

8322

Diag. Cht. No. 6380-2.

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. LJ-1456 Office No. H-8322

LOCALITY

State Washington

General locality Rosario Strait

Locality Vicinity of Lummi I.

1956

CHIEF OF PARTY

K. B. Jeffers & G. C. Mast

LIBRARY & ARCHIVES

DATE Dec. 17, 1962

USCOMM-DC 37022-P66

8322

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-8322

Field No. LJ-1456

State WASHINGTON

General locality ROSARIO STRAIT
~~WASHINGTON COAST~~

Locality VICINITY OF LUMMI I.
~~NORTH ROSARIO STRAIT~~

Scale 1:10,000 Date of survey 12 Aug. - 20 Oct. 1956

Instructions dated 24 OCTOBER 1955

Vessel SHIP LESTER JONES

Chief of party K. B. JEFFERS & G. C. MAST

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

Soundings taken by fathometer, ~~and by hand lead~~

Fathograms scaled by SHIP PERSONNEL

Fathograms checked by SHIP PERSONNEL

Protracted by C. R. Lehman

Soundings penciled by C. R. Lehman

Soundings in fathoms feet at ~~MLLW~~ MLLW and are true depths

REMARKS:

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DESCRIPTIVE REPORT TO ACCOMPANY ✓
HYDROGRAPHIC SURVEY H-8322 (FIELD NO. LJ-1456)
NORTHERN PART OF ROSARIO STRAIT
SCALE 1;10,000 SHIP LESTER JONES K. B. JEFFERS &
G. C. MAST, Comdg.
SURVEYED BY: K. B. JEFFERS, P. A. STARK,
J. J. DERMODY & 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 AND DATES:

General Locality: Northern part of Rosario Strait, vicinity of Barnes & Clark Islands, and between Orcas Island and Matia Island.

Field work began on 12 August and ended 20 October 1956.

This survey is joined on the south by ^{H-8333 (1955) and H-8318 (1955)} ~~H-8317 (HO-1355)~~ and on the north by H-8323 (LJ-1556). There is ~~no~~ ^{H-8519 (1960)} contemporary survey to the westward.

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 and inshore work was done by Launch 176 operating from the ship and using 808 fathometers No. 102-S and 107-S. Both fathometers were operated with reed tachometers calibrated for a speed of sound of 800 fathoms per second.

D. TIDE & CURRENT STATIONS:

A portable tide gage was maintained during the time of this survey in Echo Bay, Sucia Islands, Lat. 48-45.3 N, Long. 122-53.7 W. and was used without time or height corrections to reduce all soundings.

Current Station No. 12, Lat. 48-42.5 N., Long. 122-49.5 W. was observed.

E. SMOOTH SHEET:

Hydrography was done 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 a 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 used as hydro signals:

BARNES ISLAND, 1941	BAR
CON, 1941	CON
LITTLE SISTER, 1941	SIS
MATIA I, 1853-1940	MATI
MIG, 1941	MIG
PICKETT, 1941	KET
PUFFIN I. LT., 1940	PUF
RACO, 1940	RACO
SLIDE, 1941	LID
VILLAGE PT. CHY, 1941	CHY

