

9065

Diag. Cht. No. 5101-3.

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. PF-40-1-69, PF-40-2-69
Office No. H-9065

LOCALITY

State CALIFORNIA
General Locality SOUTHWEST OF SAN CLEMENTE I.
Locality TANNER BANK AND CORTES BANK

1969

CHIEF OF PARTY
E. A. TAYLOR

LIBRARY & ARCHIVES

DATE 10/1/73

9065

HYDROGRAPHIC TITLE SHEET

H-9065

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. *combined with PF-40-2-69 on smooth plotting*
PF 40-1-69

State California

General locality ~~Channel Islands~~ Southwestward of San Clemente Island

Locality Tanner Bank and Cortes Bank

see supplemental title sheet

Scale 1:40,000

Date of survey March 11 through March 26, 1969
March 1969

Instructions dated January 13, 1969

Project No. OPR 411

Vessel USC&GSS PATHFINDER

Chief of party CAPT. E.A. Taylor, USESSA

Surveyed by Ship Personnel

Soundings taken by echo sounder, ~~hand lead, pole~~ Raytheon DE 723 and Precision Fathometer Recorder

Graphic record scaled by Ship Personnel

Graphic record checked by Ship Personnel

Positions Verified by James L. Stringham

Gerber Digital Plotter
Automated plot by TMG EDP Branch

Soundings ~~protracted~~ ^{verified} by James L. Stringham

Soundings in fathoms ~~XXXX~~ at ~~XXXX~~ MLLW

REMARKS:

Applied to atlas 12-11-73
CSB

315
5101

AK

9065

DESCRIPTIVE REPORT
BATHYMETRIC SURVEY

USC&GSS PATHFINDER
E. A. TAYLOR, COMMANDING

OPR-411, 1969
SCALE 1:40,000

A. PROJECT

The hydrography on this sheet was completed in accordance with the PROJECT INSTRUCTIONS: OPR-411, SOUTHERN CALIFORNIA, dated January 13, 1969, and Change No. 2, January 13, 1969. ✓

B. AREA SURVEYED

This survey is of Tanner Bank which is approximately ^{32 nautical miles SW of San Clemente Is.} 4.0 nautical miles south of San Nicolas Island. The hydrography extends from lat. 32° 40.8N to lat. 32° 42.8N and long. 119° 06.5W to long. 119° 09W and was completed on the 11 and 12 of March, 1969. ✓

This survey is in the middle of the contemporary survey ^{H-9067} PF 80-1-69 and of prior surveys number 6206 and 6207.

C. SOUNDING VESSEL

The entire survey was done by the ship (PATHFINDER).

D. SOUNDING EQUIPMENT

The Raytheon DE-723 fathometer and the Precision Fathometer Recorder were used for this survey. ✓

<u>UNIT</u>	<u>SERIAL</u>	<u>MODEL</u>
723-1	940	DE 723
PFR-2	22	PFR 195-1

E. SMOOTH SHEET

To be filled in by the smooth plotter at Pacific Marine Center. ✓

F. CONTROL

Control for this survey was by LORAC B electronic navigational system. The following equipment was supplied by the U. S. NAVY at Pt. Mugu, Calif. ✓

<u>UNIT</u>	<u>MODEL</u>	<u>SERIAL NO.</u>
receiver	RU-125-14A	19
indicator	RI-125-14AB	179
recorder	RO-91/SSN	42

Eight of the ships officers received 8 hours of training in the theory and operation of LORAC B at the Pacific Missile Range Facility, Pt. Mugu, California.

Calibration was performed in the normal manner for electronic surveys, with sextant angles. A 1:10,000 sheet of San Nicolas Island was used for calibration off of the island. The calibration was frequently checked at San Nicolas Island. ✓

G. SHORELINE

There was no shore line involved in the area of this survey. ✓

H. CROSSLINES

Crosslines constituted 14.2 percent of the sounding lines ran. ✓

I. JUNCTIONS

There was general agreement between the soundings on PF 80-1-69 and the soundings on PF 40-1-69. ✓
H-9067 H-9065

J. COMPARISON WITH PRIOR SURVEY

Comparison with prior surveys numbered 6206 and 6207 revealed the same trend in depth curves. ✓
This survey agrees very well with the prior surveys.

K. COMPARISON WITH THE CHART

H-3065 *at 432°42.0' R 119°07.9' from NMT(1946)*
A comparison between PF 40-1-69 and C&GS Chart 5101 (9th Ed., Jan 31/66) was made. Tanner Bank had a reported 9 fathom depth which was ~~not found~~ ^{verified} in this survey. For approximately 8 hours the ship ran a system of crosslines over the regular system of the survey to locate the reported 9 fathom shoal. This survey agrees very well with charted depths and it is recommended that the reported depth of 9 fathom be removed from the chart. The soundings were corrected for predicted tide only. *see Reviewers notes*

L. ADEQUACY OF SURVEY

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

M. AIDS TO NAVIGATION

There are no aids to navigation within the limits of this survey.

N. STATISTICS

<u>Naut. Mi.</u> <u>Sdg. Ln.</u>	<u>Number of</u> <u>Fixes</u>	<u>Square</u> <u>Naut. Mi.</u>
72.7	157	5.7

O. MISCELLANEOUS

None

P. RECOMMENDATIONS

See section K.

Q. REFERENCES

Lorac report-1969-USC&GSS Pathfinder
Fathometer report-1969-USC&GSS Pathfinder
Annual report-1969-USC&GSS Pathfinder

Respectfully submitted

Richard S. Young
Richard S. Young
LT(jg) USESSA

Approved and forwarded:

J. D. Stachelhaus
J. D. Stachelhaus
LT USESSA
Field Operations Officer
USC&GSS Pathfinder

TIDE NOTE

The standard tide gage at Los Angeles, California served as the reference station to control hydrography. Hourly heights were furnished by the bureau headquarters. Time correction of +15 minutes and range ratio of .9 are to be applied to the Los Angeles tides. ✓

TIDE NOTE FOR HYDROGRAPHIC SHEET

August 1, 1969

~~National Ocean Service~~ Pacific Marine Center

Plane of reference approved ~~in~~
~~XXXXXXXXXXXXXXXXXXXX~~ for two Tide Tape Printouts, OPR 411

HYDROGRAPHIC SHEET

Locality: Vicinity of Santa Cruz Island, California

Year
~~XXXXXXXX~~ 1969

Plane of reference is mean lower low water

Tide Station Used (Form C&GS-681):

Los Angeles (Berth 60)

Height of Mean High Water above Plane of Reference ^{at the working grounds} is as follows:

4.3 feet

Remarks

J. M. Simmons
Chief, Tides and Currents Branch

UNITED STATES GOVERNMENT

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

Memorandum

TO : Fathometer Corrections Officer
USC&GSS PATHFINDER

DATE: 12 May 1969

FROM : Oceanographic Officer
USC&GSS PATHFINDER

In reply refer to:
Data from Oceo. Sta.
#1, #2, and #3.

