

9580

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-10-2-75 .....  
Office No. .... H-9580 .....

LOCALITY

State ..... CALIFORNIA .....  
General Locality .... SAN PEDRO BAY .....  
Locality .. APPROACHES TO MAIN CHANNEL AND .....  
..... LONG BEACH CHANNEL .....

1975

CHIEF OF PARTY

..... C. K. Townsend .....

LIBRARY & ARCHIVES

DATE ..... 9/23/76 .....

9580

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5020 N/C  
3002  
9000  
Int. 501

DESCRIPTIVE REPORT  
TO ACCOMPANY HYDROGRAPHIC SURVEY

RA-10-2-75

H-9580

OPR-411-RA-75 (Fall)

Scale 1:10,000

1975

NOAA SHIP RAINIER  
CDR. CHARLES K. TOWNSEND  
Commanding

HYDROGRAPHIC TITLE SHEET

H-9580

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-10-2-75

State CALIFORNIA

General locality San Pedro Bay  
~~Southern California~~

Locality Approaches to Main Channel and Long Beach Channel  
~~San Pedro Channel, Outside the San Pedro Long Beach Breakwater~~

Scale 1:10,000 Date of survey 24 to 31 October 1975

Instructions dated 11 August 1975 Project No. OPR-411-RA-75 (Fall)

Vessel NOAA Ship RAINIER, MSS-21, Launches RA-4, RA-5, RA-6

Chief of party Charles K. Townsend, CDR, NOAA

Surveyed by LT A.A. Armstrong, LTJG R.W. Ellis, LTJG K.A. Andraen, ENS J.W. Peterson  
ENS S.M. Ramsey

Soundings taken by echo sounder, ~~hand sounder~~ Ross Model 6000 (S/N 1012, 1010-3, & 1080)

Graphic record scaled by Ship's Personnel

Graphic record checked by Ship's Personnel

Positions Verified

~~RECORDED~~ by Dennis L. Duffy & Felipe L. Rosario Automated plot by PMC Harris/Kynetics  
verified

Soundings ~~RECORDED~~ by Dennis L. Duffy & Felipe L. Rosario

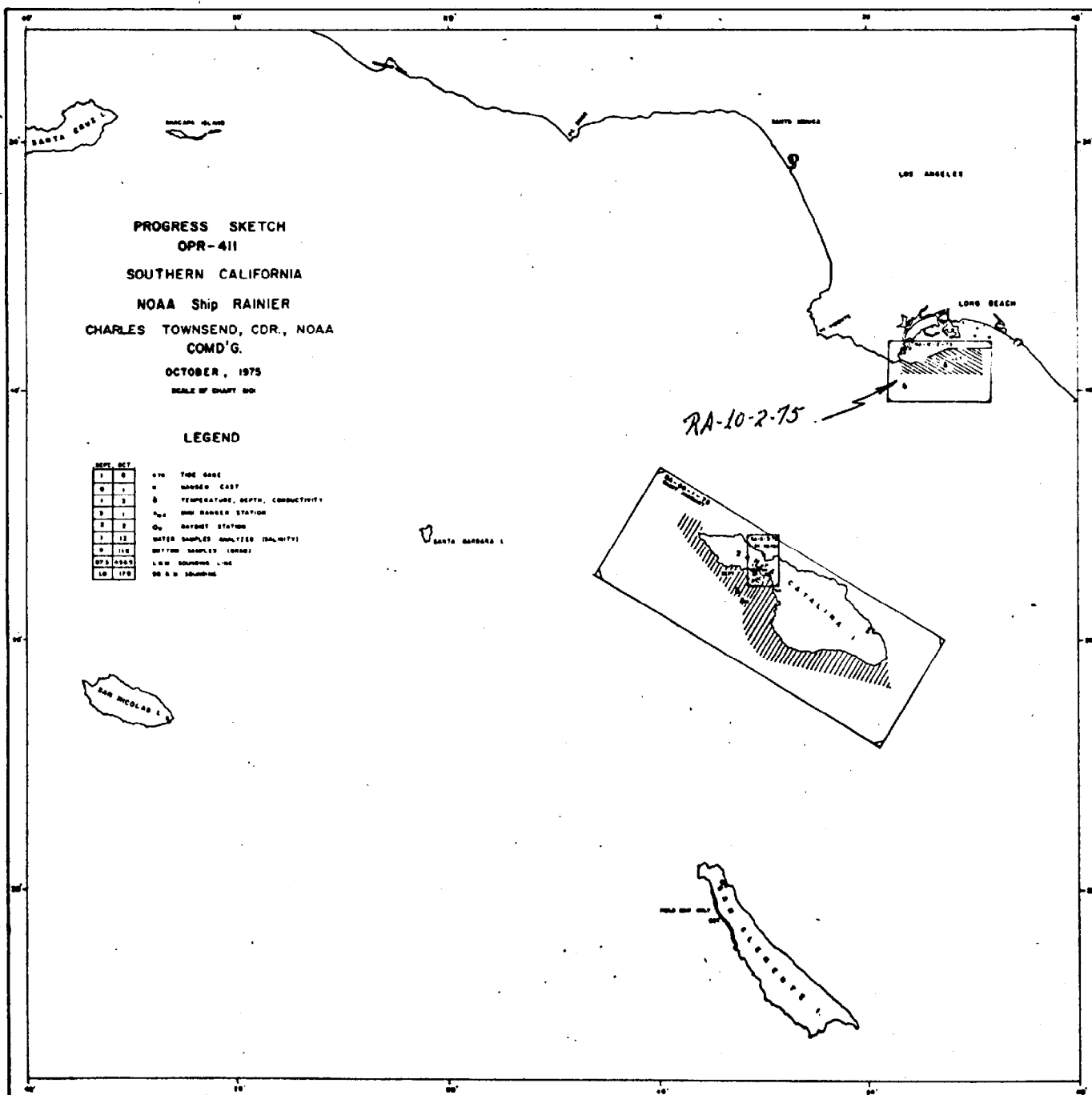
Soundings in fathoms 10K at MLLW

REMARKS: Survey time was 000W.

The boatsheet is complete for the area surveyed.

*Applied to stds 2-11-77*  
*CSB*

14

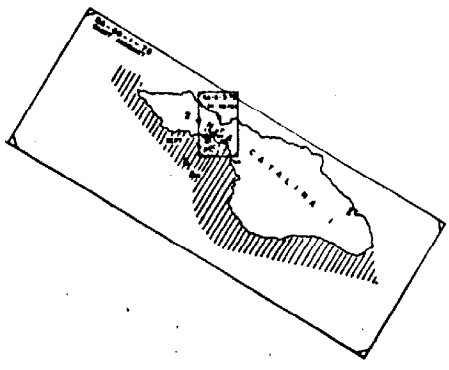


**PROGRESS SKETCH**  
**OPR-411**  
**SOUTHERN CALIFORNIA**  
**NOAA Ship RAINIER**  
**CHARLES TOWNSEND, CDR., NOAA**  
**COMD'G.**  
**OCTOBER, 1975**  
 SCALE OF CHART 500

**LEGEND**

SEP. OCT	1 0	Tide Gauge
	0 1	Water Cast
	1 2	Temperature, Depth, Conductivity
	2 1	Sea Surface Station
	3 2	Daynet Station
	1 12	Water Samples Analyzed (Salinity)
	0 110	Water Samples (Ozone)
075 1555	10	Line Soundings (100)
10 170		00 0 0 Soundings

*RA-10-2-75*



A. PROJECT

This hydrographic survey was conducted in accordance with PROJECT INSTRUCTIONS, OPR-411-FA, RA-75, Southern California Coast, dated 11 August, 1975; Change Number 1 dated 19 August, 1975, Change Number 2 dated 22 August, 1975, Change Number 5 dated 25 September, 1975, and Change Number 6 dated 16 October, 1975. ✓

B. AREA SURVEYED

The survey was conducted in the Southern California area outside the San Pedro-Long Beach Breakwater, covering approximately thirteen (13) square nautical miles of soundings at a scale of 1:10,000. On the northern boundary, the limit of the survey was the breakwater (approximately  $33^{\circ} 43.00'$  N.) and the southern limit was  $33^{\circ} 41.00'$  N. The east and west limits were  $118^{\circ} 09.50'$  W. and  $118^{\circ} 17.50'$  W. respectively. The survey began on 24 October, 1975, and continued through 31 October, 1975. The survey overlapped prior surveys H-5523, H-5486, and H-5487; and junctioned with the 1975 hydrographic work of the NOAA Ship FAIRWEATHER, MSS 20; on the south side by FA-20-1B-75 (H-9494), and on the east side by FA-10-2-75 (H-9493). ✓

C. SOUNDING VESSEL

All soundings for the survey were taken by NOAA Ship RAINIER launches RA-4 (2124), RA-5 (2125), and RA-6 (2126). Main-scheme ✓

soundings were plotted in black ink, cross-lines were plotted in red ink, and junction soundings from the two adjacent surveys were plotted in blue ink. Bottom samples were collected by RA-4 (2124) and RA-6 (2126), and were plotted in blue ink.

