

8320

Diag. Cht. No. 6380

<p>Form 504</p> <p>U. S. DEPARTMENT OF COMMERCE</p> <p>COAST AND GEODETIC SURVEY</p> <p><b>DESCRIPTIVE REPORT</b></p>	
<p>Type of Survey <u>Hydrographic</u></p>	
<p>Field No. <u>LJ-1256</u> Office No. <u>H-8320</u></p>	
<p>LOCALITY</p>	
<p>State <u>Washington</u></p>	
<p>General locality .....</p>	
<p>Locality <u>Bellingham Bay</u></p>	
<p><u>1956</u></p>	
<p>CHIEF OF PARTY</p>	
<p><u>K. B. Jeffers</u></p>	
<p>LIBRARY &amp; ARCHIVES</p>	
<p>DATE <u>May 4, 1960</u></p>	

USCOMM-DC 5087

8320

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-8320

Field No. LJ-1256

State WASHINGTON

General locality ~~NORTH COAST~~

Locality BELLINGHAM BAY

Scale 1:10,000 Date of survey 6/5/56-8/13/56

Instructions dated 24 OCTOBER 1955

Vessel LESTER JONES

Chief of party K. B. JEFFERS

Surveyed by K. B. JEFFERS, P. A. STARK, J. J. DERMODY & R. MANSFIELD

Soundings taken by fathometer, ~~graphical recorder / hand lead / wire~~ and hand lead

Fathograms scaled by SHIP PERSONNEL

Fathograms checked by SHIP PERSONNEL

Protracted by C.A.J. Pauw

Soundings penciled by C.A.J. Pauw

Soundings in fathoms <sup>and tenths</sup> ~~feet~~ at MLW are true depths

REMARKS:

WRS  
7/22

DESCRIPTIVE REPORT TO ACCOMPANY  
HYDROGRAPHIC SURVEY H-8320 (FIELD NO. LJ-1256)

BELLINGHAM BAY, WASHINGTON

SCALE 1:10,000 Ship LESTER JONES K.B.Jeffers, Comdg.

SURVEYED BY: K.B.JEFFERS, P.A.STARK, J.J. DERMODY and R. MANSFIELD

A. PROJECT:

This survey is part of Project 12410 and was executed under supplemental instructions No. 22/MEK S-2-LJ dated 24 October 1955 and Director's letter 22/MEK S-1-LJ dated 9 August 1956.

B. SURVEY LIMITS & DATES:

General locality: Northern part of Bellingham Bay.

Field work began on 5 June and ended 13 August 1956.

This survey is joined on the south by H-8319 (LJ-1156) and on the west by H-8321 (LJ-1356).

Progress of inshore work was impeded by lack of power and poor design of Launch 176.

C. VESSELS & EQUIPMENT:

Offshore hydrography was done by the Ship LESTER JONES using 808 fathometer No. 75. Inshore work was done by Launch 176 operating from the ship using 808 fathometers Nos. 107-S and 102-S.

Both fathometers were operated with reed tachometers calibrated for a speed of sound of 800 fathoms per second.

Aside from phase correction no differentiation need be made between individual fathometers.

D. TIDE & CURRENT STATIONS:

A portable tide gage was maintained during the time of this survey at the head of the Whatcom Waterway, City of Bellingham, latitude  $48^{\circ}-45'-04''N$ , Longitude  $122^{\circ}-29'-02''W$ . and was used without time or height corrections to reduce all soundings.

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

E. SMOOTH SHEET:

Hydrography was done in the field on a 42 inch sheet, however the limits of soundings were held to within 36 inch size. Therefore, the smooth plot should be done on 42 inch sheet, which is to be trimmed to 36 inch standard size upon verification and review.

The smooth plot ~~is to be~~ done by the Seattle Processing Office - their addenda report will be attached to this report.

F. CONTROL STATIONS:

The following triangulation stations were recovered and used as hydro signals:

Bellingham Breakwater Entrance Light, 1952

Bell. Oeser Cedar Co. Stack, 1927

Chuckanut, 1887

Bell. Clock Tower, 1914

Episcopal Church Spire, 1927

GNARL, 1887

Bell. Hospital Chy., 1914

BELL

CEDAR

CHUCK

CLOCK

EPIS

GNARL

HOSP

JOHN 3 (USE), 1941	JOHN
Squalicum Creek Entrance Light, 1952	LITE
Bell. Olympic Portland Cement Co. Stack NE of 3, 1927	MENT
Spring, 1887	RING
Whatcom Waterway Light, 1950	WHAT

The following recoverable topographic stations were used as hydro signals:

<del>EDGE, 1950</del>	<del>EDGE</del> see H-8321
EDGE, 1950	EDGE
Flag Tower (steel), 1951	FLAG
HARD, 1951	HARD
SOCK, 1951	SOCK
Stack (metal, gray), 1951	GRAY
Stack (pulp mill), 1951	PULP

Other signals were located by standard photogrammetric methods, or by sextant cuts from offshore with the exception of signals PAX and QUO which had to be located by sextant-tape traverse because of changes in topography since the air-photos were flown. See Vol. No. 1 of soundings for index of this data.

