

9113

Diag. Cht. No. 5101-3.

FORM C&GS-504

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. MA-40-3-70 Office No. H-9113

LOCALITY

State California

General locality Gulf of Santa Catalina

Locality Northeast of San Clemente Island

1970

CHIEF OF PARTY

D. R. Tibbit

LIBRARY & ARCHIVES

DATE 11-21-72

USCOMM-DC 37022-P66

9113

HYDROGRAPHIC TITLE SHEET

H-9113

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.

MA 40-3-70

State California

General locality Southern California Gulf of Santa Catalina

Locality Northeast Gulf of Santa Catalina, NE of San Clemente Island.

Scale 1:40,000 Date of survey 3/23/70 to 4/7/70

Instructions dated 12/15/69; 3/10/70; 4/7/70 Project No. OPR-411

Vessel USC&GS Ship McARTHUR

Chief of party Donald R. Tibbit, Commander, USESSA

Surveyed by D.M. Wilson, J.C. Albright, T.C. Howell III, R.C. Husted, D.M. Spillman, M.E. Wagner

Soundings taken by echo sounder, ~~and beam, etc~~ EDO Mod. 185 sn. 161, PFR Mod. 193 sn. 010

Graphic record scaled by McARTHUR personnel

Graphic record checked by CST Otsubo, Jr. ST Hammond

Position Verified by James L. Stringham Automated plot by PMC

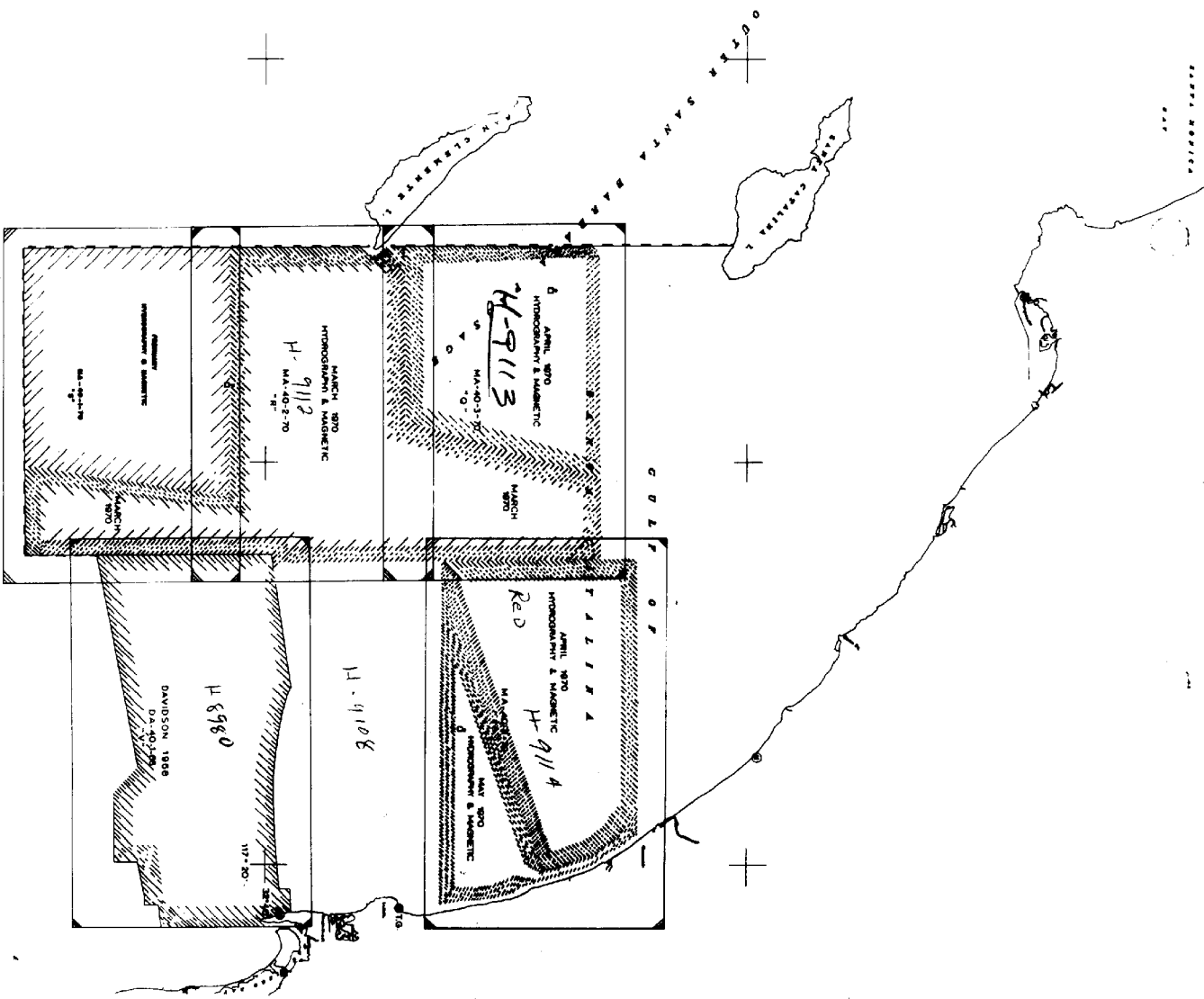
Soundings ~~checked~~ Verified by James L. Stringham

Soundings in fathoms ~~not~~ at ~~not~~ MLLW

REMARKS:

Applied to state 12/15/72
CTB

PROGRESSIVE AERIAL
 PHOTOGRAPHY, CALIFORNIA
 DIVISION
 PROJECT 411
 1111 S. GARDEN ST., LOS ANGELES, CALIF.
 1111 S. GARDEN ST., LOS ANGELES, CALIF.
 1111 S. GARDEN ST., LOS ANGELES, CALIF.
 1111 S. GARDEN ST., LOS ANGELES, CALIF.