#### D. SOUNDING EQUIPMENT

Launch RA-4 (2124) ran approximately one (1) nautical mile of Presurvey Review investigation, launch RA-5 (2125) ran 25%, and launch RA-6 (2126) ran 75% of the sounding lines. All three launches used a Ross Model 5000 Fineline Fathometer with serial numbers 1040-6, 1070, and 1072 respectively; and Ross Model 6000 Digitizers S/N 1042, 1040-3, and 1080 respectively. Each of the launches obtained routine bar checks to a depth of seven (7) fathoms. Upon daily completion of data collection, the analog trace and the digitizer record were compared and corrections were made to the digitizer record as necessary. ✓

Transducer displacement (TRA) corrections were developed daily from bar-check information with the exception of RA-6 (2126). TRA corrections for RA-6 were developed from the hydrography at Santa Catalina Island (RA-5-3B-75, H-9570), that immediately preceded this survey. A 0.3 fathom TRA correction was used for RA-5 and RA-6, and a 0.2 fathom TRA correction was used for RA-4. All applicable corrections were incorporated on a TC/TI (Transducer Correction/Table Indicator) tape for automated processing (refer to Separates Following the Text). For further information con- ✓

cerning sounding equipment and corrections, refer to Corrections to Echo Soundings, OPR-411-RA-75 (Fall), NOAA Ship RAINIER, 1975.

#### E. BOAT SHEET

The Transverse Mercator Projection, soundings, and grid were plotted by RAINIER personnel using a PDP8/e computer (serial numbers 1011, 995, & 1015) with a COMLOT plotter Model DP-3 (S/N 5445-7). ✓

The central meridian for the projection was  $118^{\circ} 30.0' W$ . and the ~~control~~ latitude was 3634000 meters north of latitude zero. Rough plots were made daily, and a semi-smooth plot collated as the work progressed. The final projection was done on 3 November, 1975 ✓ and the final sounding plot was done on 4 November, 1975 on Mylar 0.003 inch thick polyester drafting film. No discernable distortion could be detected in the boat sheet during the period of the final plot.

#### F. STATION CONTROL

Station control for the electronic hydrography was based upon pre-existing triangulation. The name, date, quadrangle, and numbers that appear in the published description of the triangulation stations are included in the Station List for reference. One ✓ of the Raydist stations was located at triangulation station LOW POLE (#515), and the other was located at triangulation station ABALONE KNOLL (#522).

Calibration signals used were Mid East (#517), Mid West

(#518), East Breakwater, Light House West End (#519), and San Pedro Breakwater Light House (#520). Information regarding these stations is available in the Stations List in the appendix.

A computer paper tape punched in even parity ASCII is submitted with this report for the Stations List as it appears in the appendix. A computer tape that deletes all of the descriptive information is also submitted.

A station list for the entire project is included for completeness, but no tape accompanies this list. Refer to Horizontal Control Report, OPR-411-RA-75 (Fall).

G. POSITION CONTROL

The Teledyne Hastings Raydist system (range-range phase comparison) was used for position control, soundings, and detached positions. The Raydist sets used on the RAINIER launches were as follows:

<u>VESSEL</u>	<u>SET</u>
RA-4	4
RA-5	2
RA-6	1

Calibrations were taken at least twice daily, before and after hydrography. This was done either by; 1) the use of a bridle which was positioned on the breakwater, or 2) taking three-point sextant fixes and computing the position using PDP8/e program RK-561. Initial calibration corrections were applied on line to the Hydroplot/Hydrolog system; after final calibration, a mean



calibration corrector was calculated and inserted on the semi-smooth and smooth sheets by the use of corrector tapes.

There was a problem with marginal and excessive lane drift for some of the soundings taken by RA-5 (2125) and RA-6 (2126). These soundings were not analyzed nor plotted on the smooth sheet, but the teletype printouts and data tapes are submitted with the other data in the fan folder.

The lane-drift problem for RA-5 (2125) was attributed to the antenna system aboard. The Raydist reference PMA varied rapidly and continually between 60 and 105 microamperes (it should be 105 microamperes).

For RA-6 (2126) the lane drift was attributed to the fact that one antenna section became loose and dropped.

Refer to section S of this report and to Electronic Control Report, OPR-411-RA-75 (Fall) for more information concerning calibration, the application of correctors, and the designation & operation of the Raydist sets.

#### H. SHORELINE

Shoreline was transferred to the boat sheet from 1:10,000 reduced T-sheet manuscripts ~~TP-00398~~<sup>TP-00402</sup>, TP-00399, TP-00400, and TP-00401. The shoreline and topographical details were completed for the area surveyed by field edit verification done by personnel from the NOAA Ship DAVIDSON in the Chart Adequacy Project (OPR-511-DA-75) in the spring of 1975.

There is a break in the groin (lat:  $33^{\circ} 42.4$  ~~41.90~~ N., long:  $118^{\circ} 16.6$  ~~35~~ W.) shown on the smooth sheet which does not exist. ✓

The groin is continuous.

New objects are described in red ink, objects from photographs in purple ink, unverified objects in blue ink, and verified ✓ objects are in black ink.

#### I. CROSSLINES

Approximately 38 nautical miles of the hydrography run was crosslines; which is 13% of the total hydrography. Agreement between crosslines and main-scheme lines was very good. They ✓ ranged from one percent (0.1 fathom for most of the crossings) to as much as three percent (0.3 fathom) for approximately twenty percent of the soundings. Discrepancies of one fathom beyond the ten-fathom curve can be attributed directly to round-off. Discrepancies <sup>a</sup> noticable ~~inside~~ the ten-fathom curve could have been caused by the three to five foot seas present during the running of the hydrography.

#### J. JUNCTIONS

Junction was made with the following surveys:

<u>Reg. No.</u>	<u>Field No.</u>	<u>Scale</u>	<u>Date</u>
H-9494	FA-20-1B-75	1:20,000	1975
H-9493	FA-10-2-75	1:10,000	1975

The amount of discrepancies between main-scheme lines and the southern junction (H-9494)<sup>1975</sup> was approximately 4%. Since this junction was beyond the ten-fathom curve, and there was no discrepancy greater than one fathom, the probable cause of discrepancies was round-off. ✓

The survey of the eastern junction (H-9493)<sup>1975</sup> was not made available during the field season, but a sufficient junction was made at the project limits. The greatest discrepancies with this survey are on the order of three percent (3%), approximately 0.3 fathoms, and the junction is considered very good. ✓

#### K. COMPARISON WITH PRIOR SURVEYS

##### Pre-survey review items:

Item #51: Instructions were to examine fathograms in the area of latitude  $33^{\circ} 41.90'$  N., longitude  $118^{\circ} 15.95' - 14.41'$  W. for any traces of a wreck; and that no specific hydrographic investigation is required. Fathograms indicate a depth of 11 fathoms in the area and no indications of a wreck were found. It is recommended that the chart continue to show the clearance of 52 feet. ✓

Chart 5147, BVV: The sunken wreck, PD, charted at latitude  $33^{\circ} 42.66'$  N., longitude  $118^{\circ} 14.41'$  W. was not found. Soundings were done over the area at 20 meter intervals and this information is included on the tapes, but was not plotted on the smooth sheet. It is recommended that this wreck be removed from the charts. ✓

*retained (See notes Report Section III)*

Item "CA": (Not in the location of this report) The bait barge off the Seal Beach pier owned by Mr. Dan Nich was located by sextant angles (measured from triangulation of third order or better) at  $33^{\circ} 43.70' N.$ ,  $118^{\circ} 07.27' W.$ . For further information concerning this bait barge and the correspondance relating to it, refer to Pre-survey Item "CA" in the appendix. It is recommended that Mr. Nich be contacted in February, 1976 to confirm the re-location of the barge; if the barge is to be replaced, it is recommended that it be placed on the charts.

