10161

Diagram No. 5202-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. FA-20-1-84

Office No. H-10161

LOCALITY

State California

General Locality Santa Barbara Channel

Locality Naples to Gaviota

1984

CHIEF OF PARTY
CAPT. C. Andreasen

LIBRARY & ARCHIVES

DATE January 29, 1986

☆U.S. GOV. PRINTING OFFICE: 1980—766-230

10161

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-10161

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

FIELD NO.

FA 20-1-84

State: California

General locality: Santa Barbara Channel

Locality: Naples to Gaviota

Scale: 1:20,000 Date of survey: 27 Sept to 4 Nov, 1984

Instructions dated: 19 Jan 1984 Project No.: OPR-L100-FA-84

Vessel: FAIRWEATHER (2020), 2023, 2024, 2025, 2029

Chief of party: Captain Christian Andreason

Surveyed by: Lt. Cdr. Andreen, Lt. Otsubo, Ens. Timmons, Ens. Hurst

Soundings taken by echo sounder, ~~hand lead, pole~~: Raytheon DSF6000N

Graphic record scaled by: FAIRWEATHER Personnel

Graphic record checked by: FAIRWEATHER Personnel

Verification
~~Plotted~~ by: L.T. Deodato Automated plot by: PMC Xynetics Plotter

Evaluation
~~Verification~~ by: Gordon E. Kay

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

REMARKS: Marginal notes in black were made during the evaluation of H-10161 at the Pacific Marine Center, Seattle, Washington. Separates are filed in the back of the accordian folder.

STANDARDS CK'D 1-31-86
C. Kay

AWOIS and SURF ✓ RWD 4/86

DLC 12-9-96

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1976—665-661/1222 REGION NO. 6

MONTHLY PROGRESS SKETCH

OPR-L100-FA-84

SOUTHERN CALIFORNIA COAST

SANTA BARBARA TO POINT CONCEPTION

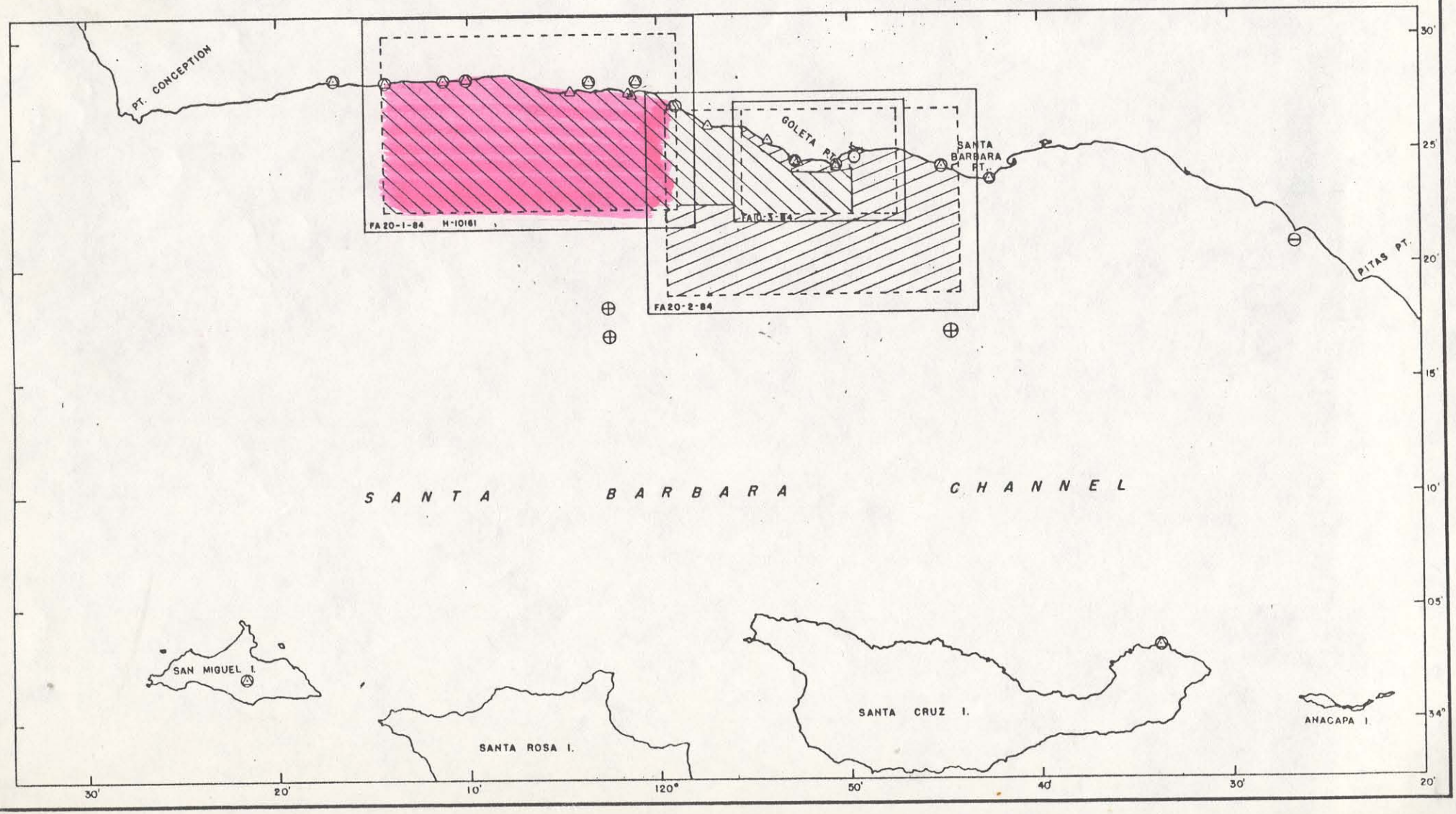
CAPT. CHRISTIAN ANDREASEN, CMDG

NOAA SHIP FAIRWEATHER S-220

FROM CHART 18720

⊕ SV/D - NANSEN CAST
⊘ STA RECOVERED
⊖ TIDE GAGE
⊙ TEMPORARY POINT
△ STA. ESTABLISHED

	SEPT.	OCT.	NOV.
SQ NM SOUNDING LINE	0	93.5	56.3
LNM SOUNDING LINE	15.4	559.6	598.5
BOTTOM SAMPLES	0	91	65
HYDRO CONTROL STATIONS	14	11	6
SV/D - NANSEN CAST	0	2	1
WATER SAMPLES ANALIZED	0	20	2
TIDE GAGE INSTALLATIONS	0	1	0
LNM S/L VERIFICATION	0	16	12
HYDROGRAPHY			
LNM SIDE SCAN SONAR	0	11.3	0
LNM WIRE DRAG	0	0	2.3



A. Project

This hydrographic survey was accomplished during the 1984 field season, according to Project Instructions OPR-L100-FA-84, Southern California Coast, dated 19 January 1984. Supplementing the project instructions was Change Number 1, dated 31 January 1984; and Change Number 2, dated 2 August 1984. Also applicable are the PMC OPORDER and the Hydrographic Manual.

B. Area Surveyed

This is a basic survey at a scale of 1:20,000, located in Southern California in the general area of the Santa Barbara Channel, vicinity of Tajiguas. The eastern edge of the sheet begins just west of Naples at longitude 119/58/45 W and extends westward to just beyond Gaviota, longitude 120/14/30 W. The southern boundary of the survey is latitude 34/22/39 N, with the northern boundry being the shoreline.

Within the limits of this survey, a 1:10,000 inset was completed which covers a two mile wide area at Gaviota. The boundries of the inset are, latitude 34/27/15 N northward to the shoreline, and longitudes 120/11/00 W westward to longitude 120/13/39 W.

This survey (H-10161) was begun on 27 September 1984 (JD 271), and was completed on 5 November 1984 (JD 310).

C. Sounding Vessels

Jensen survey launches FA-3 (2023), FA-4 (2024), FA-5 (2025), FA-6 (2026), along with Monarks 3 and 4 (2029) were used to collect the hydrographic data for the survey. Monark-3 and Monark-4 have identical vessel numbers because the same sounding and positioning equipment was used in these vessels. An outboard motor failure on Monark-4 (JD 297) resulted in a simple transfer of equipment to Monark-3 for two days. Ship FAIRWEATHER (2020) conducted the SV/D and Nansen casts, and obtained several bottom samples that were too deep for the launches to aquire.

No unusual sounding vessel configurations were encountered.

D. Sounding equipment and Corrections to Echo Soundings

FAIRWEATHER and her survey launches were equipped with the dual beam Raytheon DSF-6000N echo sounders to obtain soundings during this survey. The Monarks used a portable Raytheon 719C echo sounder and a sounding pole. See Table I, Sounding Equipment, for a list of equipment used by vessel and date.

Table I
Sounding Equipment

Vessel	Date	Instrument/Model	Recorder
FAIRWEATHER (2020)	JD 293	Raytheon DSF-6000N	A104N
FA-3 (2023)	JD 271-283	Raytheon DSF-6000N	A121N
	JD 284-292	Raytheon DSF-6000N	B048N
	JD 304	Raytheon DSF-6000N	A104N
FA-4 (2024)	JD 292	Raytheon DSF-6000N	A113N
	JD 295-310	Raytheon DSF-6000N	A121N
FA-5 (2025)	JD 277-291	Raytheon DSF-6000N	A104N
	JD 292	Raytheon DSF-6000N	B039N
	JD 304	Raytheon DSF-6000N	B048N
MON-3 (2029)	JD 297	Sounding Pole	-----
	JD 298	Raytheon 719C	10280
MON-4 (2029)	JD 281	Sounding Pole	-----
	JD 282	Raytheon 719C	10280
	JD 283-292	Sounding Pole	-----

The new Raytheon DSF-6000N recorders do not require belt tension or phase checks each morning, however, two internal DSF-6000N tests, TEST 1 and TEST 2, are required daily at the beginning of hydrography. Echo sounding equipment was monitored continuously while on line. All hydrographic data was scanned at least twice to insert peaks and deeps between soundings and to ensure proper depth digitization. The effects of excess wave and swell action were adjusted at this time.

Several problems were experienced with the DSF 6000N echo sounders, both operational and mechanical. Operationally, three major difficulties were found that are currently inherent to the echo sounders which have a tremendous impact on the quality of this survey.

