

# 9283

## 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-20-3-72 Office No. H-9283 W.D.

#### LOCALITY

State Washington

General locality Rosario Strait

Locality Lawson Reef to Cypress Island

1972

CHIEF OF PARTY

G. C. Saladin

LIBRARY & ARCHIVES

DATE 3-1-73

9283  
WIRE DRAG

HYDROGRAPHIC TITLE SHEET

H-9283

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 20-3-72WD

State WASHINGTON

General locality ROSARIO STRAITS

Locality LAWSON REEF TO ~~BLACK ROCK BEACON~~ <sup>SANDY POINT</sup> Cypress Island

Scale 1:20,000 Date of survey 31 May to 18 June 1972

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

Vessel DAVIDSON - LAUNCHES OC 1214 & OC 1215

Chief of party GERALD C. SALADIN

Surveyed by ROGER P. HEWITT, JAMES A. WATKINS, HUGH B. MILBURN, J.R. ANNETT

Soundings taken by echo sounder, hand lead, pole WIRE DRAG

Graphic record scaled by NA

Graphic record checked by NA

Protracted by GUY F. TREFETHEN Automated plot by \_\_\_\_\_

Drag strips inked by \_\_\_\_\_

Soundings prepared by Guy F. Trefethen

Soundings in ~~fathoms~~ feet at ~~MLLW~~ MLLW-EFFECTIVE DEPTHS IN FEET AT MLLW

REMARKS: \_\_\_\_\_



*Applied to plots 4/7/73*  
*CS*

DESCRIPTIVE REPORT

TO ACCOMPANY

WIRE DRAG FIELD NUMBER DA-20-3-72

REGISTRY NO. H 9283 WD

SHEET "C"

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 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:

Six raydist configurations were used on this sheet. Visual control was used by the end vessel on Day X; 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 31 May, 1972 and completed on 18 June, 1972. ✓

TIDE REDUCERS:

Preliminary reduction of W through BA and LA Days work was made using predicted tides for Strawberry Bay; and Aleck Bay predictions for Days CA through EA, GA and KA Days. Both predictions were based on the Standard Tide Gage at Port Townsend, Washington and furnished by Pacific Marine Center.

SPLITS:

All strips had sufficient overlaps and all areas within the project limits were covered without splits with the exception of some small areas in the vicinity of the two shoals east of Davidson Rk. Lt. This area was dragged in a manner to clear as much possible area to 90 feet; then as much area to 65 feet. Subsequent groundings on the west side allowed us to clear to 58 feet. Excessive currents and time limitations prevented further investigation but it was considered that a deep draft channel in the relatively narrow area between the shoals had been cleared to its maximum width.

HANGS:

All hangs and groundings on this sheet occurred in attempts to clear as much possible area and as deep a depth as possible or in attempts to locate the extreme limit of the 90 foot depth curve. Two hangs also resulted as buoy uprights ran out over shoal areas.

All hangs and groundings were cleared at a shallower depth with the exception of the hang at Belle Rock which occurred outside the project limits; and the hang at the area of special investigation mentioned below.

SPECIAL INVESTIGATION:

*An attempt was made to drag a* *at 048°23'09"* *8* *However, as*  
*122°44'30"*  
A reported 10-fathom sounding was dragged at 78 feet. As the drag passed over the shoalest area, the middle upright ran out and a hang occurred at unknown depth. Increasing currents prevented an accurate leadline, rendered diving extremely dangerous and ruled out further wire dragging. Close spaced hydrography was performed over the area and a least sounding of \*13.7 fathoms was obtained.  
*Not plotted during verification - Vel. data not observed*

The two wrecks at a reported depth of 28 fathoms were not investigated due to time limitations.

*\* This sounding is uncorrected. See Review Par.*

GENERAL NOTES:

A deep water channel through Bellingham Channel was cleared up to

Cypress Island Light. As much possible area was cleared to 90 feet; remaining areas were cleared to 78 and 79 feet.

The lack of a copy of a prior survey of the area necessitated reconnaissance hydrography at the junction of the Bellingham and Rosario Ship Channels. This hydrography provided information as to how much area could be cleared to a maximum depth at this critical junction. A copy will not be forwarded as it was used only for planning purposes.

Meridian 105°W time was used for the entire sheet.

CURRENTS:

Currents in varying directions and in estimated velocities of up to 4 knots were experienced. Predicted times and velocities were noted to be accurate or off in both directions with no apparent pattern. In shoal areas currents were understandably stronger and hampered wire drag work. Unusual and sometimes unpredictable lift situations occurred where shear and bottom rise currents were felt. In most areas wire dragging had to be limited to times of slack water or low current.

