

H-10501

NOAA FORM 76-35A	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SERVICE	
DESCRIPTIVE REPORT	
Type of Survey	Hydrographic
Field No.	RA-10-22-93
Registry No.	H-10501
LOCALITY	
State	Alaska
General Locality	Prince William Sound
Sublocality	Wells and Cedar Bays
.....	
1993	
CHIEF OF PARTY CAPT Russell C. Arnold, NOAA	
LIBRARY & ARCHIVES	
DATE	APR 4 1995

Master Diagram 8551-4

products

CP-9
16703
16700

HYDROGRAPHIC TITLE SHEET

H-10501

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

FIELD NO.

RA-10-22-93

State Alaska

General locality Prince William Sound

Locality Wells and Cedar Bays

Scale 1:10,000 Date of survey Sept. 16 - 28, 1993

Instructions dated 7/19/93, Change #1-8/25/93 Project No. OPR-P125-RA

Vessel RAINIER (2120), 2123, 2124, 2125, 2126

Chief of party CAPT Russell C. Arnold, NOAA

Surveyed by CAPT Arnold, LT M. Brown, LTJG S. Lemke, ENS D. Pitts, ENS J. Graham, ENS G. Johnson, ENS G. Glover, SST J. Fleischmann

Soundings taken by echo sounder, hand lead, pole DSF-6000N

Graphic record scaled by RAINIER Personnel

Graphic record checked by RAINIER Personnel

Evaluation by: Gordon E. Kay Automated plot by PHS Xynetics Plotter

Verification by E. Domingo

Soundings in meters & decimeters at MLW MLLW

REMARKS: Time in UTC, revisions and marginal notes in black were generated during office processing. All separates are filed with the hydrographic data, as a result page numbering may be interrupted or non-sequential.

All depths listed in this report are referenced to mean lower low water unless otherwise noted.

AWOLS & Surf
6/1/95 MCR

13-13-96
50 4-4-95

Descriptive Report to Accompany Hydrographic Survey H-10501

Field Number RA-10-22-93

Scale 1:10,000

September 1993

NOAA Ship RAINIER

Chief of Party: Captain Russell C. Arnold

A. PROJECT

This basic hydrographic survey was completed in Northwest Prince William Sound, Alaska, as specified by Project Instructions OPR-P125-RA dated July 19, 1993, change No. 1 dated August 25, 1993, ~~and change No. 2 dated September 2, 1993.~~ ✓

Survey H-10501 corresponds to "Sheet M" as defined in the Project Instructions. ✓

This survey is one in a series that will be used update existing nautical charts. It will also be used to generate a new 1 : 100,000 scale chart covering the fiords and bays of northwest Prince William Sound. Requests for updated charts have been received from the Defense Mapping Agency, the Southwest Pilot's Association, cruise ship lines, (in particular Holland America Line and Westours, Inc.), and local fisherman. ✓

B. AREA SURVEYED

The survey area is located just east of Unakwik Inlet encompassing Wells Bay and Cedar Bay. The survey's northern and southern extent are 61°^{00'50"}01'N and 60°56'N respectively. The survey extends west to 147°30'W^{30"} and east to 147°23'W. Topographically, the survey area in Wells Bay is dominated by steep vertical shoreline faces, with deep mid-channel depths. Cedar Bay has moderate mid-channel depths with intermittent bays, extensive ledges and numerous islets. ✓

Data acquisition was conducted from September 16, Day Number (DN 259) , through September 28, DN 271. ✓

C. SURVEY VESSELS

Data were acquired by the NOAA SHIP RAINIER and four survey launches as noted below:

<u>Vessel</u>	<u>EDP No</u>	<u>Operation</u>
RAINIER	2120	Bottom Samples Velocity Casts
RA-3	2123	Hydrography
RA-4	2124	Hydrography Shoreline Verification

 ✓

RA-5	2125	Hydrography Shoreline Verification Bottom Samples
RA-6	2126	Hydrography Shoreline Verification

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Data acquisition and processing were accomplished with the following HDAPS programs:

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
AUTOST	3.00	9/24/92
BACKUP	2.00	9/24/92
BASELINE	1.13	9/24/92
BIGABST	2.03	9/24/92
BLKEDIT	2.00	9/24/92
CARTO	2.04	3/1/93
CONVERT	3.51	9/24/92
DAS_SURV	6.33	5/17/93
DP	2.13	3/1/93
EXCESS	4.10	9/24/92
FILESYS	3.02	5/17/92
GRAFEDIT	1.01	2/26/93
LSTAWOIS	3.01	9/24/92
LISTDATA	1.00	9/24/92
MAINMENU	1.00	9/24/92
MAN_DATA	2.00	9/24/92
NEWPOST	6.00	9/24/92
PLOTALL	2.08	2/26/93
PRESURV	7.01	2/26/93
PRINTOUT	4.01	9/24/92
QUICK	2.03	2/26/93
RAMSAVER	1.01	9/24/92
REAPPLY	2.01	9/24/92
SYMBOLS	2.00	9/24/92
ZOOMEDIT	2.10	9/24/92

Velocity corrections were determined using:

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
VELOCITY	2.0	24 Mar 1993

E. SONAR EQUIPMENT

Side scan sonar equipment was not used on sheet M.

F. SOUNDING EQUIPMENT

DSF-6000N serial numbers are included on the daily headers of the Raw Master Printouts.

