

9282

WIRE DRAG

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 Wire Drag

Field No. DA-20-2-72 Office No. H-9282 W.D.

LOCALITY

State Washington

General locality Rosario Strait

Locality Cypress Island to Sandy Point

1972

CHIEF OF PARTY

G. C. Saladin

LIBRARY & ARCHIVES

DATE 2-26-73

9282
WIRE DRAG

H-9282 WD

HYDROGRAPHIC TITLE SHEET

INSTRUCTIONS - 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.

DA 20-2-72WD

State WASHINGTON

General locality ROSARIO STRAITS

Locality ^{Cypress}
BLAKELY ISLAND TO SANDY POINT

Scale 1:20,000 Date of survey May 16 to 31, 1972

Instructions dated Feb. 22, 1972 Project No. OPR-412-DA-72-WD

Vessel DAVIDSON - LAUNCHES OC 1214 & OC 1215

Chief of party GERALD C. Saladin

Surveyed by Gerald C. Saladin, Roger P. Hewitt & James A. Watkins

& H.B. Milburn

Soundings taken by echo sounder, hand lead, pole ~~Wire Drag~~ Leadline

Graphic record scaled by NA

Graphic record checked by NA

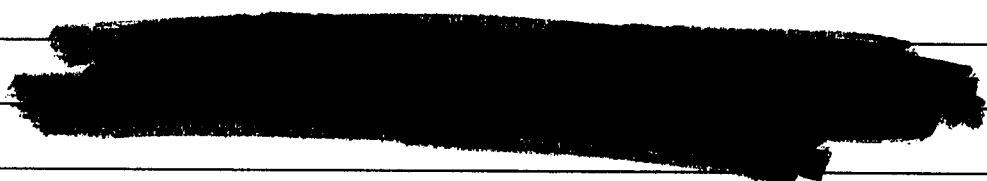
Protracted by Bernie T. Davis Automated plot by NA

Drag strips inked by:

~~Soundings protracted by~~ Bernie T. Davis

Soundings in ~~MLLW~~ feet at ~~MLLW~~ MLLW Effective depths in feet

REMARKS:



Applied to state 4/7/73

CAB

DESCRIPTIVE REPORT
TO ACCOMPANY
WIRE DRAG FIELD NUMBER DA-20-2-72
REGISTRY NO. H 9282 WD
SHEET "B"
ROSARIO STRAIT WASHINGTON
1972

AUTHORITY:

Field work was accomplished in accordance with Project Instructions, OPR-412-DA-72 Wire Drag, Rosario Strait, Washington dated 22 Feb. 1972, and Public Notice 72-N-03, Puget Sound Vessel Traffic System (U.S. Coast Guard). ✓

CHARACTER AND LIMITS OF WORK:

The purpose of the project is to clear to a maximum width a deep draft channel from the Strait of Juan de Fuca to Cherry Point through Rosario Strait and an alternate route through Bellingham Channel. ✓

As much as possible, area less than 30 fathoms, within the project limits, was cleared to 90 feet or more. In the remaining areas controlling depths dictated the effective depth cleared. ✓

CONTROL:

Three raydist configurations were used on this sheet. Visual control was used by the end vessel on Days T, V, and W; Raydist control was used exclusively by the guide vessel. Shore control was used to determine the buoy angle. A listing of all signals (visual and electronic) is attached in the appendix; see also Raydist Report (DAVIDSON, Rosario Strait, 1972). ✓

DATES:

Work was begun on 16 May, 1972 and completed on 31 May, 1972. ✓

TIDE REDUCERS:

Preliminary reduction of N through T days work was made using predicted tides for Pt. Migley; and Strawberry Bay predictions for days U through W. Both predictions were based on the Standard Tide Gage at Port Townsend, Washington and furnished by Pacific Marine Center.

The smooth tides were entered and checked by the tide section, Rockville, Md.

SPLITS: *See verifiers notes*

All strips had sufficient overlaps and all areas within the project limits were covered without splits with the exception of two areas west of Pt. Migley and one area just west of Tide Pt. These areas were not covered due to excessive currents, time limitations and adjacent shoal water. *Probably refers to failure to cover project limits as shown on boat sheet.*

The area in Bellingham Channel between Sinclair and Vendovi Island was not dragged due to equipment failures and time limitations. Two marginal areas near Lawrence Pt. were not dragged because they were known hang areas, deeper water existed immediately adjacent, and they could only be dragged under ideal current conditions.