G. SHORELINE & TOPOGRAPHY:

Shoreline for this survey is from Photogrammetric surveys - T-5586 N&S, T-5585-S, T-5584-S. . . T-1797 & T-1797a (1897)-Planctable surveys

Where possible and pertinent, the low water line was delineated by the hydrography. Off the mouth of the Nooksack River in NW Bellingham Bay, the numerous meandering channels can best be delineated by reference to the 9-lens photos of the area. Local boatmen say that these channels change from year to year.

H. SOUNDINGS:

Soundings taken on the ship were by 808 fathometer No. 75, with initial set at one fathom.

Soundings taken on Launch 176 were by 808 fathometers Nos. 102-S & 107-S, initial set at zero.

See special Fathometer Report submitted by Ship LESTER JONES in 1956.

Attached to this report are abstracts of monthly velocity corrections and of fathometer corrections.

Bar checks were taken by Launch 176 twice daily, weather and sea permitting. The ship took no bar checks; however, fathometers were exchanged between launch and ship during the season so all fathometers were checked by the bar.

I. CONTROL OF HYDROGRAPHY:

All hydrography was controlled by sextant angles on shore objects.

Wherever strong currents were encountered, an attempt was made to run visual ranges; therefore, slight discrepancies exist in the spacing between fixes.

J. ADEQUACY OF SURVEY:

This survey is considered complete and adequate to supersede all prior surveys.

Junctions with contemporary surveys are adequate, and depth curves

can be joined.

There are no holidays.

K. CROSSLINES:

Approximately 8% of the lines run are crosslines. Crossed soundings are in adequate agreement on the boat sheet. ✓

L. COMPARISON WITH PRIOR SURVEYS:

Soundings from H-1887 (1888) (1:20,000) were compared to contemporary soundings, and in general, agree adequately on the boat sheet. ✓

M. COMPARISON WITH CHART:

Soundings from chart 6378 compare favorably with contemporary soundings on the boat sheet. ✓

The wreck in north Bellingham Bay is charted in the wrong location, (See letter to Director, LJ/KBJ/gwg, file 3.3A dated 26 July 1956. *(corrected on chart)* L-629(56) ✓

N. DANGERS & SHOALS:

The shoal extending off Post Pt. is adequately defined by the depth curves. It is marked by a USCG lighted buoy. ✓

WRECK ✓	48-45.543 122-32.877 ✓	Relocated by this survey. Charted position is in error. ✓
STARR RK. ✓ (covered by 1 <sup>st</sup> fms)	48-44.017 122-30.12 ✓	Now <u>inside</u> log boom area - marked by USCG channel buoy. ✓

The numerous sunken reeks between Chuckanut Rk. and Chuckanut Island are adequately delineated by the depth curves, and by leaders on the boat sheet. ✓

Shoal Area *(2) ✓	48-40.34 122-29.4 ✓	Dangerous to small craft. ✓
Rock awash *(3)	48-40.089 122-29.86 ✓	Dangerous to small craft. ✓

O. COAST PILOT INFORMATION:

See special Coast Pilot Report submitted by Ship LESTER JONES in 1956.

P. AIDS TO NAVIGATION:

All floating aids are more or less in correct positions as shown on boat sheet. (Review p 7c) ✓

There is a mooring buoy maintained privately the Foss Tug Co. .32 miles north of Starr Rock in the approaches to Whatcom Waterway. ✓

Floating aids in the area are:

Post Pt. Lighted Bell Buoy 2 (CG 162 #1932) ✓

Starr Rock Buoy 4 (CG 162, page 179) ✓

I J Waterway Buoy 1 (page 180) ✓

I J Waterway Buoy 2 (page 180) ✓

Mooring Buoy  $\rho$  48° 45.52',  $\lambda$  122° 32.2' not located by this survey.

(Review p 7d)

Q. LANDMARKS FOR CHARTS:

All charted landmarks are correct and adequate except the "Stack (center of three)" shown on the north shore of Bellingham Bay. Only one stack, the northermost, remains. It is triangulation intersection station:

Bellingham Olympic Portland Cement Co.

Stack, NE of 3, 1927., and is called signal "MENT" on the boat sheet.

Recommend charting as "Stack, Cement Co." *charted as "STACK"*

R. GEOGRAPHIC NAMES:

See special geographic names report submitted by this vessel in 1956.

All charted names in the area are correct with the following exception: Fish Pt. at the NE end of the Lummi Indian Reservation is not a point of reference to mariners, and is duplicated by the Fish Pt. on the NE end of Samish Island. Recommend to DELETE this name from all charts of the area, but retain on land maps.

*1 copy B noted in SF 221*

S. SILTED AREAS:

The entire area of this survey is silted bottom. The smooth plot will adequately delineate the few unimportant exceptions to this statement.

