

9874

Diagrams 1215-3 & 369-5

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT

Type of Survey .. Hydrographic ..
Field No. WH-5-2-80 ..
Office No..... H-9874 ..

LOCALITY

State New York & New Jersey ..
General Locality New York Harbor ..
Locality Bay Ridge Channel to ..
..... Gowanus Bay ..

19 80

CHIEF OF PARTY
CDR F. P. Rossi ..

LIBRARY & ARCHIVES

DATE October 19, 1981 ..

9874

12 224
12 225
12 227

HYDROGRAPHIC TITLE SHEET

H-9874

INSTRUCTIONS - 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.

WH - 5 - 02 - 80

State NEW YORK and NEW JERSEY

General locality NEW YORK HARBOR

Locality UPPER BAY BAY RIDGE CHANNEL TO GOWANUS BAY

Scale 1:5,000 - 10,000 Date of survey 16 April - 16 May 1980

Instructions dated 30 November 1979 Project No. OPR-B139-WH-80

Vessel NOAA Ship WHITING Launch 1015 (2931)

Chief of party CDR. Karl Wm. Keininger 16 April, 1980-30 April 1980
CDR. Frank P. Rossi 1 May, 1980-16 May 1980

Surveyed by LCDR N.A. Prah1, LT. C.D. Mason, LT.R.G. Mann, LTJG F.R. Diaz, ENS. D.A. Bland

Soundings taken by echo sounder, hand lead, pole

Graphic record scaled by WHITING Personnel

Graphic record checked by FPR, CDM, RGM, FRD, DAB Verification Branch

Protracted by _____ Automated plot by HYDROPLOT
Xynetics 1201(AMC)

Soundings ^{verified} penciled by D.V. Mason & L.G. Cram

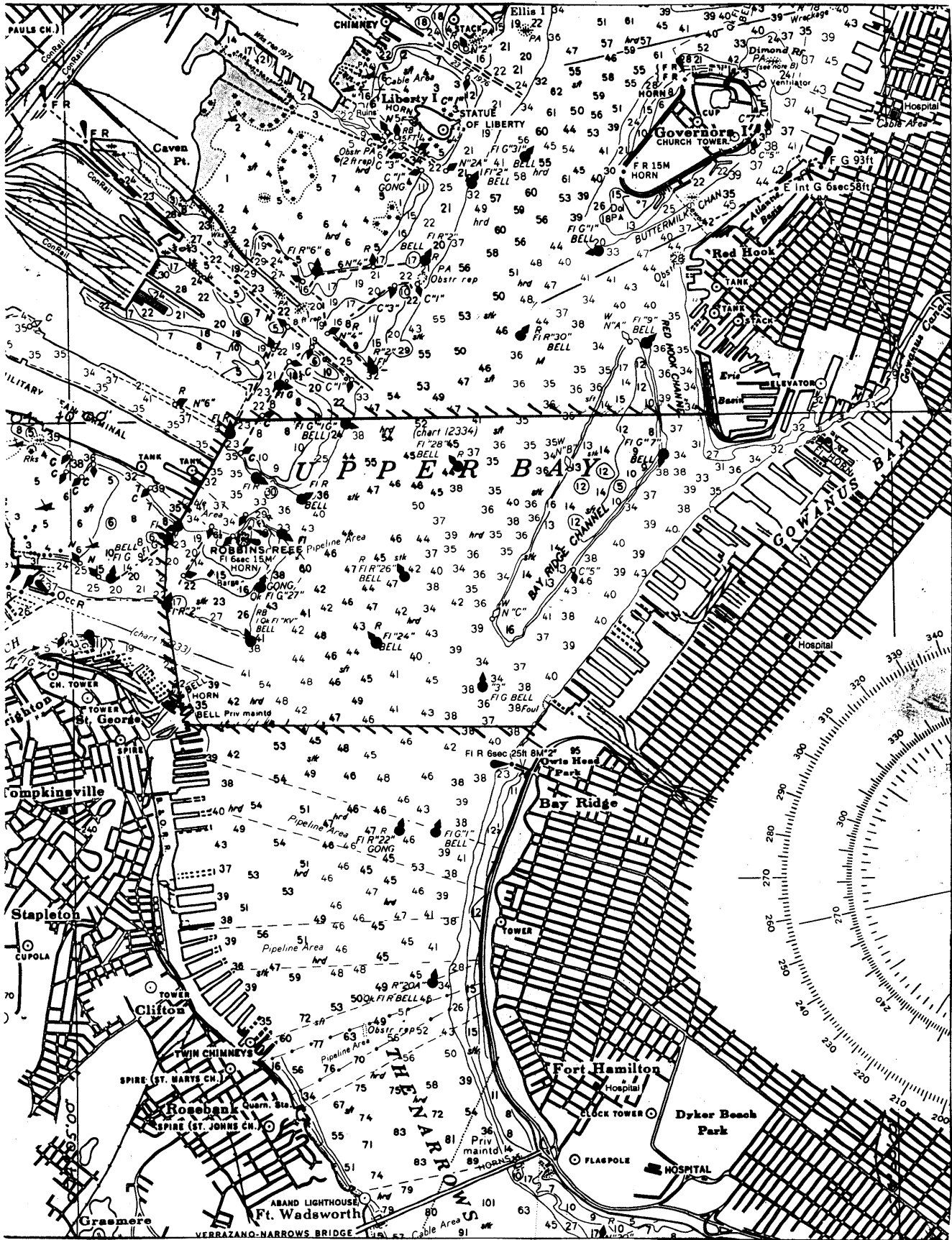
Soundings in fathoms feet at MLW MLW

REMARKS: All times are coordinated Universal Time (UTC)

Changes made in red ink during verification

Misc. data culled from the D.R. are filed with the survey records

Applied to John W. J. Shumard



DESCRIPTIVE REPORT

TO ACCOMPANY SURVEY

WH-5-02-80

OPR-B139-WH-80

A. PROJECT

In conducting Chart Evaluation Surveys of New York Harbor in 1978 and 1979, the WHITING discovered a number of major discrepancies between observed depths and those that were charted. As a result, a basic survey of New York Harbor was undertaken in 1979 of a portion of the Lower Bay. The survey continued in the Upper Bay in 1980.

The WHITING arrived in New York on March 6, 1980 with Project Instructions for OPR-B139-WH-80, a Hydrographic Survey of New York Harbor. The area to be surveyed was defined as follows: bounded on the north by The Battery of Manhattan Island, on the south by the Verrazano Narrows Bridge, on the west by the Staten Island/New Jersey Shoreline and on the east by the Brooklyn Shoreline. This area is covered by Chart No. 12334, 1:20,000 scale. Sixty days of sea time were scheduled for establishing a horizontal control network and completing four 1:5,000 sheets.

A command decision was made early in the operation to survey the navigable corridors between the Verrazano Bridge and the Battery concentrating on adequate soundings to portray the bottom configuration, floating aids to navigation and bottom samples. Fixed aids to navigation, shoreline and coast pilot investigation were purposely excluded. The reasons for this decision were compelling and are as follows, 1) The sea days allotted to the project (60) were approximately one third the required amount of time necessary to properly do a complete survey, 2) No contemporary photography exists of the shoreline, and 3) The Army Corps of Engineers is undertaking a massive reclamation project on the New Jersey Shoreline. The navigable corridor surveyed is defined as follows: the Brooklyn Shoreline at the pierhead line on the east, a line running from Ellis Island to Liberty Island thence to the pierhead of the Military Ocean Terminal to Staten Island and south along the pierhead line on the west.

Hydrographic Survey WH-5-2-80, H-9874, was performed in accordance with Project Instructions for OPR-B139-WH-80, New York Harbor dated 30 November 1979.

<u>Change No.</u>	<u>Date</u>
1	8 Feb. 1980
2	6 Feb. 1980
3	4 April 1980

B. AREA SURVEYED

Survey H-9874 was performed from Julian Days 107-137, 1980. The area extends from 074°04'27"W east to the Brooklyn Pierhead Line. The limits of hydrography to the North and South are 040°40'00"N and 040°38'36"N. The area surveyed is located in the Upper Bay of New York Harbor, which includes Anchorage Nos. 21B and 21C, Bay Ridge Channel, the Brooklyn Pierhead line to the east, and Military Ocean Terminal to the west. Traffic in the area is varied and ranges from fast moving deep drafted vessels to small working and pleasure craft.