ALPHABETICAL LIST OF SIGNALS LJ-1456 ✓

<u>NAME</u>	<u>SOURCE</u>	<u>NAME</u>	<u>SOURCE</u>
ABE	HO-D-55	JOG	HO-D-55
ADO	LJ-E-56	JON	LJ-D-56
AFT	LJ-E-56	JUG	HO-D-55
AHA	HO-D-55	KAN	LJ-D-56
ALE	LJ-D-56	KAP	HO-D-55
APT	HO-D-55	KED	HO-D-55
BAR	BARNES ID., 1941	KET	PICKETT, 1941
BED	LJ-D-56	KIE	LJ-E-55
BET	LJ-E-56	LAB	LJ-D-55
BID	HO-D-55	LAG	HO-D-55
BIN	LJ-E-56	LID	SLIDE, 1941
BON	HO-D-55	LIT	HO-D-55
BOT	HO-G-55	LOB	LJ-E-56
BUD	LJ-D-56	LUM	LUMMI RKS. LT.
BUY	LJ-D-56	MAN	Vol. 1
CHY	VILLAGE PT. CHY., 1941	MATI	MATIA I., 1853-40
COM	LJ-E-56	MEN	HO-D-55
CON	CON, 1941	MEW	LJ-D-56
CUD	LJ-E-56	MIG	MIG, 1941
CUP	HO-G-55	MUT	HO-D-55
DAD	LJ-D-56	NOB(NAB?)	HO-D-55
DAM	HO-D-55	NAP	HO-D-55
DIG	HO-G-55	NON	LJ-E-56
DIM	LJ-E-56	OWE	LJ-E-56
DIX	HO-D-55	OWN	LJ-E-56
EAT	Vol. 1	PAP	HO-D-55
ELK	HO-G-55	PAT	HO-D-55
END	HO-D-55	PEN	LJ-D-56
EON	HO-D-55	PER	LJ-D-56
ERE	LJ-E-55	PIP	HO-D-55
EXI	LJ-D-56	PIK(Pic?)	Vol. 1
EYE	LJ-E-56	POO	LJ-D-56
FAD	LJ-D-56	POX	LJ-E-56
FAY	HO-G-55	PRU	HO-D-55
FED	HO-D-55	PRY	HO-D-55
FIS	LJ-E-56	PUF	PUFFIN I. LT., 1940
FLY	HO-G-55	PUG	LJ-D-56
FOB	LJ-E-56	RACO	RACO, 1940
FOG	HO-D-55	RAY	HO-D-55
GAD	HO-D-55	REV	LJ-E-56
GAT	HO-G-55	RIT	LJ-D-56
GEE	LJ-E-55	ROC	LJ-D-56
GEM	HO-D-55	ROW	LJ-E-56
GIN	HO-G-55	ROX	HO-D-55
GUG	LJ-D-56	ROZ	LJ-E-56
HAD	LJ-E-56	SAK	LJ-E-56
HEP	HO-D-55	SID	LJ-D-56
HID	HO-G-55	SIS	LITTLE SISTER, 1941
HIK	HO-D-55	SLY	LJ-E-56
HUN	LJ-E-56	SOD	LJ-E-56
IFI	LJ-E-56	SOT	LJ-D-56
IGA	HO-D-55	SOY	HO-D-55
IVY	HO-G-55	SPA	LJ-D-56
JAM	HO-D-55	SUB	HO-D-55
JAT	LJ-E-56	SUM	HO-D-55

ALPHABETICAL LIST OF SIGNALS LJ-1456 ✓

<u>NAME</u>	<u>SOURCE</u>
TEA	LJ-E-56
TET	LJ-D-56
TIM	LJ-D-56
TIP	LJ-E-56
WAC	LJ-D-56
WEE	LJ-E-56
WIT	LJ-D-56

Other signals were located by standard graphic control methods on Sheets HD-G-55 and LJ-E-56.

A few signals were located by sextant cuts from offshore.

G. SHORELINE & TOPOGRAPHY: ✓

Shoreline for this survey originates with old topo survey sheets T-1871, T-1797, T-1869 and T-1870.

The high water line was spot checked on Graphic Control Sheets HD-G-55 and LJ-E-56. and LJ-D-56.

Where possible and pertinent, the low-water line was delineated by hydrography. The boulder strewn beach south of triangulation CON was impossible to survey this way. The 9-lens photos of the area which will aid in delineation of this and other alongshore features.

H. SOUNDING: ✓

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 No. 102-S and 107-S, initial set at zero.

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

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

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

I. CONTROL OF HYDROGRAPHY: ✓

All hydrography was controlled by sextant angles on shore objects.

Wherever Launch 176 encountered strong currents, an attempt was made to run visual ranges, therefore slight discrepancies exist in the spacing between fixes.