Descriptive Report

To Accompany

Hydrographic Survey H-9113 (MA 40-3-70)
(1970)

USC&GS Ship McARTHUR (CSS-30)

1970

Commander Donald R. Tibbit, Commanding

Scale 1:40,000

A. PROJECT

Hydrography on this boatsheet was accomplished in accordance with Project Instructions: OPR-411, Southern California dated 15 December, 1969 and with Changes No. 1 and No. 2 thereto dated 10 March, 1970 and 7 April, 1970.

B. AREA SURVEYED

The area surveyed is located northeast of San Clemente Island in the Gulf of Santa Catalina, offshore from Southern California. It is bounded by Latitudes 32°52'N and 33°07'N and by Longitudes 117°49'50"W and 118°22'W.

The survey was performed between 23 March and 7 April, 1970.

The boatsheet overlaps prior surveys ^{H5848 (1:40,000; 1934) 33-34} H-5758 (1:20,000; 1934), H-6118 (1:80,000; 1937) and H-6119 (1:80,000; 1936) and junctions with contemporary surveys H-9112 (MA 40-2-70), H-9114 (MA 40-4-70), and H-9108 (DA 40-1-70). ⁽¹⁹⁷⁰⁾ Others noted in review ⁽¹⁹⁷⁰⁾

C. SOUNDING VESSEL

All hydrography was accomplished by the USC&GSS McARTHUR.

D. SOUNDING EQUIPMENT

All soundings on this survey were obtained using an EDO Depth Recorder - Indicator, model 185, serial number 161, in conjunction with a Raytheon Precision Fathometer Recorder, model 193, serial number 010. The PFR was operated in the 400 - fathom normal mode and the initial was set at zero at all times. Depths ranged from 149 to 686 fathoms.

Velocity corrections were derived from the mean of three Nansen casts to 819, 273 and 273 fathoms taken on 24 February, 31 March, and 3 May 1970 respectively.

A mean transducer draft of 1.8 fathoms was determined for McARTHUR. A vertical cast comparison on 9 March, 1970 yielded an EDO - PFR instrument correction of -0.2 fathom. No phase or settlement and squat corrections were necessary.

In accordance with Section 5-101 of the Hydrographic Manual, tide corrections were not applied.

E. SMOOTH SHEET

The smooth sheet is to be plotted by Gerber Plotter at the Electronic Data Processing Branch, Pacific Marine Center.

F. CONTROL

Hyperbolic - mode Hi-Fix, frequency 1799.6 khz, was used to control this entire survey. Three shore stations were established to provide the Hi-Fix chain. The master station was located at Camp Pendleton, California on topographic station TORN, 1970 which was established for this purpose at Latitude $33^{\circ}21'00.23''N$, Longitude $117^{\circ}31'27.83''W$. The slave station which formed pattern I, shown in red on the boat-sheet, was located on Reference Mark No. 1 of triangulation station OLD, 1899 at Pt. Fermin, California, at Latitude $33^{\circ}43'12.937''N$, Longitude $118^{\circ}16'56.977''W$. The slave station which formed pattern II, shown in green on the boatsheet, was located at Pt. Loma, California on topographic station JUMP, 1970 which was established for this purpose at Latitude $32^{\circ}42'24.48''N$, Longitude $117^{\circ}15'13.03''W$.

Horizontal control for the location of the three shore stations was established by the USC&GSS DAVIDSON. Reference is made to their Traverse (Hi-Fix) Report for additional details.

The Hi-Fix was calibrated on one of three 1:10,000 scale Mylar sheets off Mission Bay, the south end of San Clemente Island, and Avalon Bay on Santa Catalina Island. Control for the calibrations was provided by three-point sextant fixes using existing triangulation.

Corrections for lane jumps or electronic malfunctions were logged with calibration corrections onto DCU Corrector Tapes. The Hi-Fix worked very well and calibration corrections were small. For additional information concerning Hi-Fix equipment see McARTHUR Hi-Fix Report, OPR-411, 1970.

G. SHORELINE

None.

H. CROSSLINES

The main system of sounding lines totaled 1253 nautical miles. There were 126 nautical miles of crosslines run, which amounted to 10% of the main system. There were no significant discrepancies.

I. JUNCTIONS

Junction soundings with contemporary surveys H-9112 (MA 40-2-70), H-9114 (MA 40-4-70) and H-9108 (DA 40-1-70) showed excellent agreement. No significant discrepancies were found.

J. COMPARISON WITH PRIOR SURVEYS

This survey was compared to the three prior surveys listed in section B; agreement was only fair. Differences can be attributed to the advances made in positioning and sounding technology during the past 34 years.

Two numbered presurvey review items are located on this boatsheet.

Item 3 consisted of two 407 - fathom soundings charted in Latitude 33°00.3'N, Longitude 118°08.8'W and Latitude 33°02.2'N, Longitude 118°01.9'W. Both of these areas were thoroughly developed. The more westerly 407 - fathom sounding was verified in its charted position. The more easterly 407 - fathom sounding should be deleted and the shoalest sounding found in the area, 394 fathoms, should be charted. See sections 7-A-7 and 7-A-8 of the review.

Item 5, a 181 - fathom sounding charted in Latitude 32°54.12'N, Longitude 117°53.01'W was thoroughly developed. The 181 - fathom sounding should be deleted and the least depth found in the area, 190.186 fathoms, should be charted. Concur

In addition to these numbered items, several dashed - circled soundings warrant comment.

The 405 - fathom sounding charted in Latitude 33°03.1'N, Longitude 118°08.3'W was developed and a least depth of 388 fathoms was found in the vicinity.

The 381 - fathom sounding charted in Latitude 33°06.8'N, Longitude 117°58.1'W was developed and a least depth of 372² fathoms was found. (372 shown on the smooth sheet at lat. 33°06.82', Long 117°58.00') a 367 was found in lat. 33°07.2' Long 117°58.2'

The 209 - fathom sounding charted in Latitude 33°05.9'N, Longitude 117°52.1'W was developed and a least depth of 211 fathoms was found.

