9249

Diag. Cht. No. 5101-4.

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. RA-10-5-71

Office No. H-9249

LOCALITY

State CALIFORNIA

General Locality GULF OF SANTA CATALINA

Locality LEUCADIA

1971

CHIEF OF PARTY
Roger F. Lanier

LIBRARY & ARCHIVES

DATE 4/2/74

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

9249

FORM C&GS-537 (5-66)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO. H-9249

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. RA-10-5-71

State: CALIFORNIA

General locality: Gulf of Santa Catalina

Locality: ~~Cardiff By The Sea to Carlsbad~~ Leucadia

Scale: 1:10,000 — Date of survey: 17-30 October 1971

Instructions dated: 20 August 1971 — Project No. OPR-411-RA-71

Vessel: NOAA Ship RAINIER Launch RA-6 & Launch RA-5

Chief of party: Capt. Roger F. Lanier

Surveyed by: Lt(jg) N. W. Wright, Ens. W. F. Turnacliff, Ens. J. R. Faris

Soundings taken by echo sounder, ~~hand lead, pole~~: Raytheon Model DE-723, S/N 253; Ross Model 5000, S/N 1040 & 1041

Graphic record scaled by: Ship's Personnel

Graphic record checked by: Ship's Personnel

Positions verified ~~Protracted~~ by: Matthew G. Sanders — Automated plot by: PMC Gerber Digital Plotter

Soundings verified ~~penciled~~ by: Matthew G. Sanders

Soundings in fathoms ~~feet~~ at ~~MLW~~ MLLW

REMARKS:

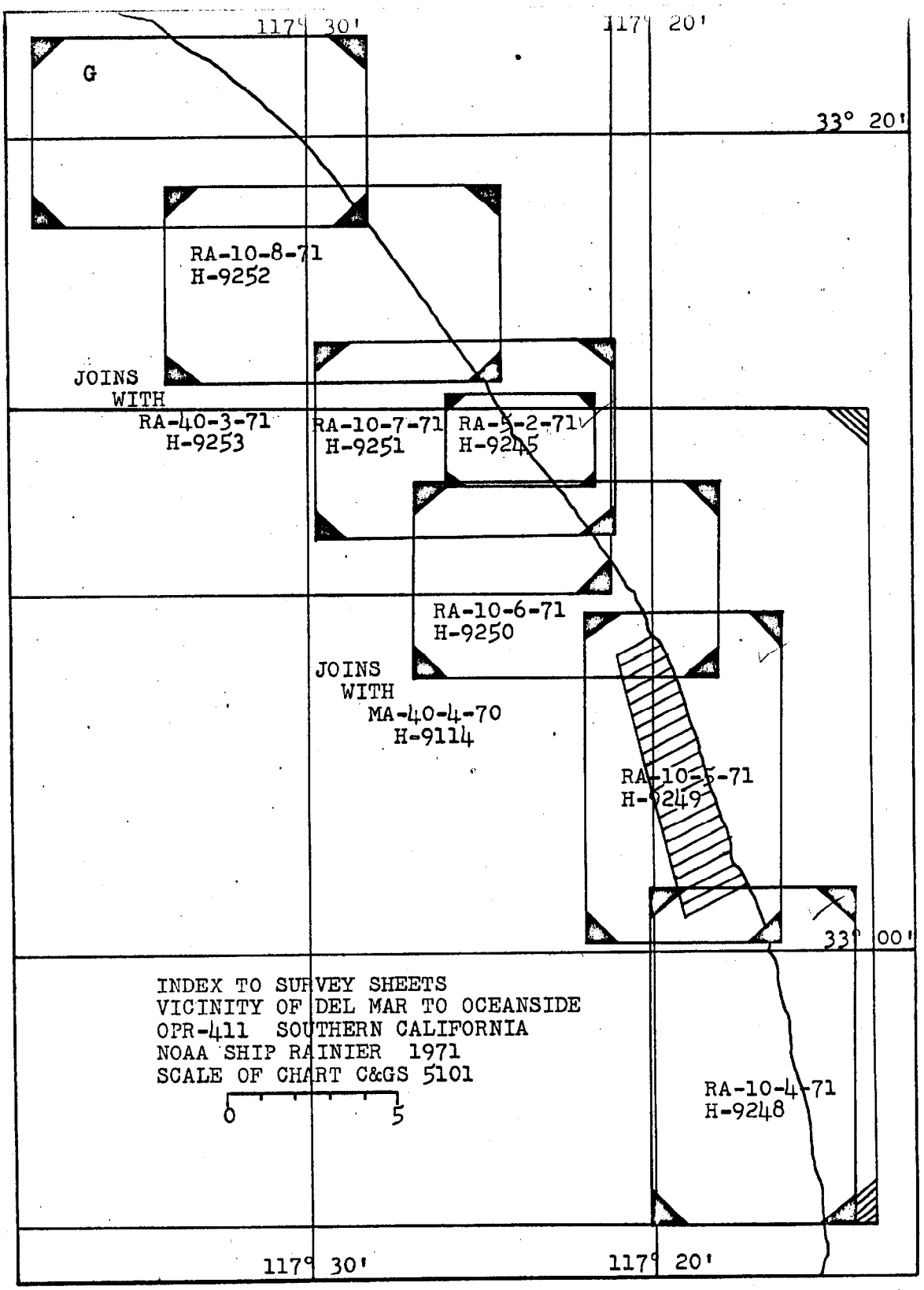
The Modified Transverse Mercator Projection (Boatsheet only), soundings, and position numbers on the boatsheet were plotted by the RAINIER's PDP-8/e computer and COMPLOT plotter. Polyconic Projection is used on the smooth sheet.