C. SOUNDING VESSELS

All range-azimuth hydrography was performed by NOAA Launch 1015(EDP 2931). The launch was equipped with a Ross Model 5000 echo sounder. The survey launch encountered no major mechanical problems.

D. SOUNDING EQUIPMENT

(H-9874)

Echo sounder used on WH-5-2-80^A was a Ross Model 5000. Serial number for VESNO 1015 is 1087. Phase check calibrations were performed on the Ross in accordance with the Hydrographic Manual. This calibration was conducted regularly and is noted on all fathograms.

Bar Checks were taken daily, weather and sea conditions permitting. Quality of the bar checks showed to be inconsistent among themselves due to wind, sea, and especially current conditions, therefore all velocity corrections were taken off TDC cast averages. All TDC casts were taken at various times during the survey with a Martek Model 167 unit (S/N 127). Data from bar checks and TDC casts were compiled in direct comparison logs and are submitted with the field reports.

Settlement and squat corrections are taken from trials performed by WHITING personnel in November 1979 for VESNO 2931. Graphs and corresponding tables for settlement and squat are in the appendix and applied on the TC/TI tape.

All soundings on this sheet are taken on the 0-100 foot scale.

E. HYDROGRAPHIC SHEETS

The field sheets were prepared by WHITING personnel using a Houston Instrument DP-3 Roll Plotter, S/N 46801. For processing purposes, the area is on one plotter sheet. Plotter sheet origin for the sheet is as follows:

040° 38' 36" N, 074° 04' 34" W

A total of 3 plotter sheets are submitted with this survey. One sheet covers the main scheme, one sheet covers developments and crosslines, and one sheet contains bottom samples and buoys.

F. CONTROL STATIONS

The following signals were used for electronic positioning sites, calibration signals, or initial points for range-azimuth.

<u>Signal No.</u>	<u>Description</u>
105	H-5-NY-79
152	H-52-NY
153	H-53-NY
154	H-54-NY
155	H-55-NY
156	H-56-NY
157	H-57-NY
158	H-58-NY
200	Governors IS SW LT.
205	Governors IS NW LT.
210	ELLIS ISLAND CHIMNEY
215	ELLIS ISLAND S TWIN TK
220	ELLIS ISLAND N TWIN TK
225	EMPIRE STATE BUILDING
230	STATUE OF LIBERTY
235	BORO HALL, 1931

<u>Signal No.</u>	<u>Description</u>
240	BOLT
245	FT WADSWORTH <i>LTHO., 1903</i>
250	ROBBINS REEF LT HSE
255	GOVIS

Stations 152-157 and BOLT were established by Operations Division, Atlantic Marine Center in March, 1980 for the WHITING. Stations 158 and 255 were established by WHITING personnel to third order, second class standards. All the above stations were monumented and are recoverable. Positions for stations 200-235, 245, and 250 were obtained from published horizontal control data.

CLASS II

G. HYDROGRAPHIC POSITION CONTROL

Range-azimuth control was used throughout the survey. ~~All hydrography was performed by launch 1015.~~ The launch ¹⁰¹⁵ was equipped with Del Norte Master and Distance Measuring Units. The hydroplot system was used in all range-azimuth work. All azimuths were measured with a Wild T-2 Theodolite, S/N 35803. Ranges and depths were recorded in real time using FA-181.

Calibrations was taken twice daily in accordance with the Hydrographic Manual. A distance of 4380 meters was computed by geodetic inverse program no. RK-407 from Station 152 to Station 153. This was used as a primary calibration range throughout the survey.

In addition to daily calibrations, a baseline calibration was performed every 200 hours of use as prescribed by the Del Norte Manual and Hydrographic Manual. Del Norte Master/DMU and remote units were kept paired between baseline calibrations.

The following Master/DMU pairs were used during the project.

<u>J.D.</u>	<u>Vessel</u>	<u>Master S/N</u>	<u>DMU S/N</u>
107-134	2931	250	180
135-137	2931	1060	192

H. SHORELINE

No shoreline manuscripts were available for the survey. Shoreline for this sheet was taken from a 1:5,000 blow-up of NOS Chart No. 12334. *See Verification Report, Section 2. b.*

I. CROSSLINES

The percentage of crosslines run on this survey was 14%. The nautical miles of crosslines run were 23.20. Agreement with main scheme was excellent; 90% within 0-2 feet. The worst case was a discrepancy of 3 feet. *See Verification Report 3. a.*

J. JUNCTIONS

This survey junctions with H-9815 on the north, and H-9875 on the south. Agreement with these two surveys is excellent (0-2 feet). Surveys H-9815 and H-9875 were completed this year by the WHITING and are still unverified. *See Verifiers Report Section 5.*

K. COMPARISON WITH PRIOR SURVEY *See Verification Report Section 6 also.*

Survey 5607, Upper Bay, New York Harbor, Sept.-Oct. 1934, 1:10,000

Comparisons were made in the area bounded by:

North: 040°40'00"N

East: Brooklyn Pierhead Line

South: 040°38'36"N

West: 074°04'24"W

90% of the soundings between the current and prior survey show that survey depths are deeper (1-3 feet). The area within the Anchorages 21B and 21C, centered at 040°39'30"N, 074°02'30", show observed depths of 39-42 feet, whereas the prior survey shows 19-22 feet within the same area. This can be attributed to the extensive dredging of the area over the past years. See Verifiers Report

Development WH-5-2-1
Charted Item: Shoal
Charted Position: 040°39'26"N
074°03'57"W
Charted Depth: 3-5 ft.

VES No: 2931
J.D. 135 (Pos.#1804-1942)
Arcs

Splits of the main scheme were run to 22-meter spacing for better delineation of the Robbins Reef shoal area. A least depth of 0 feet 3 out of Pos# 1814. Geographic Position of the least depth 040°39'27"N, 074°03'58.5"W. It is recommended that survey depths supercede presently charted depths. *According to TP-00744(1974-75) there is a bare islet here.*

Development WH-5-2-2
Charted Item: Shoal
Charted Position: 040°39'52"N
074°03'45"W
Charted Depth: 7-10 ft.

VES No: 2931
J.D. 135 (Pos# 1943-1953 Arcs)
J.D. 136 (Pos# 1954-2032 Arcs)

See H-9815(1980) for remainder of shoal

Splits of the main scheme were run to 22 meter spacing. Least depths of 8 feet were observed at 040°39'54"N, 074°03'48"W. It is recommended that survey depths supercede presently charted depths. *concur*

Development WH-5-2-3
Charted Item: Shoal
Charted Position: 040°39'40"N
074°01'39.5"W
Charted Depth: 5 feet

VEs No: 2931
J.D. 136 (Pos#2033-2073 Arcs)

Area was surveyed to 10-meter spacing. No evidence of the 5-foot depth was observed within the surrounding area. A least depth of 10 feet approximately 135 meters East-Northeast at 040°39'39"N, 074°01'36"W was observed. *It is recommended that survey depths supercede all currently charted depths. See Verification Report* *40.54" 32.61"*

L. COMPARISON WITH THE CHART See Verification Section 7a. also

Survey H-9874 was overlaid and compared with a 1:5,000 blow-up of NOS chart no. 12334, 52nd ed. Aug. 4/79, 1:10,000 scale, obtained from C351.

Area bounded by:

North: 040°40'00"N

East: Brooklyn Pierhead Line

South: 040°38'36"N

West: 074°04'24"W

In general, overall agreement with the chart is good (0-4 feet). Throughout the sheet, 90% of the survey soundings appear to be 2-4 feet deeper. Depth contours have remained relatively unchanged.