The 442 - fathom sounding charted in Latitude 32°58.7'N, Longitude 117°59.0'W was not found. Depths were approximately 500 fathoms in the area. This sndg. considered discredited.

The 368 - fathom sounding added to the presurvey review from H-6118 in Latitude 32°53.2'N, Longitude 117°59.0'W fell in an area of 468 - fathom depths and was obviously in error by 100 fathoms. 368 Sndg. considered discredited by the present survey.

K. COMPARISON WITH THE CHART

This survey was compared with O&GS Charts 5101 (scale 1:234,270; 14th edition; 31 January 1970) and 5060 (scale 1:100,000; 3rd edition; 13 January 1970). Both comparisons showed only fair agreement, with discrepancies in the range of 10-20 fathoms. These discrepancies can most likely be attributed to better positioning and sounding equipment.

L. ADEQUACY OF SURVEY

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

M. AIDS TO NAVIGATION

None.

N. STATISTICS

Number of positions	1413
Nautical miles sounding line	1379
Nautical miles towed magnetics	1352
Area in square nautical miles	401.5
Number of bottom samples	6

O. MISCELLANEOUS

Raw data and smooth data tapes were logged in the DCU - teletype printout format with the parity bit disconnected, using a DCU, type

10251, serial number A106 coupled to a Hydrographic Logger Mark 3-0, Teletype ASR-33, serial number 6. All corrector tapes were logged using Climatronics Logger model DL-10, serial number 5 in conjunction with a Friden Flexowriter model SFD. Specific tapes were logged as follows:

Raw Data	DCU Format
Smoothed Data	DCU Format
DCU Corrector Tape	Single Indicator Corrector Tape
Velocity Corrections	Single Indicator Velocity Tape
Transducer Draft and Instrument Corrections	Single Indicator TC/TI Tape

A Varian Proton Magnetometer was towed during most of the survey. Total magnetic intensity was recorded on time on the raw data tape once each minute. An analog strip chart was also made and accompanies the field records (see Magnetics Report, OPR-411, 1970).

Depth curves were drawn every 25 fathoms, as opposed to Project Instruction specifications, in order to prevent needless crowding on the boatsheet.

P. RECOMMENDATIONS

Project Instructions called for delineation of depth curves every 10 fathoms in the depths encountered on this boatsheet. Considering that both the soundings and their positioning as shown on the boatsheet are uncorrected, this density seemed unjustified. It is recommended that selection of the proper depth contour interval, within the guidelines imposed by the Hydrographic Manual, rest with the Commanding Officer

Q. REFERENCES TO REPORTS

1. Pre-Survey Review, OPR-411, Southern California.
2. Report on Corrections to Echo Soundings, OPR-411, Southern California, 1970.
3. Traverse (Hi-Fix) Report, USC&GSS DAVIDSON, OPR-411, Southern California, 1970.
4. Hi-Fix Report, OPR-411, Southern California, 1970.
5. DCU Report, OPR-411, Southern California, 1970.
6. Magnetics Report, OPR-411, Southern California, 1970.

Submitted by:

Michael E. Wagner

Michael E. Wagner, ENS, USESSA

for:

John C. Albright, LT, USESSA

Approved and Forwarded:

Donald R. Tibbit

Donald R. Tibbit
Commander, USESSA
Commanding Officer
USC&GS Ship McARTHUR

Enclosures:

Tide Note
Abstract of Corrections to Echo Soundings
Abstract of Hi-Fix Corrections
Abstract of Position Numbers
List of Basic Field Records
Approval Sheet

9

Tide Note
To Accompany

H-9113 (MA 40-3-70)

All depths on this offshore survey exceeded 101 fathoms. Therefore, in accordance with Section 5-101 of the Hydrographic Manual, no tide corrections were applied.

ABSTRACT OF VELOCITY CORRECTIONS TO ECHO SOUNDINGS

USC&GSS McARTHUR OPR-411 Southern California

Boatsheets: H-9111 (MA 40-1-70) H-9113 (MA 40-3-70)
H-9112 (MA 40-2-70) H-9114 (MA 40-4-70)

Depth	Vel. Corr.	Vel. Tab.
000080	0 0000	0001 000 000000 000000
000150	0 0002	
000230	0 0004	
000330	0 0006	
000440	0 0008	
000550	0 0010	
000670	0 0012	
000780	0 0014	
000900	0 0016	
001020	0 0018	
001150	0 0020	
001270	0 0022	
001630	0 0025	
002930	0 0030	
004570	0 0050	
006220	0 0070	
007660	0 0090	
008990	0 0110	
010110	0 0130	
011140	0 0150	
012140	0 0170	

These corrections are in fathoms and tenths and apply to all soundings of the project. All corrections are positive.

ABSTRACT OF TRANSDUCER DRAFT AND
 INSTRUMENT CORRECTIONS TO ECHO SOUNDINGS

USC&GSS McARTHUR OPR-411 Southern California

Boatsheets: H-9111 (MA 40-1-70) H-9113 (MA 40-3-70)
 H-9112 (MA 40-2-70) H-9114 (MA 40-4-70)

These corrections are in fathoms and tenths and apply to all soundings of the surveys. All corrections are positive.

