

8757

Diag. Cht. No. 8102-3.

Form 504

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. PA-10-3-63 Office No. H-8757

LOCALITY

State Southeast Alaska

General locality Revillagigedo Island

Locality Thorne Arm - South Half

19 63

CHIEF OF PARTY

G. E. Haraden

LIBRARY & ARCHIVES

DATE November 7, 1965

USCOMM-DC 5087

8757

Area 6

Chts.

17434

16016

17420

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

REGISTER No. H-8757

Field No. PA-10-3-63

State SOUTHEAST Alaska

General locality SE Alaska REVILLAGIGEDO ISLAND

Locality Thorne Arm - SOUTH HALF

Scale 1:10,000 Date of survey 1963

Instructions dated January 29, 1962; February 13, 1962

Vessel USC&GSS PATTON

Chief of party Gerard E. Haraden

Surveyed by Donald R. Tibbit

Soundings taken by fathometer, ~~graphic recorder, hand lead, wire~~

Fathograms scaled by Ship's Personnel

Fathograms checked by Ship's Personnel

Protracted by V. F. Flor

Soundings penciled by V. F. Flor

Soundings in fathoms ~~feet~~ at MLLW

REMARKS:

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.....

Copy!
JFB

DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SURVEY H-8757 (PA-10-3-63)

1:10000 1963
USC&GSS PATTON G.E. HARADEN, Comdg.

A. PROJECT

This survey is part of Project OPR-424. INSTRUCTIONS, dated January 29, 1962; AMENDED INSTRUCTIONS, dated February 13, 1962; SUPPLEMENTAL INSTRUCTIONS NO. 1, dated February 28, 1963; the Memo from Chief, Operations Division, dated June 19, 1963; and SUPPLEMENTAL INSTRUCTIONS NO. 2, dated August 12, 1963, serve as authority for this survey.

B. AREA SURVEYED

The area surveyed is the southern portion of Thorne Arm, a narrow body of water running generally north and south and bounded by steep wooded mountains on the east and west sides, located on the south side of Revillagigedo Island, S.E., Alaska. The approximate limits of the survey are from latitude 55° 15' N to 55° 19' N, and from longitude 131° 14' W to 131° 21' W. The survey joins contemporary survey H-8759(1963) ~~to the south. (No junction is made to the north)~~ T-2060 (1:40000) 1891 and H-3784 (1:10000) 1915, are prior surveys of the area. The survey was accomplished between 19 May, 1963 and 21 September, 1963.

JOINS
H-8799
(1964)

C. SOUNDING VESSEL

Launch CS 1191 was used to obtain all soundings for this survey. The color blue was used to identify the work. The USC&GSS PATTON was used only to obtain bottom samples.

D. SOUNDING EQUIPMENT

Almost all soundings were obtained with the Raytheon DE 723, No. 556, portable depth recorder. The same model DE723, No. 256, was used to obtain soundings on "j day", September 17, 1963. The hand lead was used to verify the least depth of shoals. Echo sounder corrections to depths of seven fathoms were determined by bar checks. Corrections for soundings at greater depths were determined by extending the bar-check curve with data obtained from temperature and salinity observations.

These corrections are discussed in the special report on echo sounder corrections. ✓

E. SMOOTH SHEET

The smooth sheet projection was ruled and checked by the Washington Office. *Smooth sheet plotted in Seattle Processing Office* ✓ ✓

F. CONTROL

Horizontal control was maintained by three point sextant fixes on shore signals. The position of these signals were obtained from existing triangulation (Saw, 1914 and Notch, 1914), and by standard photogrammetric methods. In some cases hydrographic locations were made. Photo-hydro control was transferred from the following manuscripts: T-10609, T-10610, T-10616, T-10617, T-10618, T-10625. ✓ ✓

As hydrography progressed to the north some difficulty was encountered in maintaining precise control. The difficulty was traced to some inaccuracy in the manuscripts used in locating photo-hydro control. Some of this control was relocated, using sextant fixes with check angles, in order that the control would be as consistent as possible for the survey. This procedure did not completely eliminate the problem but helped to some extent and the survey was satisfactorily completed. ✓