J. ADEQUACY OF SURVEY: ✓

This survey is 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 agree adequately on the boat sheet. ✓

L. COMPARISON WITH PRIOR SURVEYS:

Soundings from H-1953 (1889 - 1:20,000) and H-2079 (1889 - 1:20,000) were compared with contemporary soundings and, in general, agree adequately on the boat sheet. ✓

M. COMPARISON WITH CHART:

Soundings from charts 6378 and 6380 in general compare favorably with contemporary soundings on the boat sheet. ✓

N. DANGERS & SHOALS:

	<i>Approx. Pos.</i>	
✓ Offlying reef awash	48-41. ⁰⁵ 1 122-40.6	Dangerous to small craft ✓
✓ Rock uncov. ^{1 foot} 2 feet	48-42.05 122-50.2	" " " " ✓
✓ Reef ^{uncov. 6 feet - 8 feet} wash-off pleasure craft anchorage	48-44.6 122-49.7	" " " " ✓
✓ Reef ^{Ledge} awash	48-44.7 122-49.3	" " " " ✓

Numerous shoals extending from Barnes & Clark Islands are adequately delineated by the depth curves.

O. COAST PILOT INFORMATION:

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

P. AIDS TO NAVIGATION:

There are no floating aids to navigation within the survey limits. ✓

Q. LANDMARKS FOR CHARTS:

Puffin Island Shoal Lt. (CG 162, #1974) is correctly charted. ✓

R. GEOGRAPHIC NAMES:

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

The charted names are correct in the survey area.

The bight south of Village Pt. on Lummi Island is known locally as "Legoe Bay". It is the center of commercial and sports fishing in the area. Recommend to CHART this name.

"Raccoon Pt." on the northeast coast of Orcas I. is not a point of reference for mariners, nor can local residents agree as to which of the many rocky outcroppings along this coast the name should refer. Recommend to DELETE this name from charts, but retain on land maps.

S. SILTED AREAS:

All flat bottom on this survey is silted. The smooth plot will adequately delineate these areas. ✓

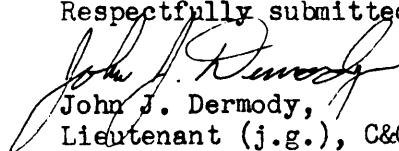
Z. TABULATION OF APPLICABLE DATA:

1956 Coast Pilot Report	Forwarded to Wash. Office
1956 Geographic Names Report	" " " "
1956 Fathometer Report	" " " "
1956 Magnetic Data	" " " "
1956 Tide Data	" " " "
1956 Current Data	" " " "
1956 Landmarks for Charts Data	" " " "

Graphic Control Sheets & Report
Tide Curves and Tide Reducers

Forwarded to Seattle Pro. Office
" " " " "

Respectfully submitted,


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

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

STATISTICS FOR HYDROGRAPHIC SURVEY ✓
 H-8322 (LJ-1456) - 1956 SEASON
 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>					
12 Aug.	I	A	116	27.8	--
24 Aug.	I	B	110	29.7	--
25 Aug.	II	C	197	44.3	--
28 Aug.	II & III	D	276	66.3	--
29 Aug.	III	E	130	30.0	10
9 Sept.	IV	F	54	13.1	--
13 Sept.	IV	G	163	34.7	--
21 Sept.	IV & V	H	97	23.8	--
22 Sept.	V	J	180	39.3	15
23 Sept.	V & VI	K	129	33.5	--
27 Sept.	VI	L	110	19.4	--
4 Oct.	VI	M	27	--	27
6 Oct.	VI	N	8	--	7
10 Oct.	VII	P	162	36.7	--
11 Oct.	VII & VIII	Q	169	38.3	--
TOTALS			1,928	436.9	59

LAUNCH 176

14 Aug.	1 9	a	117	18.2	10
21 Aug.	1 9	b	161	24.2	1
22 Aug.	2 10	c	188	27.8	3
23 Aug.	2 10	d	75	9.9	1
6 Sept.	2 10	e	33	4.7	--
7 Sept.	3 11	f	187	20.7	--
8 Sept.	11 3 & 4 12	g	170	24.5	--
9 Sept.	4 12	h	112	14.4	--
4 Oct.	12 4 & 5 13	j	219	31.1	--
5 Oct.	5 13	k	200	24.1	1
6 Oct.	6 14	l	192	26.1	4
7 Oct.	6 14	m	97	10.6	3
20 Oct.	7 15	n	34	3.9	--
TOTALS			1,785	240.2	23

