

8331.

Diag. Cht. No. 6380-2.

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. HO-1155 Office No. H-8331

LOCALITY

State Washington

General locality Washington Coast

Locality Eastern part of Guemes Channel,

Fidalgo Bay and Padilla Bay

194/55

CHIEF OF PARTY

A. N. Stewart and Paul Taylor

LIBRARY & ARCHIVES

DATE **JUL 25 1958**

8331

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-8331

Field No. HO-1155

State Washington

General locality Washington Coast

Locality Eastern Part of Guemes Channel, Fidalgo Bay and Padilla Bay

Scale 1/10,000 Date of survey 5 Apr. - 16 July 1955

Instructions dated 7 Jan. 1955

Vessel Launch 176 and 134

Chief of party A. N. Stewart and Paul Taylor

Surveyed by M. J. Tonkel and R. C. Munson

Soundings taken by fathometer, ~~graphic recorder, double beam echosounder~~

Fathograms scaled by Ship personnel

Fathograms checked by ship personnel

Protracted by V. F. Flor

Soundings penciled by V. F. Flor

Soundings in fathoms ~~feet~~ at ~~MESE~~ MLLW

REMARKS:

K.W.

T.S.

DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SURVEY H-833), (FIELD NO. HO-1155)

SCALE 1/10,000 SHIP HODGSON A. N. STEWART,
P. TAYLOR, COMDG.

SURVEYED BY; M. J. TONKEL AND R. C. MUNSON

A. PROJECT

This survey was executed as part of Project 1241 under Instructions 22/SRO, S-2-HO, dated 7 Jan. 1955.

B. SURVEY LIMITS AND DATES

The survey covers Guemes Channel (east of Long. 122 - 39!3W), Fidalgo Bay, and Padilla Bay from Lat. 48 - 31!0N to Lat. 48 - 32!7N.

Field work began on 5 April 1955 and was completed on 16 July 1955.

The survey was joined by contemporary surveys as follows:

DIRECTION	SURVEY FIELD NO.	SURVEY OFFICE NO.
West	HO-1255 (48332)	
North	HO-1355 (48317)	
Southeast		H-6654

C. VESSEL AND EQUIPMENT

This survey was executed with the new hydrographic Launch No. 176 and plane personnel boat, Launch No. 134. Both launches have a turning radius of approximately 25 meters at standard speeds.

Sounding equipment used included 808 fathometers No. 106S, 150SPX, and 62S with reeds calibrated for a velocity of 800 fathoms per second, were used for all launch hydrography. Leadlines No. 26B, No. E19 and No. 4 were used for the tagline surveys around the docks on the Anacortes waterfront.

D. TIDE AND CURRENT STATIONS

A portable automatic tide gage was maintained at Anacortes, Lat. 48 - 31!3N, Long. 122 - 36!7W during the entire period of this survey and was used without time or range correction, for the reduction of all soundings.

A portable automatic tide gage was also maintained at the north entrance of Swinomish Slough, Lat. 48 - 27!5N, Long. 122 - 30!8W, during this survey. This gage was not used in the processing of the soundings for this survey.

Channel (by decision)

No current stations were occupied within the limits of this survey.

E. SMOOTH SHEET

All work on the smooth sheet will be done by the Seattle Processing Office and will be covered by their report which will be an addenda to this report.

It is intended that the tagline surveys will be plotted on the 1/2,500 enlargements of the areas as inserts on the smooth sheet.

F. CONTROL STATIONS

TRIANGULATION STATIONS

STATION	DATE	SOURCE	CHIEF OF PARTY
A. L. & B. Co. Conc. Stack	1940	USC ^{CGS}	J. C. B.
Fertilizer Plant Cupola	1927	"	G.P.pg. 718 n.d.
Morrison Mill Co. Brick Stack	1940	"	P. H. R.
Morrison Mill Co. Elev. Steel Tank	1940	"	B. H. R.
Plywood Co. Black Stack (E'ly of 2)	1953	"	T-11231
St. Mary's Church Spire	1940	"	J. C. B.
BOOT	1939	"	R. W. K.
CABLE, R. M. NO. 1	1927	"	T-11229
CHIPS	1939	"	R. W. K.
CLAY JONES	1940	"	B. H. R.
CLIFF	1927	"	G. C. J.
FID	1927	"	G. C. J.
GRAVEL	1927	"	G. C. J.
HAMMILL	1939	"	B. H. R.
HAT SOUTHEAST	1886	"	J. J. G.
HAT SOUTHWEST 2	1939	"	R. W. K.
HUMP	1940	"	J. C. B.
LITZ	1939	"	R. W. K.
MARCH POINT 2	1939	"	R. W. K.
MARCH POINT LIGHT	1939	"	R. W. K.
O'BRIEN	1886	"	J. J. G.
POINT	1927	"	G. C. J.
ROCK	1927	"	G. C. J.
ROCKY PEAK 2	1939	"	R. W. K.
SADDLEBAG 2	1939	"	R. W. K.
SADDLEBAG ISLAND	1939	"	R. W. K.
SWINOMISH SLOUGH			
North Entrance Lt. 10	1950	"	C. W. C.
North Entrance Lt. 18	1950	"	C. W. C.
TIDE POINT	1886	"	J. J. G.
VINE	1927	"	G. C. J.

TOPOGRAPHIC STATIONS

STATION	REGISTRY NO.	DATE	METHOD
STACK	11228	1953	Air Photographic plot

Other control stations were located from air photographs on manuscripts T-11228, T-11229, T-11231, T-55875.

Where stations were needed and there were no identifiable picture points, nearby, the stations were located by sextant fixes at the station or cuts from the launch using objects located by the photogrammetric method.

