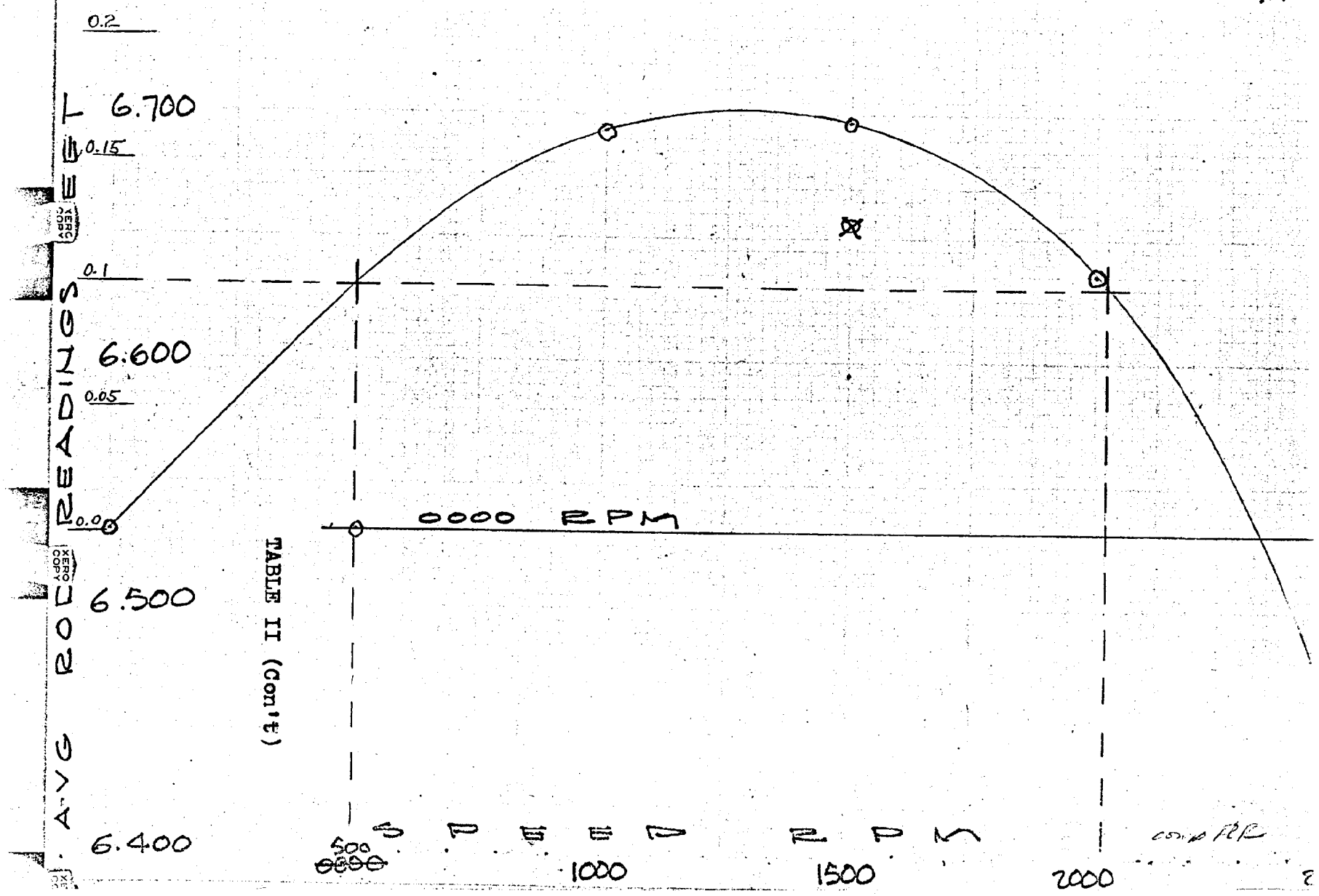
1965 season

TABLE II (Con't)