Area 5
Charts 5020
5101

Applied to chts 6/13/74
[illegible]

Exam for critical corr. JHE 6/19/74

ADP. —


117° 30'
117° 20'
33° 20'
G
RA-10-8-71
H-9252
JOINS
WITH
RA-40-3-71
H-9253
RA-10-7-71
H-9251
RA-5-2-71
H-9245
RA-10-6-71
H-9250
JOINS
WITH
MA-40-4-70
H-9114
RA-10-5-71
H-9249
33° 00'
INDEX TO SURVEY SHEETS
VICINITY OF DEL MAR TO OCEANSIDE
OPR-411 SOUTHERN CALIFORNIA
NOAA SHIP RAINIER 1971
SCALE OF CHART C&GS 5101
0
5
RA-10-4-71
H-9248
117° 30'
117° 20'

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SURVEY

H-9249 (Field No. RA-10-5-71)

Scale 1:10,000

1971

NOAA Ship RAINIER

Roger F. Lanier
CAPT, NOAA
Commanding

A. PROJECT

This survey was conducted in accordance with PROJECT INSTRUCTIONS: OPR-411-RA-71, dated 20 August 1971. Change No. 1, dated 7 September 1971 is the only change to the Project Instructions that is applicable to this survey.

B. AREA SURVEYED

Sheet H-9249, scale 1:10,000, covers the coast from Cardiff-by-the-Sea, north to Encinitas and Leucadia and ends just south of Carlsbad. The survey is bounded by latitude 33° 01' 00"N on the south and latitude 33° 07' 30"N on the north and by the 25 fathom curve on the west. This sheet includes approximately 7 nautical miles of the California coastline which consists mainly of sand beaches with only occasional rock outcropping.

The survey began on 17 October 1971 and was carried out as weather permitted. Survey operations were completed 30 October 1971.

Prior surveys of the area covered by H-9249 are H-5663, 1934, 1:10,000 and H-5664, 1934, 1:10,000, H-6117, 1935, 1:40,000, and H-4367, 1924, 1:40,000. Contemporary surveys which junction with H-9249 are listed below:

Registry No.	Field No.	Scale	Year
H-9248	RA-10-4-71	1:10,000	1971
H-9250	RA-10-6-71	1:10,000	1971
H-9114		1:40,000	1970

C. SOUNDING VESSEL

Soundings on RA-10-5-71 were obtained by launches RA-5 and RA-6. Bertram launch RA-5 used blue ink for identification and Uniflite launch RA-6 used black ink for identification. Bertram launch RA-3 was used to obtain bottom samples in addition to those obtained by RA-5 and RA-6.

D. SOUNDING EQUIPMENT

Launch RA-3 used a Raytheon DE-723 Fathometer (Serial No. 253) in depths from 0-30 fathoms. This launch was used to aquire 4 bottom samples on this survey. Bar checks were taken twice daily when sea conditions would permit accurate results. A maximum depth of seven fathoms was used and the results abstracted. The initial value was scanned continuously during the survey. It was again inspected when the fathogram was scanned and the results abstracted. Fine arc and AF checks were made routinely. Phase comparisons were omitted as only the A scale was used. A 0.3 fathom draft correction was used for RA-3. All fathometer corrections were compiled on the Transducer Correction/Table Indicator (TC/TI) tape.

Launch RA-5 used Ross Model 5000 Fathometer (Serial No. 1041) in depths from 0-30 fathoms. Bar checks were taken twice daily when sea conditions would permit accurate results. A maximum depth of seven fathoms was used and the results abstracted. The initial value was inspected continuously during the survey. No abstract of initial corrections was compiled since any observed difference in the initial value appeared only on the analog record and not on the digitized record. In check scanning the fathogram the initial correction was considered before reading the analog value. The fathogram was scanned continuously in the field and compared to the Hydrolog digitized values. Judicious use of the blanking function was made to eliminate spurious returns. Phase comparisons were omitted as only one scale was used. A 0.3 fathom draft correction was used for RA-5. All fathometer corrections were compiled on the Transducer Correction/ Table Indicator (TC/TI) tape.

Launch RA-6 used Ross Model 5000 Fathometer (Serial No. 1040) in depths from 0-30 fathoms. With the exception of the draft correction the sounding equipment and operation on RA-6 was identical to RA-5. A 0.4 fathom draft correction was used for RA-6.

Velocity corrections were computed from bar checks and water temperature and salinity values obtained from a Nansen Cast taken on 14 November 1971 at latitude 33° 12.3'N, longitude 117° 42.6'W. A velocity correction table was made and entered on tape and applied via the TC/TI tape.

All sounding equipment operated properly throughout the survey with no equipment produced errors which would affect the accuracy of the soundings. For further information on sounding equipment and corrections refer to Sounding Correction Report, OPR-411, NOAA Ship RAINIER, 1971.

E. SMOOTH SHEET

The smooth sheet will be plotted by the Pacific Marine Center, Electronic Data Processing Division.

The 22" x 64" paper boat sheet was produced aboard the NOAA Ship RAINIER using the COMPLOT DP-3 plotter coupled with the Digital Equipment Corporation PDP-8/e computer. The Modified Transverse Mercator projection was produced. Boat-sheet soundings and position numbers were also plotted by the computer/plotter.

F. CONTROL

Decca Hi-Fix was used for horizontal control and was operated in the hyperbolic mode on Type A moderate power, transmitting on a frequency of 1799.6 KHZ. The stations operated satisfactorily and caused no problems during the work on this survey.

The master station was located on a 75 foot bluff midway between Newport Beach and Laguna Beach, California. A 35 foot whip antenna was erected on traverse station MUDDY, 1971 (latitude 33° 34' 08.845"N, longitude 117° 50' 00.744"W).

Slave station 1 was located on San Clemente Island. A 35 foot whip antenna was erected approximately 1850 feet above sea level on RM 2 of triangulation station ROGER, 1971 (RM 2 position: latitude 32° 53' 45.353"N, longitude 118° 27' 44.128"W). The hyperbolic rates established by the master station and slave station 1 were drawn on the boat sheet using green ink.

