

10149

Diagram No. 8554-3

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. RA-20-4-84
Office No. H-10149

LOCALITY

State Alaska
General Locality Barren Islands
Locality East & West Amatuli Islands

19 84

CHIEF OF PARTY
CDR J.P. Vandermeulen

LIBRARY & ARCHIVES

DATE January 8, 1986

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

Area 5

CHTS
771062 16606
200 16640
360 16580
969 16013
531
500

*to sign off see
Record of Application*

HYDROGRAPHIC TITLE SHEET

H-10149

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 20-4-84

State AlaskaGeneral locality Barren IslandsLocality East and West Amatuli IslandsScale 1:20,000Date of survey July 27 to Aug. 28, 1984Instructions dated Feb. 16, 1984Project No. OPR-P114-RA-84Vessel NOAA Ship RAINIER (S221), Launches 2123, 2124, 2125, and 2126Chief of party CDR J. P. Vandermeulen, NOAASurveyed by LT T. Rulon, LTJG S. Konrad, ENS D. LaReau, ENS T. Porta,
ENS C. Wilson, ENS J. Griffin, ENS M. Pickett, Lt. S. Iwamoto,
Lt(jg) J. Judson, ENS K. Barton, SST R. HastingsSoundings taken by echo sounder, hand lead ~~XXXX~~Graphic record scaled by RAINIER Survey DepartmentGraphic record checked by RAINIER Survey Department

Verification

~~XXXXXXXX~~ by J. Shofner

PMC

Evaluation

~~XXXXXXXX~~ on by C.R. DaviesAutomated plot by Xynetics PlotterSoundings in fathoms ~~XXXX~~ ~~XX~~ ~~XX~~ ~~XXXX~~ and tenths at MLWREMARKS: All times are in UTC. Separates are filed with the hydrographic data.
All marginal notes in black are by the evaluator.*David Surf MSM 5/12/86**SL 4-21-97*

PROGRESS SKETCH

OPR-PII4-RA-84

HYDROGRAPHIC SURVEY

SOUTHERN COOK INLET, ALASKA

JUNE 16 - JULY 31, 1984

NOAA SHIP RAINIER

JOHN P. VANDERMEULEN, CDR., NOAA

COMD'G

FROM CHART 16640

JUN	JUL	AUG	SEP
38 22 269 98			
447.3 11362 7			
359 0 466 9			
7	13		
0	0		
8	8		
0	1		
0	0		
1	1		
4	0		
12.6	0		
2.0	0		

SQ N.M. SOUNDING

L.N.M. SOUNDING LINE

L.N.M. MISCELLANEOUS DISTANCE

BOTTOM SAMPLES (GRAB)

WATER SAMPLES ANALYZED (SALINITY)

CONTROL STATIONS (ELECTRONIC)