DISCREPANCIES AND COMPARISONS:

A discrepancy was noted on NOS Chart 6380 with respect to the prior survey number H 8332, 1953. <sup>a chart has been revised.</sup> 14 fathom soundings are shown in the vicinity 48°31.7'N and 122°41.3'W on the prior survey; and the shoalest sounding on the chart is a 17. Planning and proposed project limits in Bellingham Channel based on Chart 6380, before receiving the prior survey, had to be revised. Chart 6376 reflects the shoalest sounding.

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 and 223 meters with a 700 foot towline. 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 1800 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 Z Day when LT Hugh B. Milburn commanded the guide vessel and LTJG John R. Annett was on the end vessel.

RECOMMENDATIONS:

*50 m. development considered  
adequate to dispense reported 10 fms.  
R.H.C.  
3/8/73*

It is recommended that the reported 10 fathom sounding at 48° 23.2'N and 122°44.5'W be retained until further investigation can prove or disprove its existence. Investigation is 50% complete. ✓

It is also recommended that the two charted wrecks be retained as charted. No investigation was made on these obstructions. ✓

This survey is considered accurate with respect to the wire drag requested for a deep draft channel through Rosario Strait. An alternate deep draft channel was cleared through Bellingham Channel to Cypress Island 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

NATIONAL OCEAN SURVEY  
A. L. POWELL, Director  
SPECIAL INVESTIGATION  
H 9283 WD

WASHINGTON  
ROSARIO STRAIT

Date of Survey . . . . . 1972  
Scale . . . . . 1: 10,000  
Chief of Party . . . . . G.C. Saladin  
Surveyed by . . . . . R. P. Hewitt

*Boatsheet soundings - Uncorrected for velocity.*  
**SOUNDINGS IN FM. & TENTHS**  
at MLLW

No. 42	HYDROGRAPHIC SURVEY		
Field No. _____	Reg. No. <u>H-9283</u>		
Scale 1: <u>10,000</u>	Plotted	Verified	
Projection _____	<u>AAL</u>	<u>RPH</u>	
Tri. Sta. _____	—	—	
Topo Sta. _____	—	—	
Hydro. Sta. _____	—	—	
Datum <u>NORTH AMERICAN 1927</u>			
Ref. Sta. _____			
Lat. _____		m. Adj.	
Long. _____		m. Unadj.	

Red Lane - SMITH 3 RM 6, 1972  
Green Lane - HALL ISLAND, 1972





APPENDIX

- I Control Stations
- II Statistics
- III Tide Charts

Verifiers List of  
Control Stations

Electronic Control (3300.4kc)

LANGLEY, 1939	green
BIRD RK 2, 1939	red
KELLETT, 1939	violet
SMITH 3, RM6 *	blue
OBSTRUCTION PASS, 1939	violet
WHITE RK 2, 1939	blue
FIDALGO N2, 1932	orange
ROBIN *	green

Visual Control

No.	Name
304	CAL 4 *
95	<u>BERRY</u> , 1939-55
102	STRAW, 1939-55
106	REEF PT., 1939-72
112	FAT *
311	PUR *
98	<u>CYPRESS I. LT.</u> , 1939-53
109	<u>HAMMIL</u> , 1939-72
150	ROBIN *
305	CAL *
120	<u>FIDALGO N2</u> , 1885-1972
126	<u>BURROWS I. LT.</u> , 1926-72
101	<u>BLAKE</u> , 1939-72
103	<u>BLACK RK. BN.</u> , 1939-72
105	<u>WHITE RK</u> , 1889-1972

- 110 FAUNTLEROY PT. LT., 1939-55
- 310 JAM, 1939-72
- 125 BIRD RKS 2, 1885-1972
- 139 KELLETT, 1889-1972
- 140 BOULDER, 1854-1939
- 143 SOUTHEAST I., 1854-1972
- 144 DAVIDSON RK. LT., 1935-72
- 136 LANGLEY, 1939-64
- 137 DECEPTION PASS LT., 1939-60

