

9092

Diag. Cht. No. 8102-2.

FORM C&GS-504

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. FA-20-4-69 Office No. H-9092

LOCALITY

State Alaska

General locality Clarence Strait

Locality Narrow Point to Tolstoi Island

1969

CHIEF OF PARTY

J. B. Watkins, Jr.

LIBRARY & ARCHIVES

DATE 9-11-72

USCOMM-DC 37022-P66

9092

HYDROGRAPHIC TITLE SHEET

H-9092

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.

FA-20-4-69

State Alaska

General locality Southeast Alaska Clarence Strait

Locality Clarence Strait Narrow Point to Tolstoi Island

Scale 1:20,000 Date of survey 8-28 October 1969

Instructions dated 8 Sept 1969 Project No. OPR-465

Vessel USC&GSS FAIRWEATHER, Launches FA-4, FA-5

Chief of party J. B. Watkins, Jr., CAPT, USESSA

Surveyed by Ship's Personnel

Soundings taken by echo sounder ~~XXXXXXXXXX~~

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Positions Verified by
~~XXXXXXXXXX~~ C.A.J. Pauw
verified

Automated plot by PMC - Gerber
Digital Plotter

Soundings ~~XXXXXX~~ by C.A.J. Pauw

Soundings in fathoms ~~XXXXXX~~ at ~~XXXXXX~~ MLLW

REMARKS:

*Applied to stds 10/16/72
CAB.*

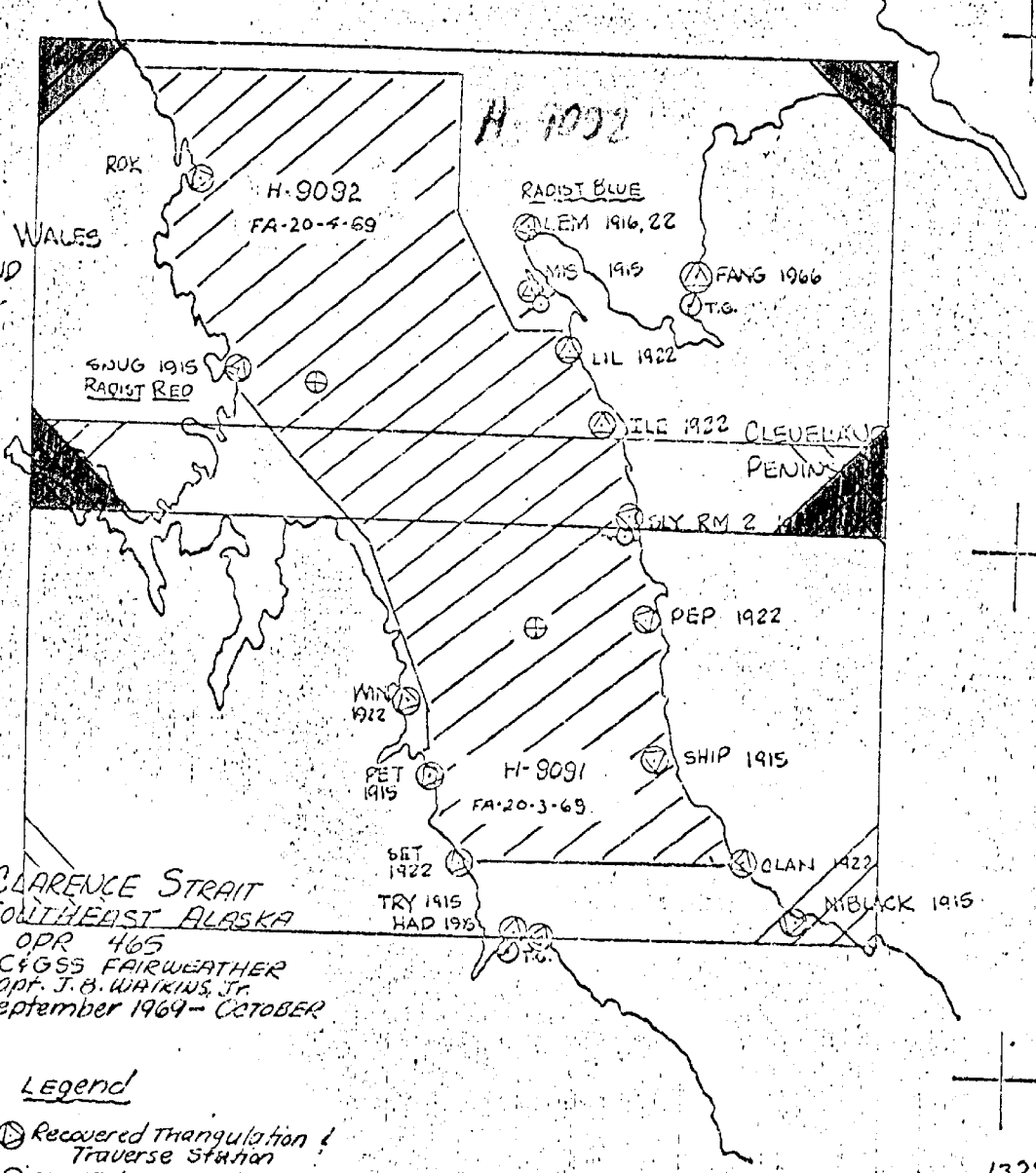
Examined for NM 10/19/72 CF

LOCATION MAP

SHEETS H-9091 & H-9092

55°50'

55°6'



PRINCE OF WALES ISLAND

H-9092

H-9092
FA-20-4-69

RADIST BLUE

LEM 1916, 22

MS 1915

FANG 1966

T.G.

LIL 1922

RQJUG 1915
RQJST RED

WILE 1922 CLEVELAND PENINS

SILY RM 2

PEP 1922

MIN 1922

H-9091
FA-20-3-69

SHIP 1915

SRT 1922

TRY 1915
HAD 1915

QLAN 1922

NBLACK 1915

CLARENCE STRAIT
SOUTHEAST ALASKA

OPR 465

USCGC SS FAIRWEATHER

CAPT. J. B. WALKINS, JR.

September 1964 - October

Legend

- ⊙ Recovered Triangulation & Traverse Station
- T.G. Tide gage station
- ⊕ Oceanographic station
- ▨ Hydrography
- ⊛ Magnetic Station

55°30'

55°30'

132°40'

132°00'

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-9092 (FA-20-4-69)

1:20,000

USC&GS Ship FAIRWEATHER

CAPT. J. B. Watkins, Jr., Commanding

1969

Clarence Strait, S. E. Alaska

A. PROJECT

Hydrographic Survey H-9092⁽¹⁹⁶⁹⁾ (FA-20-4-69) was accomplished under OPR-465, according to instructions dated 8 September 1969.

B. AREA SURVEYED

This survey was performed in Clarence Strait between Prince of Wales Island and Cleveland Peninsula in S. E. Alaska. The east and west limits of the survey were 132° 13.0' W and 132° 30.0' W respectively. The north and south limits were 55° 49.5' N and 55° 41.0' N respectively. This survey was accomplished between October 8 and 28, 1969.

Junctions are made to the south with H-9084⁽¹⁹⁶⁹⁾ & H-9085⁽¹⁹⁶⁹⁾ (1969) and to the west with ~~FA-10-7-69~~ which was surveyed concurrently by the Ship DAVIDSON. These are the only junctions with contemporary surveys. Junction was also made to H-9191 (1971) to the northeast.

C. SOUNDING VESSELS

Ship FAIRWEATHER and launches FA-4, and FA-5 were utilized on this survey. The boatsheet color code and position number designation are as follows:

<u>FAIRWEATHER</u>	<u>Launch FA-4</u>	<u>Launch FA-5</u>
Violet	Blue	Red
0001-4000	6001-8000	8001-9999

D. SOUNDING EQUIPMENT

Echo soundings on Ship FAIRWEATHER and one launch were obtained using Raytheon DE-723 fathometers. Serial numbers were as follows:

FAIRWEATHER 558 Launch FA-5 561

The Ross 4004 fathometer was used on Launch FA-4. An operation report on this instrument is being submitted separately. Edo UQN serial numbers 128 M and 130 M combined with Mc Kiernen-Terry PDR #324 served as a backup system for ship hydrography.

