

# 9424

Diag. Cht. No. 8551-3.

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. DA-20-3-74 Office No. H-9424

### LOCALITY

State ALASKA

General locality PRINCE WILLIAM SOUND

*Western Approach to*  
Locality ORCA BAY

1974

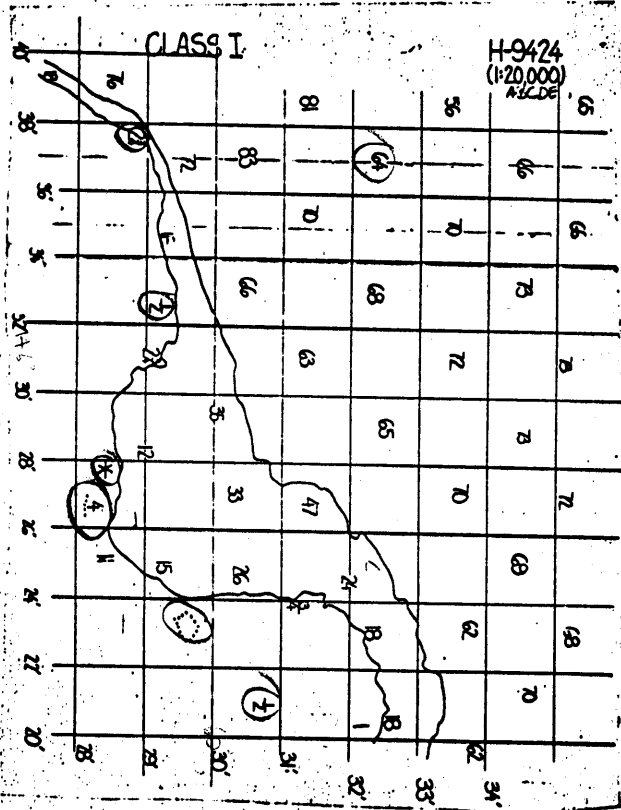
CHIEF OF PARTY

M.H. Fleming, CDR., NOAA, Cmdg.

LIBRARY & ARCHIVES

DATE 6-5-75

# 9424



**HYDROGRAPHIC TITLE SHEET**

H-9424

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-20-3-74

State ALASKA

General locality PRINCE WILLIAM SOUND

Locality Western Approach to ORCA BAY

Scale 1:20000 Date of survey July 1974

Instructions dated 22 May 1974 Project No. OPR-999-DA-74

Vessel NOAA Ship DAVIDSON CSS-31 & Launch DA-1

Chief of party M.H. Fleming, CDR., NOAA, CMDG.

Surveyed by Lt(jg) Eilers, Ens. Sarb, Mercer, Oswald, Tennesen

Soundings taken by echo sounder, ~~hand-lead, pole~~ ROSS 5000 S/N 1048, DE 723 S/N 533

Graphic record scaled by Ships personnel

Graphic record checked by Ships personnel

Protracted by \_\_\_\_\_ Automated plot by PMC-Gerber Digital Plotter

Soundings penciled by Ships Officers

oundings in fathoms feet at MLLW- MLLW \_\_\_\_\_

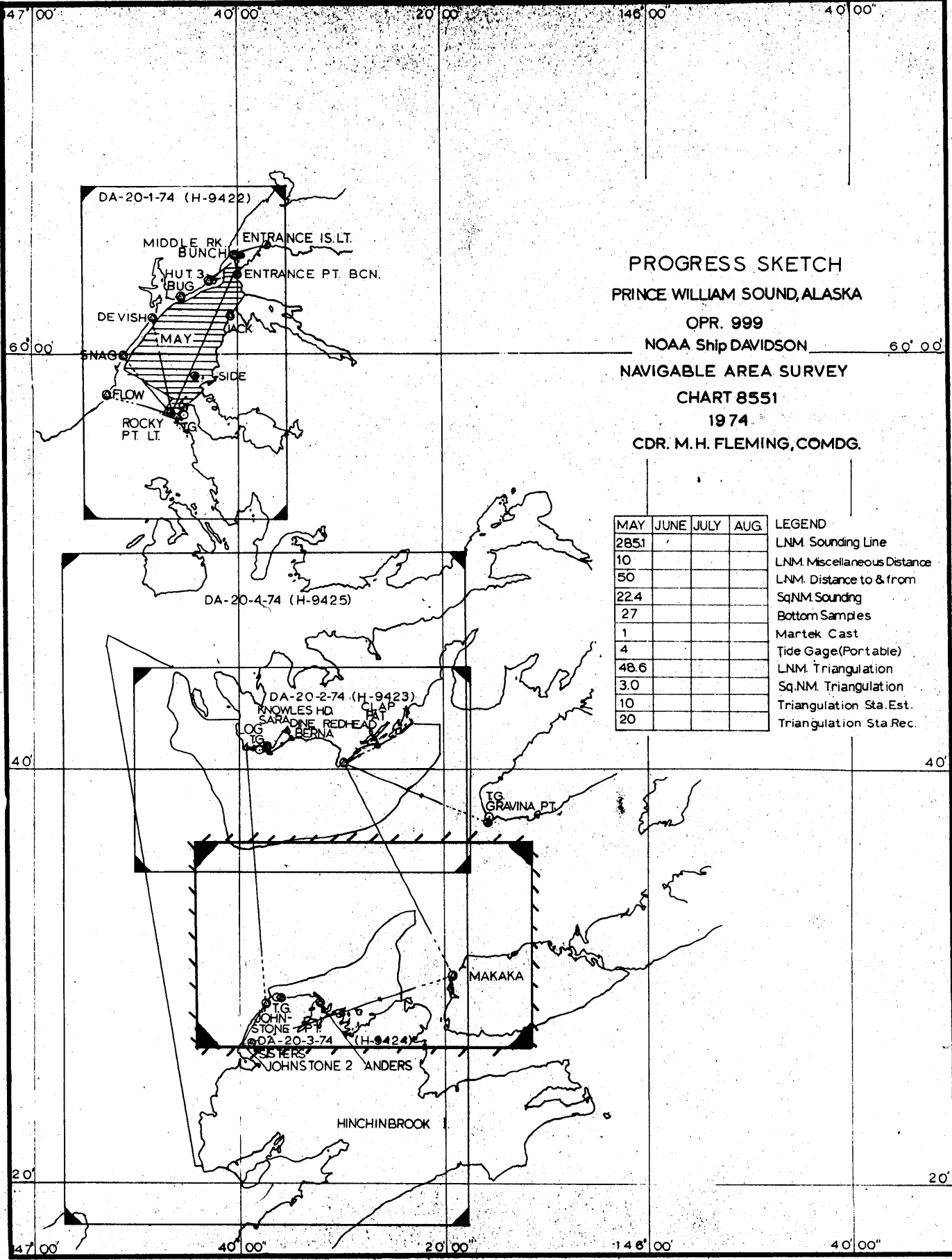
REMARKS: Survey time zone 000° GMT

Mean survey longitude 146° 30'W

This boat sheet is complete as defined by the approved boat sheet lay-out

There were no descriptive reports available for prior surveys H-3186 and

H-7628



PROGRESS SKETCH  
PRINCE WILLIAM SOUND, ALASKA

OPR. 999

NOAA Ship DAVIDSON

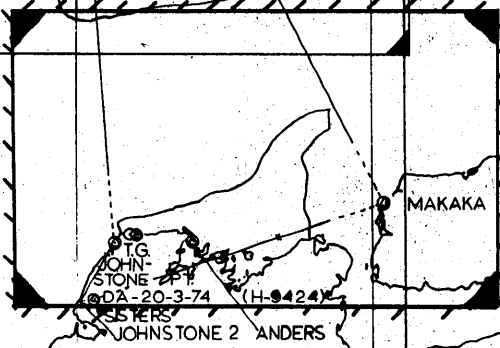
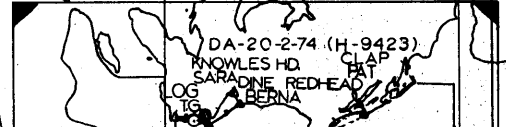
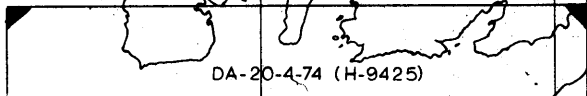
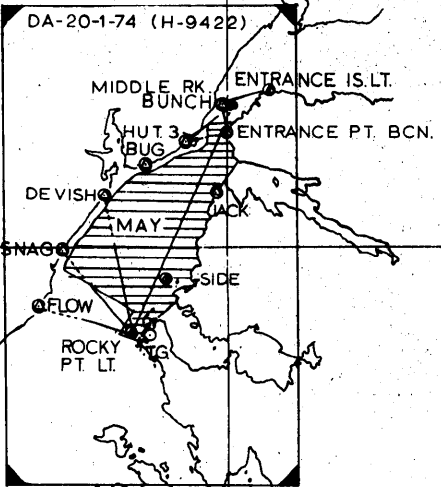
NAVIGABLE AREA SURVEY

CHART 8551

1974

CDR. M. H. FLEMING, COMDG.

MAY	JUNE	JULY	AUG.	LEGEND
285.1				LNM. Sounding Line
10				LNM. Miscellaneous Distance
50				LNM. Distance to & from
22.4				SqNM Sounding
27				Bottom Samples
1				Martek Cast
4				Tide Gage (Portable)
48.6				LNM. Triangulation
3.0				Sq.NM. Triangulation
10				Triangulation Sta. Est.
20				Triangulation Sta. Rec.