Grand total 3,713

677.1

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USCGC 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 LESTER 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

PROCESSING OFFICE NOTES - H-8322 ✓

SMOOTH SHEET

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

SOUNDINGS

There were several times on "f" day when the range switch did not work properly, making the computed phase correction wrong. The actual phase difference was scaled and used. This gave satisfactory results.

ADEQUACY OF SURVEY

The survey is complete and adequate for charting. The junction with H-8333 (1955) has been compared and found adequate with the possible exception of a small area near Lat. 48° 41'0, Long. 122° 45'5, which shows a 1 fathom difference in 50 fathoms of water. This 1 fathom difference causes a discrepancy in the 50 fathom curve in that area.

COMPARISON WITH CHART

This survey has been compared with Chart 6380, 9th Ed., Aug. 8, 1960 and Chart 6378, 12th Ed., Feb. 8, 1960.

Every charted sounding, in the area covered by the smooth sheet was compared with this survey.

See sections of the above charts attached to this report.

Respectfully submitted

William M. Martin
WILLIAM M. MARTIN

SUPERVISORY CARTOGRAPHER

Approved and forwarded:

M. E. Wennermark
M. E. WENNERMARK
CAPTAIN, C&GS
SEATTLE DISTRICT OFFICER

RHC

TIDE NOTE FOR HYDROGRAPHIC SHEET ✓

~~DIVISION OF COASTAL SURVEYS~~

19 January 1961

Division of Charts: R.H. Carstens

Plane of reference approved in
15 volumes of sounding records for

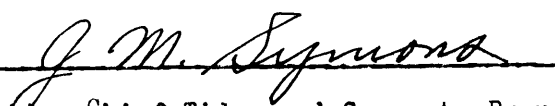
HYDROGRAPHIC SHEET 8322

Locality North Rosario Strait, Washington

Chief of Party: G.C. Mast (1956)
Plane of reference is mean lower low water reading
0.3 ft. on tide staff at Echo Bay, Washington
10.3 ft. below B. M. 1 (1956)

Height of mean high water above plane of reference is: 7.9 ft.

Condition of records satisfactory except as noted below:


Acting Chief, Tides and Currents Branch
~~CHIEF, DIVISION OF TIDES AND CURRENTS~~

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. .8322...

Records accompanying survey: Smooth sheets ..1..;
 boat sheets .2...; sounding vols. ..15.; wire drag vols.;
 Descriptive Reports ..1...; graphic recorder envelopes ..6...;
 special reports, etc.

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

Number of positions on sheet	.....	3713
Number of positions checked	.....	150
Number of positions revised	.....	24
Number of soundings revised (refers to depth only)	.....	NUMEROUS
Number of soundings erroneously spaced	.....	✓
Number of signals erroneously plotted or transferred	.....	✓
Topographic details	Time	62 hrs
Junctions	Time	50 hrs
Verification of soundings from graphic record	Time	35 hours
Special adjustments	Time	16 hrs

Verification by *Alfred Schugart* Total time *200 hrs* Date *12/3/62*
George A. Rozewiczak *128 hrs* *4/16/64*
 Reviewed by *George A. Rozewiczak* Time *200* Date *10/02/70*
 Inspected by *JR Engle* *49* *7-31-75*

H-8322

Items for Future Presurvey Reviews

The 27-fathom shoal indication found in lat. $41^{\circ}42.34'$,
long. $122^{\circ}50.17'$ should be developed at an opportune time.