HANGS: *See Verifiers Notes*

Three hangs were noted in the shoal area west of Pt. Migley in attempts to clear as much possible area with deeper drags. All were cleared at a shallower depth.

GENERAL NOTES:

Two fixed aids to navigation were located on this sheet; Sinclair Island Light was located by theodolite traverse and Tide Pt., Light located by triangulation.

In areas of extreme currents, it was found that by running with the current, at close to slack water, and increasing the fix rate, lifts could be controlled as well as covering the required area with moderate accuracy.

Meridian 105°W time was used on all days.

CURRENTS:

Currents were experienced, on this sheet, in varying directions

and velocities up to 4 knots. In many cases predicted currents were off in time as well as velocity. A full comparison was not made due to lack of time as well as no discernable pattern. ✓

DISCREPANCIES AND COMPARISONS:

Work was compared with NOS Chart 6380 and no discrepancies found. ✓

EQUIPMENT AND PERSONNEL:

Launch OC 1215 and OC 1214, single screw, diesel powered 35 foot vessels, modified, served as guide and end vessels respectively. The ship's Monark skiffs were used as tenders. ✓

The distance from the mast to the end buoy was 253 meters when an 800 foot towline was used. Standard wire drag equipment was used with upright extensions and modifications to the towing vessels. Maximum length of drag was 4800 feet and the minimum 2400 feet. ✓

LTJG Roger P. Hewitt was Officer in Charge of the guide vessel and LTJG James A. Watkins was Officer in Charge of the end vessel on all days except Day U when LT Hugh B. Milburn was on the end vessel. ✓

RECOMMENDATIONS:

This survey is considered accurate with respect to the wire drag requested for a deep draft channel through Rosario Strait. A deep draft channel through Bellingham Channel was cleared only to Viti Rocks Light. ✓

Respectfully Submitted:

Roger P. Hewitt

Roger P. Hewitt
LTJG, NOAA

APPROVED:

Gerald C. Saladin
Gerald C. Saladin
CDR, NOAA
Commanding Officer
NOAA Ship DAVIDSON CSS-31

APPENDIX

- I Control Signals
- II Statistics
- III NOAA Form 76-40, Non Floating Aids
to Navigation
- IV Tide Chart

CONTROL STATIONS (Verification)

ELECTRONIC CONTROL
RAYDIST (3300.4 kc)

TRIDENT, 1857-1972	Blue
* CLARK RM 3 (topo)	Red
SIN, 1941-71	Green
LAWRENCE 3, 1939-72	Brown
BIRD ROCK 2, 1885-1972	Red
OBSTRUCTION PASS, 1854-1972	Blue

VISUAL CONTROL

<u>BERRY</u> , 1939-55	
<u>BLAKE</u> , 1939-72	
* CAL IV (topo)	
* CLARK (topo)	
<u>CON</u> , 1941-72	
<u>CURRENT</u> , 1935	
<u>LAWRENCE,3</u> , 1939-72	
* LUM III (topo)	
MIG, 1941-72	
<u>OBSTRUCTION PASS LT.</u> , 1939-72	
<u>PEAPOD LT.</u> , 1939-62	
<u>PUFFIN I. LT.</u> , 1940-49	
* SAN (topo)	* 1972 Field Computation
LITTLE <u>SISTER</u> , 1941-72	ROSARIA STRAIT WIRE DRAG
<u>SLIDE</u> , 1941-72	OPR-412-DA-72
<u>STRAW</u> , 1939-55	

