FE389

Diagram No. 77-4

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey: Hdyrographic

Field No.: AHP-5-1-93

Registry No.: FE-389

LOCALITY

State: Maryland

General Locality: Patuxent River

Sublocality: Vicinity of Naval Annex Pier

1993

CHIEF OF PARTY
LCDR G.E. White

LIBRARY & ARCHIVES

DATE: September 14, 1993

☆U.S. GOV. PRINTING OFFICE: 1987—756-980

FE389

CP-3
12284
12264

(12230 N.C.)

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO. FE-389

FIELD NO. AHP-5-1-93

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

State: Maryland

General locality: Patuxent River

Locality: Vicinity of Naval Annex Pier

Scale: 1:5000 Date of survey: July 20, 1993 (DOY 201)

Instructions dated: June 21, 1993 Project No.: S-E907-AHP

Vessel: Launch 1014 (WHITING)

Chief of party: LT James E. Waddell Chief of Survey Unit: LCDR George E. White

Surveyed by: LCDR G.E. White, LT T. R. Waddington, LT J.A. Ferguson, F.L. Saunders

Soundings taken by echo sounder, ~~hand lead, pole~~ XXXXXXXXXXX

Graphic record scaled by: GEW, FLS

Graphic record checked by: GEW, FLS

Protracted by: N/A Automated plot by: ~~FLS~~ XYNETICS 1201 PLOTTER (AHS)

Verification by: ATLANTIC HYDROGRAPHIC SECTION PERSONNEL

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

REMARKS: All times recorded in UTC

NOTES IN THE DESCRIPTIVE REPORT WERE MADE IN RED DURING OFFICE PROCESSING.

SURF & AWOLS chk
MCR 9/17/93

KWW 7/14/94

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

☆ U.S. G.P.O. 1972-769-565/519 REG.#6

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY
S-E907-AHP
1993
AHP-5-1-93
FE-389

ATLANTIC HYDROGRAPHIC PARTY
LT James E. Waddell, NOAA
Chief of Party

LCDR George E. White, NOAA
Chief of Survey Unit

A. PROJECT

This survey was conducted in accordance with Hydrographic Project Instructions S-E907-AHP, Solomons Island Naval Annex Pier, Maryland, dated June 21, 1993.

This survey was conducted at the request of the Department of the Navy, Naval Sea Systems Command to support the berthing of USS OLIVER HAZARD PERRY (FFG-7), a vessel with a draft of 24.9 feet, along the southeast face of the pier.

B. AREA SURVEYED

Field Examination FE-389 encompasses the area immediately south and east of the Naval Annex Pier in the Patuxent River at Solomons Island, Maryland. Hydrography was acquired starting at 50 meters out from the shoreward end of the pier (300 foot mark on the pier) continuing 100 meters past the offshore end with a width perpendicular to the pier of 100 meters. The central point of this survey area is at 38-19-46N and 76-28-30W.

Survey operations began and were completed on July 20, 1993 (DOY 201).

C. SURVEY VESSEL

NOAA Survey Launch 1014 (WHITING launch) was used by a unit detached from the Atlantic Hydrographic Party (AHP) for all sounding-data acquisition.

No unusual vessel configurations were used nor were any problems encountered.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Survey data acquisition and processing were accomplished using the HDAPS system with the following software:

AUTOST	3.01	18-May-93
BACKUP	2.00	24-Sep-92
BASELINE	1.14	18-May-93
BIGABST	2.05	18-May-93
BLKEDIT	2.02	18-May-93
CARTO	2.06	18-May-93
CONTACT	2.04	18-May-93
CONVERT	3.54	18-May-93
DAS_SURV	6.341	18-May-93
DIAGNOSE	3.03	18-May-93
DISC_UTIL	1.00	24-Sep-92
DP	2.14	18-May-93
EXCESS	4.11	18-May-93
FILESYS	3.05	04-May-93
GRAFEDIT	1.04	18-May-93
HIPSTICK	1.01	24-Sep-92
HPRAZ	1.26	24-Sep-92
INSTALL	4.02	18-May-93
INVERSE	2.01	18-May-93
LISTDATA	1.02	18-May-93
LOADNEW	2.04	18-May-93
LSTAWOIS	3.03	18-May-93
MAINMENU	1.01	18-May-93
MAN_DATA	2.01	18-May-93
NEWPOST	6.01	18-May-93
PLOTALL	2.11	18-May-93
POINT	2.10	24-Sep-92
PRESURV	7.02	18-May-93
PREDICT	2.01	18-May-93
PRINTOUT	4.03	18-May-93
QUICK	2.03	02-Mar-93
RAMSAVER	1.02	18-May-93
REAPPLY	2.03	18-May-93
RECOMP	2.02	24-Sep-92
SCANNER	1.00	24-Sep-92
SELPRINT	2.03	18-May-93
SHEETSPLIT	1.03	18-May-93
SYMBOL	2.00	18-May-93
ZOOMEDIT	2.12	18-May-93