Other comparisons:

Comparison soundings were recorded for the following prior surveys:

<u>Reg. No.</u>	<u>Scale</u>	<u>Year</u>
H-5523	1:20,000	1933-4
H-5486	1:10,000	1934
H-5487	1:10,000	1933-4

There is a discrepancy for approximately 13% of the comparative soundings for which the difference in depth is less than 3% (0.3 fathom). There are two sizable discrepancies in the area of  $33^{\circ} 41.90' N.$ ,  $118^{\circ} 16.35' W.$ , in which errors are as high as 23%. However, since these discrepancies are south of a groin and sediment transport in this area is to the south, the depths in this area could have changed since 1934. The depths obtained in this survey are consistent with the mechanics of sediment transport and are considered accurate.

#### L. COMPARISON WITH THE CHART

Comparison with charts 18749 (C&GS 5148) and 18751 (C&GS 5147) yield results which reflect the adjustment of the sediment transport system to the installation of a groin (lat:  $33^{\circ} 42.4'$  N., long:  $118^{\circ} 16.35'$  W.). The bottom has risen as much as ten feet in the area of the tip of the groin, and there is no indication of the existence of the submerged portion of the groin indicated on both charts. Soundings indicate the existence of a sand bar which may not have existed at the time that the charts were made. See Verifier's Report Section VII

In order to confirm the position of the end of the groin, a DP was taken (DP: 4069) at a position which was even with, and five yards east of the end of the groin.

Approximately 85% of the soundings indicated discrepancies of 5% ( $\approx 0.5$  fathom) or less between the survey and chart 18749. A few discrepancies of between six and ten percent existed: 1) beyond the ten-fathom curve and are probably due to round-off, and 2) in the area of the harbor entrances which are dredged periodically.

For chart 18751, depth discrepancies were less than 2% for the applicable area with the exception of the aforementioned groin.

#### M. ADEQUACY OF SURVEY

There is a small area at the northwest corner of the sheet (lat.  $33^{\circ} 42.40'$  N., long.  $118^{\circ} 16.50'$  W.) in which no soundings were taken. This area is south of a sandy beach and for the entire time of the survey, the surf was prohibitively large. This area was

omitted for safety reasons.

H-9580<sup>(1975)</sup> is a complete and adequate survey within the area described in section B., and is recommended to supersede all prior surveys in that area for charting purposes. All fathograms were scanned in the field for peaks and deeps and all fathogram notations are clearly marked. ✓

#### N. AIDS TO NAVIGATION

There are adequate aids to navigation in the area surveyed. A DP was taken for the mid-channel bouys at the San Pedro entrance (DP. 5458) and the Long Beach entrance (DP. 7020) to the harbor. The measured-mile markers on the eastern section of the Long Beach Breakwater were located as per instructions, CHANGE NO. 5 (to the PROJECT INSTRUCTIONS) dated 25 September, 1975. Refer to the Horizontal Control Report OPR-411-RA-75(Fall) for more information. ✓

#### O. STATISTICS

296 nautical miles of soundings were run, covering 13 square nautical miles.

<u>Vessel</u>	<u>Mi. Hydro.</u>	<u>Positions</u>	<u>DP's</u>	<u>Bottom Samples</u>
RA-4	1.1	70	0	33
RA-5	72.2	641	1	0
RA-6	222.7	1020	3	0

Q. RECOMMENDATIONS

1. Pre-survey review item "BVV" should be removed from the chart. *see Verifier's Report Sec. VII*
2. The submerged portion of the groin (lat:  $33^{\circ} 42.4'$   ~~$41.90'$~~  N., long:  $118^{\circ} 16.35'$  W.) should be removed from the charts and the exposed portion remain unbroken. *See Verifier's Report Section VII*

R. REFERENCES TO REPORTS

Correction to Echo Sounding Report, OPR-411-RA-75 (Fall)  
Horizontal Control Report, OPR-411-RA-75 (Fall)  
Electronic Control Report, OPR-411-RA-75 (Fall)  
Field Edit Report, OPR-411-RA-75 (Fall)

S. DATA PROCESSING PROCEDURES

All sheet grids, arcs, and signal positions were plotted with RK-201 or AM-201.

The new electronic master tapes were edited using AM-602 (ELINORE) to remove rejected data, to correct missed depths, and to remove inappropriate corrector word information to yield an edited electronic master tape.

Inserts for peaks and deeps, TRA correctors (from bar checks) and electronic correctors (from morning and evening calibrations) were incorporated into an electronic corrector tape corresponding to the master tape, using ELINORE. Master and corrector tapes were usually edited a second time after the rough sheet plot and again after the semi-smooth plot to give a final edition corresponding to the smooth-sheet plot.

Tide corrector tapes were generated using Predicted Tide

Generator program AM-500 and Tide Tables information for the Los Angeles outer harbor tide gage with correctors supplied by supplement #6 to the project instructions.

Martek TDC data was processed with RK-530 using the no curve fit option, then analyzed graphically, and a velocity corrector tape generated using ELINORE.

Soundings were plotted using RK-211 with master, corrector, and tide tapes; but no velocity tapes.

For horizontal control processing, refer to the HORIZONTAL CONTROL REPORT, OPR-411-RA-75 (Fall).

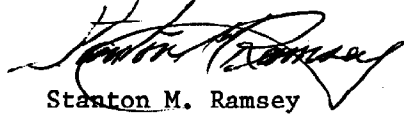
A list of the computer programs and their respective version dates used during data acquisition and processing follows:

<u>Program</u>	<u>Version</u>	<u>Title/Description</u>
RK 111	7 Aug. '74	RANGE-RANGE REAL TIME HYDROPLOT/HYDROLOG
RK 161	7 May '74	RANGE-RANGE REAL TIME HYDROPLOT
AM 201	10 Nov. '72	GRID AND LATTICE PLOT
RK 201	19 Feb. '75	GRID SIGNAL AND LATTIC PLOT
RK 211	16 Aug. '74	RANGE-RANGE POSITION AND SOUNDING PLOT
AM 300	24 May '73	UTILITY COMPUTATIONS
RK 300		UTILITY COMPUTATIONS
RK 301	12 Aug. '74	VISUAL STATION TABLE MARKER(VISTA)
MI 335	1 Apr. '73	DATA TAPE TIME CHANGE
RK 337	8 Aug. '74	UNSCRAMBLER
PM 360	21 Mar. '74	ELECTRONIC ABSTRACT
RK 707	15 Aug. '74	GEODETTIC DIRECT AND INVERSE COMPUTATIONS
RK 409	5 Sep. '73	GEODETTIC UTILITY PACKAGE
AM 500	10 Nov. '72	PREDICTED TIDE GENERATOR
RK 530	24 Jun. '74	VELOCITY CORRECTION COMPUTATIONS
RK 561	1 Jul. '74	GEODETTIC CALIBRATION
AM 602	10 Mar. '72	ELINORE LINE EDITOR
AM 603	10 Oct. '72	BINARY TAPE CONSOLIDATOR
AM 607	1 Jan. '71	SELF-STARTING BINARY LOADER

FOCAL SCALING PROGRAM (used for photo signal computations)  
13 Aug. '73; WANG intersection for TTY output 700/PF/022



Respectfully submitted,

A handwritten signature in black ink, appearing to read "Stanton M. Ramsey". The signature is written in a cursive style with a large, sweeping initial "S".