SOUND VELOCITY, TEMPERATURE, DEPTH

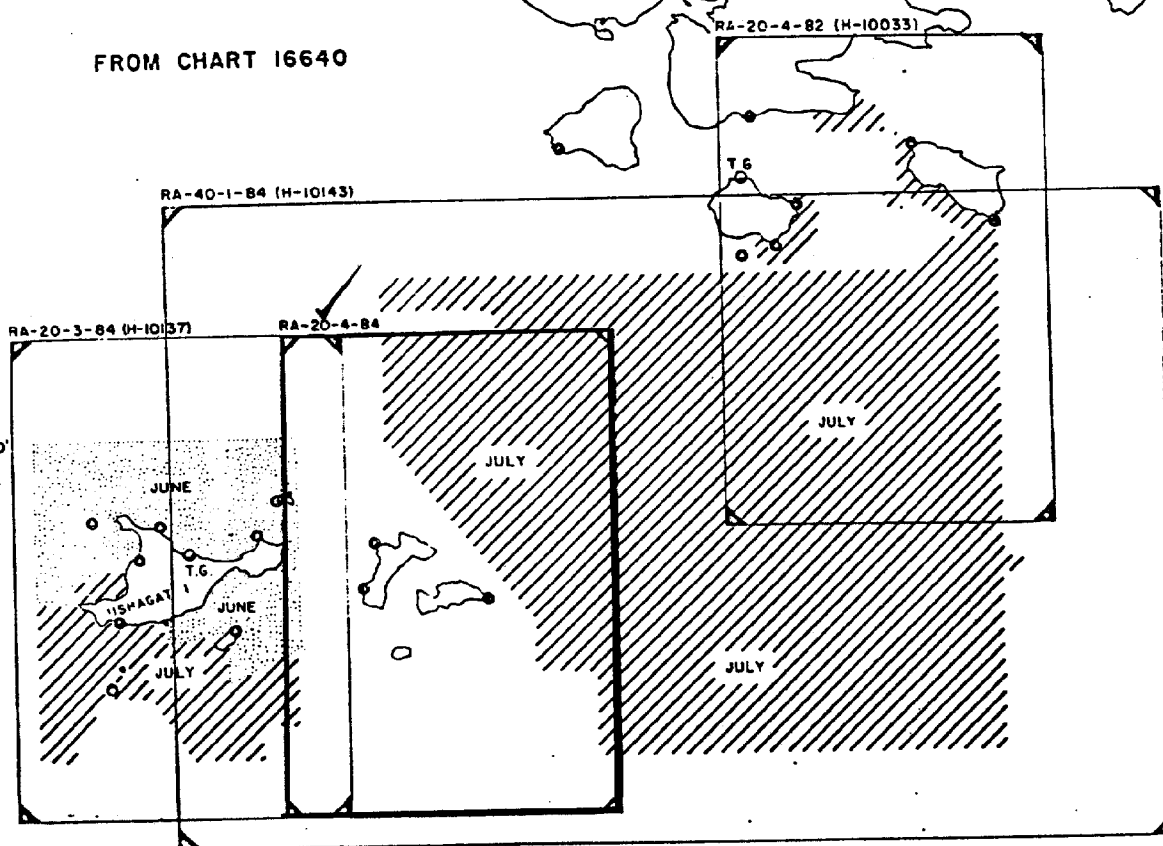
NANSEN CAST

TIDE GAGE

STATIONS ESTABLISHED BY TRAVERSE

L.N.M. SIDE SCAN SONAR

SQ.N.M. SIDE SCAN SONAR



A. PROJECT✓

Survey H-10149 was conducted in accordance with Project Instructions OPR-P114-RA-84, Southern Cook Inlet, Alaska, dated February 16, 1984, Change No. 1 dated April 27, 1984, and Change No. 2 dated June 21, 1984.

B. AREA SURVEYED✓

Survey H-10149 was performed in the areas of Sugarloaf, East Amatuli, and West Amatuli Islands, Barren Islands, Southern Cook Inlet Entrance, Alaska between July 27 and August 28, 1984 (Julian Dates 209-242). The area was surveyed to a scale of 1:20,000.

C. SOUNDING VESSELS✓

All soundings were obtained using the following hydrographic sounding vessels: RA-3 (Vesno 2123), RA-4 (2124), RA-5 (2125), and RA-6 (2126). Bottom samples were obtained by vesno 2125 and the RAINIER. No unusual vessel configurations or problems were encountered or utilized. The RAINIER (Vesno 2120) was utilized for all sound velocity casts.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS✓

Survey launches were equipped with Raytheon DSF-6000N dual beam echo sounders and depths on this survey ranged from 0 fathoms to 121 fathoms.

<u>VESSEL</u>	<u>SOUNDING EQUIPMENT</u>	<u>SERIAL NO.</u>
RA-3 (2123)	Raytheon DSF-6000N	A119N
RA-4 (2124)	Raytheon DSF-6000N	A117N
RA-5 (2125)	Raytheon DSF-6000N	A123N
RA-6 (2126)	Raytheon DSF-6000N	A103N

Both hardware and operational problems were encountered with the DSF-6000N echo sounders which were especially noticable while in shallow water and while operating in the dual beam/high digitize mode. For further details regarding this see Corrections to Echo Soundings Report OPR-P114-RA-84.

The DSF-6000N echo sounders were operated primarily in the dual beam/high digitize mode. Approximately 5 percent of the time the echo sounders were operated in the wide beam mode only or depths were scanned from the wide beam trace while operating in the dual beam/high digitize mode due to the deficiencies mentioned above. There were no discrepancies at the junctions of the wide beam and narrow beam data as the two traces were in close agreement at the points of changeover.

All soundings were taken from the launches under Mini-Ranger Range-Range or Range-Azimuth control. Since the echo sounding transducers on launches are directly below the Mini-Ranger R/T units the Andist associated with these survey data is 0.0 meters. The final field sheets were plotted with this Andist value.

Bar checks were conducted at least once daily for both beams of the DSF-6000N echo sounder as per the Provisional Operating and Processing Instructions for the DSF-6000N echo sounder. All bar checks were performed within the survey area. The bar checks were used to confirm proper system function, and bar check data were combined with velocity data to confirm launch TRA correctors. The TRA for the wide and narrow beams were within 0.1 fathom of each other and were averaged together to obtain a single TRA value. These TRA calculations show a 0.3 fathom TRA for all launches and the final smooth sheets were plotted with this value. *Concur*

Velocity corrections were derived from two Nansen casts taken during the survey. Two tables were created, each covering a specific period of time to account for change in velocity during this survey. The velocity correctors apply to both beams of the DSF-6000N echo sounders. The ^{Final field sheet} survey was plotted with a preliminary velocity correction table. Printouts of velocity tables are included in the separates following the text.

VELOCITY CAST

<u>CAST NUMBER</u>	<u>DATE</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>
II (Nansen)	02 August (214)	59-01-12N	151-54-42W
III (Nansen)	23 August (236)	59-05-18N	151-52-48W

VELOCITY TABLES

<u>Table Number</u>	<u>Based on Cast</u>	<u>Period</u>
5	II	JD 218-221
6	III	JD 214-242

TC/TI tapes were made in accordance with PMC OORDER, Appendix Q. Printouts of the TC/TI tapes are included in the separated following the text.

E. HYDROGRAPHIC SHEETS✓

Field sheets RA-20-4E-84 and RA-20-4W-84 were prepared on the Rainier using the PDP 8/e Hydroplot system and Complot plotter which produced a modified transverse Mercator projection. Expansion sheets were prepared of areas which were developed in more detail. Six of these expansion sheets are at a scale of 1:5,000 and one is at a scale of 1:10,000. A list of parameters used to define the field sheet is provided in the separates following the text. Sheets RA 20-4E-84 and RA 20-4W-84 were smooth plotted by JST Barnes and AST Cole, respectively.