Z. TABULATION OF APPLICABLE DATA:

1956 Coast Pilot Report	Fwd. to Wash. Office
1956 Geographic Names Report	" " " "
1956 Fathometer Report	" " " "
1956 Magnetic Data	" " " "
1956 Landmarks for Charts Data	" " " "
Graphic Control Sheets & Report	" " Seattle Proc. Off.
Tide Curves and Abstracted tide reducers	" " " " "
* Photogrammetric Data for photo-hydro Signals	<del>" " Portland Photo. Office</del>

\* included with 1956 hydrographic records.

Respectfully submitted,

*John J. Dermody*  
John J. Dermody,  
Lieutenant (j.g.), C&GS

Approved & Forwarded:

*G. C. Mast*  
G. C. MAST,  
COMMANDER, C&GS  
Chief of Party

STATISTICS FOR HYDROGRAPHIC SURVEY  
 H-8320 (LJ-1256) 1956  
 SHIP LESTER JONES PROJECT 12410

<u>DATE</u>	<u>VOL.</u>	<u>DAY LTR.</u>	<u>POS.</u>	<u>STAT. MILES</u>	<u>L.L. SNDGS.</u>
<u>SHIP LESTER JONES</u>					
27 June	I	A	228	53.8	- - -
28 June	I & II	B	256	58.9	- - -
7 July	III	C	27	6.3	- - -
8 July	III	D	221	57.7	- - -
9 July	IV	E	166	37.2	28
13 July	IV	F	77	21.6	- - -
23 July	IV	G	236	63.7	- - -
TOTAL			1,211	299.2	28

LAUNCH 176

5 June	1	a	70	9.4	- - -
6 June	1	b	187	20.0	- - -
7 June	1	c	4	0.1	1
9 June	1 & 2	d	65	7.4	- - -
21 June	2	e	11	0.9	- - -
22 June	2	f	124	14.2	- - -
24 June	2 & 3	g	175	18.3	- - -
25 June	3	h	78	7.0	- - -
27 June	3	j	177	16.7	6
28 June	4	k	214	25.5	- - -
29 June	4 & 5	l	154	17.7	- - -
6 July	5	m	182	21.6	- - -
7 July	5 & 6	n	209	29.2	- - -
8 July	6 & 7	p	219	33.0	- - -
9 July	7 & 8	q	186	29.1	- - -
10 July	8	r	95	11.2	- - -
24 July	8	s	17	3.8	- - -
13 Aug.	8	t	16	1.2	1
TOTAL			2,183	266.3	8

## ALPHABETICAL LIST OF SIGNALS LJ-1256

NAME	SOURCE	NAME	SOURCE
ADZ	T-5586	INK	T-5586-S
✓ AGE ✓	Vol. 1 9 pg. 3	✓ IRA ✓	Vol. 1 pg. 23
AGO	T-5586	IRE	T-5585-S
AID	LJ-C-56	JOHN	JOHN 3 (USE), 1941
✓ ANG ✓	Vol. 1 pg. 22	✓ JAN ✓	Vol. 1 pg. 56
BAR	T-5584-S	JAW	T-5586
BAX	T-5586-N	JOT	T-5585-S
✓ BELL ✓	Vol. 1 pg. 22	✓ JUT ✓	Vol. 1 pg. 23
BEV	T-5586	KAG ✓	Vol. 12 pgs. 44 & 45
✓ BIM ✓	Vol. 1 9 pg. 3	KAY	T-5585-S
BUN	LJ-C-56	✓ KIT ✓	Vol. 1 pgs. 5 & 8
CAD	T-5586	LAY	T-5586
CAG	F-5584-S	LIP	T-5586
CEDAR	Oeser Cedar Co. Cone. CHY, 1927	LOH	LJ-B-56
CHUCK	CHUCKANUT, 1887	LUF	T-5585-S
CLOCK	CLOCK TOWER	LUMI	LUMI, 1949
COO	T-5586	LITE	?-Vol. 1
CRO	LJ-C-56	LIZ	ELIZA, 1887
DEW	T-5585-S	MEL	T-5586
DIE	T-5586-S	MENT	Bell. OP. Cement Co. Stack (N. of 3), 1927
DRY	LJ-B-56	✓ MIX ✓	Vol. 1 pg. 3
EDGE	EDGE, 1950	MOB	T-5585-S
EMO	T-5585-S	✓ NAP ✓	Vol. 12 pg. 72
EPIS	Episcopal Church Spire	NUL	T-5586
ERG	T-5586-S	NUN	T-5586
EVA	LJ-B-56	OHM	T-5585-S
FID	T-5585-S	OPE	T-5586
FLAG	FLAG TOWER, 1951	OVA	T-5586
FOG	T-5586-S	✓ FAX ✓	Vol. 1 pg. 22
FRAN	FRANCES 2 (USE), 1940	PULP	STACK (pulp mill), 1951
✓ GID ✓	Vol. 1 pg. 23	PUR	T-5586
GOB	LJ-B-56	✓ QUO ✓	Vol. 1 pg. 22 & Vol. 4 pg. 38
GNARL	GNARL, 1887	RAP	T-5586
GRAY	STACK, gray metal, 200' Bell. Plywood Co., 1951	✓ REX ✓	Vol. 1 pg. 3
GUN	T-5586	RING	SPRING, 1887
GUT	T-5585	RIB	LJ-C-56
HAL	LJ-B-56	ROS	T-5585-S
HAP	T-5586	✓ SAW ✓	Vol. 1 pg. 22
HARD	HARD, 1951	SAND	SANDSTONE, 1887
HAS	T-5585-S	SAX	T-5586
HEW	T-5586	SHY	T-5586
HEW	HD-1-55	SOCK	SOCK, 1951
HIP	T-5586-S	TAG	T-5586
HOSP	HOSPITAL CHY.	✓ TAR ✓	Vol. 1 pg. 22
HUB	LJ-C-56	TAW	LJ-C-56
ICE ✓	Vol. 15 pgs. 41 & 42	TOP	T-5584-S
✓ IKE ✓	Vol. 1 pgs. 28, 29 & 56	✓ TUF ✓	Vol. 17 pg. 32; 8 pg. 28 & Vol. 11 pg. 71
INA	T-5586-S	TUT	T-5586
INAT	INATI 2, 1956	HNA	T-5586
		✓ UTE ✓	Vol. 12 pg. 5 & 6