The first problem is that these instruments are great fish finders. Unfortunately, a school of fish at or near the ocean bottom can appear exactly like a shoal or peak. This was encountered a couple of times during the survey, requiring extensive developments of reduced line spacing to be performed. The "fish-peaks" would be found while obtaining the main scheme hydro and upon returning to the developed area, whether a few minutes or a few days later, nothing could be found. Examples of this can be seen on Development #3, latitude 34/27/28 N, longitude 120/08/25 W, and the AWOIS item #50716 at latitude 34/26/49.10 N, longitude 120/01/09.97 W. Fish around the AWOIS item made it difficult to locate the orientation of the wreck and the exact position of the least depth. In all cases, the bottom was scanned by at least 200% coverage from the echo sounders beam width. If nothing was found during the development, the initial trace was labeled "fish" and deleted from the data.

The second major problem experienced was that the DSF 6000N echo sounders could not sound in waters less than approximately one fathom, depending on the individual unit. As a result, the zero fathom curve, and in some areas, the one fathom curve was not delineated on this survey.

The sensitivity of the DSF 6000N was the third inconvenience intrinsic to this instrument. It will digitize on small items in the water column thus producing a large number of missed depths. Since sounding marks are not made at the digitized depth these incorrect depths can be easily missed. It should also be noted that in the non-computerized launches, only the "fix" marks are produced on the echogram.

Only a few mechanical problems were experienced with the DSF-6000N echo sounders. On JD 284, the stylus belt on S/N A121N in FA-3 (2023) was broken. The echo sounder was removed for repairs and replaced by S/N B048N. In FA-5 (2025) on JD 304, the logger grounded the echo sounder (B048N) which caused the event marker to paint the paper black.

FAIRWEATHER also utilized the Raytheon DSF-6000N echo sounder. The port midships EDO transducer for the DSF-6000N is located on the centerline of the ship and was used for all soundings acquired by the Raytheon DSF-6000N. See figure 1, FAIRWEATHER Transducer Location Diagram, for a sketch of the transducer locations.

Diver's detached positions were obtained using a Lietz Fiberglass tape measure or pneumatic depth gauge manufactured by 3-D Instruments, Inc., (s/n 8302079N). Data acquisition using this gauge consisted of the following procedure: The orifice of the gauge was attached to a 150 ft. air hose which was held in place at the least depth position by divers. A surface tender pressurized the system using air from a scuba tank three times and then recorded the averaged gauge value.

The pneumatic gauge was calibrated on 5 April 1984 by 3-D Instruments, Inc. and found to have an accuracy of 1/4 per cent of full scale (230 ft.). For depths obtained during this project, the accuracy was found to be 0.07 ft. for a maximum depth of 30.4 ft.

Daily system calibrations were performed to confirm accuracy standards of the pneumatic gauge. This check consisted of securing the orifice to a weighted tape and lowering it from the water surface to a maximum of 60 ft. At five foot increments, the gauge system would be pressurized and the value recorded. Comparisons were made to the weighted tape following a method similar to that of bar checks.

FAIRWEATHER's three survey launches, FA-3 (2023), FA-4 (2024) and FA-5 (2025), were tested for settlement and squat on 1 March and 6 March 1984 in Shilshole Bay, Seattle, Washington. Measurements were conducted in accordance with Section 4.9.4.2 of the Hydrographic Manual. It was determined that there were no applicable settlement and squat corrections for any launch when performing surveys in fathoms. Refer to the Corrections to Echo Soundings Report, OPR-L100-FA-84 for details concerning methods used for settlement and squat tests.

Settlement and squat tests were not conducted for FAIRWEATHER or the two skiffs. This corrector is not applicable to the ship due to her operating depths, and the skiffs operate at speeds where the effect of settlement and squat is insignificant. Therefore, no settlement and squat correctors were applied to data collected by these vessels. FAIRWEATHER'S TRA value of 2.3 fathoms is based on a mean draft of 13.8 feet.

Only one bar check was performed daily, wind and seas permitting and equipment functioning. This bar check ensured that the Raytheon DSF-6000N echo sounders were operating properly. Bar checks were not performed in the same manner as when checking the Ross Fineline 5000 echo sounders. Initial attempts at taking a 7 fathom bar check using the Raytheon DSF-6000N proved difficult under the best conditions, requiring 45 minutes to check high and low digitizing. The primary problem in obtaining bar check data was that the analog trace showed the bar, but the echo sounder digitized the bottom depth instead of the bar. This was resolved by using the range, phase and gain switches to observe a water depth less than the bottom depth, so that the bottom could not be observed by the echo sounder. Cdr. Dean Seidel recommended that a check at either two or three fathoms would be sufficient to test the system and obtain TRA information. Both Mr. Dennis Hill and LT Maureen Kenny, MOP211, were consulted before implementing this change.

Bar check data combined with the velocity correctors determined launch TRA values. For this survey, all launches were determined to have a TRA of 0.3 fathoms. All soundings on the final field sheet were plotted using this TRA value for all launches.

Two 17 foot aluminum skiffs, Monark-3 and Monark-4, were used in some inshore areas and for shoreline verification. These vessels were equipped with a sounding pole, a lead line and/or a Raytheon 719C portable echo sounder. The applied TRA for the 719C echo sounder is based on physical measurements of the transducer installation and comparison to depths measured by sounding pole. For data acquired on JD 282 and 298, the TRA is 1.7 feet. All data acquired with the Raytheon 719C was read from the analog trace and logged by hand in the sounding volumes along with the data collected by lead line or sounding poles. No leadline or sounding pole correctors are applicable to the data collected during this project. All data from the two skiffs was collected in feet and logged in feet in sounding volumes and data tapes. Plotting on the field sheets was done in fathoms.

Wind and sea conditions occasionally made it necessary to visually average the depth profile to correct for heave action. When heave averaging was required, soundings were corrected in accordance with Section 4.9.3.2 of the Hydrographic Manual. During this survey winds ranged from 0 to 40 knots and seas from 0 to 10 feet.

Velocity correctors were determined from two Nansen casts, and one SV/D cast. Table II, Velocity Casts, shows the date and locations of all casts. One velocity table was determined for this survey from the three casts. This table was applied to all soundings plotted on the final field sheets.

Table II
Velocity Casts

Cast #	Date (JD)	Latitude	Longitude
1 (Nansen)	275	34/18/11 N	120/02/41 W
2 (Nansen)	293	34/17/06 N	120/04/42 W
3 (SV/D)	325	34/16/54 N	120/02/30 W

The SV/D cast #3 was performed using a Plessy Model 9040 Environmental Profiling System, serial number 5632. This instrument was calibrated at the Northwest Regional Calibration Center (NRCC) in February 1984. An onboard PDP8/e FOCAL computer program was used to convert the frequency readings of the SV/D system to engineering units for determination of sound velocity profiles. Two Nansen bottles, one at the surface and one at depth were also taken during the SV/D cast as a check on the Plessy system. These were not used in the determination of the velocity tables.

The reversing thermometers used for the Nansen cast (#9476, 9477, 9480, 9963, 985-68, 988-68, 1001-68, 101-268, 101-568, 124-266, 10447, 10448, 16050, 16052, 16054, 16056, 16058 and 350) were calibrated at the NRCC. 16050, 16054, 16056 and 16058 were calibrated in February 1983, 16052 was calibrated in September 1983, and the rest were calibrated in April and May of 1984. The Beckman salinometer, serial number 59314, was calibrated at NRCC in March 1984.

TC/TI tapes were made in accordance with PMC OPORDER, Appendix Q, dated 13 April 1984. Printouts of TC/TI tapes are included in Appendix D of this report.

Predicted tide correctors were applied to the soundings plotted on the field sheets for this survey. The tide correctors used were from Los Angeles (Outer Harbor) station (#437) in Table 2 of the 1984 West Coast of North and South America Tide Tables with zone correctors from N/OMS121 applied. For further information refer to the Field Tide Note that is included with the separates following the text.

E. Hydrographic Sheets

All the field sheets were plotted aboard the FAIRWEATHER using PDP 8/e computers and Complot plotters. Ten final field sheets were developed for this survey. The scale, size and base material for these are as follows:

Sheet	Scale	Skew,Width,Length	Base
FA 20-1-84	1:20,000	0, 21.5, 54	mylar
Development #1	1:2,500	0, 18, 40	paper
Development #2	1:1,000	0, 15, 15	paper
Development #3	1:2,000	0, 20, 20	paper
FA 20-1-84 inset	1:10,000	0, 9.5, 17	mylar
Inset Development	1:2,500	0, 6, 21	paper

Subm. rock wire drag.	1:1,000	0, 10, 20	paper
Side scan wreck investigation.**	1:1,500	90, 21, 22	paper
Side scan wreck disproval **	1:5,000	90, 17, 23.5	paper
Sunken ship investigation	1:1,000	0, 20, 14	paper

** Plotted on the same sheet of paper

There were no irregularities in the projection, or scales. All the hydrographic data from this survey will be forwarded to the Pacific Marine Center, N/MOP21, for verification and smooth plotting.

F. Control Stations

All horizontal control stations used on this survey were recovered and /or established by FAIRWEATHER personnel. All geodetic positions were based on the North American 1927 Datum. Conventional traverse and triangulation methods were used throughout this survey. No anomolies in control adjustment or in closures were encountered. All positions meet or exceed Third Order, Class 1 specifications. No anomolies in control adjustment or in closures were encountered.

The following stations were used in support of this survey:

	Station Name		Signal Number
*+	SANTA CRUZ EAST 1857	r,d,m	102
*+	SAN MIGUEL 4 1951 RM 5	r,d,m	104
	SURPRISE 1933	r,d,m	110
	TANK 1933	r,d,m	112
	ONOFRE 2 1932	r,d,m	114
	STOW 1872	r,d,m	115
*	HONDA 1932	r,d,m	116
	PARK	d,m	118
*	GOAT 1863	r,d,m	120
	GRASS	d,m	124
	JOHN 1932	r,d,m	126
	EDWARDS 1932 AZIMUTH 2	d,m	128
*	NAPLES 2	d,m	130
*	OIL	d,m	134
+	TP-2 (Cal Pole)	d	150

r: recovered, m: monumented, d: described
*: station located offshore, i.e. on islands.
+: stations located outside limits of survey sheet.
For additional information refer to the Horizontal Control Report, OPR-L100-FA-84.

G. Hydrographic Positioning Control

Hydrographic positioning control for this survey was performed using the Motorola Mini-Ranger III and the Teledyne Hasting Raydist systems. These were used in the range-range and range-azimuth configurations. Table III, lists all positioning equipment used in each vessel by date.