H-9282 WD.
CONTROL STATIONS

<u>STATION</u>		
CLARK ISL. RM. 3 (RED)	1972	Topo
TRIDENT (^{Blue} GREEN)	1857-1972	
LAWRENCE 3 (^{Brown} RED)	1939 - 72	
SIN (GREEN)	1941 - 71	
BIRD RKS. 2 (RED)	1953 1885 - 79-72	
OBSTRUCTION PASS (^{Blue} GREEN)	1939 1854 - 1972	
MIG	1941 - 72	
PUFFIN ISLAND LIGHT	1940 - 49	
LITTLE SISTER	1941 - 72	
CON	1941 - 72	
VILLAGE PT. LT.	1972	Not used
SLIDE	1941 - 72	
PEAPOD LT.	1939 - 62	
OBSTRUCTION PASS LT.	1939 - 72	
CURRENT	19 5 ³ 5	
BERRY	1939 - 55	
CAL II	1972	Not used
CAL III	1972	Not used
LUM I	1972	Not used
LUM II	1972	Not used
LUM III	1972	Topo
BLAKE	1939 - 72	
STRAW	1939 - 55	
SAN	1972	Not used
CAL IV	1972	Topo

*See Verification
list of Signals.*

See Control Report DAVIDSON Rosario Strait

STATISTICS

<u>DATE</u>	<u>DAY</u>	<u>LETTER</u>	<u>STRIP (s)</u>	<u>VOL</u>	<u>POSITIONS</u>	<u>L.N.M.</u>	<u>S.N.M.</u>
05/16/72		N	1,2,3,4	1	1-59	5.2	3.1
05/17/72		P	1,2	1	1-43	3.6	2.0
05/18/72		Q	1,2	1	1,33	3.0	1.8
05/22/72		R	All re- jected	2			
05/23/72		S	1,2,3	2	1-42	5.5	2.5
05/24/72		T	1,2	2	1-33	1.6	.6
05/26/72		U	1	2	1-18	3.5	2.1
05/30/72		V	1,2	3	1-32	3.7	2.2
05/31/72		W	1,2	3	1-17	2.5	1.6

ATLANTIC MARINE CENTER
VERIFICATION BRANCH
NOTES

WIRE DRAG SURVEY H-9282 (DA 20-2-72WD)

GENERAL

The Branch was unable to meet the priority, assigned in the letter of Aug. 18, 1972, Ref: C3231, due to the delay in receiving final tide reducers. All tide reducers were compiled, entered and checked by Rockville Office,

Drag strips were plotted on separate tracing paper overlays before transfer to the smooth sheet. The overlays are being forwarded with the survey records.

No unusual problems were experienced during the plotting and verification process. Except for the splits noted, the area covered appears to be adequate for the purposes given in the project instructions. Effective depths do not conflict with soundings shown on prior hydrographic surveys.

Tender data was recorded in one volume for the four surveys comprising this project. Zerox copies are being submitted for the pages pertaining to this survey.

Shoreline was transferred from chart 6380 and inked in brown on the smooth sheet.



Hugh L. Proffitt
Chief, Verification Branch

Norfolk, Va.
Feb. 20, 1973

Compiled in Verification Br. Used for automated plot of Control in
 Control SHIP BAUDSON Smooth Sheet
 H- 9281-9282-9283-9284 Wire Drag