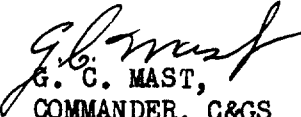


ALPHABETICAL LIST OF SIGNALS LJ-1256

<u>NAME</u>	<u>SOURCE</u>
VIE	T-5586
VOW	T-5586
WAN	T-5586
WEB	T-5586
✓WEN✓	Vol. 1 p. 22
WHAT	Whatoon Wtwy. Lt.
WOE	LJ-B-56
YAW ✓	Vol. 25 pgs. 8, 9 & 10
YOU X	Vol. 26 pgs. 43 & Vol. 7 pgs. C, 18 & 32
ZEP	T-5586

APPROVAL SHEET

This survey was done under the supervision of the Chief of Party. Applicable records and the boat sheet have been inspected and deemed complete and adequate to supersede all prior surveys.

  
G. C. MAST,  
COMMANDER, C&GS  
CHIEF OF PARTY

USCGSS LESTER JONES  
1956 VELOCITY CORRECTION ABSTRACT  
FROM  
SERIAL TEMPERATURES

Applicable Depth	April	May	June	July	Aug.	Sept.	Oct.	Nov.
<u>Corrections in Fathoms</u>								
7	+ 0.02	+0.05	+0.05	+0.06	+0.09	+0.07	+0.06	+0.05
12	+0.04	+0.10	+0.10	+0.12	+0.16	+0.14	+0.12	+0.09
17	+0.05	+0.15	+0.15	+0.18	+0.23	+0.21	+0.17	+0.14
22	+0.07	+0.19	+0.20	+0.25	+0.30	+0.28	+0.23	+0.18
27	+0.09	+0.24	+0.25		+0.36	+0.34	+0.29	
32	+0.11	+0.29	+0.30		+0.43	+0.41	+0.35	
37	+0.13	+0.34	+0.35		+0.49	+0.47	+0.40	
42	+0.14	+0.38	+0.40		+0.56	+0.54	+0.46	
47	+0.16	+0.43	+0.45		+0.62	+0.60	+0.51	
52	+0.18	+0.47	+0.50		+0.68	+0.66	+0.56	
57		+0.52	+0.55		+0.75	+0.73	+0.61	
62		+0.56				+0.79	+0.66	
67		+0.61						

NOTE: The above values are velocity corrections based solely on monthly serials. They were combined with Bar Check and Draft data to obtain the final fathometer corrections.

SHIP LAUNCH JONES

1956 FATHOMETER CORRECTIONS

(Derived from Bar Check and Serial Data - 1956)

SHIP - FATHOMS

April  
 + 0.3 0 to 16  
 + 0.4 16 to 45  
 + 0.5 45 to 70

MAY - JUNE  
 + 0.3 0 to 7  
 + 0.4 7 to 18  
 + 0.5 18 to 28  
 + 0.6 28 to 38  
 + 0.7 38 to 48  
 + 0.8 48 to 58  
 + 0.9 58 to 68

JULY - SEPT.  
 + 0.3 0 to 5  
 + 0.4 5 to 11  
 + 0.5 11 to 19  
 + 0.6 19 to 27  
 + 0.7 27 to 35  
 + 0.8 35 to 43  
 + 0.9 43 to 50  
 + 1.0 50 to 58  
 + 1.1 58 to 66  
 + 1.2 66 to 74

OCT. - NOV.  
 + 0.3 0 to 7  
 + 0.4 7 to 17  
 + 0.5 17 to 26  
 + 0.6 26 to 36  
 + 0.7 36 to 46  
 + 0.8 46 to 57  
 + 0.9 57 to 67