RAYDIST Position Control

The Raydist stations were located offshore on the Channel Islands. The red Raydist site was placed on Santa Cruz Island (SANTA CRUZ EAST 1857, 1956, station number 102) and green on San Miguel Island (SAN MIGUEL 4 RM5 1978, station number 104). The stations were in operation from JD 269 to 321.

Raydist was calibrated using three Mini-Ranger ranges with program RK 561. Calibrations were performed at the beginning and end of each day and whenever a loss or gain of lanes was suspected. Also, on-line calibration checks were performed using two Mini-Ranger rates regularly throughout the day. The daily beginning and ending correctors were averaged to produce final correctors for processing. The mean difference between the daily beginning and ending correctors was 0.10 of a lane with a maximum of 0.38 of a lane.

The launch Raydist antenna was placed in the center of each vessel's stern, thus requiring an ANDIST correction of 4 meters. The Raydist antenna on FAIRWEATHER (2020) is located over the transducer used, giving a corrector of 0 meters.

Several problems were experienced with the Raydist equipment during this survey and are as follows:

On JD 278 in FA-3, two red lanes were gained when the launch ran directly behind an oil platform. This was identified on the strip chart record and the appropriate corrections made on the corrector tape. Later in the same day, one lane was lost on the green channel. There was no apparent reason for the loss nor could it be found on the strip chart. As a result, all data after the last good on-line calibration check was discarded and rerun later.

On JD 279 in FA-3 after the first line of hydrography was obtained, a 0.3 lane discrepancy was noted between the phase meter and the Panalogic. All data was thrown out and the system recalibrated. The problem did not recur.

On JD 281, one lane was gained on the green channel in FA-5 at the end of the day but before the final calibration. Because the time of the lane gain could not be determined from the strip chart, all data after the last good on-line calibration check was rejected. Cause of the lane gain was later found to be due to water collecting in the base of the antenna. This resulted in poor signal reception and a poor trace on the strip chart recorder.

The antenna in FA-5 was repaired on JD 282, after it was found to be shorted out due to the water in the base, as mentioned previously. After repairs, the signal was still slightly weak so the system was run in high power until JD 283.

The antenna in FA 3 collapsed on the morning of JD 283 which allowed its signal to be captured by launch FA-5, still running in high power. FA-5 switched to low power and FA-3 recalibrated. All data affected by the captured signal was rejected and rerun later. This problem did not recur.

Six red lanes were lost and two green lanes were gained by FA-5 on JD 290. The lane losses/gains were easily identified on the strip chart and corrections made on the corrector tape. No data was lost due to this problem.

A loose cable in the Raydist system on FA-3 caused the lane count to be off by 800 lanes on JD 291. The cable was repaired, no data was lost.

Mini-Ranger Control

Mini-Ranger baseline calibrations (BLC's) were performed three times for this survey and two sets of final correctors were determined. Beginning BLC's on all console-R/T pairs were performed on JD 230 in Kodiak, Alaska. After two R/T's failed in the field, BLC's were again performed using the replacement equipment along with the other working instruments producing ending/beginning correctors on JD 299-300 in Monterey, California. (No ending calibrations were performed on console-R/T pairs 703/B1419 and 716/1538 since these were the two R/T's that failed.) The second set of ending BLC's were accomplished on JD 339-340 in Seattle, Washington. From these three BLC's, two sets of final correctors were determined. The first covers the period from JD 270-298 and the second from JD 304-309. No hydrography was obtained between JD 299 and 303. Refer to the Electronic Control Report, OPR-L100-FA-84 for more information.

Non-critical systems checks were performed at the beginning and end of hydrography for each day unless prevented by weather or equipment failure. Critical calibration checks were performed weekly by theodolite intersection or calibration pole. Critical checks showed a mean variation of +0.6 meters and a maximum value of +7 meters from the baseline calibrations, except for Code 8 with console 716 on JD 284.

On JD 284, the difference between the baseline calibration corrector and the critical calibration of code 8 with console 716 was +32 meters. The transponder was not used with this console-R/T pair again. Unfortunately BLC data could not verify this change since the R/T 1538 failed before another baseline calibration could be performed. No data was collected by console 716 using this code.

The deaths of R/T units 1538 and B1419 on JD's 295 and 298, respectively, were the only equipment problems encountered with the Mini-Rangers during survey. R/T S/N B1108 replaced 1538 and B1212 replaced B1419.

In all cases, the Mini-Ranger R/T units were placed over the launch's transducers, which eliminated the need to apply ANDIST correctors. ✓

No unusual weather conditions adversely affected positional accuracy of this survey. No hydrography was performed with weak or less than minimum control geometry. Signal strengths were recorded automatically or manually when on line, to insure that hydrography run with less than minimum required signal strengths was plotted using time and course methods. ✓

Table III
Vessel Positioning Equipment

Launch & Dates (JD)	Mini-Ranger Console-R/T	Navigator	Raydist Transmitter	Navigation Interface
FAIRWEATHER (2020)				
293	703/B1419	16	90	20
FA-3 (2023)				
270-292	716/1538	21	86	22
292-298	703/B1419	21	86	22
304-310	506042/1527	--	--	--
FA-4 (2024)				
292-297	B0323/B1398	119	96	90
298-303	----------	119	96	90
304-310	B0323/B1398	119	96	90 ✓
FA-5 (2025)				
277-296	506042/1527	18	28	37
297-298	B0323/B1398	18	28	37
299-303	----------	18	28	37
304-306	703/B1212	18	28	37
306-307	703/B1212	21	86	20
308-309	703/B1212	21	86	22
310	703/B1212	21	86	37
MONARK-3/4 (2029)				
277-292	703/B1419	--	--	--
297-298	506042/1527	--	--	--
304-310	716/B1108	--	--	--

H. Shoreline

The shoreline for this survey was taken from the Class III manuscripts TP-00919, TP-00920 and TP-00921, all at a scale of 1:20,000. Shoreline for the 1:10,000 inset was taken from a 1:10,000 scale enlargement of TP-00919. Comparison between the mean high water line on the manuscripts and the hydrography obtained on H-10161 showed excellent agreement, verifying that the shoreline manuscripts are adequate and should be used for charting purposes. ✓

Due to inaccuracies of locating alongshore rocks from the tide coordinated infrared photographs, there were no rocks positioned on the shoreline manuscripts. Therefore, all rocks on this survey were located by hydrographic methods during shoreline verification and are indicated in red ink on the final field sheets. ✓

The large pier that was in question on TP-00919 at latitude 34/28/12 N, longitude 120/12/02 W was found to be submerged ruins. This is the same pier that is the only un-numbered AWOIS item. Please refer to section K of this report for further information. ✓

The three seawalls on TP-00920 were verified and found to be in good condition. It is recommended that these be charted as indicated on the manuscript. concur

The two tanks on TP-00920 at latitude 34/27/55 N, longitude 120/02/11 W and latitude 34/28/24 N, longitude 120/02/11 W were found to be of landmark value when inspected from seaward. It is recommended that these be charted. NC concur

The tank located at latitude 34/28/12.75 N, longitude 120/02/15.43 W (Dip File position) on the chart and in question on TP-00920 should be deleted from the chart. There is no tank existing at this position. ✓ not at this GP x

I. Crosslines

70 miles of crosslines were run comprising 21.6% of the principle hydrography on this survey. The crosslines and main scheme hydro are in excellent agreement, with all soundings agreeing to within one fathom. ✓

J. Junctions

This survey junctions with only one contemporary survey, H-10164 (FA-20-2-84, scale 1:20,000) on the eastern limit. Soundings from the two surveys, H-10161 and H-10164, agreed within one fathom of each other. ✓

K. Comparison with Prior Surveys

The limits of this survey contained sixteen AWOIS items. Eleven of the items, numbers 50649, 50661, 50662, 50663, 50664, 50667, 50668, 50679, I I I I I I I I . ✓

50681, 50684, and 50686, were on the AWOIS listing for information only and did not require development. All of these are wellheads submerged 150 to 225 feet and are not considered dangers to navigation. The remaining five AWOIS items did require field work.

Item #50665 is a well covered by 102 feet of water rising 11 feet off the bottom at latitude: 34/26/39 N, longitude: 120/16/19 W. Survey requirements stated that survey line spacing be split to half the normal, for a minimum of a 250 meter radius of the stated position. The requirements were met with line spacing over the item split to 180 meters. It is recommended that this well be left on the chart.

See H 10171

Concur

Item #50675 is a well which rises 145 feet off the bottom, covered by 90 feet of water at latitude: 34/26/12.5 N, longitude: 120/11/25 W. Survey requirements were the same as item #50665. Line spacing was reduced to 180 meters in this area. It is recommended that this well be retained on the chart. Not smooth plotted

Concur

Item #50677 is a well covered by 80 feet of water rising 145 feet off the bottom at latitude: 34/26/37.5 N, longitude: 120/12/57.8 W. Survey requirements were the same as item #50665. The survey lines over this location were reduced to 180 meter spacing. It is recommended that this well be retained on the chart. Not smooth plotted

Concur

Item #50680 is well rising 145 feet off the bottom and covered by 90 feet of water at latitude: 34/26/20.5 N, longitude: 120/12/57.5 W. Survey requirements were the same as item #50665. Line spacing was reduced to 180 meters in this area. It is recommended that this well be left on the chart. Not smooth plotted

Concur

Item #50716 is a non-dangerous wreck reported at latitude 34/26/06 N, longitude 120/01/06 W. The wreck was found 0.7 nautical miles north of its reported position. 100% side scan sonar coverage along with an echo sounder development (minimum of 5 meter line spacing) were used to locate the wreck at position #4843, latitude 34/26/~~49~~ 48.10 N, longitude 120/01/~~09.97~~ 10.43 W. A least depth of 19.~~5~~6 fathoms at Mean Lower Low Water (MLLW) was obtained by depth sounder. It is recommended that the wreck be retained on the chart at this revised position. The wreck should be removed from the chart and the located feature charted at the above location.

Bst #9321/0

The echo sounder development was hampered by large schools of fish around the wreck. As mentioned in section D of this report, the DSF 6000N is extremely sensitive to heavy concentrations of fish. This made it difficult to determine the exact orientation of the wreck.

100% side scan sonar coverage was also performed for a radius of 0.5 nautical miles around the wreck's reported position to ensure that two wrecks did not exist. No contacts were found within this area.