A 5-foot depth within Anchorage 21B is charted at 040°39'40"N, 074°01'39.5"W. The shoalest depth observed within the surrounding area was 10 feet, 135 meters East-Northeast. See Verification Report *Item 7.a.1.*

A 17-foot depth is charted at 040°39'07"N, 074°04'22"W, east of Buoy R"2". An 18-foot depth was observed 22 meters Northeast from the charted depth. See Verification Report, Section 7.a.9. *Closest 18' depth on the SS is 280 meters N.E. from TP-00744 (1974-75)*

A Foul area along the Brooklyn Pierhead is charted at 040°38'39"N, 074°02'07"W. Depths of 38-45 feet were observed within the charted area. *also piles, pier ruins & 9 subm wk fall within this foul area on the chart*

A 31-foot depth is charted at 040°39'26"N, 074°02'47"W. Depths of 42 feet were observed at the charted position. See Verification Report Section 7.a. *42 depths on the pres. surve. considered dis-credited by 41-*

M. ADEQUACY OF THE SURVEY

This survey is complete and adequate to supercede prior surveys within the limitations set forth in Section A of this report. *See verifier's report*

N. AIDS TO NAVIGATION See Verification Report Section 7.C.

The following is a list of aids to navigation found on H-9874 (cht 12334)

POS#	GEOGRAPHIC POSITION	DESCRIPTION
1538- <i>40m N.E. of chtd pos</i>	040°39'49.59"N, 074°01'21.41"W	<i>Blk</i> "7" Fl G 4sec Bell ✓
1539	040°40'00.12"N, 074°01'48.32"W	<i>white "B" (not chtd on 1979 edit) "A" "M" "K" (chtd on 1980 edit)</i>
1540	040°39'16.37"N, 074°01'56.59"W	C"5" <i>Blk</i>
1541	040°38'45.10"N, 074°02'29.94"W	<i>Blk</i> Bell"3" Fl G 4sec ✓
1542 <i>Revise buoy desc on ch't to W"nc" this is not a Nun buoy</i>	040°38'57.03"N, 074°02'26.73"W	<i>White Nun "C" on 1979 ch't</i>
1543	040°38'57.75"N, 074°03'10.59"W	<i>Lighted Nun "C" on 1980 ch't</i> R"24" Fl R 4sec Bell ✓
1544	040°39'14.96"N, 074°02'58.65"W	R"26" Fl R 4sec Bell ✓
1545 <i>200m S.W. of chtd pos - adeq'ly marks feature</i>	040°39'41.28"N, 074°02'43.45"W	R"28" Fl 4sec Bell ✓
1546	040°39'59.22"N, 074°03'19.68"W	"IG" Fl G 2.5sec Bell ✓
1547	040°39'38.31"N, 074°03'35.68"W	R"2" Fl R 4sec Bell ✓
1548	040°39'27.76"N, 074°03'42.86"W	"1" Fl 4sec ✓
1549	040°39'30.39"N, 074°04'05.98"W	C"3B" charted position ✓
1550	040°39'27.56"N, 074°04'00.43"W	<i>SO 75 meters east of this location.</i> C"3A" <i>WEST</i>
1551	040°39'33.40"N, 074°03'56.00"W	C"3" ✓
1552	040°39'45.25"N, 074°03'51.98"W	R"4" Fl R 4sec ✓
1553	040°39'49.88"N, 074°03'56.92"W	C"15" ✓

<u>POS#</u>	<u>GEOGRAPHIC POSITION</u>	<u>DESCRIPTION</u>
1555	040°39'55.85"N, 074°04'01.42"W	R"14" F1 R 4 sec ✓
1611	040°39'13.27"N, 074°03'49.78"W	"27" Qk F1 G GONG ✓
1612	040°38'57.66"N, 074°03'55.28"W	RB I Qk F1 "KV" BELL ✓
1613	040°39'06.19"N, 074°04'23.28"W	R"2" F1 R 2.5 sec ✓
1614	040°39'16.76"N, 074°04'16.84"W	N"4" 45m N.E. of aht'd pos. ^{55m S.E. of cht. pos.}
1615	040°39'26.78"N, 074°04'22.63"W	"5" F1 G 4 sec ✓
1616	040°39'36.41"N, 074°04'30.25"W	"7" F1 4 sec ✓

Anchorage Buoy ~~W~~"B" was not found within the survey area. *Considered discontinued. Ck C.G.*
 Anchorage Buoy ~~W~~"A" was observed 0.5 miles SSW from the charted position. *Buoy not on 1979 chart. Survey located limited buoy area.*
 Anchorage Buoy ~~W~~"C" was observed 180 meters south of its charted position. *New buoy was replaced with lighted buoy "C".*
 Buoy R"28", Position 1545, was observed 225 meters SSW of its charted position.

O. STATISTICS

<u>VESNO</u>	<u>NUMBER OF POSITIONS</u>	<u>TOTAL MILES</u>
2931	2123	169.25

Square Miles: 4.0

P. MISCELLANEOUS

Pos# 2074-2077 is a line approximately 30 meters off the pierface of Military Ocean Terminal. ✓

Pos# 2117-2119 are detached positions for a mooring platform 0.25 miles SW of Robbins Reef Lt. HSE. (See Verification Report) *Conflicts with aht'd pos. and size. Chart the site's location as shown on FE-23(1981)*

A VENTILATOR PA, charted at 040°39'26.5"N, 074°03'59.5"W, was not observed throughout the period of the survey. It is recommended that further investigation be done on this item. PRE-SURVEY REVIEW ITEM NO. 33 (See Verification Report) (7.a.2.)

Q. RECOMMENDATIONS

Field Edit of contemporary photogrammetry should be performed. *1974-75 photography is considered outdated. New photography accompanied by add'l. hydro should be accomplished to make the survey complete & adequate to chart the areas inshore of the pierhead line.*

R. AUTOMATED DATA PROCESSING

<u>PROGRAM NO.</u>	<u>DESCRIPTION</u>
RK-201	Grid H/R Lattice Plot
FA-181	R/AZ Hydrolog
RK-212	Visual Station Table Load
RK-216	R/AZ Position and Sounding Plot
RK-300	Utility Computations
RK-330	Reformat and Data Check
PM-360	Electronic Corrector Abstract
AM-500	Predicted Tide Generator

AM-530	Layer Corrections for Velocities	5-10-76
RK-561	Hyperbolic R/R Geodetic Calibrations	2-19-75
AM-602	Extended Line Oriented Editor	3-10-72
AM-407	Geodetic Inverse/Direct Computation	10-23-75

S. REFERENCES TO REPORTS

NONE

VELOCITY TAPE

TABLE II

000435 0 0000 0002 000 293100 009874

000800 0 0002

001100 0 0004

999999 0 0000

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

CORRECTIONS IN FEET, FATHOMS

VELOCITY TABLE II

T.D.C. CAST

JD 112

NOAA FORM 15-21
10-727

U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

SHIP NOAA SHIP WHITING Launch 1014 (2932)

CDR Frank P. Rossi, NOAA

Comdg.