LAUNCH - FATHOMS

April  
 + 0.3 0 to 5  
 + 0.2 5 to 25  
 + 0.3 25 to 54  
 + 0.4 54 to 75

MAY - JUNE  
 + 0.2 0 to 15.3  
 + 0.3 15.3 to 25.5  
 + 0.4 25.5 to 35.7  
 + 0.5 35.7 to 45.7  
 + 0.6 45.7 to 55  
 + 0.7 55 to 66  
 + 0.8 66 to 76

JULY - SEPT.  
 + 0.2 0 to 9.5  
 + 0.3 9.5 to 18.0  
 + 0.4 18.0 to 26.0  
 + 0.5 26.0 to 35.0  
 + 0.6 35.0 to 43.0  
 + 0.7 43.0 to 51.0  
 + 0.8 51.0 to 59.0  
 + 0.9 59.0 to 67.0  
 + 1.0 67.0 to 75.0

OCT. - NOV.  
 + 0.2 0 to 6.0  
 + 0.3 6.0 to 16.0  
 + 0.4 16 to 26  
 + 0.5 26 to 36  
 + 0.6 36 to 46  
 + 0.7 46 to 56  
 + 0.8 56 to 66  
 + 0.9 66 to 76

LAUNCH - FEET

April  
 + 1.4 0 to 28  
 + 1.6 28 to 75

MAY - JUNE  
 + 0.8 0 to 14  
 + 1.0 14 to 23  
 + 1.2 23 to 32  
 + 1.4 32 to 55

JULY - SEPT.  
 + 1.0 0 to 7  
 + 1.2 7 to 19  
 + 1.4 19 to 31  
 + 1.6 31 to 43  
 + 1.8 43 to 55

OCT. - NOV.  
 + 1.2 0 to 13  
 + 1.4 13 to 25  
 + 1.6 25 to 38  
 + 1.8 38 to Rest of  
 A Scale

PHASE  
 Fathometer  
 Number B \*SCALE\* (A-B)  
 75 - 0.3  
 102-S - 2.5 fms.  
 107-S - 1.5

SMOOTH SHEET

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

CONTROL STATIONS

The sources for the topographic stations shown on the smooth sheet are T-5584S, T-5585<sup>1254</sup>S, T-5586 N & S, and Graphic Control sheets LJ-B & C-56.

(1952) Review Rev. (1954-Addition) ~~Not available 3-31-62~~ G.C. sheets (Review pp 2) inspected and destroyed.

SHORELINE AND TOPOGRAPHY

In addition to the sources listed in the field report the shoreline for the north end of Eliza Island was taken from T-1797. & T-1797a (1897)

(See Review pp 2)

CONTROL OF HYDROGRAPHY

Approximately 80% of the positions for this sheet were transferred from film positives of the boat sheets.

COMPARISON WITH CHART

This survey has been compared with Chart 6378, 12th Ed., dated 8 February 1960. The chart appears to be somewhat shoaler than the smooth sheet. This is probably due to the fact that the chart was revised from the boatsheet soundings. (See Review pp 7)

Respectfully submitted,

*William M. Martin*

WILLIAM M. MARTIN  
Supervisory Carto., C&GS

APPROVED & FORWARDED:

*G. C. Mast*  
G. C. MAST, CAPT., C&GS  
SEATTLE DISTRICT OFFICER

OFFICE OF CARTOGRAPHY

REVIEW SECTION -- NAUTICAL CHART DIVISION

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8320

FIELD NO. LJ-1256

Washington, Bellingham Bay

SURVEYED: June to August 1956

SCALE: 1:10,000

PROJECT NO. 12410

SOUNDINGS: 808 Depth Recorder  
Hand Lead

CONTROL: Sextant Fixes  
on shore signals

Chief of Party-----K. B. Jeffers  
Surveyed by-----K. B. Jeffers, P. A. Stark,  
J. J. Dermody, & R. Mansfield  
Protracted by-----C. A. J. Pauw  
Soundings plotted by-----C. A. J. Pauw  
Verified and inked by-----A. K. Schugeld & F. P. Saulsbury  
Reviewed by-----D. R. Engle  
Inspected by-----R. H. Carstens

Date: 4/10/62

1. Description of the Area

The survey covers the northern part of Bellingham Bay.

The bottom drops abruptly to depths of 10 fathoms and greater from the rugged shore on the east side of the bay and more gradually from the lower areas bordering the northern portions of the bay. The bottom over most of the bay is very smooth and covered with sediment.

2. Control and Shoreline

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

The shoreline originates with reviewed photogrammetric surveys T-5584 of 1949-52, T-5585 and T-5586 of 1949-54, and planetable surveys T-1797 and T-1797a of 1887.

3. Hydrography

Sounding line crossings are in good agreement.

The usual depth curves are adequately delineated except in some inshore areas where it was not feasible to develop the low-water line because of the foul character of the inshore areas. An approximate determination of the low-water line in the northern portion of the bay would have been desirable, however.

The development of bottom configuration and least depths is satisfactory.

#### 4. Condition of Survey

The field plotting, records and reports are adequate and conform to the requirements of the Hydrographic Manual.

