9425

Diag. cht. No. 8551-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT
(HYDROGRAPHIC)

Type of Survey .... HYDROGRAPHIC

Field No. DA-40-1-74

Office No. H-9425

LOCALITY

State .... ALASKA

General Locality .... PRINCE WILLIAM SOUND

Locality .... HINCHINBROOK I. TO GOOSE I.

1974

CHIEF OF PARTY
M. H. FLEMING

LIBRARY & ARCHIVES

DATE 1/7/76

☆U.S. GOVERNMENT PRINTING OFFICE: 1974-763-098

Area 6
Chart
8519
8520 WWH 14 June 76
8551

H Sheet not 9-27-82

089

FORM C&GS-537 (8-66)

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

REGISTER NO.

HYDROGRAPHIC TITLE SHEET

DA-40-1-74

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.
H-9425

State Alaska

General locality Prince William Sound

Locality Hinchinbrook I. to Goose I. ~~Bear Cape (West Hinchinbrook Island)~~

Scale 1:40,000 (1:20,000 Insert) Date of survey June 27 to July 26, 1974

Instructions dated 4 February 1974 Project No. OPR-999-DA-74

Vessel NOAA Ship DAVIDSON CSS-31 Launch DA-1

Chief of party Michael H Fleming, CDR, NOAA

Surveyed by Lcdr. M.N. Maki, Lt. R.D. Hopkins, Lt.(jg) D.S. Eilers, Lt.(jg) R.W. Mercer, Ens. J.D. Sarb, Lt.(jg) J.J. Kapler, Lt.(jg) R.H. West

Soundings taken by echo sounder, ~~hand lead, pole~~ Ross 5000 Fineline

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Officers

Protracted by ~~Ship's Officers~~ Automated plot by PMC-Xynetics Plotter

Soundings penciled by ~~Ship's Officers~~

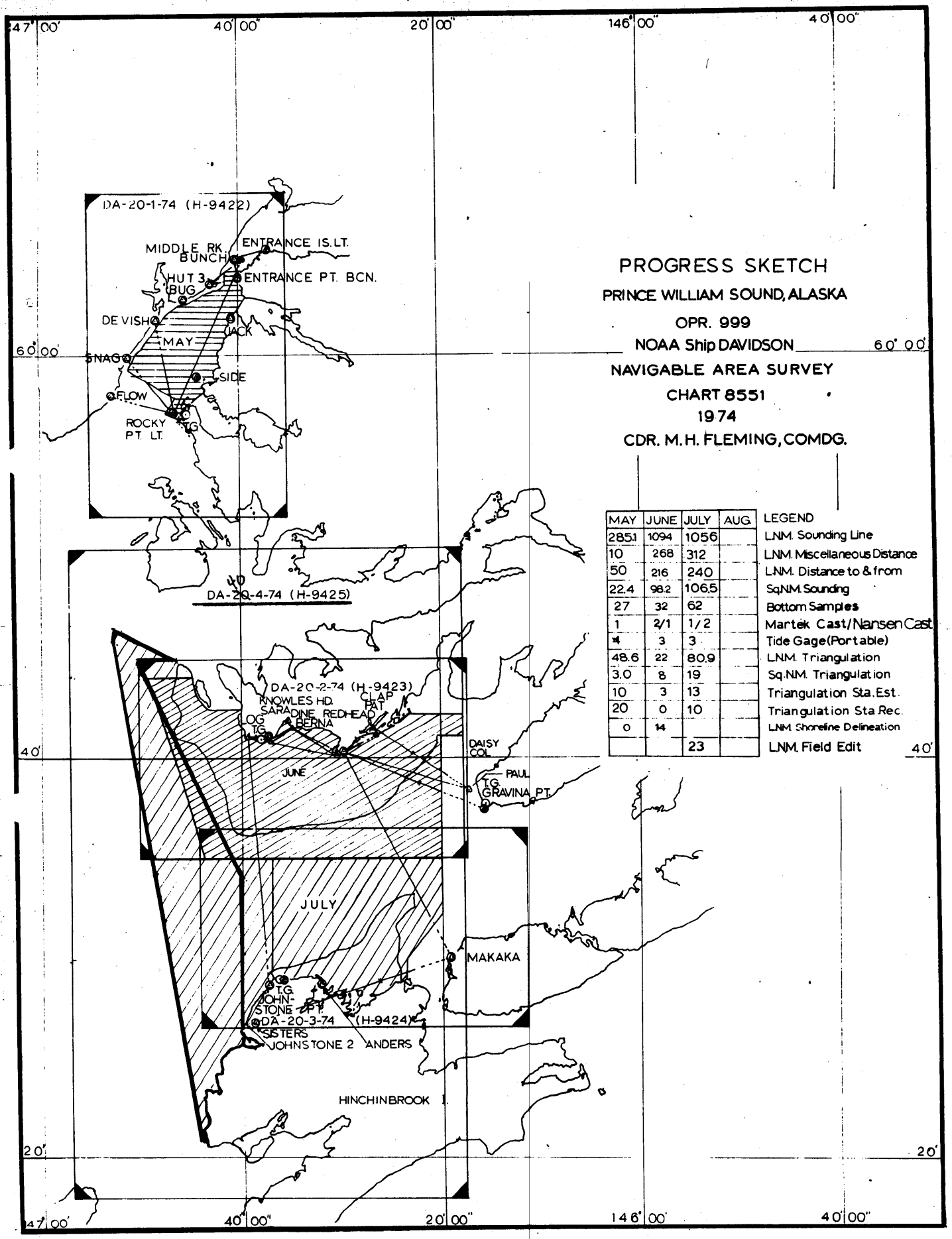
Soundings in fathoms feet at MLW MLLW

REMARKS: All times GMT. Area covered by this sheet is coincident with that defined by the Smooth Sheet Layout and hydrography is complete within this area. No prior field work had been accomplished on this sheet. Mean longitude of this survey is 146° 44'.

Applied to stks. 3-26-76
DJF

K.W.W. 3/7/94

USCOMM-DC 37009-P66



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
2851	1094	1056		L.N.M. Sounding Line
10	268	312		L.N.M. Miscellaneous Distance
50	216	240		L.N.M. Distance to & from
22.4	98.2	106.5		Sq.N.M. Sounding
27	32	62		Bottom Samples
1	2/1	1/2		Martek Cast/Nansen Cast
1	3	3		Tide Gage (Portable)
48.6	22	80.9		L.N.M. Triangulation
3.0	8	19		Sq.N.M. Triangulation
10	3	13		Triangulation Sta. Est.
20	0	10		Triangulation Sta. Rec.
0	14			L.N.M. Shoreline Delineation
		23		L.N.M. Field Edit

DESCRIPTIVE REPORT

H-4025

DA-40-1-74

ORCA BAY

A. PROJECT

This survey was accomplished in accordance with Project Instructions OPR-999-DA-74, Prince William Sound, Alaska, dated 4 February 1974, with supplemental instructions Special Investigations SP-PMC-5-DA-74, Prince William Sound, Alaska.

B. AREA SURVEYED

The area surveyed is Orca Bay (Entrance), Prince William Sound, Alaska. The area is bounded on the southeast by the southwestern coast of Hinchinbrook Island; on the east by approximately Long. 146° 40.0' W to junction with H-9424 (1974) on the northeast by approximately Long. 146° 46.0' W, the junction with H-9423 (1974) on the north by Lat. 60° 46.8' N; on the west by approximately Long. 146° 50.0' W, the junction with H-9382 (1973); on the south by Lat. 60° 20.5' N.

C. SOUNDING VESSELS

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

Vessel	Color
DAVIDSON	Brown (Bottom samples only)
WZ3039 (DA-1)	Red

D. SOUNDING EQUIPMENT

Vessel	Echo-Sounding Instruments
DAVIDSON	Raytheon DE-723, #1286
WZ 3039	Ross Fineline 5000, Series 544 Recorder SN-1048 Ross Digitizer 6000-544 (#1053) Transmitter/Receiver Unit SN-1053 Aircraft Standards, Inc., Hydrographic Logger SN-05

The DAVIDSON used its fathometer for bottom sampling only.

WZ 3039 was used for the entire survey and used the digitized sounding system which is not subject to fine arc, initial, or phase error. Digitized soundings were accepted as true and correct unless they were suspected, on the basis of fathogram scanning, of being returns from mid-water objects, such as kelp or fish. The analog intial was maintained at zero and phase checks were made twice daily. No major malfunctions were experienced with the Ross system during the 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, velocity correctors, and measured launch draft see appendix of this report and report on "Correctors to Echo Sounders."

E. BOAT SHEET

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 new triangulation was established using third order methods. (See Horizontal Control Report for Prince William Sound, OPR-999)

Datum: The North American 1927 Datum was used for this survey.

G. POSITION CONTROL

The Hastings RAYDIST system, in the range-range mode, was used for navigational control in this survey. Operating frequency was 3306.50 KHz. The stations were located as follows:

	Station		
025	Johnstone Pt RAYDIST, 74	60° 28' 59.509" N	146° 36' 43.192" W
026	Kayak, 1974	60° 31' 55.294" N	146° 18' 57.589" W
032	Knowles Head	60° 40' 54.851" N	146° 37' 15.991" W

Calibrations were conducted prior to and at the completion of each hydro

watch. Calibrations were accomplished efficiently by running an established range and marking at predetermined sextant angles. Lane counts were pre-computed utilizing the Wang three-point range-range program. Copies of the computed lane counts for the calibration range used in this survey are available in the appendix. Original calibration records are available on the raw data printouts.

The electronic correctors were determined by averaging the pre and post hydro watch calibrations. These 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 manuscript: TP-00634

The shoreline was verified by Field Edit methods. Refer to the "Field Edit Report OPR-999-DA-74." (See Verifier's Report, Parts II & III

I. CROSSLINES

There are 10.9% crosslines to sounding lines. Crosslines in the northern portion (Positions # 104-131, # 187-219, # 293-303) were transferred from H-9424 to provide adequate coverage for H-9425. Crossline soundings were in excellent agreement with 95% being within one fathom of the main scheme soundings. Larger differences occurred in areas of steep slopes and rugged bottom terrain but are still considered to be in good agreement with the main scheme.

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 (1:20,000 June 1974) and H-9424 (1:20,000 July 1974 in the east. No Junction soundings with the contemporary surveys are shown because the hydrography was a continous operation using the same sounding launch and within the same time frame.

This survey also junctions with H-9382 (1:40,000 May and June 1973) in the western boundry and with H-9385 (1:20,000 June 1973) in the southern limits. Selected soundings from H-9382 were inked on the field smooth sounding overlay in red, and the junction between these and the soundings of H-9425 are excellent with 98% agreement within one fathom; however, a 113 fathom sounding at Latitude 60°46.0' N, Longitude 146° 51. 57'W is surrounded by 200 fathoms depths on both H-9382 and H-9425. A sounding from H-9425 very near this position is one of 213 fathom, and it is suspected that the 113 fathom sounding is an inking error on the prior survey sheet. Selected soundings from H-9385 were inked on the smooth sounding overlay in green; and the junction between these and soundings from H-9425 generally agree very well, considering the steep slope and jagged profile of the area.