G. CORRECTIONS TO SOUNDINGS

Correctors for the velocity of sound through water were determined from the casts listed below:

<u>Velocity Table No.</u>	<u>Cast No.</u>	<u>Deepest Depth (m)</u>	<u>Applicable DN</u>	<u>Cast Position</u>	<u>Day</u>
1	1	545	259 - 264	60°53'46"N 147°28'58"W	253
2	2	530.8	264 - 271	60°52'58"N 147°30'10"W	262

The sound velocity casts were acquired with a SBE SEACAT Profiler, S/N 220.

Velocity correctors were computed using the PC program VELOCITY in accordance with Hydrographic Survey Guideline (HSG) #69. A printout of the Sound Velocity Corrector Tables used in the HDAPS Post Survey program is included in the "Separates to be Included with Survey Data, IV, Sounding Equipment Calibrations and Corrections." *

Static Draft

A transducer depth was determined for launches 2123, 2124, 2125 and 2126 on March 19, 1993 and is in the offset tables for each launch.*

Settlement and Squat

Correctors were computed in accordance with Hydrographic Manual Section 4.9.4.2., using FPM Fig. 2.2 and 2.3, and are included with data for OPR-P125-RA. The data used was collected in Shilshole Bay, Washington on March 11, 16, and 18 of 1992. Revised settlement and squat correctors were received from Pacific Marine Center on October 21, 1992. Authorization was obtained from N/CG241 to use the 1992 data. These revised correctors were applied to the data on sheet M.

Offset Tables

<u>Vessel</u>	<u>Offset Table No.</u>
2123	3
2124	4
2125	5
2126	6

Heave

Data were not acquired during periods of significant sea action.

* Filed with the Survey records.

Bar Check and Lead Lines

Bar check and lead lines were calibrated by RAINIER personnel on February 19, 1993 at PMC. Calibration forms are included with project data for OPR-P125-RA. ✓

Tide Correctors

Predicted tides for the project were provided on diskette by N/OES334 for the Cordova, Alaska reference station (945-4050). The following correctors were provided in the project instructions for sheet M:

<u>TIME(min)</u>		<u>RANGE RATIO</u>
<u>HIGH WATER</u>	<u>LOW WATER</u>	
0	0	x 0.96

HDAPS listings of the data used in generating tide corrector tables are included in Appendix V of this report. ✕ ✓

Tide gages were installed and maintained by RAINIER personnel at Storey Island, Alaska (945-4553) and Olsen Island, Alaska (945-4596). The control station was Valdez, Alaska (945-4240). Opening levels were completed the Pacific Operations Section. Requirements for closing levels were waived in Change No. 1 of the Project Instructions. Bracketing levels for field gages were completed at the end of September. ✓

The station descriptions, field tide records, and Field Tide Notes will be forwarded to N/OES212, in accordance with HSG 50 and FPM 4.3, at the end of each month and upon completion of the project. Requests for approved tides will be forwarded to N/OES2. ✓

H. CONTROL STATIONS

A listing of the geodetic stations used to control this survey ^{is attached.} ~~is included in Appendix III of this report.~~ ✓

Positions for all existing stations are from the National Geodetic Survey (NGS) data base. All existing stations were recovered in accordance with methods stated in Section 5.2.4 of the Field Procedures Manual. Further information can be found in the "Fall 1993 Horizontal Control Report for OPR-P125-RA." ✓

I. HYDROGRAPHIC POSITION CONTROL

Method of Position Control

All soundings and features were positioned using differential GPS. Serial numbers for Ashtech equipment are annotated on the data printouts. ✕ ✓

Calibrations & Systems Check Methods

Ashtech GPS

Two VHF Differential shore stations were established at stations QUOTE and INDIA. Remote sensors were directly connected to the MXII shore stations, antennas were collocated with the shore stations. The computed position was transmitted back to the ship via VHF radio modem link. The difference between the computed location and the station's published position was recorded by the MONITOR program on a PC. ✓

* Filed with the survey records.

Data from a 24-hour period were recorded and examined for signs of multi-path signal reflection, which was not evident at either station. ✓

System checks were made using the launch to launch method. For the launch to launch comparisons, three observations were made by each launch using correctors from two independent DGPS base stations. System checks were made each day and results were transferred to forms which are included in the project data for OPR-P125-RA. An abstract of the calibration results is included in the "Separates to be included with Survey Data, III. Horizontal Position Control and Corrections to Position Data." ✗ ✓

Problems

The differential GPS stations on QUOTE and INDIA ran without problems for ^{this survey.} ~~sheet M-1~~ ✓

Offset

The launch GPS antenna offsets are stored in the HDAPS Offset Tables as listed in Section G. Copies of the Offset Tables are included in the "Separates to be Included with Survey Data, III. Horizontal Position Control and Corrections to Position Data." *filed with the survey records.* ✓

J. SHORELINE *See Evaluation Report Section 2*

The shoreline map (T-sheet) used to transfer shoreline detail to the final sheets was DM - 10065, (1:10,000, NAD83). ~~AND DM - 10060~~ ✓

Shoreline verification was conducted as near as possible to predicted lower low water in accordance with FPM 7.1, however tides were not ideal for shoreline verification during the survey. RAINIER conducted shoreline verification at the lowest possible tides during the survey. Shoreline verification was accomplished by assigning sequential reference numbers and taking detached positions (DPs) as explained later in this section. ✓