#### 5. Junctions

An adequate junction was effected with H-8321 (1956) on the west. The junction with H-8319 on the south will be considered in the review of that survey.

#### 6. Comparison with Prior Surveys

H-405 (1853)	1/200,000	(Reconnaissance)
H-502(1885)	1/20,000	
H-1887(1888)	1/20,000	
H-2069(1891)	1/5,000	
H-2070(1891)	1/5,000	
H-3719(1914)	1/5,000	
<u>H-3719a(1927)</u>	<u>1/5,000</u>	

These prior surveys cover the area of the present survey. A comparison of the prior and the present surveys reveals considerable shoaling in the northern part of Bellingham Bay from the mouth of the Nooksack River out to the 5-fathom curve. The Nooksack River delta has accreted nearly 1500 meters since the earliest survey; the low water line has similarly moved as much as 1000 meters; the 5-fathom curve has moved an average of 100 meters; and the intermediate curves have moved proportionately farther offshore.

At the town of Bellingham major changes have occurred in both the shoreline and the adjacent hydrography; the former because of construction of wharves, piers, breakwaters, log booms, etc.

and the latter because of dredging of channels.

Only minor changes are noted in the remaining area of the survey.

It is interesting to note that the character of the bottom of Bellingham Bay according to H-1887 (1888) was green mud. The present survey indicates the bottom to be dark gray mud.

The present survey is adequate to supersede the prior surveys in the common area.

## 7. Comparison with Chart 6378 (Latest print date May 22, 1961)

### A. Hydrography

The charted hydrography originates with the prior surveys previously discussed, with surveys by the U. S. Corps of Engineers and with preliminary application of the present survey from copies of the boat sheets.

It should be noted that integral fathoms were used in the application of boat sheet soundings while fathoms and tenths are shown on the verified survey. Because of this the charted depths <sup>curves</sup> are displaced as much as 400 meters and charted soundings are in error by as much as 1 fathom out to the 10-fathom curve. This gives the impression that the northern part of the bay is much shoaler than it actually is (See par. 6).

The following items which were applied to the chart subsequent to the date of the present survey should be retained on the chart:

- a. The pipeline and dolphins at lat.  $48^{\circ}45.8'$ , long.  $122^{\circ}31.3'$  from chart letter 416 of 1960 and Corps of Engineers blueprint 59580-81.
- b. A new breakwater replacing one removed, additional jetties, revised shoreline and hydrography after dredging of Bellingham Boat Basin at lat.  $48^{\circ}45.4'$ , long.  $122^{\circ}30.4'$  from Corps of Engineers Blueprints 56588-91, 57282 and H.O. Notice to Mariners 40, 1958.

Attention is called to the following:



- a. The offshore limit of the log boom area charted at approx. lat.  $48^{\circ}44.1'$ , long.  $122^{\circ}30.1'$  has been extended seaward about 80 meters to encompass Starr Rock and the two charted dolphins northeast of it according to present survey information. The chart should be revised.
- b. Three features charted as high water rocks at lat.  $48^{\circ}40.6'$ , long.  $122^{\circ}30.18'$ , at lat.  $48^{\circ}40.94'$ , long.  $122^{\circ}30.05'$  and at lat.  $48^{\circ}41.12'$ , long.  $122^{\circ}30.12'$  are shown on the present survey as low water features in accordance with present charting practice. It is recommended that the chart be revised accordingly.
- c. A dolphin charted at lat.  $48^{\circ}44.36'$ , long.  $122^{\circ}30.12'$  originates with an advance print of T-5586 N. It does not appear on the reviewed photogrammetric survey or in the hydrographic records. It is believed that this dolphin was applied to the advance topographic manuscript in error; and it is recommended that it be removed from the chart.
- d. Two charted rocks at lat.  $48^{\circ}43.75'$ , long.  $122^{\circ}30.30'$  originate with H-3719 (1914). The rock awash symbols were apparently used on the prior survey to symbolize numerous boulders which are used as railroad ballast and not as actual positions of individual racks. The present survey indicates the boulder area by note.
- e. The dolphin charted at lat.  $48^{\circ}45.14'$ , long.  $122^{\circ}30.41'$  originates with T-3480 (1914). Although no attempt was made to disprove the existence of this dolphin on the present survey, the area was developed and no evidence could be found in the hydrographic or topographic records in favor of retaining it. It is recommended that this dolphin be deleted from the chart.

## B. Topography

Extensive shoreline revisions were charted subsequent to the date of the present survey from 1958 photography. These revisions occur at Bellingham, South Bellingham and at the mouth of the Nooksack River. (See Chart 6378 Drawing No. 15, March 27, 1961) They should be retained on the chart.

## C. Controlling Depths

The charted controlling depths of Squalicum Creek Waterway and Whatcom Creek Waterway are based on data furnished by the U. S. Corps of Engineers subsequent to the date of the present survey information.

