

8940

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. EX 10-2-67
Office No. H-8940

LOCALITY

State Massachusetts
General Locality ... Cape Ann
Locality .. Folly Point to Thatcher Island

19 67

CHIEF OF PARTY

E. E. Jones and P. A. Stark

LIBRARY & ARCHIVES

DATE 1/15/70

8940
OTSS

APP'd 8/13/82/w

HYDROGRAPHIC TITLE SHEET

H-8940

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 10-2-67

State MASSACHUSETTS

General locality Cape Ann
~~COAST OF MASSACHUSETTS~~

Locality Folly Point to Thatcher Is.
~~ANNISQUAM RIVER TO CAPE ANN TO MILK ISLAND~~

Scale 1:10,000 Date of survey May 23 to Sept. 23, 1967

Instructions dated March 27, 1967 Project No. OPR-473

Vessel USC&GS SHIP EXPLORER -- LAUNCHES 2, 3, 4 & Boston Whaler

Chief of party E.E. JONES to 7/24/67; PENTTI A. STARK

Surveyed by R.A. TRAUSCHKE, D.R. ASKEW & TODD M. GATES

Soundings taken by echo sounder, hand lead, pole

Graphic record scaled by SHIP PERSONNEL

Graphic record checked by SHIP PERSONNEL

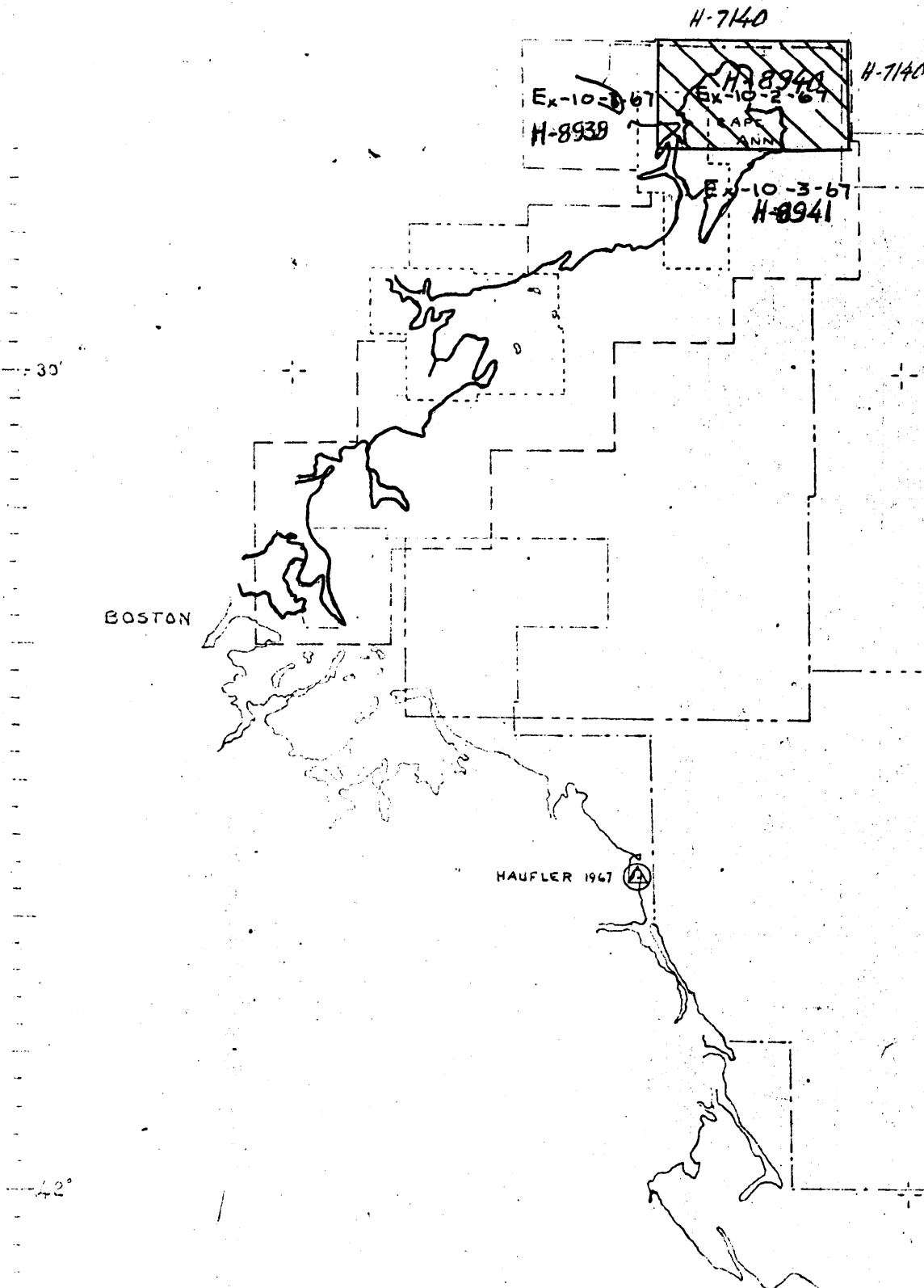
Protracted by GERBER DIGITAL PLOTTER - PACIFIC MARINE CENTER

Soundings penciled by " " " " " "

Soundings in ~~fathoms~~ feet at MLW MLW

REMARKS: Cat 3 Reviewed, inspected signed

Inked in on field 7/29/77



ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
USC&GSS EXPLORER

PROJECT OPR-473

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SURVEY

EX 10-2-67

H-8940

A. PROJECT: OPR - 473

Instruction - Project OPR-473 - Cape Ann to Cape ^{Cod}Ann, Mass-
achusetts, 3-27-67. Ammended Instructions - Project OPR-473,
Cape Ann to Cape Cod, Massachuestts, 5-11-67.

B. SURVEY AREA:

The area of hydrography was the Coast of Massachuestts from
Annisquam River to Cape Ann to Milk Island. The area is enclosed
by latitudes $42^{\circ} 37' 40''$ and $42^{\circ} 42' 10''$ and longitudes $70^{\circ} 33' 00''$
and $70^{\circ} 41' 30''$.

Prior surveys in the area include:

H-2602 - 1:10,000 1902
H-396A - 1:10,000 1910
H-3949 - 1:25,000 1916
H-4850 - 1:5,000 1928
H-3947 - 1:80,000 1916

Surveys junctioned with:

H-7140 - 1:40,000 1947
(EX 10-1-67) H-8939
(EX 10-3-67) H-8941
H-8942 (1967)

C. SOUNDING VESSEL:

EXPLORER Launch EX-1 - Green
EXPLORER Launch EX-2 - Brown
EXPLORER Launch EX-3 - Red
EXPLORER Launch EX-4 - Blue
EXPLORER Skiff, 17' Boston Whaler - Blue

D. SOUNDING EQUIPMENT:

Launch EX-2 used a DE-723 echo sounder, Serial No. 255. Other
sounding equipment used were lead line and pole. The general
area covered includes the shore line to depths of one hundred
and fifty feet. The echo sounder corrections were determined
by bar checks, lead line comparisons, phase comparisons and
temperature and salinity observations.

Launch EX-3 used DE-723 echo sounders, Serial Numbers 518 and 258.

Launch EX-1 used a DE-723 echo sounder, Serial Number 513.

DESCRIPTIVE REPORT EX 10-2-67 - Cont.

Launch EX-4 used a DE-723 echo sounder, Serial Number 536. Other sounding equipment used were lead line and pole. The general area covered included inshore rocky bottom to off shore rocky bottom from depths of zero feet to one hundred and eighty feet. Echo sounder corrections were determined by bar checks, lead line comparisons, phase comparisons, and temperature and salinity observations.

E. SMOOTH SHEET:

The smooth sheet will be processed by the automated equipment at the Pacific Marine Center.

F. CONTROL:

The hydrography on boat sheets EX-10-2-67, A and B was controlled by visual means using sextants and the hydrographic signals were located by standard photogram metric methods using manuscripts T-12963 and T-12964, both of which are incomplete manuscripts.

G. SHORELINE

High-water line Ok as shown on Advanced manuscript. Low-water line determined by sextant angles.
✓ The shoreline transferred to the boat sheets ^{from} by the above listed manuscripts was found to be inaccurate in the area of the Little Salvages and the Dry Salvages, which are two islands located one mile east of the Sandy Bay breakwater. These islands were delineated by walking the shoreline and taking sextant cuts. Reference to these detached positions will be found in sounding volumes 7 and 8. The low-water line is not defined by soundings because of its irregular and rocky character and its proximity to the high water line and heavy surf. All rocks and ledges shown on manuscripts T-12963 and T12964 were verified and are located in their proper positions on the manuscripts. Additional rocks and ledges not shown on the manuscripts were located on the boat sheet.

H. CROSSLINES:

The percentage of crossline runs were adequate and within required limits. Agreement in soundings were also adequate and within required limits.

I. JUNCTIONS:

This survey junctioned with H-7140 which is a 1:40,000 scale survey done in 1947. This survey also junctions with two contemporary surveys EX 10-1-67 and EX 10-3-67. The junctions show adequate agreement with prior and contemporary surveys except for the following areas with junction with H-7140:

(EX-10-1-67) H-8939

(EX 10-3-67) H-8941

DESCRIPTIVE REPORT EX 10-2-67 - Cont.

Lat. 42° 40' 47" Junction survey gives depth of 111 feet
Long. 70° 33' 39" and present gives a depth of 143 feet. ✓

Lat. 42° 41' 38" Junction survey gives a depth of 115 feet ✓
Long. 70° 35' 06" and present survey gives a depth of 107 feet. ✓

These two areas were checked by either crosslines or special investigations and the depths of the present survey were found to be correct. ✓

J. COMPARISON WITH PRIOR SURVEYS:

Pre-Survey Review Items:

No. 33: The wreck of the barge in Lanes Cove, Lat 42° 40' 45" and Long 70° 39' 36" is no longer there and local fishermen who anchor in the cove can not verify its existence or past existence for at least the past 16 years. *There is a rock awash, 5 ft MLW here* ✓
from chart letter 891 (1959)
See Review

No. 34: Because of its limited visibility, this cupola is not worth considering as a landmark. Refer to Form 567 enclosed. *NOT CHARTED* ✓
This not shown on F-12963 (1965-69)

No. 35: This lookout tower does exist and would be useful as a landmark. Its exact location is shown on the boat sheet as hydro signal *Lat. 42° 41' 32'* ✓
long. 70° 37' 99" EGG, code No. 233. Refer to Form 567 enclosed. *A 2nd tower. A sta. QBR TR. 1943*

No. 36: The hotel ventilator is useless as a landmark, however, the stack would make an excellent landmark. The stack is white with a black rim around the top and is located on the boat sheet as hydro signal RAG Code No. 703. Refer to Form 567 enclosed for both the cupola and the stack. *The STACK at lat. 42° 40' long. 70° 37' 28" is charted* ✓
Hotel ventilator is sta. PRO has been deleted from chart as per form 567

No. 37: Pigeon Rock does exist and it is awash at MLW. The position shown on the boat sheet. It is at Lat. 42° 40' 32" and Long. 70° 37' 17". Refer to Volume 14, Page 6, Position No. 9903. ✓

No. 38: The submerged breakwater has its northwesterly limit at *(p. 992)* position Lat. 42° 40' 46.5" and Long. 70° 36' 00.5", and ~~the~~ position is in agreement with that shown on the manuscript. The southerly limit is at Lat. 42° 40' 06" and Long. 70° 35' 16.5". *(p. 9896)* ✓
This position is about 30 meters southeast of that shown on the manuscript. The position obtained during the hydrographic survey is believed to be correct. The seawall and submerged breakwater are definite hazards to navigation and should not be crossed at any time. Local fishermen in the area consider it so dangerous that they use only small skiffs when tending lobster traps in this area. The Northwest extension is awash at mean low water and the southeast extension bares in some places from one to two feet at MLW. ✓

DESCRIPTIVE REPORT EX 10-2-67 - Cont.

No. 39: The stack and SW portion of the two wrecks shown are no longer present due to heavy salvage operations. However, a portion of the wrecks consisting mainly of the engine is visible at MLW and uncovers 9 feet at MLW. It is awash at high water. Its position is shown on the boat sheet and is Lat. $42^{\circ} 40' 41''$ and Long. $70^{\circ} 35' 01''$. The area is covered more extensively on overlay #2. In that area there is a red nun buoy #2 which marks the depth of the shoalest area which is 13 feet at MLW. This buoy is located at Lat. $42^{\circ} 40' 37.1''$ and Long. $70^{\circ} 35' 00.2''$. Wreck also on T-12964 (1965-69)

from letter 768 of 1955, at lat. $42^{\circ} 40' 24.7''$, long. $70^{\circ} 34' 19.3''$
No. 40: The sunken wreck, the fishing boat California was not found after an extensive search of the area. Local fisherman claim that the wreck broke up and washed away during a storm in the late 1950's.

No. 41: The arch located at Lat. $42^{\circ} 40' 00.5''$ and Long. $70^{\circ} 37' 33.2''$ is useless as a landmark and should be deleted from the chart. Refer to Form 567 enclosed. Deleted from chart 243.

*$\phi 42^{\circ} 39.51'$
 $\lambda 70^{\circ} 35.91'$* No. 42: The radio tower would make a good landmark. It is located on the boat sheet as signal ANT Code No. 058. Refer Form 567 enclosed. Added to chart 243

*$\phi 42^{\circ} 38.38'$
 $\lambda 70^{\circ} 35.75'$* No. 43: The lookout tower located on the boat sheet as signal RUB Code No. 780 should be deleted as a landmark. Refer to Form 567 enclosed. Deleted from chart 243

No. 44: The four sunken rocks on the feature called Oak Rock charted at Lat. $42^{\circ} 38' 26.8''$ and Long. $70^{\circ} 35' 09''$ appears to be a rock ledge instead of four sunken rocks. It has a least depth of 15 feet. See overlay sounding position No. 5853-5862 and DP 7985. *Least depth - 5 feet MLW @ Pos. 512307*
5853A is 6 ft. depth

No. 45: The area surveyed showed that it was a shoal area with rocky bottom and great relief. The least depth found was 8 feet. at lat. $42^{\circ} 38' 21''$, long. $70^{\circ} 34' 48''$.

Other pre-survey review items that are not numbered but were investigated are listed below:

At Lat. $42^{\circ} 41' 01''$ and Long. $70^{\circ} 39' 20''$. The survey showed that the depths were in general agreement. The depths found were 30 and 12 feet in comparison with 30 and 12 feet respectively. Refer to Sounding volume No. 1, Page 41, position 310-311.

At Lat. $42^{\circ} 41' 15''$ and Long $70^{\circ} 38' 32''$ in Folly Cove the 12 foot sounding could not be found after an extensive search of about 4 hours. The least depth found in that area was 27 feet. The method of search included dropping a marker buoy in the proper area and running an extensive criss-cross pattern around it. Refer to Sounding volume 12, page 32, position 9930. *12 probably displaced in error*

Ref: H-597 (1857) There is 3 ft. shoal 70 meters east of the charted 12 ft.

DESCRIPTIVE REPORT EX 10-2-67 - Cont.

At Lat. $42^{\circ} 40' 12''$ and Long. $70^{\circ} 37' 08''$ the following rocks were found in that general area: Dodge Rock, which is by Dodge Beacon and bares 1 foot at MLW; ~~Bartlett Rock~~, which has a least depth of 1 foot, and Mitchell Rock which has a least depth of 1 foot. The area is covered on the boat sheet and on overlay #1. Soundings in the area are in general agreement with those plotted on the chart, but are more extensive in the scope. Refer to sounding volume #12, page 36-45, position No. 1667-1695.

At Lat. $42^{\circ} 39' 45''$ and Long. $70^{\circ} 36' 06''$ the feature known as "Twelve Foot Rock" showed a least depth of 9 feet. ~~if this~~ ^{at lat. $42^{\circ} 39' 48''$} sounding is correct after all sounding reducers are applied it ^{Long. $70^{\circ} 36' 04''$} is recommended that the rocks name be changed to Nine Foot Rock. Refer to sounding volume 14, page 7, position 9901. Ref: H-597 (1857)

At Lat. $42^{\circ} 39' 47''$ and Long. $70^{\circ} 35' 45''$ the soundings were in general agreement. The surveyed sounding obtained was ~~26~~ feet as compared with the prior surveys sounding of 26 feet. ²³

At Lat. $42^{\circ} 39' 45''$ and Long. $70^{\circ} 34' 53''$ previous and present soundings were in exact agreement. Both soundings give a least depth of 29 feet. ^{H-3950 W.D. (1916)}

At Lat. $42^{\circ} 39' 38''$ and Long $70^{\circ} 36' 23''$ a least depth of 9 feet ^{from H-2602 (1902)} was not found after an extensive search of about 2 hours using method of search as listed above. The shoalest depth which could be obtained was 17 feet. ^{Retain 9 from H-2602 (1902)}

At Lat. $42^{\circ} 39' 20''$ and Long $70^{\circ} 35' 13''$ a least depth of 22 feet ^{from H-3950 W.D. (1916)} could not be found after an extensive search of about 3 hours ^{see Review} using method of search as listed above. The least depth obtained was 28 feet. ^{Retain 22}

At Lat. $42^{\circ} 40' 30''$ and Long. $70^{\circ} 34' 47''$ a least depth of 42 feet ^{from H-597 (1857)} could not be found after an extensive search of about 2 hours using search method as listed above. The least depth obtained was 57 feet. ^{Disregard 7 fms. probably should have been 11.}

At Lat. $42^{\circ} 40' 21''$ and Long. $70^{\circ} 34' 42''$ sounding were in exact agreement. Both the previous and present survey give a least depth of 30 feet. ^{H-597 (1857) approx.}

At Lat. $42^{\circ} 40' 11''$ and Long $70^{\circ} 34' 28''$ a least depth of 28 feet ^{from H-597 (1857)} was not found after an extensive search of about 4 hours using the method of search as listed above. The least depth obtained was 49 feet. ⁴⁷

DESCRIPTIVE REPORT EX 10-2-67 - Cont.

At Lat. $42^{\circ} 40' 22''$ and Long. $70^{\circ} 33' 58''$ the soundings were in general agreement. The present survey gave least depths of ~~4~~ and ~~11~~ feet while the previous survey gave least depths of 4 and 11 feet respectively. These soundings are somewhat deceptive in that the above rocks are often awash due to characteristic swells of from 4 to 6 feet in that area. Refer to sounding, Vol. 16, Page 6, DP 8026⁸⁰²⁵ and sounding Vol. 14, Page 43, Pos. 1892-1893. ✓

At Lat. $42^{\circ} 38' 06''$ and Long. $70^{\circ} 34' 21''$ ^{08"} the soundings were in ~~exact~~ agreement. Both previous and present surveys gave least depths of 17 feet. ✓

At Lat. $42^{\circ} 37' 58''$ and Long. $70^{\circ} 33' 52''$ the soundings are in good agreement. The previous survey gives a least depth of 17 feet and the present survey gives a least depth of ~~18~~ feet. ✓

At Lat. $42^{\circ} 38' 04''$ and Long. $70^{\circ} 35' 03''$ the soundings in general area are in very good agreement and the present survey should be used in developing the chart because of its more extensive coverage of the area. ✓

K. COMPARISON WITH THE CHART:

The survey showed generally that agreement with the chart were in the required limits. The only exception are those instances mentioned in Section J, Comparison with Prior Surveys. ✓

The newly found dangers to navigation consist primarily of a better delineation of the submerged ~~sw~~^{ea}wall in Sandy Bay. The information on the boat sheet is adequate to show a good delineation of the seawall. The previously mentioned "Twelve Foot Rock" has a least depth of 9 feet and inasmuch as this area is used quite extensively, it merits particular emphasis. The chart covering this area is Chart No. 243, C&GS, 8th Edition, Sept. 14, 1964, corrected to 14 April 1967. ✓

L. ADEQUACY OF SURVEY:

The previous 1873 survey of this area could be at best be considered only a sketchy reconnaissance type of survey. The present survey is complete and adequate to supercede all prior surveys. ✓

M. AIDS TO NAVIGATION:

Refer to Form 567 for fixed aids to navigation and landmarks. *See Review*
The Light List and chart describe and show all floating aids to navigation correctly and there is no need for further location work. There are four submarine cable crossings in existence. Two of the submarine cable crossings are used to provide power Straitsmouth Light and are in correct position as charted. The other two submarine cables provide electric power to Thacher Island light and are correctly charted. *Cable crossing to Straitsmouth Light not shown on T-12964 nor smooth sheet.*

DESCRIPTIVE REPORT EX 10-2-67 - Cont.

N. STATISTICS:

	<u>No. of Pos.</u>	<u>Miles SDG. Line</u>	<u>Sq. Miles</u>
LAUNCH EX-1	35	3.7	.16
LAUNCH EX-2	72	6.0	.2
LAUNCH EX-3	948	125.1	3.8
LAUNCH EX-4	2112	316.7	13.04
SKIFF	107	- -	- -
TOTAL	3274	451.5	17.2

Number of bottom samples - 50

One Tide Station in Annisquam, Lat. 42° 39' 17" N, Long.
40° 40' 33" W.

O. MISCELLANEOUS:

The area of Rockport Harbor was done on a separate sheet and the tag-line technique employed. This survey is referred to as Field No. (EX 2.5-1-67.) *H-8944*

P. RECOMMENDATIONS:

This survey EX 10-2-67 is complete and adequate and no further work is necessary at the present time.

The three blown up areas, Lanes Cove, Pigeon Cove and Granite Cove were used for the convenience of the hydrographer and it will not be necessary for the smooth plotter to enlarge these areas.

Q. REFERENCE TO REPORTS

Seasons Report
Fathometer & Velocity Correction Report
Coast Pilot Report

R. NOTES FOR AUTOMATED SMOOTH PLOTTING

Field data was processed according to "Provisional Instructions, Automated Hydrographic Surveys" and "Comments on Provisional Instructions Automated Hydrographic Surveys", originated at the Pacific Marine Center.

Submitted by:

Todd M. Gates

LTJG Todd M. Gates USESSA

Approved by:

Pentti A. Stark

Pentti A. Stark CDR. USESSA
C.O. USC&GS Ship EXPLORER OSS-28

APPROVAL SHEET FOR HYDROGRAPHIC SURVEY

Project OPR-473

Survey No. H-8940

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

LIST OF SIGNALS

L17th Pg.

279

280

835

857

<u>NAME</u>	<u>CODE NO.</u>	<u>ORGIN</u>
ACE ^x	X012 [✓]	T-12963 [✓]
ADD ^x	X011 [✓]	T-12963 [✓]
ANN [△]	X055 [✓]	T-12963 Annisquam Harbor Lighthouse 1902-19 ⁶⁶ (also on H-8942(1967))
ANT ^x	X058 [✓]	T-12964 [✓]
APE [△]	X062 [✓]	Cape Ann North Lighthouse, (aband) [✓] (1902-53).
AXE ^x	X092 [✓]	T-12964 [✓]
BAG ^x	X002 [✓]	T-12963 [✓]
BAT ^λ	X008 [✓]	T-12963 [✓]
BED ^λ	X021 [✓]	T-12964 [✓]
BUM [✓]	X085 [✓]	T-12964 [✓]
BUS ^x	X087 [✓]	T-12964 [✓]
CAB ^λ	X100 [✓]	T-12963 [✓] Landmark CHURCH TOWER, 1969
CAR ^x	X107 [✓]	T-12963 [✓] (ROCKPORT, ORTHODOX CHURCH, 1902)
CON [△]	X165 [✓]	Rockport 1st Congregational Church Spire (1902-1953)
COW ^x	X169 [✓]	T-12963 [✓]
DAY ^λ	X109 [✓]	T-12963 [✓]
DIP ^x	X136 [✓]	T-12963 [✓]
DOD ^x	X161 [✓]	Dodge Rock Beacon, 1916 [✓] 28
EAR ^λ	X207 [✓]	T-12963 [✓]
EGG ^x	X233 [✓]	T-12963 (Incomplete Manuscript) not on final copy.
FAT ^x	X208 [✓]	T-12963 [✓]
FIN ^λ	X235 [✓]	T-12963 [✓]
FLY ^λ	X249 [✓]	T-12964 [✓]
FOX ^λ	X269 [✓]	T-12964 [✓]
FRY ^λ	X279 [✓]	T-12964 [✓]
FUD ^λ	X132 [✓]	T-12964 [✓]

LIST OF SIGNALS - Cont.

Litho pg.

	<u>NAME</u>	<u>CODE NO.</u>	<u>ORGIN</u>
	FUN X	285 ✓	T-12964 ✓
	GAG >	x303 ✓	T-12963 ✓
	GAS X	x307 ✓	T-12963 ✓
829	HAG Δ <i>name on Central Sheet (T-12964 incomplete manuscript)</i>	x301 ✓	T-12964 THATCHERS ISLAND, 1849-1953 ✓
	HAT X	x308 ✓	T-12963 ✓
280	HER Δ	x327 ✓	Thatchers Island South Lighthouse 1940-1953 ✓
	HOD X	x361 ✓	T-12964 ✓
	HOP X	x366 ✓	T-12964 ✓
	HUB X	x380 ✓	T-12963 ✓
	IDA X	x310 ✓	T-12963 ✓
	JAP X	x406 ✓	T-12963 ✓
	JOY >	x469 ✓	T-12963 ✓
281	JUT Δ	x488 ✓	Rockport Breakwater Light, 1940 ✓
	KEY X	x429 ✓	T-12964 ✓
	KID X	x431 ✓	T-12963 ✓
	LAD X	x401 ✓	T-12963 ✓
375	LAV Δ	x405 ✓	T-12963 Lanesville, ^{Church,} Chirch Spire, 1902-1966 ✓
	LAX X	x409 ✓	T-12964 ✓
	LOG X	x463 ✓	T-12964 ✓
832	LUG X LON Δ	x465 ✓	T-12964 LONDONER BEACON, 1849 ✓
	LUX X	x489 ✓	T-12964 ✓
	MAG X	x503 ✓	T-12963 ✓
	MID X	x532 ✓	T-12964 ✓
853	MIL Δ	x534 ✓	T-12964 MILK ISLAND 2, 1916-53 ✓
	MUD	x 581 ✓	T-12963 ✓
	NAM NAW X	x509 ✓	T-12964 ✓
	NIT X	x538 ✓	T-12964 ✓
	NON X	x 565 ✓	T-12963 ✓

LIST OF SIGNALS - Cont

Lithia pg.

	<u>NAME</u>	<u>CODE NO.</u>	<u>ORGIN</u>
	NUX ^λ	X589 ✓	T-12964 ✓
	OFF ^λ	X622 ✓	T-12964 ✓
	OLD ^λ	X641 ✓	T-12964 ✓
280	OUT ^Δ	X688 ✓	Straitsmouth Lighthouse 1902 ✓ ⁴¹
	OXE ^x	X629 692 ✓	T-12964 ✓
	PEG ^λ	X623 ✓	T-12963 ✓
835	PIG ^Δ	X633 ✓	Pigeon Cove, Orthodox Church, ^{Red Bellry,} Spire (1916-1953)
	PIP ^λ	X636 ✓	T-12964 ✓ ¹⁹⁰²⁻³³
	PIX ^x	X639 ✓	T-12964 ✓
	POD ^x	001 X661 ✓	T-12964 ✓
856	POR ^Δ	X667 ✓	Rockport, Universalist Church Spire (1916-1953)
	POT ^x	X668 ✓	T-12964 ✓
	PRO ^λ	X676 ✓	T-12963 T-12964 ✓
	PUP ^λ	X686 ✓	T-12964 ✓
	RAG ^x	X703 ✓	T-12963 T-12964 ✓
	RAT ^λ	X708 ✓	T-12964 ✓
	RIP ^λ	X736 ✓	T-12964 ✓
	RIM ^λ	X735 ✓	T-12963 T-12964 ✓
279	ROC ^Δ	X761 ✓	T-12963 Rockport, Pigeon Hill, Standpipe, ¹⁹⁴⁰ 1934-1953
	RUB ^λ	X780 ✓	T-12964 ✓
	SAM ^x	X705 ✓	T-12964 ✓
	SHE ^λ	X732 ✓	T-12964 ✓
	SOW ^λ	X769 ✓	T-12964 ✓
	STY ^λ	X789 ✓	T-12964 ✓
	SUE [✓]	X782 ✓	T-12964 ✓
	TAN ^λ	X805 ✓	T-12964 ✓
	TUB ^λ	X880 ✓	T-12964 ✓
	WOW ^λ	X967 ✓	T-12964 ✓

LIST OF SIGNALS - Cont.

<u>NAME</u>	<u>CODE NO.</u>	<u>ORGIN</u>
ZAG	X903	T-12964

Ex-10-2-67

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

USCGS SHIP EXPLORER

30 Sept 1967

~~XXXXXXXXXX~~
~~XXXXXXXXXX~~
~~XXXXXXXXXX~~
STRIKE OUT TWO

I recommend that the following objects which have *(have not)* been inspected from seaward to determine their value as landmarks be ~~XXXXXXXXXX~~ *not* deleted from the charts indicated.
The positions given have been checked after listing by TM, Gates LTJG USN

CDR. Pentti A. Stark Comdg.

Chief of Party

STATE	MASSACHUSETTS	CHARTING NAME	DESCRIPTION	SIGNAL NAME	POSITION				METHOD OF LOCATION AND SURVEY NO.	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
					LATITUDE		LONGITUDE							
					'	"	'	"						
		CUPOLA	CUPOLA OF BIG HOUSE	CAR	42	41	70	38	1927	T-12963	8-67	X	X	1206 243
		XXXXXX	VENTILATOR HOTEL CENTER	PRO	42	40	70	37	1927	T-12964	8-67	X	X	1207 243
		TOWER	ROUND TOWER <i>not on T-12964 incomplete manuscript</i>	RUB	42	38	70	35	1927	T-12964	8-67	X	X	1207 243

This form shall be prepared in accordance with Hydrographic Manual, Publication 20-2, Sec. 6-36, Fig. 79. Positions of charted landmarks and non-floating 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.

* TABULATE SECONDS AND METERS

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

TO BE CHARTED
~~XXXXXXXXXX~~
~~XXXXXXXXXX~~ } STRIKE OUT TWO

USCGS SHIP EXPLORER

30 Sept 19 67

I recommend that the following objects which have (have not) been inspected from seaward to determine their value as landmarks be charted on ~~XXXXXXXXXX~~ the charts indicated.
The positions given have been checked after listing by T.M. Gates LTJG USN

CDR. Pentt1 A Stark Comds.

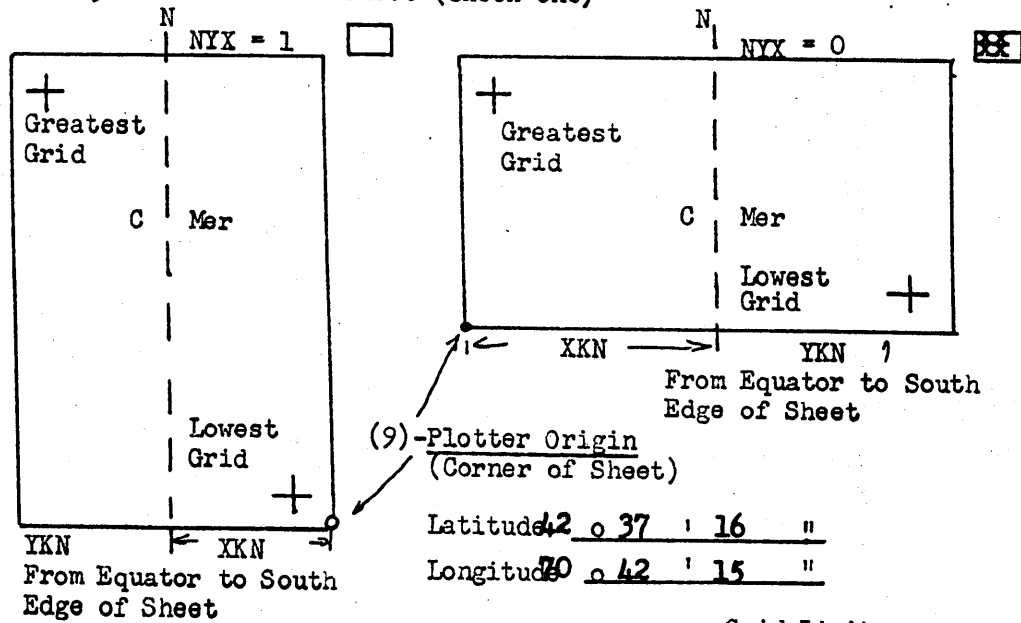
Chief of Party

STATE	MASSACHUSETTS	CHARTING NAME	DESCRIPTION	SIGNAL NAME	POSITION		DATUM	METHOD OF LOCATION AND SURVEY	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
					LATITUDE * D. R. METERS	LONGITUDE * D. P. METERS							
		** TOWER	LOOKOUT TOWER (CEMENT)	EGG	42 41	70 37	1927	T-12963	8-67				1206
		TOWER	RADIO TOWER	ANT	42 39	70 35	1927	T-12964	8-67				1207
		STACK	WHITE STACK WITH BLACK RIM ON TOP	RAG	42 40	70 37	1927	T-12963	8-67				1207
		* STANDPIPE	STANDPIPE (GREEN)	FLY	42 38	70 36	1927	T-12964	8-67				1207
		**	<i>Located on contact sheet of Beacon Light monument T-12963 not as measured about L-351(174) from 567 records by plotting it as charted landmark</i>										
		* MOST PROMINENT LANDMARK IN AREA											

This form shall be prepared in accordance with Hydrographic Manual, Publication 20.2, Sec. 6-36, Fig. 79. Positions of charted landmarks and non-floating 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.

PARAMETERS FOR DIGITAL COMPUTING
POLYCONIC PROJECTIONS

- (1) Project No. OPR# 473 (4) Requested by _____
 (2) H. No. H - 8940 (5) Ship or Office Explorer
 (3) Field No. Ex-10-2-67 (6) Date Required _____
 (7) Visual (8) Electronic (fill out form #3)
 (10) XKM (SP 5) Distance from CMER to East Edge (NYX = 1) or West Edge (NYX = 0). 7178.7 Meters
 (11) YKN (SP 241) Distance from Equator to South Edge of Sheet. 4,720,415.0 Meters
 (12) Central Meridian 70° 37' 00"
 (13) Survey Scale 1:10,000
 (14) Size of Sheet (Check one) 36x60 42x60
 (15) NYX, Orientation of Sheet (Check one)



Grid Limits	
(16) Greatest Latitude	<u>42° 42' 00"</u> (Projection Line)
(17) Lowest Latitude	<u>42° 37' 30"</u>
(18) Difference	<u>00° 04' 30"</u>
(19)	<u>00' 30"</u>
(20)	<u>9</u> YSN
(21) Greatest Longitude	<u>70° 42' 00"</u>
(22) Lowest Longitude	<u>70° 32' 30"</u>
(23) Difference	<u>00° 09' 30"</u>
(24)	<u>00' 30"</u>
(25)	<u>19</u> XSN

NORFOLK HYDROGRAPHIC PROCESSING BRANCH
FATHOMETER VELOCITY CORRECTIONS

H-8940

1. Fathometer velocity corrections were recompiled during verification as those submitted by the field contained a $\sqrt{2.0}$ foot factor, which was entered to avoid having a minus TRA correction and was not removed during the automation process. The field also applied stylus arm length corrections that were compiled incorrectly and, in most cases, entered with the sign reversed.
2. Using available field data, velocity ^{stylus} corrections were derived from bar checks corrected for ~~stylus~~ length error and extended to maximum sounding depths on the T&S curve. Stylus error was applied as a separate correction to all soundings affected.
3. Phase, initial and settlement and squat corrections were combined and logged under TRA. Stylus length and velocity corrections were logged under VEL TAB IND.
4. Velocity curves and the abstracts for bar checks, stylus length, and T/VTI corrector tapes are included in this report.


Hugh L. Proffitt
Chief, Processing Br. AMC

Norfolk, Va.
Jan. 3, 1969

REPORT—TIDE STATION

Lat. 42°39'17"N

Station ANNISQUAM, MASS. Long 70°40'33"W Time Mer. 75°W

Established _____
Inspected by Capt. E. E. Jones Comdg. Date 18 May, 1967

Wharf.—Name and location* Annisquam Bridge across northeast branch Ansqm. Hbr.
Owner and arrangements for maintaining station Maintained by city of Gloucester
Contacted Supt. Ed Culver of Gloucester Hiway Dept. Permission granted.

Tide Observer.—Name and address N.A.

Regular business N.A.

Tide House.—Size and brief description N.A.

Tide Staff.—Portable or fixed Fixed Date of installation 18 May 1967
(Staff support) _____
(Fixed staff) _____

Limits of graduations 0-18ft Hinged? No Vitrified scale? Yes Glass tube? No

Scale graduation corresponding to stop N.A. ft. Is staff support sheathed with copper? No

Method of securing staff and support in place and remarks Vitrified scale secured to 2"x4" 2"x4" secured to bridge piling and beam.

Automatic Gage.—Standard or portable portable Date of installation 18 May 1967

C. & G. Survey No. 63-137 Scale 30:1 Removable pencil-screw? No

Float, size 3½ in.; weight _____ lb. Counterpoise N.A. lb. Tension weight N.A. lb.

Is movable pulley used with counterpoise? N.A.; with tension weight? N.A.

Remarks: Tide gage zero is set two feet below tide staff zero to record low tides.

Float Well (automatic gage).—Material ½" PVC pipe Date of installation 18 May 1967

Length, top to intake 20ft. Inside diameter ½ in. Size and position of intake 3/8 in. hole in side of well 6" from bottom of well.

Construction, installation, and remarks Pipe secured to 2"x4" with U-bolts. 2"x4" connected to bridge piling and deck and spudded into harbor bottom. 1 ft.

*A section of chart showing location should accompany this report.

Measurements.—Referred to wharf floor unless otherwise indicated. Negative sign to be used when point is above wharf floor.

		(Automatic gage)	(Tape gage)
Top of staff support	-2.5 ft.	Top of float well	_____ ft.
Zero of tide staff	16.0 ft.	Intake to well	_____ ft.
Harbor bottom at staff	16.5 ft.	Harbor bottom at well	_____ ft.

Bench Marks.—Date of levels to tide staff 19 May 1967 Number of marks connected 4
Number of new marks established 1 Number of old marks recovered 3

(COMPLETE DESCRIPTIONS OF BENCH MARKS MUST ACCOMPANY LEVELING RECORD)

Inventory of Instruments: _____

Additional Information: _____

Recommendations: _____

NOTE.—This form being designed both for the establishment and an inspection of a tide station, questions not pertinent to the work at hand may be omitted; but at the time of an inspection it is desirable that the depth of water and such other information as can be conveniently obtained should be entered in the form in order that any changes since the previous inspection may be detected.

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 $42^{\circ}39'17''$ and Longitude $70^{\circ}40'33''$. 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 $75^{\circ}W$

TIDE NOTE FOR HYDROGRAPHIC SHEET

February 29, 1968

~~Norfolk District~~ Pacific Marine Center

Plane of reference approved by
~~NOAA~~ 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 lat. $42^{\circ}39'17''$, long. $70^{\circ}40'33''$

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

Annisquam Bridge = 8.7 feet

Remarks

GEOGRAPHIC NAMES

Survey No. H-8940

Name on Survey	Source of Name											
	A	B	C	D	E	F	G	H	K			
Andrews Point												1
Emerson Point												2
Flat Point												3
Folly Point												4
Gap Head												5
Halibut Point												6
Harbor Rock												7
Hodgkins Cove												8
Hoop Pole Cove												9
Lands End												10
Loblolly Cove												11
Milk Island												12
Oak Rock												13
Pigeon Cove												14
Rockport Harbor												15
Rowe Point												16
Sandy Bay												17
Straitsmouth Island												18
Thacher Island												19
* Twelvefoot Rock												20
Whale Cove												21
Cape Ann												22
* Name deleted from chart 243. 9 ft. sandg. here from H-8940 J.T.G. 6-24-77												23
												24
												25
												26
												27

PREPARED BY

Frank W. Pickett
CARTOGRAPHIC TECHNICIAN

APPROVED BY

A. J. Wraight
CHIEF GEOGRAPHER

GEOGRAPHIC NAMES

Survey No.

Name on Survey	Source of Name											
	A	B	C	D	E	F	G	H	K			
Atlantic Ocean												1
Avery Ledge												2
Bartlett Rock												3
Bay View												4
Davis Neck												5
Dodge Rock												6
Dry Salvages												7
Flat Ground												8
Folly Cove												9
Iswich Bay												10
Lanes Cove												11
Lanesville												12
Little Salvages												13
Lobelly Point												14
Londoner												15
Mitchell Rock												16
Ocean View												17
Pigeon Cove (Town)												18
Pigeon Rock												19
Plum Cove												20
Rockport												21
Gully Point												22
Sandy Bay Ledge												23
												24
												25
												26

PREPARED BY

Frank W. [Signature]
CARTOGRAPHIC TECHNICIAN

APPROVED BY

A. J. Wraight
CHIEF GEOGRAPHER

H- 8940

- A. Additions and corrections have been furnished the plotter
center by the verification unit. Except those noted for sub-
mission by Review.

Date Dec. 9, 1969

Signed *Hugh J. Ruffin*
Title Chief, Hydro Branch, AMC

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

Date Dec. 9, 1969

Signed *Hugh J. Ruffin*
Title Chief, Hydro Branch, 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).

Date Dec. 9, 1969

Signed *Hugh J. Ruffin*
Title Chief, Hydro Branch, AMC

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

Date Dec. 10, 1969

FORM C&GS-946
(REV. 11-65)
(PRESC. BY
HYDROGRAPHIC
MANUAL 20-2,
6-64, 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-8940

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT			
SMOOTH SHEET	1	BOAT SHEETS	2			
DESCRIPTIVE REPORT	1	OVERLAYS	4 + 12			
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	1					
CAMERS	1 with Raydist Report & Cal. Abstracts					
VOLUMES	22					
BOXES			3			

T-SHEET PRINTS (L. Int) T-12963 & 12964 (2 parts) T-12961, 12962, 12971, 12970, 12969, 12971(2)

SPECIAL REPORTS (L. Int)
Velocity Correction Report (FATHOMETER)

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				3274
POSITIONS CHECKED		340	140	
POSITIONS REVISED		139	5	
DEPTH SOUNDINGS REVISED			8	
DEPTH SOUNDINGS ERRONEOUSLY SPACED			6	
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		24 hrs.	8 hrs	
JUNCTIONS		8 hrs.	14 hrs	
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		113 hrs.	34 hrs	
SPECIAL ADJUSTMENTS <i>Velocity Corrections Logging</i>	190 hrs			
ALL OTHER WORK		497 hrs	80 hrs	
TOTALS		642 hrs	136 hrs + 16hr	
PRE-VERIFICATION BY <u>W.M. FEZEL</u>	BEGINNING DATE <u>13 MARCH 1968</u>	ENDING DATE <u>28 MAY 1969</u>		
VERIFICATION BY <u>ALLAN K. SCHUGELA</u>	BEGINNING DATE <u>13 OCTOBER 1969</u>	ENDING DATE <u>26 NOVEMBER 1969</u>		
REVIEW BY <u>Inspection J. F. Callahan</u>	BEGINNING DATE <u>1 SEPTEMBER 1970</u>	ENDING DATE <u>2 OCT 1970</u>		
<i>Review - George K. Payne</i>	<i>128 hrs</i>	<i>24 hrs</i>	<i>5/27/77</i>	

H-8940

Information for Future Presurvey Reviews

This is an inshore survey off Cape Ann. No significant bottom changes are revealed by a comparison between prior and present depths. However, local shifting of sediment has occurred in offshore shoal areas. In depths of greater than 60 feet a deepening of as much as 10 feet has been ascertained.

<u>Position Index</u>		<u>Bottom Change</u>	<u>Use</u>	<u>Resurvey</u>
<u>Lat.</u>	<u>Long.</u>	<u>Index</u>	<u>Index</u>	<u>Cycle</u>
423	0704	2	6	25 years
424	0704	2	6	25 years

OFFICE OF MARINE SURVEYS AND MAPS

MARINE SURVEYS DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8940

FIELD NO. EX-10-2-67

Massachusetts - Cape Ann, Folly Point to Thacher Island

SURVEYED: May 23 - September 25, 1967

SCALE: 1:10,000

PROJECT NO.: OPR-473

SOUNDINGS: DE-723 Echo Sounder
Lead Line, Pole

CONTROL: Sextant Fixes on
Shore Signals

Chief of Party	E. E. Jones and P. A. Stark
Surveyed by	C. A. Burroughs, D. R. Askew
.....	J. W. Walsh, T. M. Gates
.....	J. E. Clark, R. S. Patwell
.....	R. F. Coons, W. B. Knight
.....	R. A. Trauschke, T. M. Wells
.....	J. E. Colt, E. D. Harden
.....	J. M. McClelland
Automated Plot by	Gerber Digital Plotter (PMC)
Verified by	A. K. Schugeld
Reviewed by	G. K. Myers
	Date: October 1, 1970
Inspected by	J. T. <u>Gallahan</u>

1. Description of the Area

This is an inshore survey off the northern part of Cape Ann from Bay View on the west to Emerson Point on the east. Hydrography extends from the shoreline outward for distances ranging from 1/2 to 3 miles. The area of Rockport Harbor is covered by large-scale survey H-8944 (1967), and falls within the confines of this smooth sheet.

Most of the shoreline in the area is bordered by rocky ledges and small coves. Many rocks and reefs uncover close inshore.

The partially submerged breakwater on the outer periphery of Sandy Bay provides a protected anchorage.

The bottom in the area of the survey is fairly deep, with steep slopes alongshore. Shoal features east of the breakwater in depths of greater

than 50 feet contribute to the rugged character of the bottom. Many isolated sunken rocks are found outside the major shoal features of the area. In most cases these are adequately marked by navigational aids.

The predominant bottom characteristics in the area are mud, sand, and rock.

2. Control and Shoreline

The origin of control is adequately covered in part F of the Descriptive Report.

The shoreline originates with Class I maps (final reviewed manuscripts) T-12963 and T-12964 of 1965-1969.

3. Hydrography

a. Depths at crossings are in good agreement. The usual depth curves were adequately delineated. The 3-foot depth curve was added to define the bottom configuration more distinctly.

b. The development of bottom configuration and the investigation of least depths is considered adequate.

4. Condition of Survey

The sounding records, smooth plotting, Descriptive Report, and printout are adequate and conform to the requirements of the Hydrographic Manual and the Instruction Manual - Automated Hydrographic Surveys, except as follows:

a. Abstracts and records were not inserted in the Descriptive Report for the following:

(1) A description of logging equipment utilized, including tape production (ASC II or BCD code) and single or dual indicator application.

(2) Separate abstracts of the component correction that make up TRA.

(3) An abstract of tide correctors.

(4) An abstract of hydrographic data located on the survey.

(5) An abstract of velocity correctors.

b. Bar checks to deeper depths would have been desirable.

c. In many shoal areas the fathogram bottom trace disappeared in an extended initial trace. The utilization of pole soundings would have verified the validity of these depths.

d. The bottom characteristics of "rks" was improperly shown on the survey for "rky" and was revised by the reviewer.

e. Form 567 in the Descriptive Report did not have a complete listing of the charted nonfloating aids and landmarks shown on the present survey.

5. Junctions

Adequate junctions were effected with H-7140 (1947) on the north and east, H-8939 (1967) on the west, H-8942 (1967) on the southwest, and H-8941 (1967) on the south. The junction with large-scale survey H-8944 (1967) of Rockport Harbor which falls inside present survey limits will be discussed in the review of that survey.

6. Comparison with Prior Surveys

a.	H-396A	(1850)	1:10,000	H-574	(1856)	1:20,000
	H-396B	(1873)	1:10,000	H-597	(1857)	1:10,000

The prior surveys taken together cover the present survey. A comparison between prior and present depths reveals a generally stable area and only minor differences in depths, except in the area of the submerged breakwater which was constructed subsequent to the earlier surveys.

Some local shifting in offshore shoal areas is indicated by variable differences of 3-6 feet. In depths of greater than 60 feet a deepening of as much as 10 feet has occurred. Alongshore depths are in excellent agreement between the prior and present surveys, except at exposed points of land. Here, indications of slight erosion are evident.

Attention is directed to the following charted soundings and rocks:

(1) The 7 charted in latitude 42°38.05', longitude 70°35.08' from H-396B (1873) is probably an error in recording hand lead soundings. Falling in depths of 13 feet on the present survey and 11 feet on the earlier survey, the recorded 7 1/2 feet is considered 1 fathom in error and should be disregarded.

(2) The 14 charted in latitude 42°39.95', longitude 70°37.01' from H-597 (1857) falls in depths of 40 feet on both the present survey

and H-2602 (1902). It is considered displaced off the shoal 75 meters to the north and should be disregarded.

(3) The rock awash charted at latitude $42^{\circ}40.43'$, longitude $70^{\circ}34.30'$ from H-597 (1857) is recorded as covered 1 1/2 feet at MLW and has been carried forward as a rock awash at MLW.

(4) The black area in the vicinity of the Salvages apparently reproduced by an overprint is superseded by T-12964 (1965-69) and should be disregarded.

(5) The 3 sunken rocks charted in the area of Dry Salvages and Little Salvages from H-597 (1857) were not investigated by the hydrographer. However, these rocks fall within the limits of the approximate low water area and can be deleted from the chart.

(6) The 3 rocks awash charted in latitude $42^{\circ}41.5'$, longitude $70^{\circ}37.65'$ at Halibut Point from H-597 (1857) were not mentioned by the hydrographer and do not appear on T-12963 (1965-69). It is evident these rocks symbolized the ledge bordering the shoreline and should be deleted from the chart.

Attention is directed to the Descriptive Report, Section J, "Comparison with Prior Surveys," for additional comparison of features with the present survey.

Prior soundings and a sunken rock have been carried forward from H-597 (1857) to supplement the present depths alongshore. With these additions the present survey is adequate to supersede the prior surveys within the common areas.

b.	H-3947	(1916)	WD	1:80,000
	H-3949	(1916)	WD	1:25,000
	<u>H-3950</u>	<u>(1916)</u>	<u>WD</u>	<u>1:10,000</u>

These wire-drag surveys taken together cover the present survey within the common area. No conflicts are noted between the effective drag depths and depths on the present survey. Several prior soundings and bottom characteristics have been carried forward from H-3949 WD and H-3950 WD of 1916 to supplement present depths.

With these additions the present survey is adequate to supersede the prior surveys in the common area.

- c. H-2602 (1902) 1:10,000
H-4850 (1928) 1:5,000

These surveys cover Rockport Harbor and adjacent areas on the present survey. A comparison between prior and present depths reveals excellent agreement and indicates a stable bottom. It is noted, however, minor changes of 1-3 feet have occurred on offlying shoals.

A comparison of depths within the overlap of H-8944 (1967) is discussed in the review of that survey.

North of Straitsmouth Island, several soundings from H-2602 (1902) have been carried forward to supplement the present depths.

The 11-foot depth charted at latitude $42^{\circ}39.83'$, longitude $70^{\circ}35.18'$ is from H-2602 (1902). The positioning of this depth is in error and the 11 sounding should be disregarded.

With these additions the present survey is adequate to supersede the prior surveys within the common area.

7. Comparison with Chart 243 (latest print date September 13, 1969)
233 (latest print date December 9, 1968)

a. Hydrography

The charted hydrography originates partly with the previously discussed prior surveys which require no further consideration and Chart Letters 415 of 1916 and 143 of 1961. The remaining hydrography is from the boat sheets (Bp-73619-20) and verified smooth sheet of the present survey.

Attention is directed to the following:

On chart 233

The landmark at latitude $42^{\circ}40.22'$, longitude $70^{\circ}39.96'$ identified as "CHURCH SPIRE" agrees with the incomplete manuscript of T-12963. This landmark has been reidentified as "CHURCH TOWER" on the final reviewed manuscript of T-12963 and should so be designated on the chart.

On chart 243

(1) The sunken wreck charted at latitude $42^{\circ}38.83'$, longitude $70^{\circ}34.21'$ with a maximum cleared depth of 20 feet from Chart Letter 757 of 1957 was not disproved by the present survey and should be retained on the chart.

(2) The sunken wreck (Presurvey Review Item No. 33) charted at latitude $42^{\circ}40.7'$, longitude $70^{\circ}39.5'$ in Lane's Cove originates with

Chart Letter 891 of 1959. This wreck no longer exists and should be deleted from the chart; see paragraph J of the main body of the Descriptive Report.

(3) The 22-foot depth charted at latitude $42^{\circ}39.99'$, longitude $70^{\circ}35.21'$ originates with H-3950 WD (1916) and is discussed in the Descriptive Report paragraph J. The hydrographic investigation was inadequate to disprove this 22-foot sounding and a fathometer trace (between positions 1275-1276) indicates its possible existence. Therefore, this 22-foot depth, which is carried forward to the present survey, should be retained on the chart.

(4) The 23 charted in latitude $42^{\circ}38.2'$, longitude $70^{\circ}33.55'$ from a questionable note on the boat sheet of the present survey is unsupported by recorded data and should be disregarded.

(5) The small rock islet charted at latitude $42^{\circ}40.94'$, longitude $70^{\circ}39.56'$ originates with H-597 (1857). This bare rock does not appear on T-12963 (1965-69) and was not adequately investigated on the present survey. This rock has been carried forward to the present survey as a rock awash and the charted rock symbol should be revised to reflect this change.

Attention is directed to the Descriptive Report, Section K, "Comparison with Chart," for additional comparison of charted features.

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

b. Topography

(1) Topo station EGG (233) (Presurvey Review Item No. 35) at latitude $42^{\circ}41.32'$, longitude $70^{\circ}37.99'$ and a second tower 30 meters northeast of this are shown as charted landmarks. The tower at station EGG was subsequently deleted from the chart based on information related in Chart Letter 251 of 1974 and does not appear on the final copy of T-12963 (1965-69).

(2) The two black shapes charted at latitude $42^{\circ}41.10'$, longitude $70^{\circ}39.13'$ appear as rocks awash on T-11155 (1952-53). The northerly rock does not appear on T-12963 (1963-65) or the present survey but falls within the ledge area. It is considered a part of this feature and should be charted as such.

(3) The pile charted at latitude $42^{\circ}40.07'$, longitude $70^{\circ}37.13'$ in the vicinity of Dodge Rock Beacon originates with an unknown early

source. It does not appear on T-12964 (1965-69) and is considered disproved by the present survey. It should be deleted from the chart.

c. Aids to Navigation

The fixed and floating aids located on the present survey are in substantial agreement with the chart and adequately mark the features intended.

8. Compliance with 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.

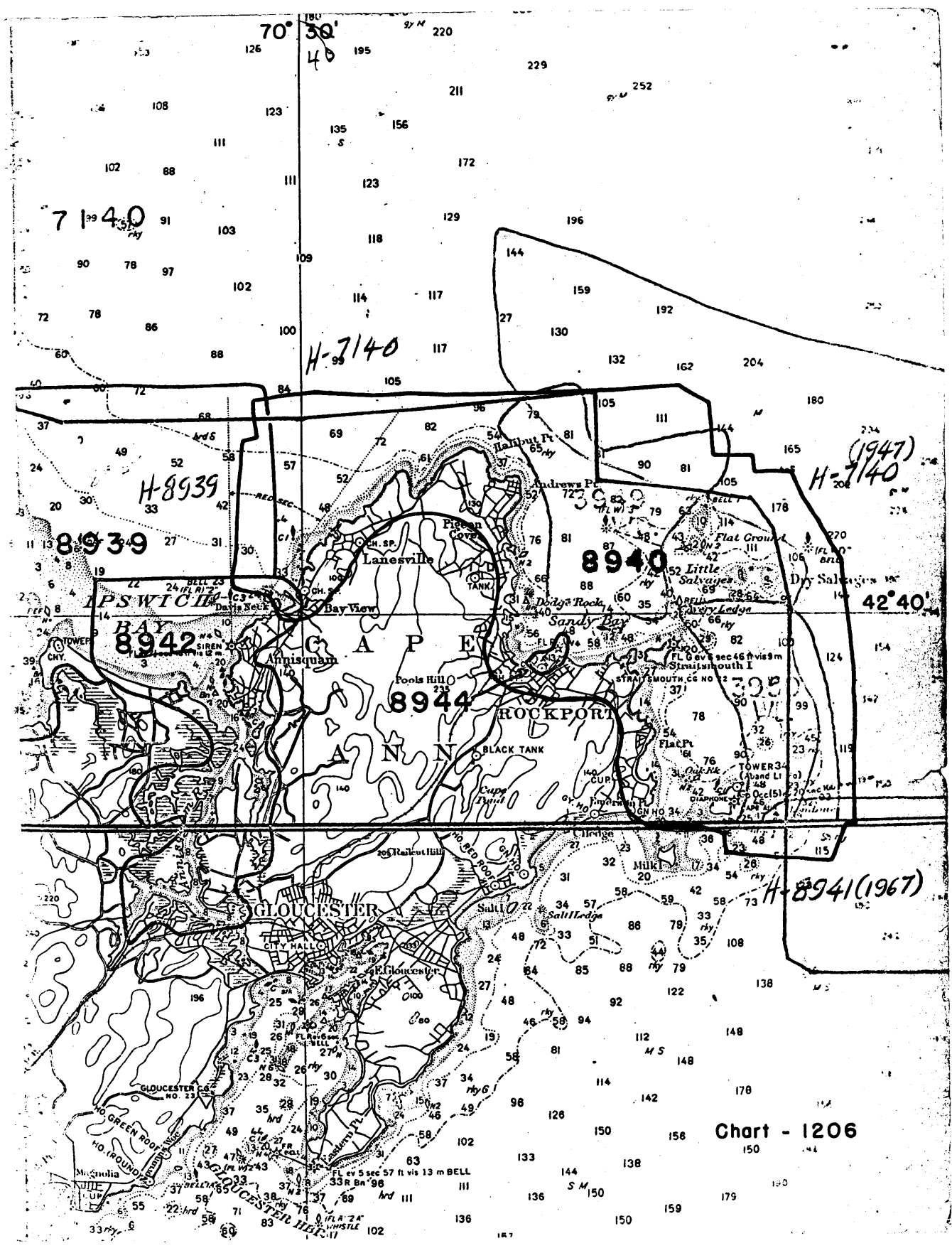
Examined and Approved:



Chief
Marine Surveys Division



Associate Director
Office of Marine Surveys
and Maps



70° 30' 40

7140

H-7140

H-8939

8939

IPSWICH BAY

8942

8944

8940

H-7140 (1947)

42° 40'

H-8941(1967)

Chart - 1206

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-8940

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
1207	4-8-70	Eric Fry	Full Part Before After Verification Review Inspection Signed Via Drawing No. 30 no critical corrections
613	4-21-70 4-28-70	Fannie B Power Reviewed DJK	Full Part Before After Verification ^{before} Review Inspection Signed Via Drawing No. 2 Added ^{5/16/77} sounding applied directly to chock / RND.
71	5-5-70	Eric Fry	Full Part Before After Verification Review Inspection Signed Via Drawing No. 24 exam, no critical corrections
70	6-29-70	Jeffrey Stuart	Full Part Before After Verification Review Inspection Signed Via Drawing No. exam. no critical corrections Hold for application to large scale charts
243	7-7-70	Gordon Moore Reviewed DJK 7-29-70	Full Part Before After Verification Review Inspection Signed Via Drawing No. Added several Rows & Swags Cape Ann Coast
1206	10-19-70	H. Radde	Full Part Before After Verification ^{before} Review Inspection Signed Via Drawing No. Revised edges & curves thru chrt. 243 #19
613-5C	2-3-71	H. Radde	Full Part Before After Verification ^{before} Review Inspection Signed Via Drawing No. Part after Verification thru chrt. 243 #19 Review exam. directly no critical corr. (Re-apply thru large scale chrt.)
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification ^{before} Review Inspection Signed Via Drawing No. Part after verification thru chrt. 1206. Aug 24 Review Exam directly for critical corr.
1107	3-23-71	S. McKellar	Full Part Before After Verification ^{before} Review Inspection Signed Via Drawing No. Partly after verification thru Chart 1206. Review exam directly for critical corr.
71	3/24/71	R. O. Sanacchi	Part after verification, review & before inspection via Dig # 25 thru chrt. 1107 Aug 24.
243	6-16-71	Joe Esterreicher	Part. after Verification and Review, before inspection. Exam. No additional critical corrections. Aug # 20
70	7-30-71	Kroy Gen	Part after VER & REV, BEFORE INSP THRU CHART 71 DWG # 25
1207	9-171	Joe Esterreicher	Part. after Ver. & Rev., Before Insp. thru chart 243 Aug #20

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-8940

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
243	8-15-72	J. E. Shuch	Part After Verification Review Signed Via Drawing No. #21 Applied soundings in area of Subm Breakwater. See History #21
6135C	12-12-72	J. E. Shuch	Part After Verification Review Signed Via Drawing No. #5 Applied soundings in area of Subm. Breakwater thru chart 243 Aug #21
13267	11-7-79	Kevin D Shaw	Full Part Before After Verification Review Inspection Signed Via Drawing No. 39 Deleted 7' SNOB; DELETED 23' SNOB AND ADDED 29' ONLY PER REVIEWER'S REPORT.
13281	11-7-79	Kevin D Shaw	Full Part Before After Verification Review Inspection Signed Via Drawing No. 17 EXAM-NO CORR
13279	5/1/80	D Neumann	Full Part Before After Verification Review Inspection Signed Via Drawing No. 29
13281	5/1/80	D Neumann	Full Part Before After Verification Review Inspection Signed Via Drawing No. 18 ^{EXAMINED} NO CORRECTIONS
13006	5/2/80	D Neumann	Full Part Before After Verification Review Inspection Signed Via Drawing No. 44 EXAM NO CORR
13009	5/2/80	D Neumann	Full Part Before After Verification Review Inspection Signed Via Drawing No. 34 EXAM NO CORR
13260	5/5/80	D Neumann	Full Part Before After Verification Review Inspection Signed Via Drawing No. 36 EXAM NO CORR
13200	5/5/80	D Neumann	Full Part Before After Verification Review Inspection Signed Via Drawing No. 33 EXAM NO CORR
13267	5/6/80	D Neumann	Full After Verification Review Inspection signed via Drawing #40 EXAM NO CORR
13278	5/6/80	D Neumann	Full After Verification Review Inspection signed via Drawing #30 thru chart 13279
13274	10-8-80	L. Wylie	FULL AFTER VERIFICATION REVIEW INSPECTION
	9-15-80	G. Kelley	Signed VIA DWG. # 12 B ^{12th} THRU CHT 13279
13278	10-8-80	L. Wylie	FULL AFTER VERIFICATION REVIEW INSPECTION
			Signed VIA DWG #30 THRU CHT 13274
13274	12-12-80	J. E. Shuch	