~~An un-numbered~~ 50715 AWOIS item at latitude 34/28/~~12~~ 02 N, longitude 120/12/~~02~~ 20 W was also investigated and found to be the remains of a pier located on the prior survey H-5625. Submerged pilings were found extending south from the beach by divers. The seawardmost pilings were located at latitude 34/28/02.~~6~~59 N, longitude 120/12/19.~~5~~9 W with a least depth of 24.6 feet of MLLW at position #6781. The shape of the ruins is same as the pier was

depicted on the prior survey. It is recommended that these pier ruins be charted. as Subm. Concur

For the area covered by this survey, comparisons were made between soundings from H-10161 and 1:20,000 enlargements or reductions of three prior surveys: H-5624, scale 1:10,000, year 1933; H-5625, scale 1:10,000, year 1933; and H-5830, scale 1:40,000, year 1934, and H-5626 (1933) 1:10,000.

H-5624

When comparing the prior survey H-5624 to the contemporary survey H-10161, 99% of the soundings agreed to within two fathoms. Only three soundings were found not to meet the requirements of section 1.1.2, Part B of the Hydrographic Manual, two of these were shoaler than the current survey and one was deeper. The only other disagreements were several rocks located in the surf zone on the prior survey that could not be verified on H-10161. It is recommended that these rocks be retained on the chart. Concur

H-5625

All soundings on survey H-10161 agreed to within two fathoms of those on prior survey H-5625. The only discrepancies between the two surveys were rocks on the prior survey which could not be verified on H-10161. All except one of these rocks were found to be in the surf zone where detached positions could not be obtained. One rock located at latitude 34/28/14 N, longitude 120/09/41 W was searched for but not found. These rocks are indicated on the chart reductions. It is recommended that they be retained on the chart. Concur

H-5830

Comparison between the prior survey H-5830 and survey H-10161 showed 95% of the soundings in excellent agreement. In general, soundings less than 100 fathoms agreed to within two fathoms while those greater agreed to within four fathoms. The five percent that did not meet this criteria were all found to be in depths greater than 68 fathoms with the soundings on the prior survey deeper than H-10161.

All soundings which did not meet the general trends noted in the comparisons were indicated on the 1:20,000 scale copies of the prior surveys. Those soundings indicated in red were found to be shoaler than the current survey H-10161 while those circled in blue were deeper than H-10161.

L. Comparison with Chart

The largest scale chart for the area covered by survey H-10161 is chart 18721, 7th edition, January 30, 1982, scale 1:100,000. Since the soundings from this chart are from the prior surveys H-5624, H-5625, and H-5830, as indicated from the "chart markup" sheet provided from Rockville, comparisons between soundings from the chart and H-10161 will not be made. Refer to section K, Comparison to Prior Surveys, for this information.

Comparisons were made between the shoreline features on the chart and survey H-10161. Most of the rocks shown on the chart were verified and located on H-10161, however eight rocks were searched for, and ~~not~~ 6 rocks found. According to the "chart markup" sheet provided by N/CG243, six of these (indicated by asterisks) were added to the chart through unreviewed Chart Maintenance Prints and should be disregarded (as per N/CG243). It is recommended that ~~these six~~ * be deleted from the chart.* Due to location of the rocks near the surf zone, a complete and thorough search was not possible thus the other two rocks which were from prior surveys should be retained on the chart. * refer to each item for disposition.

Charting Recommendation	Item	Latitude (North)	Longitude (West)	
✓	Submerged Rock	34/28/14	120/09/40	carried forward from H-5625
remove from chart	Rock Awash	34/28/11	120/07/07*	
Chart	~~Rock Awash~~ islet ✓	34/27/~~48~~49.25	120/06/~~12~~05.86*	Pos# 8150
remove from chart	Rock Awash	34/27/40	120/05/42*	NC
remove from chart	Rock Awash	34/27/38	120/05/36*	NC
Chart	~~Rock Awash~~ 0.5 RK	34/27/~~36~~34.61	120/05/~~20~~19.80*	Pos# 8140 chtd as rock
remove from Chart	Rock Awash	34/27/46	120/02/26*	
✓	Rock Awash	34/26/59	119/58/~~58~~08	carried forward from H-5624

✓ The carried forward rocks are also listed in Evaluation Report Section 6.

Also, three other rocks were found to have different positions on H-10161 than on the chart. It is recommended that the following rocks be ~~retained on~~ deleted from the chart ~~but~~ and chart the rocks at the revised positions from H-10161:

	Item	Chart Latitude (North)	Chart Longitude (West)	H-10161 Latitude (North)	H-10161 Longitude (West)	
(6)	~~Submerged~~ Awash Rock	34/28/03	120/14/18	34/28/~~05~~04.84	120/14/~~18~~17.82	NC
(2)	Rock Awash	34/28/09	120/14/00	34/28/~~11~~10.72	120/13/58.72	✓
(6)	Rock Awash	34/28/08	120/10/03	34/28/~~10~~9.25	120/10/03.53	✓

An offshore rock awash charted at latitude 34/28/06 N, longitude 120/13/36 W was indicated on the "chart mark-up" sheet as one to be disregarded. Since this rock was located near the end of the Gaviota State Beach pier, an Otter Board drag was performed over the area to ensure that the rock did not exist. A bottom sweep with 100% coverage was accomplished where nothing was found. It is recommended that this rock be deleted from the chart. concur

While performing this survey, the drilling vessel SANTA YNEZ was moored at the location of the privately maintained bouy charted at latitude 34/24/17.95 N, longitude 120/06/00.13 W. This vessel was scheduled to hold its position for approximately one year, thus it was shown on the final field sheet as an oil platform. It is not known whether the lighted bouy will be re-established after the SANTA YNEZ departs. Before a new edition of the chart is produced for this area, the Coast Guard should be contacted to determine if any bouys are stationed at this location. ✓

It should also be noted, that during the completion of the survey two oil platforms were located that were not on the chart. These are the

PENROD 96 (latitude 34/27/28.618 N, longitude 120/08/28.724 W) and JFP THREE (latitude 34/26/03.02 N, longitude 120/09/21.94 W) platforms, which are temporary jack-up rigs. Since these will be moving in the future, it is recommended that they not be charted.

Table IV lists all the diver investigations completed on this survey. Diver circle searches were used to locate most of the items. Procedures for this type of search is included in the separates following the text. For information relating to the pneumatic guage used to obtain least depths, refer to section D of this report.

Table IV
Diver Investigations

Position No.	Item	Least Depth at MLLW (feet)	fathoms	Latitude (North)	Longitude (West)
6779	Pier ruins	22.9	3.9	34/28/06.7	120/12/18.0
6780	Pier ruins	23.4	3.9	34/28/07.2	120/12/18.3
6781	Pier ruins	24.6	4.1	34/28/02.6	120/12/19.5
6782	Pier ruins	26.8	4.4	34/28/02.5	120/12/19.5

Awois# 50715

There were no dangers to navigation found on this survey.

M. Adequacy of Survey

This survey is complete and is fully adequate to supercede all prior surveys within any common areas. No additional work is required.

N. Aids to Navigation

The aids to navigation located within the limits of this survey are listed below. These have been located to Third Order, Class I accuracy. Refer to Horizontal Control Report, OPR-L100-FA-84 for positioning information.

Fixed Aids	Light List Position	Surveyed Position
HONDO LIGHT L.L. #510.05	34/23.4 N 120/07.2 W	34/23/26.004 N 120/07/14.006 W
Landmark		**Surveyed Position**
Tank*	New Landmark	34/28/24.619 N 120/00/03.607 W
Lifeguard Station	New landmark	34/27/41.142 N 120/01/44.424 W
Vista Del Mar Union School flagpole	New landmark.	34/28/26.296 N 120/11/55.325 W

*Position accuracy less than Third Order, Class 1.

Two tanks from the shoreline manuscript TP-00920 were inspected from seaward and have landmark value, and should be charted. There are no new positions determined for them. From the manuscript, they are at positions 34/27/55 N, 120/02/11 W, and 34/28/24 N, 120/02/11 W.

It is recommended that the tank at latitude 34/28/12.75 N, longitude 120/02/15.43 W (Dip File Position) be deleted; as according to TP-00920 there is no tank existing in this position.

Several pipelines are indicated on the chart between the offshore well heads (see AWOIS items in section K of this report) and the beach. Beach ends of the pipelines, as they entered the water, were verified as charted, however once under water they could not be detected by the DSF 6000N echo sounders. A map displaying some of the pipelines was obtained through "California Coastal Operators Group" and will be submitted with the raw hydrographic data. This map shows oil company leases, shore supply and crewboat bases, both existing and proposed. It is recommended that the pipelines be retained on the chart.

O. Statistics

Item	Vessels					
	2020	2023	2024	2025	2028	2029	Total
No. of positions.	4	1336	744	837	27	144	3092
Nautical miles	0	272.4	45.1	135.6	0	4.0	457.1
Square miles.	0	37.0	0	36.8	0	0	73.8
Bottom Samples.	4	0	0	49	0	0	53
Velocity Casts	3	0	0	0	0	0	3

No magnetic or current stations were established within the survey limits. Ship FAIRWEATHER conducted three sound velocity casts. One tide station was established.

P. Miscellaneous

Bottom samples were collected and forwarded to the Smithsonian Institution, Washington DC. A small current of approximately 1 knot was noticed throughout the survey area.

Oil exploration is extremely predominant throughout the area from Santa Barbara to Point Conception. As a result, there are numerous research vessels working this vicinity using the same type of positioning equipment as FAIRWEATHER. Interference between the systems, along with delays caused by manuevering around two mile long towing cables from the research vessels have been experienced while performing this survey. It is expected that these difficulties in operations will continue in the future.

Q. Recomendations

None

R. Automated Data Processing

All range-azimuth and range-range hydrography was processed according to the Hydrographic Data Requirements Letter (appendix Q), dated 13 April 1984. For the range-azimuth data, all peaks and deeps that were inserted onto the arcs, were edited directly onto the master tape with an interpolated range assigned to them. For range-azimuth inserts not located on arcs and all sounding corrections, the inserts were put on a corrector tape and positioned by course and time. All peaks, deeps, and sounding corrections for the range-range hydrography were placed on a corrector tape.

The following is a list of the hydroplot programs used for data acquisition and processing during this survey.

