7809

Diag. Cht. No. 6450-2

CS-342

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. LJ-1151 Office No. H-7809

LOCALITY

State WASHINGTON

General locality WHIDBEY ISLAND

Locality Oak Harbor - Crescent Harbor

1951

CHIEF OF PARTY

GEORGE A. NELSON

B-1870-1 (1)

7809

Form 537
Ed. Dec., 1930

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

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.

Field No. **LJ-1151**

REGISTER NO. H-7809

State **Washington**

General locality **Whidbey Island**

Locality **Oak Harbor and Crescent Harbor**

Scale **1:10,000** Date of survey **March** , 19 **51**

Vessel **Ship LESTER JONES**

Chief of Party **George A. Nelson**

Surveyed by **Ross A. Gilmore**

Protracted by **William M. Martin**

Soundings penciled by **William M. Martin**

Soundings in ~~fathoms~~ feet

Plane of reference **MLLW**

Subdivision of wire dragged areas by **---**

Inked by **A. E. Eichelberger**

Verified by **A. E. Eichelberger**

Instructions dated **21 December** , 19 **50**

Remarks **Project CS-342**

Fathograms read by Corcino: checked by GAN?RAG,DFR,EWB,FWH. Fathograms were again spot scanned in processing office by WMM and EES.

DESCRIPTIVE REPORT TO ACCOMPANY

HYDROGRAPHIC SURVEY NO._____ (FIELD NO. LJ-1151)

Oak Harbor and Crescent Harbor

Whidbey Island, Washington

Scale 1:10,000 March 1951

U.S.C. & G.S.S. LESTER JONES, George A. Nelson, Comdg.

(Ross A. Gilmore, CDR., C&GS, In Charge of Field Work)

A. PROJECT:

Authority for this survey was contained in "INSTRUCTIONS - HYDROGRAPHIC SURVEY, OAK HARBOR, WHIDBEY ISLAND, WASHINGTON. PROJECT CS-342", dated 21 December 1950.

B. SURVEY LIMITS AND DATES:

This survey includes all of Oak Harbor and approaches as well as the western part of Crescent Harbor immediately adjacent to the peninsula separating the two harbors and includes the water area inside the following positions:

Latitude	Longitude
48° 15' 22"	122° 39' 07"
48° 15' 22"	122° 37' 30"
48° 16' 04"	122° 36' 15"
48° 17' 30"	122° 37' 03"

Junction was made on the south and east with Survey H-1885 (1888) and Chart 6404.

Field work was started on 14 March 1951 and was completed on 31 March 1951.

C. VESSEL AND EQUIPMENT:

All hydrography except along the faces of piers was executed from Launch No. 71 operating from the Ship LESTER JONES.

Soundings were taken with the 808J type depth recorder No. 102S. Leadline soundings were taken along the faces of piers and at critical depths on shoals and to obtain bottom samples. Leadlines used were checked and corrections can be found in Volume 1, p. 3 (See also ABSTRACT OF LEADLINE CORRECTIONS this report). Bar check lead lines were also checked and found to be correct for the desired perpendicular distances from the water surface to the submerged bar.

D. TIDES AND CURRENT STATISTICS:

Tide reducers for this survey were obtained from readings taken from the portable tide gage and tide staff established at the Whidbey Island Naval Air Station Pier at the western side of Crescent Harbor (Lat. 48° 17.08' N., Long. 122° 37.19' W.). The gage was in good operating condition during the entire period of hydrography. The gage and staff were installed at Crescent Harbor instead of Oak Harbor as it was considered impracticable to install them at the latter place after a careful reconnaisance was made.

Four bench marks were established in the immediate vicinity of the tide gage and connected by levels to the tide staff. No bench marks of other organizations were recovered in this area.

The M. L. L. W. datum was determined by the Washington Office and applied to scaled hourly heights for the required sounding periods to determine tide reducers.

No current station was observed on this survey.

E. SMOOTH SHEET:

originate with RS-228 (1942),

The smooth sheet (as well as the boat sheet) for this survey was made by the Washington Office and will be smooth plotted by the Seattle Processing Office. Shoreline and other details were compiled in the Washington Office from aerial photographs taken in 1942, without benefit of field identification of control or field inspection and will have to be altered on the smooth sheet by the plotter. (See G.)

See Review par. 1.

F. CONTROL STATIONS:

Additional third-order control was established by extending recovered third-order control.

Triangulation records, computations, and a special report has been forwarded to the Washington Office. Geographic positions for all triangulation stations used on this survey were submitted to the Processing Office.

Topographic stations were located by standard topographic methods and are shown on topographic survey LJ-A-51. (unregistered). The Report for LJ-A-51 is filed at the end of H-7809 Descriptive Report.

G. SHORELINE AND TOPOGRAPHY:

The shoreline and topography as compiled and drawn on the smooth sheet by the Washington Office will have to be revised to agree with revisions shown on topographic survey LJ-A-51 executed by D. F. Romero in March 1951. See Review par. 1.

The lower low water line has been determined in most cases by the hydrographer when and where tide and other circumstances permitted. Pier details have been shown on the boat sheet and in the sounding record and horizontal measurements were made by tape.

H. SOUNDINGS:

Depths were taken in feet with the 808J depth recorder and recorded to the nearest 0.2 foot to 60 feet and thence to the nearest 0.5 foot. The magnetostriction units were placed in the bottom of the launch approximately amidships in a small well and worked very satisfactorily. Leadline soundings were taken along the faces of piers and on critical depths and to obtain bottom samples.

Bar checks were taken twice a day in most cases and generally at the 2, 3, 4, 5, 6, and 7 fathom depths. No difficulty was encountered in obtaining satisfactory bar checks as in most instances the water was comparatively calm and favorable spots were selected. On "a" day the initial was set so that the recorder read correct at 12 feet thus giving an initial of approximately 1.2 feet. This proved awkward, however, and from "b" day to the end of the hydrography, the initial was set at exactly 1.0 foot.

Speed checks were made with the stop watch and the motor speed of the recorder was found to be correct when the middle reed was vibrating.