Time	Corr	Vel.	Day	Tab.		
000000	0	0016	0001	049	000000	000000
002500	0	0000	0001	084	000000	000000
074000	0	0016	0001	084	000000	000000
162700	0	0020	0001	123	000000	000000
164000	0	0016	0001	124	000000	000000

HI-FIX

ABSTRACT OF CALIBRATION CORRECTORS OPR 411, 1970
 USC & GSS McARTHUR SOUTHERN CALIFORNIA

DATE NO.	MISSION	CATALINA	CLEMENTE	TIME	MISSION	CATALINA	CLEMENTE	EQUIPMENT
2/18 1	- .09 ✓			1205 -	+ .01 ✓			
2/18 2	- .07 ✓			1230 "				
2/18 3	- .07 ✓			1245 -	- .01 ✓			
2/19				0140 -				HI-FIX MASTER STN. UPSET IN HIGH WIND
2/19 4			+ .04 ✓	0900 ✓			+ .50 ✓	.50 LANE ADDED II
2/20 5	- .11 ✓			1247 -	+ .06 ✓			
2/24 6	+ .01 ✓			1055 -	- .02 ✓			
2/25 7	+ .15 ✓			0651 -	- .09 ✓			
2/27 8	+ .03 ✓			1104 -	- .04 ✓			CHANGED SHIP RECEIVER A26B REPLACED W/A28C
2/								
3/3 9	+ .04 ✓			0755 ✓	+ .01 ✓			
3/9 10	+ .02 ✓			1500 ✓	0.00 ✓			
3/11 11	+ .05 ✓			0930 ✓	- .09 ✓			
3/12 12			+ .16 ✓	0616 ✓			- .04 ✓	GNIO
3/12 13			+ .03 ✓	1320 -			+ .04 ✓	GNIO REPLACED IN RECEIVER A281 (SHIP)
3/12				1330 -				
3/12 14			+ .15 ✓	1422 -			- .05 ✓	
3/13 15	+ .03 ✓			1315 ✓	- .01 ✓			
3/13 16	+ .02 ✓			1352 ✓	- .02 ✓			
3/16 17	0.00 ✓			1440 -	+ .01 ✓			
3/19 18	+ .05 ✓			1032 ✓	0.00 ✓			PT LOMA STATION OFF THE AIR, REPAIRED
3/20								
3/23 19	- .01 ✓			1604 ✓	- .04 ✓			
?			+ .11 ✓	1435 ✓			- .08 ✓	
3/26 21	+ .03 ✓			1230 -	- .01 ✓			REALIGNED ALL RECT W/ MDU, MASTER TRANS REPAIRED
3/29								CALIBRATION, DIALS RESET NOT FOR HYDRO
3/30 22	- .32 ✓			1542 ✓	- .55 ✓			
3/30 23	+ .01 ✓			1600 ✓	- .03 ✓			
4/3 24		+ .06 ✓		0831 ✓		- .15 ✓		
4/6 25	- .05 ✓			1434 ✓	- .08 ✓			SLAVE II (NORTHERN) TRA BURNED OUT
4/9								
4/16 26	- .02 ✓			0940 ✓	- .03 ✓			
4/17 27	- .03 ✓			1111 -	- .09 ✓			
REJECT 28								
4/20 29	+ .04 ✓			1524 ✓	- .04 ✓			REPLACED DRIVER AND REALIGNED
4/23								
4/29 30	+ .09 ✓			1021 ✓	- .08 ✓			
5/1 31		+ .03 ✓		0605 ✓		- .14 ✓		
RFJ 32								COMPUTED BY - MEW
5/1 33	+ .11 ✓			1152 ✓	- .07 ✓			CHECKED BY - DMW
5/2 34	+ .09 ✓			1439 ✓	- .01 ✓			
5/5 35	+ .08 ✓			0614 ✓	- .11 ✓			

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MEANED LANE CORRECTORS

USCEGSS MARATHUR OPR 4.1 SOUTHERN CALIFORNIA

FROM	TO	PATTERN I (RED) CORRECTION	PATTERN II (GREEN) CORRECTION
025 2/18	040 2/19	-0.08 ✓	0.00 -
040 2/19	0900 2/19	-0.08	+0.50 -
0900 2/19	1104 2/27	+0.02 ✓	-0.02 ✓
0753 3/3	1230 3/26	+0.01 ✓	-0.02 ✓
1300 3/30	1645 4/20	+0.01 -	-0.09 ✓
1021 4/29	0614 5/5	+0.09 ✓	-0.10 ✓

All calibrations at San Clemente serve only as integral lane count checks and do not appear in correctors

4.1 - Fix lane readings are "weighted" at Santa Catalina, one to four and three to one, for patterns I & II respectively over those at Mission Bay.

COMPUTED BY MEW

CHECKED BY TEH & DMC

Abstract of Position Numbers

H-9113 (MA 40-3-70)

<u>Vessel</u>	<u>Date</u>	<u>Julian Day</u>	<u>Positions</u>
McARTHUR	23 Mar 1970	082	0001 - 0056
	24 Mar 1970	083	0057 - 0305
	25 Mar 1970	084	0306 - 0335
	26 Mar 1970	085	0336 - 0453
	30 Mar 1970	089	0454 - 0510
	31 Mar 1970	090	0511 - 0776
	1 Apr 1970	091	0777 - 1054
	2 Apr 1970	092	1055 - 1341
	3 Apr 1970	093	1342 - 1354
	7 Apr 1970	097	1355 - 1413

COPY

HI FIX REPORT

OPR 411

1970

USC&GS SHIP McARTHUR

Donald R. Tibbit
Commander, USESSA
Commanding Officer

HI-FIX REPORT
OPR 411
1970

I INTRODUCTION

Position data for OPR 411 offshore hydrography conducted by the USC&GS Ship McARTHUR during the period February - May, 1970 was obtained by use of a Hyperbolic mode Hi-Fix net. Boatsheets MA 40-1-70 (H-9111), MA 40-2-70 (H-9112), MA 40-3-70 (H-9113) and MA 40-4-70 (H-9114) were surveyed using this net.

II STATIONS

Station locations were provided by the USC&GS Ship DAVIDSON. Traverse information for the location of stations utilized is covered in a separate report submitted by the DAVIDSON. Stations were located as follows:

The northern slave was set on RM#1 of station OLD 1899, Pt. Fermin, California at $33^{\circ}43'12.937''N$, $118^{\circ}16'56.977''W$.

The master was located on station TORN 1970, Camp Pendleton, California at $33^{\circ}21'00.23''N$, $117^{\circ}31'27.83''W$.