Slave station 2 was located on Point Loma near San Deigo, California. A 35 foot whip antenna was erected approximately 80 feet above sea level on RM 1 of traverse

station JUMP 2, 1971 (RM 1 position: Latitude 32° 42' 22.995"N, Longitude 117° 15' 14.958"W). The hyperbolic rates established by the master station and slave station 2 were drawn on the boat-sheet in red ink.

Calibration of Hi-Fix receivers was accomplished by visual three-point sextant fixes on signals located by ground survey methods. A mathematical solution for three-point fixes was used in conjunction with a Digital Equipment Corporation PDP-8/e computer and program AM 560. The receivers were calibrated at the beginning and end of each day's work and when there was any doubt as to the correct lane count. For further information on Hi-Fix control refer to Hi-Fix Report, OPR-411, NOAA Ship RAINIER, 1971, and for specific information on station and signal location see the report titled Geodetic Survey Operations, OPR-411, NOAA Ship RAINIER, 1971.

G. SHORELINE

Shoreline details were taken from shoreline manuscripts T-11871(2) (2nd edition compiled from photos of 1972 was used for smooth sheet.) T-11872(2) and T-11873(2). Due to high breaker and the lack of places safe for small boat landings it was not possible to accurately determine the HWL during the hydrographic survey but the compiled shoreline did appear to be accurate. The MHWL was verified during field edit of the above manuscripts by the NOAA Ship DAVIDSON in 1970.

A rock was shown on manuscript T-11873 at latitude 33° 02' 137"N and longitude 117° 17' 51"W. The area where this rock was supposed to lie was thoroughly investigated but no rock was found. Due to the clarity of the water, a rock would have been apparent if it were present. Rock was removed during field edit of the topo manuscript.

The low waterline is not defined on the sheet due to heavy surf in the area. However, the one fathom curve is generally well defined ~~throughout~~ in portions of the sheet.

H. CROSSLINES

Crosslines on sheet RA-10-5-71, H-9249 amounted to 10.9% of the total miles run. The crosslines are exceptionally good agreeing generally to 0.3 to 0.4 fathom. There are no crossings requiring discussion or further investigation.

I. JUNCTIONS

The survey area is joined on the south by contemporary survey sheet H-9248 (RA-10-4-71), on the north by contemporary survey sheet H-9250 (RA-10-6-71), and on the west by contemporary survey sheet H-9114, 1:40,000, 1970.

There is a one sounding line overlap with sheet H-9248 (RA-10-4-71) and the overlap reveals good agreement. The soundings agree within 0.3 fathom in most areas. Sheet H-9250 (RA-10-6-71) has a two sounding line overlap and also is in excellent agreement, generally within 0.3 fathom. The soundings on the western junction, sheet H-9114, show good agreement of one fathom or less except in the northwest corner of the sheet. In this small area the soundings differ by 2 to 3 fathoms, which may be due to the increased slope of the bottom. It is felt that the larger scale and the smooth 20 fathom depth curve of H-9249 are ample justification for considering the soundings on H-9249 to be correct. Any adjustment in this area should be made to H-9114. discrepancy adjusted on H-9114.

J. COMPARISON WITH PRIOR SURVEY

There were two prior surveys in this area with which sounding comparisons can be made. Sheet H-5663 (1934) covers the ~~southern~~ northern end of the sheet and H-5664 (1934) covers the ~~northern~~ southern portion. The soundings on both sheets H-5663 and H-5664 agree very well, generally within a half fathom.
Comparison also made with H-6117, 1935 and H-4367, 1924, which cover western fringe of H-9249.

K. COMPARISON WITH THE CHART

The largest scale chart available in this area is C&GS 5101 a 1:234,270 scale chart. The sounding agreement was excellent, however, the large scale disparity and the limited number of soundings for comparison minimizes the value of this comparison. The sewer shown on the chart was developed and is discussed in Section 0., Miscellaneous, 2. Developments.

L. ADEQUACY OF SURVEY

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

M. AIDS TO NAVIGATION

An orange and white horizontally banded spar bouy was located at Lat. 33° 05' 50"N and Long. 117° 19' 18"W, just off a swimming beach in 4.5 fathoms. This bouy did not appear in the Light List, Pacific Coast and Pacific Islands, Vol. III, 1971 and the ownership and reason for having a bouy in this area is unknown. A sewer pipe was located bearing 254° T from land and terminates at Lat. 33° 06' 40.5"N and Long. 117° 20' 29"W.

A standpipe of landmark value was located in Leucadia. For information on the methods used in it's location see the report titled Geodetic Surveying Operations, OPR-411, NOAA Ship RAINIER, 1971. For the position of this standpipe see NOAA Form 76-40, Nonfloating Aids or Landmarks for Charts, which is included in the appendix.

N. STATISTICS

Sheet H-9249 (RA-10-5-71) contains 217.0 nautical miles of sounding line and approximately 8.1 square miles of survey area. The entire survey was conducted by launches RA-3, RA-5, and RA-6. Nineteen bottom samples were taken.

Launch	Nautical miles Sounding lines	Number of Numbered Pos.	Number of Bottom Samples
RA-3	0	4	4
RA-5	113.0	701	8
RA-6	104.0	649	7
Total	217.0	1354	19

O. MISCELLANEOUS

1. Data Processing

All sounding data was recorded on time using the PDP 8/e Hydrolog program which punches a tape in a master tape format. After the initial plot, data tapes were edited to exclude all rejected data.

Corrector tapes were prepared using the standard Hydroplot/ Hydrolog corrector tape format for all peaks, deeps, sounding and control changes.

Separate master and corrector tapes were prepared for each day number. Standard formats, as specified in the INSTRUCTION MANUAL, Automated Hydrographic Surveys, were used for the TC/TI and Velocity Correction tapes.

NOTE: TRA corrector values and velocity table numbers shown on the Hydroplot/Hydrolog printouts are to be ignored for processing at PMC. The correct data is listed on the TC/TI tape.

In accordance with the PMC OPORDER, the tide reducer tape will be made by PMC's Electronic Data Branch.