APRIL 30 196

SQUAT & SETTLEMENT

CORRECTED (FORTIDE) ROD READINGS US RPM ML# 1,4+



LIST OF SIGNALS H-8845

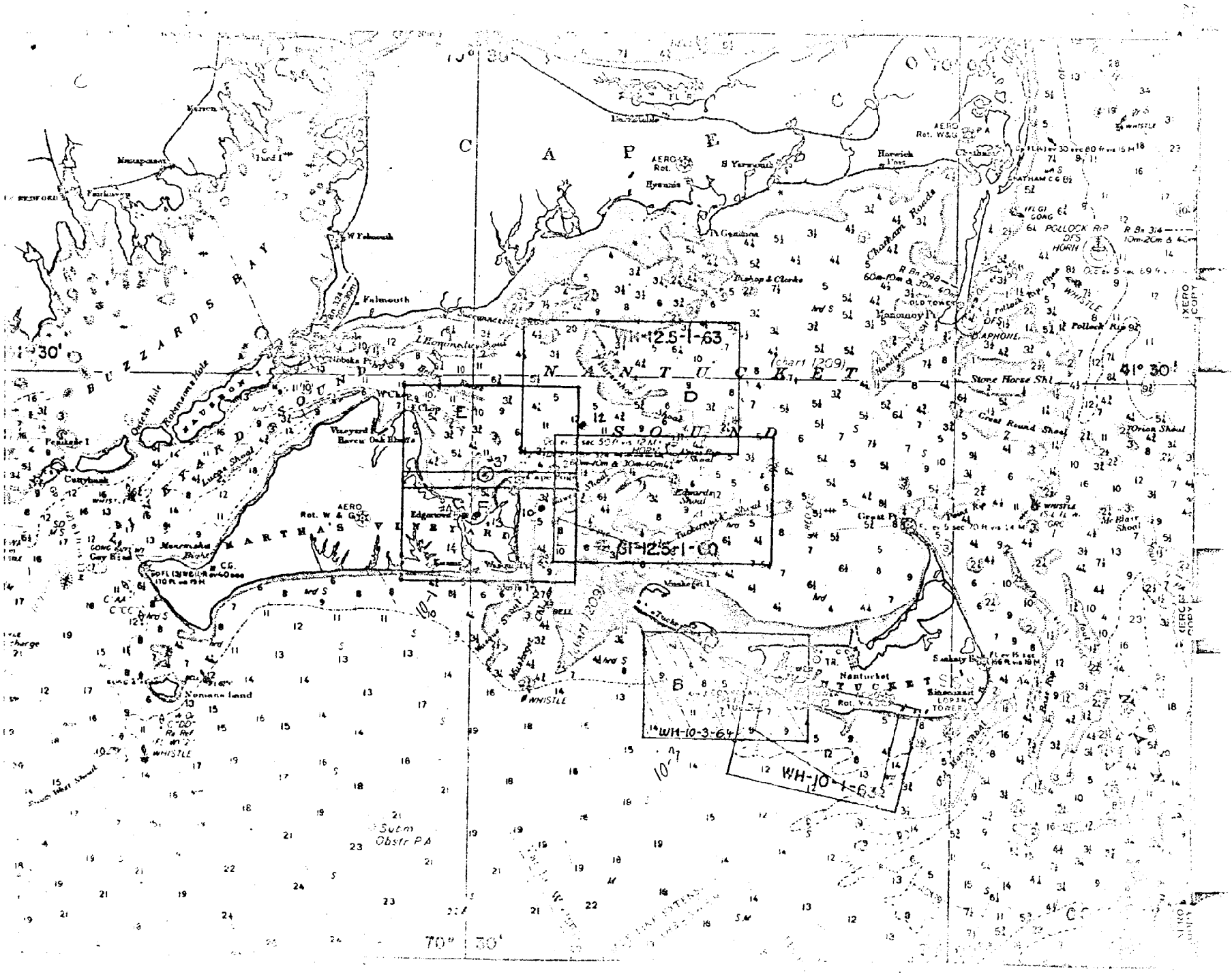
Signal	Type	Origin
ACE	Topographic	T-11220
BAT	"	"
CAR	"	"
DIM	"	"
EAT	"	"
~~GAS~~ GAG	"	"
HOP	"	"
ICE	"	"
JAP	"	"
KED	"	"
LOG	"	"
MAN	"	"
NIG	"	"
DAY	"	"
MAD (1965 only)	Triangulation	MAD, 1965
NEW	Topographic	T-11220
OAK	"	"
PAN	"	"
RAG	"	"
SAL	"	"
SAM	"	"
TOW	Triangulation	NANTUCKET IS. WEST CONSOLAN TOWER, 1956
USE	Topographic	T-11220
VAL	"	"
WAG	"	~~"~~ T-11219
YES	"	"
ZOO	"	"
ANN	"	T-11219
DID (1965 only)	"	Microchain Traverse
EST	"	T-11219
JIM (1965 only)	"	Microchain Traverse
LIP (1964 only)	Hydrographic	Sextant cuts Vols. 1 & 7
MOP (1965 only)	Topographic	T-11219
MAX ~~MAD~~ (1964 only)	"	"
OLD (1964 only)	Hydrographic	Sextant Cuts
ORA	Topographic	T-11219
PEG	"	"
POL	"	"
RAT (1964 only)	~~Hydrographic~~ Topo	Sextant Cuts check - vol. 7
FAT ~~RAT~~ (1965 only)	Topographic	Microchain Traverse
TRY (1965 only)	"	" "
TUB	"	T-11219
VET	"	"
ZIG	"	"
ZIP (1965 only)	Hydrographic	Sextant Cuts Vol. 13, pg. 54
GUL (1965 only)	"	" " 15, pg. 26
PIC (1964 only)	"	" " 3, pg. 7