Sound velocity corrections were determined using Program VELOCITY (version 2.00 dated 12/18/92).

All field sheets were made on board Launch 1014 with a Zeta Graphics 936 plotter driven by the HDAPS system. Field data was collected and plotted at 1:1000 scale for this 1:5000 scale survey. No final-field sheets were prepared. All on-line plots

for the surveyed area were transmitted to AHS with this report.

There were no irregularities in projection or scale during post processing of this survey.

E. SIDE SCAN SONAR EQUIPMENT

No side scan sonar operations were conducted in this survey.

F. SOUNDING EQUIPMENT

A RAYTHEON Digital Survey Fathometer (DSF) 6000N echosounder (S/N B053N) was used to determine water depths during the survey. The DSF-6000N produced a graphic record of the high frequency (100- kHz) and low frequency (24-kHz) depth. The high- and low-frequency digital depths were recorded by the HDAPS acquisition system. The high-frequency depths were selected as the primary depths for sounding plot purposes. No other sounding instruments were utilized during the survey. No equipment problems affected the sounding data.

A bar check was performed to 18 meters depth at 2 meter intervals prior to the start of data collection. The bar depths, graphic record depths and digital depths all corresponded well.

Echograms were scanned for features on the graphic record that were not selected as primary soundings in the digital record and inserts were made.

G. CORRECTIONS TO SOUNDINGS

A sound velocity profile of the water column was determined using an ODOM DIGIBAR (model DB 1100, S/N 154). The profiler was last calibrated on January 1, 1990. A copy of the calibration report is in Separate IV.* A successful Data Quality Assurance Test was performed with results shown in Separate IV.*

Cast #1 was performed at 1750 (UTC) at 38-19-42N and 76-28-36W to to a depth of 16 meters. Cast data was input to Program VELOCITY and Sound Velocity Table #1 was created in HDAPS. Velocity profile data are in Separate IV.* This table was reapplied to raw data during post processing.

No variations in instrument initial and no instrument corrections are required for the DSF 6000N. A bar check to 16 meters at 2 meter intervals indicated no corrections were required for the DSF 6000N (see echogram at beginning of DOY 201).

The correction for Launch 1014 static draft is 0.55 meters

* DATA FILED WITH FIELD RECORDS.

determined by diver measurements made alongside the Atlantic Marine Center on July 2, 1993 using a carpenter's level and steel tape to measure the transducer depth.

A settlement and squat measurement was conducted and correctors determined on July 20, 1993 in the survey area at the Naval Annex Pier. Correctors based on this determination were reapplied to raw data during post processing. Since the entire survey was run at 625 RPM (idle speed), an average speed of 3.5 knots (1.7 m/sec), one corrector 0 was determined and used in Offset Table #1. A graph was not constructed from this data.

No heave, roll and pitch data were acquired in this survey.

No pneumatic depth gauge or other unique instruments were used during this survey.

The tidal datum for this project was Mean Lower Low Water. The operating tide station at Solomons Island, Patuxent River, Maryland (857-7330) served as direct control for datum determination. Tidal data used during data acquisition were taken from table 2 of the East Coast of North and South America Tide Tables and were applied on-line to the digital data using HDAPS software. The tidal data, in digital form, were received on floppy disk from N/CG24, Hydrographic Surveys Branch.

There were no time and height correctors for the project and no different zoning techniques used during the survey.