2. Developments

RA-5 made two separate developments. Both developments were plotted on overlays and are included in the survey data. Development No.1 was run to delineate the sewer which is shown on chart C&GS 5001. The sewer bears 254°T from land and lays about 1 fathom above the bottom to its outfall at Lat. 33° 06' 40.5"N and Long. 117° 20' 29"W.

Development No. 2 was an investigation of some slight shoaling outside the ten fathom curve in the area Lat. 33° 05' 25"N and Long. 117° 20' 28"W. The least depth found was 9.1 fathoms in an area of generally 10.3 fathoms.

P. RECOMMENDATIONS

It is recommended that the sewer shown on C&GS Chart 5101 in Lat. 33° 06' 40"N and Long. 117° 20' 29"W be retained on the chart.

Q. REFERENCES TO REPORTS

1. Corrections to Echo Soundings, OPR-411, NOAA Ship RAINIER, 1971.

2. Hi-Fix Report, OPR-411, NOAA Ship RAINIER, 1971.

3. Geodetic Surveying Operations, OPR-411, NOAA Ship RAINIER, 1971.

4. Tide Report, OPR-411-RA-71, NOAA Ship RAINIER, 1971.

Respectfully submitted,

Wayne Turnacliff

W. F. Turnacliff
LTJG, NOAA

ABSTRACT OF POSITIONS

Launch	J D	POS NO.	
RA-3	303	9001-9004	Bottom Samples
RA-5	293	7001-7211	
	294	7212-7334	
	295	7335-7378	
	300	7379-7434	
	303	7435-7655	
	304	7658-7703	
RA-6	291	0001-0264	
	292	0265-0539	
	293	0542-0643	
	294	0645-0653	

LIST OF SIGNALS

Station Number	Origin
003	EASTER CROSS "NEW", 1955
009	NORTHWEST RANGE U.S.N., 1933
015	DELMAR, STACK ON COAST IN, 1933
017	TOWER OF MANSION BACK OF DELMAR, 1933
101	ENCINITAS 2, 1933
102	RICHARDS, 1971
103	BUSH, 1971
105	SILVER TANK, VENT ATOP, LEUCADIA, 1971
499	POST 3, 1971
501	SAN DIEGO, G&E CO., ENCINO PLANT CENTER STACK, 1962
500	LAMB, 1971
503	MULL 2, 1933
521	CAMP PENDELTON WATER TANK, 1956

APPROVAL SHEET
OPR-411
H-9249 (RA-10-5-71)
LEUCADIA, CALIFORNIA

In producing this sheet hydrographic procedures were observed and the data was examined daily by CAPT Roger F. Lanier during the execution of the survey.

The data on the boat sheet and the accompanying records have been examined by CAPT Lanier and are considered complete and adequate.

CAPT Lanier has been transferred and is unavailable for signature. This report and the accompanying records are approved for forwarding.

G E Haraden

G. E. Haraden
CAPT, NOAA

_____
(date)

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,

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

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

2/28/73

Processing Division: Pacific Marine Center

Hourly heights are approved for

Tide Station Used (NOAA form 77-12): San Diego, California

Period: Oct. - Nov. 1971; March 1-29, 1972

HYDROGRAPHIC SHEET: H-9245, H-9249

OPR: 411

Locality: Ocean Side, southern California

Plane of reference (mean lower low water): 3.5 ft.

Height of Mean High Water above Plane of Reference is 5.0 ft.

Remarks: Zoning instructions. Staff readings at Ocean Side were erratic, use San Diego hourly heights with the following corrections:

Time	Height
LW HW -6 min.	x0.92 ratio

Robert A. Cummings

TIDE NOTE

H-9249 (RA-10-5-71)

The tide station existing at San Diego, California in Lat. 32° 42.8'N and Long. 117° 10.4'W, will be used to control the soundings on this survey. Hourly heights and time and height differences will be furnished to the PMC Processing Division by the Tides Branch in Rockville. Oceanside gage used

Predicted tides for the sheet were obtained from the Tide Tables, 1971, North American Coast using the Point Loma Subordinate station. The tides were applied directly to the data when plotted by the computer.

GEOGRAPHIC NAMES

Survey No. H-9249

Name on Survey	On Chart No. A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
CARDIFF-BY-THE-SEA										1
~~CARLSBAD~~ off the sheet										2
ENCINITAS										3
GULF OF SANTA CATALINA										4
LEUCADIA										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
					Approved					19
					Chas. E. Harrington					20
					Staff Geographer - C51x2					21
					24 Sept. 1975					22
										23
										24
										25
										26
										27

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. H-9249

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	3

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	1					
VOLUMES						
BOXES			1 & Sawtooth Rec.			

T-SHEET PRINTS *(List)* [illegible]