Stanton M. Ramsey  
Ensign, NOAA

TIDE NOTE

H-9580 (RA-10-2-75)

The tide reducers for boatsheet soundings were generated by Hydroplot Program AM 500, PREDICTED TIDE GENERATOR, version 10 November 1972. The daily values used were for Los Angeles, California Outer Harbor reference station, as listed in "TIDE TABLES, HIGH AND LOW WATER PREDICTIONS, 1975, WEST COAST OF NORTH AND SOUTH AMERICA". The following corrections were applied:

Time (minutes)	
(high and low water)	+ 6
Height Ratio	
(high and low water)	0.97

The above corrections were based upon recommendation from C331 through PROJECT INSTRUCTION: CHANGE 6, dated October 16, 1975.

Tide stations operating in relation to these surveys were:

<u>STATION</u>	<u>LOCATION</u>	<u>DATES OF INSTALLATION-REMOVAL</u>
1. Los Angeles Outer Harbor (Control Station)	33°43!2 N 118°16!2 W	N/A

LOS ANGELES OUTER HARBOR

Standard Tide Gage (S/N T-375) was inspected by RAINIER personnel on 21 October 1975. The gage was found to be in good working order, a staff height and G.M.T. was annotated, and the float well was plunged. Levels were taken to five bench marks as described in P.T.P. recovery notes. They revealed a mean increase in elevation of 0.010 ft. of the bench marks leveled.

Final tidal zoning for the smooth sheets will be furnished by Tides Branch (C 331), Rockville. It is recommended that tide correctors based on observed tides at Los Angeles Outer Harbor reference station be used throughout the project.

NOAA FORM 76-45  
12-711  
PREPARED BY  
PHOTOGRAMMETRY INSTRUCTION NO. 64.

U.S. DEPARTMENT OF COMMERCE - NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NONFLOATING AIDS OF **LANDMARKS FOR CHARTS**

TO BE CHARTED  
 TO BE DELETED

ORIGINATING LOCATION  
*Coastal Mapping Division, Norfolk, Va.*

DATE  
*APR 24 1972*

ORIGINATING ACTIVITY  
 FIELD INSPECTION  
 FIELD EDIT  
 COMPILATION  
 FINAL REVIEW  
 QUALITY CONTROL AND  
See reverse for instructions

The following objects were inspected from seaward to determine their value as landmarks:

CHARTING NAME	DESCRIPTION	DATUM	POSITION		METHOD AND DATE OF LOCATION (See instructions on reverse of this form)	FIELD INSPECTION	COMPILATION	FIELD EDIT	CIRCUIT AGENCY		
			LATITUDE							LONGITUDE	
			DIMENSION	"						DIMENSION	"
LIGHT	(Long Beach Light, 1953)	33 43	23.530 774.9	115 11 241.3	72L-3029 Mar 24 1972		SEE FORM 76-45 (A) F-3-6-L APR 75	51 51 51			
LIGHT	Long Beach Channel Entrance Light 2	33 43	23.495 723.9	118 10 1206.2	SEE 75-407 11		SEE FORM 76-45 (A) F-3-6-L APR 75	" " "			
LIGHT	Pier J, Light J	33 44.3	18.152 530.2	118 11.1 174.3	SEE 75-407 (A) F-2-6-L		F-2-6-L APR 75	" "			
LIGHT	Pier J, Light A	33 44.3	19.110 533.5	115 12.2 360.5	SEE 75-407 F-2-6-L		F-2-6-L APR 75	" "			
LIGHT	Pier F, Light F	33 44.4	25.212 776.8	115 12.4 534.3	F 26 L APR 75		F-2-6-L APR 75	" "			

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NONFLOATING AIDS OR LANDMARKS FOR CHARTS

Replaces CGCS Form 567.

TO BE LISTED  
 TO BE REVISED  
 TO BE DELETED

REPORTING UNIT  
(Field Party, Ship or Office)  
SHIP DAVIDSON

STATE  
CALIFORNIA

CALITY  
LONG BEACH

DATE  
MAY  
1975

The following objects HAVE  NOT  been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO. 011-511

DATUM N.A. 1927

METHOD AND DATE OF LOCATION  
(See instructions on reverse side)

OFFICE FIELD CHART AFFECTE

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION		LONGITUDE	METHOD AND DATE OF LOCATION	CHART AFFECTE
		LATITUDE	LONGITUDE			
		D.M. Meters	D.P. Meters			
LIGHT	F.W. 3 METERS ABOVE MEAN LOW WATER (on mooring platform)	33 44	1247.1	118 14	FABL (fix #1) APRIL 1975	SIAT S'AB
LIGHT	F.W. 3 METERS ABOVE MEAN LOW WATER (on mooring platform)	33 44	1245.6	118 14	FABL (fix #2) APRIL 1975	"
MARKER	4 DIAMOND ON TRIPOD	33 42	142.1	118 14	FABL (fix #8) APRIL 1975	"
MARKER		33 42	142.1	118 14	FABL (fix #9) APRIL 1975	"
MARKER		33 42	1403.3	118 14	FABL (fix #30) APRIL 1975	"
MARKER		33 43	07.705	118 13	F26L APRIL 1975	"
MARKER		33 43	07.710	118 13	FABL APRIL 1975	"

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NONFLOATING AIDS OR LANDMARKS FOR CHARTS

REPORTING UNIT: **DAVIDSON CSS-31** STATE: **CALIFORNIA** LOCALITY: **LONG BEACH** DATE: **MAY 75**

TO BE CHARTED  TO BE REVISED  TO BE DELETED

The following objects HAVE  BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.

OPR PROJECT NO. **OPR 511** JOB NUMBER **OPR 511** SURVEY NUMBER **OPR 511**

CHARTING NAME	DESCRIPTION <small>(Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)</small>	DATUM			POSITION			METHOD AND DATE OF LOCATION <small>(See instructions on reverse side)</small>		CHARTS AFFECTED
		LATITUDE		LONGITUDE		OFFICE	FIELD	METHOD AND DATE OF LOCATION		
		D.M. Meters	° / ' "	D.P. Meters	° / ' "			OFFICE	FIELD	
LIGHT	Los Angeles Main Channel Range Front Light	33 43	15.496 477.4	118 16	13.813 355.6			F-3-6-L April 75	18302 18323	
LIGHT	Los Angeles Channel Lt. "5"	33 43	01.773 54.6	118 16	07.744 199.4			F-3-6-L April 75	18302 1832	
LIGHT	Los Angeles Channel Lt. "6"	33 43	12.967 399.5	118 15	57.638 1484.0			F-3-6-L April 75	1830 1832	
MARKER	Middle Breakwater East Range North Marker	33 43	07.765 239.2	118 13	08.488 218.5			F-3-6-L April 75	1833 1830 1832	
LIGHT	Naval Base Mole Lt. "2"	33 44	25.463 784.5	118 13	49.032 1262.3			F-3-6-L April 75	1830 18323	
LIGHT	Naval Base Mole Lt. "4"	33 44	31.461 969.4	118 14	26.116 680.7			F-3-6-L April 75	18302 18323	
LIGHT	Navy Mole Light "5"	33 44	39.959 1231.1	118 12	59.800 1539.2			F-3-6-L April 75	18302 18323	
TANK	Naval Base Tank, 1942 r. 1975	33 45	26.236 806.3	118 14	04.816 123.9			F-3-6-L April 75	18302 18323	
DOME	Radar Dome atop San Pedro Hill	33 44	45.283 1395.2	118 20	07.286 187.5			F-3-6-L April 75	18337	
LIGHT	San Pedro Breakwater In. 1913 r. 1975	33 42	30.656 944.5	118 15	02.452 63.1			F-3-6-L April 75	1833 1830 1832	

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

Replaces C&GS Form 567.

TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office): **DAVIDSON CSS-31**  
 STATE: **CALIFORNIA**  
 LOCALITY: **LONG BEACH**  
 DATE: **MAY 75**

The following objects  HAVE  HAVE NOT been inspected from seaward to determine their value as landmarks.  
 OPR PROJECT NO.: **OPR-511**  
 JOB NUMBER: \_\_\_\_\_ SURVEY NUMBER: \_\_\_\_\_

DATUM: **NAD 1927**  
 METHOD AND DATE OF LOCATION (See instructions on reverse side):  
 OFFICE: \_\_\_\_\_ FIELD: \_\_\_\_\_

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)	LATITUDE		LONGITUDE		D.P. Meters	CHAR. AFFECT
		° / ' "	° / ' "	° / ' "	° / ' "		
RED LT	Quick flashing red light 210 feet high on top of building	33 45	118 12	27.621	1833	F-3-6-L	1833
LIGHT	Long Beach Breakwater East End Light 1953 r. 1975	33 43	118 08	10.060	1833	F-3-6-L	1833
LIGHT	Long Beach Channel Entrance East Lt. 1953 r. 1975	33 43	118 16	46.810	1830	F-3-6-L	1830
LIGHT	Long Beach Light, 1953 r. 1975	33 43	118 11	09.378	1833	F-3-6-L	1833
LIGHT	Long Beach Channel Light "6"	33 44	118 12	52.552	1833	F-2-6-L	1833
LIGHT	Long Beach Pier F Light "5" "F"	33 44	118 12	1352.6	1830	F-2-6-L	1830
LIGHT	Long Beach Pier J Lt "J"	33 44	118 12	20.756	1833	April 75	1833
LIGHT	Long Beach Pier J Lt "J"	33 44	118 12	534.3	1830	April 75	1830
TANK	Long Beach, Proctor & Gamble Tank 1933 r. 1975	33 46	118 12	14.001	1830	F-3-6-L	1830
LIGHT	Los Angeles Main Channel Range Rear Light	33 43	118 16	360.4	1833	April 75	1833
LIGHT	Los Angeles Main Channel Range Rear Light	33 43	118 16	07.159	1830	F-3-6-L	1830
LIGHT	Los Angeles Main Channel Range Rear Light	33 43	118 16	181.3	1830	April 75	1830
LIGHT	Los Angeles Main Channel Range Rear Light	33 43	118 16	48.533	1830	F-3-6-L	1830
LIGHT	Los Angeles Main Channel Range Rear Light	33 43	118 16	1218.8	1830	April 75	1830
LIGHT	Los Angeles Main Channel Range Rear Light	33 43	118 16	17.582	1830	F-3-6-L	1830
LIGHT	Los Angeles Main Channel Range Rear Light	33 43	118 16	452.7	1830	April 75	1830

NO. 4

NOAA FORM 76-40  
 (2-71)  
 PREPARED BY  
 PHOTOGRAMMETRY INSTR. DIV. 5-64.

U.S. DEPARTMENT OF COMMERCE - NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
**NONFLOATING AIDS OF NAVIGATION MARKS FOR CHARTS**

ORIGINATING LOCATION:  
*Coastal Mapping Division, Norfolk, Va.*  
 DATE: *Aug 20, 1974*

TO BE CHARTED  
 TO BE DELETED

The following objects have been inspected from seaward to determine their value as landmarks:

CHARTING NAME	DESCRIPTION	SURVEY NUMBER	DATUM	POSITION		METHOD AND DATE OF LOCATION (See instructions on reverse of this form)		FIELD INSPECTION	COMPILATION	FIELD EDIT	ORIGINATING ACTIVITY
				LATITUDE	LONGITUDE	FIELD INSPECTION	COMPILATION				
LIGHT	Long Beach Channel Light 2	T-TP-00400	N.A. 1927	33 44	118 12	52.461 1350.3	72-L-2915	SEE 76-00 (A)	72-L-2915	SEE 76-00 (A)	5-74
LIGHT	Long Beach Channel Base Mole Light 5			33 44	118 13	59.802 1539.3	"	SEE 76-00 (B) F-3-6-V APR 75	"	F-3-6-V APR 75	"
LIGHT	Los Angeles Harbor Channel Entrance Light 2			33 42	118 17	37.458 747.5	72-L-3059		72-L-3059		"
LIGHT	Point Breakwater Lighthouse Light 1 (Encl. 1942)			39 44	116 13	40.248 1267.8	72-L-2912	SEE 76-00 (B)	72-L-2912	SEE 76-00 (B)	"
LIGHT	Base Mole Light 2	Naval		33 44	118 14	26.415 690.	72-L-2911	SEE 76-00 (C)	72-L-2911	SEE 76-00 (C)	"
LIGHT	Base Mole Light 4	Naval		33 44	118 14	52.653 1340.	"	See Below	"	See Below	"
LIGHT	Air Base Jetty Light 1	Naval		33 44	118 14	52.145 1342.1	"	F-4-8-L APRIL 1975 (ENCL. 54)	"	F-4-8-L APRIL 1975 (ENCL. 54)	"
"	"	"		33 44	118 14	51.460 1585.5	"	"	"	"	"

NOAA FORM 78-60  
(2-71)  
PREPARED BY  
PHOTOGRAMMETRY INSTRUCTION NO. 54

U.S. DEPARTMENT OF COMMERCE - NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NONFLOATING AIDS

CHARTS FOR CHARTS

TO BE CHARTED  
 TO BE DELETED

ORIGINATING LOCATION

*Coastal Mapping Division, Norfolk, Va.*

DATE

*Apr 30, 1974*

ORIGINATING ACTIVITY  
 FIELD INSPECTION  
 FIELD EDIT  
 COMPILATION  
 FINAL REVIEW  
 QUALITY CONTROL AND

(See reverse for responsibilities)

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

CHARTING NAME	DESCRIPTION	LATITUDE		LONGITUDE		FIELD INSPECTION	COMPILATION	METHOD AND DATE OF LOCATION (See instructions on reverse of this form)	CM: AFE
		°	'	°	'				
LIGHT	FISH MARKET CHANNEL LIGHT	33 43	15 07	118 15	52 74			F-V-VIS	514
LIGHT	FISH MARKET CHANNEL LIGHT	33 43	15 37	118 15	13 59			F-V-VIS	514
LIGHT	Los Angeles Channel LIGHT	33 42	12 90	118 15	57 64			SEE 70-40 (G)	"
LIGHT	Los Angeles Channel LIGHT	33 42	12 12	118 15	14 94			"	"
LIGHT	Los Angeles Channel LIGHT	33 42	12 12	118 15	16 45	16.780		F-4-B-L (510 447) 4/9/75	"
LIGHT	Los Angeles Channel LIGHT (San Pedro Breakwater Lighthouse, 1918)	33 42	12 12	118 15	17 13	432.0		72(S)BSM see 70-40 (G)	"
LIGHT	Cabrillo Breakwater LIGHT	33 42	14 30	118 16	54 72			MAR 27 1974	"
								72(S)BSM	"
								MAR 27 1974	"
								72(S)BSM	"
								MAR 27 1974	"
								72(S)BSM	"
								MAR 27 1974	"
								72(S)BSM	"
								MAR 27 1974	"
								72(S)BSM	"
								MAR 27 1974	"
								72(S)BSM	"
								MAR 27 1974	"



NOAA FORM J-40  
(8-74)

Replaces C&GS Form 567.

TO BE CHARTED  
 TO BE REVISED  
 TO BE DELETED

REPORTING UNIT  
(If field party, ship or office)

RAINIER MSS 21

STATE

California

LOCALITY

Long Beach

DATE

Dec. 1975

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY

HYDROGRAPHIC PARTY  
 GEODETIC PARTY  
 PHOTO FIELD PARTY  
 COMPILATION ACTIVITY  
 FINAL REVIEWER  
 QUALITY CONTROL & REVIEW GRP.  
 COAST PILOT BRANCH  
(See reverse for responsible personnel)

The following objects HAVE  BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.