At a later date, a tellurometer travers was run thru the area to provide horizontal control for readjusting the manuscripts. These new manuscripts have not been received from the Washington Office to date, but should enable the smoothplotter to avoid the problems encountered in plotting the boat sheet. ✓

Those signals that were located by photo methods and later relocated on the basis of sextant fixes are indicated on the list of control stations included with this report. Of the two methods it is recommended that they be located on the smooth sheet photogrammetrically with the new manuscripts and checked with the available sextant fixes. ✓

Because the locations of some signals were changed during the survey and because revised manuscripts will be used for plotting some signals and the shoreline on the smooth sheet, there will undoubtedly be some fixes and possibly whole sounding lines that will shift in position somewhat when compared with the boat sheet, however, these changes in position should not affect the adequacy of the survey. ✓ ✓

G. SHORELINE

Shoreline details were obtained from the manuscripts listed in F. To date the shoreline has not been transferred to the smooth sheet. More accurate manuscripts are being compiled by the Washington Office after a traverse was run in Thorne Arm. See the field inspection report for this project for information pertaining to shoreline and topographic details. The low water line is defined by the soundings in some areas, but in other areas where the shore was very steep this was impossible.

H. CROSSLINES

Approximately 7.6 per cent of crosslines were run. There was good agreement at crossings.

I. JUNCTIONS

Satisfactory junction was made with the contemporary survey PA-10-5-63 to the south. No junction was made to the north.

← H-8799 (1964) now joins on the north

J. COMPARISON WITH PRIOR SURVEYS

This survey was compared with prior survey H-2060 (1:40000) 1891, and H-3784 (1:10000) 1915. The submerged feature indicated on the pre-survey review at latitude $55^{\circ} 16' 10''$ N and longitude $131^{\circ} 17' 45''$ W was investigated thoroughly. A depth of 15.8 fathoms was found instead of the 20.0 fathoms indicated on H-2060. Also a more detailed configuration of the bottom was obtained in this area. Due to the more advanced survey methods used in this survey and the more adequate coverage, PA-10-3-63 should supersede both prior surveys. H-3784 covers only Moth Bay and is in general agreement with (PA-10-3-63), H-8757

16 fms. shown on smooth sheet

K. COMPARISON WITH THE CHART

Comparison was made with chart 8075, July 22, 1936, Revised September 4, 1961. Since the chart was made from data obtained from the two prior surveys mentioned above, the same remarks apply.

L. ADEQUACY OF SURVEY

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

M. AIDS TO NAVIGATION

There are no Landmarks, fixed aids to navigation, or floating aids to navigation in the area surveyed. ✓ ✓

N. STATISTICS

Number of Positions (Launch 1191)	1142
Number of Positions (Ship PATTON)	49
Nautical Miles of Sounding Line (Launch 1191)	129.7
Area in Square Nautical Miles (Launch 1191)	7.6
Bottom Samples (Launch 1191)	5
Bottom Samples (Ship PATTON)	49
Temperature & Salinity Observations	1
Photogrammetric Field Edit (Nautical Miles)	17

O. MISCELLANEOUS

Soundings recorded in conjunction with bottom samples should not be plotted. In many cases these soundings were obtained under adverse conditions and are unreliable for charting purposes. In most cases these soundings were taken just prior to the time the samples were obtained while the ship was still making way and before the trace was obscured by turbulence caused by the ship backing down. Also no attempt should be made to compare the wire soundings with the fathometer soundings because of this time lapse, and sometimes excessive wire angles. ✓ ✓

In all cases the original fix should be used to plot the positions of bottom samples. The check angle recorded was usually taken by either the left or right angleman immediately following the regular fix to confirm the signals of the regular fix. Because of this time delay most of these check angles will not check exactly and should have no weight in establishing the location of bottom samples. ✓ ✓

P. RECOMMENDATIONS

Since this survey is considered adequate for charting, no additional field work is recommended. ✓ ✓

Q. REFERENCE TO REPORTS

The following reports are necessary for a complete evaluation and understanding of the survey records: ✓ ✓

Season's Report, 1963
Fathometer Correction Report
Field Edit Report
Geographic Names Report