These corrections are to be used
between JD 101 1980 and JD 114 1980

in the locality UPPER BAY

New York Harbor

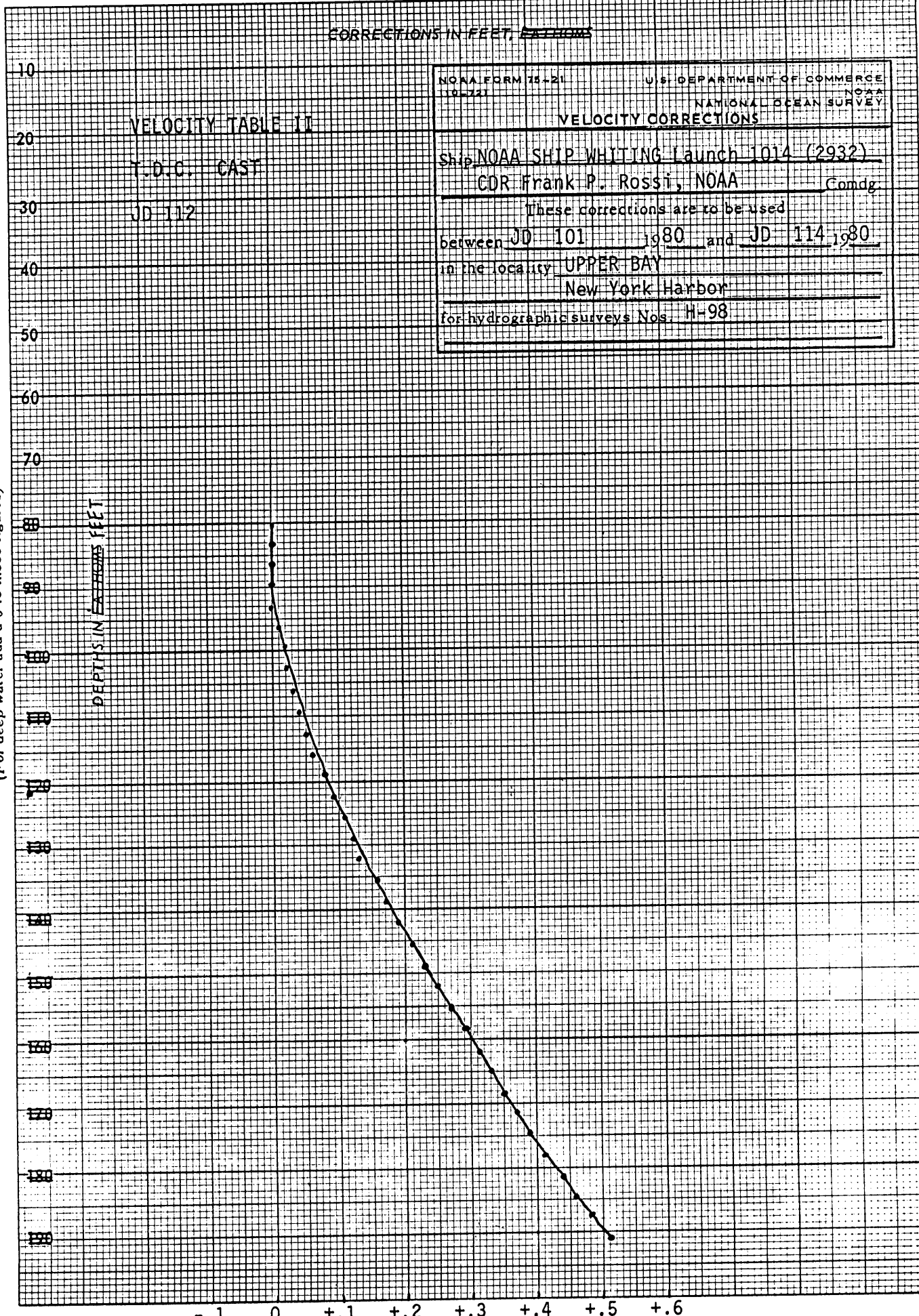
for hydrographic surveys Nos. H-98

46 1 10

K&E 2 1/2 X 20 TO THE INCH 7 X 10 INCHES
KFFITZEL & ESSER CO. MADE IN U.S.A.

0
10
20
30
40
50
60
70
80
90
100
110
(For deep water add a 0 to these figures)

DEPTHS IN FEET



VELOCITY TAPE

TABLE III

000100 0 0000 0003 000 293100 009874
000260 0 0002
000418 0 0004
000575 0 0006
000730 0 0008
000890 0 0010
999999 0 0000

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

VELOCITY TABLE III

CORRECTIONS IN FEET, FATHOMS

FORM C&GS-117 (11-69)	U.S. DEPARTMENT OF COMMERCE ESSA COAST AND GEODETIC SURVEY	
VELOCITY CORRECTIONS		
Ship: <u>NOAA SHIP WHITING Launch 1014 (2932)</u>		
CDR. <u>Frank P. Rossi, NOAA</u>		Comdg.
These corrections are to be used		
between <u>JD 115</u>	<u>19 80</u>	and <u>JD 130</u> <u>1980</u>
in the locality <u>UPPER BAY</u>		
<u>New York Harbor</u>		
for hydrographic surveys Nos. <u>H-98</u>		

0
10
20
30
40
50
60
70
80
90

(For deep water add a 0 to these figures)

DEPTHS IN FATHOMS (FEET)

T.D.C. CASTS
 JD 118
 ⊕ JD 118
 ○ JD 127
 ⊞ JD 127
 AVERAGE

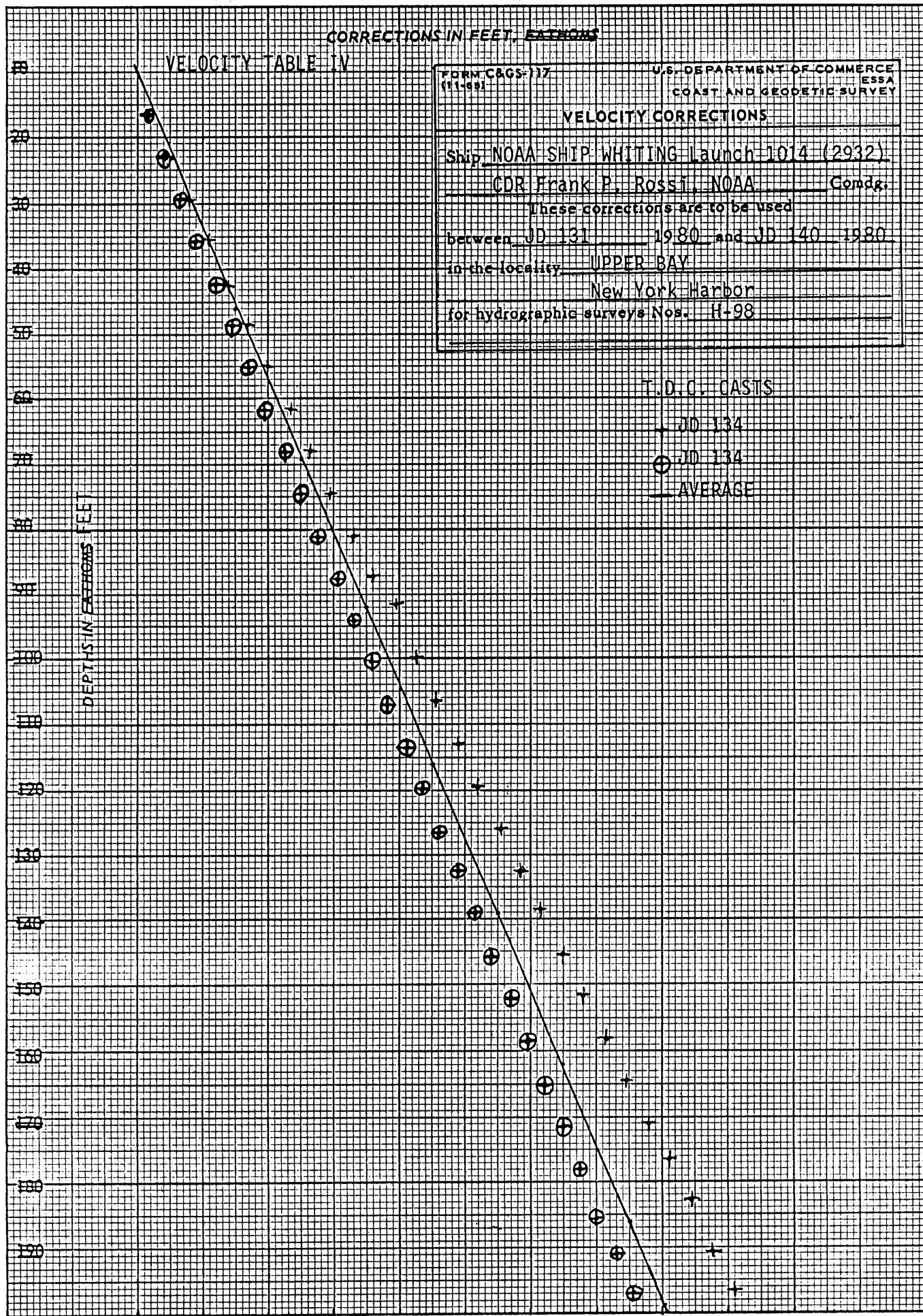
0 +.1 +.2 +.3 +.4 +.5 +.6 +.7 +.8 +.9 +1.0 +1.1 +1.2

VELOCITY TAPE

TABLE IV

000065 0 0000 0004 000 293100 009874
000180 0 0002
000295 0 0004
000410 0 0006
000530 0 0008
000645 0 0010
000760 0 0012
000880 0 0014
999999 0 0000

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



SETTLEMENT AND SQUAT TRIALS

Settlement and squat trials were run on launches 1015 at Governors Island, New York in November, 1979. Trials were run using level and rod. The level rod was held over the transducer location. Results are the average of one run towards the observer and one run away from the observer at the speeds listed below.