JOB	0001	REQ	TRIP	48° 43' 54.123"	01 30	122° 50' 00"	20000	0 36 54	
1	48 47	25.29	122 42	34.62	1*	SAN		* IND I = topographic control	
2	48 51	37.65	122 45	17.19	1	CHER			
3	48 51	39.95	122 45	25.02	1	TOWER			
4	48 52	40.87	122 46	10.87	1	RIDGE		Blank = Triangulation	
10	48 47	11.57	122 56	27.52		TRIDENT, 1857-1972			
14	48 45	48.56	122 52	33.53		EWING, 1941-72			
24	48 44	36.86	122 48	55.67		PUFFIN I.LT., 1940-49			
26	48 44	55.75	122 42	50.37		MIG, 1941-72			
48	48 42	49.81	122 41	52.82		CON, 1941-72			
31	48 49	36.87	122 42	39.00		BECHTEL, 1956-72			
54	48 41	24.24	122 45	31.04		LITTLE SISTER, 1941-72			
59	48 40	17.00	122 39	56.46		SLIDE, 1941-72			
60	48 39	39.72	122 44	27.67		LAWRENCE 3, 1939-72			
66	48 38	32.86	122 44	32.46		PEAPOD LT., 1939-62			
69	48 37	47.30	122 40	21.28		SIN, 1941-72			
80	48 36	10.33	122 47	51.28		OBSTRUCTION PASS, 1854-1972			
81	48 35	51.66	122 48	11.42		OBSTRUCTION PASS LT., 1939-72			
82	48 35	19.40	122 47	59.64		PEAVINE PASS BN., 1939-72			
95	48 34	27.09	122 44	16.32		BERRY, 1939-55			
98	48 33	58.97	122 40	01.07		CYPRESS I.LT., 1939-53			
101	48 33	41.42	122 46	09.88		BLAKE, 1939-72			
102	48 33	35.93	122 44	06.23		STRAW, 1939-55			
103	48 32	45.70	122 45	52.04		BLACK RK., 1939-1972			
105	48 32	17.88	122 46	51.15		WHITE RK., 1889-1972			
106	48 32	27.89	122 43	15.62		REEF PT., 1939-72			
109	48 32	39.01	122 39	08.76		HAMMIL, 1939-72			
110	48 31	28.80	122 47	13.88		FAUNTLEROY PT.LT., 1939-55			
112	48 32	23.66	122 42	54.87	1	FAT			
120	48 29	56.10	122 41	59.97		FIDALGO N 2, 1885-1972			
122	48 29	35.38	122 45	05.05		BELL RK.LT., 1939-72			
125	48 29	05.94	122 45	40.27		BIRD RKS. 2, 1885-1972			
126	48 28	41.22	122 42	44.13		BURROWS I.LT., 1926-72			
136	48 26	37.78	122 40	33.70		LANGLEY, 1939-64			
137	48 24	29.66	122 39	09.10		DECEPTION PASS LT., 1939-60			
139	48 26	51.11	122 47	57.72		KELLETT, 1889-1972			
140	48 25	56.98	122 48	02.70		BOULDER, 1854-1939			
143	48 24	55.19	122 49	13.11		SOUTHEAST I., 1854-1972			
144	48 24	48.35	122 48	38.54		DAVIDSON RK.LT., 1935-72			
145	48 19	28.21	122 49	04.83		MINOR I.LT., 1926-			
146	48 19	07.07	122 50	36.79		SMITH I.LT., 1867-1960			
150	48 30	32.74	122 39	08.35	1	ROBIN			
151	48 42	28.17	122 45	52.91	1	CLARK RM 3			
152	48 36	08.60	122 43	28.37		CURRENT, 1935			
153	48 26	05.30	122 54	37.55		HALL I., 1897-1972			
154	48 19	11.77	122 50	34.94	1	SMITH 3 RM 6			
301	48 49	29.00	122 43	09.96	1	CAL I			
302	48 47	13.18	122 42	40.19	1	CAL II			
303	48 43	00.86	122 42	29.94	1	CAL III			
304	48 35	07.13	122 44	23.64	1	CAL IV (Tide Pt. Lt. 12)			
305	48 30	35.48	122 40	57.26	1	CAL V (Tide Pt. Lt. 12)			
306	48 43	00.99	122 43	02.03		VILLAGE PT.LT. 18			
307	48 40	51.11	122 40	18.95	1	IUM I-			

T I D E N O T E S

See form C-65-712

Tide gauges were located as follows:

1. Name: Echo Bay
Location: Lat. 48° - 45.21' N
Long. 122° - 53.56' W
Plane of Reference: MLLW
Time Meridian: 120° W
Type of Gauge: Portable Bubbler
Length of Operation: 1300 18 April 1972 thru 2100 20 May 1972
Gauge Setting: Gauge set at staff reading

2. Name: Village Point
Location: Lat 48° - 43.01' N
Long. 122° - 42.45' W
Plane of Reference: MLLW
Time Meridian: 120° W
Type of Gauge: Automatic Depth Recorder
Length of Operation: 1100 18 April 1972 thru 1048 20 June 1972
Gauge Setting: Gauge set at staff reading

3. Name: Eagle Harbor
Location: Lat. 48° - 35.20' N
Long. 122° - 41.61' W
Plane of Reference: MLLW
Time Meridian: 105° W
Type of Gauge: Automatic Depth Recorder
Length of Operation: 1354 11 May 1972 thru 1124 20 June 1972
Gauge Setting: Gauge set one(1) foot above staff reading