Mr. Larry Neeson, Atlantic Operations Section (AOS), N/OES213, monitored proper operation of the tide station during the survey. The gauge was leveled on June 30th by personnel from AHP, AOS, and the Sea and Estuarine Section (N/OES212) with records hand carried to N/OES212 for processing. A new staff and ADR gage were installed at that time. A contract observer at the Solomons gauge forwarded ADR gage records to the Datums Section (N/OES231) upon completion of the survey. (NOTE: Upon receipt of the ADR records the Datums Section determined that the gage was inoperable. Data from the "next generation" gage at the site was downloaded and approved tides provided to AHS based on analysis of that data set).*

Sounding corrections for static draft and predicted tides* were applied on-line to both the narrow (100 kHz) and wide (24 kHz) DSF-6000N beams. Dynamic draft and sound velocity corrections were applied to both beams during post-processing.

The bar-check leadline on Launch 1014 was made and calibrated by the Survey Department on WHITING on April 10, 1993. Leadline error was determined to be negligible at that time. A bar line calibration form was not available from the WHITING at the time of this writing.

* APPROVED TIDES WERE APPLIED DURING OFFICE PROCESSING.

H. CONTROL STATIONS SEE ALSO SECTION 2.9. OF THE EVALUATION REPORT

The horizontal datum for this project is the North American Datum of 1983 (NAD 83). One B-order horizontal control station, Cape Henry, VA was used as a DGPS reference station for this survey. The adjusted NAD 83 position for Cape Henry, computed by GPS methods, was provided by the Hydrographic Surveys Branch, N/CG24 in the draft document "DGPS Radiobeacon Prototype Status and Operating Specifications - April 19, 1993" (attached in Appendix III). Data for Cape Henry is:

	Latitude	Longitude	Frequency	Rate
Cape Henry	36°55' 37.580"N	76 00' 23.884"W	289 kHz	100bps

The station is 92 nm from the survey area. The horizontal control station list is in Appendix III. No position anomalies or problems were experienced during this survey.

I. HYDROGRAPHIC POSITION CONTROL SEE ALSO SECTION 2.9. OF THE EVALUATION REPORT.

A Differential Global Positioning System (DGPS) was used as the primary navigation system for this survey. Launch 1014 monitored the U.S. Coast Guard DGPS beacon at Cape Henry, Virginia using one Ashtech Sensor GPS Receiver (S/N 700417B1203) for DGPS navigation with one Magnavox MX50R VHF Beacon Receiver (S/N 036) supplying correctors to the Ashtech unit. HDAPS initialized both the MX50R and Ashtech receivers, and recorded navigational output.

A Horizontal Dilution of Precision (HDOP) limit was computed for the reference station as required in section 3.4.2 of the FPM. The HDOP limit for this 1:5000-scale survey using 1:10,000-scale specifications (as directed by HPI) is 3.4. No data were acquired at HDOP values exceeding this threshold.

DGPS positioning was accomplished in accordance with the FPM, section 3.4. DGPS fixed point performance checks were conducted at the beginning and end of the survey day at Patuxent River Light 8 which is a third order station. Both performance checks confirmed that the DGPS positioning system was operating properly and accurately. A summary of the DGPS performance checks may be found in Separates III. DATA FILED WITH FIELD RECORDS.

No unusual methods of operations and calibrations were conducted and no equipment malfunctions were experienced. No significant instances of weak signals or poor geometry were experienced.

DGPS antenna offsets and laybacks were measured on July 2, 1993 at the Atlantic Marine Center. Offsets and laybacks were measured using the DSF-6000N echosounder transducer as the

reference. The DGPS antenna height was measured from the transducer on the same date. These data were applied by HDAPS on line in Presurvey Offset Table 1.

J. SHORELINE SEE ALSO SECTION 2.b OF THE EVALUATION REPORT.

The offshore pier end and south face of the Naval Annex Pier make up the only shoreline feature in this survey. These portions of the pier are shown on the field sheet based on a series of nine detached positions taken at corners and 100 foot interval markings of the pier.

Shoreline map DM-10000 was provided as shoreline support data at both full-scale and in a 1:5,000 enlargement:

Job CM-8608 (NAD 83)
Scale 1:10,000
Photography - March, 1986
Compiled - November, 1990
Maryland
Solomons Island
Half Pone Point to Harper Creek

The 1:5000 enlargment in the area of the pier was digitized and expanded to a 1:1,000 scale at the Atlantic Hydrographic Section in order to prepare a survey boat sheet and for the purpose of comparison with this survey.

Field notes are located with the detached positions for the pier in the printout.