OPR PROJECT NO.

OPR-411-RA-75

JOB NUMBER

TP-00402

DATUM

N.A. 1927

METHOD AND DATE OF LOCATION  
(See instructions on reverse side)

OFFICE

FIELD

CHARTS AFFECTED

CHARTING NAME

DESCRIPTION  
(Record reason for deletion of landmark or aid to navigation.  
Show triangulation station names, where applicable, in parentheses)

LATITUDE

LONGITUDE

D.P. METERS

OFFICE

FIELD

CHARTS AFFECTED

MARKER

(West 1 Mile Marker - Front Range)  
Measured Nautical Mile Marker

33 43

23.580

118 09

F-2-L

5147  
5148

MARKER

Measured Nautical Mile Marker  
(West 1 Mile Marker - Rear Range)

33 43

23.223

118 09

F-2-L

5147  
5148

MARKER

Measured Nautical Mile Marker  
(Middle Range - 1/2 Mile - Front)

33 43

23.451

118 09

F-2-L

5147  
5148

MARKER

Measured Nautical Mile Marker  
(Middle Range - 1/2 Mile - Rear)

33 43

23.298

118 09

F-2-L

5147  
5148

MARKER

Measured Nautical Mile Marker  
(East Range - 1 Mile - Front)

33 43

23.498

118 08

F-2-L

5147  
5148

MARKER

Measured Nautical Mile Marker  
(East Range - 1 Mile - Rear)

33 43

23.260

118 08

F-2-L

5147  
5148

50

OPR-411-PA-75  
STATION LIST FOR PROJECTS IN LONG BEACH AREA  
PA-10-2-75

/	511	7	33	13	16610	119	26	23776	250	0015	329646
/					STA 4	1968					
/	515	3	33	20	53362	118	19	42610	250	0000	329646
/					LOW POLE	1917	33	118	2		
/	516	3	33	43	23530	118	11	09371	139	0000	000000
/					LONG BEACH LIGHT	1953	33	118	12		
/	517	3	33	43	14655	118	12	47164	139	0000	000000
/					MID EAST	1948	33	118	12		
/	518	3	33	42	52800	118	13	54357	139	0000	000000
/					MID WEST	1948	33	118	12		
/	519	3	33	42	38840	118	14	37458	139	0000	000000
/					EAST BREAKWATER LIGHTHOUSE	WEST END	1942				
/					33	118	12				
/	520	3	33	42	30649	118	15	02486	139	0000	000000
/					SAN PEDRO, BREAKWATER LIGHTHOUSE	1913					
/					33	118	13				
/	521	3	33	43	54882	118	16	33909	139	0000	000000
/					SAN PEDRO, PORTS OF CALL, SKY TOWER	1974					
/					33	118	13				
/	522	3	33	33	22471	117	49	02200	250	0000	329646
/					ABALONE KNOLL	1844	1933				
/					RAYDIST SITE FOR <del>RED</del> STATION						
/					33	117	4	#1001	<b>GREEN</b>		
/	523	1	33	45	57179	118	10	54237	139	0000	000000
/					LONG BEACH VILLA RIVIERA HOTEL, TOWER	1932					
/					33	118	1	#1036			
/	524	7	33	43	23495	118	10	46867	139	0000	000000
/					LONG BEACH CHANNEL ENTRANCE EAST LIGHT	1953					
/					33	118	1	#2075			
/	525	7	33	43	23400	118	08	10100	139	0000	000000
/					LONG BEACH BREAKWATER EAST END LIGHT	1953					
/					33	118	1	#2074			

526 7 33 44 11191 118 07 10066 253 0000 000000  
/  
/ ALAMITOS BAY EAST JETTY ENTRANCE LIGHT  
/ SCALED FROM CHART 18749, USED FOR PSR ITEM "CA"  
/ CALCULATIONS.  
/  
527 7 33 44 14224 118 07 16212 253 0000 000000  
/  
/ ALAMITOS BAY WEST JETTY ENTRANCE LIGHT  
/ SCALED FROM CHART 18749, USED FOR PSR ITEM "CA"  
/ CALCULATIONS.  
/  
528 1 33 44 52115 118 05 19935 139 0000 000000  
/  
/ SEAL BEACH NAVY DEPOT NORTH WATER TANK 1956  
/ 33 118 1 #2085  
/

ASCII SIGNAL TAPE LISTING  
RA-10-2-75

511	7	33	13	16610	119	26	23776	250	0015	329646
515	3	33	20	53362	118	19	42610	250	0000	329646
516	3	33	43	23530	118	11	09371	139	0000	000000
517	3	33	43	14655	118	12	47164	139	0000	000000
518	3	33	42	52800	118	13	54357	139	0000	000000
519	3	33	42	38840	118	14	37458	139	0000	000000
520	3	33	42	30649	118	15	02486	139	0000	000000
521	3	33	43	54382	118	16	33909	139	0000	000000
522	3	33	33	22471	117	49	02200	250	0000	329646
523	1	33	45	57179	118	10	54237	139	0000	000000
524	7	33	43	23495	118	10	46867	139	0000	000000
525	7	33	43	23400	118	08	10100	139	0000	000000
526	7	33	44	11191	118	07	10066	253	0000	000000
527	7	33	44	14224	118	07	16212	253	0000	000000
528	1	33	44	52115	118	05	19935	139	0000	000000

VELOCITY CORRECTOR TAPE LISTING  
RA-10-2-75

TABLE # 3

SCALE - FATHOM

000013	0	0000	0003	000	000000	000000
000058	0	0001				
000112	0	0002				
000141	0	0003				
000176	0	0004				
000214	0	0005				

11

## APPROVAL SHEET

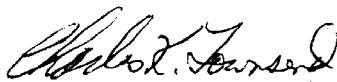
H-9580 (RA-10-2-75)

OPR-411-RA-75

Southern California

In producing this sheet, standard procedures were observed in accordance with the Hydrographic Manual, PMC OPORDER, and the Instruction Manual for Automated Hydrographic Surveys. The data was examined daily during the execution of the survey.

The boatsheets and the accompanying records have been examined by me and are considered complete and adequate for charting purposes and are approved.



Charles K. Townsend  
CDR., NOAA



GEOGRAPHIC TABLES

Survey No.

H-9580

Name on Survey

Name on Survey	<div style="display: flex; justify-content: space-between; font-size: small;"> <span>On Chart No. 18751</span> <span>On previous charts</span> <span>On U.S. Coast and Geodetic Survey</span> <span>From local measurements</span> <span>On 1851 charts</span> <span>P. O. Guide or Map</span> <span>Ram. Monthly At. 3</span> <span>U. S. Light List</span> </div>										
	A	B	C	D	E	F	G	H	K		
LONG BEACH BREAKWATER	X										1
MIDDLE BREAKWATER	X										2
PACIFIC OCEAN											3
SAN PEDRO BREAKWATER	X										4
SAN PEDRO BAY											5
GULF OF SANTA CATALINA											6
MAIN CHANNEL											7
LONG BEACH CHANNEL											8
											9
											10
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25
											26

APPROVED

*Chas. E. Harrington*  
STAFF GEOGRAPHER

8 Dec, 1916

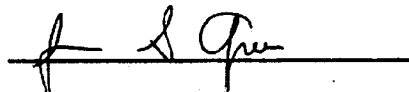


APPROVAL SHEET  
FOR  
SURVEY H- 9580

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position print-out has been made. A new final sounding print-out has been made.
- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the verifier's report.