Velocity corrections were obtained using temperature and salinity data from Nansen casts. Draft corrections for the ship are equal to the amount by which the ship's draft exceeded 2 fathoms on a particular day. Echo corrections apply to launch sounding and are based on daily bar checks. Initial corrections are the amount by which the initial check varies from the assumed preset initial (0 fms for launches, 2 fms for ship). All of these corrections are tabulated in the appendix.

Sounding corrections are treated more fully in the Fathometer Report, 1969 Field Season.

E. SMOOTH SHEET

To be completed by the smooth plotter.

F. CONTROL

For visual control, signals were constructed on either triangulation stations or positions located by photogrammetric methods. Photo-hydro signals were transferred to the boatsheet from Incomplete Manuscripts (1:10,000) T-12376, T-12382, T-12378, T-12377.

For electronic control, range-range RAYDIST, frequency 3281.030 KHz, lane width 45.6674 m, was used. RAYDIST Red was located by traverse from Station SNUG 1915, 1922.

RAYDIST Green was located at Station HAD 1915, until 23 Oct. 1969 at which time it was moved to Station LEM 1916, 1922 and became RAYDIST Blue.

Calibration of the ship's RAYDIST equipment was by 3 point sextant fixes with check angles. An Abstract of Electronic Control Corrections is included at the end of this report. For further information, see RAYDIST Calibration Report, Clarence Strait, FAIRWEATHER, 1969.

G. SHORELINE

The sources of shoreline detail are those manuscripts mentioned in section F and T-12369, T-12372, T-12373. Any changes have been noted on the boatsheet. The dashed lines offshore are the approximate limits of the ledges, rocky areas, and kelp beds as indicated.

The presence of ledges and steep shores prevented running the launches sufficiently close to shorelines to delineate the low water line by soundings.

H. CROSSLINES

Crosslines, consisting of approximately 12% of the sounding lines, were in good agreement throughout the survey with exceptions at $55^{\circ} 48.5' N$, $132^{\circ} 22.4' W$, and $55^{\circ} 47.0' N$, $132^{\circ} 20.3' W$ which are areas of steep bottom relief.

I. JUNCTIONS

All of the junctions listed in section B of this report were found to be in good agreement.

J. COMPARISON WITH PRIOR SURVEY

A comparison was made with the only prior survey of the area, H-1649b, dated 1885, scale 1:80,000. In general, soundings were in good agreement. However, the small scale of, and the scarcity of soundings on the prior survey do not allow an accurate comparison.

K. COMPARISON WITH CHARTS

A comparison was made with the one chart covering the area: C&GS chart 8102, dated October 30, 1967, scale 1:229,376. In general, soundings were in good agreement.

L. ADEQUACY OF SURVEY

This survey is considered to be complete and adequate to supersede prior surveys for charting purposes.

M. AIDS TO NAVIGATION

Narrow Point Light, Fl. W., 6^S is located on a small house with a red and white checkered square. The center of the house is approximately 5 feet west of triangulation station NAR 1915, $55^{\circ} 47' 28.75'' N$, $132^{\circ} 28' 28.503'' W$.

The position of Narrow Point Light, Number 2987, was not determined during this survey. Coordinates given in Light List, Vol. III, 1969, CG-162 are 55° 47.5' N, 132° 28.5' W.

N. STATISTICS

<u>Vessel</u>	<u>No. of Position</u>	<u>Miles of Sounding Lines</u>
FAIRWEATHER	955	326.2
FA-4	309	53.2
FA-5	481	86.5
Bottom samples	11	
Oceanographic stations	0	

O. MISCELLANEOUS

Various rocks, kelp beds, and other objects were located by sextant or Raydist fixes and are plotted on the boat-sheet. An uncharted shoal (not a danger to navigation) was discovered during the survey and reported to Chief Nautical Data Branch (Memorandum dated 4 December, 1969).

P. RECOMMENDATIONS

It is recommended that Narrow Point Light be located by ground methods on a subsequent survey in this area.

Due to land interference with Raydist control, hydrography was not accomplished north and west of 55° 48.0' N, 132° 29.4' W. It is recommended that with the availability of shoreline manuscripts for this area that visual hydrography be accomplished to junction with the present survey.