Number	Program Name	Version Date
RK 112	R/R Real Time Plot	4/23/84
RK 116	R/AZ Real Time Plot	4/28/84
RK 201	Grid, Signal, and Lattice Plot	4/18/75
RK 211	R/R Non-real Time Plot	2/13/84
RK 212	Visual Station Load and Plot	4/01/74
RK 216	R/AZ Non-real Time Plot	2/24/84
RK 300	Utility Package	10/21/80
RK 330	Data Reformat and Check	5/04/76
RK 360	Electronic Corrector Abstract	2/02/76
RK 407	Geodetic Inverse/Direct Computations	9/25/78
AM 500	Predicted Tide Generator	11/10/72
RK 530	Layer Corrections for Velocity	5/10/76
RK 561	H/R Geodetic Calibration	12/01/82
AM 602	ELINORE	12/08/82

S. Referral to Reports

The following list of reports for OPR-L100-FA-84 that are submitted seperately from the descriptive report and contain additional information pertaining to this survey.

Report	Date Submitted
Horizontal Control Report	February 1985
Electronic Control Report	January 1985
Corrections to Echo Soundings Report	January 1985
Coast Pilot Report	January 1985

Approval Sheet

The final field sheets and the accompanying records have been reviewed for accuracy, completeness, compliance to project instructions and adherence to required standards and procedures. The commanding officer monitored field work and inspected selected portions of the data on a daily basis. This survey is complete. The data is forwarded for final review and processing.

Submitted by:

Stephen M. Brezinski

Stephen M. Brezinski
Ensign, NOAA

Reviewed by:

Kathy Andreen

Kathy Andreen
Lieutenant Commander, NOAA
Field Operations Officer

Approved by:

for

Christian Andreasen
Captain, NOAA
Commanding Officer

SIGNAL LISTING
FOR
OPR-L100-FA-84
FA-20-1-84 (C SHEET)

SANTA CRUZ EAST 1857,1956 NGS QUAD 341193 1008
102 0 34 03 17058 119 33 49504 250 0095 330040

SAN MIGUEL 4 RM 5 1978 NGS QUAD 341202 1055D
104 0 34 01 58311 120 21 45300 250 0255 330040

SURPRISE 1933 NGS QUAD 341202 1063
110 1 34 28 08524 120 14 13627 250 0033 000000

TANK 1933 NGS QUAD 341202 1065
112 1 34 28 16088 120 13 01737 250 0029 000000

ONOFRE 2 1932 NGS QUAD 341202 1043
114 1 34 28 13299 120 11 14414 250 0023 000000

STOW 1872 NGS QUAD 341202 1062
115 1 34 28 12570 120 10 06869 250 0000 000000

HONDA 1932 NGS QUAD 341202 1034
116 1 34 28 32970 120 08 14485 250 0098 000000

PARK FAIRWEATHER 1984
118 1 34 27 39258 120 04 20963 250 0014 000000

GOAT 1836 NGS QUAD 341202 1029
120 1 34 28 07009 120 03 31687 250 0182 000000

GRASS FAIRWEATHER 1984
124 1 34 27 28425 120 01 19393 250 0004 000000

JOHN 1932 NGS QUAD 341202 1036
126 1 34 28 09987 120 00 56811 250 0211 000000

EDWARDS AZIMUTH 2 FAIRWEATHER 1984
128 1 34 27 03356 119 59 22952 250 0023 000000

NAPLES 2 FAIRWEATHER 1984
130 1 34 26 11978 119 57 22673 250 0023 000000

OIL FAIRWEATHER 1984
134 1 34 24 25672 119 52 38756 250 0010 000000

TP 2 FAIRWEATHER 1984
150 1 34 24 46659 119 49 38311 250 0007 000000

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

[ ] TO BE CHARTED [X] TO BE REVISED [ ] TO BE DELETED	REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
	NOAA Ship FAIRWEATHER	CALIFORNIA	SANTA BARBARA CHANNEL VICINITY OF TAJIGUAS	08 JAN 1985

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-L100-FA-84		H-10161	NORTH AMERICAN 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
LIGHT	U.S. Coast Guard navigation light atop southwest corner of HONDO Drilling Platform (HONDO LIGHT) Light List Vol III #510.05	34-23	26.004	120-07	14.006		F-2-6-L 18 NOV 1984	18720 18721
	See L-63(86)							

ot

RESPONSIBLE PERSONNEL

TYPE OF ACTION	NAME	ORIGINATOR
OBJECTS INSPECTED FROM SEAWARD	Captain Christian Andreasen, NOAA Commanding Officer	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	Captain Christian Andreasen, NOAA	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1974-665-073/1030 Region 6

NOAA FORM 76-40 (8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

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

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
NOAA Ship FAIRWEATHER	CALIFORNIA	SANTA BARBARA CHANNEL VICINITY OF TAJIGUAS	08 JAN 1985

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-L100-FA-84		H-10161	NORTH AMERICAN 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
FLAGPOLE	Flagpole of the grounds of the Vista Del Mar Union School, Gaviota, CA (VISTA DEL MAR UNION SCHOOL FLAGPOLE)	34-28	26.296	120-11	55.325		F-2-6-L 02 NOV 1984	18720 18721
TANK	Green water tank on a hill above Ocean View Stables, near Capitan	34-28	24.619	120-00	03.607		F-2-6-L 06 NOV 1984	18720 18721
~~LIFEGUARD STATION~~ Building	Lifeguard Headquarters, El Capitan State Beach (WESTERN ANTENNA SUPPORT)	34-27	41.142	120-01	44.424		F-2-6-L 06 NOV 1984	18720 18721
	applied thru							
	See L-63(86) LC							

12

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Captain Christian Andreasen, NOAA Commanding Officer	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	Captain Christian Andreasen, NOAA	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

NOAA FORM 76-40 (8-74)

SUPERSEDES NOAA FORM 76-40 (2-71) WHICH IS OBSOLETE, AND EXISTING STOCK SHOULD BE DESTROYED UPON RECEIPT OF REVISION.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1974-665-073/1030 Region 6

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

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

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
NOAA Ship FAIRWEATHER	CALIFORNIA	SANTA BARBARA CHANNEL VICINITY OF TAJIGUAS	08 JAN 1985

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
OPR-L100-FA-84		H-10161	NORTH AMERICAN 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
TANK	Does not exist and is not shown on TP-00920	34-28	12.75	120-02	15.43		Vis. 02 NOV 1984	18720 18721
	See L-63(86) - NC							

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RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Captain Christian Andreasen, NOAA Commanding Officer	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	Captain Christian Andreasen, NOAA	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS
Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.
EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED
Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.
EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.
EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED
When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.
EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH
Enter 'V-Vis.' and date.
EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1974-665-073/1030 Region 6

Divers Circle Search Procedures

Several AWOIS items and least depth investigations are verified and/or disproved by divers performing circle searches. FAIRWEATHER procedures for this type of search are as follows:

In preparation for the investigation, the reported or listed position of the item is used to calculate ranges and if necessary, azimuths from the control stations using computer program RK300, Utility Computations.

Upon arrival of the survey launch in the vicinity of the computed position, the coxswain steers one of the ranges and when either the second range or the azimuth is crossed, a weight is dropped from the starboard side of the launch adjacent to the Mini-Ranger antenna. The weight is approximately 50 pounds and has a line and float attached to it.

After the weight is positioned, the launch returns to the float. The float is retrieved, the slack taken out of the line, the launch then maneuvers to position the Mini-Ranger antenna directly over the weight, and takes a detached position. This is to confirm that the weight is positioned correctly.

Once the weight is located, two divers enter the water at the float and descend to the weight. An end of a fiberglass measuring tape is attached to the weight and the divers swim away from it with the tape reel in hand until they can no longer see the weight. They then swim back along the tape until the weight becomes visible and note the distance. In this manner, the visibility can be accurately determined.

With visibility determined, the divers then position themselves at equal intervals from the weight along the fiberglass tape. This distance maybe equal to the visibility (example - 20 feet) or if that is not amenable, a convenient number, normally 25 feet, is used. This then has one diver at the first interval mark, i.e., 25 feet, and the second diver at the second interval, 50 foot mark, from the weight. The diver farthest from the weight holds the tape reel in hand while keeping the tape taut. After marking the bottom or noting a magnetic bearing from a compass, the divers swim a 360 degree circle holding the tape tightly, looking to both sides and staying close to the bottom.

When the divers have completed the circle and returned to the starting marks on the bottom or the beginning magnetic bearing, they move farther away from the weight such that the closest diver is now at the third interval mark from the weight, i.e., 75 foot mark, while the second diver is at the fourth interval, i.e., 100 foot mark. They mark the bottom again and swim another 360 degree search. This procedure is continued until the diver farthest from the weight is as far out as he/she can be.

Using this procedure, if the diver farthest from the tape ends at the 150 foot mark, the entire bottom inside the 50 foot mark is swept with the tape 300%, between 50 and 100 it is swept 200%, and the area from 100 to 150 feet is swept 100%. In addition, if the visibility is 25 feet, the

bottom is visually inspected by approximately the same degrees out to 175 feet.

If something is found, divers move the weight to the location of the least depth otherwise it is left in place. All slack is removed from the bouy line and divers either obtain a least depth measurement or return to the launch. Another detached position is then obtained on the float above the weight to locate the object or to determine if the weight has moved during the search.

CO CH → XO 9BIN → 1700

Getty

84002[illegible]

Getty Trading and Transportation Company | P.O. Box 5568 T.A., Denver, CO 80217 • (303) 861-4475

July 30, 1984

Doug Hennick
Marine Chart Branch
N/CG22X2
N.O.A.A.
Rockville, Maryland 20852

Dear Mr. Hennick:

Please find enclosed a map of the Gaviota area on which I've sketched the approximate location of the Getty Gaviota Consolidated Coastal Facility Service Pier.

As I mentioned on the phone, it will be located approximately 6,800' east of the existing pier at Gaviota Beach State Park at 120° 12' 18" W. Longtitude. The pier will extend from shore 1200' into the water.

If you have any questions concerning the pier, please contact Mr. Chris Young of Getty Trading and Transportation Company at (303) 866-0536. He will be coordinating the design and construction of the pier.

The primary berthing device for the facility will probably be a multi-buoy mooring located 4500' offshore in an approximate water depth of 140', at the same longitude as the pier.

Please let us know when the preliminary data is available. We will want to purchase that information as soon as possible.

We appreciate your keeping us informed of the status of the project.