The southern slave was located on station JUMP 1970, Pt. Loma, California at $32^{\circ}42'24.48''N$, $117^{\circ}15'13.03''W$.

III CALIBRATION METHODS

Calibrations were made at three locations; San Clemente Island; Avalon Bay, Santa Catalina Island; and Mission Bay, California. For each calibration, corrections to lane readings were obtained by simultaneously recording a three-point visual fix taken by sextants, and Hi-Fix lane readings. Check angles were observed at Santa Catalina and Mission Bay. The visual fixes were plotted on 1:10,000 scale mylar calibration sheets "B", "C" and "BU" for the respective areas. Scaled Hi-Fix rates were then compared to recorded rates to obtain corrections. Calibrations were made before and after each week's work, and, as feasible in an attempt to ascertain net distortion, both at Mission Bay and offshore.

Visual control at San Clemente Island was very poor. Only three signals were visible. The center signal, a formerly whitewashed rock, was inadequate for accurate

control. Since no check angle was available, calibrations obtained at San Clemente are considered good only to the extent of whole lane identification and are not adequate for partial lane corrections for the surrounding area.

A separate record of equipment failures and changes was kept to aid in determining valid correctors. During those periods in which no equipment irregularities occurred, all Hi-Fix correctors for a given station were meant to statistically reduce random errors in calibrating.

Visual fixes at Santa Catalina and Mission Bay were of approximately equal strength; however, lane width for each pattern varied. The ratio of lane width: Santa Catalina to Mission Bay was approximately one to four for pattern I (red), and three to one for pattern II (green). Assuming that Hi-Fix readings were equally accurate, correctors obtained at wider lane spacing should be more reliable. Therefore, correctors were weighted in the above ratios when meaned.

The good agreement between calibrations at Santa Catalina and Mission Bay, indicates that distortion of the Hi-Fix net is negligible.

IV EQUIPMENT

The equipment at each station was standard, the active elements being a receiver and transmitter for each slave, and a Master Drive Unit and transmitter at the master site. The ship equipment included a receiver, a left/right indicator, and a brush recorder. Each station utilized shore power and was operated continuously for the duration of the project except as noted. Equipment trouble was minimal; few lane jumps occurred.

V SUMMARY

Hi-Fix equipment functioned well throughout the project. Correctors obtained are consistently well within 0.1 lane. Position information provided by the Hi-Fix net is entirely adequate for control of the Hydrography. Enclosed are calibration sheets, tabulation of correctors and equipment changes.

Respectfully Submitted,

Michael E. Wagner

Michael E. Wagner
ENS., USESSA

Approved and Forwarded,

Donald R. Tibbit
Commander, USESSA

LIST OF BASIC FIELD RECORDS

MA 40-3-70 H-9113(1970)

- 1 Boat Sheet MA 40-3-70 H-9113(1970)
- 9 Envelopes of Position - Sounding
Tape Printouts and Corrector Tape
Printouts
- 1 Envelope Plotting Abstracts Form
C&GS 817
- 1 Envelope Magnetism Analog Record
- 4 Large Envelopes PFR Fathogram
- 2 Form 733M, Bottom Sample Log
- 1 Envelope Bottom Sample Position
Tape Printout
- 1 Form 1, Parameters for Digital
Computing Polyconic Projection
- 1 Box TC/TI Tape (Forwarded with
MA 40-1-70)
- 1 Box Velocity Tape (Forwarded with
MA 40-1-70)
- 10 Boxes Position - Sounding Tapes
and Corrector Tapes
- 1 Hydro B Parameter Card

Approval Sheet
for
H-9113 (MA 40-3-70)
(1970)

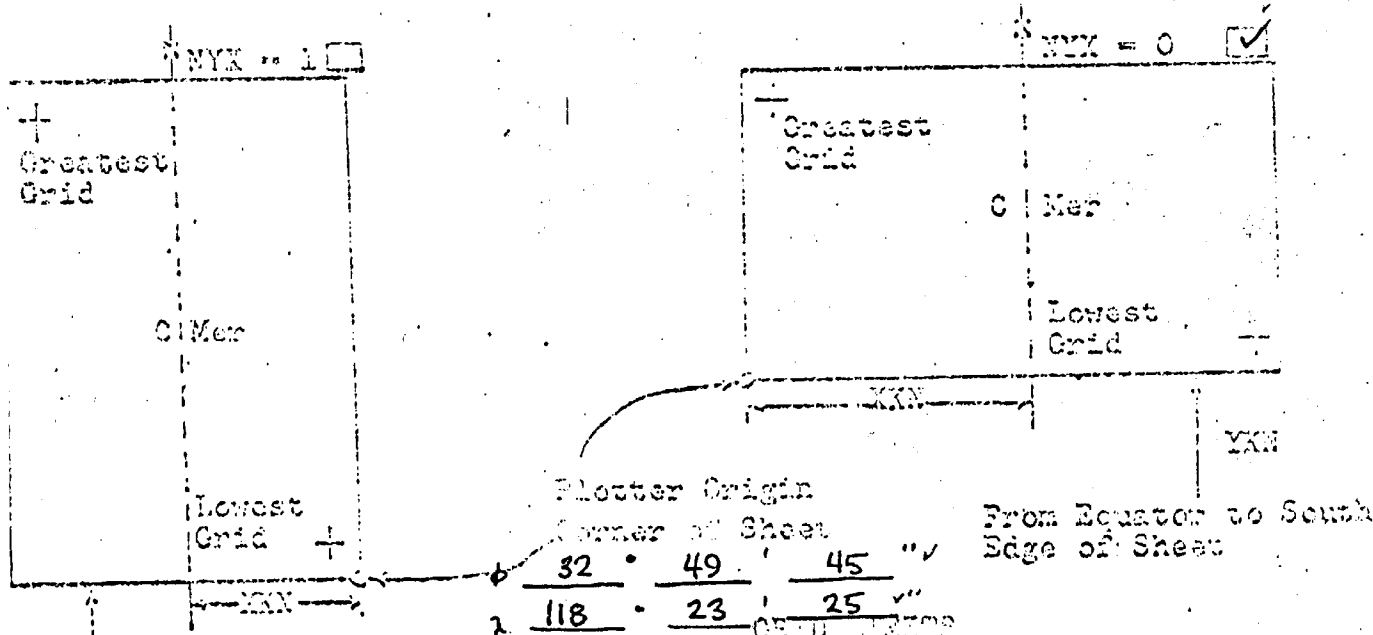
Field work on this survey was accomplished under my general supervision. Frequent inspections of the field data and boatsheet were made by me as the survey progressed. The sounding records have been inspected by me and are approved. This survey is complete and adequate, and is hereby approved.