All data and accompanying field records will be sent to the Pacific Marine Center, Seattle, Washington for verification.

F. CONTROL STATIONS✓

Horizontal Control for survey H-10149 was provided by the recovery of 10 existing stations and the establishment of two new stations. These stations are listed below:

RECOVERED STATIONS

GATE 1931
PORT 1931
AMATULI LIGHTHOUSE 1931
CHAR 1931
GRAY 1931
BARE 1931 1984
TURK 1931
LOOK 1931
SUD 1931
SEAL 1931

NEW STATIONS

CAMILLE 1984
DRAG TP

A misclosure was observed for BARE 1931. A new position was calculated for this station.

A copy of the master station list is included as part of this report. All stations are third order, Class I, or better. New stations were established by traverse.

Details concerning geodetic control for this survey can be found in the Horizontal Control Report. OPR-P114-RA-84.

G. HYDROGRAPHIC POSITION CONTROL

Range/Range and Range/Azimuth were the methods used for hydrographic positioning. Motorola Mini-Ranger III and Wild Theodolites (S/N 75599, 68648, and 73226) were the instruments used. The following tables summarize the location of all Mini-Ranger mobile and shore equipment.

MINI-RANGER MOBILE EQUIPMENT

<u>VESSEL</u>	<u>CONSOLE</u>	<u>R/T S/N</u>	<u>DATES</u>
2123	720	2710	219-236
2124	B0269	B1388	209-241
2125	715	911615	218-242
2126	711	B1405	219-242

MINI-RANGER SHORE EQUIPMENT

<u>CODE</u>	<u>TRANSPONDER S/N</u>	<u>STATION NUMBERS</u>
A	1645	208,215
B	4951	101,200,212
D	1569	109
E	911721	101,214,216
F	911711	102,200
O	C1789	102,200
1	C1883	215
2	B1106	205,206
3	1628	101,203,206,208,212

CALIBRATIONS AND PERFORMANCE

Mini-Ranger calibrations and systems checks were performed in accordance with PMC OPORDER, Appendices M and S. Initial Mini-Ranger baseline calibrations for this project were conducted at Lake Union, Seattle, Washington on 22 and 23 May 1984. System 715 was calibrated on July 6, 1984 at Elmendorf Air Force Base, Anchorage, Alaska. Ending baseline calibrations for this survey were conducted on the Homer Spit, Homer, Alaska on 25 August 1984.

On JD235, a critical calibration revealed a +222 meter error in system B2069 for code 3 only. This was confirmed during the baseline calibration of 25 August 84. The only data that were affected were those of vesno 2124 of JD 235 and 241. A baseline corrector of -222 meters was applied for the smooth sheet for those days.

Only initial correctors were used to plot the smooth field sheet. The initial calibrations also determined the minimum signal strength cut off values for each system. Critical calibrations to confirm baseline correctors were performed using either two theodolite angles or static calibrations. Daily system checks were performed using the three range, launch to launch, or baseline crossing method. For more information regarding systems checks and calibrations, refer to the Electronic Control Report, OPR-P114-RA-84. *The average of initial and final baseline calibrations were used to plot #10149, except for days 235 and 241.* Bottom samples obtained by the RAINIER on JD 243 were positioned via radar fixes converted to GP's.

Mini-Ranger performance was generally good. All transponders were set up on third order, class I (or better) geodetic stations.

H. SHORELINE✓

Shoreline was applied to the smooth field sheet from unregistered shoreline manuscript TP00826. Field edit was performed during the course of this survey. Hydrography was sometimes conducted into areas considered foul by the field edit. Rocks located by the hydrographer are shown in red on the field sheet. Reference numbers for shoreline verification were not used by the hydrographer because shoreline verification was accomplished by the field editor.

*See Section
2 of ERM
Report*

I. CROSSLINES✓

A total of 50.5 nautical miles of crosslines were run during the survey, representing 8.54% of the mainscheme mileage. Agreement of soundings at crosslines was excellent including areas of irregular bottom, with agreement generally within 1 fathom and not exceeding 2 fathoms in areas of steep bottom gradients.

concur

J. JUNCTIONS✓

This survey junctions with contemporary surveys H-10137, scale 1:20,000 to the west; H-10143, scale 1:40,000 to the east; and H-10105, scale 1:40,000, to the north. Soundings agree to within 2 fathoms and depth contours can be drawn smoothly at the junctions.

concur

K. COMPARISON WITH PRIOR SURVEYS✓

There were no Pre-Survey Review items assigned to this survey. This survey was compared to the following prior surveys:

*See Encl Report
Section 6*

<u>SURVEY</u>	<u>SCALE</u>	<u>YEAR</u>
H-3805	1:120,000	1915
H-5194	1:120,000	1931
H-5192	1:40,000	1931
H-5193	1:40,000	1931
H-5189	1:20,000	1931

All sounding comparisons were good, within 1 or 2 fathoms, except as stated below.