Q. REFERENCE TO REPORTS

For additional information the following reports may be consulted.

1. Fathometer, 1969 Field Season, Ship FAIRWEATHER.
2. Special Report, Ross 400 Fathometer, 1969.
3. Season's Report, FAIRWEATHER, 1969
4. Raydist Calibration Report, Clarence Strait, FAIRWEATHER, 1969. (Included in this report)

Respectfully submitted


William D. Neff
William D. Neff
LT (jg), USESSA

APPROVAL SHEET

Project OPR-465
Sheet H-9092 (FA-20-4-69)

Clarence Strait, Alaska

The field work on this survey was accomplished under direct supervision of the Commanding Officer. The boatsheet was given daily inspection to check for adequacy and accuracy. The survey is considered complete and adequate and no additional field work is considered necessary except as noted under "Recommendations."


J.B. Watkins, Jr.
CAPTAIN, USESSA
Commanding Officer
USC&GSS FAIRWEATHER

LIST OF STATIONS ON H-9092 (FA-20-4-69)

Name used in Hydrographic Survey	Latitude			Longitude			Origin of Station
	°	'	m.	°	'	m.	
056	55	42	0463	132	26	0727	056 T-12376
057	55	42	1008	132	26	0706	057 "
058	55	42	1382	132	26	0639	058 "
059	55	42	1508	132	26	0765	059 "
060	55	42	1752	132	26	0576	060 "
061	55	43	0358	132	26	0592	061 "
063	55	43	0868	132	26	0932	063 "
064	55	43	1111	132	26	0960	064 "
065	55	43	1329	132	26	1041	065 "
066	55	43	1510	132	27	0211	066 "
067	55	43	1524	132	27	0358	067 "
062	55	43	1817	132	27	0474	062 "
068	55	43	1404	132	27	0527	068 "
069	55	43	1618	132	27	0673	069 "
070	55	44	0151	132	27	0799	070 "
071	55	44	0270	132	27	1018	071 "
072	55	44	0792	132	27	0918	072 "
073	55	44	1159	132	28	0292	073 "
074	55	44	0959	132	28	0755	074 "
075	55	44	1818	132	28	0631	075 "
076	55	45	0308	132	28	0779	076 "
077	55	45	0776	132	29	0402	077 "
078	55	45	1141	132	28	0885	078 "
022	55	41	0823	132	13	0472	022 T-12378
021	55	41	1188	132	13	0389	021 "
020	55	41	1784	132	13	0598	020 "
019	55	42	0252	132	13	0495	019 "
018	55	42	1138	132	14	0055	018 "
017	55	42	1676	132	14	0461	017 "
016	55	43	0760	132	14	0961	016 "
012	55	40	0929	132	13	0150	012 ^{R.M. No. 2} Δ SLY, 1915/27 ² , Bk. 10, p12.
044	55	40	1633	132	13	0010	044 T-12382
050	55	47	0045	132	28	0109	050 Δ ROK, 1915, Bk. 10, p12.
007	55	41	1344	132	25	0651	007 DA-10-7-69
010	55	43	1504	132	15	0358	010 Δ LIL, 1922, Bk. 10, p12.
011	55	42	0432	132	14	0011	011 Δ ILE, 1922, Bk. 10, p12.
080	55	47	0889	132	28	0497	080 Δ NAR, 1915/22, Bk. 10, p12.
079	55	46	0055	132	28	0750	079 Hydrographic
006	55	43	0699	132	26	0715	006 SNUG, 1915/1922
033	55	42	0000	132	12	0000	pseudo
100	55	44 46	0542 0092	132	15 16	0386 0910	LEM, 1916/22

USC&GSS FAIRWEATHER

MSS - 20

John B. Watkins, Jr., Comdg.

VELOCITY CORRECTIONS
Clarence Strait - 1969

Corrections to be applied to sheet numbers FA-20-3-69, and
FA-20-4-69.