J. JUNCTIONS Cont.

Out of fifteen soundings available eight are within one fathom and the remainder within five fathoms.

K. COMPARISON WITH PRIOR SURVEYS

This survey was preceded by surveys H-2612 (1:40,000 1902), H-3186 (1:20,000 1910), H-3675 (1:80,000 1914), and H-7766 (1:40,000 1948).

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

SURVEY	
H-2612	Violet
H-3186	Brown (on 1:40,000 scale)
	Blue (on 1:20,000 insert)
H-3675	Carmine
H-7766	Orange

This survey compares reasonably well with H-2612, considering surveying methods, equipment, and bottom profile. Most sounding differences were small with no definite pattern discernable. However, a 48 fathom sounding at Latitude 60° 23.59' N, Longitude 146°44.47'W was investigated and sufficient soundings were taken in the area to invalidate this sounding, as the least sounding recorded in the area by H-9425 was one of 130 fathoms.

Of the soundings available from H-3186, 90% agree within 2 fathoms with the remainder varying to a difference of 11 fathoms.

The few soundings available from H-3675 showed a variance with the present survey of 4 to 25 fathoms. In all cases the depths recorded on the present survey are deeper than those reported by H-3675.

H-7766 is the most recent of the prior surveys, and a very good agreement was noted with the present survey. Soundings differed by 1 to 3 fathoms.

Since most of these prior surveys are quite old, there could be numerous reasons for discrepancies encountered, notably surveying methods, surveying equipment, rugged and steep bottom profile, and the subjection of this area to numerous seismic disturbances.

K. PRE-SURVEY REVIEW ITEMS

#8 - The questioned 27 fathom sounding charted in Latitude 60°31.93' N, Longitude 146° 39.39 W was investigated and the area adequately developed to prove the validity of this sounding and further developed to obtain a least sounding of 26 fathoms at Latitude 60° 31.84' N, Longitude 146° 40.03'W.

K. PRE-SURVEY REVIEW ITEMS Cont.

#6 - The rock, covered 1/2 fathom, PA, charted in Latitude 60° 24.61'N, Longitude 146° 42.30'W, was found to ~~be~~ covered by ~~1~~ 3 ft reduced ~~fathom in position Latitude 60° 25.02' N, Longitude 146° 42.40' W, and the shoal area in which it was located was developed.~~ (not so)

The 49 fathom sounding located at Latitude 60° 23.51' N, Longitude 146° 44.40'W on the C&GS chart 8520 - probably dating from the 1902 survey, H-2612 (See above note under Prior Surveys, H-2612) - could not be located, as soundings in the area were in the 125 fathom region with no indication of shoaling. 49 considered disproved.

L. COMPARISON WITH THE CHART

The largest scale chart of the survey area is Prince William Sound, Eastern Entrance, C&GS 8520, 15th Ed., dated January 20, 1973, 1:80,000 scale.

A random sampling of soundings shows this survey agreeing within 1 to 5 fathoms with the notable differences as follows:

1. At a charted 5 3/4 fathom depth, a ~~1 fm shoal~~ 1.5 fm sunken rock was located and developed. (~~See Pre-Survey Review Item #6~~ as regard) @ 60°25.02' λ 146°42.4'

2. A charted 49 fathom depth (Latitude 60°23.51'N, Longitude 146° 44.40'W) could not be located. (See note under Pre-Survey Review Items)

3. A charted 5 3/4 fathom depth (Latitude 60° 23.51'N, Longitude 146° 43.11' W was found to be a 2.8 fathom sounding by this survey.

4. A significant hazard was located in the cove at Shelter Bay, previously a good anchorage. This hazard is a rock shoal awash located at Latitude 60° 25.02'N, Longitude 146° 40.46'W. This rock is located in what is presently charted on C&GS 8520 as 5 fathoms. For complete information concerning this danger refer to the Field Edit Report OPR-999-DA-74.

Presently uncharted is Bear Cape Light, under construction at the time of the survey and located by the DAVIDSON. (See Aid to Navigation)

M. ADEQUACY OF SURVEY

This survey is considered to be complete and adequate to supersede 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 were no floating aids to navigation in the survey area. However, a new fixed aid, Bear Cape Light, was under construction by the U.S. Coast Guard. The light is to be located on a skeleton steel tower, but the final description and characteristic of the light are not available at this time. The light was positioned by the DAVIDSON at Latitude 60°23' 21.633" N, Longitude 146° 43' 43.493" W. For complete information concerning this light see the appendix and attached letter.

O. STATISTICS

Total number of Positions	1264
Sounding Lines	422.7 nm
Survey Area	27.1 sq nm

P. MISCELLANEOUS

Much of the area for this sheet was completed on sheets H-9423 and H-9425 to improve the efficiency of the Prince William Sound Survey. Because of this, cross lines in the northern portion were transferred from H-9424 to H-9425 and resulted in the duplication of numbers 104-131, 187-219 and 293-303 (See Abstract of Positions in the appendix). Positions 450 tO 744 were inadvertently duplicated (See Abstract of Positions).

Q. RECOMMENDATIONS

Bear Cape Light should be charted as soon as a description and a light characteristic are available. The sounding differences and rock in Shelter Bay Cove should be noted and corrected on the charts.

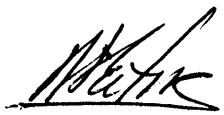
R. REFERENCES TO REPORTS

Descriptive Report	H-9423
Descriptive Report	H-9424
Corrections to Echo Sounders	OPR-999-DA-74, Prince William Sound, Orca Bay, Alaska
RAYDIST Report	OPR-999, Prince William Sound
Horizontal Control Report	OPR-999-DA-74
Field Edit Report	OPR-999-DA-74

S. DATA PROCESSING PROCEDURES

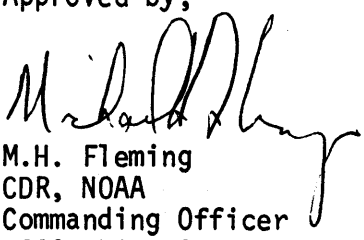
No automated processing systems were used in the ~~preparation~~ acquisition of data for this survey. Data acquisition was by methods and equipment described previously in this report.

Submitted by,



D.S. Eilers
LTJG, NOAA

Approved by,



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

APPENDIX

NONfloating Aids or Landmarks for Charts

Field Tide Note

Geographic Names List

Transducer Corrections

Tape Abstract

Electronic Corrector Abstract

Daily Electronic Control Calibrations

RAYDIST Calibration Range

Station List

Abstract of Positions

Oceanographic Log Sheet

Geodetic Computations

Approval Sheet

NOAA FORM 76-40
(2-71)
PRESCRIBED BY
PHOTOGRAMMETRY INSTRUCTION NO. 54

U.S. DEPARTM[illegible] OF COMMERCE-NATIONAL OCEANIC AND ATI[illegible]PHERIC ADMINISTRATION

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- [X] FIELD INSPECTION
- [ ] FIELD EDIT
- [ ] COMPILATION
- [ ] FINAL REVIEW
- [ ] QUALITY CONTROL AND RE[illegible]

(See reverse for responsible perso[illegible]

- [X] TO BE CHARTED
- [ ] TO BE DELETED

ORIGINATING LOCATION: NOAA SHIP DAVIDSON CSS-31

DATE: 1974 September

The following objects have (have not) been inspected from seaward to determine their value as landmarks:

JOB NUMBER: PH- 9425

STATE:

SURVEY NUMBER: T -00634

TP-

DATUM: N.A. 1927

POSITION

METHOD AND DATE OF LOCATION (See instructions on reverse of this form)

CHARTING NAME	DESCRIPTION	LATITUDE ° ′	LATITUDE ″ D.M.METERS	LONGITUDE ° ′	LONGITUDE ″ D.P.METERS	FIELD INSPECTION	COMPILATION	FIELD EDIT	CHARTS AFFECTE
Bear Cape Light	New Light- Steel skeleton tower under construction	60 23	21.633	146 43	43.493	F.I.a. 1974			
*	(See attached letter from Davidson to Chief, Processing Division dated August 8, 1974).								

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY

e : August 8,1974

Reply to Attn. of:

: Chief, Processing Division
Pacific Marine Center

n : John Oswald JLOswald.
NOAA Ship Davidson

ject: New Aids to Navigation
Prince William Sound 1974

ru: Commanding Officer MHFleming
. AA Ship Davidson

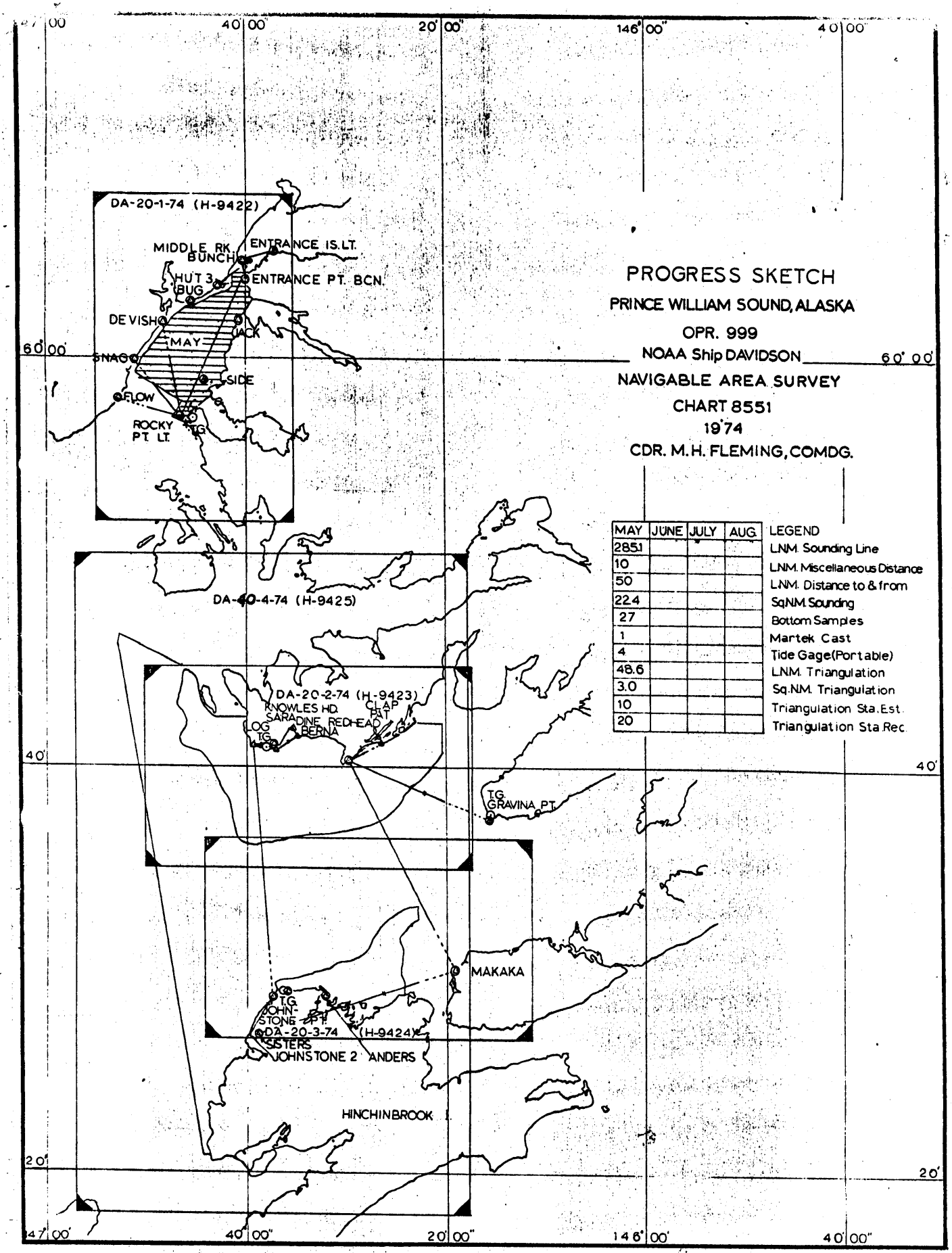
Due to the planned increase in commercial traffic in the Prince William Sound(Alaska) area,the U.S. Coast Guard has recently built several new lights. These lights were all located by the Davidson during the OPR-999 project this summer. All of the lights are built as a 6' by 6' square skeleton steel tower. At the time these lights were being built by the USCG Cutter Sorrel we were positioning them; hence the descriptions may not be complete. The characteristics of the lights were not known at this time but could certainly be obtained from the Sorrel or the USCG Kodiak at a later date.

would like to recommend that all of these lights be charted on the next edition of the Prince William Sound charts. Below is a complete listing of the lights according to the names that the Cutter Sorrel used.Also attached to this note are copies of the descriptions for these stations. All computations for these lights may be found in the Horizontal Control Report for this particular project.

	lat/long		
- Schooner Rock Light	60	18	16.925
	146	54	16.230
- Bear Cape Light	60	23	21.633
	146	43	43.493
- Potato Point Light	61	03	24.495
	146	41	40.499

Glacier Island Light	60	52	21.786
	147	05	23.874
Entrance Island Light	61	05	07.219
	146	36	41.644
Rocky Point Light (rebuilt)	60	57	04.034
	146	45	58 955
Entrance Point Light (relocated)	61	03	49.142
	146	39	36.494
Gravina Point Light (relocated)	60	37	24.127
	146	15	06.080

In addition to the above lights it should be noted here that Goose Island Light has been rebuilt in a location about 2 meters south west. This light was not repositioned during the past survey by triangulation methods.



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
2851				L.NM. Sounding Line
10				L.NM. Miscellaneous Distance
50				L.NM. Distance to & from
224				Sq.NM. Sounding
27				Bottom Samples
1				Martek Cast
4				Tide Gage (Portable)
48.6				L.NM. Triangulation
3.0				Sq.NM. Triangulation
10				Triangulation Sta. Est.
20				Triangulation Sta. Rec.

Survey No. H-9425

Name on Survey	A On Chart No. C&GS 8520 or 8519	B On previous survey No.	C On U.S. quad / ALASKA MapScope	D From local information	E On local Maps	F P.O. Guide or	G Rand McNally	H U.S. Light L.	K
Hinchinbrook Island	x								
Johnstone Pt.	x								
Shelter Pt.	x								
Shelter Bay	x								
Bear Cape	x								
Goose Island	x		x						
Knowles Head	x								
Deer Cove			x						
Prince William Sound	x								
Orca Bay	x								

Approved
Chas. E. Harrington
Staff Geographer
11 Feb. 1976

TRANSDUCER CORRECTION ABSTRACT

TRA (TC/TI) TAPE: VESSEL (DA-1) 3039 SURVEY H-9425 FATHOMETER S/N 1048 YR 74 PAGE 1 OF 1

From TIME	TRA CORR.	DAY	VEL. TBL.	TRA corr. is the algebraic sum of these columns INITIAL	SCALE-PHASE	DRAFT	F. ARC	S./ SQUAT	Residual Instrument Error COMMENTS
182220	+0.4	178	2	0.0	0.0	0.2	0.0	0.0	-0.2
212100	+0.4	181	3	0.0	0.0	0.2	0.0	0.0	-0.2
024730	+0.4		3	0.0	0.0	0.2	0.0	0.0	-0.2
025340	+0.4		3	0.0	0.0	0.2	0.0	0.0	-0.2
000029	+0.4		3	0.0	0.0	0.2	0.0	0.0	-0.2
175700	+0.3		3	0.0	0.0	0.2	0.0	0.0	-0.1
000000	+0.3		3	0.0	0.0	0.2	0.0	0.0	-0.1
095400	+0.4		3	0.0	0.0	0.2	0.0	0.0	-0.2
000200	+0.4		3	0.0	0.0	0.2	0.0	0.0	-0.2
024800	+0.4		3	0.0	0.0	0.2	0.0	0.0	-0.2
003220	+0.4		3	0.0	0.0	0.2	0.0	0.0	-0.2
200400	+0.4		3	0.0	0.0	0.2	0.0	0.0	-0.2
061820	+0.4		3	0.0	0.0	0.2	0.0	0.0	-0.2

TAPE ABSTRACT

H-9425

TAPE NUMBER	TAPE DATA
1	Position and Sounding
2	Position and Sounding
3	Position and Sounding
4	Position and Sounding
5	Position and Sounding
6	Position and Sounding
7	Position and Sounding
8	Electronic Control Corrector
9	Electronic Control Corrector
10	Velocity Corrector Table #2
11	Velocity Corrector Table #3
12	TRA TC/TI
13	TRA TC/TI
14	Bottom Samples (8023-8046)
15	Bottom Samples (8071-8090)
16	Signal Tape

ELECTRONIC CORRECTOR ABSTRACT

Vessel: 3039 H-9425 Sheet: DA-40-1-74

DAY	TIME	FROM POSITION	SOUNDING	PATTERN 1 STA #025 CORRECTOR	PATTERN 2 STA #026 CORRECTOR	BASE LINE +/-	TIME	TO POSITION
178	182220	001	153.1	+0.11	-0.05	+	221700	063
181	212100	064	8.8	+0.17	+0.03	+	232400	081
182	024730	088	222.3	+0.33	+0.12	+	054030	136
183	025340	137	81.0	0.00	-0.05	+	053140	179
183-184	181029	180	192.1	+0.03	-0.07	+	003549	274
184	023620	275	125.9	-0.20	-0.08	+	065820	347

DAY	TIME	FROM POSITION	SOUNDING	PATTERN 1 STA #026 CORRECTOR	PATTERN 2 STA #032 CORRECTOR	BASE LINE +/-	TIME	TO POSITION
191	181840	104	84.9	-0.07	-0.23	+	192820	131
191	215320	187	72.8	-0.07	-0.23	+	225400	219
192	150200	293	196.8	0.00	0.00	+	151840	303
197	095400	348	42.2	-0.07	-0.01	+	111440	373
197-198	182540	374	108.8	+0.03	+0.07	+	002520	448
198	023320	450	57.5	-0.02	+0.09	+	081400	622
198	182640	623	86.2	+0.18	+0.17	+	225235	744
199	024800	449	82.7	+0.35	-0.06	+	081440	538
199-200	175840	539	80.2	-0.04	-0.10	+	004140	754
200	023420	755	115.6	+0.14	-0.21	+	074120	841
206	200400	842	91.0	+0.08	-0.10	+	204751	875
207	061820	876	144.8	+0.19	+0.14	+	072340	899
207	193420	900	96.5	+0.18	-0.07	+	194000	904