SUBJECT: Velocity Corrections for OPR-411 off of Southern California.

Serial temperature and salinity observations for the determination of velocity corrections were taken at three oceanographic stations:

Station #1 - 19 Feb 1969, Lat. $33^{\circ}00.4'N$, Long. $119^{\circ}06.4'W$.
Station #2 - 19 Mar 1969, Lat. $32^{\circ}13.6'N$, Long. $119^{\circ}16.7'W$.
Station #3 - 16 Apr 1969, Lat. $32^{\circ}25.5'N$, Long. $119^{\circ}35.5'W$.

Due to the fact that for any given depth it was found that the velocity correction difference between any 2 oceanographic stations was less than 0.5% of the depth, the following velocity corrections, determined at station #1 should be applied to the depth soundings on all boat sheets of OPR-411 for the entire working season, i.e., from 14 February 1969 through 24 April 1969.

Michael Kawka
Michael Kawka
LTJG USESSA
Greg Holloway
Greg Holloway
ENS USESSA





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

Oceanographic Station #1

12 May 1969

Correction to (fms)	Depth (fms)	Correction to (fms)	Depth (fms)
0.0	4.6	5.5	400.0
+0.1	8.0	6.0	433.0
0.2	12.5	6.5	478.0
0.3	16.5	7.0	511.0
0.4	20.5	7.5	558.0
0.5	24.5	8.0	590.0
0.6	28.6	8.5	630.0
0.7	35.0	9.0	661.0
0.9	44.8	9.5	702.0
1.1	56.1	10.0	731.0
1.2	67.5	10.5	770.0
1.5	79.8	11.0	802.0
1.7	92.2	11.5	830.0
1.9	101.3	12.0	853.0
2.0	122.5	12.5	881.0
2.5	159.0	13.0	906.0
3.0	192.0	13.5	933.0
3.5	240.0	14.0	958.0
4.0	283.0	14.5	986.0
4.5	317.0	15.0	1000.0
5.0	352.0		

APPROVAL SHEET

REGISTRY NO. _____ (PF 40-1-69)

The hydrographic sheet has been examined and approved. The survey is considered complete and adequate for charting purposes and no additional field work is recommended. ✓



E. A. TAYLOR
CAPT. USESSA
CMDG. SHIP PATHFINDER

HYDROGRAPHIC TITLE SHEET

H-9065

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.

PF 40-2-69

State California

General locality ~~Channel Islands~~ Southwestward of San Clemente Island

Locality Cortes Bank

Scale 1:40,000

Date of survey March 1969

Instructions dated 13 January 1969

Project No. OPR-411

Vessel Ship PATHFINDER and Launch 1.

Chief of party CAPT E.A. Taylor

Surveyed by ship's personnel

Soundings taken by echo sounder, ~~hand lead, pole~~ Raytheon DE-723 and Precision Fathometer Recorder

Graphic record scaled by Ship Personnel

Graphic record checked by Ship Personnel

Positions verified by

~~Protracted~~ by James L. Stringham

Automated plot by PMC-BDP Branch

Gerber Digital Plotter

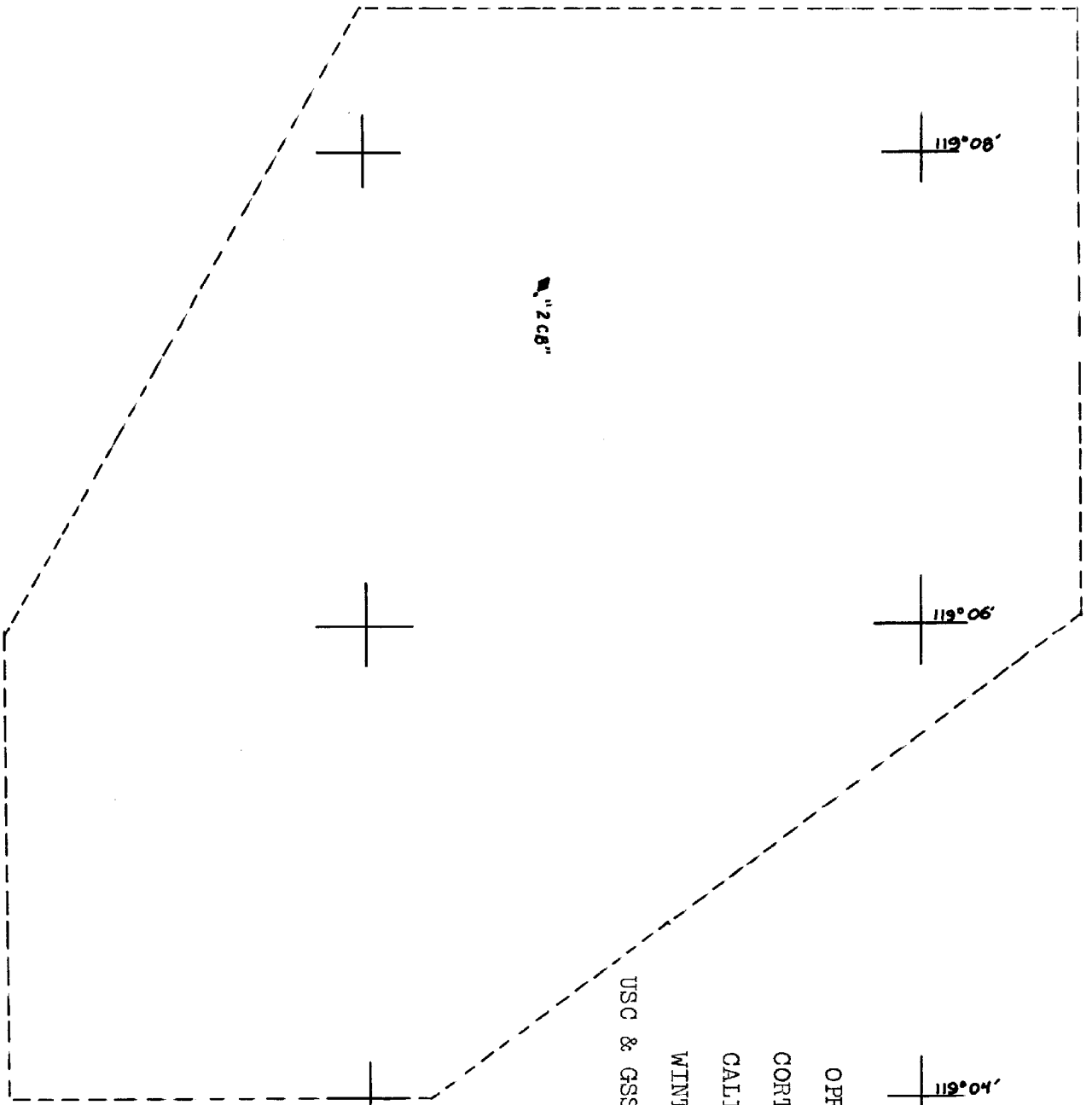
verified

Soundings ~~protracted~~ by James L. Stringham

Soundings in fathoms ~~XGT~~ at ~~MLLW~~ MLLW

REMARKS:

PROJECT LIMITS



2 CG

119°08'

119°06'

119°04'

32°26'

32°26'

OPR - 4111
CORTEES BANK
CALIFORNIA
WINTER 1969
USC & GSS PATHFINDER

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY PF 40-2-69
CORTES BANK, SOUTHERN CALIFORNIA
U.S.C. & G.S.S. PATHFINDER
OPR-411
CAPT. E. A. TAYLOR, CMDG.

A. PROJECT

This project was done in accordance with instructions dated 13 January 1969 and Change #2 dated 13 January 1969. ✓

B. AREA SURVEYED

The area surveyed is located 40 n.m. southwest of San Clemente Island in the Channel Islands area of Southern California. Because of the irregular shape of the section of Cortes Bank covered by PF 40-2-69, the survey is bounded by lines connecting the following points: ✓

32°26.2'N	119°04.0'W
32°24.7'N	119°04.0'W
32°24.7'N	119°06.0'W
32°26.0'N	119°08.6'W
32°28.6'N	119°08.6'W
32°28.6'N	119°06.0'W

Thence along a line to the starting point at 32° 26.2'N 119° 04.0'W.

The sheet junctions with contemporary survey PF 80-2-69 and ^{H-9068} surveys ^{overlaps} number 6207 (1936 1:20,000) and 6206 (1936 1:40,000). This report only covers that part of Cortes Bank on PF ^{H-9068} 40-2-69 around buoy "2CB" with the rest of Cortes Bank being included on PF ^{H-9068} 80-2-69. The ship operated over the area from 3 March to 26 March, and ML#1 operated 16 March and 25 March. ✓

C. SOUNDING VESSEL

Motor launch #1 (blue position numbers on boat sheet) and the Ship PATHFINDER (green position numbers) were used as sounding vessels for the area. ✓

D. SOUNDING EQUIPMENT

Raytheon DE-723 echo sounders were used by the launch and PATHFINDER. Motor launch #1 used echo sounder #935 and the PATHFINDER used #940. No problems were encountered with any of the fathometers.

* See ~~verification~~ *verification* Report

E. SMOOTH SHEET

The smooth sheet will be made using electronic processing.

F. CONTROL

LORAC-B was used exclusively for horizontal control. The system is operated by the Pacific Missile Range and is described in LORAC-B Report: Operation 411 1969 Field Season which is a separate report and is not included in this descriptive report.

The launch LORAC set was calibrated at the start and end of each day of hydrography on buoy "2CB" whose position was known. The location of the buoy was determined by bringing the ship up to the buoy after having calibrated the ship at San Nicolas Island using sextants. No LORAC strip chart recorder was available to put in the launch.

The part of the survey on PF ^{H-9065}40-2-69 done by the PATHFINDER was transferred from the smaller scale contemporary sheet PF ~~80-2-69~~ ^{H-9065}80-2-69. Because of the expansion factor due to different scales, some of the distances between fixes on PF 40-2-69 are greater than the 1 1/3 to 1 1/2 inches described in the Hydrographic Manual. This happened between fixes (784-785), (805-806), (822-823), (826-828), (843-844), (1292-1294), (1297-1299), (1313-1315), (1420-1422).

The shipboard LORAC was calibrated when there was doubt as to the position of the ship when lanes were lost or gained.

G. SHORELINE

The entire area is offshore.

H. CROSSLINES

Motor launch #1 ran 9.3 n.m. of crosslines^{Pos. 62-79} and the PATHFINDER ran none. Of the number of miles of hydrography run, 11.4% were crosslines. One discrepancy of 8 fm. was found at the 12th sounding out from fix #805. ~~Ten~~ depth on the crossline was 24 fm. and that on the regular line was 32 fm. Although there are no sharp rises in the bottom at this point indicated on the fathogram, the bottom at Cortes Bank is irregular.

No other crosslines intersect with the line bounded by fixes 805-806. This discrepancy was not resolved. To resolve this discrepancy, it will be necessary to use the smooth sheet plot as all the soundings will have been adjusted for their proper positions.

I. JUNCTIONS

Comparison of depths at the junction with contemporary sheet PF 80-2-69 can only be done when the smooth sheets have been plotted because the positions of the soundings have yet to be adjusted for their proper positions. The lane adjustments have been prepared on corrector tapes to the regular sounding lines (See the LORAC calibration addendum attached to this report.)

H-9068

There appears to be good agreement with prior surveys 6207 (1936 1:20,000) and 6206 (1936 1:40,000).

K. COMPARISON WITH CHART

Soundings on this boatsheet and chart 5101 appear to agree. Chart 5101 is the only chart available having Cortes Bank on it.

Cortes Bank also on Chart 5020...

L. ADEQUACY OF SURVEY

This survey is considered adequate to supersede prior surveys.

M. AIDS TO NAVIGATION

There are two buoys located over Cortes Bank. One is a lighted whistle buoy (ZCB) and the other is a red nun station keeping buoy with no lights or whistle located 500 yards NNW of the whistle buoy. The whistle buoy is listed in the latest edition of the Coast Pilot, but the nun buoy is not. Lighted whistle buoy now designated as R² per LNM 19(72)

L.L.D. (378)

See Review Notes

N. STATISTICS

<u>Vessel</u>	<u>Number of Positions</u>	<u>N.M. Sounding Line</u>
PATHFINDER	70	46.4
Motor Launch #1	80	35.6
	TOTAL	82.0

Number of detached positions: 1 (MI#1 fix #80 sunken wreck) Square n.m. enclosed by boundaries: 11.7 *There are three detached positions*

- Pos #1 rock awash MLLW*
- #16 whistle buoy (ZCB)*
- #80 sunken wreck*

Square n.m. covered by hydrography: 8.1
Tide gauge: 1 (Los Angeles)
Bottom samples: 0
Magnetic observations: 0

O. MISCELLANEOUS

A dangerous submerged wreck about 100 feet in length and resting on its side in a north-south direction is located at ^{by sp# 80} 32°27.1'N 119°07.8'W. It is about 900 yards bearing 322° true from lighted whistle buoy "2CB". This wreck is described on a separate sheet attached to the end of this report. *This wreck is 931 yds on a bearing of 338° from the revised position of this buoy.*

See Review Notes ✓

P. RECOMMENDATIONS

It is still necessary to compare soundings at junctions once the smooth sheets have been made for PF 80-2-69 and PF 40-2-69.
H-9068 H-9065

Q. REFERENCES TO REPORTS

Descriptive Report for PF 80-2-69
LORAC-B Report: Operation 411 1969 Field Season
1969 Fathometer Report USC&GSS PATHFINDER

Respectfully submitted,

Kenneth E. Lilly Jr.