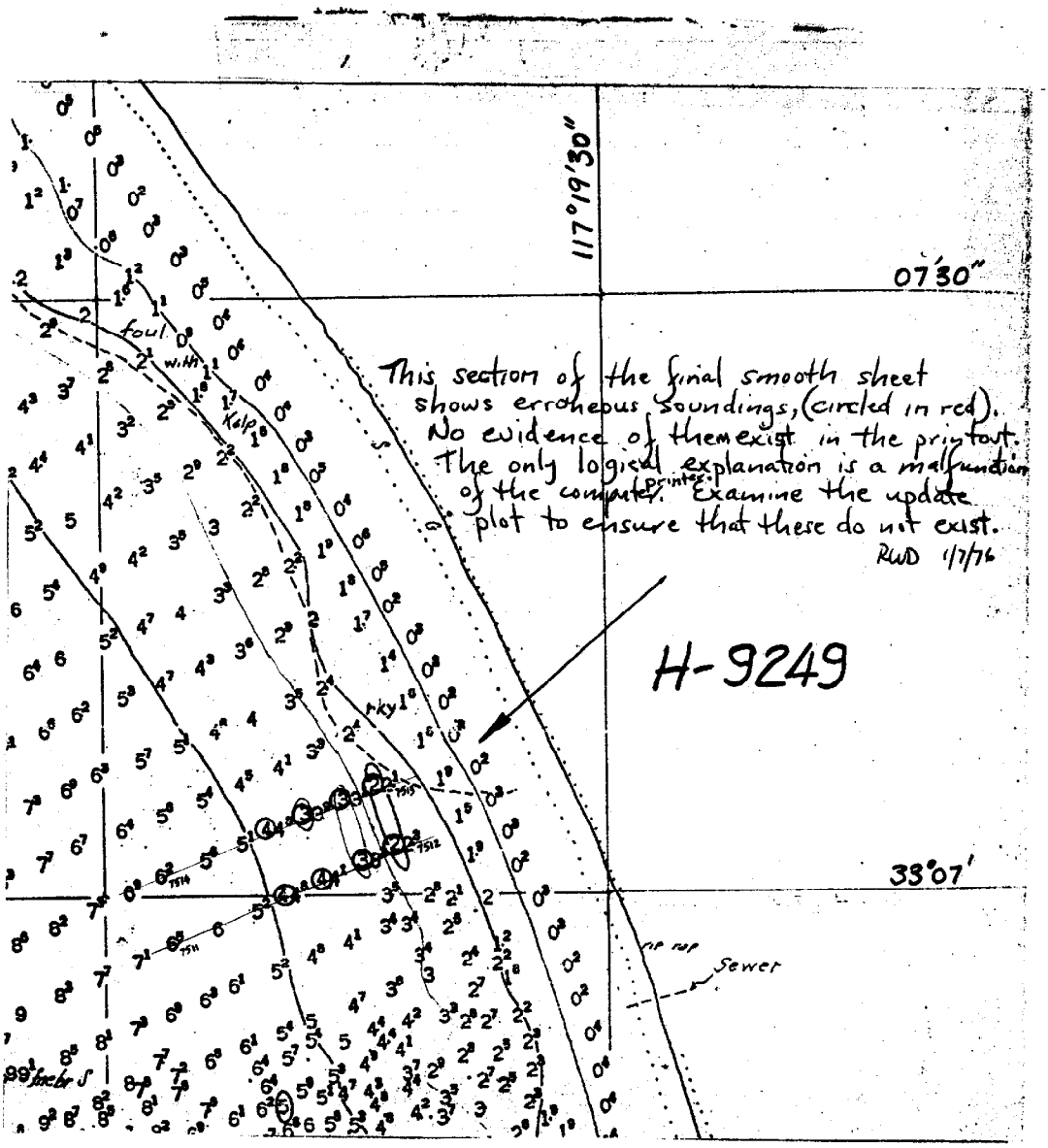
SPECIAL REPORTS *(List)*

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				1311
POSITIONS CHECKED		1311		
POSITIONS REVISED		33	0	
DEPTH SOUNDINGS REVISED or added		33	16	
DEPTH SOUNDINGS ERRONEOUSLY SPACED		15	0	
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		Ø	0	
	TIME (MANHOURS)			
Verification of Control			1	
Verification of Positions		31	5	
Verification of Soundings		212	12	
Smooth Sheet Compilation		6Ø	10	
ALL OTHER WORK		1	44	
TOTALS		3Ø4	72	

	BEGINNING DATE	ENDING DATE
PRE-VERIFICATION BY		
VERIFICATION BY Matthew G. Sanders (signature) Matthew G. Sanders	23 October 1973	15 March 1974
REVIEW BY Carl Fehr 70 hrs.		9-29-75

Dennis E. Hill 2 hrs Insp AW DerHagopian 23 hrs 1/23/76 [illegible] 1/23/76



This section of the final smooth sheet shows erroneous soundings, (circled in red). No evidence of them exist in the printout. The only logical explanation is a malfunction of the computer. Examine the update plot to ensure that these do not exist.

RWD 1/7/76

H-9249

Reg. No. H-9249

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:

Reg. No. _____

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 REQ'D._____ INITIALS_____

REMARKS:

Sheet # 2

PARAMETERS FOR DIGITAL COMPUTING

GNOMONIC PROJECTION

(1) Project No. OPR 411

(2) H No. 9249

(3) Field No. (B) PA-10-5-71

(4) Requested by

(5) Ship or Office RAINIER

(6) Date Required

(7) Visual ☐ Pt.(0) or Fathoms (1) ☐ (8) Electronic HYPERBOLIC ☒ (fill out form #3)

(10) XKN (SP 5) Distance from CMER to East Edge (NYX = 1) or West Edge (NYX = 0). (Origin) 4283.2320 Meters

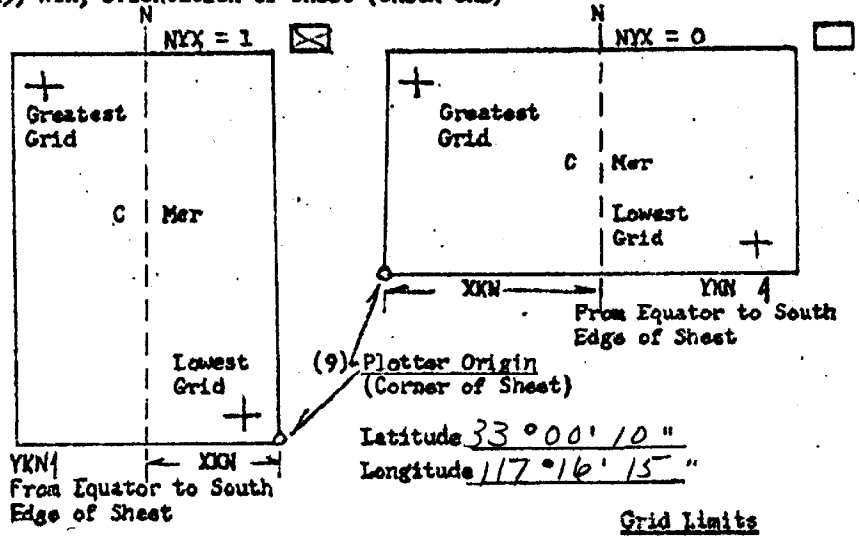
(11) YKN (SP 241) Distance from Equator to South Edge of Sheet. (Origin) 3,652,864.889 Meters