Inshore hydrography shows that photogrammetric and hydrographic positioning are in excellent agreement. ✓

Shoreline and T-sheet features verified via visual inspection were assigned sequential reference numbers, described, and recorded in the field using DP and reference number forms, and corresponding 1:10,000 photocopies of the T-sheet. Reference numbers, descriptions, and heights corrected to MLLW using predicted tides, are recorded on the reference number forms. Corresponding notes were annotated on the photocopies of the T-sheet when deemed necessary. The annotated photocopies of the T-sheet are included with the forms, which are included with the survey data. ✓

DPs taken during shoreline verification were recorded on DP forms and the master printouts and indicate significant T-sheet features, features not found on the T-sheet, and locations of disprovals. Where possible, positions of some T-sheet features were verified during inshore mainscheme hydrography and annotated on the DP forms and master printouts. ✓

Detailed 1:10,000 "Rough Bottom Sample and Detached Position Plots" are provided showing all DPs and reference numbers and notes relating to each feature. The information from these plots was transferred to a final field plot. Verified T-sheet features were retained and shown in black. Changes to the shoreline were shown in red. Field cartographic codes were assigned using the HDAPS DP editor. Heights are recorded in meters and are corrected to predicted MLLW. ✓

Disprovals

The T-sheet rock in the vicinity 60°57'37"N, 147°23'55"W, (PN 8612), was not found. The area searched was located at the base of a stream on a shell and gravel beach. The DP was taken with the bow of the launch resting on the beach. The average depth was 3.0 meters and the water visibility was clear to the bottom. The area was searched visually for 10 minutes and within a 70 meter radius of the DP.

Changes

The large number of changes are a result of inaccurate shoreline manuscripts, the errors are probably a result of photography being flown at high tide.

Forty two changes to the T-sheet shoreline were found and depicted on the final field plot. The changes are, in all cases except four, a ledge connecting a feature to shore. The changes are as follows:

<u>T-sheet Feature</u>	<u>Change To</u>	<u>Position # Reference #</u>	<u>Position</u>	<u>Depth (M)</u>	<u>Remark</u>
1. Rock	Ledge	5587	60°58'26"N, 147°24'04"W	-1.54	UNCOV Exposed (E)
2. Rock	Ledge	5586	60°58'29"N, 147°24'04"W	-1.0 MNW -2.4	E "
3. Rock	Ledge	5585	60°58'31"N, 147°24'04"W	-1.0 -4.4 MNW	E "
4. Rock	Ledge	5581 - 5582	60°58'32"N, 147°24'02"W	-1.2	E "
5. Rock	Ledge	5579 - 5580	60°58'33"N, 147°23'59"W	-2.2	E "
6. Rock	Ledge	5589	60°58'26"N, 147°23'38"W	+0.4	E COV
7. Rock	Ledge	5602	60°57'52"N, 147°23'29"W	-1.7 -2.8	E UNCOV
8. Rock	Ledge	5619	60°57'28"N, 147°24'08"W	-2.4	E "
9. Rock	Ledge	5630	60°57'07"N, 147°24'39"W	-2.0 ✓	E "
10. Rock	Ledge	5638	60°56'31"N, 147°25' ⁴² '31"W	-2.76	E "
11. Rock	Ledge SAME AS #7	5602	60°57'52"N, 147°23'29"W	-2.8 -2.9	E "
12. Rock	Ledge	7712	60°56'26"N, 147°27'07"W	-2.88	E "
13. Rock	Ledge	6013	60°57'16"N, 147°29'49"W	-1.0 -0.8	E "
14. Rock	Ledge	6014	60°56'54"N, 147°29'53"W	-3.42	E "
15. Rock	Ledge	8263	60°57'49"N, 147°29'15"W	-3.6 -	E "
16. Rock	Ledge	RA5 - 15	60°57'24"N, 147°24'12"W	-2.3 MNW -1.8	E "
17. Rock	Ledge	RA5 - 58	60°56'09"N, 147°27'30"W	-3.86	E "