A list of all signals and their origin are posted to the cover sheet of Sounding Volume No. 1.

G. SHORELINE AND TOPOGRAPHY

All shoreline is from manuscripts T-11228, T-11229, T-11231, and T-5587~~7~~ furnished by the Washington Office.

A few discrepancies in the shoreline in the vicinity of Anacortes were noted on the photos and/or manuscripts and returned to the Washington Office for correction.

The low water line was delineated in all areas where possible without endangering the launches.

H. SOUNDINGS

All soundings from hydro lines run by the launches were made with 808 fathometers No. 106S, 150 SPX and No. 62S.

The fathometer initial was set so that with the bar at two fathoms the fathometer would read two fathoms eliminating any index correction. The fathometers were calibrated for a velocity of 800 fathoms per second.

A temperature-salinity observation was taken on 24 April 1955 in Guemes Channel at Lat. 48 - 31125N, Long 122 - 34100W and the results were used for the velocity corrections for this survey. The corrections applied to the soundings are listed in Table 2 following this report.

All soundings were taken on the A Scale and no phase comparisons were made.

176 bottom samples were taken throughout the area.

Tagline surveys were conducted along the wharfs on the Anacortes waterfront with a handlead and skiff by the hydro party of Launch No. 176. The necessary data and sketches for plotting the tagline surveys are inserted in the sounding volumes.

Five leadline comparisons were taken to determine the necessary corrections for the tagline survey soundings. The results of the comparisons are listed in Table 3 following this report.

I. CONTROL OF HYDROGRAPHY

All hydrographic was controlled by visual sextant angles on shore signals.

*Manuscripts for
a pp. 100 to 101 of T-100*

The control for the tagline surveys is shown on the sketches inserted in the sounding volumes.

J. ADEQUACY OF SURVEY

This survey is complete and adequate for charting purposes with the exception of the small area on the north border of the sheet between Long. 122 - 31!2W and Long. 122 - 32!2W. In this area the junction with Sheet HO-1355, the soundings differ by approximately 3 feet. The bottom is covered with approximately three feet of grass making the return on the fathogram very poor. Pole soundings were taken to help interpret the fathograms by Launch No. 177, f day, HO-1355, Sounding Volume 3, pgs. 53 thru 67. The pole soundings may be all that is needed in this portion of the mud flats for it is not considered to be of prime importance.

The junctions with adjoining sheets in all other areas are satisfactory and no holidays exist. Depth curves can be adequately drawn at the junctions.

K. CROSSLINES

There are approximately 38 miles of crosslines or approximately 7% of all lines are crosslines. All crossings appear to be satisfactory.

L. COMPARISON WITH PRIOR SURVEYS

The following surveys were conducted in this area.

SURVEY	SCALE	DATE
H-1814	1:20,000	1887
H-1815	1:20,000	1887
H-4736	1:5,000	1927
H-4737	1:5,000	1927
H-4738	1:5,000	1927
H-6654	1:10,000	1940

These surveys (except H-6654) are of a reconnaissance nature only and therefore are not detailed surveys. The soundings of these prior surveys were transferred to the boat sheet and appear to compare satisfactorily.

M. COMPARISON WITH CHART

This survey was compared with Chart 6376, first edition, published May 1945, reprint date 14 April 1952. The charted soundings and the soundings of this survey compare satisfactorily. This survey should supersede all charted data. Discrepancies noted by chart comparison are as follows:

<u>CHART LOCATION</u>	<u>CHART NOTATION</u>	<u>NEW LOCATION</u>	<u>NEW NOTATION</u>	<u>REMARKS</u>
✓ 48 - 30161 122 - 35140	dolphin			Does not exist
✓ 48 - 30159 122 - 34195	dolphin			Does not exist ✓
✓ 48 - 30135 122 - 34143	Mooring buoy			Does not exist ✓
✓ 48 - 30126 122 - 35108	Dolphin			Does not exist ✓
✓ 48 - 30122 122 - 34150	Dolphin			Does not exist ✓
✓ 48 - 30112 122 - 35150	Mooring buoy- row of piles & dolphin			Does not exist ✓
✓ 48 - 30109 122 - 33176	File			Does not exist ✓
✓ 48 - 30136 122 - 33182	6 piles			Does not exist ✓
✓ 48 - 29170 122 - 34185	dolphin			Does not exist ✓
48 - 30175 122 - 35180	Buoy S2	48 - 30172 122 - 35192	Buoy S2	
48 - 30170 122 - 35182	Buoy S1	48 - 30169 122 35.94	Buoy S1	

N. DANGERS AND SHOALS

Listed in the table below are uncharted dangers, shoals and significant soundings found:

<u>LOCATION</u>	<u>DEPTH</u>	<u>POS.</u>	<u>REMARKS</u>
48 - 30116 122 - 34147	8.6 ft. 9.2 ft (13 fms)	53ae	Least depth found after 1 hr. development.
48 - 29171 122 - 35120	2.6 ft. 0.4 fms	178ae ✓	Least depth found after 35 min. of development and feeling with handlead.

The location of the new Shell Oil Refinery Dock at March Point was forwarded to the Washington Office on 28 Sept. 1955.

O. COAST PILOT INFORMATION

The published coast pilot information is complete and adequate.

P. AIDS TO NAVIGATION

March Point Light is the only fixed aid to navigation in this area. It is charted correctly.

The four spar buoys marking Capsante Waterway are the only floating aids to navigation. Buoys S1 and S2 are slightly out of position on the chart as compared to the sextant location determined on the boat sheet. See Section M of this report as to the difference in location. The sextant fixes are on Page 25 , Sounding Volume 1.