Resurvey Cycle Information

<u>Position</u> <u>Lat.</u>	<u>Index</u> <u>Long.</u>	<u>Bottom Change</u> <u>Index</u>	<u>Use</u> <u>Index</u>	<u>Resurvey</u> <u>Cycle</u>
484	1230	1	4	50 years
484	1225	3	4	25 years

OFFICE OF MARINE SURVEYS AND MAPS

MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8322

FIELD NO. LJ-1456

Washington, Washington Coast, North Rosario Strait

SURVEYED: August 12 through October 20, 1956

SCALE: 1:10,000

PROJECT NO.: OPR-241

SOUNDINGS: 808 Depth Recorder

CONTROL: Sextant Fixes on
Shore Signals

Chief of Party K. B. Jeffers
..... G. C. Mast
Surveyed by K. B. Jeffers
..... P. A. Stark
..... J. J. Dermody
..... R. Mansfield
Protracted by C. R. Lehman
Soundings Plotted by C. R. Lehman
Verified and Inked by A. K. Schugeld
Reviewed by G. A. Kozemczak
..... Date: Oct. 2, 1970
Inspected by D. R. Engle

1. Description of the Area

The present survey covers the north entrance of Rosario Strait. It falls between Orcas Island on the southwest and Lummi Island on the northeast, and extends from Matia Island on the northwest to the vicinity of Lummi Rocks on the southeast. The bottom is irregular having steep slopes from the rocky shoreline to depths as great as 45 to 70 fathoms. A deep natural channel between Clark and Barnes Islands has a controlling depth of 11 fathoms. The bottom characteristics vary over the survey area and consist of mud, shells, sand, pebbles, rocks and gravel. Extensive beds of kelp fringe much of the shoreline throughout the survey except along the southwestern shores of Lummi Island.

2. Control and Shoreline

The source of control is given in the Descriptive Report. The shoreline originates principally with the planetable surveys T-1797 (1887), T-1869 (1888), T-1870 (1888) and T-1871 (1888) with additions and revisions (in red ink) from graphic control sheets HO-G-55, LJ-D-56 and LJ-E-56.

3. Hydrography

A. Depths at crossings are in good agreement.

B. The usual depth curves are adequately delineated. Portions of the low-water line and ledge originate with the topographic surveys listed under Part 2 of this review.

C. The development of the bottom configuration and the investigation of least depths are considered adequate except in lat. $41^{\circ}42.34'$, long. $122^{\circ}50.17'$ where a 27-fathom shoal indication was not developed.

4. Condition of the Survey

The field plotting, sounding records, and the Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual except in some areas where it was impossible to delineate the low-water line.

5. Junctions

Adequate junctions were effected with H-8519 (1960) on the west and northwest, and H-8323 (1956) on the north.

The junctions with H-8333 (1955) and H-8318 (1955) on the south will be considered in the review of those surveys.

6. Comparison with Prior Surveys

A.	H-405	(1853)	1:200,000
	H-433	(1854)	1:100,000
	H-708	(1858)	1:20,000
	<u>H-709</u>	<u>(1858-59)</u>	<u>1:10,000</u>

These early reconnaissance surveys do not contain enough detail for a comparison with the present survey. The present survey supersedes these prior surveys within the common area.

B. H-2113 (1894) 1:10,000
H-1953 (1889) 1:20,000

These prior surveys provide complete coverage of the area of the present survey. A comparison between the prior and present depths reveals only minor differences in depths and little change in the bottom. The more thorough coverage of the present survey defines the bottom configuration more completely and clearly.

The 25-fathom depth in lat. $48^{\circ}42.83'$, long. $122^{\circ}43.66'$ from H-1953 (1889) was not disproved by the present survey and has been carried forward.

In the vicinity of Clark Island and Barnes Island several soundings were brought forward to supplement the present survey. A few of these soundings were in areas not completely sounded on the present survey.

A few sunken rocks from H-1953 which were not disproved by the present survey were brought forward to the present survey.

With the addition of the items noted above, the present survey is adequate to supersede the prior surveys within the common areas.

7. Comparison with Chart 6378 (15th Ed., June 30, 1969)
Chart 6380 (17th Ed., February 21, 1970)

A. Hydrography

The charted hydrography originates with the previously discussed prior survey which requires no further consideration, supplemented by the partial application of depths from the present survey before verification.