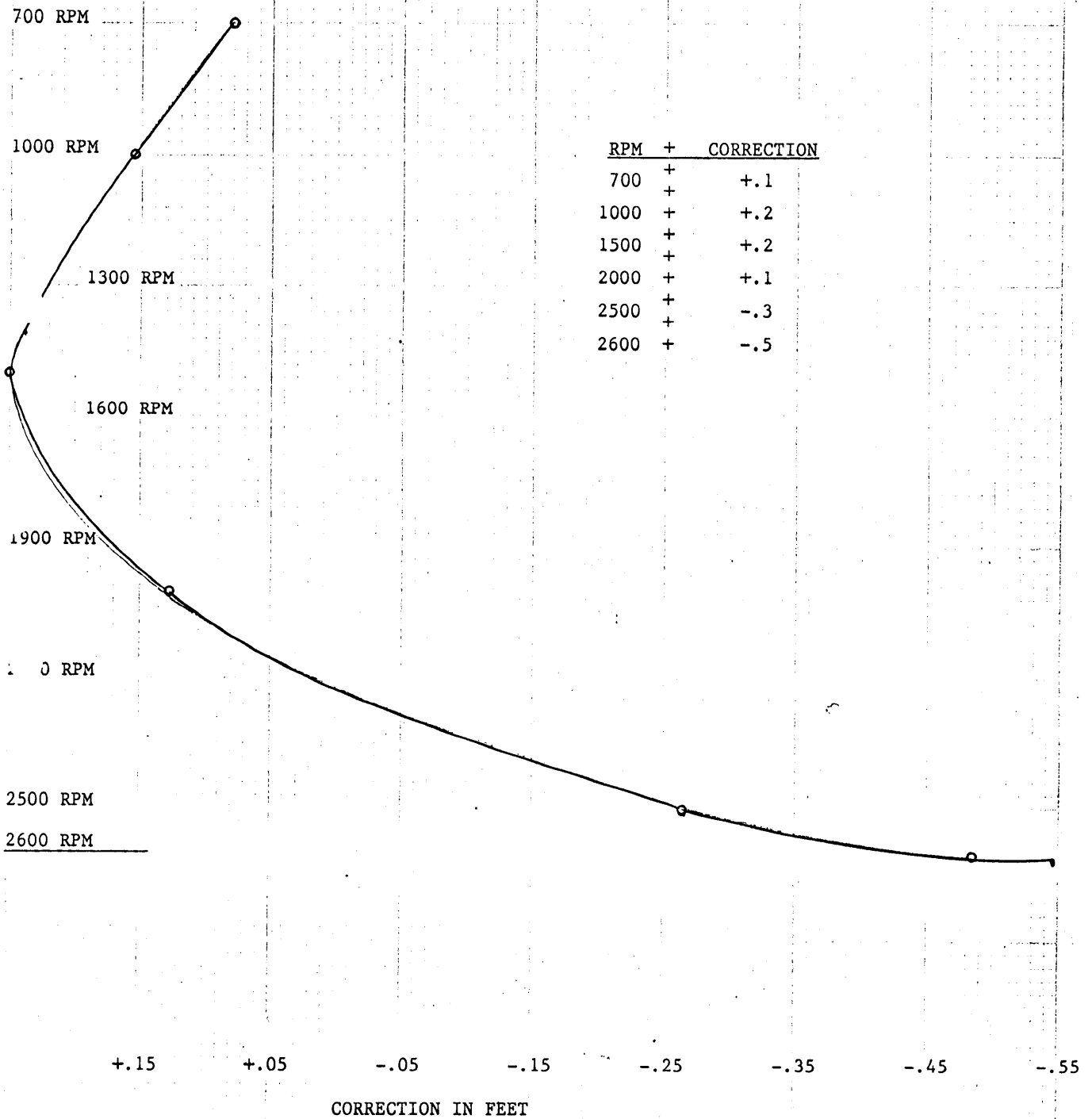
<u>SPEED IN RPM</u>	<u>CORRECTION 1015</u>
700	+.080
1000	+.156
1500	+.250
2000	+.127
2300	-.263
2600	-.486

Corrections for settlement and squat are made on the TC/TI Tape. Periods of reduced speed during actual hydrography are noted in the sounding volumes and on the printouts.

See the attached graph of the correctors versus RPM for Vesno 1015.

SETTLEMENT AND SQUAT CURVE

VESNO 2931, LAUNCH 1015



TC/TI TAPE
H-9874

154628 0 0002 0002 107 293100 001980
200420 0 0001
144352 0 0002 0002 108 293100 001980
151505 0 0002 0003 115 293100 001980
140623 0 0002 0004 134 293100 001980

ELECTRONIC CORRECTOR ABSTRACT

VESNO: 2931

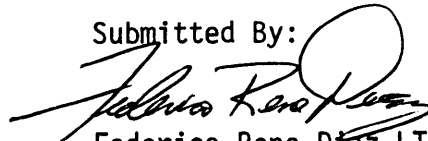
SHEET: WH-5-2-80

<u>DAY</u>	<u>TIME</u>	<u>PATTERN 1</u>
107	154628	-00001✓
108	144352	+00000✓
109	143243	+00000✓
112	151023	-00001✓
113	143951	-00001✓
114	150549	-00001✓
115	151505	- 00001 change to -0002
123	131707	+00000✓
126	144540	-00001✓
127	132501	+00000✓
128	143156	+00000✓
130	132805	+00000✓
131	133655	+00000✓
134	140623	+00000✓
135	143521	-00002✓
136	132217	-00003✓
137	133856	-00002✓

LIST OF STATIONS

105	6	40	34	50	86577	073	59	58	27735	250	0002	000000	H-5-NY-79
152	6	40	38	22	54386	074	02	20	81111	250	0010	000000	H-52-NY
153	6	40	40	32	85866	074	03	34	83751	250	0003	000000	H-53-NY
154	6	40	40	47	20278	074	01	09	69669	250	0004	000000	H-54-NY
155	6	40	41	18	55769	074	02	39	82174	250	0004	000000	H-55-NY
156	6	40	41	20	92653	074	00	45	97266	250	0003	000000	H-56-NY
157	6	40	42	03	22176	074	00	52	98935	250	0015	000000	H-57-NY
158	6	40	41	52	08700	074	00	04	97000	250	0003	000000	H-58-NY
200	6	40	41	08	42700	074	01	36	80400	139	0000	000000	Governors IS SW Lt.
205	6	40	41	34	25800	074	01	12	22600	139	0000	000000	Governors IS NW Lt.
210	6	40	42	00	40200	074	02	26	17600	139	0000	000000	ELLIS ISLAND CHIMNEY
215	6	40	41	59	68000	074	02	25	86800	139	0000	000000	ELLIS ISLAND S TWIN TK
220	6	40	42	00	19000	074	02	25	21100	139	0000	000000	ELLIS ISLAND N TWIN TK
225	6	40	44	53	98400	073	59	09	84200	139	0000	000000	EMPIRE STATE BUILDING
230	6	40	41	20	65500	074	02	41	86300	139	0000	000000	STATUE OF LIBERTY
235	6	40	38	32	15600	074	04	35	58500	250	0056	000000	BORO HALL, 1931
240	6	40	41	10	19681	074	01	36	23351	250	0003	000000	BOLT
245	6	40	36	20	57984	074	03	15	65418	250	0020	000000	FT WADSWORTH <i>LTHD, 1903</i>
250	6	40	39	26	14500	074	03	56	77700	250	0000	000000	ROBBINS REEF LT HSE <i>USE 1930</i>
255	6	40	41	11	65500	074	01	04	51400	250	000	000000	GOVIS

Submitted By:



Federico Rene Diaz LTJG, NOAA

Supervision of all field and office work on this hydrographic survey was continuous on a day to day basis to ensure completeness of the survey and that all work was done in accordance with the Project Instructions.* This survey is complete and adequate as far as the stipulations of Section A. * see verification report

Approved/Forwarded



Frank P. Rossi

CDR, NOAA

Commanding Officer, NOAA Ship WHITING

FIELD TIDE NOTE

Field Tide Reduction of soundings was based on predicted tides from the Battery, New York with correctors as prescribed by the Project Instructions. The tide gage is an ADR, (851-8570) S/N 73902-76, located at $040^{\circ}42.03'N$, $074^{\circ}00.90'W$. WHITING personnel monitored this gage throughout the entire operation and found it in proper working order.

A secondary gage, installed by WHITING personnel at Constable Hook, New Jersey, was in operation during this period. The tide gage is an ADR, (853-0985) S/N R-7304A3908M5, located at $040^{\circ}39.30''N$, $074^{\circ}05.20'W$.



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY

TO: C331
Chief, Tides & Water Levels Branch

DATE: 5 June 1980

FROM: CDR. Frank P. Rossi *Frank P. Rossi*
Commanding Officer, NOAA Ship WHITING

SUBJECT: Smooth Tides for Surveys H-9815, H-9874, H-9875

Please forward smooth tides for The Upper Bay of New York Harbor to Chief, Processing Division (CAM3), Atlantic Marine Center. Hydrography was done in the area shown on the attached chartlet. Smooth Tides are needed for Julian Days 077 - 142, 1980.