APPROVAL SHEET

The boatsheet and records for the area surveyed are complete and approved. The boatsheet and sounding volumes were examined daily during the survey. The area surveyed is complete and adequate for charting and should supercede all prior surveys.

James P. Randall

James P. Randall
LTCDR,USC&GS,COMDG.


C A P E
C O D
BUZZARDS BAY
MARTHA'S VINEYARD
NANTUCKET SOUND
NANTUCKET
WH-12.5-1-63
WH-12.5-1-63
WH-10-3-64
WH-10-4-63
(Chart 1209)
(Chart 1209)
41° 30'
70° 30'

FORM 27A
(8-29-55)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

(For calculating machine computation)

		°	′	″
α	2 SMITH 1931 to 3 [illegible]	[illegible]	[illegible]	[illegible]
2d ∠	&	+84	[illegible]	48.100 ✓
α	2 SMITH to 1 RAT	066	36	32.834 ✓
Δα				
		180	00	00.0
α′	1 to 2			

		°	′	″
α	3 SMITH to 2 W. Corn	[illegible]	[illegible]	[illegible]
3d ∠	&	+96	[illegible]	[illegible]
α	3 SMITH to 1 (1)	075	31	[illegible]
Δα				
		180	00	00.0
α′	1 to 3			

First Angle of Triangle

	°	′	″			°	′	″
φ	41	17	29.548	2 ~~SMITH~~ 1931	λ	70	11	31.492
			42.778	s= 3322.47	Δλ	+	01	11.031
φ′	41	16	46.770	1* RAT	λ′	70	13	42.523

	°	′	″			°	′	″
φ	41	17	29.548	3 SMITH	λ	70	11	31.492
−			31.299	s= 3858.76	Δλ		02	40.552
φ′	41	16	58.249	1 (1) JIM	λ′	70	14	12.044

M-2601-2(1)

		(Thousands)	
sin α	0.9174 8179 ✓	y_0	4,572.7
cos α	0.3970018 ✓	y	− 1.3
x = s sin α	3,049.42 ✓	y_1	4,571.4
y = −s cos α	−1,319.03 ✓	$\frac{1}{2}(y_0+y_1)$	4,572.0
Va	− 0.64 ✓		
Δy	− 1,319.67	H	0.04297602865
diff. per sec.	30.8494	Hx = Δλ″	+ 131.031
V	6.842	sin φ	
s = (x /10,000)²	0.093	sin φ′	
Δφ″ = Δy / diff. per sec.	− 42.778	$-\Delta\alpha'' = \frac{1}{2}(\sin\phi + \sin\phi')\Delta\lambda''$	