4. Name: Peavine Pass
Location: Lat. 48° - 35.10' N
Long. 122° - 48.98' W
Plane of Reference: MLLW
Time Meridian: 105° W
Type of Gauge: Automatic Depth Recorder
Length of Operation: 1318 8 May 1972 thru 1806 19 June 1972
Gauge Setting: Gauge set at staff reading

5. Name: Strawberry Bay
Location: Lat. 48° - 33.85' N
Long. 122° - 43.40' W
Plane of Reference: MLLW
Time Meridian: 105° W
Type of Gauge: Automatic Depth Recorder
Length of Operation: 1548 3 May 1972 thru 2024 19 June 1972
Gauge Setting: Gauge set at staff reading

6. Name: Thatcher Pass/Armitage Island
 Location: Lat. 48° - 32.17' N
 Long. 122° - 47.78' W
 Plane of Reference: MLLW
 Time Meridian: 105° W
 Type of Gauge: Portable Bubbler
 Length of Operation: 1200 17 May 1972 thru 1900 17 June 1972
 Gauge Setting: Gauge set three(3) feet above staff reading
7. Name: Allan Island
 Location: Lat. 48° - 27.65' N
 Long. 122° - 42.46' W
 Plane of Reference: MLLW
 Time Meridian: 105° W
 Type of Gauge: Portable Bubbler
 Length of Operation: 1500 12 May 1972 thru 0200 21 June 1972
 Gauge Setting: Gauge set four(4) feet above staff reading
8. Name: Aleck Bay
 Location: Lat. 48° - 25.62' N
 Long. 122° - 51.57' W
 Plane of Reference: MLLW
 Time Meridian: 105° W
 Type of Gauge: Automatic Depth Recorder
 Length of Operation: 1112 16 May 1972 thru 1624 16 June 1972
 Gauge Setting: Gauge set at staff reading
9. Name: Reservation Bay
 Location: Lat. 48° - 25.00' N
 Long. 122° - 39.72' W
 Plane of Reference: MLLW
 Time Meridian: 105° W
 Type of Gauge: Portable Bubbler
 Length of Operation: 0900 19 May 1972 thru 1600 20 June 1972
 Gauge Setting: Gauge set at staff reading
10. Name: Smith Island
 Location: Lat. 48° - 19.09' N
 Long. 122° - 50.34' W
 Plane of Reference: MLLW
 Time Meridian: 105° W
 Type of Gauge: Portable Bubbler
 Length of Operation: 1600 23 May 1972 thru 1900 20 June 1972
 Gauge Setting: Gauge set four(4) feet above staff reading

*All tide reducers were entered
in the volumes & checked by Rockville office -*

The tide data was corrected for differences in time and height only. The reference tide gauges for these sheets (DA 20-1-72, DA 20-2-72, DA 20-3-72, DA 20-4-72) is the standard gauge located at Port Townsend, Washington.

Some data from the portable bubbler located at Thatcher Pass/ Armitage Island was lost due to the gauge topping out on extreme high tides.

Some data from the portable bubbler located at Smith Island was lost due to the orifice going dry at extreme low water.

The orifice tubing was found floating on the surface at the portable bubbler located at Resurrection Bay on 5 June 1972. Data was lost from 1500 27 May 1972 thru 1100 5 June 1972.

The tide staff located at Allan Island was destroyed sometime between its installation and 19 May 1972. On the 19th the staff was replaced and the bench marks leveled.

The five (5) tidal bench marks installed in Aleck Bay between 1926 and 1942 were recovered but were not used to level the tide staff at that location. Five (5) new tidal bench marks were installed to level the tide staff because of its location and levels run between Bench Mark 5 (1935) and Bench Mark No. 1 (1972).

Tide station reports, leveling records, marigrams, and Form 362 were transmitted to Chief, Tides Branch with cover letter requesting the following to be furnished to AMC;

1. Verified copies of Form 362's with values entered in original record gaps.
2. Datum: Value of MLLW on the marigrams.
3. Time height relationships between gauges operated in the area surveyed.
4. Recommended zoning for tide correctors.