The rock awash charted in lat. $48^{\circ}41.50'$, long. $122^{\circ}45.37'$ is believed to have originated with Canadian Chart 3449

prior to the date of the present survey. Although not investigated by the present survey, this charted rock falls in a kelp area on the present survey and should be retained on the chart.

The rocks awash charted in lat. $48^{\circ}44.51'$, long. $122^{\circ}43.08'$ and lat. $48^{\circ}44.49'$, long. $122^{\circ}43.14'$ apparently originate with Canadian Chart 3450 subsequent to the date of the present survey and should be retained on the chart.

Two rock awash symbols are charted in approximate lat. $48^{\circ}42.80'$, long. $122^{\circ}41.85'$ on chart 6378. The easterly symbol was charted erroneously from boat sheet information of the present survey and should be deleted. The westerly symbol is charted correctly from the smooth sheet of the present survey.

Except as noted above the present survey is adequate to supersede the charted hydrography within the common area.

B. Aids to Navigation

The present survey position of the aids to navigation are in substantial agreement with the charted positions and adequately mark the features intended.

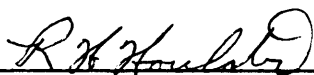
8. Compliance with Instructions

The survey adequately complies with the Project Instructions.

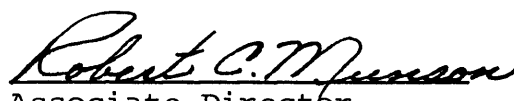
9. Additional Field Work

This is an excellent basic survey and no additional hydrography is recommended.

Examined and Approved:



Chief
Marine Chart Division



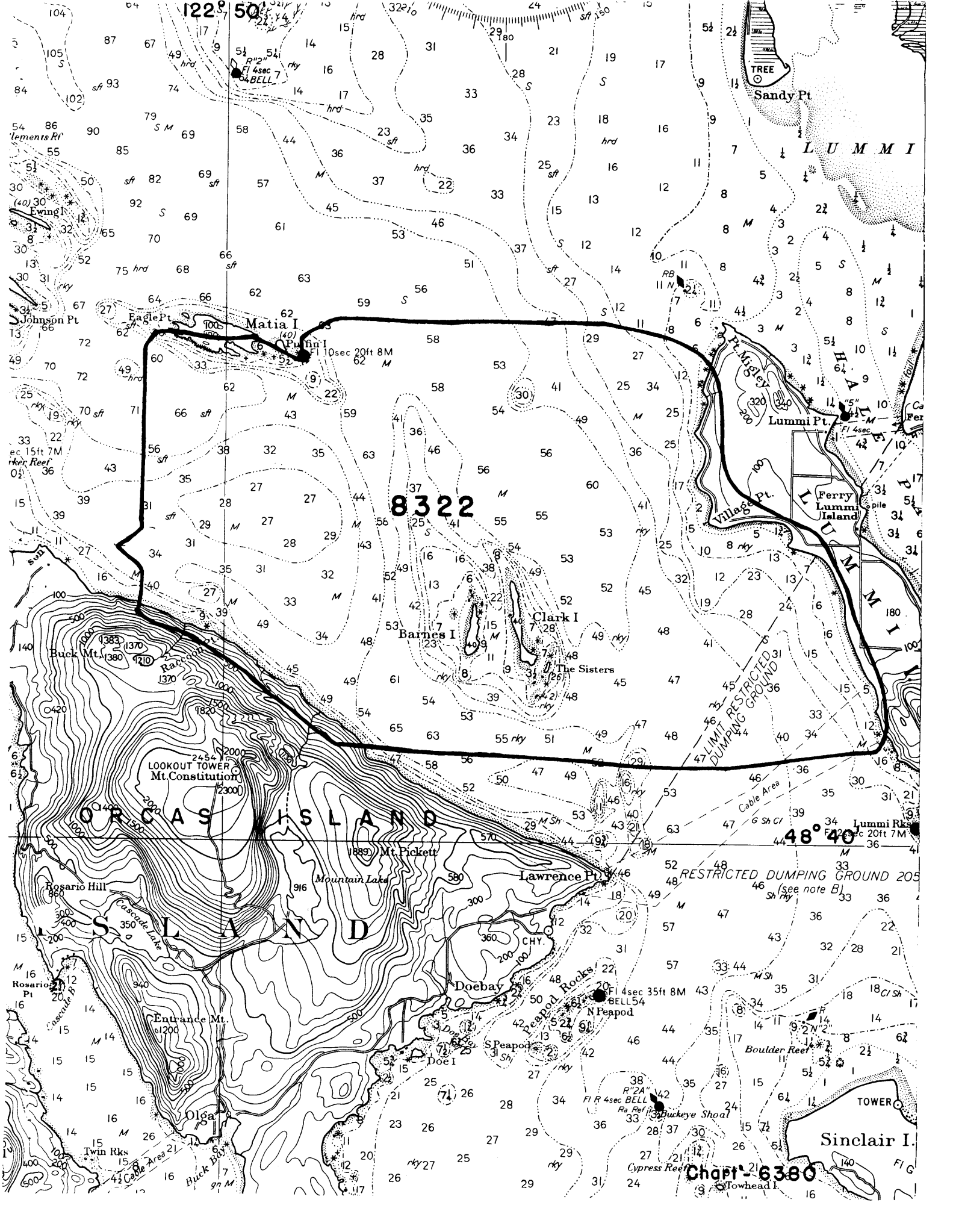
Associate Director
Office of Marine Surveys
and Maps