Applicable Depths (fms)	Corrections (fms)
0 - 12	+0.1
12 - 32	+0.2
32 - 42	+0.3
42 - 62	+0.4
62 - 77	+0.5
77 - 97	+0.6
97 - 102	+0.7
102 - 120	+0.8
120 - 140	+0.9
140 - 160	+1.1
160 - 180	+1.2
180 - 200	+1.4
200 - 400	+3.4

TIDE NOTE FOR OPR-465, CLARENCE STRAIT, ALASKA

(1969)

(1969)

Tide corrections for H-9091¹ (FA-20-3-69) and H-9092¹ (FA-20-4-69) were determined from the bubbler tide gage at Union Bay for dates October 7 thru 25, 1969. The Tolstoi Bay bubbler tide gage, operated by Ship DAVIDSON, was used October 27 thru 28 while the Union Bay tide gage was inoperative. Hourly heights were scaled by ship's personnel.

TIDE NOTE FOR HYDROGRAPHIC SHEET

March 5, 1970

~~XXXXXXXXXXXXXXXXXXXX~~ Pacific Marine Center

Plane of reference approved ~~XXXXXXXXXXXXXXXXXXXX~~ for

HYDROGRAPHIC SHEET 9091, 9092

Locality: ~~XXXXXX~~ Clarence
~~XXXXXX~~ Ketchikan Strait, Alaska

Year
~~XXXXXXXXXX~~: 1969

Plane of reference is mean lower low water

Tide Station Used (Form C&GS-681):

Union Bay, Earnest Sound, Clarence Strait
Thorne, Thorne Bay, Clarence Strait

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

Union Bay	14.9 feet
Thorne, Thorne Bay	14.6 feet

Remarks

J. M. Symons
Chief, Tides and Currents Branch

GEOGRAPHIC NAMES

Survey No. H-9092

Name on Survey	Source										
	A	B	C	D	E	F	G	H	K		
Clarence Strait											1
Cleveland Peninsula											2
Forss Cove											3
Lemesurier Point											4
Meyers Chuck											5
Meyers Island											6
Misery Island											7
Narrow Point											8
Prince of Wales Island											9
Three Islands											10
Tolstoi Island											11
ERNEST SOUND											12
LEE Rock											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25
											26
											27

CBH
2-10-74

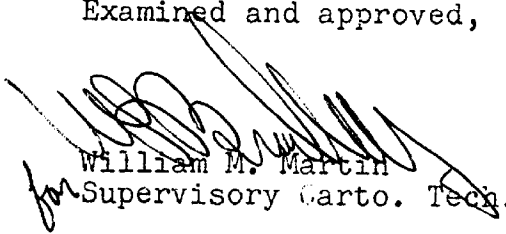
Names checked & approved,

A. J. Wright
10-28-72

APPROVAL SHEET

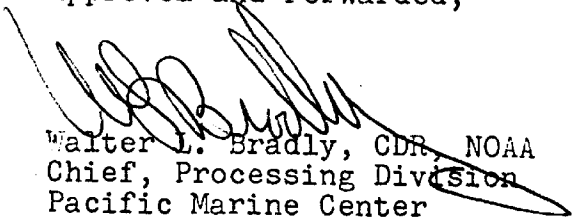
The smooth sheet has been inspected, is complete, and meets the requirements of the General Instructions for automated surveys and the Hydrographic Manual. (Note: All exceptions are listed in the Verifier's Report.)

Examined and approved,



William M. Martin
for Supervisory Carto. Tech.

Approved and Forwarded,



Walter L. Bradley, CDR, NOAA
Chief, Processing Division
Pacific Marine Center

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-9092 (FA-20-4-69)

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS		3	
DESCRIPTIVE REPORT		1	OVERLAYS		9	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES			1			
CAHIERS	1		1			
VOLUMES	8					
BOXES				1		
T-SHEET PRINTS (List)						
SPECIAL REPORTS (List) 1 PN Overlay 1 Electronic Curve Overlay						

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				1745
POSITIONS CHECKED		789		
POSITIONS REVISED <i>8 Recomputed</i>		404		
DEPTH SOUNDINGS REVISED		about 30%		
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		26 hrs	20	46
JUNCTIONS		27 hrs	3	30
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		96 hrs	22	118
<i>Tabular Positions Across Baseline</i> SPECIAL ADJUSTMENTS		108 hrs	15	123
ALL OTHER WORK		283 hrs	17	300
TOTALS		540 hrs	77	617
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
VERIFICATION BY <i>Cornelius A. J. Pauer</i>	Feb 23rd 1971		Aug 15th 1972	
REVIEW BY <i>J. Karpinsky</i>	Nov 22, 1974		Apr. 5, 1974	

Control ... 51 hrs. Insp RW Derkuzarian 2/9/76 51 hrs.