U.S. DEPARTMENT OF COMMERCE
September 12, 1980 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 851-8750 The Battery, New York

Period: March 17 - May 21, 1980

HYDROGRAPHIC SHEET: H-9874

OPR: B139

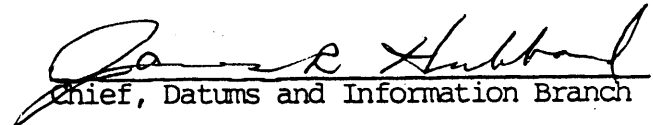
Locality: Upper Bay, New York Harbor

Plane of reference (mean ~~low~~ low water): 3.15 ft.

Height of Mean High Water above Plane of Reference is
4.5 ft.

REMARKS: Recommended zoning:

- (1) South of $40^{\circ}40.0'$ (to $40^{\circ}38.3'$): apply -15 minute time correction.
- (2) North of $40^{\circ}40.0'$ (to $40^{\circ}41.0'$): apply -10 minute time correction.


Chief, Datums and Information Branch

GEOGRAPHIC NAMES
(FIELD)

H-9874

Name on Survey	A ON CHART NO. 12324 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 T-Sheet										
	ROBBINS REEF	X	✓								
MILITARY OCEAN TERMINAL	X	✓									2
GOWANUS BAY	X	✓									3
BROOKLYN, N.Y.	X	✓									4
UPPER BAY	X										5
ST. GEORGE										X	6
ERIE BASIN		✓								λ	7
BAY RIDGE										x	8
BAY RIDGE CHANNEL		✓									9
MILITARY OCEAN TERMINAL											10
NEW YORK											11
NEW JERSEY											12
OWLS HEAD DARK											13
BAY RIDGE FLATS (PENDING BGN DECISION)											14
RED HOOK CHANNEL											15
PIERHEAD CHANNEL (Pending BGN DECISION)											16
JERSEY FLATS (Pending BGN DECISION)											17
GLOBAL MARINE TERMINAL											18
											19
											20
											21
											22
											23
											24
											25

Approved:

Chas. E. Harrington
Chief Geographer - C3x5

10 Feb. 1982

APPROVAL SHEET
FOR
SURVEY H-9874

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position printout has/~~has not~~ been made. A new final sounding printout has/~~has not~~ been made.
- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the HYDROGRAPHIC MANUAL. Exceptions are listed in the Verification Report.

Date: Aug 81


Chief, Verification Branch

REGISTRY NO. H-9874(1980)

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

ATLANTIC MARINE CENTER
VERIFICATION REPORT

REGISTRY NO.: H-9874

FIELD NO.: WH-5-2-80

New York, ^{and New Jersey} New York Harbor, Bay Ridge Channel to Gowanus Bay

SURVEYED: April 16 through May 16, 1980

SCALE: 1:10,000

PROJECT NO.: OPR-B139

SOUNDINGS: Ross Digital
Echo Sounder

CONTROL: Del-Norte/Theodolite
(Range/Azimuth)

Chief of Party Karl Wm. Kieninger
..... Frank P. Rossi
Surveyed by N. A. Prah
..... C. D. Mason
..... R. G. Mann
..... F. R. Diaz
..... D. A. Bland
Automated Plot by Xynetics 1201 Plotter (AMC)

1. Introduction:

- a. Section 1.8 of Change No. 2 to Project Instructions, dated February 6, 1980 modified the basic survey requirements for this project stating, "The inshore limit of the survey shall be a line connecting the offshore ends of piers in developed areas, bulkheads or limits of solid fill, or as close to the shoreline as safety and practicality permits in undeveloped areas." *Questionable decision - Photos used for topo compilation were taken in 1974-75. No field edit was performed. Survey should have been "basic"*
- b. Unusual problems that were encountered as follows:

1) The Project Instructions for this survey required a 1:5,000 scale survey of this area. The survey was conducted at 1:5,000 scale; however, during processing at the Atlantic Marine Center it was determined that the survey did not meet NOS survey standards at the scale of the survey. The line spacing between sounding lines at times exceeded the maximum distance of fifty (50) meters for this area at a 1:5,000 scale survey. In instances where line spacing was exceeded (15% or more) splits were not run to alleviate the problem. The number of main scheme positions exceeding the position frequency requirements was approximately 400 positions (33%). Of these 400 positions, approximately 160 positions exceeded the requirements (3.5 cm) and 71 of the 129 positions are 4.0 cms or more. The conditions of the surveys in this project were discussed with the Director of the Atlantic Marine Center and it was decided to reduce the survey scale to 1:10,000 scale which resulted in the survey meeting the criteria for position fixing and line spacing.

a.c. evaluator considers the plotting of this survey on a 1:10,000 base, a waste of time. We changed nothing on the survey. We did lose several sdgs to excess & the majority of the acquired bottom samples were not plotted.

2) Twenty-one (21) of the 175 bottom samples taken on this sheet were used on the smooth sheet. To have used anymore of these bottom samples would have resulted in a considerable amount of sounding data being exceeded to level "1" ✓ to provide room for the bottom samples. The remaining bottom characteristics can be found ~~in section 8 of the Descriptive Report,~~ *filed with the field records.*

c. Notes and changes were made in red ink in the Descriptive Report during ✓ verification.

2. Control and Shoreline

a. The source of control is adequately described in sections "F" and "G" of ✓ the Descriptive Report.

b. Shoreline was taken from final reviewed photogrammetric manuscripts TP-00744 and TP-00740 of 1974-75. *(No field edit)*

In change number 2 of the project instructions dated Feb. 6, 1980 it was stated, "Mylar enlargements of maps TP-00739, TP-00740, TP-00743 and TP-00744 have been provided at a scale of 1:5,000 for use as boatsheet shoreline." This is in conflict with section "H" of the Descriptive Report. It is noted that manuscript TP-00744 was aboard the WHITING for H-9859 (1979) in Oct. - Nov. 1979. *(Chart 12334 S.L. was used for field sheet S.L.)*

3. Hydrography

a. The agreement at crossings on this survey is adequate; depths agree within the limits prescribed by the Hydrographic Manual. ✓

b. The standard depth curves could be drawn in their entirety with the following exceptions. Only limited portions of the 30, 18, 12 foot curves could be drawn, *in areas close to shore or between piers*

The charted 36 foot depth curve and dashed curves were added to the survey to better delineate the bottom configuration. ✓

c. The development of the basic bottom configuration and investigations of least depths is considered adequate with the following exceptions:

1) In approximate Latitude $40^{\circ}39'15''$, Longitude $74^{\circ}04'25''$ the channel, (New Jersey Pierhead) to buoy C"3B" is not fully delineated. It would have been desirable to have run some lines across the axis of this channel in a east-west direction as per section 4.3.5.4 of the Hydrographic Manual. *concur*

2) In the area of Gowanus Bay, Latitude $40^{\circ}39'30''$, Longitude $74^{\circ}01'00''$, the survey was not carried to the limits as specified in Project Instructions. *concur*

3) In an area from Latitude $40^{\circ}38'50''$ to Latitude $40^{\circ}39'30''$ the field failed to survey a line connecting the offshore ends of piers as specified Change No. 2, paragraph 1.8 of the Project Instructions. *concur*

4. Condition of Survey

The smooth sheet and accompanying overlays, hydrographic records and reports comply with the Hydrographic Manual with the exceptions listed elsewhere in this report and the following: ✓

a. The Aids to Navigation section (N) of the Descriptive Report has no adequacy statement as prescribed by section 5.3.4 of the Hydrographic Manual. ✓

b. The field sheet is not complete, that is data collected below Latitude $40^{\circ}38'36''$ was not plotted on any field sheet. ✓

c. There are areas in this survey that ~~do not meet the minimum~~ ^{exceed maximum line} spacing requirements for a 1:10,000 scale survey as specified under section 4.3.4.1 of the Hydrographic Manual. While depths in these areas appear to be consistent with the charted information one or two of these areas are in channels; an example is in approximate Latitude $40^{\circ}39'50''$, Longitude $74^{\circ}03'05''$. *considered adequate to charting*

d. *No mention is made of landmarks having been observed from seaward. Landmarks may be acquired from TP-00744 (1974-7).*

5. Junctions

Adequate junctions were made with the following surveys:

H-9815 (1980) to the north ✓

H-9875 (1980) to the south ✓

These junctions are complete and require no further consideration. It is noted however, that the junction with H-9875 (1980) to the south has areas that exceed the minimum line spacing as discussed under section 4.c. of this report. They are as follows: Latitude $40^{\circ}38'39''$ N, Longitude $74^{\circ}02'09''$ W, Latitude $40^{\circ}38'39''$ N, Longitude $74^{\circ}02'30''$ W, Latitude $40^{\circ}38'41''$ N, Longitude $74^{\circ}34'21''$ W, Latitude $40^{\circ}38'41''$ N, Longitude $74^{\circ}04'09''$ W, and at Latitude $40^{\circ}38'42''$ N, Longitude $74^{\circ}04'15''$ W. ✓

6. Comparison with Prior Surveys

H-5607 (1934) 1:10,000

FE-29 (1941) 1: 2,000

These are the most recent prior surveys in this area that provide complete coverage.