18. Rock Ledge	RA5 - 55	60°56'00"N, 147°27'39"W	-0.9 MHW -2.5	E UNCOV	7
19. Rock Ledge	RA5 - 57	60°56'06"N, 147°27'39"W	-0.9 MHW -2.4	E "	
20. Rock Ledge	RA5 - 59	60°56'29"N, 147°27'18"W	³ -2.5	E "	
21. Islet Ledge	RA5 - 22	60°56'30"N, 147°26'51"W	-1.9 MHW -5.2	E "	
22. Rock Ledge	RA5 - 24	60°56'32"N, 147°26'45"W	-3.7	E "	
23. Rock Ledge	RA5 - 25	60°56'32"N, 147°26'42"W	-3.86	E "	
24. Rock Ledge	RA5 - 32	60°57'0 ¹ 2"N, 147°26'30"W	-2.3	E "	
25. Rock Ledge	RA5 - 33	60°57'02"N, 147°26'24"W	⁵ -1.8	E "	
26. Rock ^{Islet} Ledge	RA5 - 34	60°57'5 ³² 3"N, 147°25'27"W	-1.8 MHW -4.7	E "	
27. Rock Ledge	RA5 - 35	60°57'27"N, 147°25'3 ⁸ 6"W	-2.3	E "	
28. Rock Ledge	RA5 - 39	60°57'33"N, 147°25'54"W	⁸ -3.8	E "	
29. Rock Ledge	RA5 - 64	60°56'42"N, 147°30'12"W	-1.7 MHW -4.9	E "	
30. Rock Ledge	RA5 - 65	60°56'4 ⁰ 2"N, 147°30'1 ⁰ 3"W	-2.1 MHW -5.4	E "	
31. Rock Ledge	RA5 - 67	60°56'33"N, 147°30'15"W	-3.9	E "	
32. Rock Ledge	RA5 - 70	60°56'15"N, 147°30'12"W	⁷ -1.8	E "	
33. Rock Ledge	RA5 - 47	60°58'09"N, 147°24'03"W	⁷ -1.8	E "	
34. Rock Ledge	RA6 - 2	60°57'54"N, 147°29'1 ⁰ 5"W	-3.8	E "	
35. Rock Ledge	RA5 - 48	60°58'09"N, 147°24'00"W	-2.9 -2.8	E "	
36. Rock Ledge	RA5 - 50	60°58'0 ⁰¹ 0"N, 147°23'54"W	-1.8 MHW -4.8	E "	
37. Rock Ledge	RA5 - 52	60°57'57"N, 147°23'45"W	-1.7 -2.1	E "	
38. Rock Ledge	RA5 - 11	60°58'26"N, 147°24'04"W	⁴ -1.8	E "	

39. A foul area exists in the vicinity 60°58'36"N, 147°23'23"W, (PN 5575 - 5577). The DPs are on rocks that define the seaward extent of the foul area. *Chart area as shown on Smooth Sheet*

40. Two T-sheet rocks in the vicinity 61°00'35"N, 147°29'39"W, (RA4-19), are one rock with a height of 3.2 meters (exposed). *Chart area as shown on Smooth Sheet.*

41. Three T-sheet islets and two T-sheet rocks in the vicinity 60°58'26"N, 147°24'04"W, (PN 5634), are one feature. The rocks are high points of the ledge, 0.4 meters (exposed). *Chart area as shown on Smooth Sheet.*

SAME AS #1 duplicate 5606-5587

42. The T-sheet rock in the vicinity 60°57'28"N, 147°25'48"W, (RA5-38), is ^{a ledge} an islet with trees and shrubs.

Recommendations: The hydrographer recommends that the shoreline changes from this survey be used to supersede prior shoreline information within their common area. ✓

K. CROSSLINES

Crosslines are in good agreement with mainscheme hydrography. Crosslines totaled 10.05 nautical miles, representing 7.7 % of the total mainscheme hydrography. ✓

L. JUNCTIONS *SEE Evaluation Report section 5*

This survey junctions with survey H-10500 (1:10,000, 1993) to the south. No irregularities were found when comparing soundings and depth curves. ✓

Final comparisons will be made at the Pacific Hydrographic Section (PHS).

M. COMPARISON WITH PRIOR SURVEYS *SEE Evaluation Report section 6*

There were no prior surveys ^{within the survey area.} on sheet M. ✓

N. ITEM INVESTIGATION REPORTS

There were no AWOIS items ^{within the survey area} on sheet M. ✓

O. COMPARISON WITH THE CHART *SEE Evaluation Report section 7*

The survey area is within NOS chart 16700 24th Edition, February 11, 1992, 1 : 200,000 (NAD83), however, the area has not been previously surveyed. It is depicted as uncharted, in blue on chart 16700. ✓

Dangers to Navigation

Two dangers to navigation were identified within the limits of survey H-10501 and were reported to the Seventeenth Coast Guard District and DMAHTC. Copies of the radio message and correspondence are ~~included in Appendix I of this report.~~ ^{attached.} ✓

P. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede the T-Sheets and chart letters in the common areas. *CONCUR*

Q. AIDS TO NAVIGATION

There were no aids to navigation ^{within the survey area.} on sheet M.

R. STATISTICS

<u>Vessel:</u>	<u>2120</u>	<u>2123</u>	<u>2124</u>	<u>2125</u>	<u>2126</u>	<u>Total</u>
# of Pos	10	298	459	600	551	1918 1845
NM Hydro	0	32.67	25.25	33.89	37.65	129.46

NM ² Hydrography	8.75
Velocity Casts	2
Detached Position	88
Tide Stations	2
Reference Numbers	111
Bottom Samples	19

S. MISCELLANEOUS

Bottom samples were sent to the Smithsonian Institution in accordance with the Project Instructions. ✓

The Coast Pilot currents and predicted current comparisons were made in accordance with the Project Instructions. The current predictions were adequate and the descriptions accurate. ✓

T. RECOMMENDATIONS

None.

U. REFERRAL TO REPORTS

The following supplemental reports contain additional information relevant to this survey:

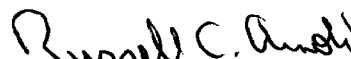
<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Fall 1993 Horizontal Control Report for OPR-P125-RA	November 1993	N/CG2333 ✓
Fall 1993 Coast Pilot Report for OPR-P125-RA	November 1993	N/CG245
Project related data for OPR-P125-RA	Incremental	N/CG245

Respectfully Submitted,



Dede L. Pitts
Ensign, NOAA

Approved and Forwarded,



Russell C. Arnold
Captain, NOAA
Commanding Officer



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

**ADVANCE
INFORMATION**

NOAA Ship RAINIER

September 30, 1993

Director
DMAHTC
Attn: MCNM
6500 Brookes Lane
Washington, DC 20315-0030

Dear Sir:

While conducting hydrographic survey operations in Northwest Prince William Sound, Alaska, NOAA Ship RAINIER discovered two dangers to navigation. They have been reported to DMAHTCNAVWARN and the Seventeenth Coast Guard District. A copy of the correspondence describing the dangers is enclosed.