		(Thousands)	
sin α	0.9688[illegible]33	y_0	4,572.7
cos α	0.2477110	y	− 1.0
x = s sin α	3,736.26	y_1	4,571.7
y = −s cos α	− 964.58	$\frac{1}{2}(y_0+y_1)$	4,572.2
Va	− 0.96		
Δy	− 965.54	H	0.04297 71346
diff. per sec.	30.8494	Hx = Δλ″	+ 160.552
V	6.844	sin φ	
s = (x /10,000)²	0.140	sin φ′	
Δφ″ = Δy / diff. per sec.	− 31.299	$-\Delta\alpha'' = \frac{1}{2}(\sin\phi + \sin\phi')\Delta\lambda''$	

COMP. RAT

COMM-DC 28316

* Signal ~~RAT~~ changed to ~~RAT~~ for 1965 work
m WH-10-3-64 N.M.F.

FORM 27A
(8-29-55)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

...OSITION COMPUTATION, THIRD-ORDER TR...NGULATION

(For calculating machine computation)

Geodet

		°	′	″			°	′	″
α	2 SMITH 1931 to 3 W. Cons.	339	09	50.635	α	3 SMITH 1931 to 2 W. Cons.	339	09	50.635
2d ∠	&	+121	16	02.801	3d ∠	&	+199	49	34.200
α	2 SMITH to 1 (2)	088	25	56.435	α	3 SMITH to 1 (3)	088	59	24.835
Δα					Δα				
		180	00	00.0			180	00	00.0
α′	1 to 2				α′	1 to 3			

First Angle of Triangle

	°	′	″			°	′	″		°	′	″			°	′	″
φ	41	17	29.518	2 SMITH	λ	70	11	31.492	φ	41	17	29.518	3 SMITH	λ	70	11	31.492
−			17.403	s= 11405.12	Δλ	+	03	20.870	−			03.089	s= 5301.48	Δλ	+	03	47.804
φ′	41	17	12.055	1 (2) DID	λ′	70	14	52.362	φ′	41	14	26.459	1 (3) TRY	λ′	70	15	19.29

M-2601-1

sin α	0.993 43946	(Thousands) y₀	4,572.1
cos α	0.114 3754	y	− 0.5
x=s sin α	4,674.84	y₁	4,572.8
y=−s cos α	− 538.15	½(y₀+y₁)	4572.4
Va	− 1.50		
Δy	− 539.65	H	0.04897 38063
diff. per sec.	38.8494	Hx=Δλ″	+ 200.8810
V	6.874	sin φ	
a=(x/10,000)²	2.918	sin φ′	
Δφ″=Δy/diff. per sec.	− 13.893	−Δα″=½(sin φ + sin φ′)Δλ″	

sin α	0.993 84450	(Thousands) y₀	4,572.1
cos α	0.011 76093	y	− 0.1
x=s sin α	5,300.66	y₁	4,572.6
y=−s cos α	− 93.36	½(y₀+y₁)	4572.6
Va	− 1.93		
Δy	− 95.29	H	0.04297 16488
diff. per sec.	38.8494	Hx=Δλ″	+ 224.804
V	6.874	sin φ	
a=(x/10,000)²	2.811	sin φ′	
Δφ″=Δy/diff. per sec.	− 2.453	−Δα″=½(sin φ + sin φ′)Δλ″	

COMM-DC 2831

FORM C&GS-712
(3-9-64)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

December 13, 1966

~~Nautical Charts Division~~ Atlantic Marine Center

Plane of reference approved in
22 volumes of sounding records for

HYDROGRAPHIC SHEET 8845

Locality: Nantucket Island, Massachusetts

Chief of Party: H. R. Lippold, 1964
J. P. Randall, 1965

Plane of reference is mean low water

Tide Station Used (Form C&GS-681):

Edgartown, Mass.
New London, Conn.