Sincerely,

Frank T. Lee

Frank T. Lee

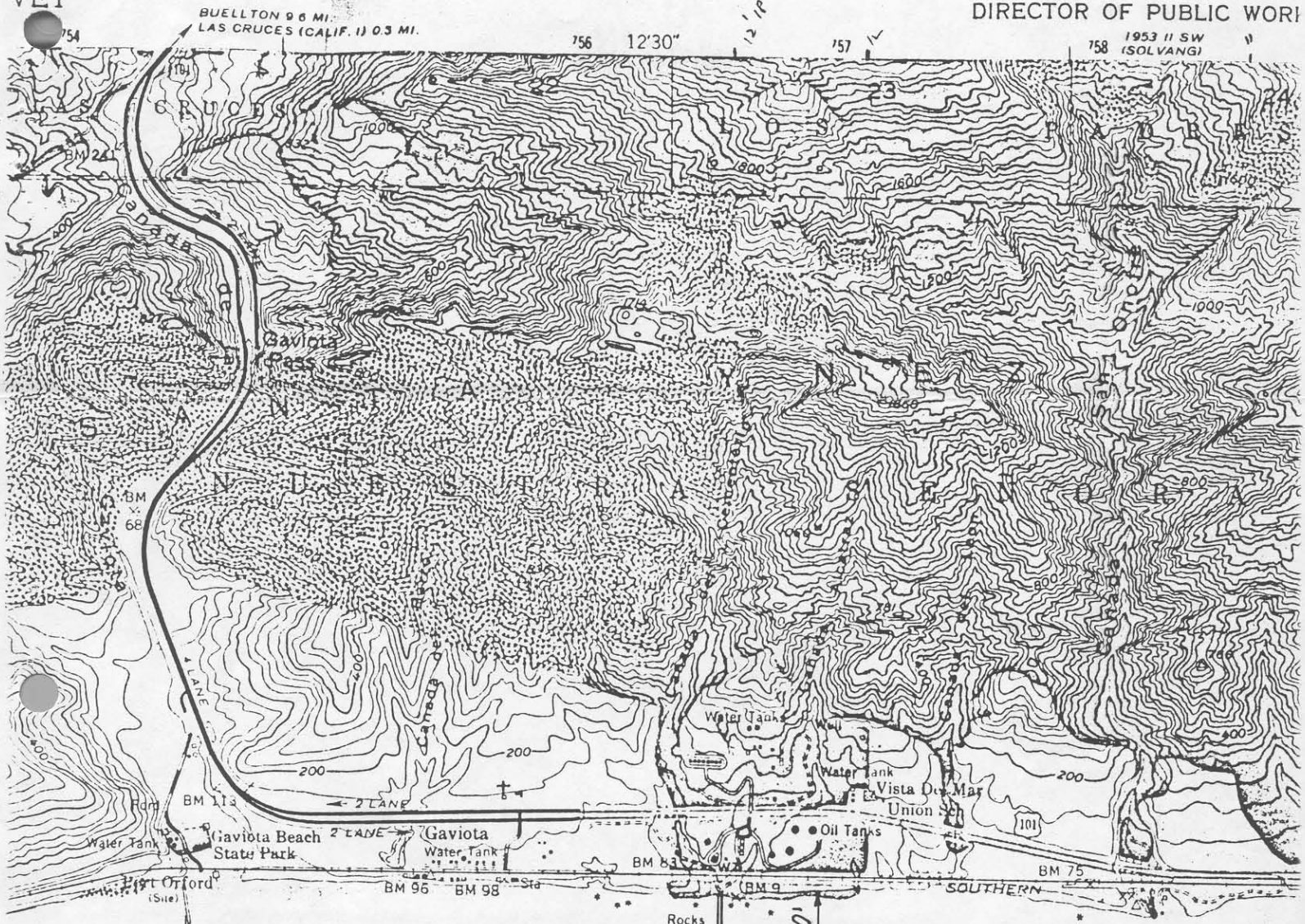
Enclosure

cc: W. N. Harris
R. B. Copple

FTL/jj

:S
INTERIOR
VEY

STATE OF CALIFORNIA
REPRESENTED BY THE
DIRECTOR OF PUBLIC WORI



SERVICE PIER
GAVIOTA CONSOLIDATED
COASTAL FACILITY

6,800'

120° 12' 18" W. LONG.

DEPARTMENT OF PARKS AND RECREATION
Gaviota District
10 Refugio Beach Road
Goleta, California 93117
(805) 968-0019

Lisa
~~Mark~~
Scott
Dale (A)
mail to ship

September 14, 1984

Chief, Operations Section, N/CG 241
Hydrographic Surveys Branch
Charting and Geodetic Services
National Ocean Service NOAA
Rockville, Maryland 20852

Dear Chief:

Thank you for requesting our input to your hydrographic survey operations from Point Conception to Santa Barbara, California. We would like to bring to your attention two (2) features (man-made) which we feel have merit being charted. Both features are used extensively as marks by commercial and pleasure boaters, surveyors, oil company operations, rescue personnel and others.

Evaluate for landmark value

The first feature is a Lifeguard Headquarters building located on the bluff above El Capitan State Beach. It is a two story facility and night-lighted. By the way, this facility is a NOAA Coastal Weather Observation Station. The building is located at approximately 34 deg. 27.5' latitude/120 deg. 2.4' longitude.

Is charted on (18721) long. 120°13'40" W From CL 87/52

The second feature is the pier at Gaviota Beach State Park. It is 525 feet long and night-lighted. I do not have the coordinates on this feature. The pier is presently displayed on the United States Dept. of the Interior, Geological Survey Topographic Map (Gaviota Quadrangle).

I am enclosing two topographic maps (Gaviota Quadrangle and Tajiguas Quadrangle) showing both of the above mentioned features circled in red.

I hope this information is helpful to you. Please contact us for any further information.