Phase corrections were obtained at the same time that bar checks were taken and applied accordingly. The mean phase correction between A scale and B scale (the only two scales involved) was 2.6 feet. An "ABSTRACT OF PHASE CORRECTIONS" is ~~submitted with~~ included in this report.

Bar checks were abstracted and mean values were obtained. A curve was plotted and corrections at 0.2 foot intervals were selected. An "ABSTRACT OF BAR CHECKS" and a "FATHOMETER CORRECTION CURVE" are included ~~submitted with~~ in this report. For "a" day, separate corrections had to be determined. The following corrections were used: Position 1-34 incl. 0.0 feet; Position 35-111 incl. -1.0 feet; and 112-129 incl. the corrections were used as indicated on the FATHOMETER CORRECTION CURVE for "a" day.

I. CONTROL OF HYDROGRAPHY:

Three point fixes on previously located shore objects controlled the hydrography. Adequate control was available for this purpose. Fixes were taken at beginning and end of lines, turns, and generally at 1-1/2 minute intervals on line. Some fixes were determined at located objects. No unusual or substandard methods were used for controlling hydrography.

J. ADEQUACY OF SURVEY:

The survey is adequate and complete and should supersede previous surveys of the area for charting purposes.

Depth curves were drawn as the work progressed and additional development was done where necessary. Depth curves were drawn at 1 fathom intervals on the boat sheet.

K. CROSSLINES:

Crosslines were run and found to be in good agreement. The percentage of crosslines is well within the required range.

L. COMPARISON WITH PRIOR SURVEYS:

Critical depths and junction soundings, as well as other soundings, were transferred to the boat sheet from a copy of a portion of survey H-1885. (1888) Generally, good agreement was had with the prior survey. However, in two instances discrepancies were noted. The unchartered 4-3/4 fathom sounding shown on H-1885 at Latitude 48° 16.41' N., Long. 122° 36.54' W. was found to have a depth of over 50 feet; however, this sounding could have been displaced on the old survey as the 30 foot curve lies approximately 75 meters to the west. The unchartered 18 foot sounding at Latitude 48° 16.37' N. Long. 122° 36.54' W. was found to have a depth of over 32 feet. This also could be displaced on the original survey.

A comparison was made with the 1942 "after-dredging" survey of the Austin Company of the east-shore approach to the Navy seaplane base and a good agreement was noted except for comparative soundings alongside the pier. In most cases the current survey depths along the pier appear about four feet less.

M. COMPARISON WITH CHART 6404:

Prior to field work, soundings were also transferred from Chart 6404 (particularly shoals and critical depths) to the boat sheet and while the field work progressed a comparison was made between these and the new soundings and where warranted a particular effort was made to prove or

disprove any discrepancies. Also, particular attention was paid to the four features requiring special investigation as noted in the project instructions under HYDROGRAPHY, ITEM 7. The following cases are noted:

1. Item 7 (a) of the INSTRUCTIONS

The charted 11 foot sounding just east of Oak Harbor Lt. # 3 was investigated and the shoalest depth found in the immediate area was 14 feet.

2. Item 7 (b) of the INSTRUCTIONS

The reefs and shoals southeast of Maylor Point and Forbes Point were investigated. The rocks awash shown in this area on the chart were all accounted for except the two at Lat. 48° 15.77' N., Long. 122° 37.41' W. and Lat. 48° 15.84' N., Long. 122° 37.44' W. No evidence was noted of these rocks but this area was not examined in a detailed manner inasmuch as they fell inside of other rocks awash to the south. Additional rocks were found in this area and are located as follows: Rock Awash at Lat. 48° 15.79', Long. 122° 37.58'; Rock Awash at Lat. 48° 15.68', Long. 122° 37.50'; Rock Awash at Lat. 48° 15.67', Long. 122° 37.43', Sunken Rock at Lat. 48° 15.74', Long. 122° 37.32'.
covered 3ft. at MLLW. and 30 meters east of a rock awash.

3. Item 7 (c) of the INSTRUCTIONS

The charted 13 foot sounding, Lat. 48° 16.42', Long. 122° 36.84' was found to have a least depth of 18 feet after close development.

4. Item 7 (d) of the INSTRUCTIONS

The charted 18 foot sounding in Lat. 48° 16.92', Long. 122° 36.96' was found to have a least depth of 26 feet after close development.

5. The charted 2 foot sounding in Lat. 48° 16.66', Long. 122° 39.21' was investigated and a least depth of 10 feet was found.

6. The charted 11 foot sounding at Lat. 48° 16.40', Long. 122° 38.67' appears to be displaced to the west as the least depth found was over 30 feet.

* Charted sdgs from BP 37260 & 37766-67 are disproved by present depths. Rev par 6 A

7. The charted 9 foot sounding at Lat. 48° 15.78', Long. 122° 38.04' was closely developed and a least depth of 16 feet was found.
9' from H-1885 disproved by present survey Rev. par. 5

N. DANGERS AND SHOALS:

The dangers and shoals on this survey consist of former charted shoals and rocks as noted under M. and a few additional shoaler depths than charted as follows:

1. The 6 foot curve due south of Maylor Point was found to extend further offshore than shown on Chart 6404. This curve extends 525 yards out from the high water line at the point, whereas it formerly was shown to be about 275 yards.

2. A least depth of 6 feet was found in a charted area of approximately 12 to 14 feet at Lat. 48° 15.88', Long. 122° 36.94'.

3. A least depth of 12 feet was found in a charted depth of approximately 18 feet at Lat. 48° 16.02', Long. 122° 36.74'. However, a depth of 15 feet is indicated in this area on survey H-1885.

4. A least depth of 9 feet was found in a charted depth of over 12 feet at Lat. 48° 16.14', Long. 122° 36.58'. This apparently marks the end of a long shoal extending northwest-southeast just north of Forbes Point.

5. A least depth of 8 feet was found in a charted depth of about 10 feet at Lat. 48° 16.19', Long 122° 36.69', however, there is a charted 9 foot spot about 60 yards to the southwest.

6. Crescent Rock at Lat. 48° 17.37', Long. 122° 37.34' no longer exists. The hydrographic party was informed that this rock had been blasted out during construction operations at the Navy seaplane base.