In general about 75% of the soundings appear to be deeper on the present survey by 1 to 3 feet. The other 25% appear to be deeper by varying amounts up to 25 feet. These greater differences occur mostly in the areas of channels and anchorage areas. ✓

It is reasonable to attribute most of the differences to man made changes. There appears to have been fairly extensive changes made to the shoreline also, in the form of pier construction and filling in certain areas. ✓

#3. The charted mooring platform was identified as a floating (anchored) mooring barge on F.E.-231 (1981). Its position should be charted as shown on FE-231 (1981)

Portions of FE-29 (1941) may fall within the limits of the present survey; *FE-29 (1941) compared during this survey and the present survey was possible at this time. It does appear that Q.C.I. Common areas are superseded by the pres. survey* however, the quality of the copy of FE-29 was such that no correlation between this survey and the present survey was possible at this time. but to what extent and on what it was not possible to determine at this time. The present survey is considered adequate to supersede the above listed prior surveys within the common area.

7. Comparison with Chart #12334 (52nd Edition, August 4, 1979)

a. Hydrography

Only about 30% of the charted data originates with the prior surveys in this area and is adequately discussed under that comparison. *(A chart mark-up of source origins was not sent in with the survey records)*

The remaining 70% of the charted data originates with an unascertainable source. The agreement between this data from unascertainable sources and the present survey is good, within 1 to 3 feet about 90% of the time with the present survey being deeper by this amount. ✓

The following items are charted but it was not possible at the time of verification to ascertain the source. They are recommended for retention except as noted unless subsequent investigations have revealed otherwise as they were not adequately located or discussed by the hydrographer.

- 1) A 5-foot depth at approximate Latitude $40^{\circ}39'40''$, Longitude $74^{\circ}01'39.5''$. *concur from C.O.E. BP# 87604*
- 2) The "Ventilator PA" charted at approximate Latitude $40^{\circ}39'26.5''$, Longitude $74^{\circ}03'59.5''$. *The "Ventilator PA" is not charted on the 1979 Chl. Edit. A Ventilator with a positive location is charted in lat. $40^{\circ}39.58'N$, long. $74^{\circ}03.91'W$ on the 1980 chart edition.*
- 3) The mooring platform charted in approximate Latitude $40^{\circ}39'17''$, Longitude $74^{\circ}04'09''$ was located approximately 130 meters northeast of the charted position. Recommend charting this item as shown on the smooth sheet. *See note on page to left*
- 4) The following aids to navigation (fixed) were not located on this survey. Three signals (2 bells, 1 horn) located on the ends of piers in approximate Latitude $40^{\circ}38'37''$, Longitude $74^{\circ}04'18''$ listed in the light list as privately maintained. *The delineation of these piers on TP-00744 (1974-75) is shorter than the charted delineation of the piers. Check with C.G. on these aids.*
- 5) Three piles and a sunken wreck, in the vicinity of Latitude $40^{\circ}38'35''$, Longitude $74^{\circ}02'12''$. *This area is delineated as foul on TP-00744 (1974-75) and pier ruins*
- 6) There are 11 dolphins charted in the vicinity of a Latitude $40^{\circ}39'05''$, Longitude $74^{\circ}01'35''$. These items may have been excluded under Change No. 2 of the Project Instructions. *concur*
- 7) The two wrecks (Presurvey Review Item 20) were not addressed possibly for the reason stated above. *concur*
- 8) There are numerous differences between the charted shoreline and the shoreline manuscripts. One such example is in the vicinity of Latitude $40^{\circ}39'10''$, Longitude $74^{\circ}01'20''$ where it is assumed the area between two piers has been dredged

out or built up as per chart. The field failed to make any statements in the Descriptive Report as required by section 4.2.1.2 of change 2 to the Project Instructions. This leaves the subject of shoreline open to assumptions which are not possible to verify at this time. *At least three sets of photos subsequent to 1974-75 photos are available to compilation. 1977 photos may have been applied to this comparison chart.*

9) The 17-foot charted depth in approximate Latitude $40^{\circ}39'07''$, Longitude $74^{\circ}04'21''$. *concur*

10) The pier ruins charted in Latitude $40^{\circ}38'39''$, Longitude $74^{\circ}02'06''$. *Falls within pool limits on TP-00744 (1974-75) Recommend retaining as subm. ruins.*

11) The following charted shoal depths should be evaluated against the present survey development in these areas to determine whether they should be retained as charted.

- a) 31-ft. in Latitude $40^{\circ}39'26''$, Longitude $74^{\circ}02'47''$ *31 ft sdg. is considered discredited by 41-42' depths on the present survey.*
- b) 34-ft. shoal in Latitude $40^{\circ}39'06''$, Longitude $74^{\circ}02'50''$ *Considered discredited by 37-39' depths on the present survey.*
- c) 33-ft. in Latitude $40^{\circ}39'19''$, Longitude $74^{\circ}02'43''$ *Considered discredited by 45-46' depths on the present survey.*
- d) 35-ft. in Latitude $40^{\circ}39'22''$, Longitude $74^{\circ}02'41''$ *Considered discredited by 41-42' depths on the present survey.*
- e) ~~Two~~ ^{35' &} 36-ft. shoals in the vicinity of Latitude $40^{\circ}39'46''$, Longitude $74^{\circ}02'35''$. *Considered discredited by 39-40 ft. depths on the pres. survey*

In addition to these sdgs, numerous shoal sdgs within Anchor No 218 area are considered
 Except as noted above the present survey is adequate to supersede the charted hydrography in the area of the present survey. *concur*
discredited by deeper sdgs on the present survey. Chart this area as shown on the pres. survey

b. Controlling Depths

There were no conflicts with controlling depths on this survey. *concur*

c. Aids to Navigation

The floating aids are adequately discussed in the Descriptive Report. No fixed aids to navigation were located as discussed under section 7.a.4. of this report. Bay Ridge Channel Light 2 in the vicinity of Latitude $40^{\circ}38.38'$, Longitude $74^{\circ}02.35'$ was not located by this survey or the shoreline manuscript TP-00744. Buoy N"4" in Latitude $40^{\circ}39'16.76''$, Longitude $74^{\circ}04'16.84''$ was found to be inadequate to mark the southern end of shoaling to 18 ft. found by the present survey. Buoy N"4" should be moved as recommended. Buoy "3B" is off station. Check with U.S. C.G. for position & verification of Bay Ridge Channel Lt. 2.

C"3B" in Latitude $40^{\circ}39'30.39''$, Longitude $74^{\circ}04'05.98''$ was found to be inadequately marking existing shoaling to the southwest. The Descriptive Report does not indicate whether a notice to mariners was initiated to report these discrepancies.

8. Compliance with Instructions

This survey adequately complies with the Project Instructions with the exceptions noted elsewhere in this report. In summary sections 1.8, 4.1, 4.2.1.2 of Change No. 2 and 1.2, 1.9, 4.2.2, 4.2.3, 6.3, 6.5, 6.8, 6.10, 10.2, 6.12, 9.4, 9.6.1, and 10.1 were not complied with. In section "A" of the Descriptive Report the hydrographer acknowledges that some of these items were not complied with. ✓


INSPECTION REPORT
H-9874

The completed survey has been inspected by the Hydrographic Inspection Team with regard to survey coverage, delineation of depth contours, development of critical depths, cartographic symbolization, and verification or disproof of charted data. The Verification Report has presented the facts accurately and properly, the procedures used were appropriate, and the recommendations are logical and justifiable. The survey complies with National Ocean Survey requirements except as noted in the Verification Report, and specific attention is directed to the following:

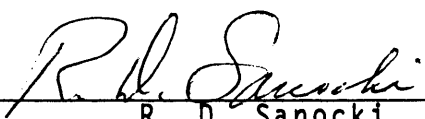
The area Gowanus Bay in the vicinity of Latitude 40°39.8', Longitude 74°01.0', which falls within the project limits, was not surveyed. ✓
The hydrographer failed to address his reasons for not surveying this area in the Descriptive Report.