The cable area delineated on Chart 6376 is correct.

There is ferry service from Anacortes to Guemes Island and the San Juan Archipelago.

Q. LANDMARKS FOR CHARTS

The charted landmarks are correct except for BARN (SW CABLE), Lat. 48 - 31' 47", Long. 122 - 29' 06" which has been moved and should be deleted.

The new Shell Oil Dock and Catalyst Stack at March Point were sent to the Washington Office on 28 Sept. 1955 on Form 567.

R. GEOGRAPHIC NAMES

There are no recommended new names or changes. The existing charted names are:

ANACORTES
CAPSANTE
CAPSANTE WATERWAY
CITY OF SEATTLE RK.
CRANDALL SPIT
DOT I.
FIDALGO
FIDALGO BAY
FIDALGO ISLAND
GUEMES
GUEMES CHANNEL
GUEMES ISLAND
HAT I.
HUCKLEBERRY I.
MARCH PT.
PADILLA BAY
SADDLEBAG I.
WEAVERLING SPIT

S. SILTED AREAS

No significant silted areas in this survey.

T. BY-PRODUCT INFORMATION

No significant by-product information was noted in this area.

Z. TABULATION OF APPLICABLE DATA

Tide Data, Anacortes Tide Gage - forwarded to Washington Office
Air Photo Data - forwarded to Washington Office
Temperature - Salinity Report
Fathometer Correction - following this report
Triangulation Data and Report - forwarded to Washington Office
Landmarks for Charts - forwarded to Washington Office
Current Data - forwarded to Washington Office

Respectfully submitted,

R. C. Munson,
Lt. (jg) USC&GS

Approved by:

Paul Taylor,
CDR, USC&GS
Comdg., Ship HODGSON

TABLE 1

STATISTICS
FOR
HYDROGRAPHIC SURVEY H-_____ (HO-1155 FIELD)
USC&GSS HODGSON PROJECT 1241

VOL.	DAY	DATE	LAUNCH NO.	POS.	STAT. MI. SDGS.	H. L.
1	a	4/21	134	108	6.0	
1	b	4/22	134	104	9.3	15
1	c	4/23	134	115	11.6	23
1	d	4/24	134	48	--	48
1	e	4/25	134	109	3.5	72
2	e	4/25	134	3	0.2	
2	f	4/26	134	84	5.0	50
2	g	4/27	134	137	14.6	27
2	h	5/4	134	115	5.1	68
2	j	5/5	134	65	7.0	
3	k	5/6	134	210	33.9	
3	l	5/7	134	163	30.5	
3	m	5/8	134	78	11.6	
4	m	5/8	134	54	7.7	
4	n	5/17	134	153	22.7	4
4	p	5/18	134	162	29.8	
4	q	5/19	134	60	6.9	16
5	q	5/19	134	33	5.3	3
6	a	4/13	176	55	9.9	
6	b	4/20	176	208	31.3	1
6	c	4/21	176	114	11.3	
6	d	4/22	176	35	3.8	7
7	d	4/22	176	130	6.7	
7	e	4/23	176	125	19.2	
7	f	4/25	176	176	25.5	
8	f	4/25	176	19	4.3	
8	g	4/26	176	201	25.2	
8	h	4/27	176	187	25.0	14
9	j	5/4	176	213	28.9	
9	k	5/5	176	188	28.2	
10	l	5/6	176	163	13.4	23
10	m	5/7	176	170	25.8	1
10	n	5/8	176	66	--	63
11	n	5/8	176	59	5.4	
11	p	5/17	176	234	--	235
11	q	5/18	176	278	13.0	168
11	r	5/19	176	159	--	159
12	r	5/19	176	50	4.4	7
12	s	5/20	176	64	3.2	38
12	t	5/21	176	159	--	157
12	u	5/22	176	199	--	198
12	v	5/23	176	174	--	170
12	w	5/24	176	268	--	263
13	x	5/25	176	242	--	235
13	y	6/2	176	178	--	178
13	z	6/3	176	82	--	73
13	aa	6/4	176	248	--	236

STATISTICS (continued)

Vol.	Day	Date	Launch		Stat. Mi.		H. L.
			No.	pos.	Sdgs.		
13	ab	6/5	176	67	2.1		39
13	ac	6/6	176	74	4.4		7
14	ac	6/6	176	56	5.1		1
14	ad	6/7	176	22	0.6		7
14	ae	6/15	176	211	16.4		17
14	af	7/16	176	<u>30</u>	<u>4.5</u>		<u>3</u>
Totals - - - - -				6715	527.3		2626

Area - 13.78 sq. stat. mi.

TIDE NOTE

The Anacortes, Washington tide gage Lat. 48 - 31.3N, Long. 122 - 36.7W was used for reducing all soundings on this sheet. 6.7 feet on the tide staff corresponds to the plane of MLLW.

No corrections for differences in time or height were applied to the observed tides.

GEOGRAPHIC NAMES

Geographic names penciled on the smooth sheet.

(To be listed by Seattle Processing Office).

TABLE 2

VELOCITY CORRECTION ABSTRACT

Depth Fms.	Corrn. Fms.
0-20	0.0
20-47	+ 0.2

APPROVAL SHEET

The records for this report have been examined by me and are complete and adequate. The survey was done before I came aboard the Ship HODGSON, so the details of the survey are not known.

An enlargement of manuscript of the dock area is furnished with the records and boat sheet for plotting the tag-line surveys.