Forwarded 11/21/63
Forwarded 12/6/63
~~In Preparation~~ Forwarded 12/23/63
Forwarded 10/28/63

DR Tibbit

TIDE NOTE

To accompany Hydrographic Survey H-8757 (PA-10-3-63)

The standard tide gage at Ketchikan, Alaska, (Latitude $55^{\circ} 20' 00''$ N and Longitude $131^{\circ} 37' 31''$ W) was used to obtain the tide reducers used on this sheet (H-8757). Time meridian 120° W was used. The plane of reference (MLLW) corresponds to a height of 6.3 feet on the tide staff. No differences in time or height were applied to the observed tides. Hourly heights were furnished by the Washington office.

ABSTRACT

CORRECTIONS TO ECHO SOUNDINGS

PROJECT OPR-424 1963

LAUNCH 1191

FATHOMETER No. 556

To be used between 19 May 1963 and 28⁹ May 1963
on hydrographic survey No. PA-10-3-63

Correction	To Depth
+ 0.3 fms	10.5 fms
+ 0.4	24
+ 0.5	37
+ 0.6	56
+ 0.8	81
+ 1.0	116
+ 1.5	167
+ 2.0	greater

Also see special report on corrections to
echo soundings.

ABSTRACT

CORRECTIONS TO ECHO SOUNDINGS

PROJECT OPR 424, 1963

Launch 1191

Fathometer 556

To be used between 10 September 1963 an 27 September 1963

on hydrographic survey Nos. PA-10-3-63
PA-10-4-63
PA-10-5-63
PA-10-6-63

Correction	to Depth
+ 0.3 fms	8 fms
+ 0.4	15
+ 0.5	23
+ 0.6	37
+ 0.8	61
+ 1.0	83
+ 1.2	105
+ 1.5	152

Also see special report on corrections to Echo Soundings

NOTE: Fathometer #256 was used on 17 September 1963 only - Same corrections apply.

LIST OF SIGNALS ON H-8757 (PA-103-63)

Name used in Hydrographic Survey	Origin of Station
Ace	T-10616
Ask	Vol. 1, Page 4
Bat	T-10616
Bob	Vol. 1, Page 4
Cod	T-10616
Cry	T-10609
Dip	T-10616
Dud	Vol. 1, Page 4
Egg	T-10616
Eva	Vol. 1, Page 5
Fox	T-10616
Gus	T-10616, Vol. 1, Page 5
Hut	T-10616
Ira	T-10617, Vol. 1, Page 5
Joe	T-10616
Kid	T-10617
Kit	T-10625, Vol. 1, Page 3
Liz	T-10617, Vol. 1, Page 5
Met	Vol. 1, Page 4
Not	Notch 1914
Out	T-10618
Pad	T-10618, Vol. 1, Page 3
Pot	T-10618
Pup	T-10616
Quo	T-10610, Vol 1, Page 3
Ram	Vol. 1, Page 4
Sal	T-10610
Sam	Vol. 1, Page 4
Saw	Saw 1914
Tax	T-10617, Vol.1, Page 3
Use	T-10617
Val	T-10617, Vol. 1, Page 3
Wig	T-10617
Yes	T-10617
Zoo	T-10617, Vol.1, Page 3

APPROVAL SHEET

Survey PA-10-3-63, H-8757

The field records for this survey are approved and no additional fieldwork is recommended. All fieldwork was supervised by me; the boat sheet was inspected daily in the field. Processing of the field records is in progress. Final reduction of the records, and smooth sheet plotting will not be done under my supervision.

GE Haraden

G. E. Haraden
LCDR, C&GS
USC&GSS PATTON
December 16, 1963

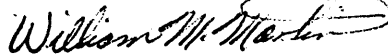
This survey was smooth plotted and verified by personnel of the Seattle Hydrographic Processing Branch.

The projection which was machine ruled in Washington was checked in Seattle. The control plotted or transferred and checked from the same sources shown in the Descriptive Report. The shoreline was transferred from advanced manuscripts T-10609, T-10610, T-10616, T-10617, T-10618 and T-10625.