D. Aids to Navigation

The aids to navigation located on the present survey are in substantial agreement with the chart with the following exceptions:

1. Squalicum Creek Waterway light located on the present survey at lat.  $48^{\circ}45.57'$ , long.  $122^{\circ}30.60'$  was removed subsequent to the date of the survey and reported in H. O. Notice to Mariners 7 of 1958.
2. Bellingham Entrance Light "1" charted at lat.  $48^{\circ}45.26'$ , long.  $122^{\circ}30.38'$  was established subsequent to the date of the present survey.
3. Squalicum Creek Entrance Light charted at lat.  $48^{\circ}45.46'$ , long.  $122^{\circ}30.63'$  was established subsequent to the date of the present survey.
4. A mooring buoy charted at lat.  $48^{\circ}45.52'$ , long.  $122^{\circ}32.2'$  was reported in H. O. Notice to Mariners 33 of 1955 but was not located on the present survey.

The aids to navigation as presently charted adequately mark the features intended.

8. Compliance with Instructions

The survey adequately complies with the Project Instructions.

9. Additional Field Work

This is a good basic survey and no additional field work is recommended. Determination of the low water line in the northern portion of the bay would have been desirable at the time of the survey.

Examined and Approved:

Chief *Tom G. Taylor*  
Nautical Chart Division

*R. Williams*  
Projects Officer,  
Operations Division

*J. J. Jarman*  
Assistant Director,  
Office of Cartography

*Max Shickett*  
Assistant Director,  
Office of Oceanography

GEOGRAPHIC NAMES  
Survey No. H-8320

On Chart No. **6380**  
 On previous survey No.  
 On U. S. quadrangle Maps  
 From local information  
 On local Maps  
 P. O. Guide or Map  
 Rand McNally Atlas  
 U. S. Light List  
**BGN**

Name on Survey	A	B	C	D	E	F	G	H	K	
Bellingham 200	x									1
Bellingham Bay T	x									2
Chuckanut Bay 200	x									3
Chuckanut Island 140	x									4
Chuckanut Point 120 140	x									5
Chuckanut Rock 120	x									6
Eliza Island 175	x									7
Governors Point 175	x									8
Nooksack River 175	x									9
Pleasant Bay 140	x									10
Post Point 175	x									11
Starr Rock 120	x									12
										13
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*George S. Bice*  
 GEOGRAPHIC NAMES SECTION  
 8 JUNE 1960

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. ...8320...

Records accompanying survey: Smooth sheets ...1...; boat sheets ..2...; sounding vols. .13...; wire drag vols. ....; Descriptive Reports ..1...; graphic recorder envelopes ..7...; special reports, etc. ....

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

Number of positions on sheet ..... 3394
Number of positions checked ..... 44
Number of positions revised ..... 16
Number of soundings revised (refers to depth only) ..... 86
Number of soundings erroneously spaced ..... 4
Number of signals erroneously plotted or transferred .....
Topographic details Time ..... 32
Junctions Time .....
Verification of soundings from graphic record Time ..... 14 hours
Special adjustments Time .....

Verification by F.P. SAULSBURY [Signature] Total time 32 hrs 16.0 hrs Date 12-18-61 10/22/61
Reviewed by [Signature] Time 70 hrs Date 4/12/62

RHC

## TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Coastal Surveys~~

June 16, 1960

Division of Charts: R. H. Carstens

Plane of reference approved in  
13 volumes of sounding records for

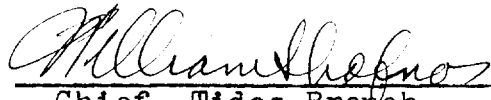
HYDROGRAPHIC SHEET 8320

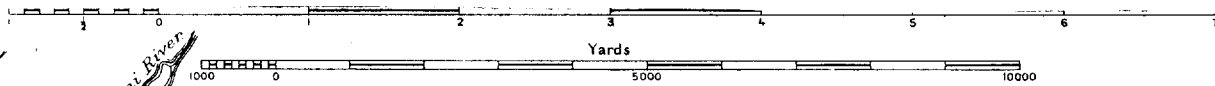
Locality Bellingham Bay, Wash.

Chief of Party: K. B. Jeffers in 1956  
Plane of reference is mean lower low water, reading  
3.4 ft. on tide staff at Bellingham  
28.0 ft. below B. M. 2 (1914)