Paul Taylor,
CDR, USC&GS
Comdg., Ship HODGSON

TABLE 3

LEADLINE CORRECTIONS

Leadline 26B
Comparison Vol. 11, pg. 26

Leadline Ft.	Actual Ft.	Corrn. Ft.
6.0	6.0	0.0
12.0	12.0	0.0
18.0	18.0	0.0
24.0	23.9	-0.1
30.0	29.9	-0.1
36.0	35.9	-0.1
42.0	41.8	-0.2
48.0	47.8	-0.2
54.0	53.7	-0.3
60.0	59.7	-0.3

Depth Ft.	Corrn. Ft.
0 - 36	0.0
36 - 60	-0.2

Apply to the following days:

Launch 176 (Skiff)	Vol. 10	n day
	Vol. 11	p day

Leadline E19
Comparison Vol. 12, pg. 13

Leadline Ft.	Actual Ft.	Corrn. Ft.
6.0	6.0	0.0
12.0	11.95	-0.05
18.0	17.9	-0.1
24.0	23.8	-0.2
30.0	29.75	-0.25
36.0	35.7	-0.3
42.0	41.55	-0.45
48.0	47.6	-0.4
54.0	53.55	-0.45
60.0	59.5	-0.5

Depth Ft.	Corrn. Ft.
0 - 15	0.0
16 - 21	-0.1
22 - 33	-0.2
34 - 39	-0.3
40 - 57	-0.4
58 - 60	-0.5

Apply to following days:

Launch 176 (skiff)	Vol. 11	q day
	11	r day
	12	s day
	12	t day

LEADLINE CORRECTIONS (continued)

Leadline E 19

Leadline No. 4

Comparison Vol. 12, pg. 42

Comparison Vol. 12, pg. 61

Leadline	Actual	Corrn.
Ft.	Ft.	Ft.
6.0	6.0	0.0
12.0	11.95	-0.05
18.0	17.9	-0.1
24.0	23.85	-0.15
30.0	29.75	-0.25
36.0	35.7	-0.3
42.0	41.55	-0.45
48.0	47.55	-0.45
54.0	53.5	-0.5
60.0	59.45	-0.55
66.0	65.3	-0.7
72.0	71.25	-0.75
78.0	77.2	-0.8
84.0	83.15	-0.85
90.0	89.15	-0.85
96.0	95.1	-0.9

Depth	Corrn.
Ft.	Ft.
0-15	0.0
16-27	-0.1
27-33	-0.2
34-39	-0.3
40-51	-0.4
52-63	-0.5
64-75	-0.7
76-93	-0.8
94-	-0.9

Apply to following days:

Launch 176 Vol. 12 u day
(skiff) Vol. 12 v day

Leadline	Actual	Corrn.
Ft.	Ft.	Ft.
2.0	2.0	0.0
4.0	4.0	0.0
6.0	6.0	0.0
8.0	7.95	-0.05
10.0	9.85	-0.15
12.0	11.75	-0.25
14.0	13.7	-0.3
16.0	15.6	-0.4
18.0	17.55	-0.45
20.0	19.45	-0.55
22.0	21.4	-0.6
24.0	23.3	-0.7
26.0	25.2	-0.8
28.0	27.1	-0.9
30.0	29.05	-0.95
32.0	31.0	-1.0
34.0	32.95	XXX -1.05
36.0	34.9	-1.1
38.0	36.85	-1.15
40.0	38.8	-1.2
42.0	40.7	-1.3
44.0	42.65	-1.35
46.0	44.55	-1.45
48.0	46.50	-1.5

Depth	Corrn.
Ft.	Ft.
0 - 9	0.0
9 - 13	-0.2
13 - 18	-0.4
18 - 23	-0.6
23 - 27	-0.8
27 - 34	-1.0
34 - 41	-1.2
41 - 46	-1.4
46	-1.6

Apply to following days:

Launch 176 Vol. 12 w day
(skiff) 12 x day
13 x day

LEADLINE CORRECTIONS (continued)

Leadline No. 4

Comparison Vol. 13, pg. 45

Leadline Ft.	Actual Ft.	Corrn. Ft.
2.0	2.0	0.0
4.0	3.95	-0.05
6.0	5.95	-0.05
8.0	7.85	-0.15
10.0	9.8	-0.2
12.0	11.7	-0.3
14.0	13.6	-0.4
16.0	15.55	-0.45
18.0	17.45	-0.55
20.0	19.35	-0.65
22.0	21.2	-0.8
24.0	23.15	-0.85
26.0	25.0	-1.0
28.0	26.9	-1.1
30.0	28.85	-1.15
32.0	30.7	-1.3
34.0	32.6	-1.4
36.0	34.5	-1.5
38.0	36.4	-1.6
40.0	38.25	-1.75
42.0	40.15	-1.85
44.0	42.0	-2.0

Depth Ft.	Corrn. Ft.
0 - 7	0.0
7 - 12	-0.2
12 - 17	-0.4
17 - 21	-0.6
21 - 25	-0.8
25 - 28	-1.0
28 - 32	-1.2
32 - 36	-1.4
36 - 39	-1.6
39 - 43	-1.8
43 -	-2.0

Apply to following days:

Launch 176	Vol. 13	y day
(skiff)	Vol. 13	z day
	Vol. 13	aa day
	Vol. 13	ab day
	Vol. 14	ad day
	Vol. 14	ae day

SMOOTH SHEET

The smooth sheet was hand constructed by the Seattle Hydrographic Processing Unit using standard methods of construction, transfer and checking.