Signal QUO at Lat. $55^{\circ} 19.25'$, Long. $131^{\circ} 13.35'$ is shown on the boat boat sheet in red ink and changed to blue on the smooth sheet because the location of QUO depends on station EVA which is also shown in blue ink.


Because of the very steep slopes in the area of this survey a considerable amount of difficulty was experienced with side echoes on the fathograms. It is believed that all of the discrepancies caused by side echoes have been resolved.

Examined and Approved




William M. Martin
Superv. Carto. Tech.

Approved and Forwarded



Harold J. Seaborg
Captain, USESSA
Seattle Regional Officer

Contents Noted and Forwarded



Robert E. Williams
Commander, USESSA
Operations Officer, SRO

TIDE NOTE FOR HYDROGRAPHIC SHEET

April 7, 1964

Nautical Chart Division: Seattle Regional Officer

Plane of reference approved in
6 volumes of sounding records for

HYDROGRAPHIC SHEET 8757

Locality Thorne Arm, Southeast Alaska

Chief of Party: G. E. Haradon in 1963

Plane of reference is mean lower low water

ft. on tide staff at

ft. below B. M.

Height of mean high water above plane of reference at the working grounds is 14.4 feet.

Condition of records satisfactory except as noted below:

Tide reducers for the following positions have been revised in red and verified:

<u>Vol.</u>	<u>Position</u>
4	1 h - 10 h


Chief, Tides and Currents Branch

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. ~~H-9757~~ (PA-10-3-63)
H-9757

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS		1	
DESCRIPTIVE REPORT		1	OVERLAYS		0	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES	2					
CAHIERS						
VOLUMES		6				
BOXES						
T-SHEET PRINTS (List) T-10609, 610, 616, 617, 618, and T 10625						
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				456
POSITIONS CHECKED (31 hrs)		456		
POSITIONS REVISED		15		
DEPTH SOUNDINGS REVISED		18		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		6		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		4 hrs	8 hrs.	
JUNCTIONS		3 hrs		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		47 hrs	1 hr.	
SPECIAL ADJUSTMENTS		0		
ALL OTHER WORK		2 hrs	35 hrs.	
TOTALS		56 hrs	44 hrs.	
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
VERIFICATION BY C.A.J. PAUW	April 26, 1965		May 11, 1965	
REVIEW BY Dale E. Westbrook	May 13, 1966		May 23, 1966	

H-8757

Information for Future Presurvey Reviews

The area covered by this survey appears to be quite stable both in bottom configuration and least depths.

Any future survey should adequately develop the features in latitude 55°17.0', longitude 131°16.4' and latitude 55°15.77, longitude 131°20.20'.

The rock awash brought forward from H-3784 (1915) in latitude 55°16.2', longitude 131°20.09' should be verified or disproved.

<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>
551	1312	1	1	50 years

OFFICE OF MARINE SURVEYS AND MAPS

MARINE SURVEYS DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8757

FIELD NO. PA-10-3-63

Southeast Alaska, Revillagigedo Island, Thorne Arm - South Half

SURVEYED: May 19 - September 21, 1963

SCALE: 1:10,000

PROJECT NO.: OPR-424

SOUNDINGS: Raytheon DE-723
Depth Recorder

CONTROL: Sextant Fixes on
Shore Signals

Chief of Party	G. E. Haraden
Surveyed by	D. R. Tibbit
Protracted by	V. F. Flor (PMC)
Soundings Plotted by	V. F. Flor
Verified and Inked by	C. A. J. Pauw (PMC)
Reviewed by	D. E. Westbrook
	Date: May 23, 1966
Cursory inspection made--survey	D. J. Romesburg
processing considered complete	September 16, 1976

1. Description of the Area

Thorne Arm exhibits the general characteristics of a glacial fiord. It is long, narrow, and relatively deep with few offlying rocks or shoals dangerous to navigation.

The shoreline in the present survey area is fringed with rock ledge except for several small boulder beaches.

The bottom is composed of mud, shells, and pebbles, although some areas of rocky or hard bottom exist.

Moth Bay indents the west side of Thorne Arm and is covered by the present survey. Its entrance channel is narrow but quite deep, and few concealed hazards exist. Reasonably good anchorage for small craft is available near the head of the bay.