Sincerely,

Russell C. Arnold
Russell C. Arnold
Captain, NOAA
Commanding Officer

Enclosures





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

NOAA Ship RAINIER

September 30, 1993

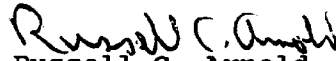
**ADVANCE
INFORMATION**

Commander
Seventeenth Coast Guard District
Post Office Box 25517
Juneau, AK 99802-5517

Dear Sir:

Attached is a confirmation copy of the radio message sent to your office regarding the dangers to navigation which I recommend for inclusion in the Local Notice to Mariners for the Seventeenth Coast Guard District. A copy of the chart showing the areas in which the dangers exist is also attached.

Sincerely,


Russell C. Arnold
Captain, NOAA
Commanding Officer

Enclosures

cc: DMAHTC
N/CG221
PMC



**ADVANCE
INFORMATION**

RCA

P SEP 93
FM NOAA S RAINIER
TO CCGDSEVENTEEN JUNEAU AK
DMAHTCNAVWARN WASHINGTON DC//MCNM//
INFO NOAA MOP SEATTLE WA
ACCT CM-VCAA

BT

UNCLASS

NOAA SHIP RAINIER HAS LOCATED TWO DANGERS TO NAVIGATION IN WELLS BAY, PRINCE WILLIAM SOUND, ALASKA. (PROJECT OPR-P125-RA) WITHIN THE LIMITS OF HYDROGRAPHIC SURVEY H-10501. THE FOLLOWING INFORMATION IS PROVIDED FOR PUBLICATION IN THE LOCAL NOTICE TO MARINERS:

CHARTS AFFECTED: 16700 24TH ED FEB 11/92 1:200,000 NAD83.

HEIGHTS ARE REFERENCED TO MLLW BASED ON PREDICTED TIDES.

ITEM	DANGER	DEPTH	LATITUDE	LONGITUDE
A.	SHOAL	1 1/4FMS	60/56/04.8N	147/28/29.1W
B.	SHOAL	4 1/4FMS	60/56/14.5N	147/27/00.9W

THIS IS ADVANCED INFORMATION SUBJECT TO OFFICE REVIEW. QUESTIONS CONCERNING THIS MESSAGE SHOULD BE DIRECTED TO THE CHIEF, PACIFIC HYDROGRAPHIC SECTION AT (206)526-6835. A LETTER WITH ATTACHED CHARTLET IS BEING MAILED TO CONFIRM THIS MESSAGE.
BT.