\* 1972 Computation Rosaria Strait  
Wire Drag OPR-412-DA-72

CONTROL STATIONS

<u>STATION</u>	
BIRD ROCKS 2 (RED)	1953
OBSTRUCTION PASS (GREEN)	1939
WHITE ROCK (GREEN)	1939
LANGLEY (GREEN)	1939
SMITH 3 RM (RED)	1972
KELLETT (GREEN)	1939
ROBIN (RED)	1972
FIDALGO N2 (GREEN)	1953
DAVIDSON ROCK LT.	1935
SOUTHEAST ISLAND	1954
BOULDER	1939
DECEPTION PASS LIGHT	1942
JAM	1939
BURROWS ISLAND LIGHT	1926
CAL V	1972
CAL IV	1972
BLAKE	1939
STRAW	1939
REEF POINT	1939
PUR	1972
HAMMIL	1939
FAT	1972
CYPRESS ISL. LIGHT	1939
BLACK ROCK DAY BEACON	1939
FAUNTLEROY PT. LIGHT	1939
BELLE ROCK LIGHT	1939

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>
05/31/72		W	1	1	1-15	3.2	1.8
06/01/72		X	1,2	1	1-13	1.5	.8
06/02/72		Y	1,2	1	1-25	2.5	1.0
06/03/72		Z	1	1	1-15	1.0	.5
06/04/72		AA	1,2	1	1-30	3.0	1.5
06/05/72		BA	1,2,3	1	1-51	5.4	2.7
06/06/72		CA	1,2,3,4	2	1-56	5.8	2.9
06/07/72		DA	1,2,3	2	1-61	5.0	2.0
06/08/72		EA	1	2	1-39	2.0	.4
06/13/72		GA	1	2	1-15	1.5	.4
06/17/72		KA	1	3	1-20	2.0	1.2
06/18/72		LA	1	4	1-14	2.2	.7

ATLANTIC MARINE CENTER  
VERIFICATION BRANCH  
NOTES

WIRE DRAG SURVEY H-9283 (DA 20-3-72WD)

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 smooth sheet.

The discrepancies listed below were the only problems experienced during the plotting and verification process. Except for the splits noted on the smooth sheet, 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.

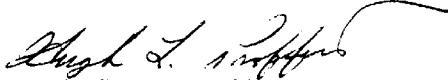
DISCREPANCIES

The hydrographic investigation in the vicinity of Lawson Reef was not smooth plotted because velocity corrections were not furnished by the field.

Drag strip 1 to 20KA was ended at position 15 as the upright on buoy ~~15~~ number 4 slipped. This caused the drag to hang in an area deeper than the effective depth of the drag.

Strip 20 to 56CA was ended on position 51CA as the uprights on N and buoy 3 slipped causing the drag to hang in an area deeper than the effective depth.

Line 1 to 9CA was not smooth plotted. It was not considered effective dragging - see note on plotting overlay.

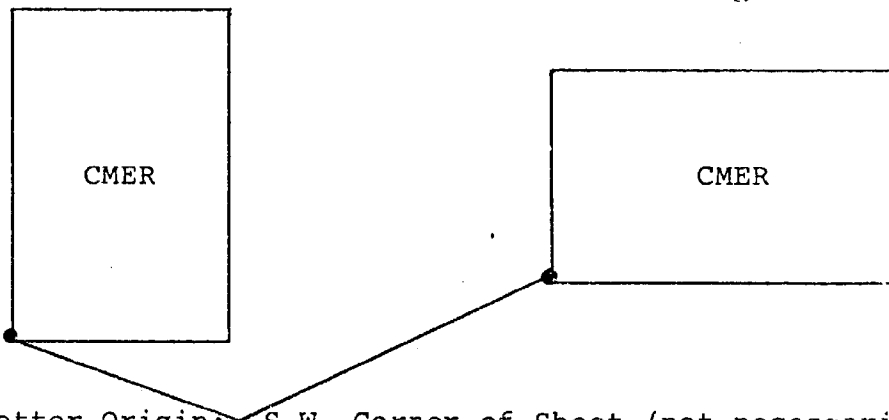
  
Hugh L. Proffitt  
Chief, Verification Br., AMC

Norfolk, Va.  
Feb. 23, 1973

CAM3-1  
2-18-71

ATLANTIC MARINE CENTER  
PROJECTION PARAMETERS  
POLYCONIC OR MODIFIED TRANSVERSE MERCATOR

1. Project No. 412 4. Requested By WLJ  
2. Reg. No. H-9283 WD 5. Ship or Office VERIFICATION  
3. Field No. DA-20-3-72 6. Date Required SEPT. 8, 1972  
7. Polyconic  Modified Transverse Mercator   
8. Central Meridian of Projection 122 ° 45 ' 00 "  
9. Survey Scale: 1: 20,000  
10. Size of Sheet (check one):  
36 x 54  36 x 60  Other  Specify \_\_\_\_\_  
11. Sheet Orientation (check one):  
NYX = 1  NYX =  $\beta$    
N N