As previously mentioned, the offshore end (face) and south face of the pier to the 300 foot (offshore) marking only were verified. This is the primary area of interest for the U.S. Navy. Navy frogmen were working in the water inshore of the 300 foot pier mark across the survey sheet during this survey, precluding soundings any further inshore.

The pier position as surveyed compares very well with the shoreline map. The only discrepancy noted is that the width of the pier in the survey, shown by the two detached positions at the offshore face, is approximately 3 meters greater than the pier width shown on the shoreline map. This difference may be within the error budget of the penline thickness on the map and any error introduced during digitizing for production of the 1:1000 overlay.

K. CROSSLINES SEE ALSO SECTION 3.9. OF THE EVALUATION REPORT.

0.31 nm of crosslines were run across 3.45 nm of mainscheme lines for a total of 9%. Agreement at crossings was very good with no discrepancies noted.

L. JUNCTIONS SEE SECTION 5. OF THE EVALUATION REPORT.

There are no junctions with this survey.

M. COMPARISONS WITH PRIOR SURVEYS SEE ALSO SECTION 6. OF THE EVALUATION REPORT.

This survey was compared to prior survey H-10195:

Maryland
Patuxent River
Sandy Point to Point Patience

HFP-05-1-85
NAD 27
1:5000 scale
(soundings in feet)

The 1:1000 scale prior survey overlay in the area of the pier was produced from the digital survey file for H-10195 in the archives at the Atlantic Hydrographic Section for the purpose of comparison with this survey.

A total of 30 prior survey soundings are common to present survey soundings. Agreement between all present and prior soundings are within one foot (0.3 meters).

General bottom trends in both surveys are similar and no significant differences are noted.

A discrepancy between the prior survey pier and the present survey pier is noted. The prior survey pier lies approximately 4 meters towards the southeast and is approximately 7 meters shorter than the surveyed pier. A review of the descriptive report (section H) for H-10195 indicates that shoreline details were applied from the 11th Edition (April 18, 1981), NANCI revision (1981 source). This discrepancy may be caused by a difference between the older charted shoreline source and the more recent DM-10000 shoreline map used in the present survey. CONCUR

No contemporary authoritative non-NOS surveys are known to exist for this survey area.

N. ITEM INVESTIGATIONS

No item investigations were conducted in this survey.

O. COMPARISON WITH THE CHART SEE ALSO SECTION 7.9. OF THE EVALUATION REPORT.

Chart#	Scale	Edition #	Date
12284	1:10,000	14	October 5, 1991

Soundings on the chart are in feet.

The chart has no corrections applicable in the survey area. No dangers to navigation were discovered or reported during this survey.

Two charted soundings are common with present survey soundings:

Position	Charted Sounding	Survey Sounding	Difference
38-19-46.5N 76-28-27.8W	21 ft.	2~~3~~1 ft.	~~2~~0 ft.
38-19-49.2N 76-28-29.0W	23 ft.	2~~9~~5 ft.	~~6~~2 ft.

These two charted soundings do not appear to have originated from the prior survey H-10195 (no chart markup was provided to aid in determining the origin of these soundings). Both present and prior survey soundings indicate deeper water further inshore along the pier than is currently depicted on the chart. The ~~6~~2 ft. difference noted for the inshore 23 ft. sounding is not easily explainable (but may be due to one or more of the following factors: a slight re-positioning of the charted sounding towards offshore introduced during digitizing the 1:10,000 scale chart to produce the 1:1000 overlay at AHS; application to the chart of a 23 ft. sounding originating from a source prior to the 1985 data; possible dredging in the area adjacent to the pier since the origin of the historic 23 ft. sounding). CONCUR

A discrepancy between the charted pier and the survey pier is noted and appears to be similar to the difference noted in the comparison with the prior survey. The charted pier lies approximately 4 meters towards the southeast and is approximately 7 meters shorter than the surveyed pier. This difference is expected if the charted shoreline continues to originate from the NANCI revision (1981 source) of chart 12284 discussed in section J above. CONCUR

P. ADEQUACY OF SURVEY SEE ALSO SECTION 9. OF THE EVALUATION REPORT.

This survey is complete and adequate to provide the U.S. Navy with required data and for updating chart 12284 for the area surveyed.