on 1:20,000 INSERT

on INSERT

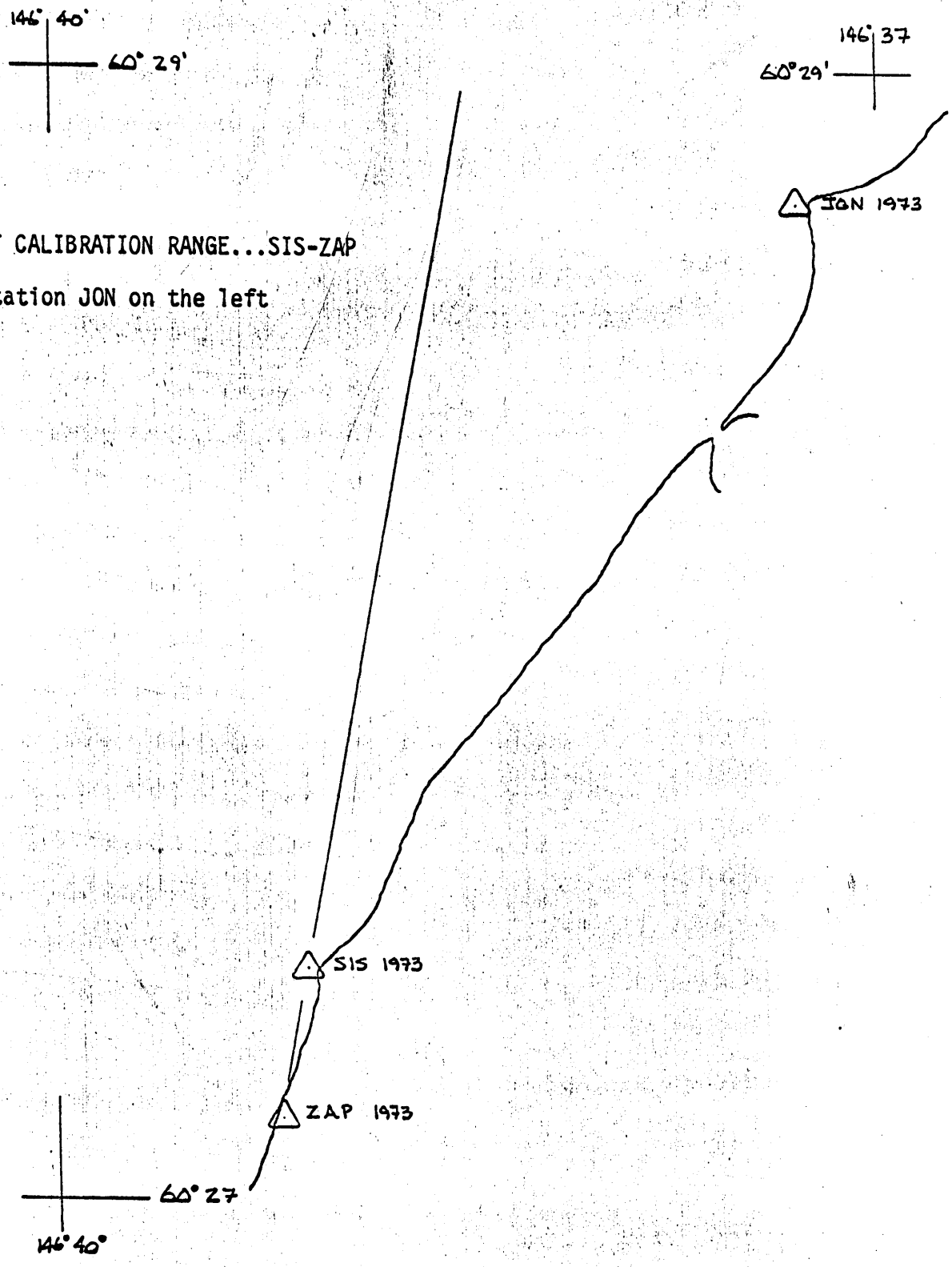
DA-4104 74

DA-1

DAY	TIME	FROM POSITION	SOUNDG	PATTERN 1 STATION (Koyuk)	PATTERN 1 CORRECT	PATTERN 2 STATION	PATTERN 2 CORRECT	BASE LN +/-	TIME	TO POSITI
200	023420	755	115.6	26	+0.14	32	−0.21	+	074120	841
178	182220	001	153.1	025	+.11	026	−.05	+	221700	063
181	212100	064	08.8	025	+0.17	026	+0.03	+	232400	81
182	02473	088	222.3	025	+.33	026	+.12	+	054030	136
183	025340	137	81.0	025	0.00	026	−0.05	+	053140	179
183-184	181029	180	192.1	025	+0.03 ~~0.04~~	026	−0.07	+	003549	274
184	023620	275	125.9	025	−.20	026	−0.08	+	065820	347
1987	095400	348	42.2	026	−.07	032	−0.01	+	111440	373
197198	182540	374	108.8	026	+0,03	032	+0.07	+	002520	448
198	023320	450	57.5	026	−02	032	+09	+	081400 ~~0622~~	~~615~~ 622
198	182640	623	86.2	026	+.18	032	+,17	+	225235	744
199	024800	449	82.7	026	+.35	032	−.06	+	081440	538
199/200	175840	539	90.2	026	−.04	032	−.10	+	004140	754
206	200400	842	91.0	026	+0.08	032	−.10	+	204751	875
207	061820	876	144.8	026	+0.19	032	+0.14	+	072340	899 ~~407~~
207	193420	900	96.5	026	+0.18	032	−0,07	+	194000	904
191 ~~1992~~	181840	104	84.9	026	−0.07	032	−0.23	+	192820	131
191	215320	187	72.8	026	−0.07	032	−0.23	+	225400	219
192	150200	293	196.8	026	0,00	032	0.00	+	151840	303

RAYDIST CALIBRATION RANGE...SIS-ZAP

with station JON on the left



RAYDIST CALIBRATION RANGE.....SIS-ZAP

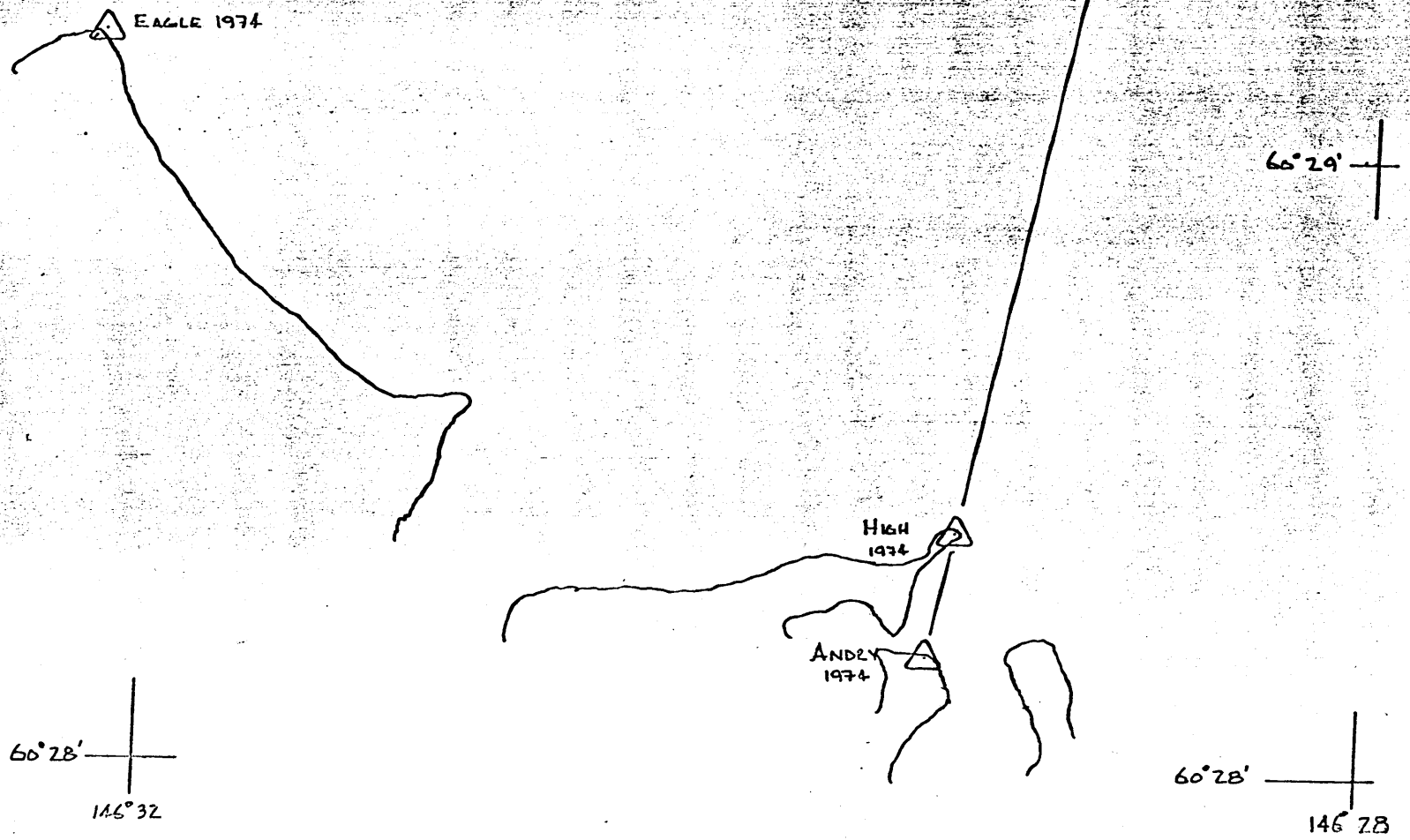
with station JON on the left

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



RADIST CALIBRATION RANGE:

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

Right Angle	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 JLO

CALIBRATION RANGE.....VERNA-DINE

LEFT ANGLE on SARA	KAYAK	JOHNSTONE
44	970.38	466.74
47	969.91	471.04
50	969.52	474.95
54	969.07	479.68
57	968.78	482.94
60	968.52	485.98
64	968.22	489.78
67	968.02	492.47
70	967.83	495.04
74	967.62	498.34
77	967.47	500.73
80	967.33	503.06

comp by JLO*

chk by JLO*

STATION LIST OPR-999 PRINCE WILLIAM SOUND

HYDROGRAPHIC SURVEY H-9425

STA	LATITUDE	LONGITUDE	CRT	ELEV	F. KHZ	TYPE/NAME	SOURCE
026	N 60° 31' 55.294"	147° 18' 57.589" W	139	0005	330650	KAYAK, 1974	*
025	N 60° 28' 59.509"	146° 36' 43.192" W	139	0035	330650	JOHNSTONE PT PAYDIST 1974	*
032	N 60° 40' 54.851"	146° 37' 15.991" W	139	0007	330650	KNOWLES HEAD RAYDIST 1974	*
017	N 60° 41' 27.060"	146° 35' 02.871" W	139	0007	000000	VERNA, 1974	*
016	N 60° 41' 45.476"	146° 35' 21.006" W	139	0021	000000	DINE, 1974	*
015	N 60° 40' 53.928"	146° 37' 14.450" W	139	0012	000000	SARA, 1974	*
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	PT JOHNSTONE LT, 1973	**
040	N 60° 24' 44.353"	146° 42' 15.560" W	139	0002	000000	DEER, 1974	*
041	N 60° 23' 21.375"	146° 43' 44.614" W	139	0001	000000	TITSUP, 1974	*

STA	LATITUDE	LONGITUDE	CRT	ELEV	F. KHZ	TYPE/NAME	SOURCE
042	N 60° 22' 58.872"	146° 43' 45.877" W	139	0004	000000	AARDVARK, 1974	*
043	N 60° 21' 18.235"	146° 43' 45.848" W	139	0009	000000	WHALE, 1974	*
044	N 60° 20' 37.526"	146° 43' 26.537" W	139	0006	000000	BAR, 1974	*
049	N 60° 23' 21.633"	146° 43' 43.493" W	139	0020	000000	BEAR CAPE LT, 1974	*

* Located by triangulation methods by the Ship DAVIDSON (1974)
** Located by triangulation methods by PMC field party

Position computations extracted and filed with printouts

ABSTRACT OF POSITIONS: H-9425

VESSEL: 3039

DAY	POSITIONS	CTRL	S1	M	S2	REMARKS
178	001-063	4	025	-	026	HYDRO
181	064-081	4	025	-	026	HYDRO
182	088-136	4	025	-	026	HYDRO (No Pos# 82 to 87)
183	137-262	4	025	-	026	HYDRO
184	263-347	4	025	-	026	HYDRO
191	104-131	4	026	-	032	Cross-line transferred from H-9424; Duplications with Day 182
191	187-219	4	026	-	032	Cross-line transferred from H-9424; Duplications with day 183
192	293-303	4	026	-	032	Cross-line transferred from H-9424; Duplications with day 184
197	348-440	4	026	-	032	HYDRO
198	441-744	4	026	-	032	No position #449, day 198
199	449-747	4	026	-	032	Positions #450 to # 744 duplicate numbers of day 198
200	748-841	4	026	-	032	HYDRO
206	842-875	4	026	-	032	HYDRO
207	876-904	4	026	-	032	HYDRO

LATTICE FOR: L09425 DATE OF LISTING: 09-05-75

RECORD NUMBER	STATION 1	STATION 2	CENTER ANG. ARC SECTOR	SECTOR ARC LENGTH	MINIMUM RATE	MAXIMUM RATE	LATTICE COLOR
1	26	0	0	0	0.00	0.00	~~GRN~~ RED
2	32	0	0	0	0.00	0.00	BLU

LFILE CERTIFIED CORRECT FOR PLOTTING BY:..... DATE:.....