12. Plotter Origin: S.W. Corner of Sheet (not necessarily a grid intersection)  
Latitude 48 ° 20 ' 50 "  
Longitude 122 ° 51 ' 30 "  
13. G.P.'s of triangulation and/or signals attached   
14. Material Desired: Tracing Paper  Mylar   
Smooth Sheet  Other  Specify \_\_\_\_\_  
15. Remarks: \_\_\_\_\_

ELECTRONIC CONTROL PARAMETERS

SET No 1

1. Project # OPR-412    2. Reg. # H-9283WD    3. Field # DA-20-3-72  
 4. Type of Control: RAYDIST (Hi-Fix, Raydist, EPI, etc.)  
 5. Frequency 3300.456 (for conversion of electronic lanes to meters)  
 6. Mode of Operation (check one):

Range-Range                       Range-Visual

	Range One (R <sub>1</sub> )	Lat.	<u>48</u> °	<u>29</u> ' 05.945 "
<u>RED</u>	Station I.D. <u>BIRD ROCK 2,1939</u>	Long.	<u>122</u> °	<u>45</u> ' 40.2725 "
	Range Two (R <sub>2</sub> )	Lat.	<u>48</u> °	<u>36</u> ' 10.332 "
<u>PURPLE</u>	Station I.D. <u>OBSTRUCTION PASS, 1939</u>	Long.	<u>122</u> °	<u>47</u> ' 51.276 "

Hyperbolic (3-station)                       Hyper-Visual

Slave One	Station I.D. _____	Lat.	_____ °	_____ ' _____ "
Master	Station I.D. _____	Long.	_____ °	_____ ' _____ "
Slave Two	Station I.D. _____	Lat.	_____ °	_____ ' _____ "
	Station I.D. _____	Long.	_____ °	_____ ' _____ "

7. Location of Survey:

- Range-Range  Imagine an observer is standing at R<sub>1</sub> Station and looking directly at R<sub>2</sub> (check one):  
 Survey area is to observer's Right  A=0  
 Survey area is to observer's Left  A=1  
 Hyperbolic  Looking from survey area toward Master Station:  
 Slave One must be to observer's Left;  
 Slave Two must be to observer's Right.

8.  This form is submitted as an aid in preparing a boat sheet.  
 This form applies to all data on this survey.  
 This form applies to part of the data on this survey.

Vessel	From	To	Position Numbers
EDP #	Time	Day	(inclusive)
_____	_____	_____	_____ to _____
_____	_____	_____	_____ to _____
_____	_____	_____	_____ to _____

9. Remarks: SETS 1, 2, and 3 are to be plotted north of Lat. 48° 29' across the entire sheet.



ELECTRONIC CONTROL PARAMETERS

SET 2 & 3

1. Project # OPR-412      2. Reg. # H-9283 WD      3. Field # DA-20-3-72  
 4. Type of Control: RAYDIST (Hi-Fix, Raydist, EPI, etc.)  
 5. Frequency 3300.456 (for conversion of electronic lanes to meters)  
 6. Mode of Operation (check one):

Range-Range

Range-Visual

Range One (R<sub>1</sub>)  
BLUE Station I.D. WHITE ROCK 2,1939  
 Range Two (R<sub>2</sub>)  
GREEN Station I.D. ROBBIN 1972  
~~YELLOW~~ (orange) FIDALGO N 2,1939  
 Hyperbolic (3-station)

Lat.	<u>48</u> °	<u>32</u> '	<u>17.875</u> "
Long.	<u>122</u> °	<u>46</u> '	<u>51.150</u> "
Lat.	<u>48</u> °	<u>30</u> '	<u>32.740</u> "
Long.	<u>122</u> °	<u>39</u> '	<u>08.346</u> "
		<u>48° 29'</u>	<u>56.100</u> "
Hyper-Visual	<input type="checkbox"/>	<u>122° 41'</u>	<u>59.970</u> "

Slave One  
 Station I.D. \_\_\_\_\_  
 Master  
 Station I.D. \_\_\_\_\_  
 Slave Two  
 Station I.D. \_\_\_\_\_

Lat.	_____°	_____'	_____"
Long.	_____°	_____'	_____"
Lat.	_____°	_____'	_____"
Long.	_____°	_____'	_____"
Lat.	_____°	_____'	_____"
Long.	_____°	_____'	_____"

7. Location of Survey:

Range-Range  Imagine an observer is standing at R<sub>1</sub> Station and looking directly at R<sub>2</sub> (check one):

Survey area is to observer's Right  A=0

Survey area is to observer's Left  A=1

Hyperbolic  Looking from survey area toward Master Station:

Slave One must be to observer's Left;

Slave Two must be to observer's Right.