Q. AIDS TO NAVIGATION

There are no aids to navigation within the limits of this survey.

R. STATISTICS

Launch 1014:

Number of Positions	147
Main-scheme Sounding Lines (Nautical Miles)	3.45
Crosslines (Nautical Miles)	0.31
Total Lineal Nautical Miles Surveyed	3.76
Square Nautical Miles Surveyed	0.01
Days of Production	1
Detached Positions	9
Bottom Samples	1
Tide Stations Installed	None
Current Stations	None
Number of CTD Casts	1
Magnetic Stations	None

S. MISCELLANEOUS

No anomalies in tide, current or unusual magnetic variations were encountered in the survey area. One bottom sample was taken in the center of the survey area to confirm information shown on prior survey H-10195. The oceanographic log sheet is included in the separates submitted with this survey. Bottom samples were not submitted to the Smithsonian Institution.

T. RECOMMENDATIONS SEE ALSO SECTION 9. OF THE EVALUATION REPORT.

No inadequacies exist in the survey and no additional field work is recommended. No planned construction or dredging is planned in the vicinity of the Naval Annex Pier. Survey data meets 1:10,000 scale accuracy requirements and can be used on charts requiring that accuracy.

U. REFERRAL TO OTHER REPORTS

No other reports will be submitted as part of S-E907-AHP-93.

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HDAPS Pre-Survey Program Version: 7.04        PRE-SURVEY: CONTROL STATION TABLE                 14:29:31   23 Jul 1993

Station No  ?
No   Type         Lat          Lon      H Cart    Freq   Vel Code  MM/DD/YY        Station Name

100     G 038:46:36.421 075:05:15.667   0  250     0.0      0      06/24/93  CAPE HENLOPEN
200     G 036:55:37.580 076:00:23.884   0  250     0.0      0      06/24/93  CAPE HENRY
          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
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          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
          000:00:00.000 000:00:00.000   0    0     0.0      0      03/01/92
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APPROVAL SHEET
HYDROGRAPHIC SURVEY
S-E907-AHP
1993
AHP-5-1-93
FE-389

I approve the field sheets, descriptive report, and all accompanying survey records and data for this hydrographic survey. Data were acquired and checked continuously under my direct supervision throughout the survey. Accuracy for this 1:5000-scale survey meet requirements specified in the Hydrographic Manual, the Hydrographic Survey Guidelines, and the Field Procedures Manual for Hydrographic Surveying with allowances for 1:10000-scale positioning standards granted by the Hydrographic Project Instructions. This survey is complete and adequate for the intended purpose of revising NOS charts and providing updated sounding data to the U.S. Navy.

Approved By:

George E. White

George E. White
Lieutenant Commander, NOAA
Chief of Survey Unit

Date: 8/9/93

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: July 28, 1993

MARINE CENTER: Atlantic

HYDROGRAPHIC PROJECT: S-E907-AHP CY 1993

HYDROGRAPHIC SHEET: FE-389

LOCALITY: Maryland, Patuxent River, Vicinity of Naval Annex Pier

TIME PERIOD: July 20, 1993

TIDE STATION USED: 857-7330 Solomons Island, Maryland
Lat. 38° 19.0'N Lon. 76° 27.1'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 3.47 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.4 ft.

REMARKS: RECOMMENDED ZONING

Times and heights are direct on Solomons Island.

Note: The station # for Solomons Island is 857-7330, however, since the Next Generation Water Level Measurement System Data is used it is stored in 657-7330.

Times are tabulated in Greenwich Mean Time.

William M. Gibson
acting CHIEF, DATUMS SECTION

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

FE-389

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	
MARYLAND (title)										1
PATUXENT RIVER (title)										2
										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
				Approved:						16
										17
				Charles E. Harrington						18
				Chief Geographer - N/CG2x5						19
				AUG 17 1993						20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

09/13/93

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: FE-389

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	136
NUMBER OF SOUNDINGS	757

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	22	07/28/93
VERIFICATION OF FIELD DATA	32	08/17/93
ELECTRONIC DATA PROCESSING	10	
QUALITY CONTROL CHECKS	6	
EVALUATION AND ANALYSIS	16	08/20/93
FINAL INSPECTION	6	08/28/93
TOTAL TIME	92	