A. PROJECT

This survey was completed under Project Instructions OPR-999-DA-74, Prince William Sound, Alaska, dated 4 February 74 with supplemental instructions Special Investigations, SP-PMC-5-DA-74, Prince William Sound, Alaska. ✓

B. AREA SURVEYED

The area surveyed is Orca Bay, Prince William Sound, Alaska. The survey area extends east from Johnstone Point to the middle of Middle Ground Shoal and north from the north coast of Hinchinbrook Island to the junction of H-9423, DA-20-2-74. This survey was conducted during the month of July, 1974. ✓

C. SOUNDING VESSELS

The following vessels were used on this survey with the following color codes: ✓

<u>Vessel</u>	<u>Color</u>
DAVIDSON DA-1 (WZ3039)	Brown Red

D. SOUNDING EQUIPMENT

The following fathometers were used to conduct this survey:

<u>Vessel</u>	<u>Type</u>	<u>Serial Number</u>
DAVIDSON	Raytheon DE-723	1286
DA-1	Ross 5000 Fineline	1048

 ✓

DAVIDSON used its fathometer for the survey's bottom samples. DA-1 used the Ross 5000 exclusively in depths ranging from 1 - 240 fathoms.

DA-1 used the digitized sounding systems which are not subject to fine arc, initial, or phase error. Digitized soundings were accepted as being correct unless suspected, on the basis of fathogram scanning, of being reflections from mid-water objects such as kelp or fish. The analog initial was maintained at zero and phase checks were made twice per hydro watch. The Ross System performed very well for this survey.

All soundings are in fathoms and reduced for predicted tides at Johnstone Point. Velocity and TRA correctors are not applied to inked soundings on the field smooth sounding overlay.

Echo sounder correctors were determined from twice daily bar checks and three salinity/temperature (Nansen and Martek) casts. (For abstracts of TRA, TC/TI, and velocity correctors see report on "Correctors to Echo Sounders")

E. BOAT SHEETS

The projections and RAYDIST arcs of the field boat sheets were constructed by Processing Division, Pacific Marine Center.

The smooth boat sheets will be constructed and plotted by Processing Division, Pacific Marine Center.

F. STATION CONTROL

Existing triangulation stations were recovered and additional stations established. These additional stations were located by second and third order triangulation methods. (Refer to Signal List and "Horizontal Control Report")

Datum

The North American 1927 Datum was used for this survey.

G. POSITION CONTROL

The Hastings-RAYDIST System, operating in the range-range mode, was used to control all hydrography for this survey. Operating frequency was 3306.50 KHz. The stations were located as follows:

<u>Pattern</u>	<u>Station/Signal No.</u>	<u>Location</u>
1	Kayak - 026	N 60° 31' 55.294" 147° 18' 57.589" W
2	Knowles Head - 032	N 60° 40' 54.851" 146° 37' 15.991" W

Calibrations were conducted at least twice during each hydro watch. Calibrations were accomplished by running established ranges and marking at predetermined sextant angles. Lane counts were precomputed utilizing the Wang three-point range-range program. Copies of the computed lane counts for the two calibration ranges used in this survey are available in the appendix. Original calibration records are available on the raw data printouts.

Electronic correctors were determined by averaging the pre- and post- hydro calibrations. They are abstracted in the appendix. Correctors were not applied to positions plotted on the field boat sheets.

H. SHORELINE

The shoreline for this survey was derived from the following manuscripts:

TP-00633  
TP-00634

The shoreline was verified by Field Edit methods. Refer to "Field Edit Report OPR-999-DA-74."

I. CROSSLINES

Crosslines represent 12.6% of the total mileage. Crossline soundings agreed within one fathom of main scheme lines. In all cases the sounding vessel and equipment were the same for the cross and main scheme lines. ✓

J. JUNCTIONS

This survey junctions with the contemporary surveys H-9423, 1:20000, June 1974; H-9425, 1:40000, June-July 1974. Selected soundings from these surveys are inked on the field smooth sounding overlay: ✓

<u>Survey</u>	<u>Color</u>
H-9423	Blue
H-9425	Brown

This survey junctions extremely well with H-9423 and H-9425. One hundred per cent of the H-9423 soundings agree within one fathom. Insufficient overlap with H-9425 disallowed any sounding agreement.

K. COMPARISON WITH PRIOR SURVEYS

This survey was preceded by surveys H-9382, 1:40000, May-July 1973; H-7628, 1:40000, June-October 1974; and H-3186, 1:20000, 1910. ✓

Selected soundings from these surveys were inked on the field smooth sounding overlay:

<u>Survey</u>	<u>Color</u>
H-3186	Green
H-7628	Violet
H-9382	Red

This survey compares well with H-3186 and H-7628. Depth discrepancies vary from 0-2 fathoms. The difference may be attributed to different surveying techniques, sounding equipment, and the earthquake of 1964.

Pre-Survey Review Items

#7 - The questioned 14 fathom sounding located at Latitude N 60° 29.50',

Longitude 146° 38.55' was sufficiently developed and its existence disproved.

#8 - This item was developed on H-9425. Refer to "Descriptive Report, OPR-999-DA-74, H-9425."

L. COMPARISON WITH CHART

The largest scale chart of the survey area is Prince William Sound, Eastern Entrance, #16709 (C&GS 8520), 15th Ed., dated January 20, 1973, 1:80000. ✓

A random sampling of soundings show this survey agreeing within 1 fathom of the charted depth unless otherwise noted. ✓ DJK 8520

The SW portion of Middle Ground Shoal is charted as having a 1/4 fathom sounding in the vicinity of Latitude N 60° 29.6', Longitude 146° 22.75' W. This survey shows the area as being bare by 0.3 fathoms at MLLW. The shoal is a dynamic area with depth discrepancies from 0-1 fathoms; this survey showing shoaler depths. ✓ DJK 8520

The charted 3 1/2 fathom channel in the Middle Ground Shoal was surveyed, and it was found to carry a clear depth of 2 fathoms at MLLW. ✓ DJK 8520

This survey found and developed two uncharted shoals. The first is located at Latitude N 60° 28.82', Longitude 146° 37.85' W with a least depth of 4.0 fathoms at MLLW. The second shoal is located at Latitude N 60° 29.10', Longitude 146° 31.20' W with a least depth of 2.3 fathoms at MLLW. = 2.3 ✓ DJK 8520

M. ADEQUACY OF SURVEY

This survey is complete and adequate to supercede prior surveys for charting.

All fathogram field survey records were scanned and checked for peaks and deeps with appropriate changes made to the original records.

N. AIDS TO NAVIGATION

There are three aids to navigation on this survey, two fixed and one floating. ✓ The floating aid is the MIDDLE GROUND SHOAL LIGHTED BELL, Fl. W., 6<sup>s</sup>, in 11 fathoms, located by RAYDIST Fix #8001 Day 194. (Refer to Appendix [Non-floating Aids and Landmarks for Charts] for the location and characteristics of the fixed aids.)

The fixed aids, Johnstone Light and the FAA Towers, were located by third order triangulation methods. (Refer to "Horizontal Control Report OPR-999-DA-74" and this report's Appendix [Horizontal Control Computations])



O. STATISTICS

Total Number of Positions	2110
Sounding Lines	599.0 n.m.
Survey Area	54.2 sq. m.

P. MISCELLANEOUS

Much of the area surveyed on this sheet properly belongs on DA-40-1-74 - areas where the water depth exceeds 50 fathoms. To improve the efficiency of the Prince William Sound Survey, the southeastern section of DA-40-1-74 was surveyed on this boat sheet. For this reason, bottom samples in depths over 50 fathoms were spaced at 10 inches, while bottom samples in water less than 50 fathoms were spaced at 5 inches.

Duplication

Position numbers 613, 937, 1376, and 1803 were inadvertently duplicated.

R. REFERENCES TO REPORTS

<u>Title</u>	<u>Date Submitted</u>
Horizontal Control Report OPR-999-DA-74	August 1974
Field Edit Report OPR-999-DA-74	August 1974
Correctors to Echo Sounders Report OPR-999-DA-74	August 1974
RAYDIST Note	August 1974

Submitted By

*James D. Sarb*  
James D. Sarb  
ENS, NOAA

Approved By

*M. H. Fleming*  
M.H. Fleming )  
CDR, NOAA  
Commanding Officer  
NOAA Ship DAVIDSON

FIELD TIDE NOTE

OPR-999-DA-74

Prince William Sound

CONTROL GAGE: CORDOVA, ALASKA

PREDICTED TIDES: Johnstone Point, Alaska

Time of all data: ~~0000~~ GMT

Local time: Alaskan Daylight Savings Time, +9 hours

Predicted tides of Johnstone Point, Hinchinbrook Island, were applied as tide correctors to soundings. These tides were obtained from the PDP8/e computer aboard NOAA Ship FAIRWEATHER, using program AM500.

There are a total of three (3) gages operating in the project area:

Gravina Point

N 60° 37.7'  
146° 15.4' W

Bristol bubbler  
S/N 73A234

This bubbler began operation on 22 May 1974 and is still in operating order. The gage has missed some minus tides due to orifice going dry. This problem was corrected. In addition, the clock mechanism was faulty and was replaced on 3 July 1974.

Johnstone Point

N 60° 29.0'  
146° 36.7' W

Bristol bubbler  
S/N 64A11033

This bubbler began operation on 22 May 1974 and has been operating in good order since. No problems with this gage excepting jammed paper.

Knowles Head

N 60° 40.9'  
146° 37.2' W

Bristol bubbler  
S/N 73A233

This bubbler began operating on 23 May 1974 and is still in operation. Tide staff was relocated after the first day. Good traces are being recorded at this gage.

There was minimal difficulties with Johnstone Point and Knowles Head tide gages. Gravina Point tide gage presented two problems: orifice going dry and the clock mechanism being faulty. A new clock was installed and the orifice put into deeper water (3 July and 2 July 1974).

## LEVELS

All gage staffs were leveled to five bench marks. Ten (10) bench marks were established (Knowles Head and Gravina Point) and five bench marks were recovered at Johnstone Point. Any staff movement will have to be verified by the leveling upon removal of these station. However, a sight inspection leads us to believe that the staffs have not moved.