8.  This form is submitted as an aid in preparing a boat sheet.  
 This form applies to all data on this survey.  
 This form applies to part of the data on this survey.

Vessel EDP #	From Time Day	To Time Day	Position Numbers (inclusive)
_____	_____	_____	_____ to _____
_____	_____	_____	_____ to _____
_____	_____	_____	_____ to _____

9. Remarks: See Remarks for Set 1

ELECTRONIC CONTROL PARAMETERS

SET 4

1. Project # OPR-412 2. Reg. # H-9283 WD 3. Field # DA-20-3-72

4. Type of Control: RAYDIST (Hi-Fix, Raydist, EPI, etc.)

5. Frequency 3300.456 (for conversion of electronic lanes to meters)

6. Mode of Operation (check one):

Range-Range

Range-Visual

RED Range One (R<sub>1</sub>) Station I.D. BIRD ROCK 2, 1939  
PURPLE Range Two (R<sub>2</sub>) Station I.D. KELLETT 1939

Lat.	<u>48</u> °	<u>29</u> '	<u>05.945</u> "
Long.	<u>122</u> °	<u>45</u> '	<u>40.271</u> "
Lat.	<u>48</u> °	<u>26</u> '	<u>51.109</u> "
Long.	<u>122</u> °	<u>47</u> '	<u>57.723</u> "

Hyperbolic (3-station)

Hyper-Visual

Slave One Station I.D. \_\_\_\_\_  
 Master Station I.D. \_\_\_\_\_  
 Slave Two Station I.D. \_\_\_\_\_

Lat.	_____°	_____'	_____"
Long.	_____°	_____'	_____"
Lat.	_____°	_____'	_____"
Long.	_____°	_____'	_____"
Lat.	_____°	_____'	_____"
Long.	_____°	_____'	_____"

7. Location of Survey:

Range-Range  Imagine an observer is standing at R<sub>1</sub> Station and looking directly at R<sub>2</sub> (check one):

Survey area is to observer's Right  A=0

Survey area is to observer's Left  A=1

Hyperbolic  Looking from survey area toward Master Station:

Slave One must be to observer's Left;

Slave Two must be to observer's Right.

8.  This form is submitted as an aid in preparing a boat sheet.

This form applies to all data on this survey.

This form applies to part of the data on this survey.

Vessel EDP #	From Time Day	To Time Day	Position Numbers (inclusive)
_____	_____	_____	_____ to _____
_____	_____	_____	_____ to _____
_____	_____	_____	_____ to _____

9. Remarks SETS 4 & 5 are to be plotted from the point of origin North to 48°29' Lat. across the entire sheet.

ELECTRONIC CONTROL PARAMETERS  
SET 5

1. Project # OPR-412    2. Reg. # H-9283 WD    3. Field # DA-20-3-72  
 4. Type of Control: RAYDIST (Hi-Fix, Raydist, EPI, etc.)  
 5. Frequency 3300.456 (for conversion of electronic lanes to meters)  
 6. Mode of Operation (check one):

Range-Range	<input checked="" type="checkbox"/>	Range-Visual	<input type="checkbox"/>
BLUE	Range One (R <sub>1</sub> )	Lat.	<u>48</u> ° <u>19</u> ' <u>11.771</u> "
	Station I.D. <u>SMITH3, RM 6 1972</u>	Long.	<u>122</u> ° <u>50</u> ' <u>34.940</u> "
GREEN	Range Two (R <sub>2</sub> )	Lat.	<u>48</u> ° <u>26</u> ' <u>37.778</u> "
	Station I.D. <u>LANGLEY 1939</u>	Long.	<u>122</u> ° <u>40</u> ' <u>33.698</u> "

Hyperbolic (3-station)	<input type="checkbox"/>	Hyper-Visual	<input type="checkbox"/>
Slave One	Station I.D. _____	Lat.	_____ " "
Master	Station I.D. _____	Long.	_____ " "
Slave Two	Station I.D. _____	Lat.	_____ " "
	Station I.D. _____	Long.	_____ " "

7. Location of Survey:
- Range-Range  Imagine an observer is standing at R<sub>1</sub> Station and looking directly at R<sub>2</sub> (check one):
- Survey area is to observer's Right  A=Ø
- Survey area is to observer's Left  A=1
- Hyperbolic  Looking from survey area toward Master Station:
- Slave One must be to observer's Left;
- Slave Two must be to observer's Right.