O. COAST PILOT INFORMATION:

Coast Pilot information for the area of this survey was furnished in a special report submitted 16 April 1951.

P. AIDS TO NAVIGATION:

Two fixed aids to navigation, namely Oak Harbor Light # 1 and Oak Harbor Light # 3, were located by triangulation and will be reported on Form 567 with the triangulation data.

Two floating aids to navigation exist within the limits of this survey and are as follows: (1) A flashing white bell buoy "3" in 27 feet of water at Lat. 48 16.09', Long. 122 36.32' marking the end of the shoal area extending ~~west~~ eastward of Forbes Point. (2) A red nun buoy "1" in 52 feet of water at Lat. 48 15.38', Long. 122 37.60'. This buoy marks the outer approach to Oak Harbor and lays about 3/4 mile south of Maylor Point.

Q. LANDMARKS FOR CHARTS:

Two objects suitable as landmarks fall within the limits of this survey and are the silvered municipal water tank at Oak Harbor and the control tower at the south edge of the Navy seaplane base between Oak Harbor and Crescent Harbor. These landmarks will be submitted on Form 567 with the project triangulation report.

R. GEOGRAPHIC NAMES:

There are no known new or obsolete geographic names falling within the limits of this survey. A "GEOGRAPHIC NAMES LIST" is attached to this report.

Z. TABULATION OF APPLICABLE DATA:

A tabulation of all data and records pertaining to this survey is attached to this report.

A list of signals used is attached to p. 2, Vol. 1 of the sounding records and is also attached to this report.

Respectfully submitted,

Ross A. Gilmore

ROSS A. GILMORE
CDR., USC&GS

Approved and Forwarded:

George A. Nelson

GEORGE A. NELSON
CDR., USC&GS
COMDG., SHIP LESTER JONES

TABULATION OF RECORDS AND DATA

(for Survey LJ-1151)

Title	Form No.	Forwarded
Report of Tide Station	681	13 April 1951
Leveling Record, Tidal	258	" " "
Hourly Heights & High & Low Waters	138 & 362	" " "
Coast Pilot Notes		16 April 1951
Triangulation Records, Report & Data		To be forwarded
Sounding Records	275 (9 Vols)	*18 April 1951
Fathograms ("a" - "j" day incl)	9 folders	*18 April 1951
Descriptive Report (in duplicate)		*18 April 1951
# Abstract of Leadline Corrections		
# Abstract of Bar Checks		
# Abstract of Phase Corrections		
# Fathometer Correction Curve (including scaled corrections)		
~~# Abstract of Leadline Corrections~~		
# List of Signals on LJ-1151 (in Vol. 1)		
# Geographic Names List		
# Table of Statistics		
# Tidal Note		
# Approval Sheet		
Hydrographic Boat Sheet LJ-1151		* 18 April 1951
Hydrographic Smooth Sheet LJ-1151 (unplotted)		* 18 April 1951 H-7809
# Hydrographic Title Sheet (1 attached to Smooth Sheet)		

* To the Seattle Processing Office

\# Attached to the Descriptive Report

ABSTRACT OF LEADLINE CORRECTIONS

HYDROGRAPHIC SURVEY FIELD NO. LJ-1151

CORRECTIONS FOR 10 FATHOM LEADLINE (No. 1)

Depth (feet)	Correction (feet)
0 to 24.0	0.0
24.2 to 48.0	-0.2
48.2 to 60.0	-0.4

CORRECTIONS FOR BAR CHECK LEADLINES

Leadlines attached to the Bar Check bar were marked at the corresponding 12, 18, 24, 30, 36 and 42 foot points so that the vertical distance from the water surface to the suspended bar were exactly correct.

ABSTRACT OF PHASE CORRECTIONS

808J Type RECORDER NO. 102S

Hydrographic Survey Field No. LJ-1151

Ship LESTER JONES March 1951

Date 1951	"A" Scale	"B" Scale	"A" - "B"
14 Mar.	43.2 ft.	45.6 ft.	-2.4 ft.
"a" day	43.0	45.6	-2.6
	43.0	45.6	-2.6
	43.0	46.0	-3.0
	42.8	45.2	-2.4
	42.6	45.0	-2.4
	42.6	45.0	-2.4
17 Mar.	52.3	55.2	-2.9
"c" day	53.0	56.0	-3.0
	53.0	55.8	-2.8
18 Mar.	48.0	51.6	(-3.6)R
"d" day	48.0	51.2	-3.2
	48.1	51.0	-2.9
	48.6	51.8	-3.2
	42.8	45.2	-2.4
19 Mar.	42.6	45.5	-2.9
"e" day	42.6	45.2	-2.6
	42.6	45.2	-2.6
	42.4	45.2	-2.8
	42.4	45.0	-2.6
	42.5	45.0	-2.5
28 Mar.	43.0	45.6	-2.6
"g" day	42.8	45.6	-2.8
	42.8	45.4	-2.6
31 Mar.	42.2	45.1	-2.9
"j" day	42.1	45.1	-3.0
	42.2	45.0	-2.8
	42.8	45.0	-2.2
	43.0	45.1	-2.1
	43.0	45.1	-2.1
		Sum	-77.3
		Mean	-2.6 ft.

ABSTRACT OF BAR CHECKS

(Differences of True Depths vs Fathometer Depth in Feet)