H-5194 and H-3805

These surveys overlapped only in small areas, and because of the large scale difference, meaningful comparisons could not be made.

concur

H-5192

A 23 fathom uncharted sounding at 58/50/25N and 152/02/03W should be superseded by a 14 fathom sounding on the present survey.

concur

H-5193

This survey compared well in its limited overlap area. *CONCUR*

H-5189

Table I shows soundings that were not in agreement and *CONCUR* should be superseded by the present survey:

TABLE I

<u>Prior Depth (fm)</u>	<u>Present Depth (fm)</u>	<u>Present Location</u>	<u>Previously Charted</u>
46	40	58/56/07. ⁴⁷ N 152/07/24 ^{0.67} W	NO
54	43	58/54/14 ^{3.82} N 152/07/34 ^{0.87} W	NO
40	38.7	58/56/26. ⁴¹ N 152/05/08 ^{6.92} W	NO
27	24 ²	58/54/50 ^{49.70} N 152/05/30 ^{27.85} W	NO
9	5.27	58/55/30 ^{8.62} N 152/04/10 ⁹⁴ W	NO
34	33 25	58/57/37. ¹⁸ N 152/03/04 ^{7.21} W	NO
13	8.2 ⁰	58/58/24 ^{16.47} N 152/02/54 ^{3.42} W	NO
5.5	3.8 ⁷	58/57/07 ^{6.81} N 152/01/28 ⁹⁷ W	NO
52	40 39	58/57/50 ^{4.69} N 152/00/03 ^{6.17} W	NO
11	1.9 ⁷	58/56/20 ^{13.29} N 151/59/26 ^{5.32} W	YES
14	11.6	58/54/54 ^{0.49} N 151/56/54 ^{3.21} W	YES
11	8.9 ⁹	58/52/50 ^{7.77} N 152/01/08 ^{19.22} W	YES
16	10.7 excess	58/52/56 N same G.P. 152/01/09 W as one above	NO
18	8.5	58/58/21.63 N 152/02/40.91 W	

TABLE II shows soundings that were not in agreement and should not be superseded by the present survey because they were not specifically disproven. Do not occur. See comments below.

TABLE II

<u>Prior Depth (fm)</u>	<u>Present Depth (fm)</u>	<u>Present Location</u>	<u>Previously Charted</u>
17	21.17	58/57/48 ^{1.13} N 152/05/29 ^{42.50} W	YES supersede by present survey
28	36.41	58/54/09 ^{6.13} N 152/05/28 ^{13.59} W	YES sounding transferred from prior survey to H-10149
9 3/4	14 ^{8.0}	58/58/18 ^{5.47} N 152/02/54 ^{3.42} W	YES supersede by present survey

TABLE III indicates the results of developments of significant peaks in the survey area.

TABLE III

<u>Expansion No.</u>	<u>Present Lat/Long</u>	<u>Present Depth</u>	<u>Prior Depth</u>	<u>Previously Charted</u>
1	58/53/47 ^{8.04} N 151/55/18 ^{9.72} W	11.3	* 10	YES Prior depth was transferred to H-10149 from H-5192
2	58/54/58 ^{7.98} N 151/56/42 ^{1.96} W	Rock (cov. 4 ft) Awash ^{11.11}	Rock Awash	YES Supersede by present survey
3	58/53/08 ^{2.63} N 152/45/03 ^{4.40} W	9.88	10	YES Supersede by present survey
4	58/55/21 ^{0.63} N 152/04/55 ^{3.2} W	3.8 4.0	* 2 5/6	YES Prior depth transferred from H-5194 to H-10149
	58/54/53 ^{44.39} N 152/05/06 ^{11.21} W	6.5	7.0	NO Supersede by present survey
5	See Note 1.			
6	58/58/26 ^{8.2} N 152/08/20 ^{1.35} W	3.5 6.5	7 1/4	NO Supersede by present survey
	58/58/27 N 152/08/24 W	3.6	13	NO see above
7	See Note 2.			

NOTE 1: Expansion #5 was developed to disprove some stray soundings from kelp. There are no significant peaks in the expansion area. This area is in the vicinity of 58/55/35 N, 152/02/15 W. *concur*

NOTE 2: Expansion #7 was covered extensively due to an irregular bottom. All significant depths were plotted on the smooth sheet. *concur*

* The two soundings marked with an asterisk should not be superseded by the present survey because they were not specifically disproven. *concur
transferred
to H-10149*

L. COMPARISON WITH THE CHART

Survey H-10149 was compared to NOS Chart No. 16606, 7th edition, 20 October 1979, published at a scale of 1:77,000 and enlarged to a scale of 1:20,000.

An unidentified mark on this chart at 58/56/00N, 152/01/37W was disproven by hydrography and field edit. *concur*
The source of this mark or islet should be reviewed. It is recommended that it be removed from the chart.
Present charted soundings originate with the prior surveys discussed in section K. There are no dangers to navigation identified or reports submitted by this ship for this survey. See Eval Report Section 7

M. ADEQUACY OF THE SURVEY

This survey is complete and adequate to supersede all prior surveys for charting purposes with the exceptions noted in section K of this report. *See Eval Report
Section 6*

N. AIDS TO NAVIGATION

No new aids to navigation were found that were not contained in the Light List. The only aid to navigation in the survey area is the *Amatuli Light, Light List #3463. Its position is 58/54/58.936 N, 151/56/59.541 W, from the NGS Computer Base Listing. The light adequately serves its intended purpose.