8.  This form is submitted as an aid in preparing a boat sheet.  
 This form applies to all data on this survey.  
 This form applies to part of the data on this survey.

Vessel	From	To	Position Numbers
EDP #	Time Day	Time Day	(inclusive)
_____	_____	_____	to _____
_____	_____	_____	to _____
_____	_____	_____	to _____

9. Remarks: See "Remarks" for Set 4



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 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.

U.S. DEPARTMENT OF COMMERCE  
~~ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION~~ NOAA  
~~COAST AND GEODETIC SURVEY~~  
National Ocean Survey

TIDE NOTE FOR HYDROGRAPHIC SHEET

February 9, 1973

~~National Oceanographic~~ Atlantic Marine Center

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

HYDROGRAPHIC SHEET H9283 WD

Locality: Rosario Strait, Washington

~~Chief of Party~~ Year: 1972

Plane of reference is mean lower low water

Tide Station Used (Form C&GS-681): Strawberry Bay, Washington  
Reservation Bay, Washington

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

Strawberry Bay	7.46 ft.
Reservation Bay	7.00 ft.
Allan Is.	7.03 ft.

Remarks

*C. L. Thurlow*

Chief, Tides and Currents Branch  
TIDAL DATUM PLANES SECTION

GEOGRAPHIC NAMES

Survey No. H-9283 W.D.

Name on Survey	Source										
	A	B	C	D	E	F	G	H	K		
	On Chart No.	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			
Allan <del>Point</del> Island ✓											1
Belle Rock ✓											2
Bellingham Chan ✓											3
Bird Rocks ✓											4
Burrows Island ✓											5
Cape St. Mary ✓											6
Davidson Rock ✓											7
Decatur Island ✓											8
Fidalgo Island ✓											9
Guemes Island ✓											10
James Island ✓											11
Langley Point ✓											12
Lawson Reef ✓											13
Lopez Island ✓											14
Point Colville ✓											15
Reef Point ✓											16
Rosario Strait ✓											17
Strawberry Island ✓											18
Tide Point ✓											19
Blakely Island ✓											20
Cypress Island ✓											21
											22
											23
											24
											25
											26
											27

PREPARED BY CARTOGRAPHER

Chris E. Harrington  
Staff Geographer (Acting)  
Sept. 6, 1973



H-9283WD

Information for Future Presurvey Reviews

The two sunken wrecks, two parts of the oil tanker BUNKER HILL, charted in lat. 48°25.1', long. 122°44.4' and lat. 48°25.7', long. 122°44.6' from chart letter 320 of 1964 were reported to be covered by 28 fathoms of water. Wire-drag clearance of these wrecks to 90 ft. or possibly investigation by side scanning sonar should be considered at some future time.

OFFICE OF MARINE SURVEYS AND MAPS

MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9283WD

FIELD NO. DA-20-3-72WD

Washington, Rosario Strait, Lawson Reef to Cypress Island

SURVEYED: May 31 through June 18, 1972

PROJECT NO.: OPR-412

SCALE: 1:20,000

SOUNDINGS: Wire-Drag and Leadline

CONTROL: Raydist, Sextant  
Fixes on Shore  
Signals

Chief of Party ..... G. C. Saladin  
Surveyed by ..... R. P. Hewitt  
..... J. A. Watkins  
..... H. B. Milburn  
..... J. R. Annett  
Protracted by ..... G. F. Trefethen (AMC)  
Drag Strips Plotted by ..... G. F. Trefethen  
Verified and Inked by ..... B. J. Stephenson  
..... B. T. Davis  
Reviewed by ..... G. K. Myers  
Date: Sept. 6, 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 channel 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

Junctions were effected with H-9282 (1972)WD on the north and H-5929 (1935)WD on the south.

D. Comparison with Hydrographic Surveys

Effective depths on the present survey do not conflict with depths on hydrographic surveys H-6577 (1940), H-6607 (1939-1940), H-6645 (1939-1940), H-6747 (1941), and H-8332 (1955).

E. Comparison with Charts

Chart 6376 (latest print date 4/21/73)  
Chart 6378 (latest print date 6/19/71)  
Chart 6380 (latest print date 9/30/72)

1. Hydrography

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

b. The 10-fathoms, reported 1971, charted in lat.  $48^{\circ}23.2'$ , long.  $122^{\circ}44.5'$  was not successfully dragged because of the strong current. However, the area was developed by hydrography at 50 meter line spacing which is considered adequate to disprove the 10-fathom reported depth. A least depth of 13 fathoms was subsequently charted from the boat sheet. (See boat sheet section in the Descriptive Report).