Kenneth E. Lilly, Jr.
ENS USESSA

Approved and Forwarded

J.D. Stachelhaus
J.D. Stachelhaus
LT USESSA
Acting Field Operations Officer
USC&GSS PATHFINDER

SUBMERGED WRECK ON CORTES BANK

PF 40-2-69
March 1969

On 25 March 1969 at 1145 PST, ⁰⁸⁴ an investigation of a dangerous wreck ^{at pos. 80} was made over Cortes Bank using motor launch #1 from the Ship PATHFINDER. Many passes were made over the wreck, during which time the launch was allowed to drift across the area and leadline soundings were made. On one pass, the launch rose on a swell and settled on top of the wreck before being washed off again. It was noticed that waves broke over the wreck as the tide lowered, forming eddies and breakers that were easily visible. Approximately one hour was spent on the examination, and LORAC-B was used for control.

However, because the wreck is only 100 feet or so in length, trying to determine its exact length with LORAC-B was not possible. At the time of the observation, the sea was relatively calm with only three-foot swells. The water was clear, allowing those on board the launch to observe the wreck. It appears that the ship is resting on its side in a north-south direction. Part of a railing was visible near the shoalest part where a minimum dept of 4.0 feet was obtained with a leadline. ^{at pos. 80} ~~Wreck covered 3.4 ft or 0.5 fm.~~

The location of the wreck is $32^{\circ}27.1'N$ $119^{\circ}07.6'W$ bearing 322° true, range 900 yards, from lighted whistle buoy "2CB".

This pos differs from that on NM 17(67) of $\phi 32^{\circ}26.6'$ R. $119^{\circ}07.3$

Kenneth E. Lilly Jr.

Kenneth E. Lilly, Jr.
ENS USESSA
Junior Officer Aboard
ML#1 25 March 1969

TIDE NOTE

The standard tide gauge at Los Angeles, California was used as the reference station for all the hydrography. The 120°W time meridian was used throughout the whole project. All soundings plotted on PF 40-2-69 ~~boatsheet~~ *Cortes Bank* were reduced using predicted tides by application of a +15 minute time correction and a range ratio of 0.9 to the Los Angeles tides. Hourly heights are to be furnished by the Washington Office.

UNITED STATES GOVERNMENT

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

Memorandum

TO : Fathometer Corrections Officer
USC&GSS PATHFINDER

DATE: 12 May 1969

FROM : Oceanographic Officer
USC&GSS PATHFINDER

In reply refer to:
Data from Oceo. Sta.
#1, #2, and #3.

SUBJECT: Velocity Corrections for OPR-411 off of Southern California.

Serial temperature and salinity observations for the determination of velocity corrections were taken at three oceanographic stations:

Station #1 - 19 Feb 1969, Lat. $33^{\circ}00.4'N$, Long. $119^{\circ}06.4'W$.
Station #2 - 19 Mar 1969, Lat. $32^{\circ}13.6'N$, Long. $119^{\circ}16.7'W$.
Station #3 - 16 Apr 1969, Lat. $32^{\circ}25.5'N$, Long. $119^{\circ}35.5'W$.

Due to the fact that for any given depth it was found that the velocity correction difference between any 2 oceanographic stations was less than 0.5% of the depth, the following velocity corrections, determined at station #1 should be applied to the depth soundings on all boat sheets of OPR-411 for the entire working season, i.e., from 14 February 1969 through 24 April 1969.

Michael Kavka
Michael Kavka
LTJG USESSA

Greg Holloway
Greg Holloway
ENS USESSA

(1 of 2)

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN





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

Oceanographic Station #1

12 May 1969

Correction to Depth (fms)	Depth (fms)	Correction to Depth (fms)	Depth (fms)
0.0	4.6	5.5	400.0
+0.1	8.0	6.0	433.0
0.2	12.5	6.5	478.0
0.3	16.5	7.0	511.0
0.4	20.5	7.5	558.0
0.5	24.5	8.0	590.0
0.6	28.6	8.5	630.0
0.7	35.0	9.0	661.0
0.9	44.8	9.5	702.0
1.1	56.1	10.0	731.0
1.3	67.5	10.5	770.0
1.5	79.8	11.0	802.0
1.7	92.2	11.5	830.0
1.9	101.3	12.0	853.0
2.0	122.5	12.5	881.0
2.5	159.0	13.0	906.0
3.0	192.0	13.5	933.0
3.5	240.0	14.0	958.0
4.0	283.0	14.5	986.0
4.5	317.0	15.0	1000.0
5.0	352.0		

LORAC CALIBRATION

The Navy's LORAC electronic positioning equipment was installed aboard ship at Port Hueneme, California. The system was calibrated at dockside by scaling the appropriate lane count from a large scale Pacific Missile Range (PMR) sheet. The ship departed from Port Hueneme and sailed to the vicinity of San Nicolas Island where the calibration values were again determined by three point sextant fixes on the various objects listed below. The visual fixes were plotted on a PMR sheet of approximately 1: 27000 scale. The PMR sheet was of the same poor quality paper as the project boatsheets provided by PMR. A discrepancy was noted between the two calibration sites which was not resolved until a 1 : 10000 scale calibration sheet was ordered from PMC and the LORAC curves hand drawn on it. The discrepancy was resolved to be a combination lane loss during the ship's transit time from Port Hueneme and the poor quality-small scale PMR calibration sheet. After resolving the above mentioned problems the calibrations between the two sites agreed well.

A LORAC position was carried from San Nicolas Island to the lighted whistle buoy "2CB" located on Cortes Bank. This buoy was used frequently to determine whole lane count during the survey.

Control for Visual Fixes

Navigation Light (East end of San Nicolas Is.)

	Lat.	Long.
obtained from PMR	33-13-50.07	119-26-03.47

Navigation Light (Northern side San Nicolas Is.)