Cherry Pt., Washington H9281 9282

May 1972 Time of corrections (DST)

1	1415-1535
2	1320-1425
3	1145-1250 1450-1545 1550-1615
4	1205-1655
5	0910-1010 1405-1500
9	0920-1020
10	1300-1445 1000-1500
11	0930-1015 1220-1245 1425-1500
12	1140-1210 1300-1345

National Ocean Survey

TIDE NOTE FOR HYDROGRAPHIC SHEET

February 9, 1973

~~National Ocean Division~~ Atlantic Marine Center

Plane of reference approved in
volumes of ~~sounding~~ records for
wire drag

HYDROGRAPHIC SHEET H9282 WD

Locality: Rosario Strait, Washington

~~Chart No. 1666~~ Year: 1972

Plane of reference is MLLW

Tide Station Used (Form C&GS-681):
Cherry Pt. Washington
Village Pt. Washington
Strawberry Bay, Washington

Height of Mean High Water above Plane of Reference is as follows:

Cherry Pt.	8.34 ft.
Village Pt.	7.84 ft.
Strawberry Bay	7.46 ft.

Remarks Revised Tide Reducers for Cherry Pt.
attached. *Revised reducers for cherry Pt.
do not affect this survey - H.L.P.*

C. J. Thruslow

Chief, Tides and Currents Branch
TIDAL DATUM PLANES SECTION

GEOGRAPHIC NAMES

Survey No. H-9282 W.D.

Name on Survey	Source										
	A	B	C	D	E	F	G	H	K		
Bellingham Channel ✓	-										1
Blakely Island ✓	-										2
Clark Island ✓	-										3
Cypress Island ✓	-										4
Deer Point ✓	✓										5
Guemes Island ✓	✓										6
Lawrence Point ✓	✓										7
Lummi Bay ✓	-										8
Lummi Island ✓	-										9
Obstruction Island ✓	-										10
Orcas Island ✓	-										11
Point Migley ✓	-										12
Rosario Strait ✓	-										13
Sandy Point ✓	-										14
Sinclair Island ✓	-										15
^{North} South Peapod ✓	-										16
Tide Point ✓	-										17
Towhead Island ✓	-										18
Vendovi Island ✓	-										19
Village Point ✓	-										20
											21
											22
											23
											24
											25
											26
											27

PREPARED BY CARTOGRAPHER

C. E. Hammond

STAFF GEOGRAPHER (ACTING)

23 AUG 1973

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-9282...

(DA 20-2-72 WD)

Records accompanying survey: H-9282

Smooth sheets 1....;

✓boat sheets .1...; sounding vols. .~~2~~...; wire drag vols. .6...;

Descriptive Reports .1...; graphic recorder envelopes .0...;

special reports, etc. ~~Revised Report, Reports Sheet, 1972~~.....

..1. Folder, Smooth Tender Records. ~~Filed~~.. filed with H-9281 W.D.

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

Number of positions on sheet ..534..

Number of positions checked ...130..

Number of positions revised0.....

Number of positions revised (refers to depth only) ..N.A..

Number of soundings/erroneously spaced ..N.A..

Number of signals erroneously plotted or transferred0.....

Topographic details Time ...0..

Junctions Time ...1..

Verification of soundings from graphic record Time ..N.A..

Special adjustments Time .None.

Verification by Billy J. Stephenson ... Total time ²⁴²~~15~~... Date 2/7/73

Reviewed by *George Meyer* ... Time 18 Hrs Date 8/22/73

Inspected by *DR Engh* ... 20 hrs 4-15-75
74r 4-22-75

OFFICE OF MARINE SURVEYS AND MAPS
MARINE CHART DIVISION
HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9282WD

FIELD NO. DA-20-2-72WD

Washington, Rosario Strait, Cypress Island to Sandy Point

SURVEYED: May 16 through May 31, 1972

PROJECT NO.: OPR-412

SCALE: 1:20,000

SOUNDINGS: Leadline

CONTROL: Raydist, Sextant
Fixes on Shore
Signals

Chief of Party	G. C. Saladín
Surveyed by	R. P. Hewitt
.....	J. A. Watkins
.....	H. B. Milburn
Protracted by	B. T. Davis
Drag Strips Plotted by	B. T. Davis
Verified and Inked by	B. J. Stephenson
Reviewed by	G. K. Myers
	Date: August 22, 1973
Inspected by	D. R. Engle

A. Purpose of the Survey

The purpose of this survey is to clear to maximum width a deep-draft channel through Rosario Strait and an alternate route through Bellingham Channel for possible use by petroleum supertankers.