EOF..

INSET

1:20,000

CONTROL FOR: C09425 DATE OF LISTING: 09-05-75 GEOGRAPHIC POSITIONS IN DEGREES, MINUTES, AND SECONDS

RECORD NUMBER	YR	STA NUM	CARTO CODE	LABEL ANGLE	VECTOR DISP.	PLOT CODE	NAME	STATION HEIGHT	FREQUENCY (KHZ)	LATITUDE -(S)	LONGITUDE -(E)
1	74	26	243	307.00	.60	0		0.0	3306.50	60 31 55.290	147 18 57.590
2	74	32	243	307.00	.60	0		0.0	3306.50	60 40 54.850	146 37 15.990
3	74	40	139	0.00	2.50	4	DEER, 1974	0.0	0.00	60 24 44.350	146 42 15.560
4	74	42	139	307.00	.60	4	AARDVARK, 1974	0.0	0.00	60 22 58.870	146 43 45.880
5	74	43	139	307.00	.60	4	WHALE, 1974	0.0	0.00	60 21 18.240	146 43 45.850
6	74	44	139	26.00	1.50	4	BAR, 1974	0.0	0.00	60 20 37.530	146 43 26.540
7	74	49	139	0.00	8.00	4	BEAR CAPE LT, 1974	0.0	0.00	60 23 21.630	146 43 43.490

FILE CERTIFIED CORRECT FOR PLOTTING BY:..... DATE:.....

MAIN

1:40,000

CONTROL FOR: C09425 DATE OF LISTING: 09-05-75 GEOGRAPHIC POSITIONS IN DEGREES, MINUTES, AND SECONDS

RECORD NUMBER	YR	STA NUM	CARTO CODE	LABEL ANGLE	VECTOR DISP.	PLOT CODE	..... NAME	STATION HEIGHT	FREQUENCY (KHZ)	LATITUDE -(S)	LONGITUDE -(E)
1	74	15	139	307.00	.60	4	SARA, 1974	0.0	0.00	60 40 53.930	146 37 14.450
2	74	25	254	307.00	.60	4	JOHNSTONE PT ECC, 1974	0.0	3306.50	60 28 59.510	146 36 43.190
3	74	26	250	307.00	.60	4	KAYAK, 1974	0.0	3306.50	60 31 55.290	147 18 57.590
4	74	32	254	30.00	1.00	4	KNOWLES HEAD ECC, 1974	0.0	3306.50	60 40 54.850	146 37 15.990
5	74	35	139	307.00	.60	4	EAGLE, 1974	0.0	0.00	60 29 11.680	146 32 10.410
6	74	36	139	307.00	.60	4	JON, 1973	0.0	0.00	60 28 46.170	146 37 17.930
7	74	37	139	307.00	.60	4	SIS, 1973	0.0	0.00	60 27 24.320	146 39 6.420
8	74	38	139	307.00	.60	4	ZAP, 1973	0.0	0.00	60 27 8.200	146 39 12.400

FILE CERTIFIED CORRECT FOR PLOTTING BY:..... DATE:.....

Main

LATTICE FOR: L09425 DATE OF LISTING: 09-05-75

RECORD NUMBER	STATION 1	STATION 2	CENTER ANG. ARC SECTOR	SECTOR ARC LENGTH	MINIMUM RATE	MAXIMUM RATE	LATTICE COLOR
1	25	0	0	0	0.00	0.00	ORANGE
2	26	0	0	0	0.00	0.00	GREEN
3	32	0	0	0	0.00	0.00	BLUE

LFILE CERTIFIED CORRECT FOR PLOTTING BY:..... DATE:.....
EOF..

APPROVAL SHEET

HYDROGRAPHIC SURVEY

DA-40-1-74

H-9425

Prince William Sound

Orca Bay

The field work on this survey was accomplished under my supervision with frequent inspections of the procedures, boat sheet, and records.

Michael H. Fleming
CDR NOAA
Commanding Officer
NOAA Ship DAVIDSON CSS-31

NOAA FORM 77-27
(9-72)
(PRESC. BY
HYDROGRAPHIC
MANUAL 20-2,
6-94, 7-13)

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

HYDROGRAPHIC SURVEY STATISTICS

HYDROGRAPHIC SURVEY NO. 9425

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
Smooth Position Overlay SMOOTH SHEET	1 1	BOAT SHEETS	4 x
DESCRIPTIVE REPORT	1	OVERLAYS	15 x

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
~~FOX~~						
~~XXXXXXXX~~			x			
CAHIERS	1	x				
VOLUMES	1					
~~Smooth~~ ~~Sheet~~ Boxes			1 & Sawtooth Records			

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		1,284		
POSITIONS REVISED		15		
DEPTH SOUNDINGS REVISED		50		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		-		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		-		
	TIME (MANHOURS)			
Verification of Control		1		
Verification of Positions		9		
Verification of Soundings		57		
Smooth Sheet Compilation		24		
All Other Work		203		
TOTALS		294		

PRE-VERIFICATION BY	BEGINNING DATE	ENDING DATE
VERIFICATION BY Bruce Alan Olmstead Nick Lestenkof and Bruce Alan Olmstead	BEGINNING DATE 4/15/75	ENDING DATE 12/09/75
REVIEW BY	BEGINNING DATE	ENDING DATE

QC. Carter 3/11/76 33

* U.S. G.P.O. 1972-769-562/439 REG.#6

CONTROL FOR: C09425 DATE OF LISTING: 09-05-75 GEOGRAPHIC POSITIONS IN DEGREES, MIN

RECORD NUMBER	YR	STA NUM	CARTO CODE	LABEL ANGLE	VECTOR DISP.	PLOT CODE	..... NAME	STATION HEIGHT	FREQUENCY (KHZ)
1	74	15	139	307.00	.60	4	SARA, 1974	0.0	0.00
2	74	25	254	307.00	.60	4	JOHNSTONE PT ECC, 1974	0.0	3306.50
3	74	26	250	307.00	.60	4	KAYAK, 1974	0.0	3306.50
4	74	32	254	30.00	1.00	4	KNOWLES HEAD ECC, 1974	0.0	3306.50
5	74	35	139	307.00	.60	4	EAGLE, 1974	0.0	0.00
6	74	36	139	307.00	.60	4	JON, 1973	0.0	0.00
7	74	37	139	307.00	.60	4	SIS, 1973	0.0	0.00
8	74	38	139	307.00	.60	4	ZAP, 1973	0.0	0.00

FILE CERTIFIED CORRECT FOR PLOTTING BY:....., DATE:.....

MAIN

1:40,000

TING: 09-05-75 GEOGRAPHIC POSITIONS IN DEGREES, MINUTES, AND SECONDS

R	PLOT CODE	NAME	STATION HEIGHT	FREQUENCY (KHZ)	LATITUDE -(S)	LONGITUDE -(E)
0	4	SARA, 1974	0.0	0.00	60 40 53.930	146 37 14.450
0	4	JOHNSTONE PT ECC, 1974	0.0	3306.50	60 28 59.510	146 36 43.190
0	4	KAYAK, 1974	0.0	3306.50	60 31 55.290	147 18 57.590
0	4	KNOWLES HEAD ECC, 1974	0.0	3306.50	60 40 54.850	146 37 15.990
0	4	EAGLE, 1974	0.0	0.00	60 29 11.680	146 32 10.410
0	4	JON, 1973	0.0	0.00	60 28 46.170	146 37 17.930
0	4	SIS, 1973	0.0	0.00	60 27 24.320	146 39 6.420
0	4	ZAP, 1973	0.0	0.00	60 27 8.200	146 39 12.400

BY:..... DATE:.....

VERIFIER'S REPORT
HYDROGRAPHIC SURVEY, H-9425

I. INTRODUCTION

This sheet was constructed and plotted at Pacific Marine Center, Seattle, Washington. Information relating to this survey follows as specified by Chapter 6 of the Provisional Hydrographic Manual.

II. CONTROL AND SHORELINE

Origin of the horizontal control is adequately described in Part F of the descriptive report and the season's horizontal control report for Prince William Sound, OPR-999.

The Mean High Water line originates with Class III manuscript T-ØØ634 dated July 1972. Field inspection was accomplished in June 1972. There is no field edit date. Field edit data was submitted by the NOAA Ship DAVIDSON to Photogrammetry at AMC. Coastal Mapping Division advises that only a partial field edit was compiled and that this manuscript would not be updated to Class I. Therefore, the shoreline has been transferred to the smooth sounding sheet in pencil.

III. HYDROGRAPHY

The depths at crossings are in good agreement. The 1Ø-fathom thru 2ØØ-fathom curves are adequately displayed on the smooth sheet with the following exception: at Latitude 6Ø°42'ØØ"N to Latitude 6Ø°43'3Ø"N Longitude 146°47'ØØ"W to Longitude 146°49'ØØ"W.there was insufficient sounding data to adequately delineate the 1ØØ-fathom and 2ØØ-fathom depth curves. Overlapping hydrographic information from H-9423 (DA-2Ø-2-74) was brought forward to supplement this area. The 5-fathom and lesser curves could not be completely drawn due to a lack of development within a depth of thirty feet. This is considered acceptable by the verifier on account of the sheet's status as a corridor survey.

Discrepancies between photogrammetric Class III manuscript T-ØØ634 dated July 1972 and the smooth field sheet are readily evident. These differences basically involve additional rock data located by the field and not compiled on the T-sheet. Geographic coordinates were computed by way of an azimuth and a distance. These geodetic measurements were determined by use of a MINI-RANGER system and Wild T1-A theodolite set up over an observing station and initialing on a second known horizontal control point. The smooth position field sheet containing the field edit plot was

compared against the PMC computed positions. Since the ship did not contain an automated plotting system, positions are subject to displacement. Only significant hydrographic features influencing the sounding data were plotted on the smooth sheet. (Note: See computed field edit attached)

The development of the bottom was satisfactorily delineated and determination of least depths was adequate.

IV. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports are adequate and conform to the requirements of the hydrographic manual except for the following: Bottom samples, 8Ø23, 8Ø24, 8Ø25, 8Ø3Ø, 8Ø35, 8Ø36, 8Ø37, 8Ø38 and 8Ø46 are recorded in sounding volume, C&GS Form 275. These bottom samples were transferred from H-9423 (DA-2Ø-2-74). The control for these positions was visual. The bottom samples were transferred directly from the boatsheet to the smooth sheet due to a lack of proper signals on H-9425 (DA-4Ø-1-74) for computation. The scaled latitude and longitude were recorded in the smooth position printout.