	Lat.	Long.
obtained from PMR	33-15-31.16	119-27-53.38

Radome " " "	33-14-50.79	119-31-26.66
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Radar Dish " " "	33-14-06.59	119-29-35.45
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San Nicolas Island Beacon (C&GS)	33-14-21.30	119-30-15.16
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LORAC Calibration Values

Feb. 14, 045 day, 2245 time.	-0.14 Green	-0.24 Red
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until

Mar. 11, 070 day, 0131 time.	-0.04 Green	-0.32 Red
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until

Mar. 26, 085 day, 1725 time.	-0.09 Green	-0.13 Red
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till completion

An electronic control format-corrector tape was prepared combining the partial lane calibration corrections as listed above, the whole lane calibration errors resolved from the above mentioned discrepancy, logging errors found when checking the raw data tapes, and whole lane errors found by scanning the LOCAC brush chart records.

LORAC Station Positions and Frequencies

Reference Station (San Nicolas Island) (100)	Lat. 33-14-40.718 Long. 119-30-28.172 Elev. 859.03 ft.	1736.000 KC
Red Station (R ₂) (San Clemente) (200)	Lat. 32-59-06.904 Long. 118-33-11.376 Elev. 710.13 ft.	1784.685 KC
Center Station (Pt. Mugu) (300)	Lat. 34-05-21.351 Long. 119-03-52.708 Elev. 6.92 ft.	1785.000 KC
Green Station (R ₁) (Point Drake) (400)	Lat. 34-28-07.4604 Long. 120-18-04.2304 Elev. 140.68 ft.	1785.135 KC

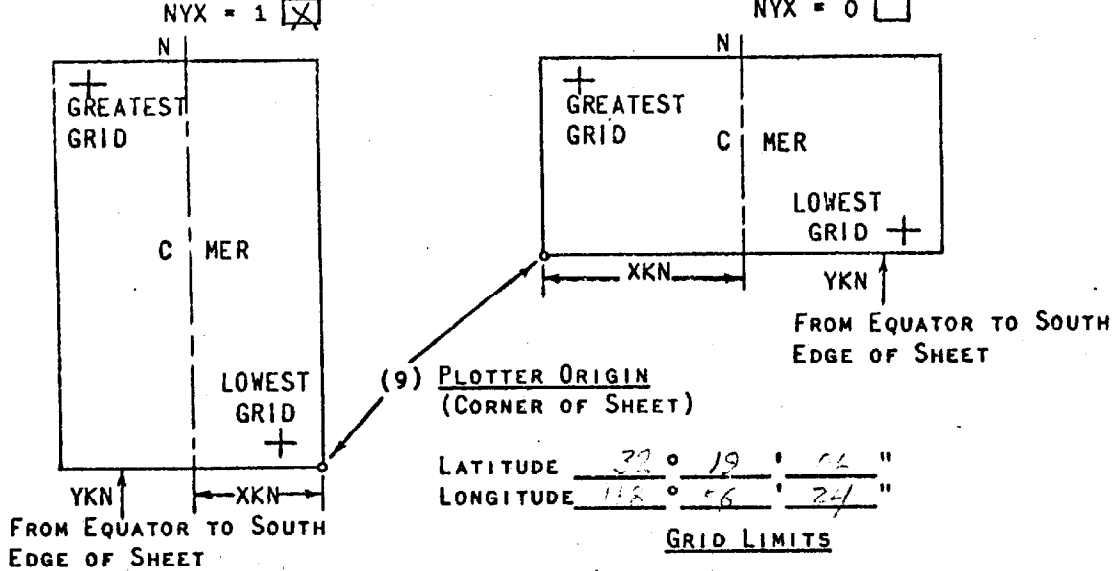
LORAC

FORM # 1

FIG. 15

PARAMETERS FOR DIGITAL COMPUTING
POLYCONIC PROJECTION

- (1) PROJECT No. OPR-411 (4) REQUESTED BY _____
- (2) H No. H-9065 (5) SHIP OR OFFICE Ver. Br.
- (3) FIELD No. PF-40-142-69 (6) DATE REQUIRED _____
- (7) VISUAL (8) ELECTRONIC (FILL OUT FORM #3)
- (10) XKN (SP 5) DISTANCE FROM CMER TO EAST EDGE (NYX = 1)
OR WEST EDGE (NYX = 0). 18205.968 METERS
- (11) YKN (SP 241) DISTANCE FROM EQUATOR TO SOUTH EDGE
OF SHEET. 3576.96345 METERS
- (12) CENTRAL MERIDIAN 119° 08' 60"
- (13) SURVEY SCALE 1: 40,000
- (14) SIZE OF SHEET (CHECK ONE) 36x54 42x60 OTHER
- (15) NYX, ORIENTATION OF SHEET (CHECK ONE)
NYX = 1 NYX = 0



- (16) GREATEST LATITUDE 32° 48' 00" (PROJECTION LINE
- (17) LOWEST LATITUDE 32° 20' 00" INTERVAL, PAGE 4
- (18) DIFFERENCE ° 28' HYDRO MANUAL)
- (19) _____ "
- (20) 14 YSN
- (21) GREATEST LONGITUDE 119° 18' 00"
- (22) LOWEST LONGITUDE 118° 53' 00"
- (23) DIFFERENCE ° 25' 00"
- (24) 22' 00"
- (25) 10 XSN

COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

Hyperbolic
(~~RANGE~~ - ~~RANGE~~)

- (1) Project No. OPP-411 (2) H. No. H-9065 (3) Field No. PF-40-142-69
- (4) Type of Control: SHORAN, RAYDIST, HI-FIX, RADAR X LORAC
Frequency (for conversion of RAYDIST or HI-FIX lanes to meters) 1736.0 Kc
- (5) ~~RANGE ONE (R1)~~ ^{R1C} PT. MUGU Latitude 34° 05' 21.351"
Station Name Center Sta. Longitude 119° 03' 52.706"
- (6) ~~RANGE TWO (R2)~~ ^{R1} PT. DRAKE Latitude 34° 28' 07.4606"
Station Name GREEN Sta. Longitude 120° 18' 04.2304"
- (7) Azimuth from R1 to R2 0 ' ' "
- (8) Baseline Length in Meters _____ M.
- (9) Location of survey with respect to Electronic Baseline: CHECK ONE
(To determine: imagine an observer standing at R1 and looking directly at R2 --- if the survey area is to the observer's LEFT then A is negative; if the survey area is to the observer's RIGHT then A is positive.)

_____ -A (minus) _____ +A (plus)

- (10) if SHORAN corrections are applied by the equation, $K(X) + C = D$, where X is SHORAN distance and D is true distance, enter the Constant Coefficients of the equations here:

K(R1) _____, C(R1) _____, K(R2) _____, C(R2) _____.