Date: 9 Sep 1976

Signed:



Title: Chief, Verification Branch

HYDROGRAPHIC SURVEY STATISTICS  
HYDROGRAPHIC SURVEY NO. 9580

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET & PNO, excess overlays		1	BOAT SHEETS & 6 prelim. overlays		1	
DESCRIPTIVE REPORT		1	OVERLAYS		6	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES			1			1
CAHIERS	1		1			Brush recordings
VOLUMES	1					
BOXES						
T-SHEET PRINTS (List)						
<del>TP-00100</del> <del>TP-00101</del> not sent in from field						
SPECIAL REPORTS (List)						
N/A						

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				1396
POSITIONS CHECKED		1396		
POSITIONS REVISED		3		
DEPTH SOUNDINGS REVISED		200		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		0		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
	TIME (MANHOURS)			
Verification of Control		5		
Verification of Positions		8		
Verification of Soundings		90		
Smooth Sheet Compilation		85		
All Other Work		10		
TOTALS	5	198	HIT 10	
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
James S. Green, Chief, Verification Branch	1/2/76		1/2/76	
VERIFICATION BY	BEGINNING DATE		ENDING DATE	
Dennis L. Duffy & Felipe L. Rosario	5/25/76		8/25/76	
REVIEW BY Cartographic Technicians	BEGINNING DATE		ENDING DATE	

g.c. Inspector 10-13-76 39 hrs. D.J. [Signature] 11-26-76 8 hrs. U.S. G.P.O. 1972-769-562/439 REG #6

REGISTRY NO. H-9580

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

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

CARDS CORRECTED

DATE \_\_\_\_\_ TIME REQUIRED \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

REGISTRY NO. \_\_\_\_\_

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

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

MAGNETIC TAPE CORRECTED

DATE \_\_\_\_\_ TIME REQUIRED \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

H-9580

Information for Future Presurvey Reviews

The bottom is considered adequately developed on the present survey for current charting requirements.

Some changes are expected to occur in the vicinity of the groin in latitude 33°42.4', longitude 118°16.6'. The submerged extension of this groin was not verified on the present survey and heavy surf prevented hydrography from being run northwest of the groin.

The existence of the sunken wreck in latitude 33°42.60', longitude 118°14.61', considered verified by the present survey, should be investigated to determine its least depth.

Another submerged wreck charted in latitude 33°42.66', longitude 118°14.41' was not found during a fathometer search on the present survey or an earlier investigation by the Coast Guard. An improvised wire-drag investigation of this area is recommended for final disposition of this item.

Fifty-meter line spacing may prove beneficial in the immediate areas of the breakwater entrances to the Main Channel and Long Beach Channel. Several soundings on the present survey indicate lesser depths in these areas than the controlling depths listed for the channels by the Corps of Engineers.

<u>Position Index</u>		<u>Bottom Change Index</u>	<u>Use Index</u>	<u>Resurvey Cycle</u>
<u>Lat.</u>	<u>Long.</u>			
334	1182	3	6	25 years

## VERIFIERS REPORT

RA-10-2-75

H-9580

This survey was verified and plotted at the Pacific Marine Center, Seattle, Washington. Information relating to this survey is provided as specified in Chapter 6 of the Provisional Hydrographic Manual.

### I. INTRODUCTION

H-9580, 1:10,000 (1975) was conducted in October, 1975 by the NOAA Ship RAINIER. The area surveyed is in Southern California immediately outside the San Pedro Long Beach Breakwater.

Raydist position control was used during this hydrographic survey.

The few problems encountered in the verification of the survey are discussed subsequently in this report. Minor adjustments were made by the verifier to smooth the depth curves and to effect a satisfactory junction with adjacent survey H-9493, 1975.

Projection parameters used to plot the boatsheet has been revised to center the hydrography and to accommodate the Xynetics plotter.

### II. CONTROL AND SHORELINE

See ship's report, Sections F and G, for a description of horizontal control.

The shoreline was transferred from Class I unreviewed manuscripts TP-00399, TP-00400, TP-00401 and TP-00402 compiled from photos flown in March 1972 and July 1974. Field Edit was accomplished in April 1975. *See g.c. Report*

### III. HYDROGRAPHY

The basic hydrography in this survey is adequate to delineate the bottom configuration and to determine least depths. There were no major difficulties encountered in the verification of the main scheme soundings and the crosslines were in good agreement. There are 32 bottom samples in the survey.

The zero curve was not delineated by hydrography due to the rapid decline in depth adjacent to the breakwater.

#### IV. CONDITION OF THE SURVEY

The hydrographic records, overlays, smooth sheet, and reports are adequate and conform to the requirements of the Provisional Hydrographic Manual.

#### V. JUNCTIONS

This survey junctions to the east with contemporary survey H-9493, 1:10,000 (1975). The soundings and junction curves are in good agreement. The depth curves and junction note are inked accordingly.

Junctions could not be accomplished with three unverified contemporary surveys due to different stages in processing. They are H-9494, 1:20,000 (1975) to the south, H-9590, 1:10,000 (1976) to the south and west, and H-9591, 1:10,000 (1976) to the west.

#### VI. COMPARISON WITH PRIOR SURVEYS

This survey was compared with H-5486, 1:10,000 (1934), H-5487, 1:10,000 (1933-34), and H-5523, 1:20,000 (1933-34). There is considerable change in shoreline due to construction of the Middle Breakwater and the Long Beach Breakwater and the addition of the groin at 33°42.4'N, 118°16.6'W.

H-5486 (1934) depicts a muddy bottom in the area south and east of the groin, but this survey indicates sand in that area. This difference is probably a result of sedimentation influenced by the groin.

H-5486 (1934) shows extensive kelp in the vicinity of 33°42.3'N, 118°17.0'W. No reference was made to kelp in this area on H-9580.  
16.75

A sounding of <sup>(11<sup>3</sup> fms)</sup> 69 feet located at 33°41'08"N, 118°14'17"W on H-5523 (1933-34) <sup>originates with junction survey H-5523 (1934) and falls just outside hydrography on the present survey. This sounding will be considered on</sup> appears to have been carried forward from an unknown prior survey. No corresponding sounding is on this survey or on unverified adjoining survey H-9494 (1975). It is recommended this sounding be deleted.

With these exceptions, <sup>noted in the g.c. Report</sup> H-9580 (1975) is in generally good agreement with <sup>the</sup> prior surveys of the area, and is adequate to supersede them within the common area.

#### VII. COMPARISON WITH CHART

Comparison was made with Chart 18751 (C&GS 5147) 21st Edition April 5, 1975, 1:12,000 in the area north of 33°41'42"N. The remainder of the survey was compared with Chart 18749 (C&GS 5148) 19th Edition, February 22, 1975, 1:18,000. Agreement with the chart was generally good.

PSR item #51 - Sunken wreck at 33°41'54.5"N, 118°15'59"W: The survey shows 66 feet at this location with no trace of a wreck. Because no specific hydrographic investigation of this area was required, it is recommended that the charted clearance of 52 feet be retained.

PSR item #52 - Rock awash at 33°42'31"N, 118°15'02.5"W: The area was to be investigated, the existence of the rock verified or disproved, and a least depth determined. The area was inadequately developed and no rock was found. <sup>to prove or disprove the existence of this rock by the present survey.</sup> It is recommended that the rock continue to be charted as a rock awash in its present location. *See G.C. Report Item 8a.*

PST item #53 - Sunken wreck at 33°42'37"N, 118°14'37"W: The fathograms revealed a wreck at 33°42'36"N, 118°14'37"W with a depth of 4.4 fathoms, but no further investigation was conducted to determine a least depth. *See G.C. Report Item 8b.*

PSR item BVV - Sunken wreck at 33°42.66'N, 118°14.41'W: Soundings were taken over the area at 20 meter intervals but this spacing is inadequate to disprove the existence of a 21-foot sailboat. Thus, recommend the wreck be retained on the chart.

PSR item CA - Anchored bait barge off Seal Beach pier at Lat 33°43.7'N Long 118°07.3'W: This item does not plot within the limits of H-9580. Pages #62 thru #72 of this report was copied and inserted in the report of H-9493, 1975. The plotting of this item will be addressed during the verification of H-9493.

For the hydrographer's comments on the above features, see Paragraph "K" of the ship's Descriptive Report.