## RECOMMENDATIONS

Knowles Head tides be used for obtaining tide reducers for sheet H-9423 (DA- 20-2-74) as it is more reliable than Gravina Point tide gage.

For DA-20-3-74, H-9424, it is suggested that Johnstone Point tide gage be used for tide correctors.

For sheet H-9425, (DA-40-1-74), it is recommended the Knowles Head tides be used for reducers until 4 July 74, and the Johnstone Point gage be used for all tide correctors after that date on this sheet. Ship operations shifted from the northern to southern portion of this sheet after that date.

Johnstone Point and Knowles Head tide gages are functioning without any problems at this time. Gravina Point tide gage has been erratic for a total period of four-five days. However, it is believed that this gage will present no further problems.

999

1979

OPP-~~412~~ TIDE REQUIREMENTS SURVEY #H- 9424

DAY	ACTUAL	HYDRO.	HOURLY	HEIGHTS REQUIRED FOR C331 V
***	*****	*****	***	***
190	202520	234640	1800	0200-191
191	001320	235940	190-2300	0200-192
192	000040	184720	191-2300	2100
193	022340	235820	0000	0200-194
194	000140	235940	193-2300	0200-195
195	000140	225940	194-2300	0200-196
196	000120	235940	195-2300	0200-197
197	000120	043808	196-2300	0700
200	22201600000000		202015997900	201
206	18244000231200		1600	990200-207
207	03370000191930		0100	992200

000000

GEOGRAPHIC NAMES

Survey No.

Name on Survey	<div style="display: flex; justify-content: space-between; font-size: small;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">On Chart No. 8520</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">On previous survey No.</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">On U. S. quadrangle Maps</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">From local information</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">On local Maps</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">P. O. Guide or Map</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Rand McNally Atlas</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">U. S. Light List</div> </div>										
	A	B	C	D	E	F	G	H	K		
HAWKINS ISLAND ✓	X										1
HINCHINBROOK ISLAND ✓	X										2
JOHNSTONE POINT ✓	X										3
LOON ROCK ✓	X										4
MIDDLE GROUND SHOAL ✓	X										5
ORCA BAY ✓	X										6
<del>RIP ROCK</del>	X										7
PRINCE WILLIAM SOUND	X										8
											9
											10
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25

Approved  
 Ches. E. Harrington  
 Staff Geographer  
 8 Aug 1975

TAPE ABSTRACT

OPR-999-DA-74

H-9424

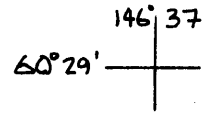
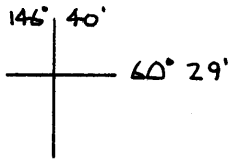
DA-20-3-74

<u>TAPE NUMBER</u>	<u>VESSEL</u>	<u>TAPE DATA</u>
1	DA-1	Position and Sounding
2	DA-1	Position and Sounding
3	DA-1	Position and Sounding
4	DA-1	Position and Sounding
5	DA-1	Position and Sounding
6	DA-1	Position and Sounding
7	DA-1	Position and Sounding
8	DA-1	Position and Sounding
9	DA-1	Position and Sounding
10	DAVIDSON	Bottom Samples
11	DA-1	TRA TC/TI
12	DA-1	Velocity Corrector
13	ALL	Electronic Control Corrector
14	ALL	Signal
15	DA-1	Detached Position

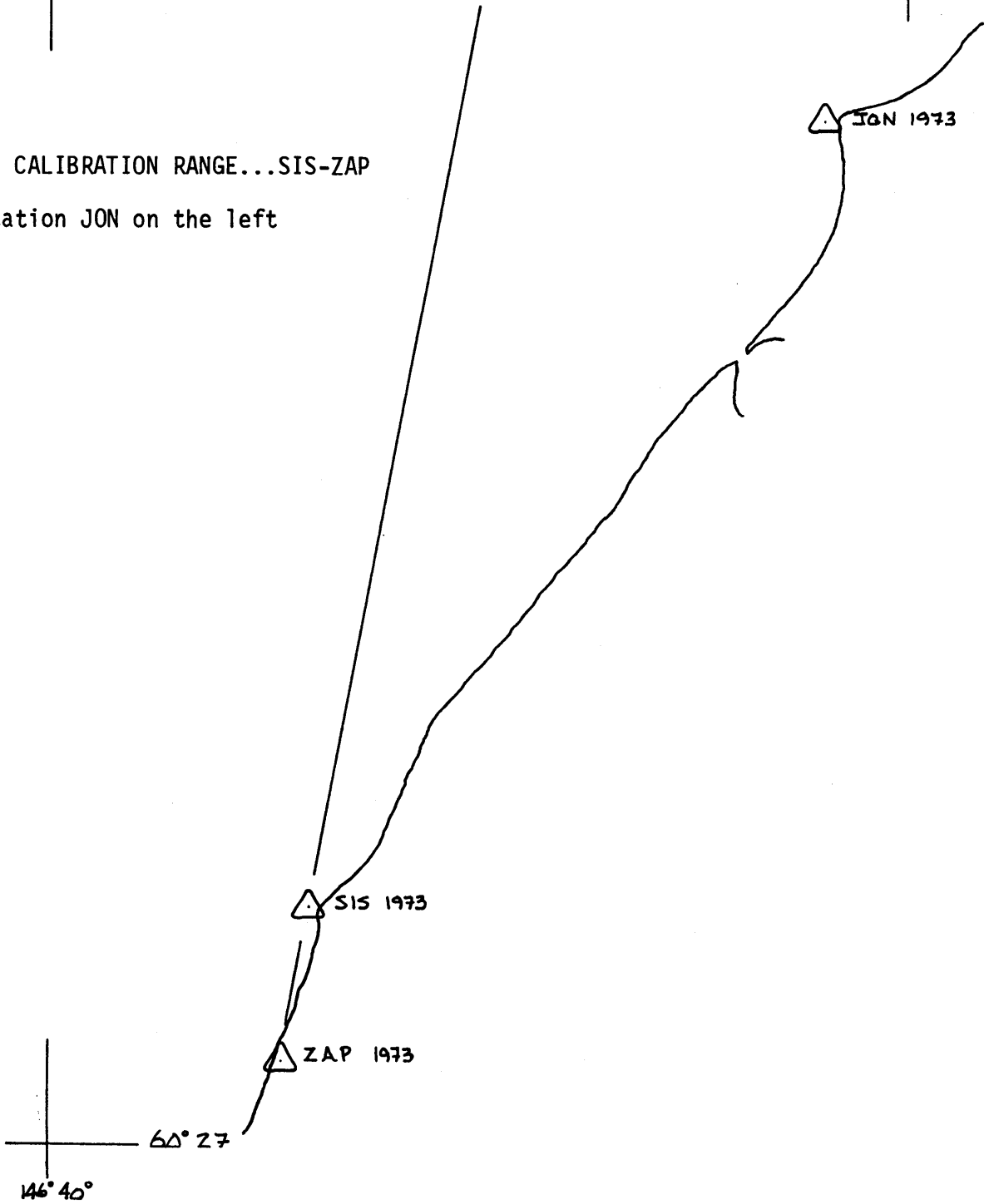
ELECTRONIC CORRECTOR ABSTRACT

<u>TIME</u>	<u>DAY</u>	<u>PATTERN 1</u>	<u>PATTERN 2</u>
202520	190	Station 032 +00013	Station 026 -00019
175700	191	Station 026 -00007	Station 032 -00023
000000	192	-00007	-00023
140000		00000	00000
180700		+00013	+00018
022843	193	+00011	+00015
135355		-00002	-00002
174405		+00004	+00007
214320		+00004	+00007
000000	194	+00004	+00007
022900		+00004	+00008
134840		+00010	+00019
175000		+00009	+00020
000000	195	+00009	+00020
020757		+00012	+00013
135100		-00007	-00014
174840		-00003	00000
000000	196	-00003	00000
015920		-00012	-00009
134120		-00006	-00006
174240		-00004	-00002
000000	197	-00004	-00002
031240		-00009	00000
182440	206	+00014	-00001
033700	207	+00019	+00014