Reg. No. H-9092

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 REQ'D _____ INITIALS _____

REMARKS:

Sounding position numbers 8379-8390, geographic positions should be corrected at time of final update.

H-9092

Information for Future Presurvey Reviews

Little significant information from the earlier surveys covering the area of Clarence Strait from Narrow Point to Tolstoi Point justify a detailed comparison with the present survey. The bottom configuration, in general, appears to have remained the same and is adequately developed but future surveys should include verification of least depths over the following sunken rocks originating with the Class I photogrammetric manuscripts.

<u>Rock</u> <u>(depth in feet)</u>	<u>Latitude</u>	<u>Longitude</u>
4	55°46.62'	132°28.55'
6	55°40.66'	132°13.32'
6	55°40.71'	132°13.20'
6	55°40.73'	132°13.20'

<u>Position Index</u>		<u>Bottom Change</u>	<u>Use</u>	<u>Resurvey</u>
<u>Lat.</u>	<u>Long.</u>	<u>Index</u>	<u>Index</u>	<u>Cycle</u>
554	1322	2	1	50 years
554	1323	2	1	50 years

OFFICE OF MARINE SURVEYS AND MAPS

MARINE SURVEYS DIVISION

MODIFIED HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9092

FIELD NO. FA-20-4-69

Alaska, Clarence Strait, Narrow Point to Tolstoi Island

SURVEYED: October 8-28, 1969

SCALE: 1:20,000

PROJECT NO.: OPR-465

SOUNDINGS: Precision Depth Recorder-EDO/UQN
Ross 400A Digital Depth Recorder
DE-723 Depth Recorders

CONTROL: Raydist
Sextant Fixes on
Shore Signals

Chief of Party	J. B. Watkins, Jr.
Surveyed by	M. R. Mulhern
.....	A. F. Divis
.....	J. E. Thomasson
.....	W. D. Neff
.....	J. J. Lenart
.....	D. C. Suva
.....	G. C. Saladin
Automated Plot by	Gerber Digital Plotter (PMC)
Verified by	C. A. J. Pauw
Reviewed by	G. K. Myers
.....	Date: April 5, 1974
Inspected by	R. W. DerKazarian

1. Control and Shoreline

The source of control is adequately described in paragraph F of the Descriptive Report.

The shoreline originates with unreviewed Class I photogrammetric manuscripts T-12369, T-12372, T-12373 of 1963-1971; T-12376, T-12377, T-12378, and T-12382 of 1963-1969.

The mean high water line is shown for guidance only; the true position is shown on the topographic surveys previously mentioned.

Several foreshore characteristics shown as "Rky" on several of the manuscripts are described by the more appropriate "Boulders" on the smooth sheet of the present survey.

2. Hydrography

Depths at crossings are in good agreement. The usual depth curves are adequately delineated. In some cases, brown depth curves were drawn by the reviewer to emphasize lesser depths in areas of deeper soundings.

The development of the bottom configuration and determination of least depths are considered adequate. Depths through the strait are deep and adequately developed to provide safe passage. However, no hand lead verification of inshore critical depths was accomplished.

3. Condition of Survey

The plotting, sounding records, Descriptive Report, and various sounding printouts are adequate and conform to the requirements of the Hydrographic Manual, supplemented by the Instruction Manual - Automated Hydrographic Surveys.

A. No instrumental correction for the Ship FAIRWEATHER echo sounder was determined. Neither were simultaneous comparisons made for monitoring the operation of the echo sounders.

B. A twelve-position sounding line which provided channel depths in the vicinity of latitude $55^{\circ}46.0'$, longitude $132^{\circ}28.95'$ was determined to be two lanes out of position and was revised during review. ✓

C. It was necessary to rescan Ross 400A Depth Recorder fathograms in determining uneven interval depths during verification.