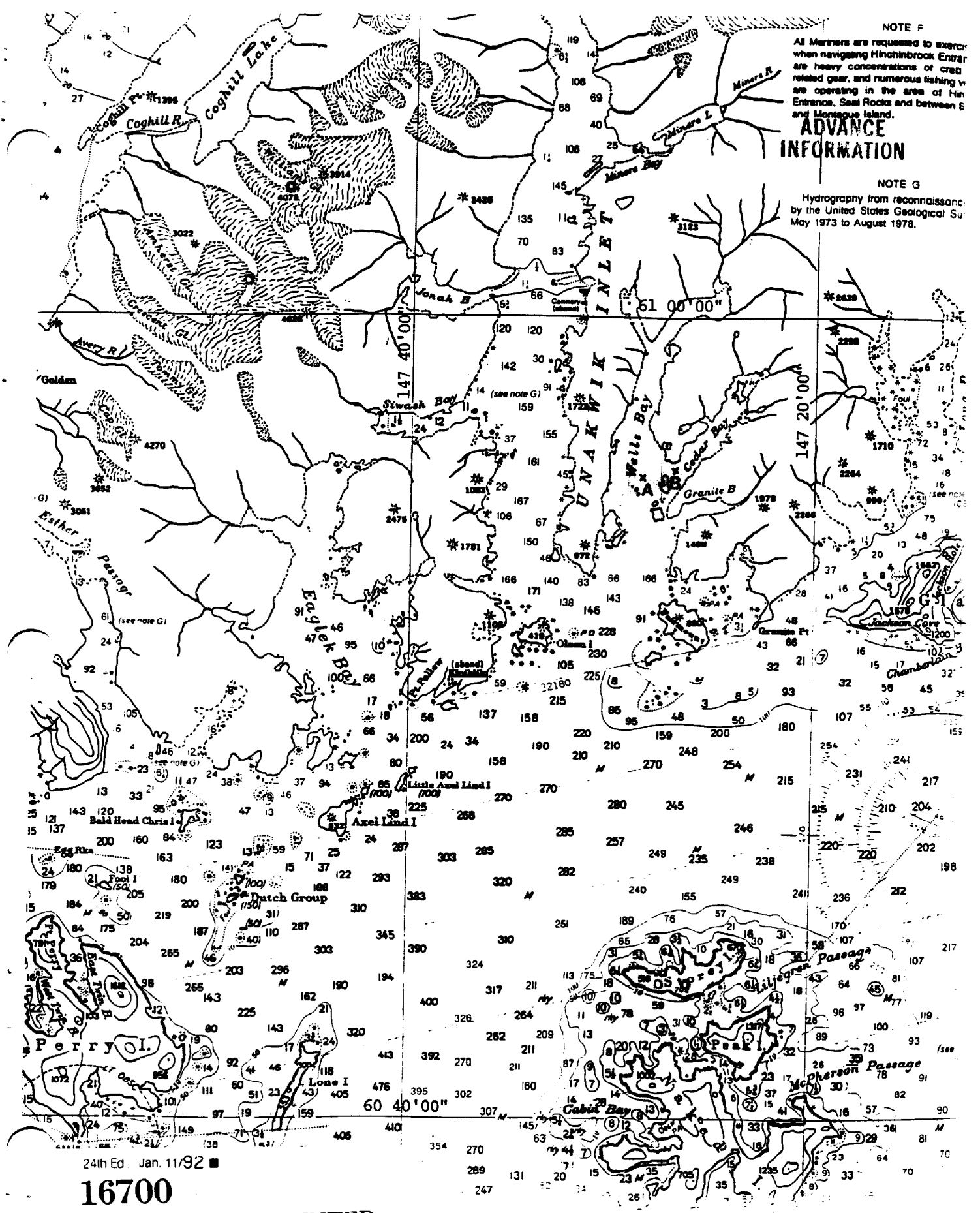
NOTE F

All Mariners are requested to exercise caution when navigating Hinchinbrook Entrance as heavy concentrations of crab related gear, and numerous fishing trawls are operating in the area of Hinchinbrook Entrance. Seal Rocks and between S and Montague Island.

ADVANCE INFORMATION

NOTE G

Hydrography from reconnaissance by the United States Geological Survey, May 1973 to August 1978.



24th Ed Jan. 11/92

16700

LORAN-C OVERPRINTED

**ADVANCE
INFORMATION**



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Coast and Geodetic Survey
Seattle, Washington 98115-0070

October 15, 1993

Commander (OAN)
Seventeenth Coast Guard District
P.O. Box 25517
Juneau, AK99802-5517

Dear Sir:

During office processing of hydrographic survey H-10501, Wells Bay, Prince William Sound, Alaska, it was determined that the position of two shoals previously reported by the NOAA Ship RAINIER was incorrect. In addition, two additional hazardous shoals were discovered.

These changes affect the following chart.

<u>Chart Number</u>	<u>Edition No. Date</u>	<u>Horizontal Datum</u>
16700	24 2/11/92	NAD83

It is recommended that this information be included in the Local Notice to Mariners.

Questions concerning this report should be directed to the Pacific Hydrographic Section at (206) 526-6853.

Sincerely,

Douglas G. Hennick
Commander, NOAA
Chief, Pacific Hydrographic Section

Enclosure

cc: DMA/TC
N/CG221



H-10501

Report of Danger To Navigation

**ADVANCE
INFORMATION**

Hydrographic Survey Registry Number: H-10501

Survey Title

State: Alaska

General Locality: Prince William Sound

Sublocality: Wells Bay

Project Number: OPR-P125-RA

The following was discovered during a review of survey data:

A shoal, covered 1 1/4fms, previously reported at latitude 60/56/04.8N, longitude 147/28/29.1W, is actually located at latitude 60/56/14.5N, longitude 147/27/00.9W.

A shoal, covered 4 1/4fms, previously reported at latitude 60/56/14.5N, longitude 147/27/00.9W, is actually at latitude 60/56/04.8N, longitude 147/28/29.1W.

New shoaling exists at the following locations:

<u>Depth</u>	<u>Latitude</u>	<u>Longitude</u>
1/4fm	60/56/55.5N	147/26/09.5W
1/2fm	60/58/08.0N	147/24/22.0W

Affected nautical charts:

<u>Chart</u>	<u>Edition</u>	<u>Horizontal</u>
<u>Number</u>	<u>No.</u> <u>Date</u>	<u>Datum</u>
16700	24 2/11/92	NAD83

Depths have been reduced to Mean Lower Low Water based on predicted tides.

Questions concerning this report should be directed to the Pacific Hydrographic Section at (206) 526-6853.

CONTROL STATIONS as of 27 Sep 1993

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
100	F	060:50:49.581	147:27:05.696	15	250	0.0	0.0		09/04/93	QUOTE 1947(DGPS)
101	F	060:52:35.967	147:33:15.597	6	250	0.0	0.0		09/04/93	INDIA 1947(DGPS)

GEOGRAPHIC NAMES

H-10501

Name on Survey	A ON CHART NO. 16700 B TP DM-10060 C TP DM-10065 D FROM LOCAL INFORMATION E ON LOCAL MAPS F P.O. GUIDE OR MAP G RAND McNALLY ATLAS H U.S. LIGHT LIST K									
	A	B	C	D	E	F	G	H	K	
ALASKA (TITLE)										1
BLOCK ISLAND		X								2
CEDAR BAY	X	X	X							3
(TITLE) PRINCE WILLIAM SOUND										4
WELLS BAY	X	X	X							5
										6
										7
										8
										9
										10
										11
										12
										13
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										22
										23
										24
										25

Approved:

Charles P. Harrington
Chief Geographer - N/CG2x5

JUL - 6 1994



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

ORIGINAL

DATE: March 7, 1994

MARINE CENTER: Pacific

HYDROGRAPHIC PROJECT: OPR-P125-RA

HYDROGRAPHIC SHEET: H-10501

LOCALITY: Wells and Cedar Bays, Prince William Sound, Alaska

TIME PERIOD: September 16 - 28, 1993

TIDE STATION USED: 945-4596 Olsen Island, Unakwik Inlet, Ak.
Lat. $60^{\circ} 52.6'N$ Lon. $147^{\circ} 33.1'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): -4.33 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 11.0 ft.