* East Amatuli Island Light

Q. STATISTICS ✓

<u>Sounding Vessel</u>	<u>Linear Nautical Miles of Hydro</u>	<u>Square Nautical Miles of Hydro</u>	<u>Number of Positions</u>
2120			9
2123	135.0		812 718
2124	248.4		1122 1097
2125	91.4		633 601
<u>2126</u>	<u>116.2</u>		<u>989</u> <u>954</u>
TOTALS	591.0	57.11	3556 3379

Bottom Samples: 17

Velocity Casts: 2

Tide Stations: 2

P. MISCELLANEOUS ✓

Some very substantial tidal currents were observed in the survey area, especially at times of maximum tidal range. These currents are strongest around the smaller islands and islets. Tidegrip notes were transferred to H-10149 from H-5199. Also a note appears on the smooth sheet stating strong currents exist throughout the survey area.

In August, the ship recieved a copy of selected Table 2 values for the Tidal Current Tables, 1985, Pacific Coast of North America and Asia. Due to the relatively late arrival of these predictions, only the Barren and Chugach Islands areas could be observed and no anomalous currents were observed or reported for those areas.

Bottom samples were not submitted to the Smithsonian Institute.

Q. RECOMMENDATIONS ✓

This survey is complete and no additional field work is *concur* recommended.

R. AUTOMATED DATA PROCESSING ✓

Data aquisition and processing were accomplished in accordance with the Hydrographic Manual (Fourth Edition), Manual of Automated Hydrographic Surveys, the PMC OORDER, Hydrographic Survey Guidelines, and the Hydrographic Data Requirements for 1983.

Soundings and positions were taken by ASI Loggers and Hydroplot systems. Hyperbolic Range/Range Hydroplot program RK 112 was used in conjunction with the Hydroplot system.

There are daily master tapes and corresponding corrector tapes which include the TRA for the sounding vessels, electronic control baseline correctors for Mini-Ranger consoles and R/T units and all depth corrections. Velocity tapes were generated from SV/D cast data. The following is a list of all computer programs and version dates used for data acquisition or processing:

<u>Number</u>	<u>Description</u>	<u>Version</u>
RK 112	Hyperbolic, R/R Hydroplot	4/23/84
RK 116	Range-Azimuth Hydroplot	4/28/84
RK 201	Grid, Signal, and Lattice Plot	4/18/75
RK 211	Range/Range Non-Real Time Plot	2/13/84
RK 212	Visual Station Table Load	4/01/74
RK 216	Range/Azimuth Non-Real Time Plot	2/24/84
RK 300	Utility Computations	10/21/80
RK 330	Reformat and Data Check	5/04/76
PM 360	Electronic Corrector Abstract	2/02/76
RK 407	Geodetic Inverse/Direct Computation	9/25/78
RK 500	Predicted Tide Generator	11/10/72
RK 561	H/R Geodetic Calibration	12/01/82
AM 602	Elinore-Line Oriented Editor	12/08/82
AM 606	Tape Duplicator	8/22/74
AM 607	Self-Starting Binary Loader	8/10/80
RK 610	Binary Tape Duplicator	12/01/82
RK 900	Plot Test Tape Generator for AM902	5/07/76
RK 901	Core Check	3/01/72
AM 902	Real Time Checkout	11/10/72
DA 903	Diagnostic-Instruction Timer	2/27/76
RK 905	Hydroplot Controller Checkout	3/18/81
RK 935	Hydroplot Hardware Tests	3/15/82
RK 950	Hardware Tests (Documentation Only)	6/02/75

S. REFERENCE TO OTHER REPORTS ✓

The following reports contain information related to this survey:

Echo Sounding Report	OPR-P114-RA-84
Electronic Control Report	OPR-P114-RA-84
Horizontal Control Report	OPR-P114-RA-84
Coast Pilot Report	OPR-P114-RA-84
Field Edit Report	OPR-P114-RA-84

Respectfully Submitted,

A handwritten signature in cursive script, appearing to read "Clifford C. Wilson".

Clifford C. Wilson
Ensign, NOAA

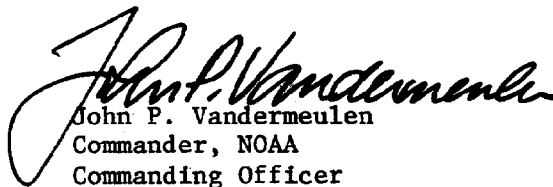
APPROVAL SHEET

DESCRIPTIVE REPORT TO ACCOMPANY

H-10149
RA-20-4-84

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

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


John P. Vandermeulen
Commander, NOAA
Commanding Officer

ATTACHMENT H

Page 1 of 2



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEANIC SERVICE
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

November 2, 1984

N/MOP21/MRK

Commander (QAN)
Seventeenth Coast Guard District
P.O. Box 3-5000
Juneau, Alaska 99802

Dear Sir:

During office review of hydrographic surveys H-10137 and H-10149, Barren Islands, Alaska, the following changes affecting charts 16606 and 16640 were noted. Questions concerning the surveys may be directed to Lt. Cdr. David W. Yeager, Chief, Nautical Chart Branch, telephone (206) 526-6835.