B. Shoreline and Control

There is no recent photo coverage of this area. The shoreline shown in brown on the smooth sheet has been transferred from Chart 6380 by the verifier for the purpose of orientation.

The source of control for this survey is adequately described in the Descriptive Report.

C. Junctions with Wire-Drag Surveys

Adequate junctions were effected with H-9281 (1972)WD to the north and H-9283 (1972)WD to the south.

D. Comparison with Hydrographic Surveys

Effective depths on this wire-drag survey do not conflict with depths on hydrographic surveys H-8318 (1955-56), H-8322 (1956), H-8323 (1956), and H-8333 (1955).

E. Comparison with Charts

Chart 6378 (latest print date 6/19/71)
Chart 6380 (latest print date 9/30/72)

1. Hydrography

No conflicts were noted between the charted soundings and the effective wire-drag depths of the present survey.

2. Aids to Navigation

There are no floating aids to navigation in the area of the present survey.

F. Condition of the Survey

1. Field Work

The field work is satisfactory except for insufficient overlap of two strips in approx. lat. $48^{\circ}46'$, long. $122^{\circ}45'$. Two splits remain but these occur in depths greater than 30 fms. and are not considered important.

2. Records

The records are complete and comprehensive.

3. Descriptive Report

The Descriptive Report is complete and comprehensive.

4. Field Plotting

The survey was accurately and neatly smooth plotted. However, most of the groundings were on known shoals and should have been omitted in smooth plotting.

G. Compliance with Project Instructions

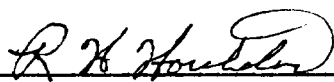
The survey complies with the Project Instructions except as follows:

1. The survey does not always provide coverage to a maximum depth over a maximum area. For example, much of the area in the vicinity of lat. $48^{\circ}45.7'$, long. $122^{\circ}44.8'$ could have been cleared by effective depths 10 to 15 ft. greater than the 60 to 72 ft. shown on the present survey.
2. Dragging through Bellingham Channel was not completed.

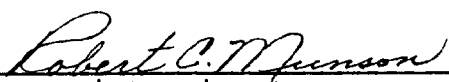
H. Additional Field Work

This is considered to be a good wire-drag survey for the purpose intended. Coverage in Bellingham Channel should be completed if this area is considered essential to the project.

Examined and Approved:



Chief
Marine Chart Division



Associate Director
Office of Marine Surveys and Maps

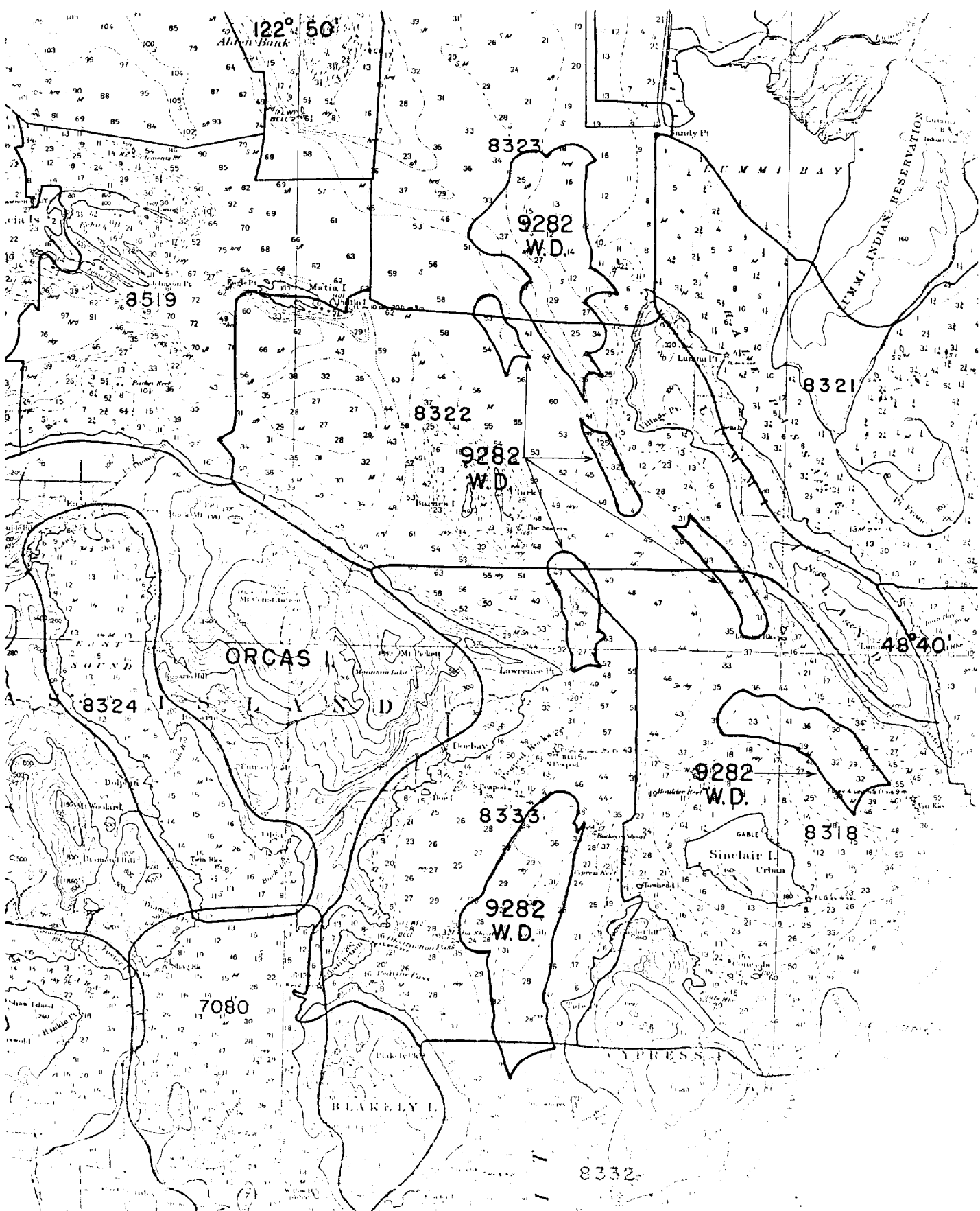


Chart - 6380

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9282 W.D.

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
6380	4/11/73	Jeffrey Stuart	Full Part Before ^{before} After Verification Review Inspection Signed Via Drawing No.
6378	4/11/73	Jeffrey Stuart	Full Part Before ^{before} After Verification Review Inspection Signed Via Drawing No.
6300	4/13/73	Jeffrey Stuart	Full Part Before ^{before} After Verification Review Inspection Signed Via Drawing No.
185	4/26/73	Jeffrey Stuart	Full Part Before ^{before} After Verification Review Inspection Signed Via Drawing No.
184	1/9/74	J. Ouyang ^{MS}	Full Part Before ^{before} After Verification Review Inspection Signed Via Drawing No.
18429	1-4-78	B. Hamilton ^{RG}	Full Part Before After Verification Review Inspection Signed Via Drawing No.
18431	3-01-78	D.C. Larson ^{RG}	Full Part Before After Verification Review Inspection Signed Via Drawing No. Fully applied to new chart
18421	9/19/79	R.A. Lillis ^{RG}	Full Part Before After Verification Review Inspection Signed Via Drawing No. 46
18423	9/20/79	R.A. Lillis ^{RG}	Full Part Before After Verification Review Inspection Signed Via Drawing No. 20 ^{10-12-79 RGs} ^{pg. A.} ¹⁰⁻¹²⁻⁷⁹⁻⁰⁰⁵
18424	2/1/80	Corato ^{RG}	Full Part Before After Verification Review Inspection Signed Via Drawing No. 24
18430	1978	R. Ogan ^{BH}	Full application After Verification, Rev, Insp. Dwg. #1
18400	6/23/80	Corato ^{RG} 6-30-80 ^{RG}	Full application After Ver., Rev., Insp. Dwg. #45