2. Aids to Navigation

The floating aid to navigation located on the present survey adequately marks the feature intended.

F. Condition of the Survey

1. Field Work

The field work is satisfactory except that a better selection of objects for plotting stronger fixes by

the end vessel on "X" day would have been desirable.

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, except that some 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. At the south end of the present survey portions of areas cleared to 57 to 68 feet could have been cleared to much greater depths.


2. No hangs were cleared within 2 ft. as required by the Project Instructions.


H. Additional Field Work

This is considered to be a good wire-drag survey and to serve the purpose for which it was intended. No additional field work is recommended for this project. However, the special investigations of two charted wrecks in lat.  $48^{\circ}25.1'$ , long.  $122^{\circ}44.4'$  and lat.  $48^{\circ}25.7'$ , long.  $122^{\circ}44.6'$  called for in the project instructions were not accomplished and should be reconsidered at a future time.

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Examined and Approved:

  
\_\_\_\_\_  
Chief  
Marine Chart Division

  
\_\_\_\_\_  
Associate Director  
Office of Marine Surveys and Maps

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-9283 (DA-20-3-72)

Records accompanying survey:

- Smooth sheets ..1.;
- 1-A&D Sheet
- boat sheets 1.\*\*\*; sounding vols. 1. ....; wire drag vols. 8. ....;
- 5-A&D Boat Sheets
- Descriptive Reports 1. ....; (*Tender record & graphic recorder*) - *Cahier* ..1. ....;
- 1-Special Investigation Boat Sheet (Hydrographic) *Made part of Descr. Report*
- special reports, etc. *Hydrographic Boat Sheet No. 8, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 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* ..1. ....;
- 1-Envelope containing Drag Strip Tracings
- \* ~~1-Envelope containing Special Investigation Boat Sheet (Hydrographic)~~ ..1. ....;
- 1 Folder with Excerpts From Smooth Tender Vol. (*Filed with H-9281*)

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

Number of positions on sheet	682
Number of positions checked	136
Number of positions revised	0
Number of positions revised (refers to depth only)	.....
Number of soundings/erroneously spaced	.....
Number of signals erroneously plotted or transferred	0
Topographic details	Time ..1. ....
Junctions	Time ..1/2...
Verification of soundings from graphic record	Time .....
Special adjustments	Time .....

Verification by *B.J. Stephenson* Total time *4/297* Date *2/9/73*  
*B.T. Davis* Total time *21* Date *2/15/73*

Reviewed by *J.H. Mijal* Time *85* Date *9-6-73*

Inspected by *J.H. Coughlin* Time *24* Date *5-10-75*  
*C. J. ...* Time *5* Date *5/17/75*