ATLANTIC HYDROGRAPHIC SECTION APPROVAL 09/13/93

COAST AND GEODETIC SURVEY
ATLANTIC HYDROGRAPHIC SECTION
EVALUATION REPORT

SURVEY NO.: FE-389 **FIELD NO.:** AHP-5-1-93

Maryland, Patuxent River, Vicinity of Naval Annex Pier

SURVEYED: 20 July 1993

SCALE: 1:5,000 **PROJECT NO.:** S-E907-AHP-93

SOUNDINGS: RAYTHEON DSF-6000N Fathometer

CONTROL: ASHTECH Sensor GPS Receiver/MAGNAVOX MX50R Beacon Receiver (Differential Global Positioning System)

Chief of Party.....J. E. Waddell

Surveyed by.....G. E. White
.....T. R. Waddington
.....J. A. Ferguson
.....F. L. Saunders

Automated Plot by.....XYNETICS 1201 Plotter (AHS)

1. INTRODUCTION

a. This survey is comprised of a 1:2,500 scale page size plot which was generated during office processing and is attached to this report.

b. No unusual problems were encountered during office processing.

c. Notes in the Descriptive Report were made in red during office processing.

2. CONTROL AND SHORELINE

a. Control is adequately discussed in sections H. and I. of the Descriptive Report.

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). Office processing of this survey is based on these values. The smooth sheets have been annotated with ticks showing the computed mean shift between the NAD 83 and the North American Datum of 1927 (NAD 27).

To place this survey on NAD 27 move the projection lines 0.448 seconds (13.815 meters or 5.53 mm at the scale of the survey) north in latitude, and 1.170 seconds (28.423

meters or 11.37 mm at the scale of the survey) east in longitude.

b. Shoreline originates with 1:5,000 scale enlargement of 1:10,000 scale shoreline map, DM-10000 of 1986-90. A visual inspection by the field unit revealed that the shoreline source document is in error. Bulkhead is shown on the shoreline source document on either side of the pier. The shoreline was observed by the field unit to have fast solid land on the east side of the pier and bulkhead on the west side. It is recommended that the chart compiler obtain adequate data to revise the charted shoreline. See also section 7.a. of this report.

3. HYDROGRAPHY

a. Soundings at crossings are in excellent agreement and comply with the criteria found in sections 4.6.1. and 6.3.4.3. of the HYDROGRAPHIC MANUAL.

b. The standard depth curves could be drawn in their entirety.

c. The development of the bottom configuration and determination of least depths is considered adequate.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records, and reports are adequate and conform to the requirements of the HYDROGRAPHIC MANUAL, FIELD PROCEDURES MANUAL and Project Instructions.

5. JUNCTIONS

There are no contemporary junctional surveys.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic

H-10195 (1985-86) 1:5,000

Prior survey H-10195 (1985-86) covers the present survey area in its entirety. Prior survey depths compare excellently with the present survey and show no change in soundings.

The present survey is adequate to supersede the prior survey in the common areas.

7. COMPARISON WITH CHART 12284 (14th. Edition, 5 Oct. 1991

a. Hydrography

The charted hydrography originates with prior surveys superseded by survey H-10195 (1985-86) and requires no further consideration. The hydrographer makes an adequate chart comparison in section N., page 8., of the Descriptive Report. A visual inspection of the charted shoreline by the field unit revealed that the fast solid land shown on Chart 12284 (14th Edition, 5 October 1991) occurs on the east side of the pier, only, and to the west side the shoreline is bulkhead. It is recommended that the chart compiler obtain adequate data to revise the charted shoreline.

The present survey is adequate to supersede the charted hydrography in the common areas.

b. Dangers to Navigation

There were no dangers to navigation submitted by the field unit. No dangers were discovered during office processing.

8. COMPLIANCE WITH INSTRUCTIONS

This survey complies with the Project Instructions.

9. ADDITIONAL WORK

This is an adequate basic survey. No additional field work is recommended.