The following statements are recommended for inclusion in the Local Notice to Mariners:

"An uncharted shoal covered by 9.9 fathoms (MLLW based on predicted tides) is at latitude 58°54'33"N, longitude 152°22'06"W, bearing 268 degrees true, 13.0 nautical miles from East Amatuli Island Light."

H-10137

"An uncharted shoal covered by 6.2 fathoms (MLLW based on predicted tides) is at latitude 58°52'04"N, longitude 152°19'40"W, bearing 256 degrees true, 12.1 nautical miles from East Amatuli Island Light."

H-10137

"An uncharted shoal covered by 8.7 fathoms (MLLW based on predicted tides) is at latitude 58°52'08"N, longitude 152°18'58"W, bearing 256 degrees true, 11.7 nautical miles from East Amatuli Island Light."

H-10137

"An uncharted shoal covered by 8.8 fathoms (MLLW based on predicted tides) is at latitude 58°52'57"N, longitude 152°12'34"W, bearing 256 degrees true, 8.35 nautical miles from East Amatuli Island Light."

H-10137

"An uncharted shoal covered by 6.8 fathoms (MLLW based on predicted tides) is at latitude 58°53'34"N, longitude 152°11'46"W, bearing 260 degrees true, 7.8 nautical miles from East Amatuli Island Light."

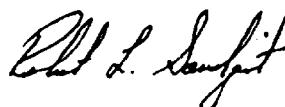
H-10137



"An uncharted shoal covered by ⁵4.5 fathoms (MLIW based on predicted tides) is at latitude 58°54'46"N, longitude 152°05'10"W, bearing 267 degrees true, 4.25 nautical miles from East Amatuli Island Light."

H-10149

Sincerely,



Robert L. Sandquist
Rear Admiral, NOAA
Director, Pacific Marine Center

MASIER STATION LIST
OPR-P114-RA-84
SOUTHERN COOK INLET, ALASKA

FINAL VERSION

~~100 5 58 57 16752 152 16 17167 250 0016 000000~~
/SHAG 1931 1984 RM 1 / RAINIER /

101 7 58 57 02693 152 10 41783 250 0015 000000
/GATE 1931 / NGS LISTING /

102 6 58 56 44882 152 03 46872 250 0008 000000
/PORT 1931 / NGS LISTING /

~~103 6 58 57 22681 152 16 22289 254 0000 000000~~
/SHAG T.P. / RAINIER /

~~104 1 58 57 29740 152 20 37300 250 0000 000000~~
/MIC 1931 / NGS LISTING /

~~105 4 58 58 14174 152 09 31298 250 0022 000000~~
/VAN 1984 / RAINIER /

~~106 3 58 56 13380 152 11 57533 254 0027 000000~~
/SKI T.P. / RAINIER /

~~107 3 58 56 21255 152 17 46635 250 0053 000000~~
/SANDRA 1984 / RAINIER /

~~108 0 59 06 25029 151 26 29533 250 0111 000000~~
/EAST CHUGACH LIGHT 1977 / NGS LISTING /

109 3 58 54 58936 151 56 59541 250 0037 000000
/AMATULI LIGHTHOUSE, 1931 / NGS LISTING /

~~111 3 59 08 49791 151 52 28807 250 0015 000000~~
/CAPE ELIZABETH LIGHT / NGS LISTING /

~~112 6 59 08 40786 151 31 14587 250 0003 000000~~
/SPIT 2 1977 / NGS LISTING /

~~113 2 59 05 26266 151 41 32582 250 0020 000000~~
/PERL ROCK LIGHT / NGS LISTING /

~~114 3 59 09 42111 151 40 43871 250 0000 000000~~
/HIKE 1980 / NGS LISTING /

~~115 5 59 07 06675 151 38 16550 250 0024 000000~~
/PERL ISLAND LIGHT / RAINIER 1982 /

~~116 2 59 05 46006 151 39 27627 250 0001 000000~~
/TOP 1931 / NGS LISTING /

200 7 58 57 15006 152 02 29471 250 0001 000000
/CHAK 1931 NGS LISTING

~~201 3 58 57 36774 152 18 32358 139 0285 000000~~
~~/HEAD 1931-1975 1984 RAINIER~~

~~202 6 58 53 24783 152 02 01745 139 0122 000000~~
~~/HUMP 1931 NGS LISTING~~

203 3 58 54 38687 152 03 15597 254 0028 000000
/DRAG TP 61 67 RAINIER

205 4 58 55 20243 152 04 36341 250 0009 000000
/GRAY 1931 NGS LISTING

206 3 58 56 07534 152 09 23481 250 0016 000000
/BARE 1931-1984 RAINIER

208 1 58 56 11618 152 00 40328 250 0009 000000
/TURK 1931 NGS LISTING

~~210 1 58 54 32469 152 00 31096 139 0030 000000~~
~~/LOOK 1931 NGS LISTING~~

~~211 1 58 54 19360 152 18 02090 250 0006 000000~~
~~/RIDGE 1931 NGS LISTING~~

212 3 58 54 06876 152 12 11590 250 0066 000000
/SUD 1931 NGS LISTING

~~213 6 58 53 28948 152 02 38780 139 0006 000000~~
~~/LOAF 1931 NGS LISTING~~

~~214 6 58 52 16293 152 19 44111 250 0009 000000~~
~~/LION 1931 NGS LISTING~~

215 4 58 52 43043 152 02 04379 250 0035 000000
/CAMILLE 1984 8 RAINIER

216 6 58 55 17045 152 01 13530 250 0002 000000
/SEAL 1931 NGS LISTING

*

FIELD TIDE NOTE
RA-20-4-84
H-10149

Field tide reduction of soundings for survey H-10149 was based on predicted tides from Seldovia, Alaska (945-5500). Corrections were obtained from Preliminary Tidal Zoning OPR-P114-RA-84. The predicted tides were derived using program AM500.