Chart 18751 (C&GS 5147) depicts a submerged extension to the groin at 33°42.4'N, 118°16.6'W. The ship's report states "there is no indication of the existence of the submerged portion of the groin," but also mentions that the bottom has risen at the tip of the groin. This verifier believes the submerged portion of the groin does exist and the bottom has risen as a result of sediment covering the submerged groin. Recommend the submerged groin be retained on the chart.

It is recommended that all aids to navigation be retained on the chart. The present survey should supersede charted hydrography in the area.

#### VIII. COMPLIANCE WITH PROJECT INSTRUCTIONS

This survey adequately complies with the project instructions dated 11 August 1975.

IX. ADDITIONAL FIELD WORK

Recommend that a ship return to the project area and a least depth and location be determined for the wreck addressed in PSR item #53. The remainder of the survey is adequate to supersede charted information in the area.

X. NOTES TO THE COMPILER

This survey was verified by Dennis Duffy, cartographic technician, a verifier trainee, under my supervision.

Respectfully submitted,

*F. L. Rosario*

F. L. Rosario  
Cartographic Technician  
25 August 1976

Examined and approved,

*J. S. Green*

James S. Green  
Chief, Verification Branch  
25 August 1976





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

Date: 13 September 1976

To: Eugene A. Taylor, RADM  
Director, PMC

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

Subject: PMC Hydrographic Inspection Team Report, H-9580

This survey is a basic hydrographic survey of an area along and outside the San Pedro - Long Beach, California Breakwater. The survey was conducted by NOAA Ship RAINIER in 1975 in compliance with Project Instructions OPR-411-RA-75 dated 11 August 1975. Minor cartographic and report modifications have been made as a result of the inspection process.

The survey area is characterized by a very regular bottom configuration; the survey is straight-forward and the inspection team has no comments relative to the basic hydrography. Two pre-survey review items within the survey area were not addressed in the Descriptive Report. Item 52 is a reported rock awash off the end of the San Pedro Breakwater. A sunken rock appears on shoreline manuscript TP-00399 at the site and, lacking additional information, has been carried on the smooth sheet. Item 53 is a sunken wreck off the west end of the Middle Breakwater. A peak of 26 feet was recorded at the site on a single line of hydrography. This peak, rising from depths in excess of 40 feet, indicated the existence of the wreck but cannot be construed as a determination of least depth. These items may have been investigated by DAVIDSON during her chart adequacy survey of the vicinity. These records should be examined in making any determination relative to the subject PSR items.

\* See P.O.  
Report section  
3a 1 86

While line spacing requirements of the project instructions were adequately complied with, 50 meter spacing would have been very desirable in the entrances to Main and Long Beach Channels. Depths in these two areas are very near, and in some cases less than, project depths in the respective channels and are of considerable concern to the maritime industry.

The inspection team finds H-9580 to be a good basic survey, and excepting the disposition of the above PSR items, complete and adequate for charting purposes and to supersede the prior surveys. Administrative approval is recommended.

*Donald E. Nortrup*  
Donald E. Nortrup, LCDR

for *Arnold E. Erckelbarger*  
Richard D. Lynn

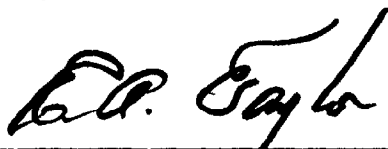
*John C. Albright*  
John C. Albright, LCDR

*Dean R. Seidel*  
Dean R. Seidel, LCDR

Administrative Approval

H-9580

The smooth sheet and reports of this survey have been reviewed and, excepting the disposition of PSR Items 52 and 53, is complete and adequate for charting and to supersede all prior surveys.



Eugene A. Taylor, RADM  
Director, Pacific Marine Center



Date



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

C352

October 13, 1976

TO: *R.H. Cassano*  
*for* A. J. Patrick  
Chief, Marine Surveys Division

THRU: Chief, Quality Control Branch

FROM: D. J. Romesburg  
Quality Evaluator

SUBJECT: Quality Control Report for H-9580 (1975), Approaches to Main Channel and Long Beach Channel, San Pedro Bay, California

A quality control inspection of H-9580 has been accomplished to evaluate the accuracy and adequacy of the survey with respect to data acquisition, delineation of the bottom, determination of least depths and navigational hazards, junctions, shoreline transfer, decisions and actions taken by the verifier, and cartographic presentation of data.

The following deficiencies were noted:

1. Several fixed aids used as signals on the smooth sheet were identified by their triangulation station names only. These stations should be shown with the signal number, triangulation station name and date, and the light list name in slanting letters enclosed by parenthesis. The light list name should be added to the smooth sheet unless it is identical to its triangulation station name. Refer to Appendix B, Cartographic Codes and Symbols, in the Provisional Hydrographic Manual.
2. Junctional surveys H-9494 (1975) on the south, H-9493 (1975) on the east, and H-9591 (1976) on the west have not been received at Headquarters as of the date of this report. The junctions between these surveys and the present survey will be evaluated in their respective quality control inspections.
3. Topographic manuscripts were not listed separately in the Verifier's Report as necessary when their dates of photography and field edit differ. The following is a list of topographic manuscripts, with their respective dates of photography and field edit, which were utilized on the present survey.
  - a. TP-00399 and TP-00400 of 1972-75
  - b. TP-00401 of 1972-(75-76)



## c. TP-00402 of 1974-75

4. The rock awash at latitude  $33^{\circ}42.51'$ , longitude  $118^{\circ}15.04'$  was incorrectly shown on the smooth sheet with a sunken rock symbol and note "covers 2 feet at MLLW." The rock symbol and note were revised during quality control inspection to agree with accepted NOS standards. Refer to Appendix B, Cartographic Codes and Symbols, figure B-2 of the Provisional Hydrographic Manual, and Photogrammetric Instructions No. 70, "Rocks, Reefs, and Ledges Shown on Photogrammetric Maps."

5. The Verifier's Report did not adhere to the requirements of the Provisional Hydrographic Manual, paragraph 6.6, regarding Comparison with Prior Surveys. No reference was made regarding change in depth or supersession of prior surveys.

6. Because no statement was made in the Verifier's Report to indicate that the present survey was adequate to supersede the prior surveys within the common area, an additional comparison had to be made during quality control inspection. Several soundings were carried forward from H-5486 (1933-34-35) along the southern edge of the San Pedro Breakwater to supplement the present survey.

7. The chart editions utilized by the hydrographer in his chart comparison were not indicated in the Descriptive Report. It was assumed during quality control inspection that the hydrographer used the latest editions available which would have been the same as those utilized by the verifier and listed in the Verifier's Report.

8. Attention is directed to the following items discussed in section VII of the Verifier's Report:

a. Presurvey Review Item No. 52 - The rock awash charted in latitude  $33^{\circ}42.51'$ , longitude  $118^{\circ}15.02'$  on chart 5147 disagrees slightly with its position as shown on the present survey. This item was not investigated on the present survey but was transferred to the smooth sheet from Class I Photogrammetric Manuscript TP-00399. A chart adequacy survey in April 1975 by the Ship DAVIDSON verified the existence of this item and the position obtained at that time corresponds to the position shown on the Class I manuscript. It is recommended that the charted position of the rock awash be revised to agree with the present survey.

b. Presurvey Review Item No. 53 - The existence of the submerged wreck, PA (36-ft. rep.) charted in latitude  $33^{\circ}42.62'$ , longitude  $118^{\circ}14.62'$  is considered to have been verified by the present survey. However, divers, during an April 1975 investigation of this item at its charted location, found only scattered pieces of wreckage and ~~recommended removal~~ from the

*Leave as charted*

chart. Fathogram traces of the wreck were recorded to 4.4 fathoms on the present survey in latitude  $33^{\circ}42.60'$ , longitude  $118^{\circ}14.61'$ , approximately 40 meters southeast of its charted position. The chart should be revised to reflect the data as shown on the present survey.

Except as noted above, the field surveying, smooth plotting, processing, and cartographic presentation of survey data are adequate and conform to the standards of the National Ocean Survey.

cc:  
C351