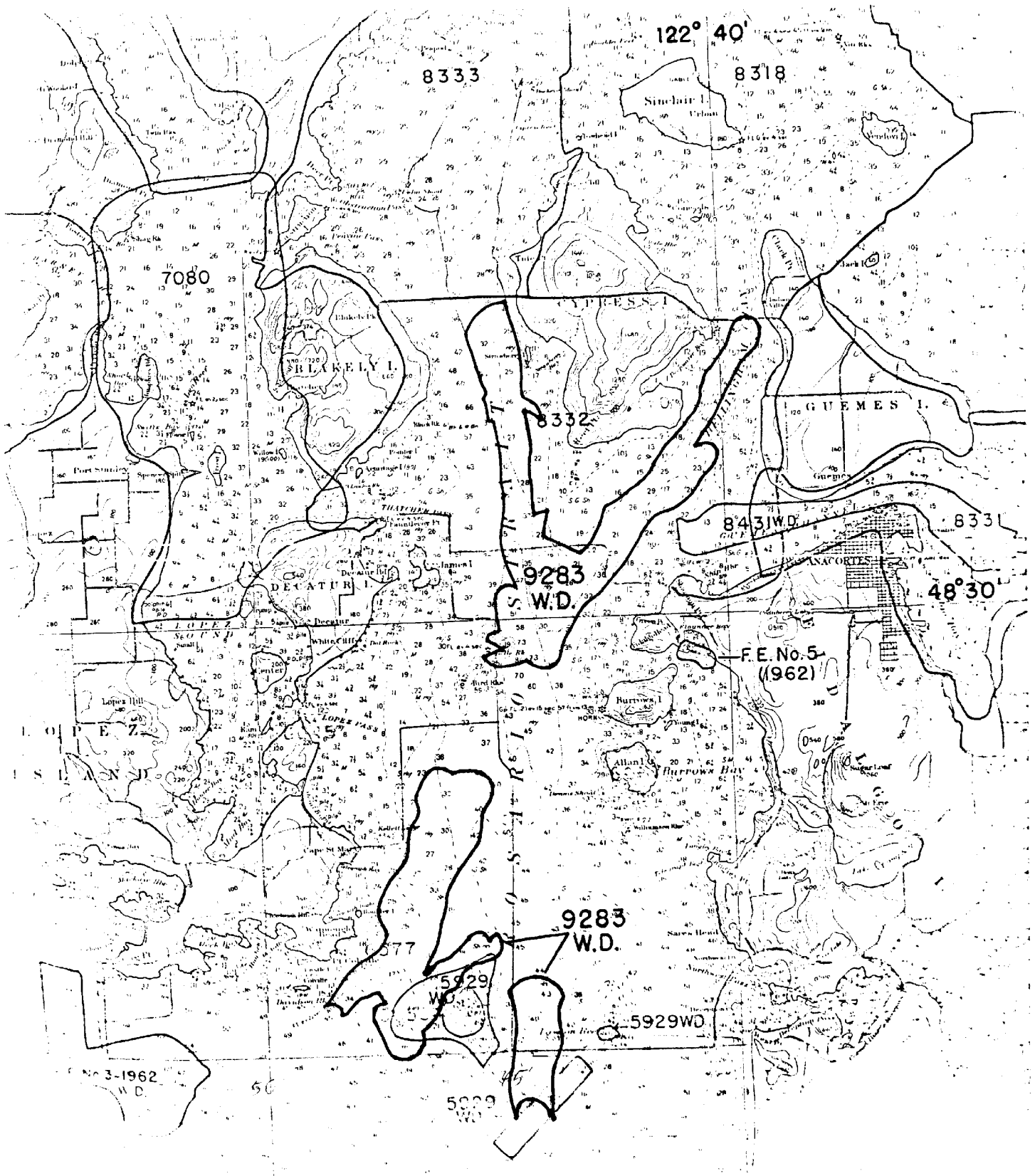


Chart - 6380

## RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9283 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	Jeff Stuart	<del>Full Part Before</del> After Verification <sup>before</sup> Review Inspection Signed Via Drawing No.
5022	4/12/73	Jeff Stuart	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>No CORR. Hydro in area has been deleted.</i>
6378	4/12/73	Jeff Stuart	<del>Full Part Before</del> After Verification <sup>before</sup> Review Inspection Signed Via Drawing No.
6300	4/12/73	Jeff Stuart	<del>Full Part Before</del> After Verification <sup>before</sup> Review Inspection Signed Via Drawing No.
6376	4/18/73	Jeff Stuart	<del>Full Part Before</del> After Verification <sup>before</sup> Review Inspection Signed Via Drawing No. <i>21</i>
1845	4/26/73	Jeff Stuart	<del>Full Part Before</del> After Verification <sup>before</sup> Review Inspection Signed Via Drawing No.
194	1/9/74	J. Owyang <sup>HD</sup>	Full Part <del>Before</del> After Verification <sup>before</sup> Review Inspection Signed Via Drawing No.
6378	6/3/74	R. Spence	<del>Full Part Before</del> After Verification <sup>before</sup> Review Inspection Signed Via Drawing No.
18429	1-4-78	B. Hamilton <sup>RCS</sup>	Full <del>Part Before</del> After Verification Review Inspection Signed Via Drawing No.
18427	5-25-79	Hamilton <sup>ABS</sup>	Full <del>Part Before</del> After Verification Review Inspection Signed Via Drawing No. <i>25</i>
18421	9/19/79	R.A. Zillis <sup>RCS</sup>	Fully appl'd <i>Dwg # 46</i>
18423	9/20/79	R.A. Zillis <sup>RCS</sup>	Fully appl'd <i>Dwg # 20 pg A</i>
18424	2/1/80	Contra <sup>RH</sup>	Fully applied <i>Dwg # 24</i>
18430	1978	R. Hogan	Fully applied (Dwg # 1) After Ver., Rev., Insp.
18400	6/22/80	Contra <sup>6-30-80</sup>	Fully applied (Dwg # 45) After Ver., Rev., Insp.