Date 1951	12 ft. Depth	18 Ft. Depth	24 Ft. Depth	30 Ft. Depth	36 Ft. Depth	42 Ft. Depth
16 Mar.	0.0	0.0	-0.2	-0.2	-0.4	
"b" day	0.0	0.0	0.0	-0.2		
	-0.2	0.0	-0.2	-0.2		
	0.0	-0.2	0.0	-0.2		
17 Mar.	0.0	-0.1	-0.2	-0.3		
"c" day	-0.1	0.0	-0.1	0.0	0.0	
	+0.2	0.0	0.0	0.0	-0.1	-0.1
	0.0	0.0	0.0			
		0.0				
18 Mar.	-0.2	0.0	0.0	0.0	-0.1	0.0
"d" day	0.0	0.0	0.0	0.0	0.0	-1.0
	0.0	-0.2	-0.4	-0.4	-1.2	-0.8
	0.0	0.0	-0.1	-0.1	-0.2	
19 Mar.	0.0	-0.2	-0.2	-0.1	-0.4	-0.4
"e" day	0.0	-0.2	-0.2	0.0	-0.4	-0.5
	0.0	-0.2	-0.2	-0.2	-0.4	-0.5
	0.0	-0.1	-0.2	-0.1	-0.5	
20 Mar.	-0.1	-0.1				
"f" day	-0.1					
28 Mar.	0.0	-0.1	-0.4	-0.6	-1.0	-1.0
"g" day	0.0	-0.2	-0.2	-0.8	-1.0	
	0.0	-0.1	-0.4	-0.6		
30 Mar.	0.0	-0.1	-0.1	-0.1	-0.1	-0.2
"h" day	0.0	0.0	0.0	0.0	-0.1	-0.4
	0.0	-0.1	-0.1	-0.1	-0.4	
	0.0	-0.1	0.0	-0.1	-0.1	
31 Mar.	0.0	-0.1	-0.1	-0.1	-0.1	-0.2
"j" day	0.0	0.0	0.0	0.0	-0.4	-0.8
	-0.1	-0.1	-0.1	-0.2	-0.4	
	0.0	-0.1	-0.2	-0.2	-0.8	
Sums	-0.6	-2.3	-3.6	-4.8	-8.1	-5.9
Means	-0.02	-0.08	-0.13	-0.18	-0.39	-0.49

Mean Values used to plot FATHOMETER CORRECTION CURVE attached to this REPORT. For "a" day see FATHOMETER CORRECTION CURVE.

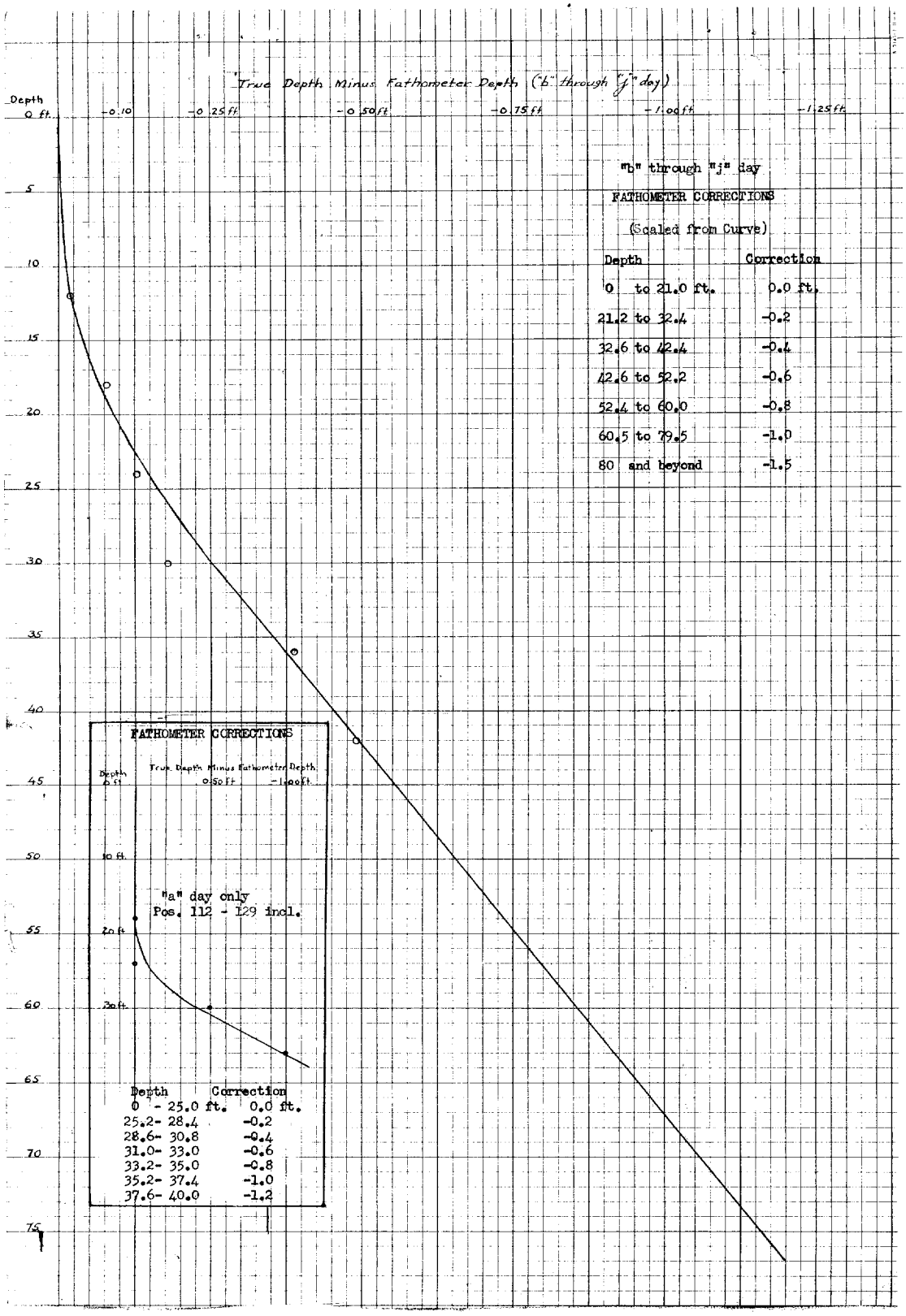
copy ✓ DMR

FATHOMETER CORRECTION CURVE

HYDROGRAPHIC SURVEY FIELD NO. LJ-1151 H-7805

Recorder No. 102S (Type 808J) March 1951

Ship IESTER JONES George A. Nelson, Comdg.



"b" through "j" day

FATHOMETER CORRECTIONS

(Scaled from Curve)

Depth	Correction
0 to 21.0 ft.	0.0 ft.
21.2 to 32.4	-0.2
32.6 to 42.4	-0.4
42.6 to 52.2	-0.6
52.4 to 60.0	-0.8
60.5 to 79.5	-1.0
80 and beyond	-1.5

FATHOMETER CORRECTIONS

"a" day only
Pos. 112 - 129 incl.