V. JUNCTIONS

H-9423 (DA-2Ø-2-74) - This 1:2Ø,ØØØ junctional sheet borders on the northeastern side of the 1:4Ø,ØØØ survey from Latitude 6Ø°35'ØØ"N to Latitude 6Ø°44'ØØ"N Longitude 146°42'ØØ"W to Longitude 146°5Ø'ØØ"W. Specifically, this includes the 5-fathom through 2ØØ-fathom depth curves. Several soundings were brought forward from H-9423 (DA-2Ø-2-74) to delineate the 1ØØ-fathom and 2ØØ-fathom curves as no overlap existed in this area for junctional comparison. An adequate junction was affected between these contemporary surveys and all curves were inked in the common area. With the exception of the 2ØØ-fathom depth curve, all remaining curves could not be inked in total due to a lack of contemporary survey data on the northern limits of this project.

H-9424 (DA-2Ø-3-74) - The junction with this survey extends from Latitude 6Ø°27'3Ø"N to Latitude 6Ø°35'3Ø"N Longitude 146°39'ØØ"W to Longitude 146°39'3Ø"W and includes the 5-fathom through 5Ø-fathom depth curves. The hydrography is in good agreement and all curves on H-9425 (DA-4Ø-1-74) were adjusted to be in coincidence

with this adjoining survey. The extreme ends of the depth curves on H-9424 (DA-2Ø-3-74) which were previously left in pencil and subject to interpretation, will need to be inked to conform to that data shown on H-9425 (DA-4Ø-1-74).

H-9385 (DA-2Ø-1-~~74~~ 73) - An adjoining survey at 1:2Ø,ØØØ, this sheet junctions the 1ØØ-fathom curve on the extreme southern project limits of H-9425 (DA-4Ø-1-74) to Latitude 6Ø°22'3Ø"N Longitude 146°46'ØØ"W. An adequate junction was made between these two surveys and the 1ØØ-fathom depth curve inked. This curve will have to be adjusted on H-9385 (DA-2Ø-1-73). No problems are anticipated as the verifier made a junctional comparison and this curve has room for change without effecting the depths shown. The 1ØØ-fathom and lesser depth curves at Latitude 6Ø°2Ø'3Ø"N Longitude 146°44'ØØ"W could not be completely inked for lack of junctional data in this area.

H-9382 (DA-4Ø-1-73) - This 1:4Ø,ØØØ junctional sheet borders almost the entire western limits of 1974 survey work. The area covered ranges from Latitude 6Ø°22'3Ø"N to Latitude 6Ø°52'ØØ"N and from Longitude 146°46'ØØ"W to Longitude ~~147°ØØ'ØØ~~"W. Specifically, the 2ØØ-fathom curve is common to both sheets. That portion of the curve at Latitude 6Ø°46'ØØ"N Longitude 146°52'ØØ"W will have to be adjusted on H-9382 (DA-4Ø-1-73). A junctional comparison reveals that an identical match in curves should provide no problems.

VI. COMPARISON WITH PRIOR SURVEYS

H-3186 (191Ø) 1:2Ø,ØØØ - The depths have generally deepened 2-4 fathoms inside the 5Ø-fathom curve since this prior survey. Beyond the 5Ø-fathom depths, seaward, the trend is one of shoaling 2-1Ø fathoms since 191Ø. One significant area of shoaling within the ten fathom curve, has accured at Latitude 6Ø°25'Ø3"N Longitude 146°42'24"W where a charted 5 3/4-fathom sounding has shoaled to 1~~5~~ fathoms. not a bottom change but a shoaler depth was found.

The shoreline, since 191Ø, has remained fairly stable from Latitude 6Ø°23'3Ø"N to Latitude 6Ø°28'ØØ"N. From Latitude 6Ø°23'ØØ"N to the southern project limits, the high water line has receded inland 2Ø - 5Ø meters.

The 1Ø-fathom curve has remained basically stable with one area of exception; at Latitude 6Ø°25'ØØ"N Longitude 146°42'3Ø"W a ~~shoaling~~ shifting of from 45 - 13Ø meters has taken place. In this same area, the 2Ø-fathom curve has deepened and moved shoreward. The 5Ø-fathom curve has generally ~~shoaled~~ shifted offshore by 1Ø-45 meters from Latitude 6Ø°25'ØØ"N

to Latitude 60°26'30"N and inversely has gotten deeper from Latitude 60°26'30"N to Latitude 60°28'00"N.

H-2612 (1902) 1:40,000 - No discernible pattern seems to exist when comparing sounding data between these surveys. The areas of hydrography compared reveal shoaling in some places while deepening in others. Some depths show no change. The shoreline has remained fairly stable throughout the survey limits. Some progression of up to 30 meters seaward has occurred since 1902 from Latitude 60°23'30"N to Latitude 60°25'30"N. Basically, from Latitude 60°21'00"N to Latitude 60°23'30"N the high water line has receded inland by some 50 meters in places. The 10-fathom, 20-fathom, 50-fathom and 100-fathom depth curves have all shoaled approximately 50-100 meters to seaward. One noted exception involves the 100-fathom curve at Latitude 60°23'30"N Longitude 146°44'30"W. Here, a prior 49-fathom sounding was developed on the present survey. Recorded soundings reveal depths over 130-fathoms with no indication of shoaling.

H-3675 (1914) 1:80,000 - Comparison of depths reveal a shoaling of 2-11 fathoms on the present survey. The areas analyzed comprise hydrography over 100-fathoms. No shoreline comparison was attempted because of the sheets status as an offshore survey. Both the 100-fathom and 200-fathom curves have moved seaward approximately 50-100 meters.

H-7766 (1948) 1:40,000 - This prior survey is a penciled smooth sheet which covers the extreme northern limits of the present survey. Basically, the soundings are in good agreement with some indication of shoaling by 1-3 fathoms since 1948. No appreciable changes are evident in either the 100-fathom or 200-fathom depth curves. No shoreline is depicted within this survey.

Surveying methods, surveying equipment, rugged and steep profile and the subjection of this area to numerous seismic disturbances has probably accounted for most of the discrepancies since these prior surveys.

The present survey is adequate to supersede all prior survey information within the common area, provided the rocks awash are brought forward in red from H-3186 (1910) and the lone rock awash transferred in violet from H-2612 (1902).

VII. COMPARISON WITH CHART

A. A chart comparison was made with 8520 (N.O. 16703) 15th Ed., January 20/73. Special mention is made of the following critical information for future chart application. This information to be used in compiling a data base for future

hydrographic investigation. See the attached chart section for additional information and clarification of the following chart comparison comments.

1. The rock, covered ½-fathom position approximate, was located by the field edit party. This feature lies in the cove west of Shelter Bay at Latitude 60°25'56"N Longitude 146°40'30"W. (See fix #148 day 200 at 1625; field edit report) It has been reported as a Local Notice to Mariners and is deemed a hazard particularly to any ship intending to anchor in this area. The field edit was accomplished at a minus stage of tide. The rock, however, was located using an inaccurate method of control. Development of this area was done during day 206 at a plus stage of tide. Least depth found was 1¼ fathoms. Due to the inaccurate methods of location, the verifier recommends that a rock, covered 3 feet, position approximate, at Mean Lower Low Water be charted as presently shown on the chart (16th Ed., 1975) until more precise methods of location can be made.

Field edit not available at time of review. Rock on 55 is shown as 05 Rk

least depth by hydro is 30 m. west of topo position

2. The rock charted at Latitude 60°25'49.00"N Longitude 146°40'12.00"W originates with H-3186 (1910) 1:20,000 scale survey. A rock awash was located at a minus stage of tide during field edit at Latitude 60°25'47.48"N Longitude 146°40'13.48"W. (See fix #99 day 199 at 1416) This rock plots approximately 20 meters southwest of the rock plotted on prior survey H-3186 (1910). The prior survey rock plots directly on line 619-620 day 199 which was run at a high range of tide. Fathograms revealed no indication of shoaling. Verifier believes these to be the same rocks with position discrepancy due to sheet distortion of copied prior survey and datum shift comparison methods. Recommend that a rock, awash at MLLW be charted as located by the field. See the attached chart, Item A.

Field Edit →

3. The rock awash on chart 8520 (N.O. 16703) at approximately Latitude 60°25'11"N Longitude 146°41'57"W originates with prior survey H-2612 (1902) 1:40,000 as a sunken rock. Field edit party found a rock covered 1 foot at MLLW Latitude 60°25'10.14"N Longitude 146°41'57.19"W, which corresponds quite closely to this feature. (See fix #76 day 198 at 1506; field edit report) Recommend that a rock awash

symbol be retained on the chart but plotted at the new field coordinates. This feature lies off an extended ledge as depicted on Class III manuscript T-ØØ634. See the attached chart, Item B.

4. The rock awash charted at Latitude 6Ø°24'51"N Longitude 146°42'11"W originates from H-3186 (191Ø) 1:2Ø,ØØØ. The ledge limits, on Class III manuscript T-ØØ634 included all other rocks from the prior survey in this area. Verifier could not accurately evaluate the field edit data encompassing the 191Ø data. And thus, recommends that this prior rock awash remain as charted. See the attached chart, Item C.

5. The ½ Rk position approximate charted at Latitude 6Ø°24'36"N Longitude 146°42'18"W originates with Chart Letter 454 1957. Here, a logger reported to have taken a sounding on the reported rock after his log tow had hung up at the above position. The field edit party found a rock baring six feet at a minus stage of tide Latitude 6Ø°24'34.54"N Longitude 146°42'23.98"W (See fix #143 day 2ØØ at 1541; field edit report) After tide correctors were applied, this rock became awash three feet at MLLW. Near this position, another rock was found covered two feet, Latitude 6Ø°24'35.35"N Longitude 146°42'24.43"W. (See fix #144 day 2ØØ at 1542; field edit report) This feature reduced to a sunken rock covered five feet at MLLW. Recommend the ½-fathom PA be shown as a rock awash baring three feet at MLLW as located in this survey. See the attached chart, Item D.

6. The charted rock awash at Latitude 6Ø°24'Ø9"N Longitude 146°42'39"W originates with prior survey H-3186 (191Ø) 1:2Ø,ØØØ. The field edit party found a rock baring 1 foot, Latitude 6Ø°24'Ø9.72"N Longitude 146°42'38.29"W. (See fix #124 day 2ØØ at 1435; field edit report) which corresponds to this prior rock information. Although the ledge limits have been extended by the field edit party in red to include this rock, no Class I manuscript will be compiled to reflect this situation. Recommend that an isolated detached rock awash be shown on the chart as located by the field. See the attached chart, Item E.