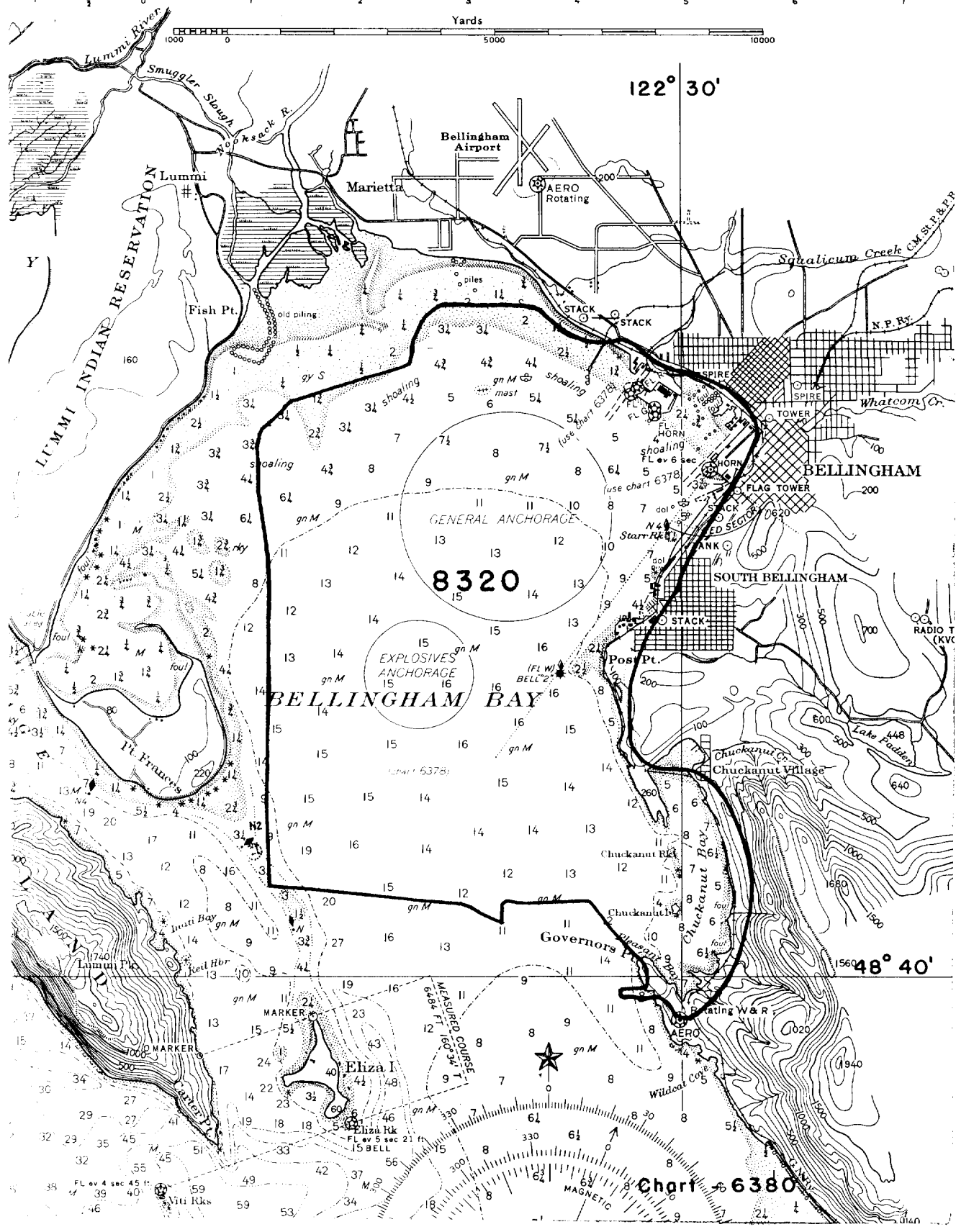
Height of mean high water above plane of reference is 7.8 feet.

Condition of records satisfactory except as noted below:

  
\_\_\_\_\_  
Chief, Tides Branch  
~~Chief, Division of Tides and Currents~~



122° 30'



8320

EXPLOSIVES ANCHORAGE

BELLINGHAM BAY

BELLINGHAM

SOUTH BELLINGHAM

Governors Pt.

Chart 6380

48° 40'



MEASURED COURSE  
6.884 FL 100 M T

FL ov 4 sec 45 ft

FL ov 5 sec 21 ft

MARKER

MARKER

MARKER

MARKER

MARKER

MARKER

MARKER

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# NAUTICAL CHARTS BRANCH

SURVEY NO. H-8320

## Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
July 60	6380	Wickham	Before <del>After</del> Verification and Review
12-17-60	6378	M. Rogers	<del>Examined</del> Before <del>After</del> Verification and Review. <i>Critical parts only</i>
12-17-60	6380	M. Rogers	<i>Examining chart</i> Re-examined thru <del>chart</del> 6378 print dated 2/8/60 Before <del>After</del> Verification and Review
12-17-60	6300	M. Rogers	<i>Examined thru chart 6380</i> ✓ Before <del>After</del> Verification and Review
6-21-62	6378	J. M. Dailey	<del>Before</del> After Verification and Review
12/6/63	6378	C. Misfeldt	" " " " } same drawing
7-31-65	6380 #1	G. Johnson	<del>Before</del> After Verification and Review Fully applied thru chart 6378, drg #16
8-3-65	6300 #28	G. Johnson	<del>Before</del> After Verification and Review Fully applied thru chart 6380, drg #31
4-24-67	6378 INSET	M. H. Wall	<del>Before</del> After Verification and Review Fully applied to new inset
9-3-70	6300 #33	J. T. Gallahan	<del>Before</del> After Verification and Review <i>re-examined thru reduction of chart 6380 consider fully appld.</i> Before After Verification and Review

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.