Donald R Tibbit
Donald R. Tibbit
Commander, USESSA
Commanding Officer
USC&GS Ship McARTHUR

✓ 2
LIST OF GEOGRAPHIC NAMES

OUTER SANTA BARBARA PASSAGE
GULF of SANTA CATALINA

Project No. OPR-411 ✓ (4) Requested by D.R. Tibbit ✓
 H. No. 0113 (5) Ship McARTHUR
 Sheet No. "Q" (6) Date Required 13 March 1970
 Visual (8) Electronic Form #3
 (Hyperbolic)
 MNX (SP 5) Distance from OMER to East Edge (NIX
 or West Edge (NYX = 0). 27,180.4 Meters
 YKN (SP 241) Distance from Equator to South
 Edge of Sheet 3,633,611.499 Meters
 Central Meridian 118° 06' 00" W
 Survey Scale 1:40,000 ✓
 Size of Sheet (Check One) 36x 54 ✓ 42x 60
 Orientation of Sheet (Check One)



- From Equator to South Edge of Sheet
- (15) Greatest Latitude $33^{\circ} 08' 00''$ (Projection Line Interval Page 1 Hydro Manual)
- (16) Lowest Latitude $32^{\circ} 50' 00''$
- (17) Difference $0^{\circ} 18' 00''$
- (18) 2' 00"
- (19) 9 MNX
- Comp. by JCA
- ✓ by DMS
- (20) Greatest Longitude $118^{\circ} 22' 00''$
- (21) Lowest Longitude $117^{\circ} 50' 00''$ (23) 2' 00"
- (22) Difference $32^{\circ} 00' 00''$ (24) 16 MNX

9113 HYDRO B PARAMETER CARD

Date: April 4 1970

03050

PARAMETER CARD 1B		DEC	MIN	SECONDS																
MASTER R1	33° 31'	00	233	LAT																
HYDRO NAME	117° 31'	87	833	LONG																
SLAVE R1	33° 43'	12	937	LAT																
HYDRO NAME	118° 16'	56	977	LONG																
SLAVE R2	32° 42'	24	478	LAT																
HYDRO NAME	117° 15'	13	032	LONG																
IDENTIFICATION NUMBER	1799.6																			
YEAR OF SURVEY																				

Slave "R"

have R1 corresponds to slave which forms pattern logged as R1 on intersection top

[Signature]

3/13/70

GEOGRAPHIC NAMES

Survey No. H-9113

Name on Survey	Source											
	A	B	C	D	E	F	G	H	K			
GULF OF												1
SANTA CATALINA												2
OUTER SANTA												3
BARBARA PASSAGE												4
PACIFIC OCEAN												5
SAN CLEMENTE I.	✓											6
												7
												8
												9
												10
												11
												12
												13
												14
												15
												16
												17
												18
APPROVED BY												19
<i>A. J. Wright</i>												20
CHIEF GEOGRAPHER												21
												22
												23
												24
												25
												26
												27

PREPARED BY

C. E. Harrington

CARTOGRAPHER

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,

for: *Cornelius A. Bauer*
William M. Martin
Supervisory Carto. Tech.

Approved and Forwarded,

[Signature]
Walter L. Bradley, CDB, NOAA
Chief, Processing Division
Pacific Marine Center

FORM C&GS-946
(REV. 3-1-64)
(PRESC. BY
HYDROGRAPHIC
MANUAL 20-2,
6-94, 7-13)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
NAUTICAL CHART DIVISION

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-9113

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET & PNO		1	BOAT SHEETS		1
DESCRIPTIVE REPORT		1	OVERLAYS		4
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	Smooth PRINTOUTS	TAPE ROLLS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES	3		1		
VOLUMES					
BOXES			1 & Misc. Data		
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				1413
POSITIONS CHECKED		1419	0	
POSITIONS REVISED		0	0	
DEPTH SOUNDINGS REVISED		810	23	
DEPTH SOUNDINGS ERRONEOUSLY SPACED		0	0	
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED			0	
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS			0	
JUNCTIONS		20	40	
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		132	5	
SPECIAL ADJUSTMENTS		0	0	
ALL OTHER WORK		91	86	
TOTALS		233	131	

PRE-VERIFICATION BY _____ BEGINNING DATE _____ ENDING DATE _____

VERIFICATION BY **James L. Stringham, Cart. Tech.** BEGINNING DATE **4-12-72** ENDING DATE **11-24-72**

REVIEW BY **Kenneth W. Wellman** BEGINNING DATE **2-20-74** ENDING DATE **4-9-74**

James L. Stringham
James L. Stringham

17 hrs
16 hrs *7/3/74*
8/15/74

30

Reg. No. H-9113

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 9-28-82 TIME REQ'D _____ INITIALS JAC

REMARKS:

H-9113

Items for Future Presurvey Review

Most of the bottom changes are attributed to the surveying methods on the prior surveys.

