8942

Diag. Cht. No. 1206-2.

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

(HYDROGRAPHIC)

Type of Survey Hydrographic

Field No. EX5-1-67

Office No. H-8942

LOCALITY

State Massachusetts

General Locality Cape Ann

Locality Annisquam River

1967

CHIEF OF PARTY

P. A. Stark & E. E. Jones

LIBRARY & ARCHIVES

DATE 9-8-69

8942

Area 1

Chts

13281 (233) ✓

13279 (233) ✓

13274 ✓

13278 ✓

★U.S. GOVERNMENT PRINTING OFFICE: 1974-763-098

FORM C&GS-537
(8-15-59)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

REGISTER NO.

H-8942

HYDROGRAPHIC TITLE SHEET

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.

EX-5-1-67

State MASSACHUSETTS

General locality CAPE ANN

Locality ANNISQUAM RIVER

Scale 1:5000 Date of survey JUNE - SEPTEMBER 1967

Instructions dated 27 MARCH 1967 Project No. OPR-473

Vessel USC&GS Ship EXPLORER (OSS-28) Launches Nos 1, 2 and 4

Chief of party Emerson E. Jones, CAPT, USESSA to 07-26-67 thence Pentti A. Stark, CDR, ESSA

Surveyed by LTJG R. F. COONS, USESSA

Soundings taken by echo sounder, hand lead, pole ECHO SOUNDER

Graphic record scaled by S. L. REITER, J.R. MURPHY and R. SWAN

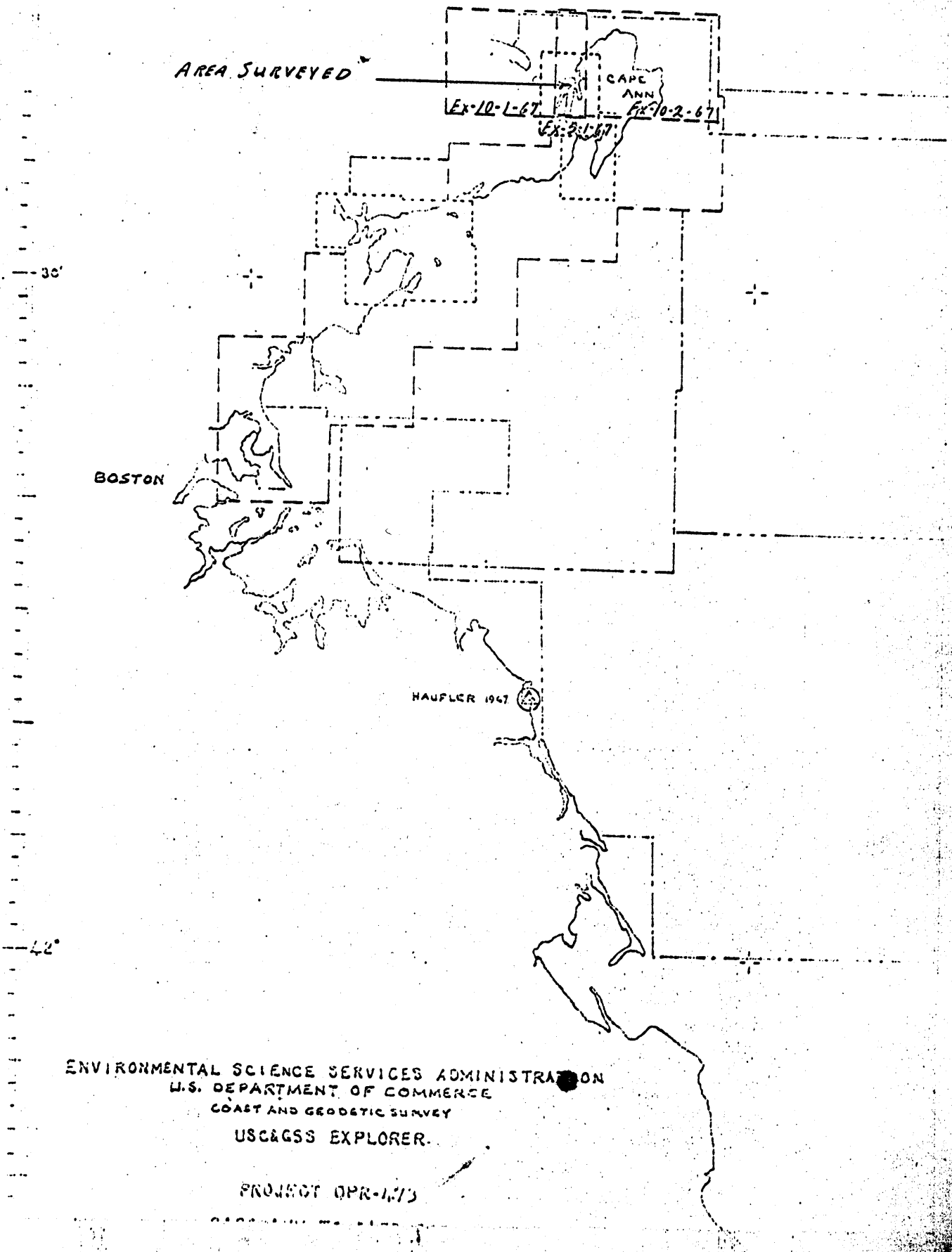
Graphic record checked by S. L. REITER, J.R. MURPHY and R. SWAN

Protracted by Gerber Digital Plotter, Pacific Marine Center

Soundings penciled by " " " " " "

Soundings in fathoms feet at MLW MLLW

REMARKS: Portable automatic tide gauge at Annisquam, Lat. 42° 39' 18", Long 70° 40' 32".



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

USC&GSS EXPLORER

PROJECT OPR-1/73

A. PROJECT: Survey was conducted as part of Project OPR-473 with instructions dated 27 March 1967. Ammended instructions dated 11 May 1967 specified the use of digital equipment to record hydrographic data.

B. AREA SURVEYED: Area surveyed was in the Annisquam River and the part of Ipswich Bay south of Latitude 42°40'15" and east of Longitude 70°42'45" on the Massachusetts coast near Cape Ann. Survey was begun on 9 June 1967 and finished 22 September 1967. Junction was made with contemporary surveys H-8939 (EX 10-1-67) and H-8943 (EX 5-2-67), also H-8940 (10-2-67)

C. SOUNDING VESSELS: Soundings were taken using EXPLORER Launch No. 1, purple day letters; Launch No. 4, blue day letters; and Launch No. 2, blue day letters (positions 4000-4011 only).

D. SOUNDING EQUIPMENT: Raytheon DE-723 Fathometers, Nos. 531 in Launch No. 1, 536 in No. 4 and 255 in No. 2, were used to take soundings. Fathometer No. 518 was used in Launch No. 1 on positions 1719 to 1729 only. Echo sounder corrections were obtained from temperature and salinity determinations made by the EXPLORER. Draft correction was obtained from daily leadline comparisons. Depths to 30 feet were recorded in the survey; (therefore, bar check determination should have been used) See Fathometer Report for season and for Refer see ahp page 6

E. SMOOTH SHEET: The smooth sheet will be plotted by automated electronic processing methods.

F. CONTROL: Horizontal control was entirely by visual methods. Available triangulation was plotted using forward and back dm's and dp's. Other signals were located by photogrammetric methods using incomplete manuscripts T-12968 and T-12969 and preliminary manuscripts T-12970 and T-12971 dated March-June 1967. Signal "PAN" was located by sextant cuts. See Vol. II, Page 57. Signal "BOB" was incorrectly radially plotted and was relocated using sextant cuts. See Vol. XI, Page 39.

G. SHORELINE: Shoreline was obtained from incomplete and preliminary manuscripts listed in "F", and will be verified by a Photo Party. No apparent discrepancies were noted by the hydrographer during operations in this area.

H. CROSSLINES: Satisfactory crosslines were made which represent 8 per cent of the basic survey lines. Agreement was generally ~~made~~ within one foot.

I. JUNCTIONS: Soundings at junction with survey EX 10-1-67 (H-8939) were within one foot.

J. COMPARISON WITH PRIOR SURVEYS: Prior survey H-4851, 1928, 1:5,000, covers this area. (See Section "K").

Presurvey review of Item No. 6 - a sunken wreck at the mean low water line, Lat. 42°40'03.7", Long. 70°40'17.0" was searched for 20 minutes at low water by wading. No evidence exists and deletion is recommended. (See Vol. XI, Page ~~14~~ 41). (Source: Bp 48537[51]) Concur.

Presurvey review of Item No. 7 - a reported rocky area, Lat. 42°40'03", Long 70°40'26" was searched for 20 minutes by circling a placed buoy and nothing found. Area is sandy bottom where rocks would be easily found if present. (See Vol. XI, Page 40).. No rocks should be charted. (T-11155 [1952-53]) Agrees with low water color photography. Concur

Presurvey of Item No. 8 - a reported area of bare rocks, Lat. 42°40'07", Long. 70°40'29" was searched for 20 minutes. ~~after rock of position 1611 (Vol. XI, Page 29)~~ 1444 was found. ~~This is the only rock in area and it was not awash.~~ ~~Long grass reaches the surface giving appearance of rocks.~~ (See Vol. XI, Page 40). ~~Recommend charting one rock.~~ Not shown on T-10969. Rock information compiled from LW color photography and field edit. Delete

CONFUSED

Presurvey review of Item No. 9 - Lat 42°40'05", Long. 70°40'51.1" was found to be a ~~peaked~~ rock submerged 5 feet which should be charted. (See Vol. XI, Page 41). (Source: chart Letter #1205['66]) Covered 4.5 ft. at MLW (Pos. 1447) Concur

Item No. 10, Lat. 42°40'05", Long. 72°41'10" was found to be an area of 18-~~foot~~ depths and not an isolated 18 foot sounding. See Vol. VI, Page 19 for lines covering this area. 18-ft sounding often conflict with surrounding hydro.

Item No. 11, Lat. 42°39'52", Long. 70°42'00", was found to be a rocky area with kelp with minimun depth of 2 feet. (See Vol. VI, Page 59). Chart rocks shown on boat sheet. concur

(Already applied on Chart) Reviewer's Comparison with Sixth Edition of Chart #233

Item No. 12, a ~~sunken~~ visible PA wreck at the mean low water line, Lat. 42°39'13", Long. 70°41'00", was searched for 20 minutes and no evidence found. Nearby residents know of no wrecks in this area. (See Vol. XI, Page 37). Recommend deletion from chart. (Source: H.O.N. to M. #28[1954]) Concur - Chart in accordance with smooth sheet.

Source: Chart Let. 1205 (1966)

Item No. 13, Lat. 42°39'00", Long. 70°40'43", was found to be a sand shoal with minimun sounding of 3 feet. Lobster Cove anchorage buoy "A" is on northwest corner of shoal. Shoal is approximately 100 feet long in a north-south direction. (See Vol. VIII, Page 61). ~~Two~~ Three foot sounding should be charted. concur

~~1~~ 3 foot sounding is at anchorage buoy "A" above. Position 1084

Because of this note, reviewer accepted pos. 1084 as Fathom ~~Hole~~ sounding; (shoaler depth considering reducers). See computer printout.

Item No. 14, Lat. 42°38'28", Long. 70°41'42", was found to be a single wreck of which only keel and a few ribs remain. No evidence was found of other wreck but it may be shoaled over. A whaleboat was found well above low water line to northwest of this position. (See Vol. XI, Page 69 and boat sheet). Wrecks should be charted. Source: T-4394 (1928) Two wrecks shown on smooth sheet should be charted.

Item No. 15, Lat. 42°37'53", Long. 70°41'29", was found to be two rocks, the shoalest of which bares 2 feet at MLW in five feet of water. (See Vol. XII, Page 6). Recommend charting shoalest rock. Already Charted on Sixth Edition of Chart #233 concur

K. COMPARISON WITH THE CHART: Chart 233 (5th. edition, 2 January 1967) covers the area surveyed and was made from prior survey of 1928, H-4851. Reviewer's Comparison with Sixth Ed., Chart #233 Dec. 9, 1968

Shoreline will be checked by a Photo Party.

Soundings near shore along Wingaersheek Beach in depths up to 6 feet are good with a few exceptions in which shoaling of about 1 foot is present.

Depths offshore are generally in agreement or 1 to 3 feet shallower than charted.

Tabulated channel depths north of the Annisquam Light are good. Channel south of Annisquam Light is shoaling 1 to 3 feet near Latitude 42°39'30".
Uncharted 9 ft peak at Lat. 42°39.17' - Long. 70°41.00' {pos. 506-07 pos. 1143-1144 charted on subsequent edition of chart

Depths in Annisquam River north of buoy "21", situated at Lat. 42°38'19.1" N, Long. 70°41'10.7" W, are generally in agreement. Those not in agreement are 1 to 4 feet shoaler indicating shoaling or shifting of bottom. Due to irregular bottom, direct comparison is difficult. However, no new soundings were found during this survey which would lessen the critical channel depths. Tabulated channel depths south of buoy "21" are in agreement.

Soundings in Little River and Jones River are in agreement with the chart. (See Review)

Mill River depths agree to first bend east of entrance, and then show irregular shallower depths than chart. Zero curve is closer to mouth than chart shows.

Goose Cove is filled-in considerably such that at low water there is only water within 130 meters of culvert entrance. Lobster Cove has little water as chart shows.

L. ADEQUACY OF SURVEY: Survey is considered complete and adequate to supersede prior surveys for charting.

M. AIDS TO NAVIGATION: Aids to navigation are correctly shown on Chart 233 with only slight changes in positions. Lobster Cove anchorage buoy "A" is in three feet of water and not 9 as Light List states. Other aids are correctly listed in Light List Vol. I. * Buoy 23, Annisquam R. plots in deep center part of channel on survey.

Highway bridge at Lat. 42°37'30" (See Vol. XII, Page 32) and railroad bridge at 42°37'05" (See Vol. X, Page 22) are only bridges in survey area except for small bridges in Lobster and Goose Coves. All are charted.

A 4" diameter flexible rubber power cable crosses the Annisquam River 2 meters south of the highway bridge. No overhead cables exist.

N. STATISTICS: Sect C & D, above, indicate Launches #1, 2, & 4 were on survey

	LAUNCH #1	LAUNCH #2	LAUNCH #3	LAUNCH #4
No. Positions	1729	12	70	1811
Naut. Mi. Sdg. Lines	111	1	5	117
Total Area (N.Sq.Mi.)				2.0
Bottom Samples				30

O. MISCELLANEOUS: Signal "BOB" was incorrectly located by radial plot and later cut in by sextant cuts. (See Vol. XI, Page 39). This necessitated replotting about 125 positions in the northeast corner of the sheet and revealed several holidays that were run during "W" day by Launch No. 4. Confusing paragraph. "W" day is Launch #1, Sept. 19 1967. "X" and "Y" days are NOT in NE corner of sheet. WHEN were the alleged holidays filled-in??? Coverage is sufficient. (S.R.)

Goose Cove can only be reached through a 23 feet wide, 16 feet high (at MLW) culvert, thus limiting the size of craft in this cove. During falling or rising tide, especially at near half tide, waters at entrance become rapids. Area is treacherous at this time and is complicated by large boulders on north on both sides of entrance. At low water there is only 2 feet of water in north side of culvert. (See Vol. XII, Page 36).
Depth of water in culvert is 2 ft at MLW

P. RECOMMENDATIONS: Mill River, Jones River and Little River should only be navigated by those who know these channels. Navigation buoys would be helpful to the few people who use these rivers.

Q. REFERENCES TO REPORTS: See Coast Pilot Report, Seasons Report and Fathometer Report.

R. NOTES FOR AUTOMATED PROCESSING: Smooth shipboard processing was done in accordance with "Provisional Instructions for Automated Hydrographic Surveys" except that angles were displaced one position to the right in the tapes. The Pacific Marine Center has been informed of this error and will make allowances for it.

Respectfully submitted:

Robert A. Smith

Richard F. Coons
LTJG, USESSA

Approved and forwarded:

Pentti A. Stark

Pentti A. Stark
CDR, USESSA

SUMMARY OF

FATHOMETER CORRECTIONS
FROM BAR CHECKS AND LEADLINE COMPARISONS
EX-5-1-67 (H-8942)

DATES	LAUNCH	FATHOMETER DEPTH	CORRECTION	
JUNE 9 - AUG 10 SEPT 11 - SEPT 21	1	531 12.7	+1.25	(AVG. OF LEADLINE COMPARISONS)
AUG 11 - AUG 12 (thru pos. # 3067)	4	536 5	+1.2	
		10	1.2	
		15	1.2	
		20	1.1	
		25	1.2	
		30	1.2	
		35	1.2	
AUG 12 (from pos. # 4000)	2	255 10	+1.2	
		15	1.1	
		20	1.2	
		25	1.2	
		30	1.4	
SEPT. 22	1	518 13.3	+1.7	(AVG. OF LEADLINE COMPARISONS)

These corrections should have been used for this sheet. Instead, 1.3 ft. velocity correction was used for the entire sheet except for poled depths. (Note fathometer reports.)

Form 567
(4-61)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

TO BE CHARTED
~~REVISED~~
~~TO BE DELETED~~
} STRIKE OUT TWO

USC&GS Ship EXPLORER (OSS-28) 3 October, 1967

I recommend that the following objects which have ~~(been)~~ been inspected from seaward to determine their value as landmarks be charted on ~~(deleted from)~~ the charts indicated.

Richard F. Coons

The positions given have been checked after listing by Richard F. Coons, LTJG, USESSA

Pentti A. Stark, CDR, USESSA
Chief of Party

STATE MASSCHUSETTS

CHARTING NAME	DESCRIPTION	SIGNAL NAME	POSITION LATITUDE* ° ′	LATITUDE* ″ D.P. METERS	LONGITUDE* ° ′	LONGITUDE* ″ D.P. METERS	DATUM	METHOD OF LOCATION AND SURVEY NO.	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
		036		31.6		53.9		Photo	August				233
STACK	PROMINENT RED BRICK STACK	TAC	42 37	973.5 (977.9)	70 40	~~1127.9~~	1927	OPR-473	1967	x	x		243

Not on smooth sheet as no elevations given — W.W.F

Plotted on S.S. hydro (S.R.)

DP in seconds and meters conflict. DP in seconds assumed correct. Plotting of signal using DP in meters would cause conflict in Hydrography. D.E. 11-27-79

This form shall be prepared in accordance with Hydrographic Manual, Publication 20.2, Sec. 6-36, Fig. 79. Positions of charted landmarks and *nonfloating aids* to navigation, if redetermined, shall be reported on this form. Revisions shall show both the old and new positions. The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

USCOMM-DC 25412-P31

* TABULATE SECONDS AND METERS

APPROVAL SHEET FOR HYDROGRAPHIC SURVEY

Project OPR-473 Survey No. H-8942

USC&GSS EXPLORER

The Chief of Party and the Operations Officer exercised a continuous supervision and inspection of the field work and field records. This survey is approved and considered to be a complete, adequate and basic hydrographic survey done in accordance with criteria indicated in the Hydrographic Manual and the Project Instructions. No further field work is recommended.

Pentti A. Stark

Pentti A. Stark
CDR, USESSA
Chief of Party

Form #1

PARAMETERS FOR DIGITAL COMPUTING
TRANSVERSE MERCATOR PROJECTION

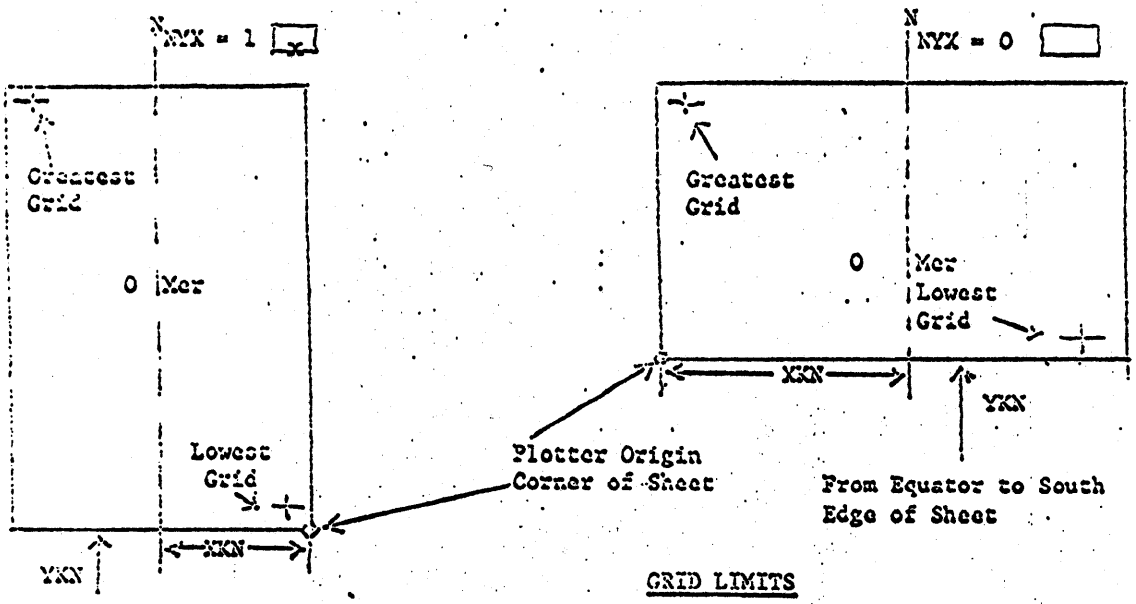
(1) Project No. OER 473
H No. H 8942
(3) Field No. Ex 5-1-67
(4) Requested by
(5) Ship or Office Explorer
(6) Date Required
(7) Visual x
(8) Electronic N.A. (fill out Form #3)

(9) XKN (SP 5) Distance from OMER to East Edge (NYX = 1) or West Edge (NYX = 0). 2274.5 Meters

(10) YKN (SP 241) Distance from Equator to South Edge of Sheet 4,719,304.9 Meters

(11) Central Meridian 070° 41' 15"
(12) Survey Scale 1:5,000
(13) Size of Sheet (Check One) 36 X 60 x 42 X 60

(14) NYX Orientation of Sheet (Check One)



om Equator to South
Sheet Edge

List O.P. of all stations to be plotted on this projection on the back of this form

GRID LIMITS

(15) Greatest Latitude 42° 40' 15" (Projection Line Interval Page 4 Hydro Manually
(16) Lowest Latitude 42° 36' 45"
(17) Difference 00° 03' 30"
(18) 00' 15"
(19) 14 YSN
(20) Greatest Longitude 70° 42' 45"
(23) 00' 15"
(21) Lowest Longitude 70° 39' 45"
(24) 12 YSN

03 00

J.E.C.
K.E.

H-8942
(EX-5-1-67)

FIG. 18.

DESCRIPTIVE REPORT DATA RECORD			
PART I SMOOTH SHEET PREPARATION		PREPARED BY/OPERATOR	DATE
A. PLOTTER OPERATOR		EDAT	
B. DISTORTION MARKS PLOTTED		EDAT	
C. PROJECTION INTERSECTIONS PLOTTED		EDAT	
D. POINTS OF ELECTRONIC CONTROL ARCS PLOTTED			
E. OVERLAYS PREPARED BY		EDAT	
1. POSITION NUMBER		EDAT	
2. EXCESS SOUNDINGS		EDAT	
3. PRELIMINARY SMOOTH PLOT		EDAT	
4. LIST OTHERS			
A.			
B.			
F. SOUNDING SELECTION BY		EDAT	
G. PLOTTER INPUT	PREPARED	EDAT	
H.	CHECKED	EDAT	
I. DESCRIPTIVE REPORT ADDENDUMS			
PART II SMOOTH SHEET COMPLETION			
		CARTOGRAPHER	DATE
A. DISTORTION SCALE TICKS IDENTIFIED BY NOTE		W. W. FEAZEL	6/24/69
B. PROJECTION INTERSECTIONS VERIFIED BY		G. F. TREFETHEN	6/17/69
C. PROJECTION LINES RULED BY		G. F. TREFETHEN	6/17/69
D. ELECTRONIC CONTROL ARCS RULED AND LOCATION VERIFIED		NONE	
E. OVERLAYS COMPLETED BY			
1. POSITION NUMBER LEADERS ADDED		W. W. FEAZEL	6/24/69
2. EXCESS SOUNDING OVERLAY COMPARED		W. W. FEAZEL	5/22/69
3. PRELIMINARY SMOOTH PLOTS COMPARED		W. W. FEAZEL	5/22/69
4. OTHERS UTILIZED			
A.			
B.			
F. DESCRIPTIVE REPORT ADDENDUM			
G. CONTROL STATIONS VERIFIED		W. L. JONNS	2/21/68
H. POSITIONS MANUALLY PLOTTED		D. R. MUNFORD	2/27/68
I. MANUAL PLOT VERIFIED		D. R. MUNFORD	5/29/68
J. SHORELINE APPLIED		W. W. FEAZEL	7/1/69
K. BOTTOM CHARACTERISTICS ADDED		W. W. FEAZEL	7/25/69
L. NOTES AND DEPTH CURVES ADDED		W. W. FEAZEL	8/6/69

H-8942

A. Additions and corrections have been furnished the plotter center by the verification unit. Except those listed for submission by Review.

Signed Lloyd L. Peffer
Date Sept. 3, 1969 Title Chief, Hydro Br., AMC

B. Additions and corrections have been added to the survey records and the final smooth sheet forwarded to the ~~verifica-~~ Review ~~xxxx~~ unit.

Signed Lloyd L. Peffer
Date Sept. 3, 1969 Title Chief, Hydro Br., AMC

C. The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the verifier's report).

Signed Lloyd L. Peffer
Date Sept. 3, 1969 Title Chief, Hydro Br., AMC

D. Smooth sheet and records forwarded to Rockville, Maryland Office.

Date Sept. 4, 1969.

TIDE NOTE

The tidal control requirements for this survey were specified in the Project Instructions - OPR 473, dated 27 March 1967. In compliance with said instructions, a portable tide gage was located at the Annisquam Bridge across the northeast branch of Annisquam Harbor at Latitude 42°39'17" and Longitude 70°40'33". The 1927 datum height is 1.5 feet below the zero reading on the tide staff. This was determined in Washington D.C. and corresponded to the Ship EXPLORER in a memorandum from Chief Datum Planes Section dated August 15, 1967.

Time Meridian 75°W

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

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

February 29, 1968

~~Nautical Chart Division~~ Pacific Marine Center

Plane of reference approved ~~in connection with soundings on~~ for

HYDROGRAPHIC SHEETS 8939; 8940 & 8942

Locality: Cape Ann, Massachusetts

Chief of Party: E. E. Jones, 1967

Plane of reference is mean low water

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

Annisquam Bridge

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

Annisquam Bridge = 8.7 feet

Remarks

Chief, Tides and Currents Branch

USCOMM-DC 6680-P64

GEOGRAPHIC NAMES LIST:

- Annisquam
- Annisquam River
- Babson Point
- Bald Rocks
- Barn Rocks
- Bay View
- Biskie Head
- Davis Neck
- Farm Point
- Ferry Hill
- Goose Cove
- Hodgkins Cove
- Ipswich Bay
- Jones River
- Little River
- Lobster Cove
- Mill River
- Pearce Island
- Ram Island
- Riverdale
- Riverview
- Rust Island
- Stanwood Point
- Susan Point
- Thurston Point
- Wheeler Point
- Wigwam Point
- Wingaersheek Beach
- Wolf Hill

PREPARED BY

Frank W. Pickett

CARTOGRAPHIC TECHNICIAN

APPROVED BY

A. J. Wright

CHIEF GEOGRAPHER

FORM C&GS-946 (REV: 11-69) (PRESC. BY HYDROGRAPHIC MANUAL 20-2, 8-94, 7-13)

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

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-8942 (EX-5-1-67)

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS	1
DESCRIPTIVE REPORT	1	OVERLAYS	

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS / SOURCE DOCUMENTS
ENVELOPES	2		1 PKg			
CAHIERS			~~1~~ PKg 0			
VOLUMES	15					
BOXES						

T-SHEET PRINTS (1.1nl)

SPECIAL REPORTS (1.1nl)
FATHOMETER VELOCITY REPORT

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				5 3622
POSITIONS CHECKED		378	22	400
POSITIONS REVISED		133	1 POS. 1697	134
DEPTH SOUNDINGS REVISED			5	5
DEPTH SOUNDINGS ERRONEOUSLY SPACED			0	—
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		NONE	0	—
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		24	22	46
JUNCTIONS		02	12	14
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		18	10	28
TRA-TIDES - STYLUS ARM CHECK SPECIAL ADJUSTMENTS	141		0	—
ALL OTHER WORK		260	112	372
TOTALS	141	304	156	460

	BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY: G. F. TREFETHEN & D.R. MUNFORD	9/30/68	11/21/68
VERIFICATION BY: W.L. JONES, D.R. MUNFORD & W.W. FEAZEL	2/21/68	8/26/69
REVIEW BY: S. ROSE Cons. Insp. 8-25-76	March 12, 1970	April 10, 1970

Complete 25 hrs 2-6-79

Reg. No. H-8942

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey, the following shall be completed:

CARDS CORRECTED

DATE_____ TIME REQ'D_____ INITIALS_____

REMARKS:

H-8942

Items for Future Presurvey Reviews

There are no noteworthy differences between the prior and present surveys. However, the 9-foot sounding at latitude 42°39.16', longitude 70°41.01' should be thoroughly investigated at an opportune time.

Position Index		Bottom Change Index	Use Index	Resurvey Cycle
Lat.	Long.			
423	0704	2	6	25 years
424	0704	1	6	50 years

OFFICE OF MARINE SURVEYS AND MAPS

MARINE SURVEYS DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8942 FIELD NO. EX-5-1-67

Massachusetts, Cape Ann, Annisquam River

SURVEYED: June 9 - September 22, 1967

SCALE: 1:5,000 PROJECT NO.: OPR-473

SOUNDINGS: Raytheon DE-723 Depth Recorder
Sounding Pole

CONTROL: Sextant Fixes on
Shore Signals

Chief of Party	E. E. Jones
	P. A. Stark
Surveyed by	R. F. Coons
Automated Plot by	Gerber Digital Plotter (PMC)
Verified by	W. L. Jonns, D. R. Munford, W. W. Feazel (AMC)
Reviewed by	S. Rose Date: April 10, 1970
Cursory inspection made--survey processing considered complete	G. K. Myers August 25, 1976

1. Description of the Area

This survey covers a portion of Annisquam River and its tributaries northward from the railroad bridge at Gloucester to its entrance with Ipswich Bay. Generally the foreshore area is largely mud and sand flats with ledge and rocks awash found alongshore. Alterations to the shoreline have increased from the growth of water-access type of recreational areas. The river is crossed by a fixed automobile bridge which is a state highway route that leads into Gloucester. Other bridges cross some of the smaller tributaries in the area. A dredged channel follows the middle of Annisquam River except for a distance of about 1 mile from Ipswich Bay where natural depths of 8-34 feet exist. Controlling depths of less than 7 feet are found in the minor tributaries covered by this survey.

2. Control and Shoreline

The source of control is adequately described in the Descriptive Report.

The shoreline originates with final reviewed photogrammetric manuscripts T-12968, T-12969, and T-12970 based on 1965 air photography and a 1969 field edit, and T-12971 (1965-1968).

3. Hydrography

A. Depths at crossings are in good agreement.

B. The usual depth curves are adequately delineated. The 3-foot depth curve was added to further emphasize the bottom relief.

C. The development of the bottom configuration and investigation of least depths are considered adequate, except that the 9-foot sounding at latitude 42°39.16', longitude 70°41.01' should have been verified by a hand lead.

4. Condition of the Survey

The sounding records, automated plotting, Descriptive Report, and Atlantic Marine Center verification are adequate and conform to the requirements of the Hydrographic Manual, supplemented by the Instruction Manual for Automated Hydrographic Surveys, except that:

A. The bottom trace on the graphic record was lost in the initial in some inshore areas of shoal soundings. Pole soundings were not obtained where this occurred and some recorded soundings may be questionable.

B. Fixed channel lights were incorrectly shown as day beacons during verification.

C. The symbol for recorded rocks with determined depths was erroneously shown on the boat sheet as rocks awash at heights equal to their depths or sunken rock symbols. These features were mistakenly carried forward to the chart when the boat sheet was applied.

D. In some cases descriptions of bottom samples differ between the boat sheet and the sounding records.

5. Junctions

Adequate junctions were effected with H-8943 (1967) on the south, H-8940 (1967) on the northeast, and H-8939 (1967) on the north and northwest.

6. Comparison with Prior Surveys

H-346	(1852)	1:10,000
H-574	(1856)	1:20,000
H-597	(1857)	1:10,000
H-3312	(1911)	1:20,000
H-4849	(1928)	1:5,000
H-4851	(1928)	1:5,000

These prior surveys taken together cover the ~~common~~ area of the present survey. A comparison between prior and present depths indicates some change particularly in shoal areas. In Annisquam River a portion of the mud flats has eroded probably due to maintenance dredging of the channel, while evidences of shoaling are found in the minor tributaries covered by the present survey. Generally, present soundings are 1-2 feet less than prior depths in Ipswich Bay which indicates a possible shoaling in this area.

A rock awash φ 42°38.88' λ 70°40.70' has been carried forward from H-4851 to the present survey. With this addition, the present survey is adequate to supersede the prior surveys within the common area.

7. Comparison with Chart 233 (latest print date December 9, 1968)

A. Hydrography

The charted hydrography originates with the previously discussed prior surveys which need no further consideration supplemented by the boat sheet of the present survey and other sources.

Attention is directed to the following:

(1) The following rock symbols charted from the boat sheet are in error and should be deleted:

Feature	Position Latitude	Longitude
Rock awash	42°40.26'	70°40.49'
Rock awash	42°40.17'	70°40.53'
Sunken rock	42°40.14'	70°40.52'
Rock awash	42°39.68'	70°40.96'
Rock awash - 4 feet above MLW	42°39.80'	70°42.17'
Sunken rock	42°39.74'	70°42.23'
Rock awash	42°38.72'	70°40.77'

> 4.c.

(2) The reef charted in the immediate vicinity of latitude 42°39.5', longitude 70°41.0' originates with T-11155. This area was described as foul by the hydrographer and determined to consist of scattered rocks from 1965 low water photography. The reef should be deleted from the chart and the area revised in accordance with the present survey.

(3) The ledge charted in the vicinity of latitude 42°40.25', longitude 70°40.35' originating from 1951 air photos (Bp 48537) was not mentioned

by the hydrographer. However, a 1967 field inspection determined this area to be strewn with boulders. The ledge should be deleted from the chart and the area revised in accordance with the smooth sheet.

Additional Presurvey Review items are discussed in Paragraph J, Comparison with Prior Surveys, of the Descriptive Report.

The present survey is adequate to supersede the charted hydrography within the common area.

B. Controlling Depths

The table of controlling depths is based on 1965-1967 Corps of Engineers surveys. These depths are in agreement with the present survey and should be retained on the chart.

C. Aids to Navigation

The charted aids to navigation adequately mark the features intended.

8. Compliance with Project Instructions

This survey adequately complies with the Project Instructions.

9. Additional Field Work

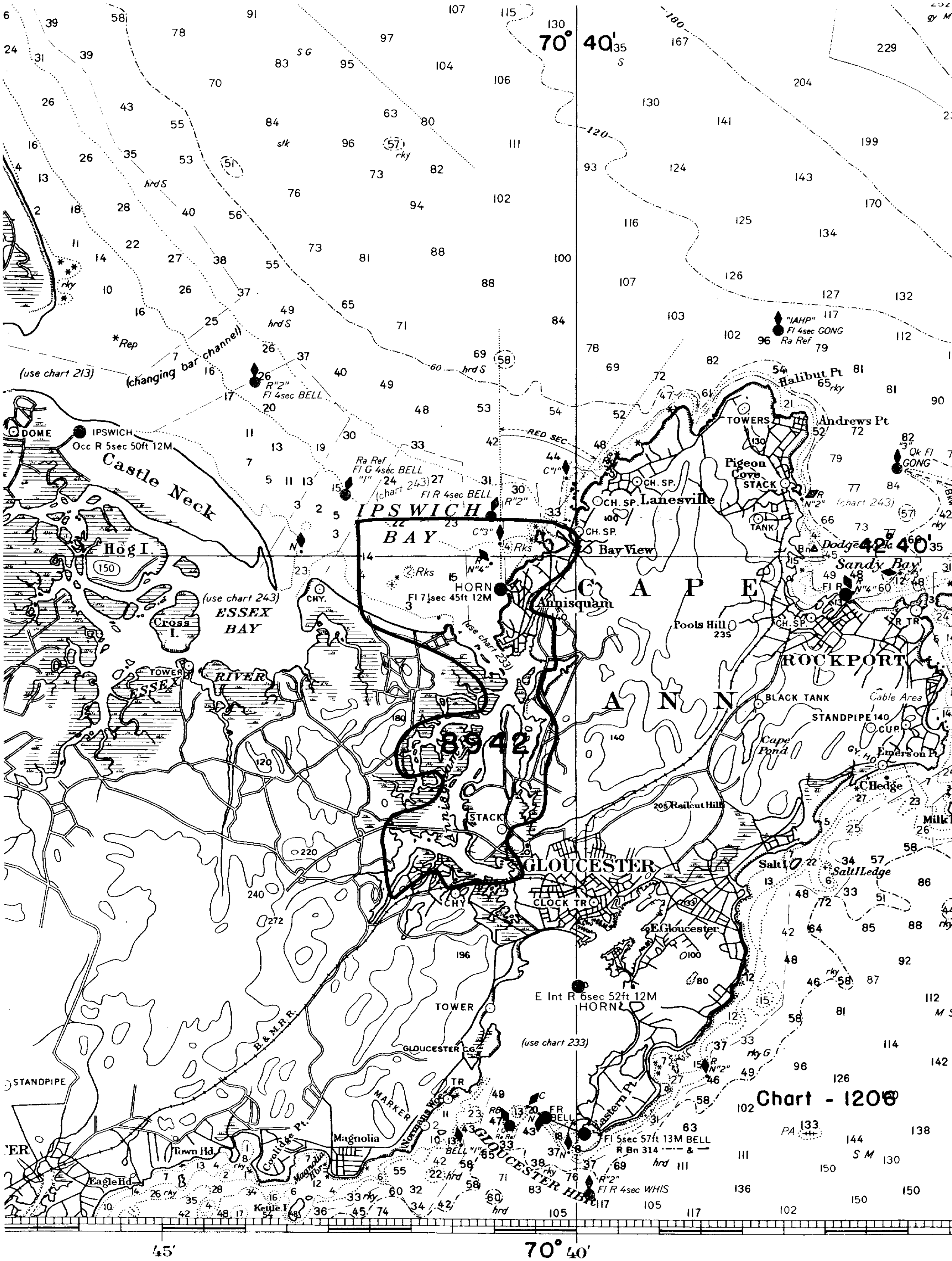
This is a very good basic survey and no additional field work is recommended.

Examined and Approved:

Glen R. Schaefer
Chief
Hydrographic Surveys Division

1-2-80

Roger F. Lanier
Associate Director
Office of Marine Surveys
and Maps


70° 40'
42° 40'
45'
Chart - 1206
8942
IPSWICH BAY
ESSEX BAY
Castle Neck
Hog I.
Cross I.
ESSEX RIVER
CAPE ANN
Annisquam
GLOUCESTER
ROCKPORT
Lanesville
Bay View
Pigeon Cove
Halibut Pt
Andrews Pt
Sandy Bay
Pools Hill
Railcut Hill
Cape Pond
Emerson Pt
Milk I.
Salt I.
Salt I Ledge
E.Gloucester
Eastern Pt
GLOUCESTER HBR
Magnolia
Magnolia Hbr
Coolidge Pt.
Normans Woe
Eagle Hd
Kettle I.
Town Hd.
IPSWICH
Occ R 5sec 50ft 12M
Fl 7½sec 45ft 12M
E Int R 6sec 52ft 12M HORN
Fl 5sec 57ft 13M BELL
R Bn 314
(use chart 213)
(use chart 243)
(use chart 233)
(changing bar channel)
GLOUCESTER C.G.
CLOCK TR
BLACK TANK
STANDPIPE
B.&M.R.R.

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-8942

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
233	6-24-70	L Moore	~~Full~~ Part ~~Before~~ After Verification Review before Inspection Signed Via
		Reviewed Kenyon	Drawing No. 13 APPL'D Critical CORR.
243	7-8-70	L Moore	~~Full~~ Part ~~Before~~ After Verification Review before Inspection Signed Via
		Reviewed Kenyon	Drawing No. APPL'D SEVERAL SNDG & ROCKS. WRECK & HWL
613-SC	10-5-70	James Graham	~~Full~~ Part ~~Before~~ After Verification Review Before Inspection Signed Via
			Drawing No. Applied sndgs., Rks, & wk thru
			cht 243 Dwg #19 after review APP'D reviewers report.
1206	10-9-70	H. Radden	~~Full~~ Part ~~Before~~ After Verification Review before Inspection Signed Via
			Drawing No. Appl'd sdgs, curves, LW and rocks
			thru cht. 243 #19
233	~~7-12-79~~ 7-8-77	~~Stephen Hanson~~ [illegible]	Full ~~Part Before~~ After Verification Review Inspection Signed Via
(13281)			Drawing No. Applied all changes of curves, soundings,
			shore lines, & bottom characteristics thru 1800 reduction. Dr 3417
243	12-4-79	Erin Frey	Full ~~Part Before~~ After Verification Review Inspection Signed Via
13279			Drawing No. Via dwg 17 cht 233 (13281)
15278	10-14-80	J. T. Carrington	Full ~~——~~e After Verification Review Inspection Signed Via
(1206)			Drawing No. 30 some critical corrections & applicat...
			Examined thru reduction of 13274, dwg # 12.
13274 #8	10-14-80	J. T. Carrington	Full ~~Part Before~~ After Verification Review Inspection Signed Via
(613 S.C.)			Drawing No. 12 some critical corrections were applied
			EXAMINED THRU REDUCTION OF 13279, DWG. #28
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

USCOMM-DC 8558-P63