Two Bristol Bubbler tide gages were installed at two locations in the project area. Location and period of operation are as follows:

<u>SITE</u>	<u>LOCATION</u>	<u>PERIOD</u>
Ushagat Island	58/56/30N, 152/14/30W	June 17-August 31, 1984
Perl Island	59/07/48N, 151/41/48W	July 18-August 31, 1984

USHAGAT ISLAND

Gage (S/N 64A11026) was installed and levels were run June 17, 1984. No staff was installed, therefore, levels were run from reference mark BM3 to the waters edge.

On August 9, 1984 a storm caused the orifice to relocate to a position 3.0 ft deeper. The orifice was secured at this level by divers on August 17, 1984. Records are consistent and should be accurate throughout this period.

The marigram was lost completely from 0730 hrs August 20 to 2100 hrs August 22, when the orifice was washed ashore during a storm. The orifice was reinstalled and good records were obtained until the orifice tubing developed a leak at 0945 hrs August 26 during another gale. The tubing was repaired and good records were obtained until the gage was removed August 31, 1984. Weather conditions did not permit a final leveling to the waters edge.

PERL ISLAND

Gage (SN 64A11031) was installed, leveled, and began operation July 18, 1984. A staff was installed and good records were obtained until a storm on August 20 caused the staff to fall. The staff was not replaced. Levels run to the waters edge proved the orifice had not moved. One day of records was lost from 1400 hrs August 22 to 1330 hrs August 23 due to a malfunction of the pen. Good records were obtained until 0200 hrs August 26 when the orifice line was broken during a storm. The gage was down and records were lost until the removal on August 31, 1984. A final leveling to the waters edge could not be made because the gage was not operating.

LEVELS

The reference station at Seldovia was leveled June 21, 1984. Final levels were run August 24, 1984. Initial and final levels compared very well.

Final levels on the two subordinate stations at Ushagat Island and Perl Island were run August 28, and August 31, 1984 respectively.

Levels to both gages were not run, see discussion above ; Perl Island and Ushagat Island.

DATE: 01/02/85

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Pacific

OPR: P114

Hydrographic Sheet: H-10149

Locality: Amatuli Island, and Vicinity, Cook Inlet, AK

Time Period: August 5-29, 1984

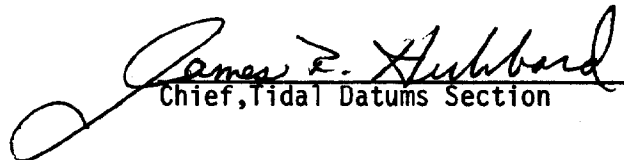
Tide Station Used: 945 5427 Perl Island, AK
945 5478 Ushagat Island, AK

Plane of Reference (Mean Lower Low Water): 945 5427 = 20.28 ft.
945 5478 = 15.45 ft.

Height of Mean High Water Above Plane of Reference: 945 5427 = 12.8 ft.
945 5478 = 12.9 ft.

Remarks: Recommended Zoning:

See page 2


Chief, Tidal Datums Section

DATE: 01/02/85

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

TIDE NOTE FOR HYDROGRAPHIC SHEET (CONT'D)
OPR-P114 H-10149

1. Southeast of line formed by 2 points located at, $58^{\circ}45.5'$ and $59^{\circ}04.5'$
 $152^{\circ}13.0'$ $151^{\circ}43.0'$
 - a. East of longitude $152^{\circ}00.0'$ zone on 945 5427 and apply +10 minute time correction and x0.94 range ratio to all heights.
 - b. West of longitude $152^{\circ}00.0'$ zone on 945 5478 and apply -10 minute time correction.
2. Northwest of the line formed by 2 points located at, $58^{\circ}45.5'$ and $59^{\circ}04.5'$
 $152^{\circ}13.0'$ $151^{\circ}43.0'$
 - a. East of the longitude $152^{\circ}00.0'$
 1. South of latitude $59^{\circ}00.0'$ zone on 945-5427 and apply +10 minute time correction and x0.98 range ratio to all heights.
 2. North of latitude $59^{\circ}00.0'$ zone on 945 5427 and apply x0.98 range ratio to all heights.
 - b. West of longitude $152^{\circ}00.0'$
 1. South of latitude $58^{\circ}54.0'$ zone on 945 5478 and apply a -10 minute time correction to all heights.
 2. North of latitude $58^{\circ}54.0'$ to $59^{\circ}00.0'$ zone direct on 945 5478.
 3. North of latitude $59^{\circ}00.0'$ zone on 945 5478 and apply +10 minute time correction to all heights.