SHORELINE AND TOPOGRAPHY

The shoreline was transferred from manuscripts T-11228, T-11229, T-11231 and T-5587. The outlines of pier enlargements were taken from blown up copies of T-11228 and T-11229 and corrected to agree with measurements given in the sounding records. The enlargement of the Shell Oil Company Pier was taken from a print furnished by them and oriented on triangulation station SHELL, 1955 and topographic station DOCK.

Revised topo on main sheet in red to conform in general to enlargements. Harmonize curves on main sheet & reds on enlargements.

ADEQUACY OF SURVEY

The survey appears complete and adequate for charting.

The junction with H-8332 has been compared and the depth curves are in agreement. The junction with H- will be compared when that sheet is completed.

COMPARISON WITH PRIOR SURVEYS

The following prior surveys were compared with the smooth sheet.

H-4736	1:5000	1927
H-4737	1:5000	1927
H-4738	1:5000	1927
H-6654	1:10,000	1940

The soundings on the first three surveys agree reasonably well considering the spacing between soundings. There is a ~~sort of dam or dike~~ extending north across Guemes Channel from triangulation station TIDE POINT, 1886, which limits the depth of the channel to 92 fms. This feature does not show on H-4737. H-6654 is a junction survey joining the SE section of this survey, minor differences occur over the shoal areas. The agreement is generally satisfactory.

COMPARISON WITH CHART

This survey was compared with chart 6376, dated 11-12-56. Except for the differences noted in the Field Report and the one noted above the agreement is satisfactory.

DANGERS AND SHOALS

Items under this heading have been corrected to smooth sheet values, in ink, on the Field Report.

GEOGRAPHIC NAMES

The names listed in the Field Report have been penciled on the smooth sheet.

Respectfully submitted,

William M. Martin

WILLIAM M. MARTIN
SUPERVISORY CARTOGRAPHER

APPROVED AND FORWARDED:

E. H. Kirsch

E. H. KIRSCH
CAPTAIN, C&GS
SEATTLE DISTRICT OFFICER

TIDE NOTE FOR HYDROGRAPHIC SHEET

Chart Division: R. H. Carstens:

16 October 1958

Plane of reference approved in
14 volumes of sounding records for

HYDROGRAPHIC SHEET 8331

Locality Guemes Channel, Washington

Chief of Party: A. N. Stewart in 1955

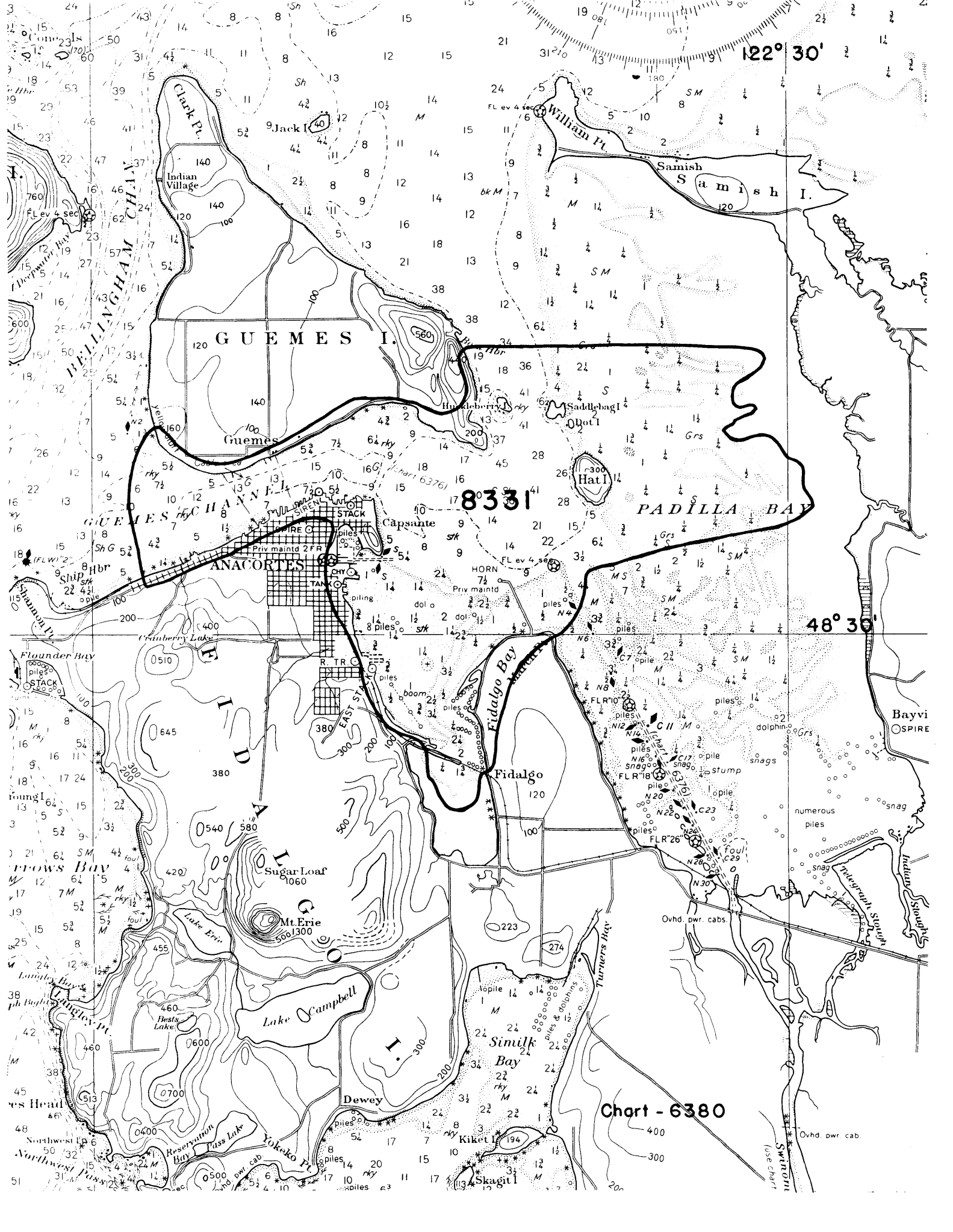
Plane of reference is mean lower low water, reading
6.7 ft. on tide staff at Anacortes
14.0 ft. below B.M. 2 (1921)

Height of mean high water above plane of reference is 7.4 feet.