Depth	Correction
0 - 25.0 ft.	0.0 ft.
25.2 - 28.4	-0.2
28.6 - 30.8	-0.4
31.0 - 33.0	-0.6
33.2 - 35.0	-0.8
35.2 - 37.4	-1.0
37.6 - 40.0	-1.2

LIST OF SIGNALS ON LJ-1151

Triangulation Stations;

ABLE (House Gable, 1951)
BIL (Building 97, 1951)
CHIM (Chimney, Control Tower, 1951)
FLAG (Flagpole, N. A. S. Adm. Bldg., 1951)
GREEN (GREEN, barn ventilator, 1944)
KELP (KELP, 1944)
MAY (MAYLOR 2, 1924)
NAVY (NAVY, 1951)
ONE (Oak Harbor Lt. # 1, 1951)
PIN (PINNACLE, 1951)
POLE (Light pole, E. end of pier, Crescent Hbr., 1951)
TANK (Oak Harbor Water Tank, 1944)
THREE (Oak Harbor Lt. # 3, 1951)

Topographic Stations:

AX
BAN
BAR
CAN
CAT
CON
DIL
DOL
FLU
GUS
HAD
INN
KID
LIT
LITE
MAG
NEW
OFF
OUT
PILE
POT
SIS
STACK
TOY
TRI
UMP
UNK
WIG

STATISTICS FOR HYDROGRAPHIC SURVEY NO. H _____ (LJ-1151)

Ship LESTER JONES Project CS-342 1951

Date 1951	Day Letter	Vol. No.	Hand Lead Soundings	Positions	Statute Miles of Soundings
14 March	"a"	1	0	129	18.1
16 March	"b"	2	1	169	23.7
17 March	"c"	2, 3	2	184	23.7
18 March	"d"	3, 4	2	248	36.9
19 March	"e"	5, 6	1	206	39.5
20 March	"f"	6, 7	1	239	30.8
28 March	"g"	7, 8	0	205	20.2
30 March	"h"	8	76	82	6.7
31 March	"j"	8, 9	19	148	16.2
TOTALS:		9	102	1610	215.8

Area: 4.0 square statute miles

Lj 1151

Oak Harbor

Whidbey Island

Washington

List of Geographic names
penciled on smooth sheet.

Whidbey Island

Oak Harbor

Crescent Harbor

Forbes Point

Blowers Bluff

LJ-1151

TIDE NOTE

A tide staff and automatic portable tide gage were established at the Whidbey Island Naval Air Station Pier, Crescent Harbor (Lat. 48° 17.08' N., Long. 122° 37.19' W.) and was in operation for a full month. The gage was in good operating condition during the entire hydrographic period.

MLLW on the staff was determined by the Washington Office and found to be 2.0 feet.

Reduction for tide was made to the nearest 0.2 foot.

APPROVAL SHEET

The records and boat sheet for this survey have been examined by me and found adequate and no additional work is recommended.

George A. Nelson

GEORGE A. NELSON
Chief of Party, C&GS

Lj 1151.

Oak Harbor, Whidbey Island, Wash.

Processing Office Notes.

Smooth sheet.

The projection and topography were prepared in Washington, apparently by lithographic method. The topographic plate and the boatsheet were prepared by the same process. In the field ~~extensive~~ minor changes were found in structures and roads, as indicated on the unregistered planetable plate. The uninspected shoreline needs to be shifted as shown at numerous points on planetable plate. Near ~~his~~ topographic stations the topographer located points on the shoreline and took tangent cuts to other points. Around the north and west sides of Oak Harbor the shoreline should be shifted about ~~fifteen~~ ten meters to east and south. Note particularly the Washington CO-OP. Pier. Around Maylor Point and Forbes Point the shoreline should be shifted inward. In the vicinity of ⊙ Dill(ϕ 48 17.4 λ 122 37.5) it should be moved out. It is suggested that the shoreline be adjusted to the planetable plate by the Division of Photogrammetry and that the changes in the shoreline be shown on the smooth sheet in red. See Review Par. 1.

Note that physical changes in the shoreline in the vicinity of ϕ 48 16.5 λ 122 38.5 have been delineated by the topographer.

Two subplans, scale 1/2 000, were added to show in greater detail soundings along the sides of piers.

Fathograms.

In addition to rescanning by the field party, the fathograms were spot scanned thruout for high and low spots and unusual features. In the area south of Forbes Point many small boulders were found, one, two and three feet above bottom. These were inserted on the sounding lines and the sheet shows many such soundings on boulders which would be difficult to check with the hand lead. After these boulders came to our attention similar things were recognized in other areas of the sheet and the depths were recorded if they were not already in the books.

Important features have been pointed out with arrows so that no further discussion of them seems needed.

Edgar E. Smith.
Cart.Engr. 4/20/52

GEOGRAPHIC NAMES

Survey No. H-7809

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K	
Washington									BGN	1
Whidbey Island		✓								2
Penn Cove		X								3
Blowers Bluff		X								4
Oak Harbor	(bay)	✓								5
Forbes Point		✓								6
Crescent Harbor		✓								7
East Rock		✓								8
Polnell Point		✓								9
										10
										11
					Names underlined in red are approved 5-17-52					12
Maylor Point		✓								13
Oak Harbor (town)										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

M 234

Form 537a
Ed. Nov. 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

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

Field No. LJ-A-51

REGISTER NO.

State Washington

General Locality Whidbey Island

Locality Crescent Harbor - Oak Harbor

Scale 1:10,000 Date of survey March, 1951

Vessel LESTER JONES

Chief of party G. A. Nelson

Surveyed by D. F. Romero

Inked by D. F. Romero

Heights in feet above MLLW to ground ~~to tops of trees~~

Contour, Approximate contour, Form line interval --- feet

Instructions dated 21 December, 1950

Remarks:

GPO 266853

DESCRIPTIVE REPORT

to accompany

TOPOGRAPHIC SHEET

Field No. LJ-A-51
(unregistered)

Crescent Harbor - Oak Harbor

1951

U.S.C. & G.S.S. LESTER JONES, G. A. Nelson, Comdg.