(12) Central Meridian 117°19'00"

(13) Survey Scale 1:10000

(14) Size of Sheet (Check one) 36x60 ☒ 42x60 ☐

(15) NYX, Orientation of sheet (Check one)



(9) Plotter Origin (Corner of Sheet)

Latitude 33°00'10"

Longitude 117°16'15"

Grid Limits

(16) Greatest Latitude 33°08'00" (Projection Line Interval Page 4 Hydro Manual)

(17) Lowest Latitude 33°00'30"

(18) Difference 7'30" (19) 7'30"

(20) 15 YSN

(21) Greatest Longitude 117°22'00"

(22) Lowest Longitude 117°16'30" (24) 1'30"

(23) Difference 5'30" (25) 11 XSN

H 5249

Field No. (2) RA-10-5-71

Date Aug 23, 1973

~~HYDRO II AND I PARAMETER DG~~

PARAMETER CARD II

			1	2	3	4	5	6	7	8	9	10
Semi major axis of the earth	6,378,206.4	RDA	6	3	7	8	2	C	4	4	C	7
			11	12	13	14	15	16	17	18	19	20
X Constant- Distance from central meridian to origin of plotter SP 5	meters	XXN	4	2	8	3	2	3	2	0	0	4
			21	22	23	24	25	26	27	28	29	30
Y Constant - Distance from equator to origin of plotter SP 241	meters	YXN	3	6	5	2	8	6	4	9	0	7
			31	32	33	34	35	36	37	38	39	40
Central Meridian of Projection	117° 19' 00.00"	CMR	4	2	2	3	4	0	0	0	0	6
			41	42	43	44	45	46	47	48	49	50
Plotter Scale/Survey Scale	1:20498.6876 1: 10000	SCA	1	0	4	9	8	6	8	8	0	1
												51
North/south axis of sheet - to correspond to (Y axis - 0) (X axis - 1) of plotter		NSX										1
												52
Feet/Fathom indicator	0 - feet 1 - fathom	FOF										1
								53	54	55	56	57
H Identification No.		JN						0	9	2	4	9
											58	59
FOF - 1		YR									7	1

PARAMETER CARD III

			1	2	3	4	5	6	7	8	9	10
Lowest Lat. Intersection	33° 00' 30.00"	YST	1	1	8	8	3	0	0	0	0	6
			11	12	13	14	15	16	17	18	19	20
Lowest Long. Intersection	117° 16' 30.00"	XST	4	2	2	1	9	0	0	0	0	6
			21	22	23	24	25	26	27	28	29	30
Difference between Grid	30.00	DXY	3	0	0	0	0	0	0	0	0	2
											31	32
Interval (Long)		XSN									1	1
											33	34
Interval (Lat)		YSN									1	5

Computed RDM

Punched

Checkdd ... ar

Date

H-No 9249 -HYDRO 3 PARAMETER CARD

H-No 9249
Field No(B) RA-10-5-71
Date Aug 23, 1973

PARAMETER CARD 1B

		DEG	MIN	SECONDS	1	2	3	4	5	6	7	8	9	10
MASTER R1 HYDRO NAME MUDDY, 1971	LAT	33	34	0000	1	2	0	5	2	8	5	5	0	6
	LONG	117	50	0000	4	2	4	2	0	0	7	4	0	6
SLAVE R2 HYDRO NAME ROGER, 1971	LAT	32	63	4536	-1	1	6	4	2	5	3	5	0	6
	LONG	118	27	4428	4	2	6	4	6	4	1	3	0	6
SLAVE R3 HYDRO NAME Jump 2, 1971	LAT	32	42	2295	1	1	7	7	4	3	0	9	0	6
	LONG	117	15	1495	4	2	2	1	1	4	9	6	0	6

	61	62	63	64	65	66	67	68	69	70
FREQUENCY 1799.6 KHZ	1	7	9	9	6	0	0	0	0	4

	71	72	73	74	75
H IDENTIFICATION NUMBER	0	9	2	4	9

	76	77
YEAR OF SURVEY	7	1

NOAA FORM 76-40
(2-71)
PRESCRIBED BY
PHOTOGRAMMETRY INSTRUCTION NO. 64.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

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

(See reverse for responsible personnel)

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

ORIGINATING LOCATION: NOAA Ship RAINIER

DATE: 12-21-71

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

JOB NUMBER: PH-

STATE: California

SURVEY NUMBER: T- 11873
TP-

DATUM: North American 1927

CHARTING NAME	DESCRIPTION	POSITION LATITUDE ° ′	POSITION LATITUDE ″ O.M.METERS	POSITION LONGITUDE ° ′	POSITION LONGITUDE ″ O.P.METERS	METHOD AND DATE OF LOCATION (See instructions on reverse of this form) FIELD INSPECTION	COMPILATION	FIELD EDIT	CHARTS AFFECTED
Stand-pipe	Vent atop Leucadia; Painted silver	33° 03′	42.27	117° 16′	51.81	F.l.a.			

checked by: WCS

	NAME	TITLE
1. Objects inspected from seaward	J. Richard Faris, ENS. NOAA	☒ FIELD INSPECTOR ☐ FIELD EDITOR
2. Positions determined and/or verified	J. Richard Faris, ENS. NOAA	FIELD INSPECTOR
		FIELD EDITOR
		COMPILER
3. Forms originated by Quality Control and Review Group and final review activities		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR 'METHOD AND DATE OF LOCATION' SECTION

NOTE: 'Photogrammetric Positions' are dependent entirely, or in part, upon control established by photogrammetric methods.
'Field Positions' are determined by field observations based entirely upon ground control.