Sincerely,

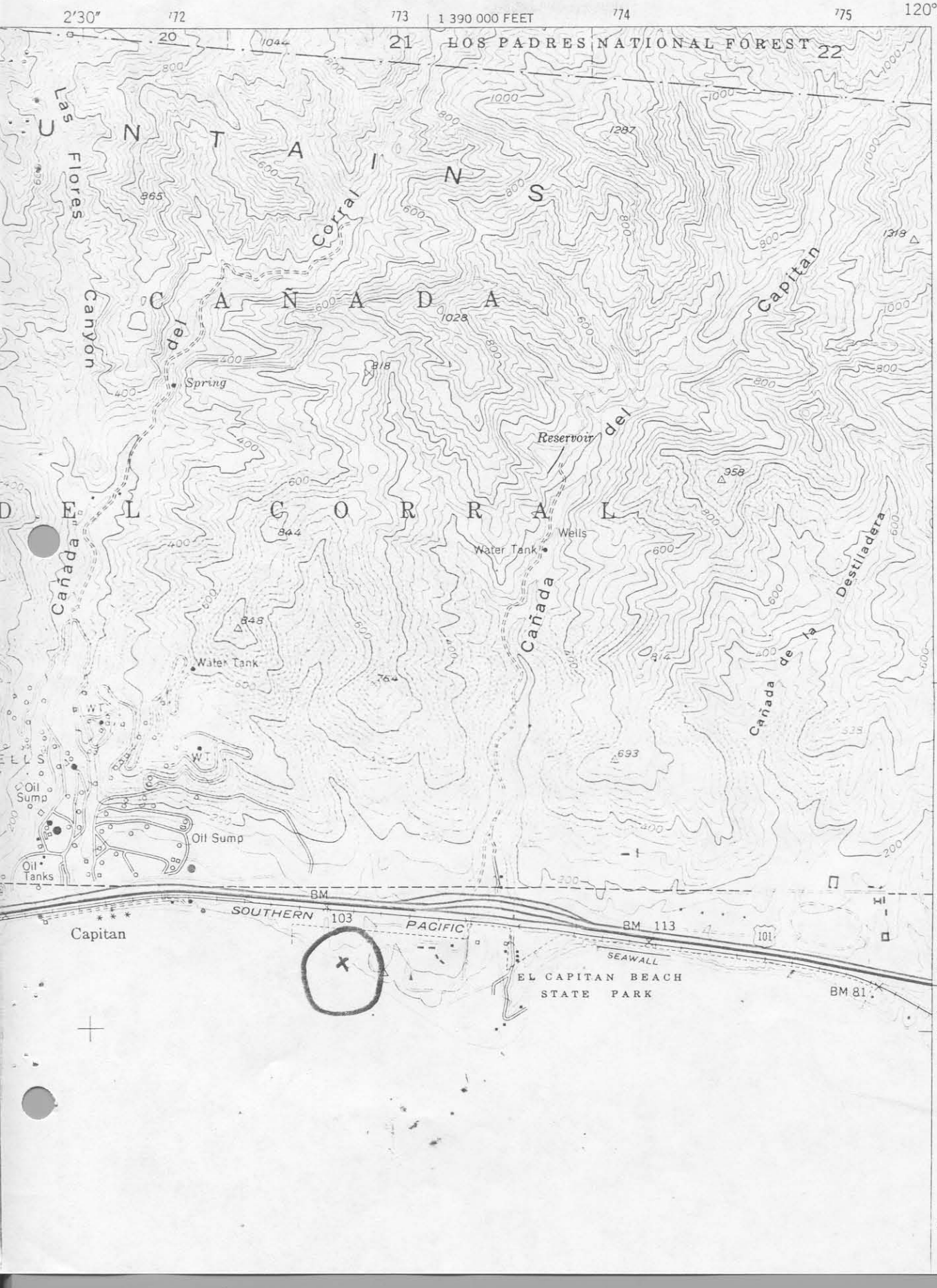
Daniel Preece

Daniel C. Preece, Superintendent
Gaviota District

Enclosures

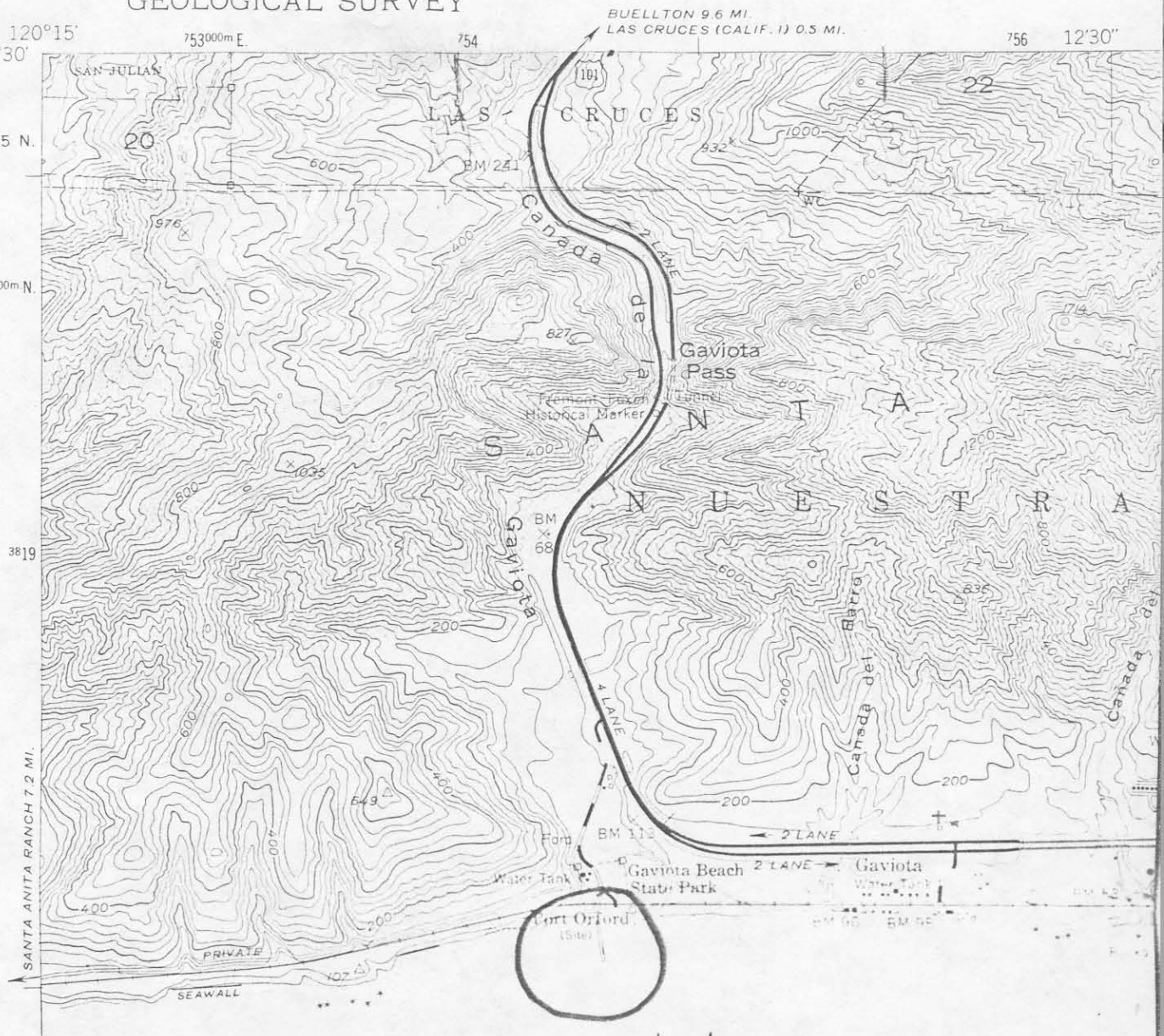
TAJIGUAS QUADRANGLE
CALIFORNIA—SANTA BARBARA CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

2053 III SW
(LAKE CACHUMA)



1953 (II SE)
(SANTA ROSA HILLS)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



Charted on 18721

Field Tide Note
OPR-L100-FA-84
Southern California

Los Angeles (Outer Harbor) served as the reference station for the predicted tides used for correctors on surveys H-10161, H-10164 and H-10165, as stated in the Project Instructions, OPR-L100-FA-84. The following tidal zone correctors were applied to the predicted tides from Los Angeles (Outer Harbor), as required by Section 5.9 of the Project Instructions:

Time Correctors:

High Water: +0 Hours 38 Minutes
Low Water: +0 Hours 36 Minutes

Height Ratio:

0.94 x predicted tide = new predicted tide for project

These correctors were included in the tide package provided by N/OMS 121 at the beginning of the project. The controlling tide gauge was Rincon Island, California (941-1270). Leveling and periodic maintenance of the primary gauge at Rincon Island is performed by Coast Survey Limited.

Predicted tide correctors were interpolated aboard FAIRWEATHER, using data from the 1984 West Coast Tide Tables and program AM 500 (Predicted Tide Generator), dated 10 November 1972.

All times of predicted and reported tides (from gauges) are expressed in Universal Coordinated Time (UTC). Predicted tides were acceptable for hydrography with no discrepancies in the data attributable to tide errors.

A back-up tide gauge (station # 941-1270B) was installed at the site of the primary gauge on Rincon Island (Lat. 32 20.9'N, Long. 119 26.6'W), for the purpose of providing controlling tidal data in case the primary gauge malfunctioned. This gauge was a Bristol Bubbler analog tide gauge (S/N 67A 10287) and had a range of 0 to 20 feet. It was installed on 4 October 1984 (JD 278) and was removed on 20 November 1984 (JD 325). The gauge was secured to the wooden dock platform across the road from the primary gauge, and just above the existing tide staff. The orifice was secured to the bottom of the existing staff, and for this reason no levels were run. (Note: 0.02 feet on the tide staff equals 0.0 feet on the Bubbler gauge).

The only problem encountered during the project occured when the change was made from Daylight Savings Time to Standard Time. For the first few days after this change, the gauge was running with the hour time difference applied in the wrong direction. This problem was corrected shortly afterwards when the next observation was made. All tidal data collected during this period can be corrected by simply applying the proper time difference.

Tidal data from this gage was sent to N/OMS 121 for comparison to the primary gage.

DATE: 03/28/85

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Pacific

OPR: L100

Hydrographic Sheet: H-10161

Locality: Santa Barbara Channel, Vicinity of Tajiguas, CA

Time Period: September 27 - November 4, 1984

Tide Station Used: 941-1270 Rincon Island, CA

Plane of Reference (Mean Lower Low Water): 4.10 ft.

Height of Mean High Water Above Plane of Reference: 4.7 ft.

Remarks: Recommended Zoning:

1) East of longitude 120°00.0' apply +10 minute time correction and x0.97 range ratio to all heights

2) West of longitude 120°00.0' apply +15 minute time correction and x0.94 range ratio to all heights

James R. Hubbard
Chief, Tidal Datums Section

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10161

Name on Survey	A ON CHART NO. Chart 18721 11th Ed.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
CALIFORNIA (title)										1
CAPITAN										2
GAVIOTA										3
SANTA BARBARA CHANNEL										4
TAJIGUAS										5
TAJIGUAS CREEK										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
					Approved:					18
										19
					Charles E. Harrington					20
					Chief Geographer - N/CG2x5					21
					5 FEB. 1985					22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 77-27(H)
(9-83)

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER: H-10161

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	8
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	28

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES						
ENVELOPES						
VOLUMES	3					
CAHIERS	1					
BOXES						

SHORELINE DATA

SHORELINE MAPS (List): Copy enlargement of TP-00919, TP-00920, TP-00950

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List): Enlargement of chart 18721 7th Ed.

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	*EVALUATION*	*TOTALS*
POSITIONS ON SHEET			3149
POSITIONS REVISED	124		124
SOUNDINGS REVISED	30		30
CONTROL STATIONS REVISED			0
	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	68		68
VERIFICATION OF SOUNDINGS	107.5		107.5
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	53		53
COMPARISON WITH PRIOR SURVEYS AND CHARTS		25	25
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT	4	28	31
GEOGRAPHIC NAMES			
OTHER* Digitizing			10
*USE OTHER SIDE OF FORM FOR REMARKS — TOTALS	232.5	53	294.5

Pre-processing Examination by C.R. Davies	*Beginning Date* 2/28/85	*Ending Date* 3/11/85
Verification of Field Data by L.T. Deodato, M. Sanders	*Time (Hours)*	*Ending Date* 10/2/85
Verification Check by S. Otsubo, B.A. Olmstead, J.S. Green	*Time (Hours)* 28.5	*Ending Date* 10/29/85
Evaluation and Analysis by G.E. Kay	*Time (Hours)* 53	*Ending Date* 10/29/85
Inspection by D.J. Hill	*Time (Hours)* 2	*Ending Date* 11/18/85

☆ U.S. GOVT. PRINTING OFFICE 1983: 764-006/6061

PACIFIC MARINE CENTER
EVALUATION REPORT
H-10161

1. INTRODUCTION

H-10161 was accomplished by NOAA Ship FAIRWEATHER in accordance with the following project instructions:

OPR-L100-FA-84, Southern California Coast, dated January 19, 1984
Change No. 1, dated January 31, 1984
Change No. 2, dated August 2, 1984

This is a basic survey situated in the Santa Barbara Channel between Gavioto to the west and Naples to the east. Depths range from a deep of 205 fathoms toward the center of the channel continuing gradually shoaler in shore to the one-fathom curve. The channel bottom is comprised of green mud and sand. Situated on the channel floor are numerous oil well heads that are connected by pipelines to shore. Along the entire shoreline seaward to the 10-fathom curve are large kelp beds. An inset (scale 1:10,000) has been provided on the smooth sheet to more clearly portray the area around the Getty Trading and Transportation Company marine terminal (as per Project Instructions Change No. 2, section 1.4).

The kelp limits portrayed on the smooth sheet were defined by the hydrographers comments in the raw records.

Predicted tides based on the Los Angeles Outer Harbor gage were used during field processing. Tide correctors used for the final reduction of soundings reflect hourly heights zoned from Rincon Island, California, (941-1270).

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic.

The velocity header was converted from feet to fathoms for this fathom survey. Electronic correctors have been revised during office processing to adjust Mini-Ranger rates to conform to the baseline calibration correctors. The revised data is listed in the smooth position/sounding printout.

A digital file for this survey has been generated and includes categories of information required to comply with N/CG2 Hydrographic Survey Guideline No. 23, Completion of Digital Hydrographic Surveys, September 7, 1983. Certain descriptive information, however, may not be included in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for complete information.

2. CONTROL AND SHORELINE

Hydrographic control and positioning are adequately discussed in the Descriptive Report (sections F and G), Horizontal and Electronic Control Reports for OPR-L100-FA-84.

Horizontal control station positions used during hydrography are published and preliminary adjusted field positions based on the North American datum of 1927.