INSTRUCTIONS:

Instructions for Project CS-342 dated 21 December 1950.

LIMITS OF SURVEY:

This 1:10,000 sheet covers Oak Harbor and that portion of Crescent Harbor shoreline west of longitude 122° 37' W. Besides the location of signals and high water line, field inspection was made of the adjacent area and some corrections were made on the topographic sheet. Reference is made to the map furnished this organization by the Naval Air Station at Whidbey Island. A field check was made of this map, and with the few exceptions shown, it was found to be accurate and quite complete for inshore detail in the area covered by the topographic sheet.

The map was not included in transmittal.

CONTROL:

Existing adjusted and current unadjusted third-order triangulation was used for control. Triangulation stations used were: PINNACLE, 1951; KELP, 1944; HOUSE GABLE, 1951; OAK HARBOR WATER TANK, 1944; FLAGPOLE, NAS Adm. Bldg., 1951; OAK HARBOR LT. # 1, 1951; OAK HARBOR LT. # 3, 1951; NAVY, 1951; MAYLOR 2, 1924; CHIMNEY, CONTROL TOWER, 1951; and LIGHT POLE, 1951. All stations were on the 1927 datum.

SURVEY METHODS:

Standard topographic methods were used throughout. Signals along the eastern shore of MAYLOR POINT were located by cuts from LIGHT POLE and traverse to MAYLOR 2. The signals in OAK HARBOR were located by cuts from MAYLOR 2, NAVY, HOUSE GABLE, and KELP, and from intermediate setups at STU and CAN. The closure of the traverse fell within allowable limits.

GENERAL DESCRIPTION:

The shoreline from east of AX to south of BAN has been built up to an elevation of about 5 feet with concrete slabs and rubble in order to provide support for streets and runways. From BAN to just east of DOL the shoreline is sand beach with strewn boulders for about 20 meters back from high water line where a 30 - 50 foot clay bank rises abruptly to the grassy, sloping top of the peninsula. The beach is particularly rocky around Forbes Point. From DOL to east of HAD is recently filled land, a great deal of which covers with the tide. The tide access to this land is by means of a winding tidal stream which cuts under the piling wall along the northern shore. From HAD to the Co-op Pier is again the concrete rubble and built up shore which rises steeply in a northerly direction across the town of Oak Harbor. From the Co-op Pier to TRI the shoreline consists of flat sand beach up to 40 meters wide with gently sloping land behind HOUSE GABLE and UMP. A bluff begins north of OUT and continues to rise gradually as it extends southward to BLOWER where it reaches a height of about 150 feet. The shoreline from TRI to PINNACLE is sand and gravel beach with occasional strewn boulders and extending 30 - 40 meters back from high water line to the base of the clay bluff.

COMPARISON WITH PREVIOUS SURVEYS:

No record of a previous topographic survey in this area was available. In some areas, particularly between DOL and CAN, there appears to be considerable variation in shoreline between the topographic sheet and the aerial-photo compilation. It is believed that this can be wholly attributed to the taking of the aerial-photos at a partial low water.

COMPARISON WITH HYDROGRAPHIC SURVEYS:

The topographer located the high water line while the hydrographer located the low water line. No obvious discrepancies were apparent.

LANDMARKS FOR CHARTS:

Landmarks for charts will be covered under a separate cover upon completion of the work at Whidbey Island.

GEOGRAPHIC NAMES:

The names which appeared on the aerial-photo compilation and upon C&GS Chart No. 6404 were found to be correct and in local usage.

ADEQUACY OF SURVEY:

The object of this survey was the location of control for hydrography, the verification of the accuracy of the aerial-photo compilation of shoreline, the correction of any inaccuracies, and the resurvey of any changes that occurred. It is believed that this survey adequately fulfills the above mentioned object. Reference is again made to the map furnished this organization by the Whidbey Island Naval Air Station and which accompanies this report.

The map was not included in transmittal.

STATISTICS:

8.3 statute miles of shoreline.

33 topo signals.

Respectfully submitted,

David F. Romero

DAVID F. ROMERO
ENSIGN, USC&GS

Approved and Forwarded:

George A. Nelson

GEORGE A. NELSON
COMDR., USC&GS
COMDG., SHIP LESTER JONES

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-7809

Records accompanying survey:

Boat sheets 1; sounding vols. 2; wire drag vols. .....;

bomb vols. .....; graphic recorder rolls 5 Env.;

special reports, etc. 1 Smooth Sheet; 1 Descriptive Report;

.....

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	.....

Preliminary Verification by-- O. Svendsen ------- 18 hr ------- 6-26-52

Verification by.....Total time ..... Date .....

Reviewed by R.E. Elkins Time 32 Date 7-11-52

M-2232-1

VERIFIER'S REPORT OF HYDROGRAPHIC SURVEY NO. H-7809

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.

see other side

a stray trace reduced to 13-ft. in 18-ft. depths at lat. 48°16.55', long 122°38.95' was rejected during review. (96-97e Vol. 5, p37). This depth was apparently verified by a 15-ft depth mss-plotted 30 meters south of the above position. This 15 ft depth was replotted 160 meters southwest of the stray.

REE 7-9-52

a trace reduced to -1 ft in 3 ft depths at lat 48°16.10 long. 122°38.70 from sdg. line 93 to 94e, Vol. 5, p36. was rejected during review. This is from the same sounding line as the above 13 ft trace and is probaly a stray.