Height of Mean High Water above Plane of Reference is as follows:

Edgartown	1.9 feet
Outside Maddaket Harbor	1.6 "
Inside Maddaket Harbor	2.3 "

Remarks (Over)

J. M. Symons
Chief, Tides and Currents Branch

USCOMM-DC 6680-P64

Remarks: Tide reducers for the following positions have been revised in red and verified.

Volume	Position
1	60-a to 95-a; 67-b to 96-b
2	97-b to 117-b; 1-c to 27c; 83c to 158-c
3	21-d to 67-d; 75-d to 134-d
4	54-a to 163-a; 1-b to 39-b
5	67-b to 145-b
6	1-A to 77-A; 98-A to 118-A; 57-B to 60-B
7	61-B to 99-B; 1-C to 7-C; 114-C to 149-C
8	150-C to 212-C; 10-D to 107-D; 112-D to 140-D
9	141-D to 202-D; 1-E; 18-E to 74-E
10	1-d to 99-d; 1-d to 61-d; 66-d to 89-d
11	90-d to 119-d; 22-e to 87-e
12	1-f to 48-f; 1-g to 58-g
13	1-h to 61-h; 88-h to 167-h; 184-h to 195-h
14	1-j to 16-j; 32-j to 66-j
15	67-j to 113-j; 1-k to 14-k; 19-k to 30-k 184-h to 195-h; 1-l to 11-l

NORFOLK HYDROGRAPHIC PROCESSING OFFICE
ADDENDUM
To Accompany

HYDROGRAPHIC SURVEY H-8845 (Wh 10-3-64)

GENERAL

Field work on this survey was accomplished during the 1964-65 field seasons. Due to the exposed and changeable character of the area, it is quite probable that bottom changes occurred during the lapse between field seasons as the original plot of soundings revealed crossing discrepancies of up to 4 feet. Extensive revisions of the tidal data by Washington Office eliminated most of the gross discrepancies and allowed this office to obtain reasonable agreement of soundings and fairly smooth depth curves, considering the factors involved.

AIDS TO NAVIGATION

Lat. 41-16.95' Long. 70-12.30' Position lg (green) shows the location of an object described as a "Orange Rock Marker. This item is probably the source of the "rock awash" symbol shown in this vicinity on chart 265.

Lat. 41-16.50' Long. 70-15.50' Buoy R "2SP" was not located on this survey.

DAY LETTERS

Day letters for work of Launch 2 (red), 1965 season, were changed in volumes 11 through 15 to avoid duplication of 1964 day letters.

SOUNDING DISCREPANCIES

Soundings on the 1964 positions listed below were not smooth plotted as they were in disagreement with 1965 work by from 1 to 4 feet. The discrepancies are believed to have been caused by bottom changes.

4 to 8d; 25 to 29d; 48 to 49d and 55 to 56d (blue).

Respectfully submitted,

Hugh L. Proffitt
Chief, Hydrographic Branch

Norfolk, Va.
Mar. 24, 1967

FORM 197
(3-16-55)

GEOGRAPHIC NAMES

Survey No. H-8845

Name on Survey	On Chart No. A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Cisco Beach										1
Eel Point										2
Esther Island										3
Madaket										4
Madaket Harbor										5
Nantucket Island										6
Smith Point										7
Tuckernuck Island										8
			Names approved							9
			Aug. 2, 1967							10
			Frank M. Parker							11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

Form 946

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 0845

Records accompanying survey: Smooth sheets 1;

boat sheets 2; sounding vols. 22; wire drag vols. NONE;

Descriptive Reports 1; graphic recorder envelopes 2-Cahiers, Fathograms;

special reports, etc. Air-photo Control Comp. T-11219,

T-11219B (2), T-11220 & T-11222,

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

Number of positions on sheet		3367
Number of positions checked		108
Number of positions revised		2
Number of positions revised (refers to depth only)		2
Number of soundings erroneously spaced		NONE
Number of signals erroneously plotted or transferred		NONE
Topographic details	Time	4 hrs.
Junctions	Time	8 hrs
Verification of soundings from graphic record	Time	23 hrs.
Special adjustments	Time	NONE.