Condition of records satisfactory except as noted below:


Signature

Chief, Tides Branch



122° 30'

8331

48° 30'

Chart - 6380

Clark Pt. 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41700

GEOGRAPHIC NAMES

Survey No. 8331

Name on Survey	Source										
	A	B	C	D	E	F	G	H	K		
<u>Washington</u>			(for title)						BGN		1
<u>Fidalgo</u>											2
<u>March Point</u>											3
<u>Padilla Bay</u>											4
<u>Grandall Spit</u>											5
<u>Weaverling Spit</u>											6
<u>Fidalgo Bay</u>											7
<u>Fidalgo Island</u>											8
<u>Anacortes</u>			(tide station)								9
<u>Capsante Waterway</u>											10
<u>Capsante</u>											11
<u>Hat Island</u>											12
<u>Dot Island</u>											13
<u>Saddlebag Island</u>											14
<u>Huckleberry Island</u>											15
<u>Guemes Island</u>											16
<u>Guemes Channel</u>											17
<u>Guemes</u>											18
<u>City of Seattle Rock</u>											19
										Names approved 9-10-58	20
										L. Heck	21
											22
											23
											24
											25
											26
											27

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-8331

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			
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES	14					
CAHIERS						
VOLUMES		14				
BOXES						
T-SHEET PRINTS (List)						
SPECIAL REPORTS (List)						

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				
POSITIONS CHECKED		6715		
POSITIONS REVISED		2		
DEPTH SOUNDINGS REVISED		184		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		168		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
Verification of Control		2		
Verification of Positions		2		
Verification of Soundings		245		
Smooth Sheet Compilation				
All other work		49		
TOTALS		298		
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
VERIFICATION BY Clarence R. Lehman <i>[Signature]</i>	7/19/75		8/12/75	
REVIEW BY	BEGINNING DATE		ENDING DATE	

VERIFIER'S REPORT
 HYDROGRAPHIC SURVEY, H 8331

INSTRUCTIONS - This form serves to identify items of a check list in verification together with items which are separately reported to the Reviewer. The form is not to be forwarded to the Reviewer. A report, which is prepared for the Reviewer, should identify items by number and letter and will be filed in the Descriptive Report until the survey is reviewed.

CL - Check List Items: should be checked as having been completed during the verification processes.

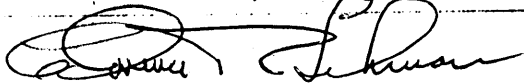
R - Report Item: This column refers to those items reported to the reviewer and is used to indicate the items discussed.

Part I - DESCRIPTIVE REPORT	CL	R	Part III - JUNCTIONS (Continued)	CL	R
<p>Note: The verifier should first read the Descriptive Report for general information and problems.</p> <p>1. The Descriptive Report was consulted, paragraphs checked if found satisfactory, and notations were made in soft black pencil regarding action taken. Remarks Required: -- None</p>	X		<p>10. Junctions with contemporary surveys were satisfactory except as follows: Remarks Required: -- Consider conditions after adjustments have been made; note adjustments made. Make special notes of Butt junctions and areas which are SUPERSEDED.</p>		X
<p>2. Soundings originating with the survey and mentioned in the Descriptive Report have been verified and checked in soft black pencil, including latitude and longitude, together with position identification. Remarks Required: -- None</p>	X		<p>Port IV - VOLUMES</p> <p>11. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken and exceptions noted in the volumes. Remarks Required: -- None</p>	X	
<p>3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year. Remarks Required: -- None</p>	X		<p>12. Condition of sounding records was satisfactory except as follows: Remarks Required: -- Mention deficiencies in completeness of notes or actions for the following: (a) rocks (b) line turns (c) position values of beginning and ending of lines (d) bar check or velocity correctors velocity corr added (e) time recording (f) notes or markings on bathograms (g) was reduction of soundings accurately done? (h) was scanning accurate? (i) were peaks at uneven intervals missed? yes (j) were stamps completed? (k) references to adjacent features</p>		
<p>Part II - SHORELINE AND SIGNALS</p> <p>4. Source of shoreline signals Remarks Required: -- List all surveys a. Give earliest and latest dates of photographs b. Field inspection date c. Field Edit date d. Reviewed-Unreviewed</p>	X				
<p>5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences.</p>		X			
<p>6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the subbottom sheet. Remarks Required: -- None</p>		X			
<p>7. Objects on which signals are located and which fall outside of the high-water line have been described on the sheet. Remarks Required: -- List those signals still unidentified.</p>		X	<p>Part V - PROTRACTING</p> <p>13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. Remarks Required: -- None</p>	X	
<p>Part III - JUNCTIONS</p> <p>Note: Make a cursory comparison preliminary to inking soundings in area of overlap.</p> <p>8. All junctions of contemporary or overlapping sheets were transferred in colored ink and overlapping curves were made identical. Remarks Required: -- None</p>		X	<p>14. The protracting and plotting of all unsatisfactory crossings were verified. Remarks Required: -- None</p>	X	
<p>7. The notation in slanted lettering "JOINS H- (19-)" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil. Remarks Required: -- None</p>		X	<p>15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None</p>	X	