REMARKS: RECOMMENDED ZONING

Times and heights are direct on Olsen Island, Ak. (945-4596).

Notes: 1. Times are tabulated in Greenwich Mean Time.

2. Data for Olsen Island, Ak. (945-4596) is temporarily stored in file #556-4596.

William M. Gibson

CHIEF, DATUMS SECTION



APPROVAL SHEET

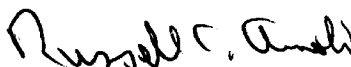
for

H-10501

RA-10-22-93

Standard procedures were followed in accordance with the Hydrographic Manual, Fourth Edition; the Hydrographic Survey Guidelines; and the Field Procedures Manual in producing this survey. The data were examined daily during data acquisition and processing.

The field sheet and accompanying records have been examined by me, are considered complete and adequate for charting purposes, and are approved.



Russell C. Arnold
Captain, NOAA
Commanding Officer

HYDROGRAPHIC SURVEY STATISTICS

H-10501

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		
DESCRIPTIVE REPORT			FIELD SHEETS AND OTHER OVERLAYS		2
DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/SOURCE DOCUMENTS
ACCORDION FILES	2				
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES					

SHORELINE DATA	
SHORELINE MAPS (List):	DM-10060, DM-10065
PHOTOBATHYMETRIC MAPS (List):	NA
NOTES TO THE HYDROGRAPHER (List):	None
SPECIAL REPORTS (List):	None
NAUTICAL CHARTS (List):	Chart 16700, 24th Ed., 1/11/92, scale 1:100,000

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			1845	
POSITIONS REVISED			0	
SOUNDINGS REVISED			24	
CONTROL STATIONS REVISED			0	
TIME-HOURS				
	VERIFICATION	EVALUATION	TOTALS	
PRE-PROCESSING EXAMINATION				
VERIFICATION OF CONTROL				
VERIFICATION OF POSITIONS	96		96	
VERIFICATION OF SOUNDINGS	194		194	
VERIFICATION OF JUNCTIONS				
APPLICATION OF PHOTOBATHYMETRY				
SHORELINE APPLICATION/VERIFICATION				
COMPILATION OF SMOOTH SHEET	102.5		102.5	
COMPARISON WITH PRIOR SURVEYS AND CHARTS		5	5	
EVALUATION OF SIDE SCAN SONAR RECORDS				
EVALUATION OF WIRE DRAGS AND SWEEPS				
EVALUATION REPORT		14	14	
GEOGRAPHIC NAMES				
OTHER* Digitization				
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	492.5	19	411.5

Pre-processing Examination by D. Haines	Beginning Date 10/5/93	Ending Date 10/27/93
Verification of Field Data by E. Domingo	Time (Hours) 492.5	Ending Date 7/14/94
Verification Check by J. Stringham	Time (Hours) 39	Ending Date 7/22/94
Evaluation and Analysis by G. Kay	Time (Hours) 19	Ending Date 1/3/95
Inspection by R. DAVIES	Time (Hours) 7	Ending Date 1/31/95

EVALUATION REPORT SURVEY H-10501

1. INTRODUCTION

Survey H-10501 is a basic hydrographic survey accomplished by the NOAA Ship *Rainier*, under the following Project Instructions.

OPR-P125-RA, dated July 19, 1993
CHANGE NO. 1, dated August 25, 1993

This survey was conducted in Alaska, and covers an area in the northwestern portion of Prince William Sound, in Wells and Cedar Bays. These bays are deep flooded glacier fjords. The surveyed area is bounded by latitude 60/00/50N to the north and latitude 60/56/00N to the south. The eastern limit is longitude 147/23/00W. The western limit is longitude 147/30/30W. The shoreline consists of rocky shoreline and small islands. The bottom consists of mud. Depths range from less than a meter along the shoreline to a depth of 260 meters located in Wells Bay.

Depth curves depicted on the smooth sheet were selected from those authorized through HSG 69. However, instead of drafting all authorized curves only those curves considered necessary for the reasonable portrayal of the bottom were drafted. The selected meter curves were the 0, 5, 20, and 90. A note was added to the smooth sheet to identify these values. Bottom characteristics are annotated on a separate overlay.

Predicted tides for Cordova, Alaska, were used for the reduction of soundings during field processing. Approved hourly heights are zoned from Olsen Island, Unakwik Inlet, Alaska, gage 945-4596, were used during office processing.

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. NAD 83 is used as the horizontal datum for plotting and position computation. Offset values and sound velocity correctors are adequate. An accompanying computer printout contains the parameters and the correctors.