D. The tide note and abstracts were not a part of the records. The tide note was added at the time of review.

E. The tide and electronic control stations falling within the limits of the smooth sheet were added during the time of review.

F. Improper Raydist correctors were applied to the ship's work for Julian day 300, positions 818-917. The discrepancies were deemed negligible because of the depths involved, so no corrections were made to the positions.

4. Junctions

Adequate junctions were made with H-9091 (1969) on the south, H-9085 (1969) on the southwest, H-9084 (1969) at Forss Cove on the west, and H-9191 (1971) on the northeast. The junction with H-9194 (1971) on the north will be discussed in the review of that survey.

5. Comparison with Prior Surveys

A.	H-1649B	(1885)	1:80,000	H-4250	(1922)	1:20,000
	H-1742	(1886)	1:80,000	H-4253	(1922)	1:20,000

A comparison with the few soundings from the smaller scale surveys, together with the reconnaissance nature of all these prior surveys, would provide little significant information for this area. The present survey portrays the bottom configuration in much greater detail and is adequate to supersede the prior surveys in the common area.

B.	H-3793 WD	(1915-1916)	1:40,000
	H-3810 WD	(1915-1916)	1:40,000
	H-3935 WD	(1916)	1:20,000

These wire-drag surveys cover a portion of the present survey. Effective depths do not conflict with depths on the present survey.

6. Comparison with Chart 8124 (latest print date November 4, 1972)
8161 (latest print date June 16, 1973)
8102 (latest print date July 15, 1973)

A. Hydrography

The charted hydrography originates with the previously discussed surveys which need no further consideration supplemented by partial application of the boat sheet (Bp 78562) and verified smooth sheet of the present survey.

The present survey is considered adequate to supersede the charted information in the common area.

B. Aids to Navigation

The charted aids mark the features intended.


7. Compliance with Project Instructions

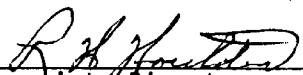
The survey adequately complies with the Project Instructions.