	CL	R		
16. The protracting was satisfactory except as follows: Remarks Required: -- Refer to protracting in general except for specific faults repeated often, or faults in control information, which required considerable replotting or adjustments.		X	25. All fixed aids located together with those on the contemporary topographic sheets, have been shown on the survey. Remarks Required: -- Conflicts of any nature listed.	X
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.		X	27. All floating aids listed in the Descriptive Report should be verified and checked in soft black pencil, including latitude and longitude and position identification. Remarks Required: -- None	X
Part VI - SOUNDINGS 18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None	X		Part IX - BOAT SHEET 28. The boat sheet was constantly compared with the smooth sheet with reference to notes, position of sounding lines and supplemental information. Remarks Required: -- None	X
19. Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.		X	29. Heights of rocks awash were correctly reduced and compared with topographic information. Remarks Required: -- Note excessive conflicts with topographic information.	X
20. The spacing of soundings as recorded in the records was closely followed; Remarks Required: -- None	X		Part X - GENERAL 30. All information on the sheet is shown in accordance with figures 82 and 83 in the Hydrographic Manual (Pub. 20-2). Remarks Required: -- None	X
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None	X		31. Unnecessary pencil notes have been removed from the sheet. Remarks Required: -- None	X
22. The smooth plotting of soundings was satisfactory except as follows: Remarks Required: -- Refer to legibility, error in spacing, and errors in numbers - but not to errors in scanning.		X	32. Degree, minute values and symbols have been checked; also electronic distance arcs have been properly identified and checked on the smooth sheet. Remarks Required: -- None	X
Part VII - CURVES 23. The depth curves have been inspected before inking. Remarks Required: -- By whom was the penciled curves inspected.		X	33. The bottom characteristics are adequately shown. Remarks Required: -- None	X
24. The low-water line and delineation of shoal areas have been properly shown in accordance with the following: a. From T-Sheet in dotted black lines b. From soundings in orange c. Approximate position of sketched curve is dashed orange d. Approximate position of shoal area not sounded in black dashed Remarks Required: -- None	X		Part XI - NOTES TO THE REVIEWER 34. Unresolved discrepancies and questionable soundings.	X
25. Depth curves were satisfactory except as follows: (This statement should not refer to the manner in which the curves were drawn). Remarks Required: -- Indicate areas where curves could not be drawn completely because of lack of soundings. For some inshore areas a general statement is sufficient.		X	35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy. 36. Supplemental information.	X X

Verified by

Clarence Lehman, Cartographic Technician



Date

August 12, 1975

VERIFIER'S REPORT

CRL

H-8331
HO-1155

This sheet was verified and inked at Pacific Marine Center, Seattle, Washington. Information relating to this survey is identified by the number and letter as on the Verifier's Report Form #946A. For construction and processing, see Descriptive Report.

PART II SHORELINE AND SIGNALS

5. The transfer of contemporary topographic information was accomplished by the smooth plotter (see processing office notes).
6. The plotting of all stations involved in this survey were not further checked since these were double checked at the time of plotting the smooth sheet.
7. Signals outside the shoreline are quite obviously on piling or Dolphins. The offshore signals are not described on the boatsheet.

PART III JUNCTIONS

8. Sheet #H-8317 (1955-6) on the North
Sheet #H-8332 (1955) on the West
Sheet #H-6654 (1940) on the South

These surveys were apparently considered contemporary at the time of this survey.

9. The "Joins Notes" are added in pencil, only copies of these sheets are available.

The depth curves of all three junction areas have been inked close to the edge of the junctions.

10. Junctions with H-6654 (1940) on the southeast - appears to agree. This survey (H-6654) was not at the time a contemporary sheet.

With H-8332 (1955) on the west, a contemporary sheet, there is depth curve agreement. The comparison was made with a paper copy - the junction note is not inked.

PART V PROTRACTING

16. In general, the plotter was good, except:
 - a. position numbers were not all legible and sometimes missing.
 - b. several fixes ~~is~~ in error.

- c. much too wide spacing of soundings.
- d. no "joins notes".
- e. depth curves poorly drawn.
The 6 fathom and the 5 fathom were drawn as one depth curve - in NW portion of sheet.
- f. position numbers of overlay developments not clearly inked.

17. The courts protractor was checked within the last three months - June 15, 1975.

PART VI SOUNDINGS

19. Two adjustments were made:

- 25a launch #134
- 17a launch #134

These two changes were made to agree with the boatsheet and surrounding soundings.

21. Since areas of this sheet have been complemented by wire drag survey H-8431 (1958) (1-10,000), any use made of this survey, public or private should see (Anacortes to Skagit Bay) Chart No. 18427 (formerly C&GS No. 6376) for up-to-date depths in this area. The area, dragged, was from GUEMES Channel to the Oil Docks.

22. This sheet has good legibility, considering the age of the paper. The spacing of the soundings are much too far apart. Where the bottom was flat and uniform, no additions were made, except occasionally at or near depth curves.

PART VII CURVES

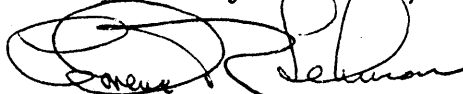
23. The depth curves have been inspected and adjusted during verification. The curves have been smoothed and changed to agree with the added soundings.

25. For the 3 fathom depth curves and more shoal curves of 2, 1 and zero - see the insert for that particular area.

East of Hat Island, the 1/2 fathom curve was added to, ^{Show} this bottom in better detail.