- (11) Number of Velocity Tables to be used:

_____ None, _____ One, _____ More than one.

- (12) _____ This form is submitted only as an aid in preparing a boat sheet projection.

_____ This form applies to all data on this survey.

_____ This form applies to part of the data on this survey -

Time and Date limitations: From _____ To _____

Position Number Limitations: From _____ To _____

This is Form #3 Sheet # _____ of _____ Sheets for this survey.

- (13) Other Remarks:

COMPUTER PARAMETERS FOR ELECTRONICALLY CONTROLLED SURVEYS

Hyperbolic
(RANGE - RANGE)

- (1) Project No. OPR-411 (2) N. No. H-9065 (3) Field No. PF-40-142-69
- (4) Type of Control: SHORAN, RAYDIST, HI-FIX, RADAR X LORAC
Frequency (for conversion of RAYDIST or HI-FIX lanes to meters) 1736.0 KC
- (5) ~~RANGE ONE (R1)~~ R1C PT. MUGU Latitude 34° 05' 21.351"
Station Name Center Sta. Longitude 119° 03' 52.708"
- (6) ~~RANGE TWO (R2)~~ SAN CLEMENTE Latitude 32° 59' 06.904"
Station Name Red Sta. Longitude 118° 33' 11.376"
- (7) Azimuth from R1 to R2 0' "
- (8) Baseline Length in Meters _____ M.
- (9) Location of survey with respect to Electronic Baseline: CHECK ONE
(To determine: imagine an observer standing at R1 and looking directly at R2 --- if the survey area is to the observer's LEFT then A is negative; if the survey area is to the observer's RIGHT then A is positive.)
_____ -A (minus) _____ +A (plus)
- (10) if SHORAN corrections are applied by the equation, $K(X) + C = D$, where X is SHORAN distance and D is true distance, enter the Constant Coefficients of the equations here:
K(R1) _____, C(R1) _____, K(R2) _____, C(R2) _____.
- (11) Number of Velocity Tables to be used:
_____ None, _____ One, _____ More than one.
- (12) _____ This form is submitted only as an aid in preparing a boat sheet projection.
_____ This form applies to all data on this survey.
_____ This form applies to part of the data on this survey -
Time and Date limitations: From _____ To _____
Position Number Limitations: From _____ To _____
This is Form #3 Sheet # _____ of _____ Sheets for this survey.
- (13) Other Remarks:

APPROVAL SHEET

REGISTRY NO.

(PF 40-2-69)

This descriptive report has been examined and approved.

E. A. Taylor

E. A. TAYLOR
Capt. USESSA
USC&GSS PATHFINDER, Cmdg.

TIDE NOTE FOR HYDROGRAPHIC SHEET

August 1, 1969

~~Navy Hydrographic Office~~ Pacific Marine Center

Plane of reference approved ~~for publication~~ for two Tide Tape Printouts, OPR 411

HYDROGRAPHIC SHEET

Locality: Vicinity of Santa Cruz Island, California

Year
~~1968~~ 1969

Plane of reference is mean lower low water

Tide Station Used (Form C&GS-681):

Los Angeles (Berth 60)

Height of Mean High Water above Plane of Reference, ^{at the working grounds} is as follows:

4.3 feet

Remarks

J M Simmons
Chief, Tides and Currents Branch

GEOGRAPHIC NAMES

Survey No. H-9065

Name on Survey											
	A	B	C	D	E	F	G	H	K		
BISHOP ROCK											1
CORTES BANK											2
PACIFIC OCEAN											3
TANNER BANK											4
											5
											6
											7
											8
											9
											10
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25
											26
											27

Approved by:
 Chas. E. Harrington
 Staff Geographer
 29 March 1974

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-9065

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET & PNO		1	BOAT SHEETS		2	
DESCRIPTIVE REPORT		2	OVERLAYS		6	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
Records			X			
Envelopes	X					
VOLUMES	3					
Envelopes Raw Data, Abstracts,			1 & Misc Data, Bathograms			X
T-SHEET PRINTS (List) Brush Recordings						

SPECIAL REPORTS (List)

LORAC REPORT 1969 USC&GSS PATHFINDER OPR-411

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				310
POSITIONS CHECKED		308		
POSITIONS REVISED		80		
DEPTH SOUNDINGS REVISED		30		
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS				
JUNCTIONS		16		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		41		
SPECIAL ADJUSTMENTS		16		
ALL OTHER WORK		80		
TOTALS		153	310	
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
VERIFICATION BY <i>James L. Stringham</i> James L. Stringham	5/15/72		9/21/73	
REVIEW BY <i>J. T. Gallahan</i>	10-10-74		2-2-75	

Insp. Romesburg 42 hr 2-13-76 * U.S. G.P.O. 1972-769-562/439 REG.#6

Reg. No. H-9065

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

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

CARDS CORRECTED

DATE _____ TIME REQ'D _____ INITIALS _____

REMARKS:

Reg. No. _____

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

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

MAGNETIC TAPE CORRECTED

DATE _____ TIME REQ'D _____ INITIALS _____

REMARKS:

H-9065

Items for Future Presurvey Reviews

Tanner Bank and Cortes Bank

Any future survey in these areas should include the following:

1. Verification of least depth with leadline soundings.
2. Bottom samples on Tanner and Cortes Bank.
3. Adequate development of the isolated 20-fathom shoal at latitude $32^{\circ}41.61'$, longitude $119^{\circ}09.30'$ on Tanner Bank and more accurate positions and least depths on Bishop Rock and the sunken wreck on Cortes Bank.
4. Development of the holiday area on Cortes Bank that extends in an approximate north-south direction at longitude $119^{\circ}06.7'$. *Prior soundings have been carried forward in this area.*

<u>Position Index</u>		<u>Bottom Change</u>	<u>Use</u>	<u>Resurvey</u>
<u>Lat.</u>	<u>Long.</u>	<u>Index</u>	<u>Index</u>	<u>Cycle (Years)</u>
324	1191	1	0	50
322	1191	1	0	50

OFFICE OF MARINE SURVEYS AND MAPS
MARINE SURVEYS DIVISION
HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO.: H-9065

FIELD NO.: PF-40-1-69
PF-40-2-69

California, Southwest of San Clemente Island, Tanner Bank and Cortes Bank

SURVEYED: March 3 - 26, 1969

SCALE: 1:40,000

PROJECT NO.: OPR-411

SOUNDINGS: DE-723 Depth Recorder
EDO Precision Fathometer

CONTROL: LORAC-B

Chief of Party E. A. Taylor
Surveyed by J. W. Bricker
..... D. A. Danner
..... M. Kawka
..... K. E. Lilly
..... H. D. Nilsson
..... D. M. Wilson
..... R. S. Young
Automated Plot by Gerber Digital Plotter (PMC)
Verified by J. L. Stringham
Reviewed by J. T. Gallahan
..... Date: February 2, 1975
Inspected by D. J. Romesburg

1. Description of the Area

This survey covers the shoalest areas of Tanner Bank and Cortes Bank.