Verification by Fred Bean Total time 229 hrs. Date 5/9/67

Reviewed by ..... Time ..... Date .....

VERIFIER'S REPORT OF HYDROGRAPHIC SURVEY NO. H-

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.
Used as a guide.

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-8846 (1965)" 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.
To be inspected by Mr. H.L. Proffitt. Supervisory Cartographer.

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

20. Heights of rocks were checked against range of tide.
none

21. Rocks transferred from topographic surveys have a dotted curve where shown thereon. Rocks located accurately by hydrographer are encircled by dotted red curve.
none

22. Unnecessary pencil notes have been removed.
[illegible] pencil notes by

23. Objects on which signals are located and which fall outside of the low water line have been described on the sheet.
Descriptions Not furnished for PIC and TRY - believed to be Temporary -

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~~ 82 & 83 in the new Hydrographic Manual.

29. All aids located, with those on contemporary topographic sheets, have been shown on survey.
Privately maint'd markers only on smooth sheet.

30. Depth curves were satisfactory except as follows:

31. Sounding line crossings were satisfactory except as follows:
See smooth plotters' addendum -

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:
by closer examination of graphs, the "Chop" could be meaned out to bring about much better agreement with crosslines & adjacent hydro, therefore eliminating what appeared to be discrepencies.

36. Notes to reviewer:
despite the difficulty originally encountered with faulty tide reducers, this sheet, in my opinion, developed into a fair survey. the additional notes attached are not really serious since 1965 hydro adequately covers the small area involved.