Applicable reviewed (Class III) shoreline manuscripts (scale 1:20,000) and dates are as follows:

TP-00919, TP-00920, TP-00930, date of photography - October 1975 and March 1976, field edit was cancelled.

A pier located on TP-00919 at latitude 30°28'09" north, longitude 120°13'38" west was repositioned during this survey with detached positions acquired along the pier (position number 8008 to 8014). The offshore limit (length and position) has not been changed but its inshore orientation has been altered by the new positions. This pier is portrayed on the smooth sheet in red.

3. HYDROGRAPHY

Soundings at line crossings are in good agreement. The depth curves could be completely and adequately drawn except the zero curve. The cause of this problem is fully discussed in the hydrographer's report, section D, page 3, paragraph 1. Delineation of the bottom configuration and the determination of least depths are adequate.

4. CONDITION OF SURVEY

The hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change 3, except as noted in the Preprocessing Examination Reports, dated April 24, 1985.

5. JUNCTIONS

H-10161 junctions with the following surveys:

Survey	Year	Scale	Note	Color	Area
H-10164	1984	1:20,000	Joins	Red	East
H-10171	1985	1:20,000	Joins	Orange	West

The junctions have been adequately effected.

There are no contemporary surveys to the south, however, a comparison with charted depths reveals good agreement with the present survey.

6. COMPARISON WITH PRIOR SURVEYS

H-5624 (1933) 1:10,000
H-5625 (1933) 1:10,000
H-5626 (1933) 1:10,000
H-5830 (1933) 1:20,000

Present survey depths compare well with these prior surveys. For a more quantitative comparison refer to the Descriptive Report section K.

The following features were not investigated or located during the course of this survey and have been transferred onto H-10161.

Feature	Color	Latitude North	Longitude West	Source
rock	brown	34°27'00"	119°59'01"	H-5624
rock	brown	34°26'59"	119°58°58"	H-5624
rock	brown	34°26'59.5"	119°59'06"	H-5624
rock	brown	34°26'57"	119°59'17"	H-5624
rock	violet	34°28'14"	119°09'40"	H-5625
rock	violet	34°28'11"	120°12'23"	H-5625
rock	violet	34°28'13"	120°11'23"	H-5625
pier (centered at)	violet	34°27'38" AWOIS # 50715 28 02.59	120°12'18" 19.71	H-5623 (see DR pg 11 5 last para.)

H-10161 is adequate to supersede H-5624, H-5625, H-5626 and H-5830 within areas of common coverage.

7. COMPARISON WITH CHART

Chart 18721, 7th Edition, dated January 30, 1982; scale 1:100,000

a. Hydrography - Most charted information originates with the prior surveys discussed in section 6 of this report. Other soundings and charted features originate with miscellaneous sources. For more detail see section L of the hydrographer's report.

The following AWOIS items are classified as information items and were not specifically investigated. The survey neither verifies or disproves them and they should remain charted.

Feature	AWOIS Number	Charted Position: Latitude North	Charted Position: Longitude West
Well head	50684 NSP	34°26'13.00"	120°13'57.00"
Well head	50668 NSP	34°26'23.00"	120°13'39.00"
Well head	50661 NSP	34°26'05.00"	120°10'46.00"
Well head	50663 NSP	34°26'05.00"	120°10'14.00"
Well head	50664 NSP	34°25'55.00"	120°09'43.00"
Well head	50681 Splits Plotted	34°26'04.00"	120°09'34.00" 36 Feet
Well head	50667 NSP	34°26'07.00"	120°09'13.00"
Well head	50686 NOT INVEST	34°27'08.70"	120°08'49.90"
Well head	50662 Splits Plotted	34°26'16.00"	120°08'37.00"
Well head	50679 " "	34°25'44.00"	120°08'09.00"
Well head	50649 " "	34°25'56.00"	120°07'46.00"

AWOIS items ~~#50665~~, 50675, 50677, 50680 and 50716 were investigated and are adequately discussed in the Descriptive Report section L.

Geographic names appearing on the smooth sheet have been approved by the Chief Geographer and are plotted in accordance with this chart.

H-10161 is adequate to supersede charted hydrography within the common area.

There have been no dangers to navigation identified or reports submitted by the NOAA Ship FAIRWEATHER or the Pacific Marine Center, Nautical Chart Branch for this survey.

b. Controlling Depths - There are no controlling depths within the limits of this survey.

c. Aids to Navigation - There is one fixed and no floating aids within the limits of this survey.

The fixed aid is Hondo Light (Light List #510.05) surveyed at latitude 34°23'26.004" north, longitude 120°07'14.006" west. This aid is adequately charted and serves its intended purpose.

8. COMPLIANCE WITH INSTRUCTIONS

H-10161 adequately complies with the project instructions as amended and noted in section 1 of this report.

9. ADDITIONAL FIELD WORK

This is a good basic survey. No additional field work is recommended.

Gordon E. Kay
Cartographer

This survey has been examined and it meets Charting and Geodetic Services standards and requirements for use in nautical charting. The survey is recommended for approval.

Dennis Hill
Chief, Hydrographic Section

ATTACHMENT TO DESCRIPTIVE REPORT FOR H-10161

I have reviewed the smooth sheet, accompanying data, and reports of this hydrographic survey. Except as noted in the Evaluation Report, the hydrographic survey meets or exceeds Charting and Geodetic Services (C&GS) standards, complies with instructions, and is accurately and completely represented by the smooth sheet and digital data file for use in nautical charting.

David W. Kemp 12-6-85
Chief, Nautical Chart Branch (Date)

CLEARANCE: SIGNATURE AND DATE:

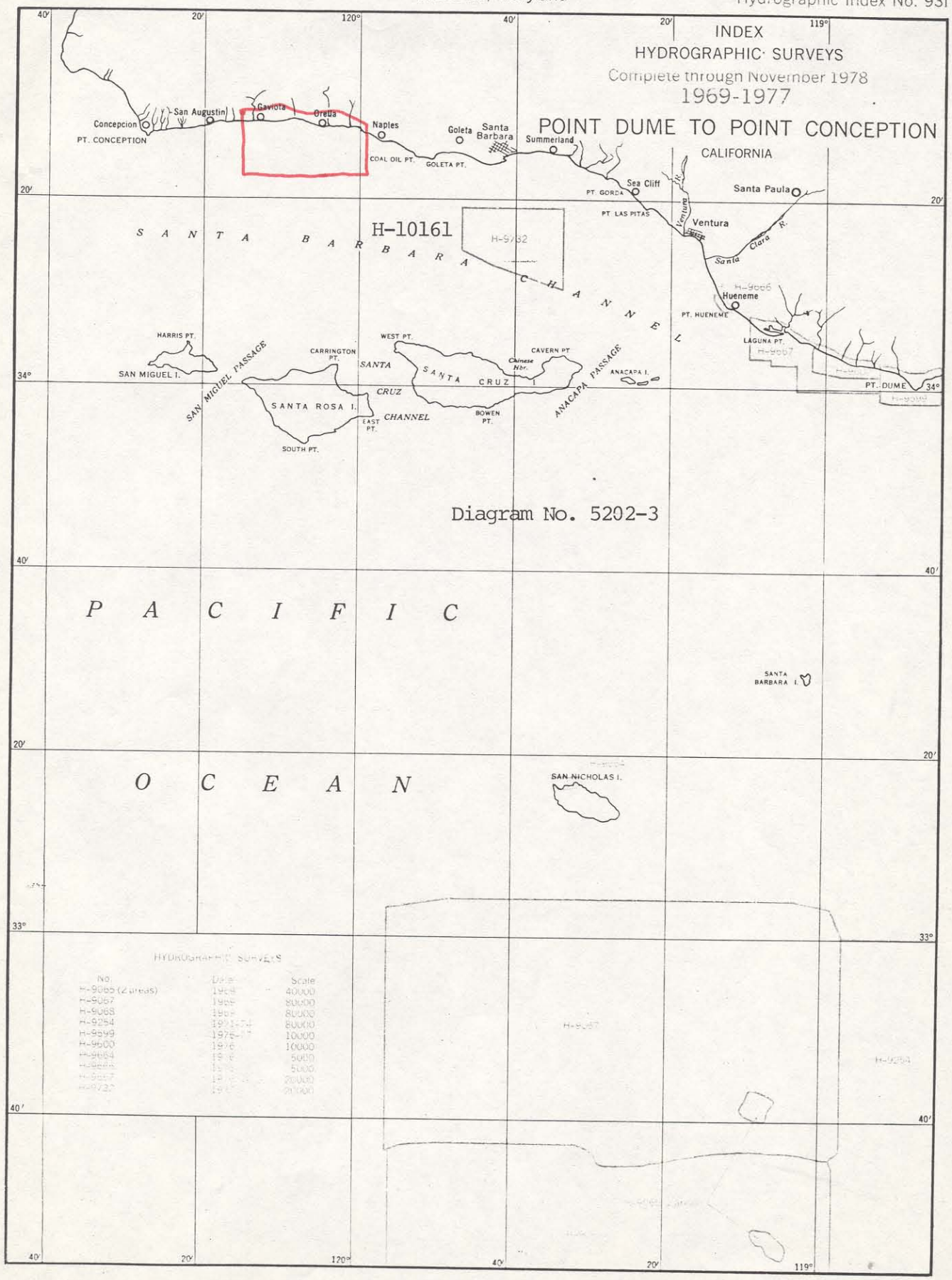
N/MOP2:LWMordock Larry W. Mordock 12-6-85

After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards with only the exceptions as noted above. The above recommendations are forwarded with my concurrence.

Robert L. Faulkner 12-6-85
Director, Pacific Marine Center (Date)

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 931



NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10161

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
18721	3-3-87	Maria Herrick	Full Part Before After Marine Center Approval Signed Via
			Drawing No. #9
18720	3-23-87	Maria Herrick	Full Part Before After Marine Center Approval Signed Via
			Drawing No. #37
18022	3-23-87	Maria Herrick	Full Part Before After Marine Center Approval Signed Via
			Drawing No. #45 ~~examined - no corrections except depth~~
			~~curve revision~~
18020	3-23-87	Maria Herrick	Full Part Before After Marine Center Approval Signed Via
			Drawing No. #35 examined - no correction
501	3/23/87	Robert S. House	Full ~~Part~~ ~~Before~~ After Marine Center Approval Signed Via Examined through
			Drawing No. 8 large ~~sc~~ scale chart, no
			correction
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.