A. The Tanner Bank survey area lies approximately 32 miles southwest of San Clemente Island and covers an area of about 5 square miles extending from latitude 32°40' to latitude 32°43.5', and from longitude 119°06' to longitude 119°10'. Depths range from 50 fathoms on the edge of the bank to a least depth of 9.1 fathoms. Tanner Bank lies in a general southeast to northwest direction.

B. The Cortes Bank survey area lies approximately 40 nautical miles southwest of San Clemente Island and 12 miles south of Tanner Bank. This survey covers an irregular area from latitude 32°25' to latitude 32°28' and from longitude 119°04' to longitude 119°08.5'. Depths range from approximately 50 fathoms to Bishop Rock which is awash at mean lower low water. Cortes Bank lies in a general southeast to northwest direction.

2. Control and Shoreline

The origin of the control is adequately covered in part F and addendum A of the Descriptive Report.

There is no shoreline within the limits of the survey.

3. Hydrography

A. Tanner Bank

(1) Depths at crossings are in good agreement.

(2) The usual depth curves were adequately delineated.

(3) The development of the bottom configuration and the investigation for least depths are considered adequate.

B. Cortes Bank

(1) Depths at crossings are in general agreement.

(2) The usual depth curves are adequately delineated.

(3) The development of the bottom configuration and investigation for least depths are adequate except for the holiday between the launch and ship hydrography. This was created by a control error and was discovered by the reviewer.

4. Condition of the Survey

A. Tanner Bank

The survey records, automated plotting, Descriptive Report, and verification are adequate and conform to the requirements of the Hydrographic Manual and the Instruction Manual - Automated Hydrographic Surveys. The least depth on Tanner Bank was determined by fathometer only and was not verified by leadline sounding.

B. Cortes Bank

The survey records, automated plotting, Descriptive Report, and verification are adequate and conform to the requirements of the Hydrographic Manual and Instruction Manual - Automated Hydrographic Surveys except as follows:

(1) Brush recordings were not available for Launch 1 hydrography. Brush recordings for the ship work were missing except for positions 1504-1545.

(2) Part of the fathograms and volumes were filed with H-9068 records.

(3) The original positioning of hydrography for March 16, 1969, by Launch 1 was found to be in error. A check of the correctors for electronic control indicated that erroneous information was used. Utilizing available information, an adjustment was made to the affected soundings, shifting them approximately 400 meters west of the original positions. The adjusted position of these soundings brings them into substantial agreement with depths from present survey crosslines, the junctional survey and with the prior surveys, but creates a holiday approximately 600 meters wide between the ship and launch hydrography.

C. Tanner Bank and Cortes Bank

(1) Bottom samples were not taken on the present survey.

(2) The combination of PF-40-1-69 and PF-40-2-69 into survey H-9065 resulted in the duplication of position numbers.

(3) Electronic control arcs were not constructed and labeled on the position number overlay.

(4) The reference station, stamp 42a on the smooth sheet, was incorrectly identified as San Clemente. The correct station, LORAC ANTENNA SCI, 1964, was added by the reviewer.

5. Junctions

A. Tanner Bank

A butt junction was effected with H-9067 (1969). The present larger scale survey with its more extensive investigation supersedes H-9067 (1969) within the common area of Tanner Bank. Several junctional soundings and other depths were transferred from H-9067 (1969) to the present survey. The most important of these depths was the isolated 20-fathom depth at latitude $32^{\circ}41.61'$, longitude $119^{\circ}09.30'$.

B. Cortes Bank

A butt junction was effected with H-9068 (1969). The present larger scale survey with its more extensive investigation supersedes H-9068 (1969) within the common area of Cortes Bank.

Several shoal depths were transferred from H-9068 (1969) to supplement the present survey. The most important of these depths is a 5.4-fathom shoal at latitude $32^{\circ}26.26'$, longitude $119^{\circ}06.07'$.

6. Comparison with Prior Surveys

A. Tanner Bank Area

(1)	H-289	(1851)	1:380,000
	H-4551a	(1926)	1:100,000
	H-4551b	(1926)	1:20,000

The above surveys provide the earliest coverage of the Tanner Bank area. They have been compared with and are superseded by the later surveys listed below and, except for several bottom characteristics carried forward to the present survey from H-4551b (1926), no further consideration of these surveys is required.

(2)	H-6206	(1936)	1:40,000
	H-6207	(1936)	1:20,000

These prior surveys fall within the area of Tanner Bank covered by the present survey. Depth comparison between these surveys and the present survey indicates general agreement with slightly shoaler depth on the present survey. Several soundings and bottom characteristics were carried forward from H-6207 (1936) to supplement the present survey. With the addition of these items, the present survey is adequate to supersede the prior surveys within the common area.

B. Cortes Bank Area

(1)	H-289	(1851)	1:380,000
	H-355	(1853)	1:50,000
	H-542	(1856)	1:40,000
	H-4267	(1923-28)	1:40,000
	H-4265b Ad.Wk.	(1928)	1:120,000
	H-4549a	(1925)	1:140,000
	H-4549a Ad.W.	(1928)	1:140,000
	H-4549b	(1925)	1:20,000

The above surveys provide the earliest coverage of the Cortes Bank area. They have been compared with and are superseded by the later surveys listed below. Except for several bottom characteristics carried forward from H-4267 (1923-28), no further consideration of the above surveys is required.

(2)	H-6206	(1936)	1:40,000
	<u>H-6207</u>	<u>(1936)</u>	<u>1:20,000</u>

These prior surveys taken together cover the area of the present survey. A comparison between these prior surveys and the present survey indicates a general agreement in depths.

In depths less than 20 fathoms, various differences of 1-5 fathoms exist but can be attributed to the rugged bottom in this area. The rock awash at mean lower low water at latitude $32^{\circ}27.02'$, longitude $119^{\circ}07.71'$ is the least depth on Bishop Rock. This rock originates with adjusted position 1 of March 16, 1969 (Day 75). This position, formerly rejected, has been reinstated into the system based on information noted in the sounding volume and abstract records. Numerous soundings and bottom characteristics have been carried forward to supplement the present survey information and to fill a holiday area created by a control shift of launch hydrography.

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

7. Comparison with Chart 5101 (latest print date, Oct. 6, 1973)

A. Hydrography

(1) Tanner Bank

The charted hydrography in the area originates with prior survey H-6206 (1936) which needs no further consideration.