7. The charted rock awash at Latitude 6Ø°23'55"N Longitude 146°42'48"W originates with prior survey H-3186 (191Ø) 1:2Ø,ØØØ. A rock awash found by the

field was located Latitude 60°23'55.29"N Longitude 146°42'49.69"W. (See fix #130 day 200 at 1447; field edit report) This rock lies off the extended ledge limits as shown on the Class III manuscript. Recommend a rock, awash at MLLW, be charted as located by the field. See the attached chart, Item F.

8. The rock awash charted at Latitude 60°23'27"N Longitude 146°43'39"W originates with prior survey H-3186 (1910) 1:20,000. Field edit was done in this area but interpretation of data for plotting purposes was unclear to verifier. Verifier felt most conservative answer was to retain the prior rock data. Recommend that the rock as presently charted be retained. See the attached chart, Item G.

9. The rock awash charted at Latitude 60°22'31"N Longitude 146°43'45"W originates with H-2612 (1902) 1:40,000. A rock was located by the field edit party at Latitude 60°22'30.44"N Longitude 146°43'48.39"W (See fix #168 day 200 at 1906) as the outermost of several detached rocks baring 4 feet. Verifier believes this rock matches the prior survey information. Recommend that a rock baring 8 feet at MLLW be charted at the above field coordinates. See the attached Chart, Item H.

10. A rock charted at Latitude 60°21'30"N Longitude 146°43'51"W originates with H-2612 (1902) 1:40,000 as a rock awash. Although field edit was accomplished in this area, verifier recommends retaining prior charted data. See the attached chart, Item I.

The presurvey review as discussed in the Descriptive Report is adequate. The following items were discussed in the Descriptive Report but do not provide definitive clarification for charting.

1. Pre-Survey Review Item #6 - The rock, covered 1/2-fathom PA charted in Latitude 60°24.61'N Longitude 146°42.30'W was found to be covered 1[5] at Latitude 60°24'36"N Longitude 146°42'24"W. The field edit party found a rock awash at Latitude 60°24'34.54"N Longitude 146°42'23.98"W baring 3 feet at MLLW. Near here at Latitude 60°24'35.35"N Longitude 146°42'24.43"W a rock covered 5 feet at MLLW was located. (See item #5 for further history of this area.) incorrect conclusion under chart comparison

2. The 5 3/4-fathom sounding at Latitude 60°25'03"N Longitude 146°42'24"W was developed and a least depth of 15 fathoms was extracted. Latitude 60°25.02'N Longitude 146°42.40'W.

3. The 2-fathom sounding found at Latitude 60°23'49"N Longitude 146°43'03"W does not supersede the pre-survey review 5 3/4-fathom sounding charted at Latitude 60°23'31"N Longitude 146°43'06"W. The depth in this area has shoaled to only 35 fathoms and should be so charted.

Not in same vicinity

B. Controlling depths - There is no indication of U.S. Army Corps of Engineers survey data in this region.

C. Aids to Navigation - There are no fixed or floating aids to navigation within the limits of this survey. However, special mention is made of the following: a new fixed aid, Bear Cape Light, was under construction during this survey. The light is to be located on a skeleton steel tower. Complete information concerning this light is attached within the descriptive report. Recommend this be shown on the next edition of the chart.

VIII. COMPLIANCE WITH PROJECT INSTRUCTIONS

The survey adequately complies with the project instructions.

IX. ADDITIONAL FIELD WORK

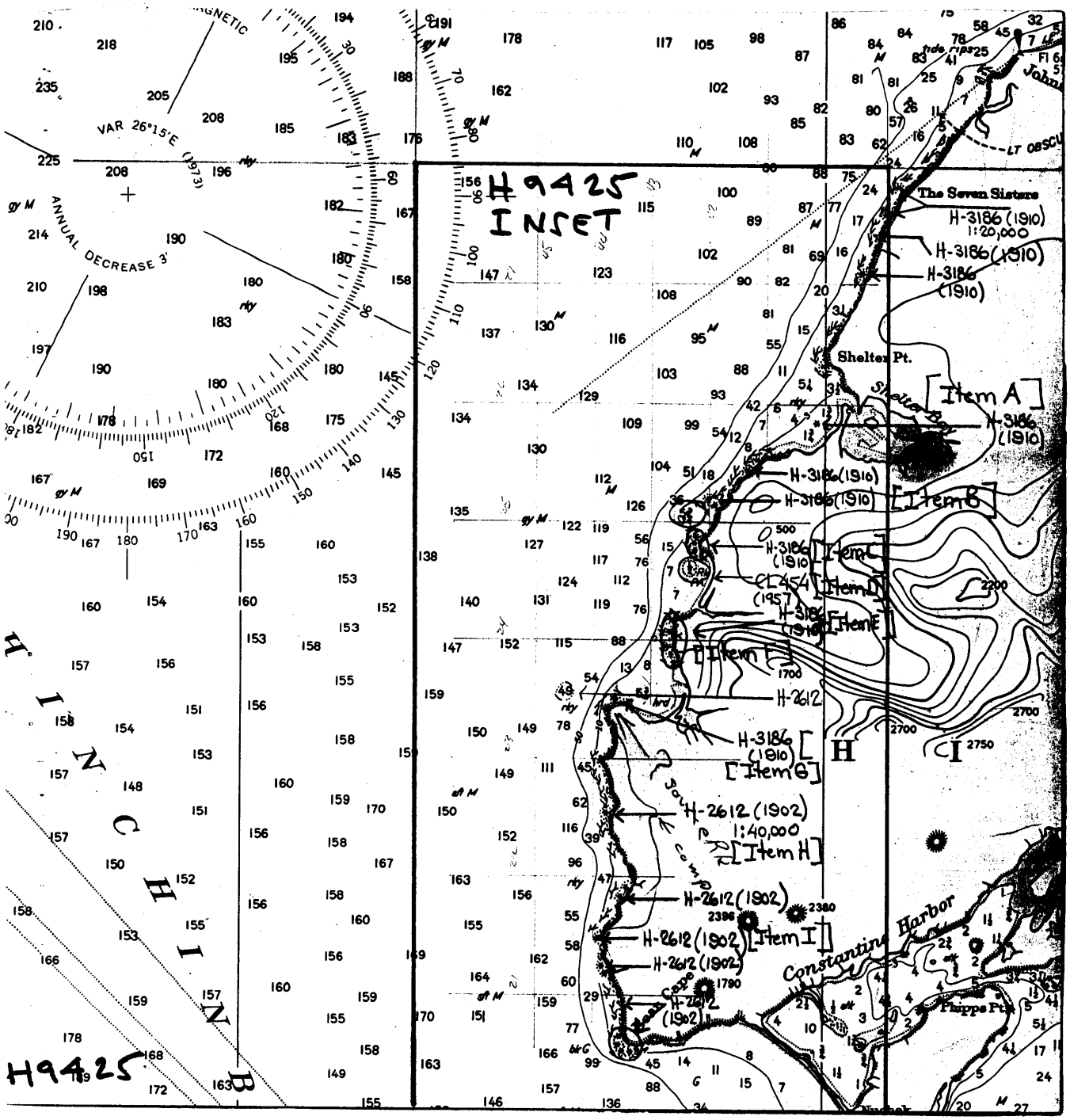
This is a good basic survey. Additional field work is not required with the exception of the following item: Part VII, Section A where inadequate field methods of positioning were used to locate a sunken rock in the cove west of Shelter Bay.

Error probably not more than 30 m.

Respectfully submitted by,

Bruce Alan Olmstead

Bruce Alan Olmstead
Cartographic Technician
December 09, 1975


H9425
INSET
The Seven Sisters
H-3186 (1910)
1:20,000
H-3186 (1910)
H-3186 (1910)
Shelter Pt.
[Item A]
H-3186 (1910)
H-3186 (1910)
[Item B]
H-3186 (1910)
[Item C]
CL454 (1957)
[Item D]
H-3186 (1910)
[Item E]
[Item F]
H-2612
H-3186 (1910)
[Item G]
H
I
H-2612 (1902)
1:40,000
[Item H]
H-2612 (1902)
[Item I]
H-2612 (1902)
H-2612 (1902)
H-2612 (1902)
Constantine Harbor
Phippe Pt.
LT OBSCU
VAR 26°15'E (1973)
ANNUAL DECREASE 3'
MAGNETIC
H I N C H I N B R O O K
H9425

FIELD TIDE NOTE

OPR-999-DA-74

Prince William Sound

CONTROL GAGE: CORDOVA, ALASKA
PREDICTED TIDES: Johnstone Point, Alaska
Time of all data: ØØØØ 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 estableshed (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 4July74, 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.

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 Pt.
Knowles Head

Period: May 23 - July 26, 1974

HYDROGRAPHIC SHEET: H-9425

OPR: 999

Locality: Prince William Sound, Alaska

Plane of reference (mean lower low water): 13.2 ft. (Johnstone)
12.7 ft. (Knowles thru 1800 6/11)

Height of Mean High Water above Plane of Reference is 11.9 ft. (Knowles after 1800 6/11)
11.0 ft.

Remarks: Recommended zoning:

(1) South of 60°35' direct on Johnstone Pt.

(2) North of 60°35' direct on Knowles Head.

James F. Hubbard
for Chief, Tides Branch

.H-9425 VELOCITY TABLES

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000030 0 0000 0002 000 112 000000 000000
000150 0 0001
000400 0 0002
001040 0 0001
001490 0 0000
001810 0 0001
002030 0 0002
002200 0 0003
000010 0 0000 0003 000 112 000000 000000
000050 0 0001
000100 0 0002
000490 0 0003
000830 0 0002
001410 0 0001
001730 0 0002
001960 0 0003
002000 0 0004
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31317874

TRA

182220 0 0004 0002 178 000000 000000

212100 0 0004 0003 181 000000 000000

024730 0 0004 0003 182 000000 000000

025340 0 0004 0003 183 000000 000000

000029 0 0004 0003 184 000000 000000

095400 0 0004 0003 197 000000 000000

000200 0 0004 0003 198 000000 000000

024800 0 0004 0003 199 000000 000000

003220 0 0004 0003 200 000000 000000

200400 0 0004 0003 206 000000 000000

061820 0 0004 0003 207 000000 000000

31319074

202520 0 0003 0003 190 000000 000000

175700 0 0003 0003 191 000000 000000

000000 0 0003 0003 192 000000 000000

APPROVAL SHEET

The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the Verifier's Report)

Examined and approved,

James S. Green
Supervisory Cartographic Technician

Approved and forwarded,

Donald E. Nortrup, LCDR, NOAA
Chief, Processing Division
Pacific Marine Center

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY, Pacific Marine Center
1801 Fairview Ave. E., Seattle, Washington 98102

Date : 23 December 1975

Reply to Attn. of: CPM 3

To : H. R. Lippold, RADM
Director

From : Donald E. Nortrup, LCDR
Chief, Processing Division

Subject: PMC Hydrographic Survey Inspection Team Report - N-9425

H-9425 is a Navigable Area Survey of Prince William Sound in the vicinity of Orca Bay conducted by NOAA Ship DAVIDSON in 1974 in compliance with Project Instructions OPR-999-DA-74 dated 04 February 1974. This survey was previously inspected in October 1975 and returned to Verification Branch for further processing. A copy of the previous inspection report is attached. The deficiencies cited in the previous report have been resolved.