RAYDIST CALIBRATION RANGE...SIS-ZAP  
with station JON on the left



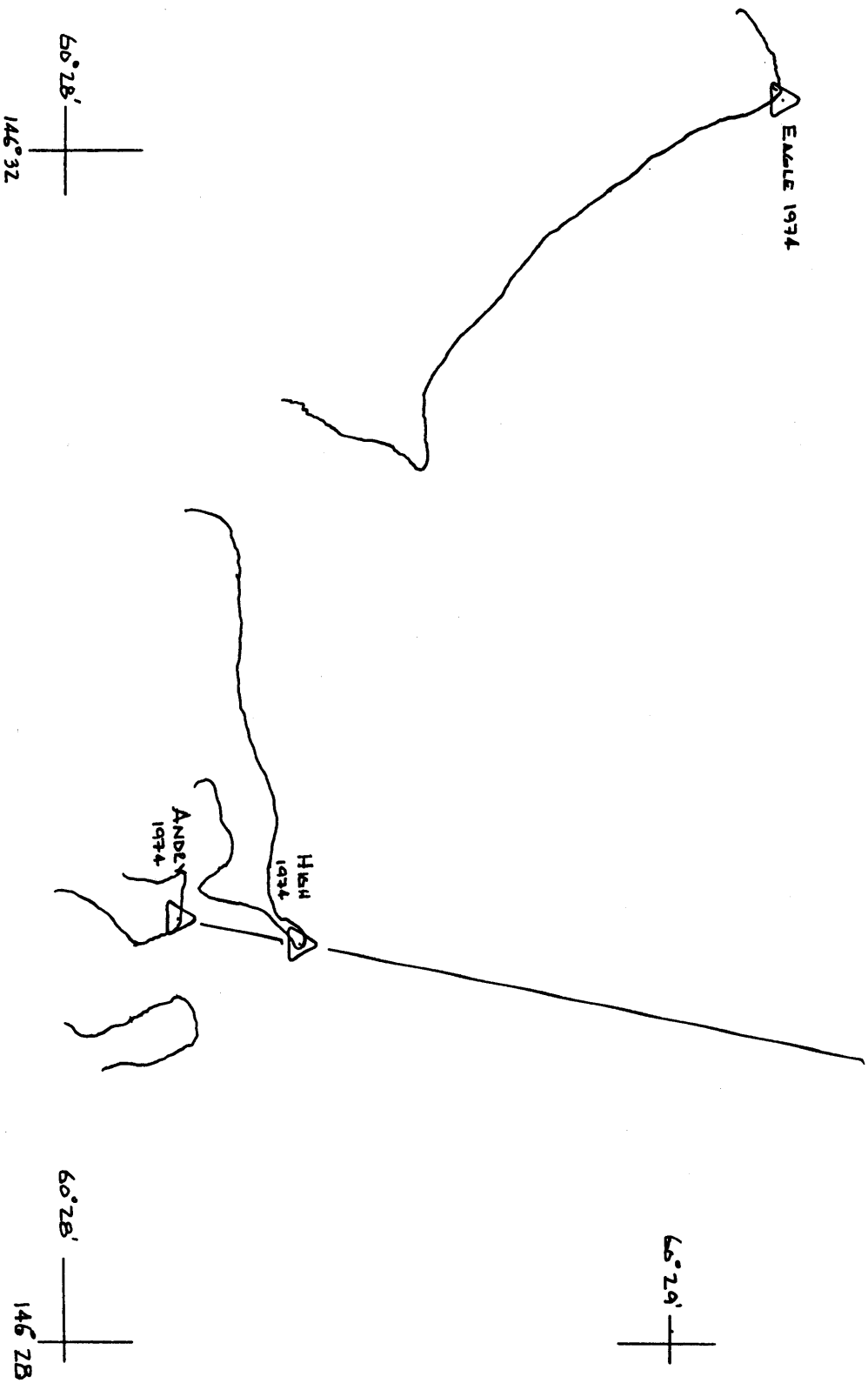
RAYDIST CALIBRATION RANGE.....SIS-ZAP

with station JON on the left

Left Angle	KAYAK	KNOWLES HEAD RAYDIST
70	826.17 -	484.35 -
75	826.08 -	486.82 -
80	826.01 -	489.17 -
85	825.94 -	491.45 -
90	825.88 -	493.70 -
95	825.83 -	495.94 -
100	825.78 -	498.22 -
105	825.74 -	500.58 -
110	825.70 -	503.04 -

comp by....jlo -  
chk by....jlo -

RAYDIST CALIBRATION RANGE...HIGH-ANDRY  
with station EAGLE on the right



RAYDIST CALIBRATION RANGE:

HIGH-ANDRY.....EAGLE(on the right)

Right Angle	John Knowles Head red	Kayak green
66	493.99	1015.73
68	496.19	1015.52
70	498.34	1015.33
72	500.44	1015.14
74	502.49	1014.97
76	504.50	1014.80
78	506.48	1014.64
80	508.44	1014.49
82	510.37	1014.35
84	512.28	1014.21
86	514.19	1014.08
88	516.09	1013.95
90	517.98	1013.83
92	519.88	1013.72
94	521.78	1013.60
96	523.70	1013.50
98	525.63	1013.39
100	527.58	1013.29
102	529.56	1013.19
104	531.57	1013.10

comp by JDS  
 chk by JIO

FAA TOWER, 1974

INTERSECTION GP COMP

IBPOT LAT LONG

60 28 54.10300	146 32 7.12600	ANDERS
60 30 57.16700	146 17 25.26700	MAKAKA 2
60 40 55.06200	146 37 17.69000	KNOWLES HEAD
60 40 19.02000	146 30 11.69500	DAISY

INPUT DIRECTIONS

2 11 49.80000	74 47.10000
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OUTPUT GP LAT LONG

60 28 53.80867	146 34 37.57454	FAA (TWIN) TOWER (MOST SEAWARD of TWO)
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POSITION ABSTRACT

VESSEL: 3039

SHEET: DA-20-3-74

<u>DAY</u>	<u>POSITION</u>	<u>CTRL</u>	<u>S1</u>	<u>M</u>	<u>S2</u>	<u>REMARKS</u>
190	0001-0078	04	032	---	026	Hydro
191	0079-0090	04	032	---	026	Hydro
191	0091-0243	04	026	---	032	Hydro
192	0244-0337	04	026	---	032	Hydro
193	0338-0613	04	026	---	032 c	Hydro
194	0613-0937	04	026	---	032	Hydro
195	0937-1376	04	026	---	032	Hydro
196	1376-1803	04	026	---	032	Hydro
197	1803-1892	04	026	---	032	Hydro
206	1893-2000	04	026	---	032	Hydro
207	2001-2109	04	026	---	032	Hydro
194	8001	04	026	---	032	Detached Position

VESSEL: 313

<u>DAY</u>	<u>POSITION</u>	<u>CTRL</u>	<u>S1</u>	<u>M</u>	<u>S2</u>	<u>REMARKS</u>
195	8063-8077	04	026	---	032	Bottom Samples
196	8078-8088	04	026	---	032	Bottom Samples
200	8094	04	026	---	032	Bottom Samples

POSITION COMPUTATION,  
ORDER TRIANGULATION  
For Computation by Wang

2	SARA	to 3	VERNA	242	48	17.1	3	SIS	to 2	TON	213	11	11.4
		&		+257	52	45.7			&		+177	08	14.4
2	SARA	to 1	KNOWLES HEAD	140	41	02.8	3	SIS	to 1	DEER	30	19	25.8
			RAVIST SITE										
1		to 2		180	00	00.0					180	00	00.0

First Angle of Triangle

60	40	S3.928	2	SARA	146	37	14.450	60	27	24.319	3	SIS	146	39	06.419
					$\Delta A$										
60	40	S4.851	1	KNOWLES HEAD	146	37	15.991	60	24	44.353	1	DEER	146	42	15.560

RAVIST SITE

CHKD.

See back of this sheet for  
distance measurement of this  
station. Station  
Triangle Number

File this and maps & sheets  
with previous 2.

comp 520 -  
CHK 520

2	DEER	to 3	SIS	210	16	41.4	3	TITSUP	to 2	DEER	207	57	23.8
		&		+177	41	59.9			&		+153	38	07.6
2	DEER	to 1	TITSUP	27	58	41.3	3	TITSUP	to 1	ARROWARK	001	35	42.0
													31.4
1		to 2		180	00	00.0					180	00	00.0

First Angle of Triangle

60	24	44.353	2	DEER	146	42	15.560	60	23	21.372	3	TITSUP	146	43	44.614
					$\Delta A$										44.623
60	23	20.996	1	TITSUP	146	43	43.154	60	22	58.214	1	ARROWARK	146	43	45.005

21.377  
21.375

comp 520 -  
CHK 520

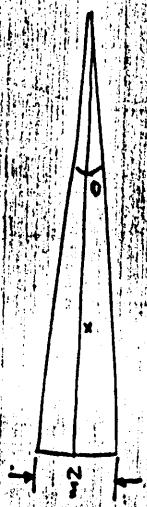
44.623  
44.614

.872

.871



DISTANCE FROM SEA TO KNOWLES HEAD RADAR SITE MEASURED BY SUBMERGE GAGE (2m deep)



$$x = \frac{2}{\sin(\theta)}$$

$$\theta = 03^{\circ} - 06' - 09.0''$$

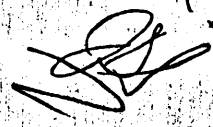
$$\theta = 3.1025^{\circ}$$

$$\text{rad} = 0.0544208 \text{ or } 0.027002^{\circ}$$

$$x = \frac{2}{\sin(3.1025^{\circ})}$$

$$= 36.926 \text{ meters}$$

$$= 121.15 \text{ feet}$$

CHK'D:  


POSITION COMPUTATION,  
ORDER TRIANGULATION  
For Computation by Wang

2	BALL	to 3	GIADT	001	42	53.9	"	α	3	RAKE	to 2	GIADT	005	38	16.6
		&		+338	00	49.2		3d L			&		-339	52	57.4
2	RAKE	to 1	KAYAK	339	43	43.1		α	3		to 1		345	31	14.0
								Δα							
				180	00	00.0							180	00	00.0
1		to 2		159	47	1.9		α'	1		to 3				

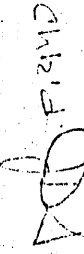
First Angle of Triangle

60	36	59.855	2	BALL	(10)	λ	147	22	45.842	φ	66	37	33.399	3	RAKE	GIADT	λ	147	21	54.764
						Δλ														
60	31	55.298	1	KAYAK		λ'	147	18	57.598	φ'	66	31	55.294	1	KAYAK		λ'	147	18	57.599

RAKE  
GIADT

Triangle Number

HOLD THIS POSITION



2		to 3				α	3		to 2											
		&		+		3d L			&											
2		to 1				α	3		to 1											
						Δα														
1		to 2				α'	1		to 3											

First Angle of Triangle

		2		λ		φ														
				Δλ																

KAYAK

INTERSECTION GP COMP

IBPUT LAT LONG

60 28 54.10300	146 32 7.12600	ANDERS
60 30 57.16700	146 17 25.26700	MAKAKA 2
60 40 55.06200	146 37 17.69000	KNOWLES HEAD
60 40 19.02000	146 30 11.69500	DAISY