The survey records comply with NOS requirements except where noted in the Verification Report; however, it should also be noted that the survey records were found to be in poor condition, particularly the Descriptive Report where the adequacy of charted aids to navigation and the comparison with charted shoal features were inadequately addressed. Several of these shoal features discussed in the Verification Report in Section 7.a.9) and 11) should have been developed further by the hydrographer to verify or disprove their existence. ✓
The shipboard processing of survey data was poor. The results of this survey shows that sufficient emphasis was not placed upon the quality of survey data. The Hydrographic Inspection Team concurs with the verifier's findings, actions, and recommendations.

Examined and Approved
Hydrographic Inspection Team



Karl Wm. Kieninger, CDR, NOAA
Chief, Processing Division



R. D. Sanocki
Chief, Verification Branch
Processing Division

Approved/Forwarded
August 14, 1981



Richard H. Houlder, RADM, NOAA
Director, Atlantic Marine Center



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

C352:FPS

February 5, 1982

TO: Glen R. Schaefer *G.R. Schaefer*
Chief, Hydrographic Surveys Division

THRU: Chief, Quality Control Branch

FROM: F. P. Saulsbury *F.P. Saulsbury*
Quality Evaluator

SUBJECT: Quality Control Report for H-9874 (1980), New York and New Jersey,
New York Harbor, Bay Ridge Channel to Gowanus Bay

A quality control inspection of H-9874 was accomplished to monitor the survey for adequacy with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, shoreline transfer, smooth plotting, decisions and actions taken by the verifier, and the cartographic presentation of data. Revisions and additions to the smooth sheet, plus helpful comments made to the verifier, are identified on a one-half scale copy of the survey to be furnished the verifier. In general, the survey was found to conform to the National Ocean Survey's standards and requirements except as stated in the Verifier's Report, the HIT Report, and appended comments to Descriptive Report items during quality control inspection.

cc:
C351





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

SEP 1 1982

C351 :DJH

TO: CAM - Richard H. Houlder

FROM: For C3 - C. William Hayes *Edwin B. Schaefer*

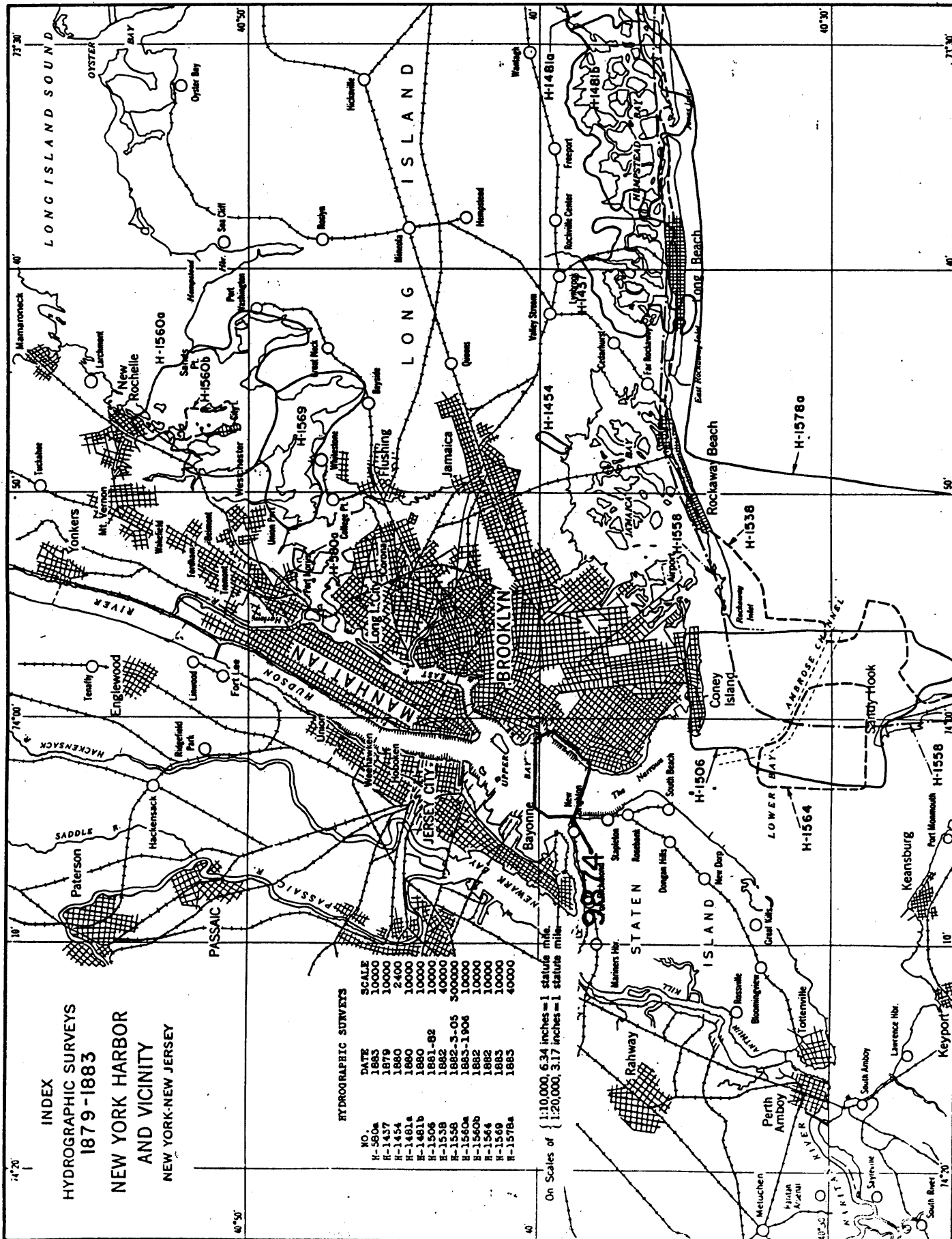
SUBJECT: H-9874 (1980), OPR-B139, New York and New Jersey, New York Harbor, Bay Ridge Channel to Gowanus Bay, Report of Compliance with Project Instructions

The smooth sheet and Descriptive Report for the subject survey have been examined. This survey, except as noted in the Quality Control Report, dated February 5, 1982 (copy attached), and the Hydrographic Survey Inspection Team Report, dated August 14, 1981, is complete and adequate for the purposes intended and is in compliance with Project Instructions OPR-B139-WH-80, dated November 30, 1979.

Attachment

cc:
C352 w/o att.





INDEX
 HYDROGRAPHIC SURVEYS
 1879 - 1883
 NEW YORK HARBOR
 AND VICINITY
 NEW YORK-NEW JERSEY

HYDROGRAPHIC SURVEYS

NO.	DATE	SCALE
H-590a	1883	10000
H-1437	1879	10000
H-1454	1880	2400
H-1461a	1880	10000
H-1461b	1880	10000
H-1506	1881-82	10000
H-1538	1882	40000
H-1558	1882-3-05	500000
H-1560a	1883-1906	10000
H-1560b	1882	10000
H-1564	1882	10000
H-1568	1883	10000
H-1578a	1883	40000

On Scales of { 1:10,000, 5.34 inches = 1 statute mile,
 1:20,000, 3.17 inches = 1 statute mile.

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO.

H-9874

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
12334	10-22-82	James T. Conroy	Full Part Before After Verification Review Inspection Signed Via Drawing No. 51 Revised soundings & curves through direct application of survey comp. 17 hrs - ver. 60.50
12333	10-29-82	James T. Conroy	Full Part Before After Verification Review Inspection Signed Via Drawing No. 36 Revised soundings & curves through reduction of 12334 dgs. #51 1/2 HR COMP REV. 1 HR G.V.
12327	11-10-82	James T. Conroy	Full Part Before After Verification Review Inspection Signed Via Drawing No. 93 Revised soundings & curves through reduction of 12334 dgs. #51 & 12333 dgs. #36 4 hrs comp REV: 1 HR
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
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