COLUMN TITLE

COMPILATION

FIELD INSPECTION
AND
FIELD EDIT

TYPE OF ENTRIES

Applicable to office identified and located objects only. Enter the number and date of the photograph used to identify the object.

1. New Position Determined–Enter the applicable data by symbols as indicated below:

F – Field
1. Triangulation
2. Traverse
3. Intersection
4. Resection
   a. Theodolite
   b. Planetable
   c. Sextant

P – Photogrammetric
1. Field identified
2. Theodolite
3. Planetable
4. Sextant

EXAMPLES:

F. 3.c

P.2

Immediately beneath the data described above, enter the following:

a. For 'Field Positions' enter the date of location.

b. For 'Photogrammetric Positions' enter the date of field work; and, if a photograph was used in locating the object or the object was identified on a photograph, enter the number of the photograph used.

2. Triangulation Station Recovered – Enter 'Triang. Rec. mo/day/yr.'

3. Position Verified – Enter 'Verif. mo/day/yr.'

PARAMETER TAPE LISTINGS

OPR-411-RA-71

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RA-10-5A-71
FEST=119000
CLAT=3500000
CMER=118/25/0
GRID=30
PLSCL=10000
PLAT=33/00/45
PLON=117/15/30
MLAT=33/34/08.845
MLON=117/50/00.744
S1LAT=32/53/45.353
S1LON=118/27/44.128
S2LAT=32/42/22.995
S2LON=117/15/14.958
Q=1799.6
VESNO=2126
YR=71

RA-10-5B-71
FEST=119000
CLAT=3500000
CMER=118/25/0
GRID=30
PLSCL=10000
PLAT=33/04/10
PLON=117/17/00
MLAT=33/34/08.845
MLON=117/50/00.744
S1LAT=32/53/45.353
S1LON=118/27/44.128
S2LAT=32/42/22.995
S2LON=117/15/14.958
Q=1799.6
VESNO=2120
YR=71
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H-9249

Information for Future Presurvey Review

The area covered by the survey is relatively stable.

Position Index		Bottom Change	Use	Resurvey
Lat.	Long.	Index	Index	Cycle (Years)
330	1172	3	2	50
330	1173	3	2	50

OFFICE OF MARINE SURVEYS AND MAPS

MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9249 FIELD NO. RA-10-5-71

California, Gulf of Santa Catalina, Leucadia

SURVEYED: October 17, 1971, to October 30, 1971

SCALE: 1:10,000 PROJECT NO.: OPR-411-RA-71

SOUNDINGS: Leadline, Raytheon DE-723 and Ross Model 5000 Depth Recorders CONTROL: Decca Hi-Fix (Hyperbolic Mode)

Chief of Party ..... R. F. Lanier
Surveyed by ..... N. W. Wright
..... W. F. Turnacliff
..... J. R. Faris
Automated Plot by ..... Gerber Digital Plotter (PMC)
Verified by ..... M. G. Sanders
Reviewed by ..... C. X. Fefe
..... D. J. Hill
..... Date: September 29, 1975
Inspected by ..... R. W. DerKazarian

1. Description of the Area

This survey covers that portion of the California coast north of San Diego between latitude 33°00'30" and 33°07'45". The survey extends from the shoreline on the east, seaward into the Gulf of Santa Catalina to 117°18'40" for the southern and to 117°21'10" for the northern westerly limits of the survey.

The bottom is smooth and gently sloping over the entire area of the survey.

The predominant bottom characteristics are fine brown sand and rocky.

2. Control and Shoreline

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

The shoreline originates with reviewed Class I photogrammetric manuscripts T-11871(2), T-11872(2), and T-11873 of 1970-72.

3. Hydrography

A. Depths at crossings are in good agreement.

B. The usual depth curves were adequately delineated except for portions of the 1-fathom curve and all of the low water line which fell in the breakers zone and could not be surveyed.

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

4. Condition of the Survey

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

5. Junctions

Adequate junctions were effected with H-9114 (1970) on the west, H-9248 (1971) on the south, and H-9250 (1971) on the north.

6. Comparison with Prior Surveys

A. H-5663 (1934) 1:10,000
H-5664 (1934) 1:10,000

Taken together, these prior surveys cover approximately 90 percent of the present survey from the shoreline to about the 21-26 fathom depths. A comparison between the present survey and these prior surveys reveals only minor changes in the bottom except for variable shoaling of approximately 1 fathom occurring in depths of 2 and 3 fathoms north of 33°03'00". The shoreline has accreted approximately 20 meters north of 33°04'30". Several bottom characteristics indicating a rocky bottom were brought forward from the prior surveys to the present survey. With the addition of the bottom characteristics, the present survey is adequate to supersede the prior surveys in the common area.

B. H-4367 (1924) 1:40,000
H-6117 (1935) 1:40,000

Taken together, these prior surveys cover the seaward remainder of the present survey. A comparison between the present and prior surveys reveals relatively little change in the bottom, with the exception of some deepening of as much as 2 fathoms in 25-30 fathoms of water on the present survey. Some natural deepening may occur in those depths due to the close proximity of several canyon heads serving as funnels for seaward loss of offshore sediments.

The present larger scale survey is adequate to supersede the prior surveys in the common area.

7. Comparison with Chart 5101, 18th Ed., October 6, 1973

A. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration.

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

B. Aids to Navigation

There are no aids to navigation on this survey.

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions.