INPUT DIRECTIONS

2 11 49.80000	74 47.10000
---------------	-------------

OUTPUT GP LAT LONG

60 28 53.80867	146 34 37.57454	FAA (TWIN) TOWER (MOST SEAWARD of TWO)
----------------	-----------------	---

ANDRY, 1974

INTERSECTION GP COMP

INPUT LAT LONG

60 30 57.16700 ✓	146 17 25.26700 - MAKAKA
60 28 23.69000 ✓	146 29 21.44200 - HIGH
60 30 57.16700 ✓	146 17 25.26700 - MAKAKA
60 28 23.69000 ✓	146 29 21.44200 - HIGH

INPUT DIRECTIONS

124 3 20.50000 ✓	358 27 53.70000 ✓
------------------	-------------------

OUTPUT GP LAT LONG

60 28 11.21236 ✓	146 29 26.12109 - ANDRY
------------------	-------------------------

COMP: JLO  
CHK'S: JLO

INTERSECTION GP COMP

INPUT LAT LONG

60 30 57.16700 -	146 17 25.26700 -	MAKAKA
60 29 11.67600 -	146 32 10.41000 -	EAGLE
60 30 57.16700 -	146 17 25.26700 -	MAKAKA
60 29 11.67600 -	146 32 10.41000 -	EAGLE

INPUT DIRECTIONS

43 35 17.20000 -	350 5 .50000 -
------------------	----------------

OUTPUT GP LAT LONG

60 28 23.68950	146 29 21.44187	HIGH
----------------	-----------------	------

comp J10  
chk J10-

Good position.

INTERSECTION GP COMP

IBPUT LAT LONG

60 30 57.16700 ✓	146 17 25.26700 ✓	MAKAKA
60 28 54.10300 ✓	146 32 7.12600 ✓	ANDERS
60 30 57.16700 ✓	146 17 25.26700 ✓	MAKAKA
60 28 54.10300 ✓	146 32 7.12600 ✓	ANDERS

INPUT DIRECTIONS

280 38 5.40000 ✓	2 12 47.70000 ✓
------------------	-----------------

OUTPUT GP LAT LONG

60 29 11.67663	146 32 10.41033	EAGLE
----------------	-----------------	-------

HOLD THIS POSITION

comp JLO

✓ JLO

3 POINT FIX GP COMP

INPUT LAT LONG

60 28 54.10300 ✓	146 32 7.12600 ✓	ANDERS
60 40 55.06200 ✓	146 37 17.69000 ✓	KNOWLES HEAD
60 30 57.16700 ✓	146 17 25.26700 ✓	MAKAKA Z

INPUT ANGLES

173 11 3.00000 ✓
88 23 59.90000 ✓

OUTUT LAT LONG

60 29 11.67327	146 32 10.41361	EAGLE
----------------	-----------------	-------

CHECK POSITION

✓ JLO

FAA TOWER, 1974

INTERSECTION GP COMP

IBPUT LAT LONG

60 28 54.10300	146 32 7.12600	ANDERS
60 30 57.16700	146 17 25.26700	MAKAKA 2
60 40 55.06200	146 37 17.69000	KNOWLES HEAD
60 40 19.02000	146 30 11.69500	DAISY

INPUT DIRECTIONS

2 11 49.80000	74 47.10000
---------------	-------------

OUTPUT GP LAT LONG

60 28 53.80867	146 34 37.57454	FAA (TWIN) TOWER
----------------	-----------------	------------------

(MOST SEAWARD of TWO)



STATION LIST    OPR-999    PRINCE WILLIAM SOUND  
 HYDROGRAPHIC SURVEY    H-9424

<u>STA</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>CRT</u>	<u>ELEV</u>	<u>F. HKZ</u>	<u>TYPE/NAME</u>	<u>SOURCE</u>
026	N 60° 31' 55.294"	147° 18' 57.589" W	139	0005	330650	KAYAK, 1974	*
032	N 60° 40' 54.851"	146° 37' 15.991" W	139	0007	330650	KNOWLES HEAD RAYDIST SITE, 1974	*
022	N 60° 30' 57.167"	146° 17' 25.267" W	139	0010	000000	MAKAKA 2, 1965	**
023	N 60° 28' 54.103"	146° 32' 07.126" W	139	0009	000000	ANDERS, 1972	**
033	N 60° 28' 23.690"	146° 29' 21.442" W	139	0011	000000	HIGH, 1974	*
034	N 60° 28' 11.212"	146° 29' 26.121" W	139	0000	000000	ANDRY, 1974	*
035	N 60° 29' 11.677"	146° 32' 10.410" W	139	0001	000000	EAGLE, 1974	*
036	N 60° 28' 46.171"	146° 37' 17.934" W	139	0017	000000	JON, 1973	***
037	N 60° 27' 24.319"	146° 39' 06.419" W	139	0003	000000	SIS, 1973	***
038	N 60° 27' 08.197"	146° 39' 12.400" W	139	0019	000000	ZAP, 1973	***
024	N 60° 28' 59.707"	146° 36' 43.317" W	139	0020	000000	POINT JOHNSTONE LT, 1972	***
046	N 60° 28' 53.808"	146° 34' 37.574" W	139	0060	000000	FAA TOWER, 1974	*

\* Triangulation by Ship DAVIDSON 1974, field computations used  
 \*\* From adjusted geodetic surveys of 1972, 1965  
 \*\*\* From unadjusted field work by the PMC field party, 1973 (May)

NAVY  
 NAUTICAL  
 9-99, 7-137

**HYDROGRAPHIC SURVEY STATISTICS**  
 HYDROGRAPHIC SURVEY NO. H-9424

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		18	BOAT SHEETS		3	
DESCRIPTIVE REPORT		1	OVERLAYS		9	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	1					
VOLUMES	1					
BOXES			1 & Sawtooth Rec.			

T-SHEET PRINTS (List)

SPECIAL REPORTS (List)

**OFFICE PROCESSING ACTIVITIES**

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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				
POSITIONS CHECKED		2073		
POSITIONS REVISED		28		
DEPTH SOUNDINGS REVISED		67		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		30		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
Verification of Control		7		
Verification of Position		104		
Verification of Soundings		138		
Smooth Sheet Compilation		48		
ALL OTHER WORK		12		
<b>TOTALS</b>		<b>309</b>		
PRE-VERIFICATION BY <b>John Lotshaw</b>	BEGINNING DATE 9/16/74	ENDING DATE 9/16/74		
VERIFICATION BY <b>Matthew G. Sanders</b> <i>MS</i>	BEGINNING DATE 10/2/74	ENDING DATE 5/23/75		
REVIEW BY	BEGINNING DATE	ENDING DATE		

VERIFIER'S REPORT  
 HYDROGRAPHIC SURVEY, H. 9424

**INSTRUCTIONS** - This form serves to identify items of a check list in verification together with items which are separately reported to the Reviewer. The form is not to be forwarded to the Reviewer. A report, which is prepared for the Reviewer, should identify items by number and letter and will be filed in the Descriptive Report until the survey is reviewed.

**CL - Check List Items:** should be checked as having been completed during the verification processes.

**R - Report Item:** This column refers to those items reported to the reviewer and is used to indicate the items discussed.

Part I - DESCRIPTIVE REPORT	CL	R	Part III - JUNCTIONS (Continued)	CL	R
<p>Note: The verifier should first read the Descriptive Report for general information and problems.</p> <p>1. The Descriptive Report was consulted, paragraphs checked if found satisfactory, and notations were made in soft black pencil regarding action taken.                      Remarks Required: -- None</p>	X		<p>10. Junctions with contemporary surveys were satisfactory except as follows:                      Remarks Required: -- Consider conditions after adjustments have been made; note adjustments made. Make special notes of Butt junctions and areas which are SUPERSEDED.</p>	X	
<p>2. Soundings originating with the survey and mentioned in the Descriptive Report have been verified and checked in soft black pencil, including latitude and longitude, together with position identification.                      Remarks Required: -- None</p>	X		<p>Part IV - VOLUMES</p> <p>11. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken and exceptions noted in the volumes.                      Remarks Required: -- None</p>	X	
<p>3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year.                      Remarks Required: -- None</p>	X				
<p>Part II - SHORELINE AND SIGNALS</p> <p>4. Source of shoreline signals                      Remarks Required: -- List all surveys</p> <p>a. Give earliest and latest dates of photographs</p> <p>b. Field inspection date</p> <p>c. Field Edit date</p> <p>d. Reviewed-Unreviewed</p>		X	<p>12. Condition of sounding records was satisfactory except as follows:                      Remarks Required: -- Mention deficiencies in completeness of notes or actions for the following:</p> <p>(a) rocks</p> <p>(b) line turns</p> <p>(c) position values of beginning and ending of lines</p> <p>(d) bar check or velocity correctors</p> <p>(e) time recording</p> <p>(f) notes or markings on bathograms</p> <p>(g) was reduction of soundings accurately done?</p> <p>(h) was scanning accurate?</p> <p>(i) were peaks at uneven intervals missed?</p> <p>(j) were stamps completed?</p> <p>(k) references to adjacent features</p>	X	
<p>5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography.                      Remarks Required: -- Discuss remaining differences.</p>		X			
<p>6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the smooth sheet.                      Remarks Required: -- None</p>	X				
<p>7. Objects on which signals are located and which fall outside of the high-water line have been described on the sheet.                      Remarks Required: -- List those signals still unidentified.</p>	X		<p>Part V - PROTRACTING</p> <p>13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp.                      Remarks Required: -- None</p>	X	
<p>Part III - JUNCTIONS</p> <p>Note: Make a cursory comparison preliminary to inking soundings in area of overlap.</p> <p>8. All junctions of contemporary or overlapping sheets were transferred in colored ink and overlapping curves were made identical.                      Remarks Required: -- None</p>		X	<p>14. The protracting and plotting of all unsatisfactory crossings were verified.                      Remarks Required: -- None</p>	X	
<p>9. The notation in slanted lettering "JOINS H--- (19)" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil.                      Remarks Required: -- None</p>	X		<p>15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible.                      Remarks Required: -- None</p>	X	