REE 7-9-52

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: During final verification, ink fractional depths in the fractional form $\frac{+}{2}$ or $5\frac{1}{2}$ instead of the decimal form 05 or 55 as now penciled. REE

36. Notes to reviewer: Make corrections from T-sheet and use old T-sheet as source of shoreline. New photographs are available and new correction sheet will probably be made superseding 1943 correction sheet

Preliminary Verification by O. Svendson RHC

Verified by _____ Date 6-26-52

NOAA FORM 77-27
(9-72)
PRESC. BY
HYDROGRAPHIC
MANUAL 20-2
6-94 7-13

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

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. H-7809

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

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

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	5					
CAHIERS						
VOLUMES	9					
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 1578				
POSITIONS CHECKED		565		
POSITIONS REVISED		5		
DEPTH SOUNDINGS REVISED		57		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		Ø		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		Ø		
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS				
JUNCTIONS		15		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		8		
SPECIAL ADJUSTMENTS				
ALL OTHER WORK		163		
TOTALS		186		

	BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY		
VERIFICATION BY A. E. Eichelberger A. E. Eichelberger	2/19/74	3/4/75
REVIEW BY	BEGINNING DATE	ENDING DATE

* U.S. G.P.O. 1972-769-562/439 REG.#6

FORM C&GS-946A
(REV. 11-65)
(PRES. BY HYDROGRAPHIC MANUAL, 6-94)

U.S. DEPARTMENT OF COMMERCE
ESSA
COAST AND GEODETIC SURVEY

VERIFIER'S REPORT

HYDROGRAPHIC SURVEY, H 7809

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
Note: The verifier should first read the Descriptive Report for general information and problems.		
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	X	
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	X	
3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year. Remarks Required: -- None	X	
Part II - SHORELINE AND SIGNALS		
4. Source of shoreline signals Remarks Required: -- List all surveys		
a. Give earliest and latest dates of photographs		X
b. Field inspection date		
c. Field Edit date		
d. Reviewed-Unreviewed		
5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences.		
6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the smooth sheet. Remarks Required: -- None	X	
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.	X	
Part III - JUNCTIONS		
Note: Make a cursory comparison preliminary to taking soundings in area of overlap.		
8. All junctions of contemporary or overlapping sheets were transferred in colored ink and overlapping curves were made identical. Remarks Required: -- None	X	
9. 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		X

Part III - JUNCTIONS (Continued)	CL	R
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.		X
Part IV - VOLUMES		
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	X	
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	X	
(e) time recording		
(f) notes or markings on fathograms		
(g) was reduction of soundings accurately done?		
(h) was scanning accurate?		
(i) were peaks at uneven intervals missed?		
(j) were stamps completed?		
(k) references to adjacent features		
Part V - PROTRACTING		
13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. Remarks Required: -- None	X	
14. The protracting and plotting of all unsatisfactory crossings were verified. Remarks Required: -- None	X	
15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None	X	

Part V - PROTRACTING (Continued)	CL	R
16. The protracting was satisfactory except as follows: Remarks Required: -- Refers to protracting in general except for specific faults repeated often, or faults in control information, which required considerable replotting or adjustments.	X	
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.	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	
19. Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.	X	
20. The spacing of soundings as recorded in the records was closely followed; Remarks Required: -- None	X	
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None	X	
22. The smooth plotting of soundings was satisfactory except as follows: Remarks Required: -- Refer to legibility, errors in spacing, and errors in numbers - but not to errors in scanning.		X
Part VII - CURVES		
23. The depth curves have been inspected before inking. Remarks Required: -- By whom was the penciled curves inspected.	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 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

Part VIII - AIDS TO NAVIGATION	CL	R
26. 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	
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 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	
29. Heights of rocks awash were correctly reduced and compared with topographic information. Remarks Required: -- Note excessive conflicts with topographic information.	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	
31. Unnecessary pencil notes have been removed from the sheet. Remarks Required: -- None	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	
33. The bottom characteristics are adequately shown. Remarks Required: -- None	X	
Part XI - NOTES TO THE REVIEWER		
34. Unresolved discrepancies and questionable soundings.	X	
35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.	X	
36. Supplemental information.	X	

Verified by A. E. Eichelberger

A. E. Eichelberger, Cartographic Technician

Date 3/4/75

VERIFIER'S REPORT

H-78Ø9 CS-342 LJ-1151

This survey was returned to PMC Processing Office for verification and inking in February 1974. Preliminary verification of rocks and critical soundings was made in June 1952. Review of significant topographic and hydrographic features was accomplished in July 1952.

PART II SHORELINE AND SIGNALS

4. No shoreline manuscripts were available to the verifier at PMC.

PART III JUNCTIONS

9. Junction notes with H-8542 (196Ø-62) and H-8543 (196Ø) were penciled as no exact correlation of the depth curves could be made. Copies of the above smooth sheets were not available.

1Ø. Junction strips of the above adjoining sheets were xeroxed and furnished by the Review Section, Rockville. Soundings were traced and converted to feet for comparison. Extreme distortion exists in the copies received and only a cursory examination could be made. Soundings and depth curves on H-78Ø9 were adjusted as much as reasonably possible to effect agreement. Depth curves at junction areas were left in pencil for adjustment by the Review Section.

Soundings on the eastern limits north of Forbes Pt. and at the southernly limits of H-78Ø9 appear to be 1-2 ft. deeper than H-8542. Comparison in the southwesterly portion of H-78Ø9 with H-8543 indicates good agreement considering the 9 year time differential between surveys.

PART VI SOUNDINGS

22. Several soundings were not inked due to extensive congestion. Soundings not plotted were noted in the sounding volumes when they could be readily identified. Excessive time was not spent determining all depths not inked.

This survey is considered adequate to supersede prior surveys of the area.

Respectfully submitted,

A. E. Eichelberger

A. E. Eichelberger
Cartographic Technician
March 4, 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

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7809 FIELD NO. LJ-1151

Washington, Whidbey Island, Oak Harbor and Crescent Harbor

Project No. CS-342

Surveyed in March 1951 Scale 1:10,000

Soundings: Control:

808 Fathometer Sextant fixes on shore signals

Chief of Party - G. A. Nelson
Surveyed by - R. A. Gilmore
Protracted by - W. M. Martin
Soundings plotted by - W. M. Martin
Preliminary Verification by - O. Svendsen
Verified and inked by -
Reviewed by - R. E. Elkins, 9 July 1952
Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline originates with the preliminary photogrammetric compilation, RS-228 (1942), compiled June 1943 without the benefit of field examination or control identification.

Shoreline details in red are from the unregistered planetable sheet, LJ-A-51 (1951), used in locating control stations for the present survey. These details and the control shown on the planetable sheet will be incorporated in a proposed photogrammetric compilation to be prepared from 1952 air photographs.

The origin of the control stations 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 except for portions of the low-water line. Additional information pertaining to the low-water line will be available on the 1952 air photographs.