The charted 9-fathom sounding reported at latitude $30^{\circ}42.0'$, longitude $119^{\circ}07.9'$ originates with Notice to Mariners No. 7 of 1946. The reported depth was verified by a recorded depth of 9.1 fathoms between position 48 and 49 on Julian Day 70. This shoal is also substantiated by a 9.7 depth from H-9067 (1969). It is recommended that the 9-fathom sounding be charted at latitude $32^{\circ}42.07'$, longitude $119^{\circ}07.98'$ and the word "reported" be deleted from the chart.

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

(2) Cortes Bank

The charted hydrography in the area originates with 1936 surveys H-6206 and H-6207.

Attention is directed to the following:

a. The sunken wreck charted at latitude 32°26.6', longitude 119°07.3' originates with Notice to Mariners No. 17 of 1967. This sunken wreck was positioned on the present survey at latitude 32°26.98', longitude 119°07.58' on Julian Day 84 (position 80) and has a least depth of 0.5 fathoms.

It is recommended that the charted sunken wreck position be revised to agree with the present survey.

b. The rock awash at mean lower low water positioned at latitude 32°27.02', longitude 119°07.71' on the present survey should be added to the chart.

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

*5101
5020
5001
Notice
written
in
NA 32/76
2-10-76*

B. Aids to Navigation

(1) Tanner Bank

a. There are no charted aids to navigation within the Tanner Bank area of the present survey.

(2) Cortes Bank

a. Lighted whistle buoy 2CB positioned at latitude 32°26.59', longitude 119°07.37' originates with adjusted position 16 on Julian Day 75 and was revised to agree with the buoy position given in the calibration sheet of the LORAC Report for H-9065 (1969). This aid to navigation adequately marks the feature intended.

b. The Descriptive Report (paragraph M) states that there is a second buoy located 500 yards north northwest of the whistle buoy. This buoy, which was not positioned on the present survey, is not shown.

8. Compliance with Instructions

A. Tanner Bank and Cortes Bank

This survey adequately complies with Project Instructions except for the following:

(1) Leadline soundings were not taken to verify least depths as required under paragraph 13.

(2) Bottom samples were not taken as required under paragraph 20.

B. Cortes Bank

(1) Sounding line development along the axis of the feature was not met as required under paragraph 15.

9. Additional Field Work

A. Tanner Bank

The present survey of this area is considered to be a good basic survey and no additional field work is recommended.

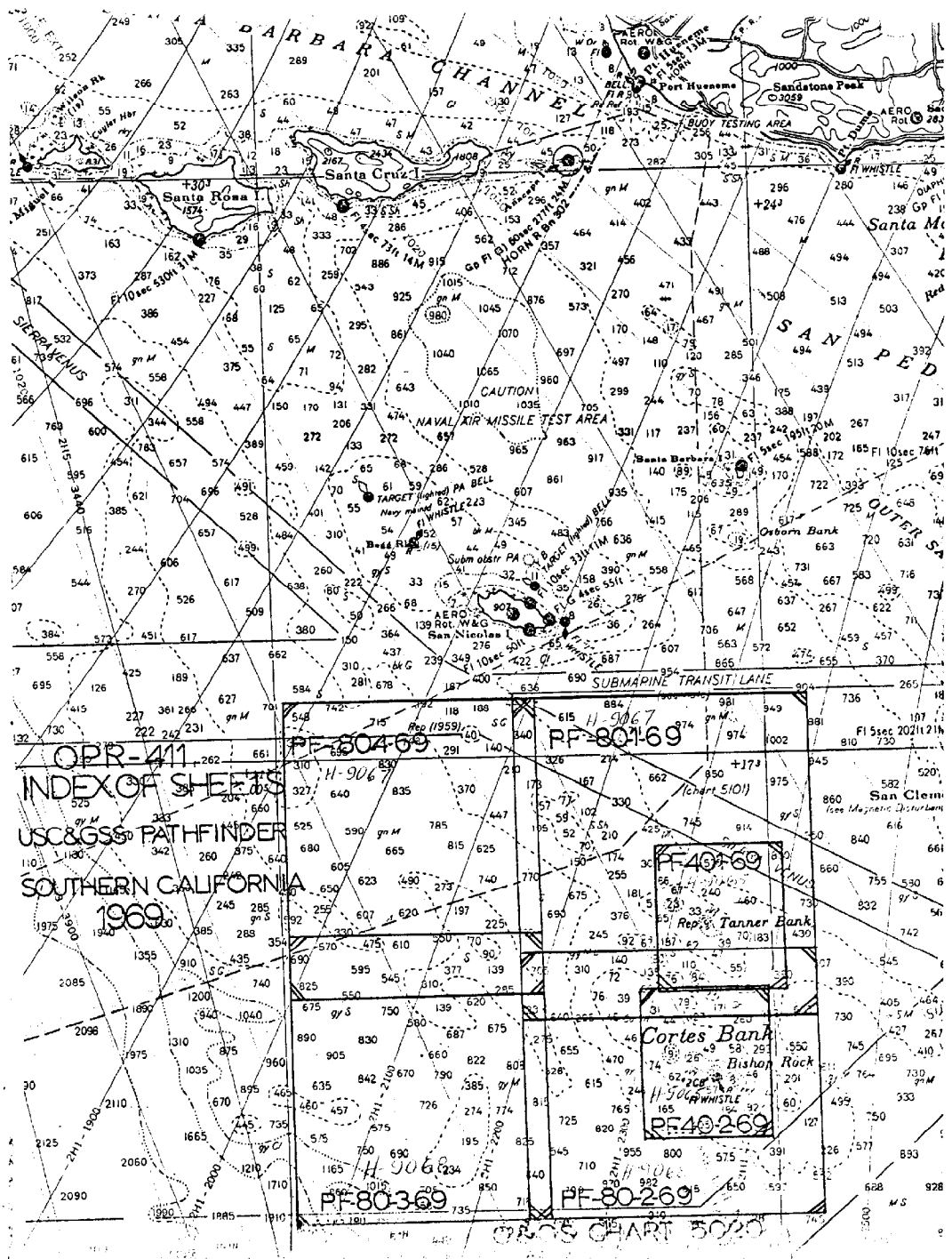
B. Cortes Bank

The present survey of this area is considered to be a basic survey except for the holiday area separating the ship and launch work. This area should be surveyed in the future.

Examined and Approved:

A. J. Patrick
Chief
Marine Surveys Division

R. H. Haulton
Associate Director
Office of Marine Surveys
and Maps



OPR-411
INDEX OF SHEETS
USC&GSS PATHFINDER
SOUTHERN CALIFORNIA
1969

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CRCS CHART 5020