Addendum - Verified by Fred Bean. Date 5/9/67

(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-8845

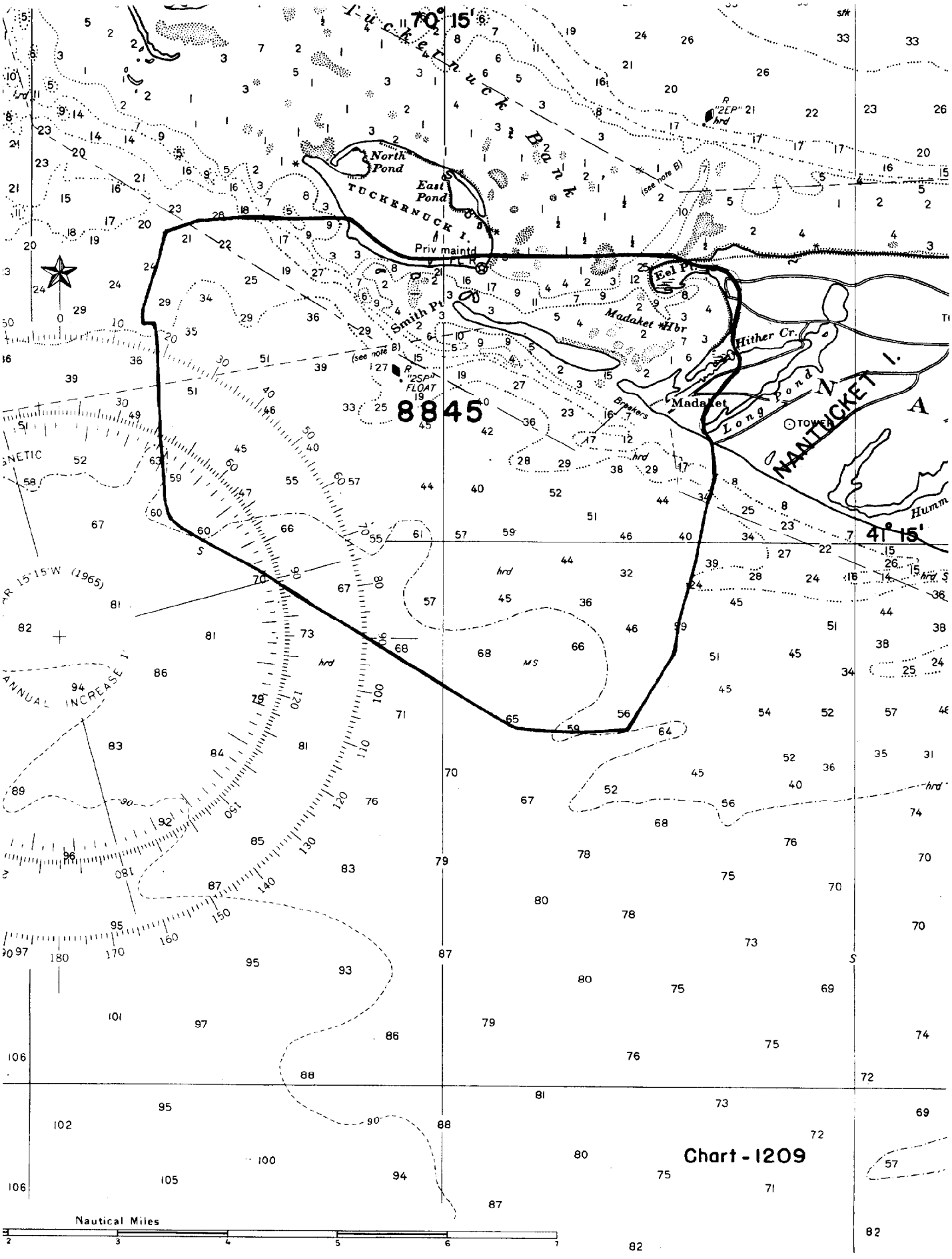
INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
70	8-9-67	H. H. Mall	~~Full~~ Part Before ~~After~~ Verification Review Inspection Signed Via
			Drawing No. Exam, No corr., Exam direct from
			sheet without applying thru larger scales
1000	8-23-67	H. H. Mall	~~Full~~ Part Before ~~After~~ Verification Review Inspection Signed Via
			Drawing No. Exam, No corr, Exam thru cht 70
			No Hydro in area of survey, consider as fully appd. HRR
265	9-8-67	H. Ralden	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. #5 Appl'd critical corr only
1209	9-11-67	H. Ralden	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. 34 Appl'd thru Cht. 265
1108	9-25-67	H H Mall	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. appl'd thru cht 1209.
71	10-16-67	H. Ralden	~~Full~~ Part ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. part appl'd thru Cht. 265 #5
1107	12-11-67	H H Mall	~~Full~~ Part Before After Verification Review Inspection Signed Via
			Drawing No. appl'd thru cht 1108
13006	2-12-90	Russell A Kennedy	~~Full~~ A Part Before ~~After~~ Verification Review Inspection Signed Via
			Drawing No. 47 Adequately applied
13241	1-2-92	L. Ackerman	~~Full~~ A Part ~~Before After~~ Verification Review Inspection Signed Via
			Drawing No. 14 Adequately Applied
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-97F

USCOMM-DC 8558-P68


70° 15'
Tuckernuck Bank
North Pond
East Pond
TUCKERNUCK I.
Priv maintd
Smith Pt
Eel Pt
Madaket Hbr
Hither Cr.
Madaket
Long Pond
NANTUCKET I.
TOWN
Breakers
8845
41° 15'
(see note B)
(see note B)
"2SP" FLOAT
"2EP"
hrd
MS
ANNUAL INCREASE
Chart - 1209
Nautical Miles

To: Reviewer H-8545

From: Chief, Hydro Data Br.

Condition of Survey —

Crosslines of ship 1964 and 1965 work differed by 1-4 ft on boat sheet but were not mentioned by hydrographer in D.R. nor were these additional lines run. Headline checking of depths or verification made of tidal corrections by the hydrographer done, to assist in resolving the problem.

A lengthy study by Hydro Data Br. disclosed the need for revision to tidal corrections to resolve the discrepancies.