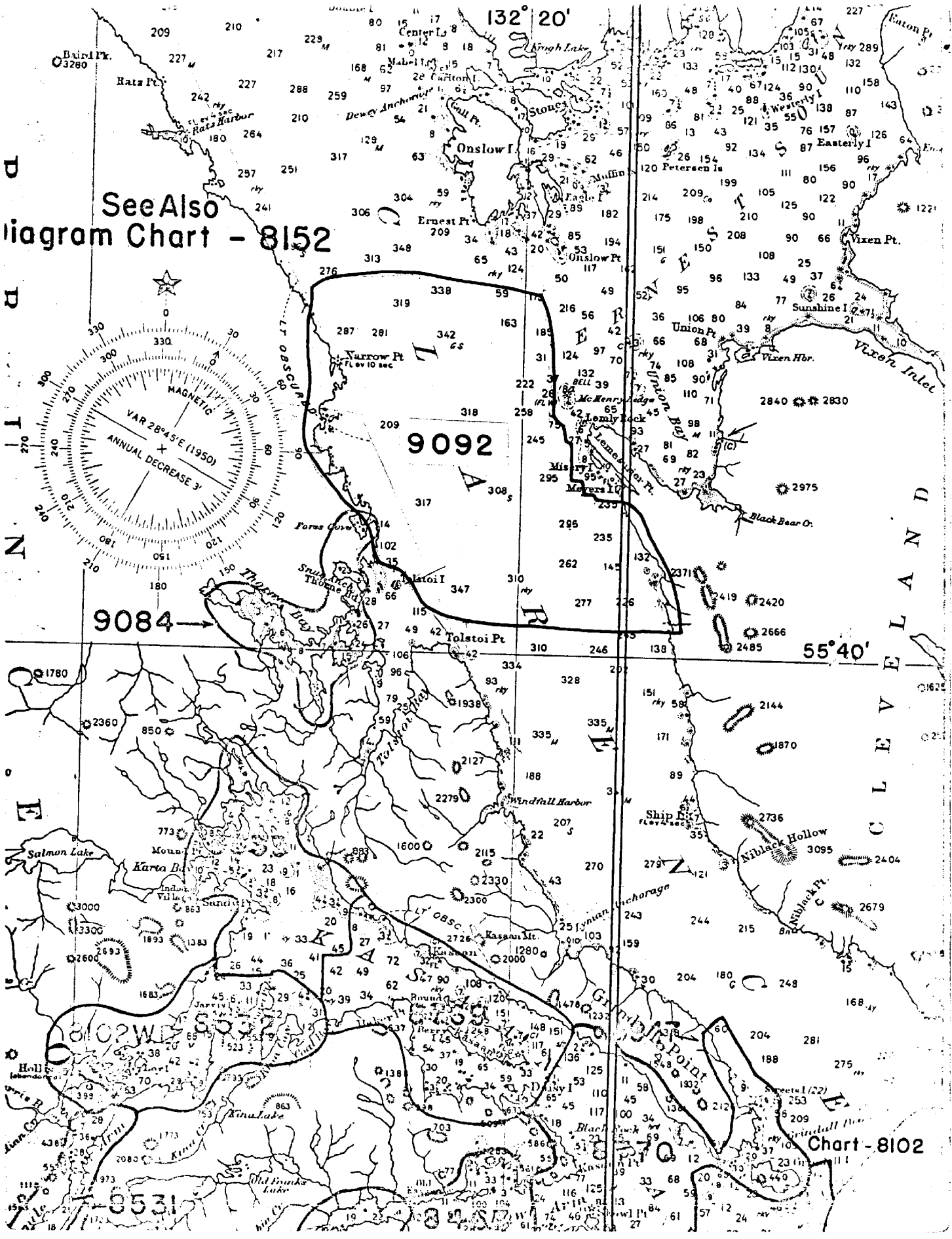
8. Additional Field Work

This is an excellent basic survey and no additional field work is required.

Examined and Approved:


 Chief
 Marine Surveys Division


 Associate Director
 Office of Marine Surveys
 and Maps



D
D
T
N

See Also
Diagram Chart - 8152

9084

9092

55° 40'

C
L
E
V
E
L
A
N
D

Chart - 8102

9531

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9092

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
8161	2/16/73	E. Frey	Full Part Before After Verification Review Inspection Signed Via Drawing No. Exam'd, no critical corrections
8201	2/17/73	James Graham	Full Part Before After Verification Review Inspection Signed Via Drawing No. 23 Proof App'd misc. corrections only after verification.
8102	6/13/73	E. Frey	Full Part Before After Verification Review Inspection Signed Via Drawing No. App'd misc corr's via cht 8201 & 8161 and some directly to cht 8102
8124	1-14-74	H.G. Borawski	Full Part Before After Verification Review Inspection Signed Via Drawing No. App'd misc. corr's after review directly to chart 8124
8161	1-14-74	H.G. Borawski	Full Part Before After Verification Review Inspection Signed Via Drawing No. App'd Misc. Corr. To Chrt. 8161 via Chrt. 8124. Two Sdgs. directly from survey
8102	8-21-75	O. Stumbel	Full Part Before After Verification Review Inspection Signed Via Drawing No. 23 App'd misc corrections to chart 8102 thru Chart 8161. Also revised two soundings directly from survey
8124	2/8/77	M.J. Friese	Full Part Before After Verification Review Inspection Signed Via Drawing No. Examined - no critical corrections
8161	2/8/77	M.J. Friese	Full Part Before After Verification Review Inspection Signed Via Drawing No. Examined - no critical corrections
8102	2/8/77	M.J. Friese	Full Part Before After Verification Review Inspection Signed Via Drawing No. Examined - no critical corrections
8161	3/2/77	M.J. Friese	Full Part Before After Verification Review Inspection Signed Via Drawing No. App'd numerous soundings and some bottom characteristics App'd thru 8124 and directly
8201	3/14/77	M. Sager	Fully app'd thru 8161 and directly Exam'd - no critical corrections at this scale
17423	8/25/80	Hausman	Full after signature to Drug 9
17420	7/3/81	Hausman	Full after Signed Via ⁽⁸¹⁶¹⁾ ^(Exam'd) 17885 Draw'n to 21st Ed of 17420