In Fidalgo Bay, the 1/2 fathom curve was also added, due to the distance between the zero and 1 fathom curve.

Respectfully submitted,



Clarence R. Lehman
Cartographic Technician
August 12, 1975

APPROVAL SHEET

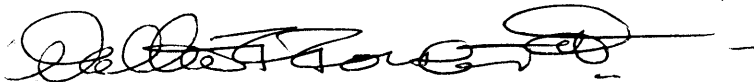
The smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual, except as noted in the Verifier's Report.

Examined and approved,



James S. Green
Supervisory Cartographic Technician

Approved and forwarded,



Walter F. Forster, Cdr., NOAA
Chief, Processing Division
Pacific Marine Center

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8331...

Records accompanying survey:

Boat sheets 2...; sounding vols. 14...; wire drag vols.; bomb vols.; graphic recorder rolls 14-Envelopes special reports, etc. 1-Smooth sheet and 1-Descriptive report. 2 Film Prints T-11228 + T-11229; and miscellaneous tracings of Enlargements and overlays:.....

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

Number of positions on sheet
Number of positions checked
Number of positions revised
Number of soundings revised (refers to depth only)
Number of soundings erroneously spaced
Number of signals erroneously plotted or transferred
Topographic details Time
Junctions Time
Verification of soundings from graphic record Time

Verification by.....Total time Date

Reviewed by..... Time Date

VERIFIER'S REPORT OF HYDROGRAPHIC SURVEY NO. H-8331

The verifier should deal with the present hydrographic survey only, as the reviewer considers its relation to previous surveys and published charts. He should be thoroughly familiar with Chapters 3, 7 and 9 of the Hydrographic Manual.

1. The descriptive report was consulted and appropriate notes were made in soft pencil regarding action taken.
2. Soundings originating with the survey and mentioned in the descriptive report have been verified, including latitude and longitude.
3. All reference to survey sheets mentioned in the descriptive report include the registry number and year.
4. Geographic names of hydrographic features if on sheet are in slanting lettering and of topographic features in vertical lettering.
5. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken.
6. All positions verified instrumentally were check marked in the sounding records.
7. All critical soundings are clear and legible and are a little larger than the adjacent soundings.
8. The metal protractor has been checked within the last three months.
9. The protracting and plotting of all bad crossings were verified.
10. All detached positions locating critical soundings, rocks or buoys were verified.
11. The boat sheet was compared with the smooth sheet.

12. The spacing of soundings as recorded in the records was closely followed.
13. The bottom characteristics were shown on outstanding shoals.
14. The reduction and plotting of doubtful soundings were checked.
15. The transfer of contemporary topographic information was carefully examined.
16. All junctions were transferred and overlapping curves made identical.
17. The notation "JOINS H- (19--)" was added in ink for all contemporary adjoining or overlapping sheets now registered. Those not verified are shown in pencil.
18. The depth curves have been inspected before inking.
19. All triangulation stations and transfer of topographic and hydrographic signals were checked.
20. Heights of rocks were checked against range of tide.
21. Rocks transferred from topographic surveys have a dotted curve where shown thereon. Rocks located accurately by hydrographer are encircled by dotted red curve.
22. Unnecessary pencil notes have been removed.
23. Objects on which signals are located and which fall outside of the low water line have been described on the sheet.
24. The low water line and delineation of shoal areas have been properly shown.
25. Degree and minutes values and symbols have been checked.
26. Questionable soundings have been checked on the fathograms.

27. Source of shoreline and signals (when not given in report).
28. All notes on sheet are in accordance with figure 171 in the Hydrographic Manual.
29. All aids located, with those on contemporary topographic sheets, have been shown on survey.
30. Depth curves were satisfactory except as follows:
31. Sounding line crossings were satisfactory except as follows:
32. Junctions with contemporary surveys were satisfactory except as follows:
33. Condition of sounding records was satisfactory except as follows:
34. The protracting was satisfactory except as follows:
35. The field plotting of soundings was satisfactory except as follows:
36. Notes to reviewer:

Verified by

Date

NAUTICAL CHARTS BRANCH

SURVEY NO. H-8331

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
7/31/58	(18421) 6380	John M. McAlinden	Before After Verification and Review <i>Critical corrections only</i>
8-14-58	6376	R.K. de Lander	Before After Verification and Review. <i>Brit. corrections only.</i>
8-17-58	6300	R.K. de Lander	Before After Verification and Review. <i>no con.</i>
2-25-59	6376	R.E. Elkins	Before After Verification and Review <i>Partly app in area of H-8431 WD.</i>
26 Aug 59	6378	<i>T. Nichols</i>	Before After Verification and Review <i>Part. appl.</i>
20 FEB 63	6376	F. BROVOLD	Before After Verification and Review <i>Part app'd.</i>
12-27-77	18429 ^s	B. Hamilton (Res)	<i>Fully applied</i> Before After Verification and Review
2/5/80	18424 ⁴⁰	<i>Corbett RAS</i>	Before After Verification and Review <i>Fully applied</i>
4/9/80	18430	B.W. Hamilton	Before After Verification and Review <i>Fully applied</i>
3-21-80	18427 ^s	S.M. Hill RAS 3-26-80-RAS	Before After Verification and Review <i>Fully applied</i>
6/80	18421	<i>Corbett</i> 6-16-80 RAS	After Verification + Review <i>Fully applied</i>
6/13/80	18400	<i>Corbett</i> 6-16-80 RAS	After Verification + Review <i>Fully applied</i>
6/80	18423	<i>Corbett</i> 6-16-8-RAS	After Verification + Review <i>Fully applied</i>

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.