9. Additional Field Work

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

Examined and Approved:

Chief
Marine Chart Division

Associate Director
Office of Marine Surveys
and Maps

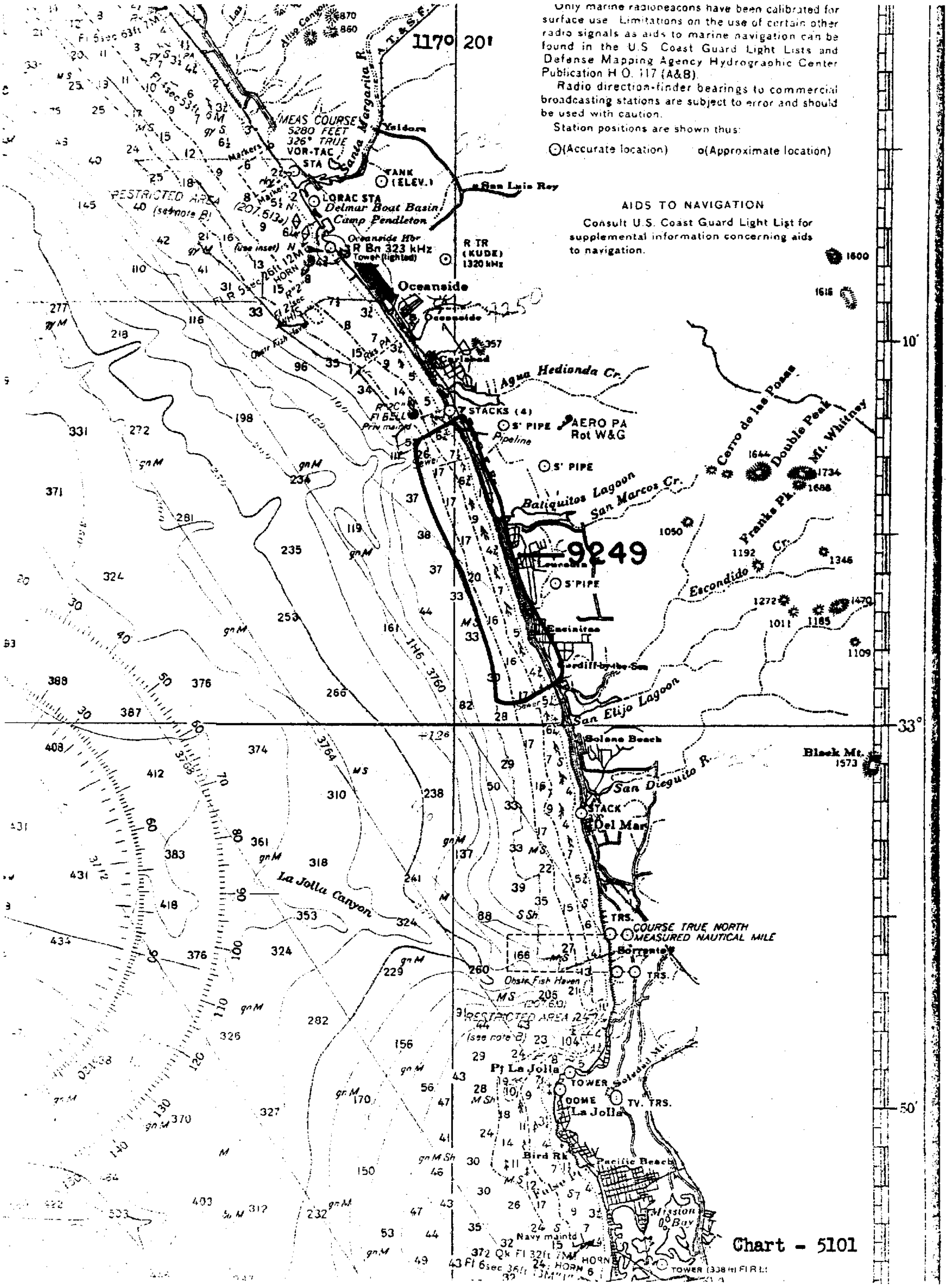
Only marine radiobeacons have been calibrated for surface use. Limitations on the use of certain other radio signals as aids to marine navigation can be found in the U.S. Coast Guard Light Lists and Defense Mapping Agency Hydrographic Center Publication H.O. 117 (A&B).
Radio direction-finder bearings to commercial broadcasting stations are subject to error and should be used with caution.
Station positions are shown thus:
(Accurate location)
(Approximate location)
AIDS TO NAVIGATION
Consult U.S. Coast Guard Light List for supplemental information concerning aids to navigation.
117° 20'
MEAS COURSE 5280 FEET 326° TRUE
VOR-TAC STA
TANK (ELEV.)
San Luis Rey
LORAC STA
Delmar Boat Basin
Camp Pendleton
RESTRICTED AREA (see note B)
Oceanside Hbr
R Bn 323 kHz
R TR (KUDE) 1320 kHz
Oceanside
Agua Hedionda Cr.
STACKS (4)
S' PIPE
AERO PA Rot W&G
Pipeline
Batiquitos Lagoon
San Marcos Cr.
Cerro de las Posas
Double Peak
Mt. Whitney
Franks Pk.
Escondido Cr.
9249
Encinitas
Cardiff-by-the-Sea
San Elijo Lagoon
Solana Beach
San Dieguito R.
Black Mt.
STACK
Del Mar
La Jolla Canyon
TRS.
COURSE TRUE NORTH MEASURED NAUTICAL MILE
Sorrento
Obstn Fish Haven
RESTRICTED AREA (see note B)
Pt La Jolla
TOWER
DOME
La Jolla
TV. TRS.
Bird Rk
Pacific Beach
Mission Bay
Navy maintd
TOWER
10'
33°
50'

Chart - 5101

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

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9249

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
5101	6/19/74	H. Danley	~~Full~~ Part ~~Before~~ After Verification before Review Inspection Signed Via
			Drawing No.
5101	1/29/76	D Larson	
			Full ~~Part~~ ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No.
18774	3/8/78	Dick Kille	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. APPLIED PARTLY THRU CHT 5101
			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
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			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

To C322

This reviewed Q.C. ~~(un)verified~~ survey H-9508 is submitted for ~~preliminary~~ Final indication on the Standards and examination for chart corrections and should be returned to Mr. Lightfoot as soon as possible.

Deputy Chief, Hydrographic Survey ~~Branch~~ Div.

OUT FOR SIGNATURE