		CL	R			
16.	The protracting was satisfactory except as follows: Remarks Required: -- Refers to protracting in general except for specific faults repeated often, or faults in control information, which required considerable replotting or adjustments.	X		26.	All fixed aids located together with those on the contemporary topographic sheets, have been shown on the survey. Remarks Required: -- Conflicts of any nature listed.	X
17.	The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.	X		27.	All floating aids listed in the Descriptive Report should be verified and checked in soft black pencil, including latitude and longitude and position identification. Remarks Required: -- None	X
<b>Part VI - SOUNDINGS</b>				<b>Part IX - BOAT SHEET</b>		
18.	All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None	X		28.	The boat sheet was constantly compared with the smooth sheet with reference to notes, position of sounding lines and supplemental information. Remarks Required: -- None	X
19.	Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.	X		29.	Heights of rocks awash were correctly reduced and compared with topographic information. Remarks Required: -- Note excessive conflicts with topographic information.	X
20.	The spacing of soundings as recorded in the records was closely followed; Remarks Required: -- None	X		<b>Part X - GENERAL</b>		
21.	The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None	X		30.	All information on the sheet is shown in accordance with figures 82 and 83 in the Hydrographic Manual (Pub. 20-2). Remarks Required: -- None	X
22.	The smooth plotting of soundings was satisfactory except as follows: Remarks Required: -- Refer to legibility, errors in spacing, and errors in numbers - but not to errors in scanning.	X		31.	Unnecessary pencil notes have been removed from the sheet. Remarks Required: -- None	X
<b>Part VII - CURVES</b>				32.	Degree, minute values and symbols have been checked; also electronic distance arcs have been properly identified and checked on the smooth sheet. Remarks Required: -- None	X
23.	The depth curves have been inspected before inking. Remarks Required: -- By whom was the penciled curves inspected.		X	33.	The bottom characteristics are adequately shown. Remarks Required: -- None	X
24.	The low-water line and delineation of shoal areas have been properly shown in accordance with the following: a. From T-Sheet in dotted black lines b. From soundings in orange c. Approximate position of sketched curve is dashed orange d. Approximate position of shoal area not sounded in black dashed Remarks Required: -- None	X		<b>Part XI - NOTES TO THE REVIEWER</b>		
25.	Depth curves were satisfactory except as follows: (This statement should not refer to the manner in which the curves were drawn). Remarks Required: -- Indicate areas where curves could not be drawn completely because of lack of soundings. For some inshore areas a general statement is sufficient.	X		34.	Unresolved discrepancies and questionable soundings.	X
				35.	Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.	X
				36.	Supplemental information.	X

Verified by

Matthew G. Sanders, Cartographic Tech. *MS*

Date

5/23/75

## VERIFIER' S REPORT

H-9424

OPR-999

DA-20-3-74

This smooth sheet was constructed and plotted at the Pacific Marine Center, Seattle, Washington. Information relating to this survey will be noted under the heading by the number and letter as on the Verifier's Report C&GS 946A.

### PART II SHORELINE AND SIGNALS

4. The following manuscripts were utilized to transfer shoreline for this survey:

- a. TP-00633 (Class III)  
Date of photography - July 1972  
Field Inspection Date - July 1972  
Field edit date - none
- b. TP-00634 (Class III)  
Date of Photography - July 1972  
Field Inspection date - June 1972  
Field edit date - none

5. The shoreline from the Class III manuscripts was inked inadvertently. Since these manuscripts are not expected to be updated to Class I (AMC Coastal Mapping Division advises that only a partial edit was accomplished), the inked shoreline was not erased. The boatsheet indicates that the field edit established ~~some~~<sup>some</sup> rock positions and ledge limits. The rock positions are shown on the smooth sheet in pencil. As this is a Priority I Navigational Area Survey, it is not being delayed for the partial field edit application.

### PART III JUNCTION

8. The junctions with H-9423 (DA-20-2-74) appears to be in good agreement at the present stage of H-9423 processing. It appears that junction will be good, but the depth curves are left in pencil because the verification of H-9423 has not been completed.

The junction with H-9425 (DA-40-4-74) has not been accomplished because of differing phases of verification; therefore, the depth curves have been left in pencil.

### PART VII CURVES

23. The depth curves were checked by Nicholas Lestenkof, Cartographic Tech, prior to inking.

### PART VIII AIDS TO NAVIGATION

26. The (2) non-floating aids to navigation have been plotted and are shown on the smooth sheet. Their description and coordinates can be found on NOAA

form 76-40 in the descriptive report.

27. The floating aid to navigation has been plotted and is shown on the smooth sheet as Middle Ground Shoal Buoy R"2" Fl. 6 sec. Bell.

PART XI NOTES TO THE REVIEWER

36. All depths that are plotted are from the digitized readout, unless the discrepancy with the analog records was so great that a manual change had to be applied.

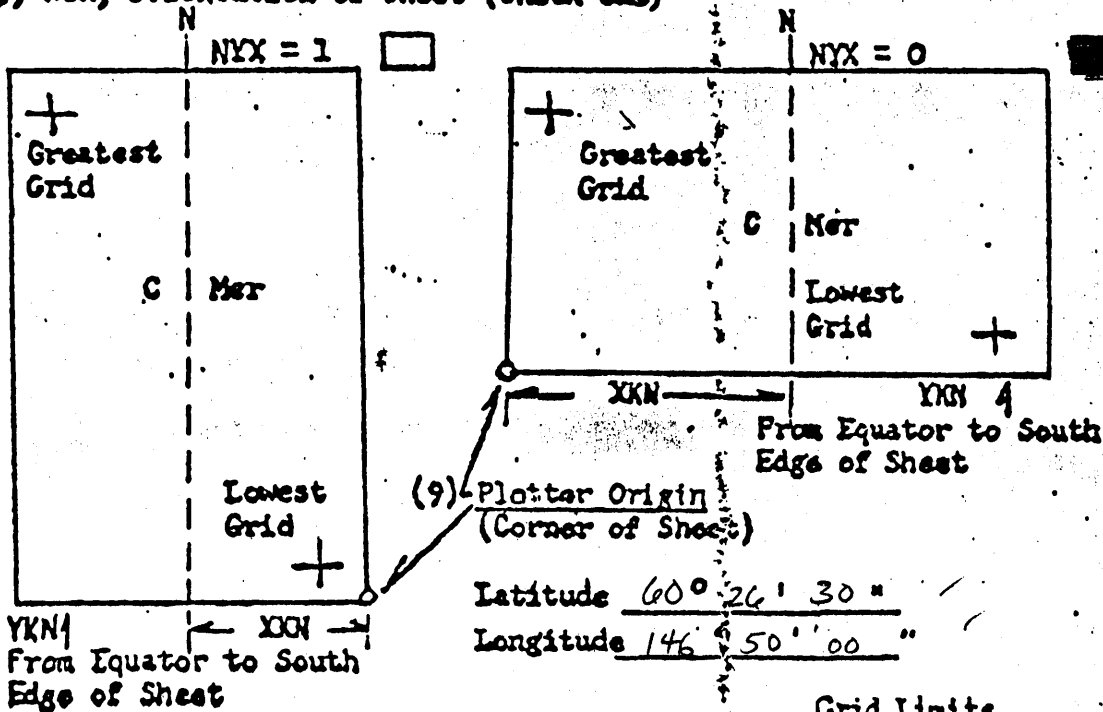
Respectfully submitted,



Matthew G. Sanders  
Cartographic Technician  
May 29, 1975

PARAMETERS FOR DIGITAL COMPUTING  
POLYTONIC PROJECTION

- (1) Project No. OPR-994 (4) Requested by J.L.  
 (2) H No. 9424 (5) Ship or Office PMI - CPM 31  
 (3) Field No. DA-20-3-74 (6) Date Required \_\_\_\_\_  
 (7) Visual  Ft. (0) or Fathoms (1)  (8) Electronic  (fill out form #3)  
 (10) XKN (SP 5) Distance from C.M.R. to East Edge (NYX = 1) 99.39  
 or West Edge (NYX = 0). (Origin) 15,563.5 Meters  
 (11) YKN (SP 241) Distance from Equator to South Edge  
 of Sheet. (Origin) 6,703,075.9 Meters  
 (12) Central Meridian 146° 33' 00"  
 (13) Survey Scale 1: 20,000  
 (14) Size of Sheet (Check one) 36x60  42x60   
 (15) NYX, Orientation of sheet (Check one)



Grid Limits	
(16) Greatest Latitude	<u>60° 36' 00"</u> (Projection Line Interval Page 4 Hydro Manual)
(17) Lowest Latitude	<u>60° 27' 00"</u>
(18) Difference	<u>9' 00"</u>
(19)	<u>01' 00"</u>
(20)	<u>9 YSN</u>
(21) Greatest Longitude	<u>146° 49' 00"</u>
(22) Lowest Longitude	<u>146° 18' 00"</u>
(23) Difference	<u>31' 00"</u>
(24)	<u>01' 00"</u>
(25)	<u>31 XSN</u>

COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

(RANGE - RANGE)

(1) PROJECT No. OPR 999 (2) H- No. 9424 (3) FIELD No. DA-20-3-74(4) TYPE OF CONTROL: SHORAN,  RAYDIST, HI-FIX, RADAR  
FREQUENCY (FOR CONVERSION OF RAYDIST OR HI-FIX LANES TO METERS) 3306.50(5) RANGE ONE (R1) (32) LATITUDE 60° 40' 54.851"STATION NAME KNOWLES HEAD LONGITUDE 146° 37' 15.991"(6) RANGE TWO (R2) (26) LATITUDE 60° 31' 55.294"STATION NAME KAYAK LONGITUDE 147° 18' 57.589"(7) AZIMUTH FROM R1 TO R2 66° 36' 50.822"(8) BASELINE LENGTH IN METERS 41565.877 M.