122° 50'



Sandy Pt

LUMMI



104, 105, 87, 67, 49, 51, 54, 86, 90, 55, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

101, 102, 79, 69, 58, 44, 36, 35, 34, 33, 32, 31, 30, 29, 28, 27, 26, 25, 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1

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137, 138, 61, 51, 40, 26, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1

139, 140, 60, 50, 39, 25, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1

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157, 158, 51, 41, 30, 16, 8, 7, 6, 5, 4, 3, 2, 1

8322

ORCAS ISLAND

SILAN D

48° 40'

RESTRICTED DUMPING GROUND

RESTRICTED DUMPING GROUND

RESTRICTED DUMPING GROUND

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RESTRICTED DUMPING GROUND

LOOKOUT TOWER Mt. Constitution

1889 Mt. Pickett

Mountain Lake

Lawrence Pt

Doebay

Peapod Rocks

Peapod

Peapod

Peapod

Peapod

Peapod

Peapod

Peapod

Chart 6380

Sinclair I.

TOWER

FL G

Towhead I.

FL G

NAUTICAL CHARTS BRANCH

SURVEY NO. H-8322

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
2/25/61	6300	Helmer	Before After Verification and Review Exam. Added 5 <i>edges</i> and * islet to draw
3-2-61	6378	M. Rogers	Before After Verification and Review Exam - Added 9 <i>edges and 11 * islets and one +</i>
3-20-61	6380	M. Rogers	<i>partially applied</i> Before After Verification and Review thru (by 6378) in <i>area within 071.</i>
11-18-70	184-5C	J. BAILEY	Before ^{Before} After Verification and Review Appl. + hcn DWG 6378 # 19 + AS PER DWG. 6380 # 36
6-5-74	6378	R. Spence	Before After Verification and Review, before inspection
2-8-78	18431 <i>New Chart</i>	R.C. Larson/RCS	Before After Verification and Review Fully applied.
1978	18430	R. Hogan ✓	Before After Verification and Review Fully applied
6/20/80	18421	Coritto ✓ 6-20-80 RCS	Before After Verification and Review Fully applied
6/20/80	18423 ⁰⁰	Coritto 6-30-80-RCS	Before After Verification and Review Fully applied
6/20/80	18400	Coritto 6-30-80 RCS	Before After Verification and Review Fully applied
1-30-82	18423	T. Fournier	Adequately Applied, because

Add
H-8322

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.