Position Index		Bottom Change	Use	Resurvey
<u>Lat.</u>	<u>Long.</u>	<u>Index</u>	<u>Index</u>	<u>Cycle</u>
325	1182	0	1	50 Years
330	1182	0	1	50 Years
325	1181	0	1	50 Years
330	1181	0	1	50 Years
325	1180	0	1	50 Years
330	1180	0	1	50 Years

OFFICE OF MARINE SURVEYS AND MAPS

MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9113

FIELD NO. MA-40-3-70

California, Gulf of Santa Catalina, Northeast of San Clemente Island

SURVEYED: March 23 - April 7, 1970

SCALE: 1:40,000

PROJECT NO.: OPR-411

SOUNDINGS: Echo Sounder EDO 185 and PFR 193

CONTROL: HI-Fix (Hyperbolic Mode)

Chief of Party	D. R. Tibbit
Surveyed by	D. M. Wilson
.....	J. C. Albright
.....	T. C. Howell, III
.....	R. C. Husted
.....	D. M. Spillman
.....	M. E. Wagner
Protracted by	Gerber Digital Plotter (PMC)
Soundings Plotted by	Gerber Digital Plotter (PMC)
Verified and inked by	J. L. Stringham
Reviewed by	K. W. Wellman
	Date: April 9, 1974
Inspected by	F. B. Powers

1. Description of the Area

This offshore survey covers a portion of the Gulf of Santa Catalina off the southern coast of California northeast of San Clemente Island. It covers an area of basins, ridges, and knolls ranging in depth from about 185 to 700 fathoms.

2. Control and Shoreline

The origin of the control is given in the Descriptive Report.

There is no shoreline within the limits of this survey.

3. Hydrography

A. Depths at crossings are in good agreement.

B. The usual depth curves are adequately delineated. Supplemental 50 fm. curves were drawn to conform to the charting practice.

C. The development of the bottom configuration and the investigation of least depths are adequate.

4. Condition of the Survey

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

5. Junctions

Adequate junctions were effected with H-9112 (1970) on the south, and with H-9108 (1970) and H-9114 (1970) on the east. The junctions with unverified surveys H-9277 (1972) on the northeast and H-9254 (1971) on the west will be considered in the reviews of those surveys. No contemporary survey junctions with the present survey on the northwest. Present survey depths are in general harmony with charted depths in this area.

6. Comparison with Prior Surveys

- A. H-1430 (1879) 1:20,000
- H-4366 (1924-28) 1:160,000
- H-4504 (1925) 1:120,000
- H-4549a (1925) 1:140,000
- H-4560 (1926-28) 1:120,000

These early surveys have been compared with and were superseded by the surveys discussed in the following paragraph. Further consideration is not necessary in the present review.

- B. H-5758 (1933-34) 1:20,000
- H-5848 (1934) 1:40,000
- H-6118 (1935-37) 1:80,000
- H-6119 (1935-37) 1:80,000

These prior surveys cover the area of the present survey. A comparison between the present and prior surveys reveals differences usually no greater than 15 fathoms. In random areas, however, differences are as great as 40 fathoms as a result of differences in control and sounding methods in an area of steep gradients. In some areas faulty operation or imprecise reading of the visually read fathometers appears to have occurred.

One sounding each from H-6118 and H-4366 was carried forward to supplement present depths on knolls.

The larger scale and more completely developed present survey is adequate to supersede the prior surveys within the common area.

7. Comparison with Chart 5111 (latest print date 12-23-72)
 5060 (latest print date 12-29-73)
 5101 (latest print date 10-6-73)

A. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration and with a prior United States Navy Survey (Bp 78954-1969) supplemented by the partial application of depths from the boat sheet and verified smooth sheet of the present survey before review.

Attention is directed to the following:

- (1) The following soundings charted from sources indicated are considered discredited by the present survey and should be deleted from the chart:

<u>Sdgs.</u>	<u>Location and Chart</u>	<u>Source</u>
(a) 509	lat. 33°00.60', long. 117°56.60' (chart 5101)	H-4366
(b) 482	lat. 32°52.10', long. 118°19.15' (chart 5111)	H-4366
(c) 407	lat. 33°00.30', long. 118°08.80' (chart 5101)	H-4366

(The present survey located a 406 fm. sounding approximately 300 meters southeast of the indicated position)

- (2) The soundings listed below and charted from sources indicated were erroneously transferred, misinterpreted or subsequently revised during processing and should be deleted. The final smooth sheet data should be charted:

<u>Sdgs.</u>	<u>Location and Chart</u>	<u>Source</u>
(a) 143	lat. 32°51.51', long. 117°51.10' (chart 5060) (Boat sheet of H-9112)	Bp 79286 (1970)
(b) 417	lat. 32°59.50', long. 118°01.30' (chart 5101) (Charted position in error)	Bp 79061 (1970) (Boat sheet of Present Survey)
(c) 387	lat. 33°02.20', long. 118°01.90' (chart 5101) (Boat sheet of Present Survey)	Bp 79061 (1970)

- (3) The following soundings were erroneously charted on chart 5060 from the smooth sheet of the present survey:

<u>Charted Sdgs.</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Survey Sdg.</u>
554 Fathoms	32°56.55'	117°51.70'	556 Fathoms
540 Fathoms	32°56.35'	117°50.30'	560 Fathoms
541 Fathoms	32°55.71'	117°50.80'	561 Fathoms
542 Fathoms	32°55.00'	117°51.50'	562 Fathoms
410 Fathoms	32°54.90'	117°56.60'	419 Fathoms

The soundings listed above should be revised to agree, in depth as well as position, with the reviewed smooth sheet of the present survey.

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

B. Aids to Navigation

There were no aids to navigation within the area of the present survey.

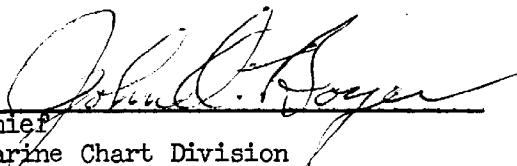
8. Compliance with Instructions

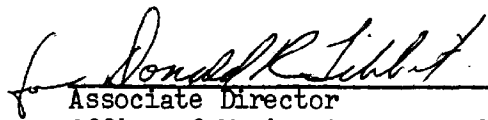
This survey adequately complies with the project instructions.