The survey covers Oak Harbor and approach, and the west part of Crescent Harbor. The bottom is generally smooth and slopes from the shallow shelf bordering the shoreline to 50-ft. depths one mile offshore. An area foul with boulders and reefs extends one-half mile south and east of Forbes Point. The natural bottom has been altered by dredging in four areas listed in paragraph 5.

4. Junctions with Contemporary Surveys

There are no contemporary hydrographic surveys in the area by this bureau; however, the present survey adequately joins the charted hydrography to the south originating with H-1885 (1888), and the charted hydrography to the east originating with a 1941 survey (Bp. 37260) made by an engineering company for the U. S. Navy. The present survey extends to the shoreline on the north and west.

5. Comparison with Prior Surveys

H-1885 (1888) 1:20,000

A comparison between the present and prior surveys reveals no changes in the bottom that can be attributed to natural causes. However, dredging in connection with the development of the seaplane base has altered bottom conditions as follows:

a. A berthing area with depths of 26 to 31 feet has been dredged in prior depths of 6 to 30 feet at the pier constructed at the west side of Crescent Harbor.

b. The east approach to the seaplane base has been dredged to 10 feet in prior depths of 1 to 10 feet.

c. The west approach to the seaplane base has been dredged to 10 feet in prior depths of 0 to 10 feet.

d. The approach channel to Oak Harbor has been widened and dredged to 10-ft. depths.

The 9-ft. sounding charted in lat. 48° 15.78', long. 122° 38.04' from the prior survey is a leadline sounding evidently recorded one fathom in error. This sounding is not verified

by an overlapping sounding line of the original survey nor by the investigation of the area on the present survey which reveals present depths to be 16 feet in the above position. The charted prior 9-ft. sounding, therefore, should be disregarded.

The rock awash charted in lat. 48° 16.88', long. 122° 37.17' from the prior survey and the sunken rock charted 40 meters to the southwest were plotted 100 meters in error on the original survey. In their corrected positions, they agree with the present survey information.

The two rocks awash shown in red on the present survey in lat. 48° 15.77', long. 122° 37.41' and in lat. 48° 15.84', long. 122° 37.44' are also shown on H-1885 (1888) and originate with T-2011 (1888). These two rocks were not located by the present survey and were probably covered 5 to 8 feet when the area was surveyed. As mentioned in the Descriptive Report, these rocks are situated 200 meters inside of the offlying rocks and therefore present no particular hazard in this generally foul area.

With the addition of the two rocks from T-2011 (1888) and a few bottom characteristics from H-1885 (1888), the present survey contains all the essential hydrographic information necessary to supersede the prior survey within the common area.

6. Comparison with Chart 6404 1:10,000 (latest print date 1/28/52)

A. Hydrography

The charted hydrography originates with a 1941 survey (Bp. 37260) and a 1942 after-dredging survey (Bp. 37766-67) made by a private engineering company for the U. S. Navy, and with the prior survey H-1885 (1888) supplemented by a few critical soundings and rocks from the present survey.

The following shoal soundings charted from the surveys made for the U. S. Navy have been disproved by the close development on the present survey and should be disregarded:

Charted Depth (ft.)	Lat.	Long.	Present Survey Depth (ft.)
11	48° 16.66'	122° 39.04'	14
2	48° 16.66'	122° 39.21'	10
11	48° 16.40'	122° 38.67'	33
13	48° 16.42'	122° 36.84'	18
18	48° 16.92'	122° 36.96'	26

The structure charted in lat. 48° 16.90', long. 122° 38.33' from RS-228 (1942) is not shown on the present survey. This and other temporary dredging structures visible on the 1942 photographs do not appear on the 1952 photographs taken at low water and were evidently removed on completion of dredging operations.

Within the common area, the present survey is adequate to supersede the hydrography charted from the prior survey and the three blueprints.

B. Aids to Navigation

The charted aids are in substantial agreement with present survey positions . Buoy 3 in lat. 48° 16.09', long. 122° 36.32' and buoy 2 in lat. 48° 15.38', long. 122° 37.60' on the present survey are respectively, 110 meters northwest, and 110 meters west of the charted positions. Either the survey positions or the charted positions adequately mark the features intended.

7. Condition of Survey

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

b. No inadequacies in the smooth plotting were encountered during the preliminary verification and review.

c. The preliminary verification of this survey was confined to critical soundings and an examination of discrepancies at crossings. Completion of the verification and inking is deferred until some future date, at which time the inspection of the depth curves and shoreline will be completed by the reviewer.

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions.

9. Additional Work Recommended

This is an excellent basic survey and no additional field work is recommended.

H. R. Edmonston
Chief, Nautical Chart Branch

Examined and approved:

H. Arnold Karo
Chief, Division of Charts

L. S. Hubbard
Chief, Section of Hydrography

Earl O. Heaton
Chief, Division of Coastal Surveys

RHC

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. June 1937

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~ 21 May 1952

Division of Charts: R. H. Carstens

Plane of reference approved in 9
volumes of sounding records for

HYDROGRAPHIC SHEET 7809

Locality Whidbey Island, Washington

Chief of Party: G. A. Nelson in 1951
Plane of reference is mean lower low water, reading
2.0 ft. on tide staff at Crescent Harbor
19.2 ft. below B. M. 1 (1951)

Height of mean high water above plane of reference is 7.9 feet.

Condition of records satisfactory except as noted below:

E. C. McKay
Chief, ~~Division~~ Section of Tides ~~and Currents.~~

U. S. GOVERNMENT PRINTING OFFICE 756675

NAUTICAL CHARTS BRANCH

SURVEY NO. H-7809

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
8/24/52	6401	N.W. Burgoyne	After Preliminary Ver. & Review - Partially Applied ~~Before After Verification and Review~~
9/8/52	6404	ESpeasley	after preliminary Ver & Review - Fully applied
			Before After Verification and Review
			Fully applied
5/7/53	6450	JA McGann	~~Before~~ After Verification and Review
			(after preliminary rev. and review)
1/8/54	6401	Benoon	~~Before~~ Preliminary After Verification and Review Fully applied.
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review

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.