The shoreline manuscript of the survey area, T-0034, has not been provided. Field edit was accomplished in the survey area; however, the complete manuscript was not edited. A partial update of the manuscript was requested but has not been provided. In the interest of expediting the application of survey data, it was determined that further delay was not warranted. The field edit data has been closely examined and critical information applied to the smooth sheet by the verifier. The shoreline remains basically unverified and is shown in pencil on the smooth sheet.

The project instructions for navigable area surveys are ambiguous in specifying the detail in which inshore areas are to be surveyed. This survey approaches fulfillment of the requirements of a basic survey in its coverage of the inshore area. Line spacing along the shore of Hinchinbrook Island meets the requirements for open coasts with one exception. An attempt to fill a split in the small bay at approximately 60°23:7, 146°43:4 was missed leaving a 200 meter gap in an area requiring 100 meter spacing for basic coverage. It is noted, without criticism, by the inspection team that hydrographic line orientation in the deep water portion of the survey parallels the depth curve orientation.

The inspection team finds H-9425 to be a good navigable area survey and recommends that it receive final administrative approval.

Attachment

D. E. Nortrup, LCDR

Arnold Eichelberger

Dean Seidel, LCDR

John Albright, LCDR

October 7, 1975

REPORT OF HYDROGRAPHIC INSPECTION TEAM - H-9425

This survey is being returned to verification for further work as follows:

1. Junction comparisons are to be made with H-9382, H-9385, H-9424 and H-9423. Copies of all surveys except H-9423 are being requested from the Hydrographic Data Section in Rockville. H-9423 is still in house and will be replotted at the appropriate scale for comparison.

2. The chart comparison section of the Descriptive Report is unclear in addressing the charted 5 3/4 fathom sounding. This ambiquity should be resolved by an addendum to the verifier's report.

3. The comparison with prior surveys needs to be reconsidered, particularly the near shore (less than 100 fathom) area of H-3186. The source of the rock charted at approximately 60°23.5'N, 146°43.7'W should be determined. If the rock lies within the survey area then consideration must be given to carrying the symbol forward to the current survey.

4. The verifiers' names are to be added to the Title Sheet of the Descriptive Report.

5. The year of the survey is incorrectly stated on the position overlay as 1971.

Donald E. Nortrup

Dean R. Seidel

Arnold Eichelberger

ADMINISTRATIVE APPROVAL

H-9425

The smooth sheet and reports of this survey have been reviewed and found to be complete and adequate for charting.

H. R. Lippold, RADM
Director, PMC

12/23/75
Date

REGISTRY NO. 9425

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey, the following shall be completed:

CARDS CORRECTED

DATE_____ TIME REQUIRED_____ INITIALS_____

REMARKS:

REGISTRY NO. 9425

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE_____ TIME REQUIRED_____ INITIALS_____

REMARKS:

Take from excess day 198 time 210010

Reject pos 8071 8073

Put in clears day 198 time 204209

H-9425

Items for Future Presurvey Reviews

The location of the following rocks should be verified.

Rock covered 3 ft. at MLLW Lat. 60°25.9', long. 146°40.5'.
Rock uncovered 3 ft. at MLLW lat. 60°25.8', long. 146°40.22'.

Position Index		Bottom Change Index	Use Index	Resurvey Cycle(Years)
Lat.	Long.			
602	1465	2	1	50
602	1464	1	1	50
603	1465	0	1	50
603	1464	0	1	50
604	1465	1	1	50

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

February 25, 1976

C323

TO: A. J. Patrick, Chief
Marine Surveys Division

THRU: Chief, Quality Control Branch

FROM: R. H. Carstens, Quality Evaluator

SUBJECT: Quality Control Report, H-9425 (1974)
Hinchinbrook Island to Goose Island

Survey H-9425 was examined with respect to data acquisition, development of least depths and bottom configuration, adequacy of junctions and sounding line crossings, cartographic presentation, verification and review, and, in general, was found to conform with National Ocean Survey standards and requirements.

The following deficiencies were noted:

1. The title sheet was not corrected. "The Automated Plot by..." should have shown PMC Xynetics Plotter. The line "Soundings taken by..." should have handlead and pole scratched through. The line for "Vessel" should have included the Launch DA-1.

2. The tide corrector printout was not included among the records.

3. Verifier's annotations in the descriptive report were not inked.

4. The prior surveys compared with should be tabulated at the beginning of the comparison as in a standard review. Charted items originating with the prior surveys should be identified and discussed under Comparison with Prior Surveys and not under Comparison with Charts.

5. A statement under Comparison with Prior Surveys that a charted 5 3/4 has shoaled to 1 1/2 fms. when actually a shoaler depth on a ridge was found, is obviously incorrect.

6. The reference under Control and Shoreline to a manuscript T-00634 should have been TP-00634, a different series of numbers.

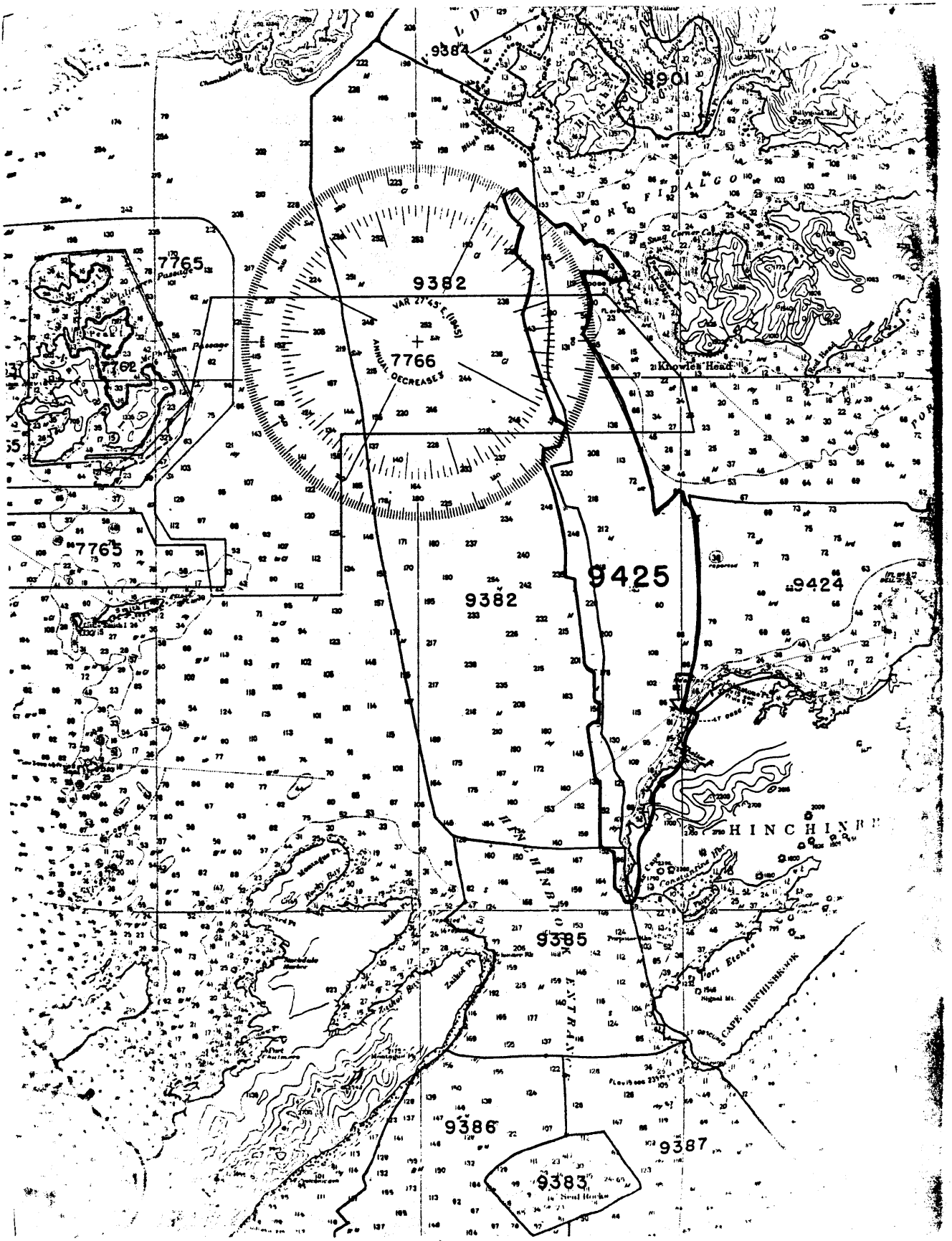
7. Because a Class I topographic manuscript is not available, the shoreline is shown in pencil and possible conflicts with hydrographic information cannot be resolved at the present time.

8. The location of the rock covered 3 ft. at MLLW in Lat. 60°25.9', long. 146° 40.5' and the rock uncovered 3 ft. at MLLW in lat. 60°25.8', long. 146° 40.22' from field edit information could well have been supported by hydrographic fixes.

9. As few bottom characteristics were obtained, these should have been supplemented from prior surveys particularly in the inshore areas around Hinchinbrook Island. Additional bottom characteristics were added during quality evaluation.

10. The tide gages were not shown on the sounding plot.

Robert C. Munson


9384
8901
9382
VAR 27°45' E. (1945)
ANNUAL DECREASE 5'
7766
7765
7762
7765
9382
9425
9424
9385
9386
9387
9383
Knowles Head
Spoil Ground
CAPE HINCHINBROOK
HINCHINBROOK ENTRANCE

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9425

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	7 June 76	Warren Hansen	Full ~~Part Before~~ (After) ~~Verification Review Inspection~~ (Signed) Via
			Drawing No. 16 ED.
8520	6/25/76	WH & DJK	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. T-sheets must be applied before
			Hydro can be considered fully applied —
8519	7/26/76	J.A.G.	Full ~~Part Before After Verification Review Inspection~~ Signed Via
			Drawing No. All offshore hydro on this cht
			fully appl'd thru cht. 8520 16th Ed. and this cht.
8519	9/28/77	W.J. Borowski	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. Added 3rd 5-0, 20 fm & 100 fm curves, revised
			soundings. Consider fully appl'd cht.
8551	10/7/77	Mark J. Friese	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. Fully appl'd hydro throughout common
			area thru Chart 8519 DWG. A.P. #16
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

USCOMM-DC 8558-P63