A digital file has been generated for this survey that includes categories of information required to comply with Hydrographic Survey Guideline No. 52, Standard Digital Data Exchange Format, April 15, 1986. Certain descriptive information, however, may not be in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for a complete depiction of the survey data.

2. CONTROL AND SHORELINE

Sections H and I of the hydrographer's report and the Fall 1993 Horizontal Control Report for OPR-P125-RA, contain adequate discussions of horizontal control and hydrographic positioning.

Differential GPS (DGPS) was used to control this survey. A horizontal dilution of precision (HDOP) not to exceed 3.75 was computed for survey operations. The quality of 268 positions exceeds limits in terms of horizontal dilution of precision (HDOP). These positions are isolated and occur randomly throughout the survey area. A review of the data, however, indicates that none of these fixes are used to position dangers to navigation. The soundings located by these fixes are consistent with the surrounding information. These fixes are considered acceptable.

Positions of horizontal control stations used during this survey are field values based on NAD 83.

The smooth sheet is annotated with an NAD 27 adjustment tick based on values determined with the NGS program NADCON. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections.

Latitude: -1.974 seconds (-61.102 meters)
Longitude: 7.448 seconds (112.900 meters)

The year of establishment of control stations shown on the smooth sheet originates with the previously referenced horizontal control report and the hydrographer's signal list.

The following shoreline maps compiled on NAD 83, enlarged to the scale of 1:10,000, apply to this survey.

<u>Map Number</u>	<u>Photography date</u>	<u>Scale</u>
DM-10060	July 1989	1:20,000
DM-10065	June-July 1989	1:20,000

The following features were transferred from the field sheet without supporting positional information. These revisions are considered adequate to supersede the common photogrammetrically delineated shoreline.

<u>Feature</u>	<u>Latitude North</u>	<u>Longitude West</u>
2 rocks	60/57/37.0	147/23/26.0
1 rock	60/57/38.0	147/23/21.0

3. HYDROGRAPHY

Except for the following, hydrography is adequate to:

- a. delineate the bottom configuration, determine least depths, and draw the standard depth curves;
- b. reveal there are no significant discrepancies or anomalies requiring further investigation; and
- c. show the survey was properly controlled and soundings are correctly plotted.

Authorized depth curves were adequately drawn and developed except the zero curve. The inshore limit as defined by the Project Instructions (section 1.8), is the 3-meter depth curve in steeply sloping areas.

4. CONDITION OF SURVEY

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3, the Hydrographic Survey Guidelines, and the Field Procedures Manual, March 1993 Edition.

5. JUNCTIONS

Survey H-10501 junctions with the following survey.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-10500	1993	1:10,000	South

The junction with the above survey has been formally accomplished. Soundings are in good agreement.

6. COMPARISON WITH PRIOR SURVEYS

There are no prior surveys within the limits of survey H-10501.

7. COMPARISON WITH CHART

Survey H-10501 was compared with the following chart.

<u>Chart</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>	<u>Datum</u>
16700	24th	January 11, 1992	1:100,000	NAD 83

a. Hydrography

The charted hydrography on the above charts originate with miscellaneous sources. Survey H-10501 is adequate to supersede charted hydrography within the survey area.

A study of prior survey data, in accordance with Hydrographic Survey Guideline No. 39, the effect of the 1964 Prince William Sound earthquake was not performed, because of the lack of prior survey data.

b. AWOIS

There are no AWOIS items within the limits of this survey.

c. Controlling Depths

There are no charted channels with controlling depths within the limits of this survey.

d. Aids to Navigation

There are no aids to navigation located within the limits of this survey. There are no charted landmarks that are located within the limits of this survey.

e. Geographic Names

Names appearing on the smooth sheet and in the survey title have been approved by the Chief Geographer.

f. Dangers to Navigation

The hydrographer reported two dangers to navigation to the Seventeenth Coast Guard District, DMA/HTC and N/CG221, during this survey. Two additional dangers to navigation were discovered during office processing as follows:

<u>Feature</u>	<u>Depth Meters</u>	<u>Latitude North</u>	<u>Longitude West</u>
Shoal	1.0	60/56/55.70	147/26/09.29
Shoal	1.5	60/58/07.97	147/24/22.48

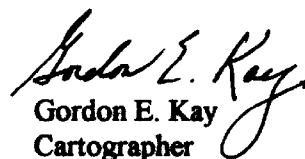
A copy of this danger to navigation has been forwarded to the Seventeenth Coast Guard District, DMA/HTC and N/CG221. Copies of these reports are attached.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10501 adequately complies with the Project Instructions, except where noted in this report.

9. ADDITIONAL FIELD WORK

This is a good hydrographic survey. Additional field work is not required.


Gordon E. Kay
Cartographer

APPROVAL SHEET
H-10501

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, comparison with prior surveys and verification or disproval of charted data. The digital data have been completed and all revisions and processings have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts have been made and are included with the survey records. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Dennis J. Hill Date: 1/31/95
Dennis J. Hill
Chief, Hydrographic Processing Unit
Pacific Hydrographic Section

I have reviewed the smooth sounding plot, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Kathy A. Timmons Date: 2/6/95
Kathy A. Timmons
Commander, NOAA
Chief Pacific Hydrographic Section

Final Approval

Approved:

Thomas W. Richards Date: 2/16/95
Thomas W. Richards
Captain, NOAA
Chief Nautical Chart Division