(9) LOCATION OF SURVEY WITH RESPECT TO ELECTRONIC BASELINE: CHECK ONE  
(TO DETERMINE: IMAGINE AN OBSERVER STANDING AT R1 AND LOOKING DIRECTLY  
AT R2 --- IF THE SURVEY AREA IS TO THE OBSERVER'S LEFT THEN A IS  
NEGATIVE; IF THE SURVEY AREA IS TO THE OBSERVER'S RIGHT THEN A IS  
POSITIVE.)

-A (MINUS)  +A (PLUS)

(10) IF SHORAN CORRECTIONS ARE APPLIED BY THE EQUATION,  $K(X) + C = D$ ,  
WHERE X IS SHORAN DISTANCE AND D IS TRUE DISTANCE, ENTER THE CONSTANT  
COEFFICIENTS OF THE EQUATIONS HERE:

K(R1) \_\_\_\_\_, C(R1) \_\_\_\_\_, K(R2) \_\_\_\_\_, C(R2) \_\_\_\_\_

(11) NUMBER OF VELOCITY TABLES TO BE USED:  
NONE, ONE, MORE THAN ONE.

( ) \_\_\_\_\_ THIS FORM IS SUBMITTED ONLY AS AN AID IN PREPARING A BOAT  
SHEET PROJECTION.

\_\_\_\_\_ THIS FORM APPLIES TO ALL DATA ON THIS SURVEY.

THIS FORM APPLIES TO PART OF THE DATA ON THIS SURVEY -

TIME AND DATE LIMITATIONS: FROM 2025-190 TO 0032-191

POSITION NUMBER LIMITATIONS: FROM 0001 TO 0090

THIS IS FORM #3 SHEET # 1 OF 2 SHEETS FOR THIS SURVEY.

(13) OTHER REMARKS:



COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

(RANGE - RANGE)

- (1) PROJECT No. DPR 999 (2) H- No. 9424 (3) FIELD No. DA-20-3-74  
 (4) TYPE OF CONTROL: SHORAN,  RAYDIST, HI-FIX, RADAR  
 FREQUENCY (FOR CONVERSION OF RAYDIST OR HI-FIX LANES TO METERS) \_\_\_\_\_  
 (5) RANGE ONE (R1) (26) LATITUDE 60° 31' 55.294"  
 STATION NAME KAYAK LONGITUDE 147° 18' 57.589"  
 (6) RANGE TWO (R2) (32) LATITUDE 60° 40' 54.851"  
 STATION NAME KNOWLES HEAD LONGITUDE 146° 37' 15.991"  
 (7) AZIMUTH FROM R1 TO R2  246° 00' 31.241"  
 (8) BASELINE LENGTH IN METERS 41565.877 M.

) LOCATION OF SURVEY WITH RESPECT TO ELECTRONIC BASELINE: CHECK ONE  
 (TO DETERMINE: IMAGINE AN OBSERVER STANDING AT R1 AND LOOKING DIRECTLY  
 AT R2 --- IF THE SURVEY AREA IS TO THE OBSERVER'S LEFT THEN A IS  
NEGATIVE; IF THE SURVEY AREA IS TO THE OBSERVER'S RIGHT THEN A IS  
POSITIVE.)

\_\_\_\_\_ -A (MINUS)  +A (PLUS)

- (10) IF SHORAN CORRECTIONS ARE APPLIED BY THE EQUATION,  $K(X) + C = D$ ,  
 WHERE X IS SHORAN DISTANCE AND D IS TRUE DISTANCE, ENTER THE CONSTANT  
 COEFFICIENTS OF THE EQUATIONS HERE:

K(R1) \_\_\_\_\_, C(R1) \_\_\_\_\_, K(R2) \_\_\_\_\_, C(R2) \_\_\_\_\_

- (11) NUMBER OF VELOCITY TABLES TO BE USED:  
 \_\_\_ NONE, \_\_\_ ONE, \_\_\_ MORE THAN ONE.

- 2) \_\_\_\_\_ THIS FORM IS SUBMITTED ONLY AS AN AID IN PREPARING A BOAT  
 SHEET PROJECTION.

\_\_\_\_\_ THIS FORM APPLIES TO ALL DATA ON THIS SURVEY.

THIS FORM APPLIES TO PART OF THE DATA ON THIS SURVEY -

TIME AND DATE LIMITATIONS: FROM 1757-191 TO 1912-207

POSITION NUMBER LIMITATIONS: FROM 091 TO 2109

THIS IS FORM #3 SHEET # 2 OF 2 SHEETS FOR THIS SURVEY.

- (13) OTHER REMARKS:

\* Compute (7)



U.S. H-9424  
 Model No. \_\_\_\_\_  
 \_\_\_\_\_

HYDRO I PARAHETER CARDS  
 COMPILED G.T.'s FROM ELECTRONIC CONTROLLED RESOLINE

2/2

Parameter Card I

Parameter	Units	Deg. Min. Seconds										Code								
		1	2	3	4	5	6	7	8	9	0									
Lat.		60	3	1	5	5	2	9	4	RPD	1	2	3	4	5	6	7	8	9	0
Long.		147	1	8	5	7	5	8	9	RPD	11	12	13	14	15	16	17	18	19	20
Lat.		60	4	0	5	4	8	5	1	Not Used	21	22	23	24	25	26	27	28	29	30
Long.		146	3	7	1	5	9	9	1	Not Used	31	32	33	34	35	36	37	38	39	40
Lat.		246	0	0	3	1	2	4	1	RPD	41	42	43	44	45	46	47	48	49	50
Long.										Not Used	51	52	53	54	55	56	57	58	59	60

Shoran Card Format (when calibration correction is applied by a line K x + C)  
 (Line 5, 11, 17, or 23 if read. constant is negative)

1	2	3	4	5	6	7	8	9	0	11	12	13	14	15	16	17	18	19	20

Computer Purchased \_\_\_\_\_  
 Model \_\_\_\_\_  
 Serial \_\_\_\_\_



2/7/75

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center:

Hourly heights are approved for Form 362

Tide Station Used (NOAA Form 77-12): Johnstone Point  
Gravina Point

Period: May 24 - July 25, 1974

HYDROGRAPHIC SHEET: H-9424

OPR: 999

Locality: Prince William Sound, Alaska 13.2 ft. (Johnstone Pt.)

Plane of reference (mean lower low water): 12.6 ft. (Gravina Pt.)

Height of Mean High Water above Plane of Reference is 11.0 ft.

Remarks: Recommended zoning:

- (1) West of  $146^{\circ}18'$  direct on Johnstone Point.
- (2) East of  $146^{\circ}18'$  direct on Gravina Point.

*James R. Hubbard*  
\_\_\_\_\_  
Chief, Tides Branch

DAVIDSON  
DA-20-3-74 AND DA-40-1-74  
H-9424 AND H-9425  
TIME MERIDIAN -- GMT  
TIDE STATION -- JOHNSTONE POINT  
YEAR -- 1974  
CORRECTIONS IN FATHOMS  
MLLW CORRECTION -- 13.2 FEET ✓  
TIME SHIFT -- ZERO  
RANGE RATIO -- 01.00

H-9424 West of 146° 18'  
H-9425 South of 60° 35'

*File tide corrections  
with points*

132000 00 1010 0000 178 0 130000 000000  
4400 00 1011  
141000 00 1012  
144000 00 1013  
153500 00 1014  
171800 00 1014  
174700 00 1013  
181100 00 1012  
183200 00 1011  
185100 00 1010  
191200 00 1009  
193300 00 1008  
195500 00 1007  
202000 00 1006  
205100 00 1005  
223500 00 1004  
230500 00 1005  
32900 00 1006  
235000 00 1007  
000800 00 1008 0000 179 0 000000 000000  
002500 00 1009  
004100 00 1010  
005800 00 1011  
011700 00 1012  
013700 00 1013  
015700 00 1014  
021700 00 1015  
023700 00 1016  
030000 00 1017  
033800 00 1018  
051900 00 1019  
055400 00 1018  
061500 00 1017  
063300 00 1016  
064900 00 1015  
070000 00 1014  
140800 00 1001 0000 181 0 120000 000000

153500 00 1001  
155700 00 1002  
161800 00 1003  
163700 00 1004  
165400 00 1005  
171000 00 1006  
172600 00 1007  
174200 00 1008  
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201500 00 1014  
211100 00 1015  
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122000 00 1007  
123300 00 1006  
124600 00 1005

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164000	00	1008			
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220200	00	1012			
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040700	00	1014			
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230600	00	1008		
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024900 00 1008  
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055200 00 1018  
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120000 00 1004

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155000	00	1000			
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195800 00 1013  
201600 00 1014  
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211000 00 1016  
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224100 00 1016  
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232600 00 1014  
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001800 00 1011  
003400 00 1010  
005100 00 1009  
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143500 00 0002  
145300 00 0003

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174000	00	0001			
175200	00	1000			
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183700	00	1004			
184800	00	1005			
185800	00	1006			
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192000	00	1008			
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200600	00	1012			
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145900	00	1015		
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220000	00	1005		
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234600	00	1012		
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002100	00	1014		
004100	00	1015		
010500	00	1016		
013600	00	1017		
035200	00	1018		
042000	00	1017		
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054900	00	1012		
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064600	00	1008
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135600	00	1011
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200000	00	1006
210000	00	1005
1000	00	1004

# VELOCITY

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000830 0 0002  
001410 0 0001  
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TRA 70/71