WHITING Processing Team
Verification and Evaluation and Analysis

Franklin L. Saunders
Cartographic Technician

Norris A. Wike
Cartographer

APPROVAL SHEET
FE-389

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts of the survey have been made. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Leroy G. Cram Date: 09/07/93
Leroy G. Cram
Chief, Hydrographic Processing Team B
Atlantic Hydrographic Section

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Nicholas E. Perugini, LCDR, NOAA Date: 09/13/93
Nicholas E. Perugini, LCDR, NOAA
Chief, Atlantic Hydrographic Section

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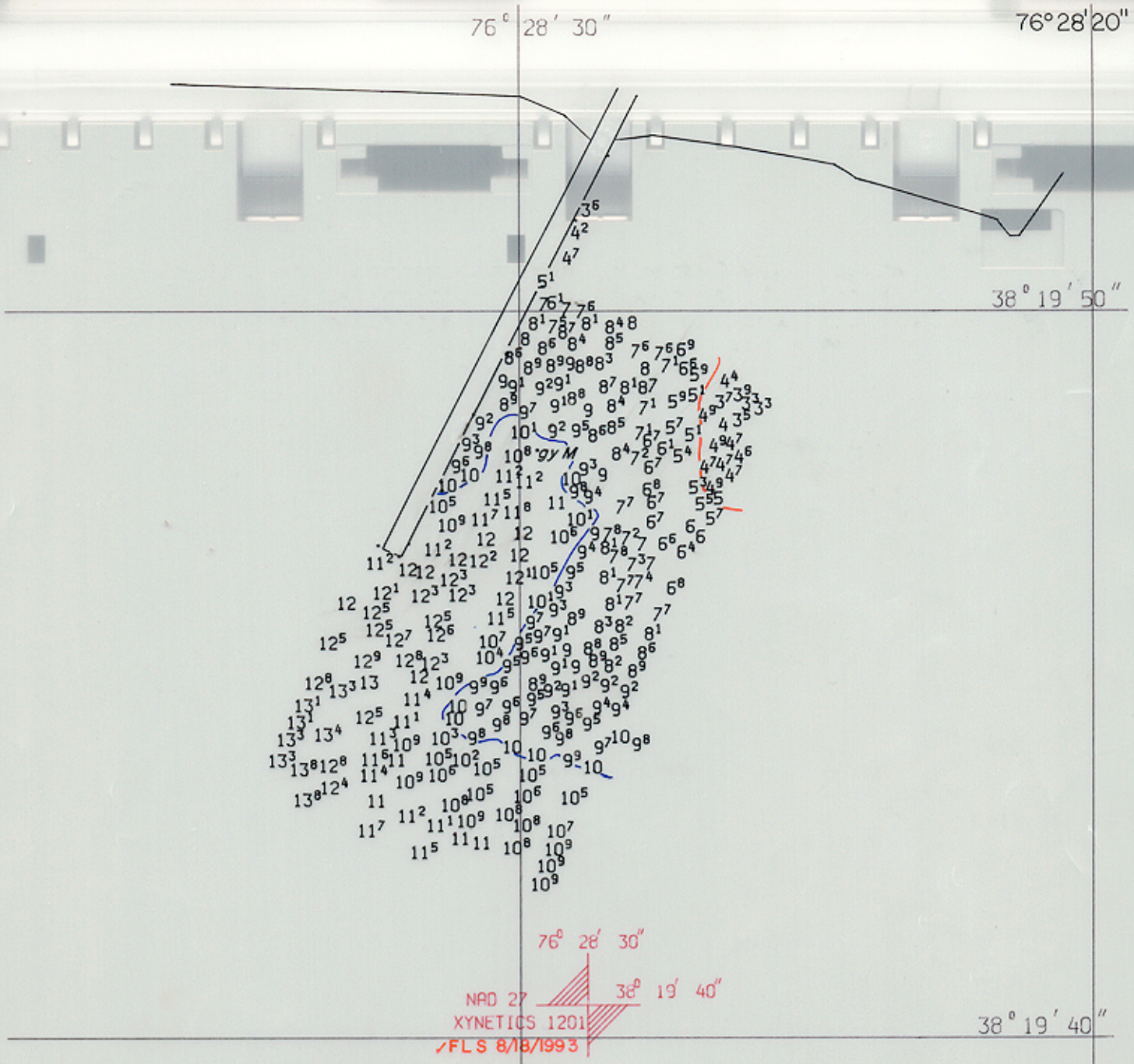
Final Approval:

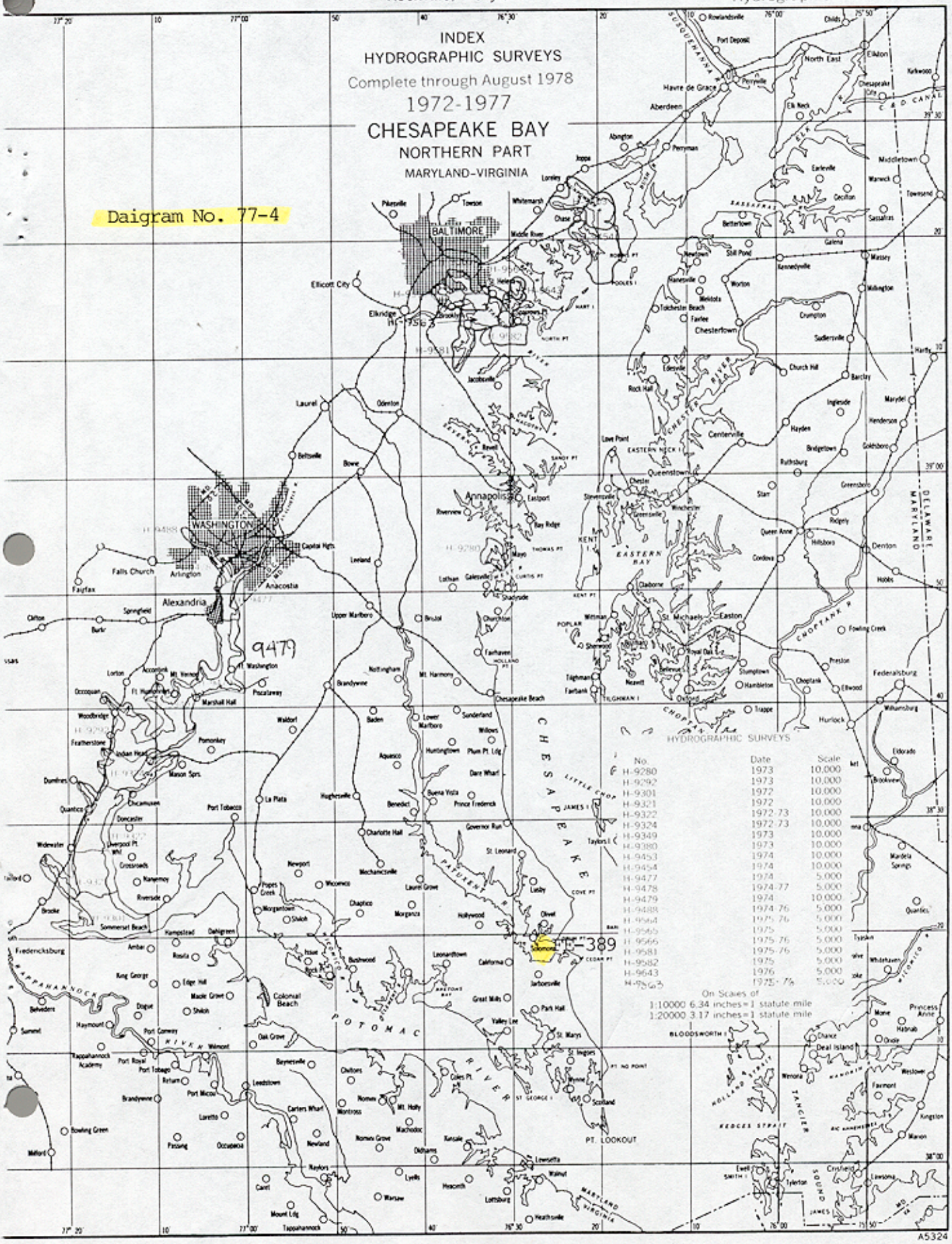
Approved: J. Austin Yeager Date: 7/18/94
J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey



FE-389
MARYLAND
PATUXENT RIVER
VICINITY OF NAVAL ANNEX PIER
DATE OF SURVEY: 20 JUL 1993
SCALE: 1:2500
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 1 OF 1
Shoreline broken to show soundings

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 68 J



NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. FE-389

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
12284	9/29/93	L. Arkman	Full ~~Part~~ Before ~~After~~ Marine Center Approval Signed Via
			Drawing No. Fully Applied DWG # 19
12264	9/29/93	L. Arkman	Full ~~Part~~ Before ~~After~~ Marine Center Approval Signed Via
			Drawing No. Fully Applied DWG #
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED