

8121

Diag. Cht. No. 2995

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. PF-4154 Office No. H-8121

LOCALITY

State Alaska

General locality Pribilof Islands

Locality Southwest of St. Paul Island

1945

CHIEF OF PARTY

K. G. Crosby

LIBRARY & ARCHIVES

DATE January 13, 1955

B-1870-1 (1)

8121

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

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

REGISTER No. H-8121

Field No. PF-4154

State Alaska

General locality Pribilof Islands
~~Bering Sea~~

Locality Southwest of
St. Paul Island

Scale 1:40,000 Date of survey June 1954

Instructions dated 6 March 1951 and 14 December 1953

Vessel PATHFINDER

Chief of party K. G. Crosby

Surveyed by J. P. Lushene, F. A. Riddell, W. F. Deane, P. A. Weber

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

Fathograms scaled by Field party

Fathograms checked by Ship's officers Taylor, WEBER

Protracted by P. Taylor

Soundings penciled by P. Taylor

Soundings in fathoms 8 tenths
~~MLLW~~ ~~MLLW~~ ~~MLLW~~ MLLW and are based on a velocity
of sound of 800 fms./sec.

REMARKS: _____

Handwritten initials

DESCRIPTIVE REPORT

To Accompany

HYDROGRAPHIC SURVEY H-8121 (FIELD NO. PF-4154)

ST. PAUL ISLAND

ALASKA

SCALE 1:40,000

1954

USC&GSS PATHFINDER

Capt. K. G. Crosby, Comdg.

Hydrographers: Comdr. J. P. Lushene
Comdr. F. A. Riddell
Comdr. W. F. Deane
Comdr. P. A. Weber

A. PROJECT

1. Project CS-343, Bering Sea, Alaska
2. Original Instructions dated 6 March 1951 with latest Supplemental instructions, superseding all others, dated 14 December 1953.

B. SURVEY LIMITS AND DATES

1. This sheet covers two small areas to the southwest and northwest of St. Paul Island. The southerly portion is a triangular strip around the outer fringe of Otter Island. The approximate outer limits are Lat. $57^{\circ} 06.5'N$, Long. $170^{\circ} 24.0'W$; Lat. $57^{\circ} 00.8'N$, Long. $170^{\circ} 15.2'W$; Lat. $57^{\circ} 00.5'N$, Long. $170^{\circ} 34.0'W$. The inner limits are Lat. $57^{\circ} 04.0'N$, Long. $170^{\circ} 24.2'W$; Lat. $57^{\circ} 01.8'N$, Long. $170^{\circ} 20.2'W$; Lat. $57^{\circ} 01.8'N$, Long. $170^{\circ} 28.0'W$.

2. The northerly portion, done entirely to develop an 18 fathoms shoal shown on a preliminary review, is bounded by latitudes $57^{\circ} 13.0'N$ and $57^{\circ} 14.8'N$ and by longitudes $170^{\circ} 32.6'W$ and $170^{\circ} 33.8'W$. (The 18-fathom spot was not found by the present survey) Joins H-8072 (1953) and H-7948 (1951-53)

3. All field work, except current observations, was done in June 1954.

4. The outer limits of the southerly portion of this survey join 1951 survey H-7948. The inner limits join 1954 survey H-8119. & 1953) & H-7914 (1951)

5. The northerly portion of this survey falls within the limits of the prior survey of 1953, H-8072 and H-7948 of 1951. ✓
(1953)

C. VESSELS AND EQUIPMENT

1. The survey was done entirely by the Ship PATHFINDER. ✓
2. Turning radii for the ship at 130 RPM (the only data available) are as follows:

	<u>Radius (meters)</u>	<u>Rudder Indicator</u>
Port turn	167	32°
Starboard turn	153	36°

3. Soundings were taken with an 808 type graphic recording fathometer No. 130S. ✓

4. The shoran stations located on St. Paul Island for the control of this survey are as follows: SHO-FAIR, located at St. Paul village; SHO-MAST, located on Southwest Point; and SHO-DAR, located on the northwest point. ✓

D. TIDE AND CURRENT STATIONS

1. A portable automatic tide gage, established in Village Cove, St. Paul Island, was used throughout the survey with no time or range corrections applied. ✓

2. There are five current stations in the area, one of which does not fall on the sheet. Their locations are as follows: ✓

a. Station No. 1, not shown on this sheet, employed a radio current meter and was located in latitude $56^{\circ} 52.5'N$, longitude $169^{\circ} 56.0'W$. ✓

b. Station No. 2, using a radio current meter, was located in latitude $57^{\circ} 03.0'N$, longitude $170^{\circ} 10.0'W$. ✓

c. Station No. 3, using a radio current meter, was located in latitude $57^{\circ} 06.6'N$, longitude $170^{\circ} 34.0'W$. ✓

d. Station No. 4, using a pole only, was located in latitude $57^{\circ} 09.3'N$, longitude $170^{\circ} 26.7'W$. ✓

e. Station No. 5, using a pole only, was located in latitude $57^{\circ} 14.7'N$, longitude $170^{\circ} 27.2'W$. ✓

E. SMOOTH SHEET

1. The smooth sheet projection was made by hand and verified, both by the Seattle Processing Office. ✓

2. ~~The shoreline was transferred by the processing office from a preliminary photogrammetric compilation.~~

Shoreline shown in pencil on the smooth sheet is from T-2295 and T-2297 of 1897

3. Soundings were pencilled in fathoms and tenths from 0 to 11 fathoms and in integral fathoms at greater depths.

4. There are some slight jumps in the spacing between fixes that can only be attributed to swirling currents encountered.

F. CONTROL STATIONS

1. Triangulation stations ZAPADNIE 1897-1944 and RAN 1951 are both recovered stations previously established.

2. Shoran station SHO-RAN had the same position as the triangulation station RAN 1951.

3. Shoran station SHO-FAIR was located by distance and direction from triangulation station FAIR 1951.

4. Shoran station SHO-DAR was located by distance and direction from triangulation station DARBY 1953.

G. SHORELINE AND TOPOGRAPHY

1. No topographic detail other than shoreline is shown on this sheet. The shoreline was transferred from a ~~preliminary photogrammetric compilation~~ ^{RESURVEYING SURVEY} and is therefore shown only in pencil. (See TPE-2)

2. All work was offshore and no checks were made of the shoreline delineation.

H. SOUNDINGS

1. Soundings were measured in fathoms with an 808 type graphic recording fathometer calibrated for a velocity of 800 fms/sec.

2. The corrections for initial were obtained by inspection of the fathograms. See Fathometer Corrections Descriptive Report, 1954 for echo corrections. (in Library)

I. CONTROL

1. Hydrography was controlled entirely by shoran fixes.

2. The shoran distances were corrected for calibration zero set only. This was obtained by simultaneously taking sextant fixes (on definitely located shore objects) and shoran fixes; distances from these fixes to the shoran stations were compared for corrections. A tabulation of the zero set calibration corrections is appended to this report. For a complete detailed explanation of the procedure used to obtain the corrections see Shoran Corrections Descriptive Report, 1954. (Spec. Rept No 89 (1954))

J. ADEQUACY OF SURVEY

1. This survey is considered complete and should supersede prior surveys for charting.

K. CROSSLINES

About seven percent of soundings in the southern portion is on cross-lines. There is good agreement of soundings on all crossings.

L. COMPARISON WITH PRIOR SURVEYS

1. The southerly portion of this survey was compared with Survey H-7948 and the agreement was generally within one fathom. It should be noted that the photostat copy of H-7948 was distorted enough to introduce some minor disagreements. Discrepancies of more than one fathom are tabulated below.

LAT.	LONG.	SOUNDING (FM)		REMARKS
		H-8121	H-7948	
57° 06.4'	170° 21.9'	27	29	Sloping bottom
57 05.5	170 25.3	27	29	
57 05.5	170 24.3	28	26.5	Sloping bottom
57 04.6	170 23.7	23	24.5	Sloping bottom
57 04.8	170 23.5	24	25.5	Sloping bottom
57 04.3	170 22.8	17*	15.5	15-fm soundings nearby
57 04.4	170 22.4	18	15.5	
57 04.4	170 21.9	23-24*	20.5	Sharply sloping bottom
57 04.3	170 21.8	24*	22	
57 04.1	170 22.2	21	19	Sloping bottom
57 03.9	170 21.9	21-22	19.5	
57 03.9	170 21.1	22*	23.5	Sloping bottom
57 03.7	170 20.6	20-21	22	Sloping bottom
57 03.5	170 20.3	20	18.5	Sloping bottom
57 03.4	170 20.0	20-21	19	Sloping bottom

* Denotes closest plotted soundings used for comparison.

2. The northern portion of this survey was compared with copies of H-7948, H-8072 and agreement of all soundings were within one fathom.
(1951-53) (1953)

M. COMPARISON WITH CHART (See TPL of Review)

1. The southerly portion of this survey was compared with Chart 8994 and agreed in general very closely, however, some discrepancies are listed below.

a. In Lat. 57° 04.53', Long. 170° 27.20' a charted sounding of 28 fathoms is bracketed by soundings of 25 and 26 fathoms from this survey.

b. In Lat. 57° 01.78', Long. 170° 27.65' a charted sounding of 46 fathoms is bracketed by soundings of 43 fathoms from this survey.

c. In Lat. 57° 04.02', Long. 170° 24.15' a charted sounding of 26 fathoms is bracketed by soundings of 12 and 14 fathoms from this survey.

> 6 fms. deleted from chart 8994, dated 6-24-54 - considered disapproved by hydrography on 11-8-21.

d. In Lat. $57^{\circ} 04.40'$, Long. $170^{\circ} 22.35'$ a charted sounding of 15 fathoms falls on an 18-fathom sounding of this survey. This survey has a 15-fathom sounding about 700 meters southwest of the charted spot and a 16-fathom sounding about 450 meters west of the location.

15 fm sdg.
from H-7948
is correct.

e. In Lat. $57^{\circ} 04.30'$, Long. $170^{\circ} 22.83'$ a charted sounding of 15 fathoms is bracketed by soundings of 16 to 18 fathoms. This survey has a 15-fathom sounding and a 16-fathom sounding about 280 meters south and 250 meters north respectively of the charted 15-fathom sounding.

15 fm
from H-7948
(1951). Sound-
ing correct.

f. In Lat. $57^{\circ} 03.37'$, Long. $170^{\circ} 23.05'$ a charted sounding of 9.3 fathoms falls near a 10.8-fathom sounding from this survey.

Disregard
9.3 early
reconnaissance
sdg

g. In Lat. $57^{\circ} 01.20'$, Long. $170^{\circ} 18.65'$ a charted sounding of 31 fathoms falls between sounding lines made up of 32- and 33-fathom soundings.

h. In Lat. $57^{\circ} 14.0'N$, Long. $170^{\circ} 33.2'W$ chart No. 8994 shows an 18-fathom sounding. No indication of a depth of less than 33 fathoms was found in the area. Deleted from chart (Chart Letter 719, 1954)

2. A comparison of the southerly portion with Chart 8995 in the area not covered by the larger scale Chart 8994 was made and only one minor discrepancy was noted. In Lat. $57^{\circ} 00.4'$, Long. $170^{\circ} 28.2'$ a charted sounding of 42 fathoms falls on the deep side of a line of 43-fathom soundings of this survey.

N. DANGERS AND SHOALS

1. There are no dangers and shoals within the limits of this survey.

2. The shoalest sounding obtained, 9.9 fathoms, is located at Lat. $57^{\circ} 03.9'N$, Long. $170^{\circ} 22.8'W$. (See factors) 9.3 fms on H-8119.

O. COAST PILOT INFORMATION

See Coast Pilot Report.

P. AIDS TO NAVIGATION

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

Q. LANDMARKS FOR CHARTS

No landmarks for charting are within the limits of this survey. See report on Form 567, LANDMARKS FOR CHARTS.

R. GEOGRAPHIC NAMES

All geographic names in this survey area are as presently charted. No changes or additions are recommended. See Geographic Name List of this report.

S. - Y. Not applicable -

Z. TABULATION OF APPLICABLE DATA

*Special Report 1954/91
K.G. Crosby*

NAME	DATE FORWARDED
1. Fathometer Correction Descriptive Report	19 Oct 1954
2. Shoran Correction Descriptive Report	13 Oct 1954
3. Coast Pilot Notes	23 Nov 1954
4. Triangulation Records, St. Paul Island	12 Oct 1954
5. Current Observation Records, St. Paul Island	17 Jun 1954 and 1 Jul 1954
6. Tide Observation Records, St. Paul Island	2 Jul 1954
7. Landmarks for Charts	8 Oct 1954

Respectfully submitted,

Paul Taylor
PAUL TAYLOR
Comdr., USC&GS

Approved and Forwarded:

K.G. Crosby
K. G. CROSBY
Captain, USC&GS
Comdg. Ship PATHFINDER

SHORAN CORRECTIONS

for

ZERO SET

HYDROGRAPHIC SURVEY H-8121 *SR 49 (54)*

<u>DAY</u>	<u>DATE</u>	<u>CORRECTIONS</u>		
		<u>SHO-MAST</u>	<u>SHO-FAIR</u>	<u>SHO-DAR</u>
A	6/4/54	0.009	0.011	
B	6/5/54	0.007	0.009	
C	6/8/54	0.007	0.010	
D	6/28/54	0.017		0.030

STATISTICS FOR HYDROGRAPHIC SURVEY H-8121

<u>VOL. NO.</u>	<u>DAY LETTER</u>	<u>DATE</u>	<u>NO. OF POSITIONS</u>	<u>STATUTE MI. OF SDGS.</u>
1	A	6/4/54	30	20.1
1-2	B	6/5/54	141	91.5
2-3	C	6/8/54	98	57.0
3	D	6/28/54	21	9.8
	Totals for ship		<u>290</u>	<u>178.4</u>

TIDE NOTE

HYDROGRAPHIC SURVEY H-8121

Records from the portable automatic tide gage installed in Village Cove, St. Paul Island, in latitude $57^{\circ} 07.5' N$, longitude $170^{\circ} 16.7' W$, were used for the reduction of soundings. *16.55'* scaled off
07.42'

The reading on the staff corresponding to MLLW was 6.7 feet.

No corrections for time and range were applied.

GEOGRAPHIC NAME LIST
HYDROGRAPHIC SURVEY H-8121

BERING SEA

NORTH POINT

OTTER ISLAND

REEF POINT

ST. PAUL ISLAND

SOUTHWEST POINT

TOLSTOI POINT

VILLAGE COVE

ZAPADNI POINT

APPROVAL SHEET


HYDROGRAPHIC SURVEY H-8121

ST. PAUL ISLAND

ALASKA

This survey was inspected daily while hydrography was in progress. The smooth sheet was inspected at frequent intervals during the time it was being plotted and while the soundings were being pencilled. It was examined again in conjunction with the descriptive report.

I consider this survey to be complete and adequate. No additional work is required or recommended within the limits of the survey.


K. G. CROSEY
Captain, USC&GS
Comdg. Ship PATTFINDER

GEOGRAPHIC NAMES

Survey No. H-8121

Name on Survey											
	A	B	C	D	E	F	G	H	K		
Alaska											1
Bering Sea									B.S.N.		2
St. Paul Island											3
North Point											4
Southwest Point											5
Zapadni Point											6
Iolstai Point											7
Village Cove											8
Reef Point											9
Otter Island											10
Northwest Reef											11
					Names approved						12
					1-17-55. L. Heck						13
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											27

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-8121.....

Records accompanying survey:

Boat sheets ..1...; sounding vols. 3.....; wire drag vols.;
 bomb vols.; graphic recorder rolls;
 special reports, etc. 1. ~~smooth sheet~~.....

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

Number of positions on sheet	.....	290
Number of positions checked	.....	8
Number of positions revised	.....	1
Number of soundings revised (refers to depth only)	.....	3
Number of soundings erroneously spaced	.....	-
Number of signals erroneously plotted or transferred	.....	-
Topographic details	Time	.....
Junctions	Time	9 hrs
Verification of soundings from graphic record	Time	1 hr

Verification by *E. Shouse*..... Total time *28 hrs.* Date *3/28/56*

Reviewed by *W. J. ...*..... Time *20* Date *4/5/56*

DIVISION OF CHARTS
REVIEW SECTION - NAUTICAL CHART BRANCH
REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8121

FIELD NO. PF-4154

Alaska, Pribilof Islands, Southwest of St. Paul Island

Project No. CS-343

Surveyed - June, 1954

Scale 1:40,000

Soundings:

Control:

303 Fathometer

Shoran

Chief of Party - K. G. Crosby
Surveyed by - J. P. Lushene, F. A. Riddell, W. F. Deane and
P. A. Weber
Protracted by - P. Taylor
Soundings plotted by - P. Taylor
Verified and inked by - E. Thomas
Reviewed by - I. M. Zeskind 4-5-56
Inspected by - R. H. Carstens

1. Shoreline and Control

There are no contemporary topographic surveys of St. Paul Island or Otter Island by this Bureau. The shoreline of St. Paul Island and Otter Island shown in pencil on the smooth sheet originates with plane table surveys T-2295 (1897) and T-2297 (1897) respectively.

The source of the control is given in the Descriptive Report.

2. Sounding Line Crossings

Depths at crossings are in good agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves are adequately delineated.

The bottom is fairly smooth in that portion of the survey which lies northwestward of St. Paul Island. In the area which surrounds Otter Island, the bottom is slightly irregular in depths less than 20 fms and generally smooth in greater depths.

4. Junctions with Contemporary Surveys

a. Northwest of St. Paul Island

In the area of the present survey which lies northwestward of St. Paul Island, adequate junctions were effected with H-7948 (1951-53) on the southwest, and with H-8072 (1953) which overlaps the present survey.

b. Otter Island

Adequate junctions were effected with H-8119 (1954) which surrounds Otter Island, with H-7948 (1951-53) on the north, west and east, with H-7914 (1951) on the south, and with H-8076 (1953) and H-8119 (1954) on the northeast.

5. Comparison with Prior Surveys

There are no prior surveys by this Bureau in the area covered by the present survey.

6. Comparison with Chart 8994 (latest print date 6-21-54)
Chart 8995 (latest print date 6-14-54)

A. Hydrography

The charted hydrography originates principally with the present survey prior to verification and review, supplemented by soundings from H-7948 (1951-53), H-8119 (1954), H-8072 (1953) and miscellaneous sources dated prior to 1906.

Only minor differences of 1 - 2 fms. in depths ranging from 15 to 44 fms. were noted.

The present survey is adequate to supersede the charted hydrography.

B. Aids to Navigation

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

7. Condition of Survey

(a) The Descriptive Report and sounding records are complete and comprehensive.

(b) The smooth plotting was accurately done.

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions.

9. Additional Work Recommended ✓

This survey is considered basic and no additional field work is recommended.

Examined and Approved:



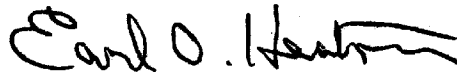
H. R. Edmonston
Chief, Nautical Chart Branch



E. R. McCarthy
Chief, Chart Division



J. C. Bull
Chief, Hydrography Branch



Earl O. Heaton
Chief, Division of Coastal Surveys

RAC

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~

19 January 1955

Division of Charts: R. H. Carstens

Plane of reference approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET 8121

Locality St. Paul Island, Bering Sea

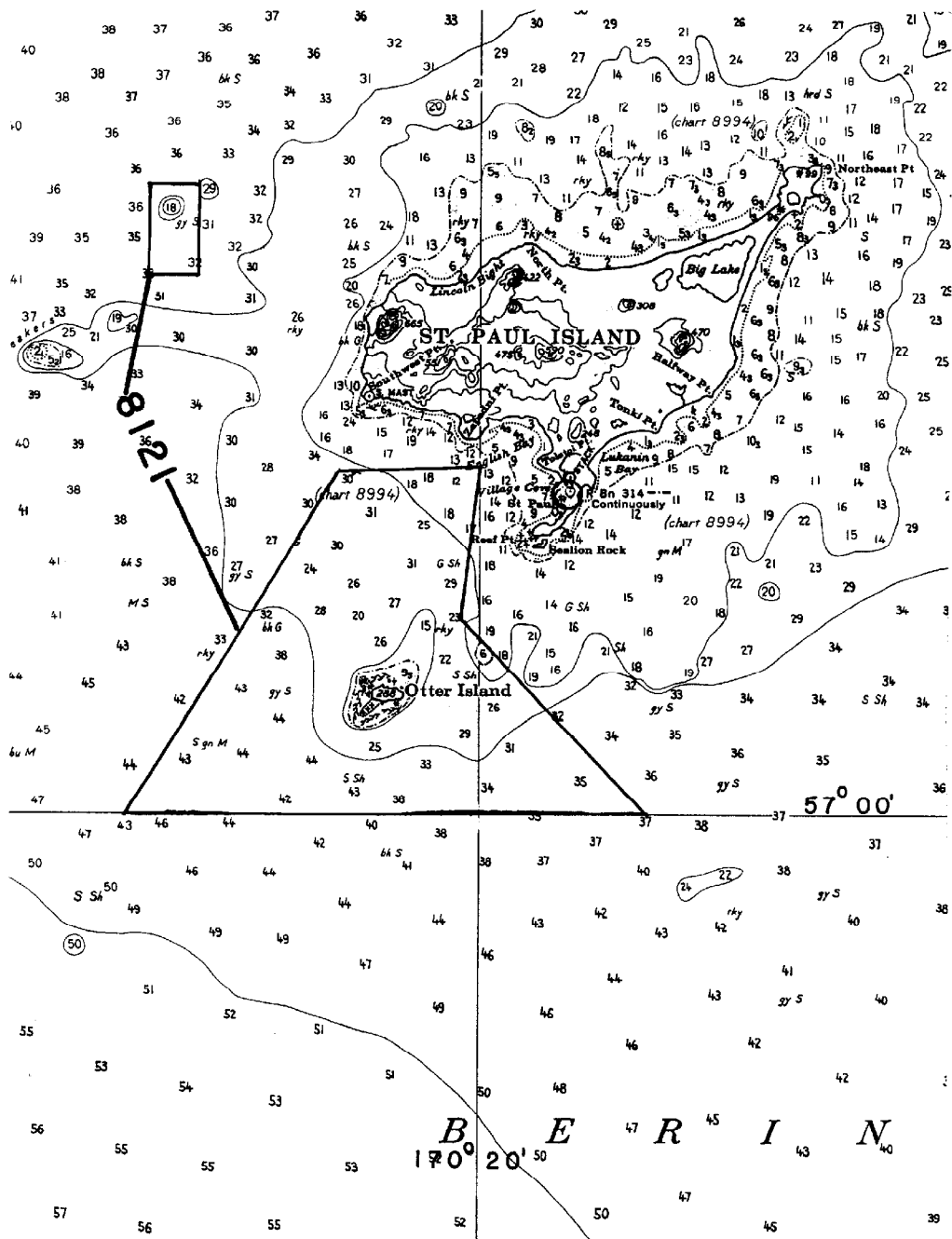
Chief of Party: K. G. Crosby in 1954
Plane of reference is mean lower low water, reading
6.7 ft. on tide staff at Village Cove
9.5 ft. below B. M. 2 (1946)

Height of mean high water above plane of reference is 3.0 feet.

Condition of records satisfactory except as noted below:

E. C. McKay
Tides Branch

Chief, Division of Tides and Currents.



NAUTICAL CHARTS BRANCH

SURVEY NO. 8121

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
1/13/55	8994	H.F. Stegman	Before After Verification and Review <u>Partial application</u>
3/25/55	8802	GJE	Before After Verification and Review
3-16-57	8994	R.H. de Lander	Before After Verification and Review <u>Complete</u> 3MA
3-27-57	8995	R.K.D.	Before After Verification and Review " 3MA
10 Jan 61	8802	Trichols	Before After Verification and Review <u>Thru 8995</u>
11	9302	"	Before After Verification and Review <u>Thru 8802</u>
Feb 11-61	9000	B.W. Hoggins	Before After Verification and Review 3MA <u>Thru 9302</u>
			Before After Verification and Review
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M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.