9. Additional Field Work

This is a very good basic survey and no additional field work is recommended.

Examined and Approved:


 Chief
 Marine Chart Division


 Associate Director
 Office of Marine Surveys and Maps

118° 00'

39

G U L F O F

6118 & Ad.Wk.

S A N T A C A T A L

9113

33° 00'

B A R B A R A

S A G E

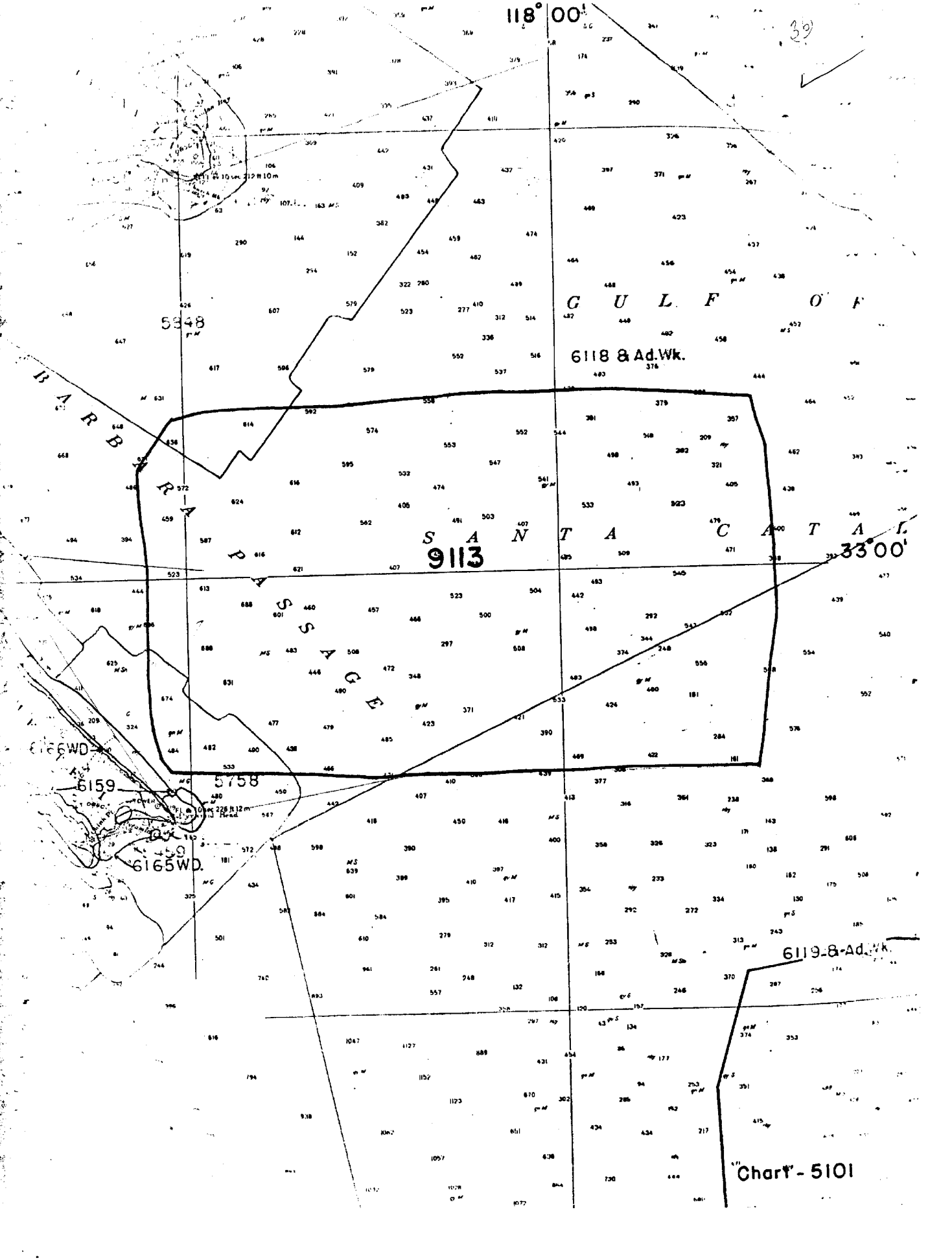
6166WD

6159

6165WD

6119-8-Ad.Wk.

Chart - 5101



RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9113

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
5111	12/18/72	Jeff Ouyang	Full Part Before After Verification Review Inspection Signed Via Drawing No. 13 + 13M
5101 18740	1/5/73	Jeff Ouyang	Full Part Before After Verification Review Inspection Signed Via Drawing No. 38
5020 18022	1/5/73	Jeff Ouyang	Full Part Before After Verification Review Inspection Signed Via Drawing No. 38
5002 18020	1/5/73	Jeff Ouyang	Full Part Before After Verification Review Inspection Signed Via Drawing No.
5060 18765	1/10/73	Jeff Stuart	Full Part Before After Verification ^{1/27/73} Review Inspection Signed Via Drawing No.
5060 18765	11-18-74	Ray Spence	Full Part Before After Verification Review Inspection Signed Via Drawing No. #B (Fully Revised Hydro)
5101	1/27/76	D.C. Larson	Full Part Before After Verification Review Inspection Signed Via Drawing No.
5110 ⁵⁶ (18762)	12/16/76	D. Cortto	Full Part Before After Verification Review Inspection Signed Via Drawing No. 9 th ed
18774	2/2/78	D. Kelle	Full Part Before After Verification Review Inspection Signed Via Drawing No. APPLIED PARTLY THRU CHRT 5101, DWG #1
5020 (18022)	5-30-79	Hamilton	Full Part Before After Verification Review Inspection Signed Via Drawing No. 40 Thru 18740
18020 (5002)	6-25-79	Hamilton 1-17-80 RAS	Full after Verification Review, Insp Drawing #32 thru chrt 18022