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000000	0	0003	0003	196	000000	000000
000000	0	0003	0003	197	000000	000000
182440	0	0003	0003	206	000000	000000
033700	0	0003	0003	207	000000	000000



FORM CGS-732A  
Sheet

NA-20-3-34  
H-9474

OCEANOGRAPHIC LOG SHEET - M  
BOTTOM SEDIMENT DATA

U.S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY

VESSEL		PROJ. NO.		YEAR	PRINC WILLIAM SOUND, ALASKA				CHECKED BY	DATE CHECKED	
NOAA DAVIDSON		OPF. 999		1974							
SERIAL NO.	DATE	LATITUDE	LONGITUDE	DEPTH	WEIGHT OF SAMPLER	APPROX. TIME OF TRACTION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (General conditions, sedimentary fossils, shells, size, type of bottom, etc.)	OBS.
B063	14 JULY	28.78	146.37 W	27					cl	1805	
B064	14	29.59	26.60	42					cl	1819	
B065	14	30.69	28.09	88					cl	1838	
B066	14	30.85	31.12	109					cl	1852	
B067	14	30.15	33.44	115					cl	1913	
B068	14	29.30	34.50	27					M	1931	
B069	14	30.70	36.19	136					M	1954	
B070	14	33.00	39.50	98					M	2017	
B071	14	32.58	44.30	358					M	2145	
B072	14	28.72	37.96	84					M	2202	
B073	14	28.25	41.12	159					M	2217	
B074	14	28.57	44.35	238					M	2247	
B075	14	30.90	46.60	368					M	2313	
B076	14	30.69	41.37	183					M cl	2344	
B077	14	33.11	33.62	125					cl	0010	
B078	15	32.95	27.96	116							

Use more than one line per sample if necessary.

DA-20-3-74  
H-9424

OCEANOGRAPHIC LOG SHEET - M  
BOTTOM SEDIMENT DATA

SERIAL NO.	DATE	SAMPLE POSITION		DEPTH (FATHOMS)	WEIGHT OF SAMPLER	AP- PROX. PEN- TRA- TION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	REMARKS  (Unusual conditions, cohesion, density, cutters, etc.; no. of bottom relief; etc.)  TIME (ZULU)	OBS. INIT.
		LATITUDE	LONGITUDE								
8079	July 74	31.45 N	23.40 W	3.0 fm					S	0357	
8080	15	28.40 N	25.80 W	15.4					Cl	1807	
8081	15	29.65 N	29.90 W	50					M	1831	
8082	15	29.70 N	24.60 W	33					M	1853	
8083	15	30.8 N	25.7 W	58					Cl	1910	
8084	15	31.7 N	26.8 W	89					Cl	1927	
8085	15	32.3 N	23.9 W	60					fine S M	1944	
8086	15	33.5 N	23.55 W	88					M	1955	
8087	15	32.56 N	21.60 W	23					bf M seawards	2011	
8088	15	33.30 N	20.00 W	91					M	2026	
8089	15	26.00 N	45.00 W	183					Cl	2146	
8090	15	23.60 N	44.50 W	179					S G M	2221	
8091	15	30.53 N	22.87 W	2 fm					fine S	1843	
8092	15	31.13 N	21.02 W	2 fm					fine S	1900	
8093	15	31.98 N	21.19 W	2.3 fm					fine S	1916	
8094	19	29.08 N	31.27 W	6 fm					Sea weed holdfasts	2210	

ESSEL DAVIDSON  
CA-2

PROJ. NO.  
OPR. 999

YEAR  
1974

PRINCE WILLIAM SOUND, ALASKA

CHECKED BY

DATE CHECKED

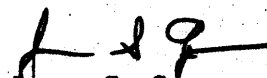
\* more than one line per sample if necessary



APPROVAL SHEET

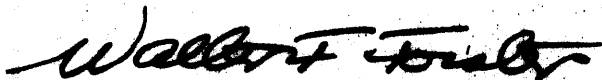
The smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual, except as noted in the Verifier's Report.

Examined and approved,



James S. Green  
Supervisory Cartographic Technician

Approved and forwarded,



Walter F. Forster, Cdr., NOAA  
Chief, Processing Division  
Pacific Marine Center

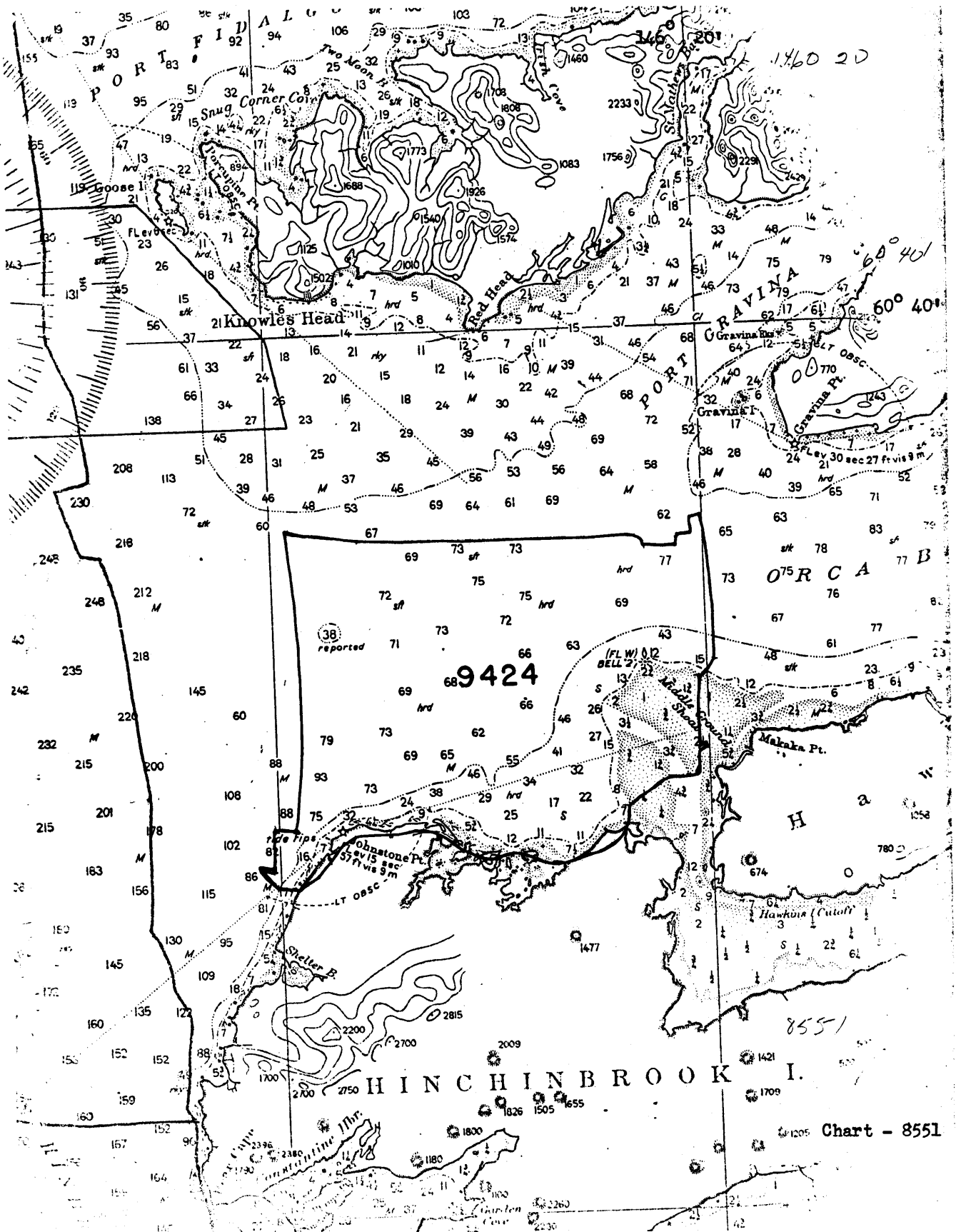


Chart - 8551

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. **H-9424**

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
8520	8/6/75	Kennan, D.J.	<del>Full Part Before After Verification</del> Review Inspection Signed Via Drawing No. <i>Critical sdgs noted</i>
			<i>and NM written</i>
8551	8/6/75	D.J. Kennan	<del>Full Part Before After Verification</del> Review Inspection Signed Via Drawing No. <i>changes to drawing going</i>
			<i>forward - Critical sdgs &amp; curves -</i>
8520	6/16/76	W.W. HAUSHAN	<del>Full Part Before After Verification</del> Review Inspection Signed Via Drawing No. <i>Critical sdgs and revised curve.</i>
8551	10/3/77	<i>Mae J. Fries</i>	<del>Full Part Before After Verification</del> Review Inspection Signed Via Drawing No. <i>Consider hydro fully app'd with revisions</i>
			<i>to critical sdgs &amp; curves (Category I Survey)</i>
8520	7/24/77	D.J. Kennan	<del>Full Part Before After Verification</del> Review Inspection Signed Via Drawing No. <i>Fully applied and satisfies the</i>
			<i>requirements for a Category One survey. DK</i>
8551	1/2/79	<i>M.G. Sager</i>	<del>Full Part Before After Verification</del> Review Inspection Signed Via Drawing No. <i>14 Chart 8520 - REAPPLIED THEN Chart 8520</i>
			<i>Revised sdgs. added rocks &amp; revised curve. Consider Fully Applied</i>
			<del>Full Part Before After Verification</del> Review Inspection Signed Via Drawing No.
			<del>Full Part Before After Verification</del> Review Inspection Signed Via Drawing No.
			<del>Full Part Before After Verification</del> Review Inspection Signed Via Drawing No.
			<del>Full Part Before After Verification</del> Review Inspection Signed Via Drawing No.