2. Control and Shoreline

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

The shoreline originates with T-10616, T-10617, T-10618, and T-10625 all of 1954-63. T-10609 and T-10610 were field edited in 1964 and recompiled from 1966 photography.

3. Hydrography

a. Depths at crossings are in good agreement.

b. The usual depth curves were adequately delineated, except that only short portions of the depth curves could be drawn inshore of 5-fathom depths because of steep gradients and for purposes of clarity.

Several dashed and brown curves have been added to emphasize important bottom features.

c. The development of the bottom configuration and investigation of least depths is considered adequate except that several additional lines should have been run in the vicinity of latitude $55^{\circ}17.0'$, longitude $131^{\circ}16.4'$ and latitude $55^{\circ}15.77'$, longitude $131^{\circ}20.20'$ to delineate these bottom features adequately.

A rock awash shown on H-3784 (1915) in latitude $55^{\circ}16.2'$, longitude $131^{\circ}20.09'$ falls in apparent 4- to 6-fathom depths on the present survey. No attempt was made in the field to verify or disprove this rock.

4. Condition of Survey

The field plotting, sounding records, Descriptive Report, and field verification are adequate and conform to the requirements of the Hydrographic Manual.

The Raytheon DE-723 depth recorder No. 556 was not operating properly on "c-day" Launch 1191. As a result, soundings along several portions of lines were missed.

Minor adjustments were made to the shoreline and signals on the north edge of the survey because of subsequent corrections to the manuscripts in this area by the Photogrammetry Division. These adjustments do not significantly affect the hydrography on the present survey.

5. Junctions

An adequate junction was effected with H-8759 (1963) on the southwest and H-8799 (1964) on the north.

6. Comparison with Prior Surveys

a. T-2060 (1:40,000) 1891, includes (1:10,000) inset of Moth Bay

This survey covers the entire present survey area. In general, the scale of this prior survey is too small and the hydrography so widely spaced that a detailed comparison cannot be made. A reasonable agreement in general depths was noted, however.

The present survey more adequately portrays the bottom configuration and reveals numerous features which went undetected on the prior survey.

The present survey is adequate to supersede the prior survey within the common area.

b. H-3784 (1:10,000) 1915

This prior survey of Moth Bay is in good general agreement with the present survey.

A rock awash and a few soundings were brought forward from the prior survey to supplement the present survey.

With the addition of the above items, the present survey is adequate to supersede the prior survey within the common area.

c. H-3686 W.D. (1:20,000) 1914-15

Present survey depths do not conflict with the effective cleared depths as shown on this wire-drag survey.

7. Comparison with Chart 8075, 2nd Edition, March 8, 1965

Most of the charted hydrography originates with the present survey before verification and review, supplemented by several soundings from the previously discussed prior surveys which require no further consideration.

The rock awash charted in latitude $55^{\circ}18.46'$, longitude $131^{\circ}13.70'$ in depths of 20 fathoms apparently originated with the preliminary manuscript T-10618. This rock was removed from the manuscript by the field editor and subsequently deleted from the chart.

The present survey is adequate to supersede the charted hydrography within the common area.


8. Compliance with Instructions

The present survey adequately complies with the project instructions.


9. Additional Field Work

This survey is considered to be a good basic survey and no additional field work is recommended.

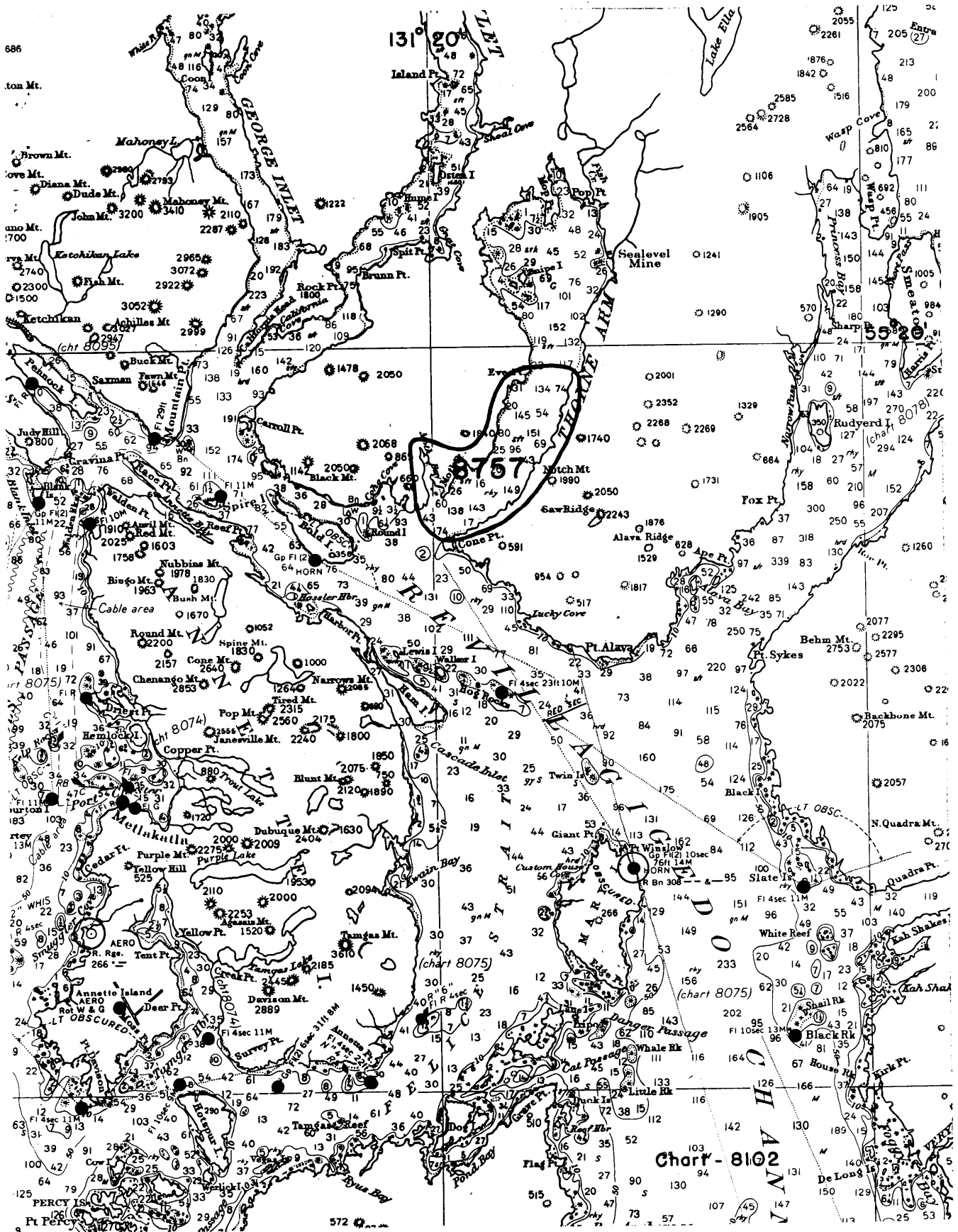
Examined and Approved:



Chief
Marine Surveys Division



Associate Director
Office of Marine Surveys
and Maps



RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-8757

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
8080	4/67	Clarence Musfeldt	Full Part Before ^{After} Verification Review-Inspection, Signed Via Drawing No.
8075	7/14/68	W H Mall	Full Part Before ^{before} After Verification Review Inspection Signed Via Drawing No. Revised a few edges & curves
8102	6/15/70	H.V. Howard	Full Part Before ^{before} After Verification Review Inspection Signed Via Drawing No. #20 Insp. of Cht 8075 to Chart 8075 Considered adequate, until fully applied
8075	8-21-70	Jeffrey Stuart	Full Part Before ^{before} After Verification Review Inspection Signed Via Drawing No. via Ch 8080
8102	4-22-71	E. Frey	Full Part Before ^{before} After Verification Review Inspection Signed Via Drawing No. at Appd via ch 8075 chg #12
17420 (8102)	1/22/80	LAVIS	Full Part Before ^{before} After Verification Review Inspection Signed Via Drawing No. 30 Exam DR only, No critical cons
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
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