GEOGRAPHIC NAMES

H-10149

Name on Survey	ON CHART NO. 16606									
	A	B	C	D	E	F	G	H	K	
	ON PREVIOUS SURVEY NO.	CON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP ATLAS	RANDOMLY	U.S. LIGHT LIST			
EAST AMATULI ISLAND	X								1	
WEST AMATULI ISLAND	X								2	
SUGARLOAF ISLAND	X								3	
STEVENSON ENTRANCE	X								4	
KENNEDY ENTRANCE	X								5	
AMATULI LIGHTHOUSE (cultural)							X		6	
NORD ISLAND	X								7	
BARREN ISLANDS	X								8	
COOK INLET	X								9	
ALASKA (title)									10	
									11	
									12	
									13	
									14	
									15	
									16	
									17	
									18	
									19	
									20	
									21	
									22	
									23	
									24	
									25	

Approved:

Charles E. Harrington
Chief Geographer - N/CG2x5

OCT 15 1984

HYDROGRAPHIC SURVEY STATISTICS

H-10149

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	SMOOTH OVERLAYS: POS., ARC, EXCESS	9
DESCRIPTIVE REPORT	2	FIELD SHEETS AND OTHER OVERLAYS	7

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

SHORELINE DATA

SHORELINE MAPS (List): TP-00826

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List): Chart 16606 enlargement

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			3379
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	99.5		99.5
VERIFICATION OF SOUNDINGS	276		276
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	169.5		169.5
COMPARISON WITH PRIOR SURVEYS AND CHARTS		27.5	27.5
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		20	20
GEOGRAPHIC NAMES			
OTHER* Digitizing			14
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	545	47.5
Pre-processing Examination by J. Stringham	Beginning Date 12/6/84	Ending Date 12/6/84	
Verification of Field Data by Shofner	Time (Hours) 522.5	Ending Date 10/3/85	
Verification Check by J. Stringham, B. Olmstead, J. Green	Time (Hours) 57.5	Ending Date 12/2/85	
Evaluation and Analysis by C. Davies	Time (Hours) 47.5	Ending Date 11/29/85	
Inspection by D. Hill	Time (Hours) 2	Ending Date 12-2-85	

PACIFIC MARINE CENTER
EVALUATION REPORT
H-10149

1. INTRODUCTION

H-10149 was accomplished by the NOAA Ship RAINIER in accordance with the following project instructions:

OPR-P114-RA-84, dated February 16, 1984
Change No. 1, dated April 27, 1984
Change No. 2, dated June 21, 1984

This is a basic hydrographic survey centered on three of the Barren Islands: East and West Amatuli Islands and Sugarloaf Island which are located between Kennedy Entrance and Stevenson Entrance to Cook Inlet, Alaska. The survey extends north three nautical miles from West Amatuli Island to latitude 59°00'12"N, south three nautical miles from Sugarloaf Island to latitude 58°50'00"N, east one and one half nautical miles from East Amatuli Island to longitude 151°54'30"W, and west two nautical miles from West Amatuli Island to longitude 152°08'20"W. The shoreline is typically rocky with many fringing ledges. Numerous beaches are rough, being gravel or boulder strewn. The mean low waterline has not been developed in most areas due to the difficult surveying conditions near shore. Offshore from the main islands, there are smaller islands and islets and several rocky shoals which are marked by rocks uncovering at MLLW or which rise to minimum depths of approximately one fathom. Deepest depths in the area are approximately 100 fathoms to the east in Kennedy Entrance. Bottom characteristics are generally sand, shells and pebbles.

Predicted tides based on the Seldovia, Alaska gage with time and range adjustments were utilized during shipboard processing. Tide correctors used for the reduction of final soundings are computed from approved hourly heights from the two temporary tide gages, Ushagat Island and Perl Island.

Projection parameters were changed to center the hydrography on the smooth sheet and to change the projection to polyconic. The electronic correctors were also changed to incorporate the results of the mean of the initial and final baseline calibrations except for J.D. 235 and 241. A daily corrector of -222 meters was used to plot the data for these days. The revised data is listed in the smooth position/sounding printout.

The 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

All horizontal control stations used for controlling hydrography were established in accordance with Third Order Class I or better geodetic standards. The smooth sheet was plotted using published NGS coordinates for existing stations except for Station Bare, 1931. A new position was calculated for this station. Field positions were used for the newly established stations. All stations are based on the North American Datum of 1927.

Hydrographic positioning was conducted using Motorola Mini-Ranger III, configured in both range-range and range-azimuth modes. Baseline calibrations were performed before and after completing the hydrography. Daily system checks to confirm the baseline values were conducted using two-theodolite angles or static calibrations methods.

All remaining information affecting the positioning and station control for this survey is contained in paragraph F and G of the Descriptive Report and the Horizontal Control and Electronic Control Reports for OPR-P114-RA-84.

Shoreline for this survey originated from unreviewed Class I manuscript TP-00826. The photography was flown in August, 1975 and June, 1976. Field edit was conducted in August, 1984.

3. HYDROGRAPHY

Crossline soundings are in good agreement. Generally, all standard depth curves are complete and satisfactory, except in areas that are foul and those on steep slopes near the shoreline. The bottom configuration and least depths were adequately determined with the exception of several areas where prior survey soundings have been brought forward to the smooth sheet and the following:

<u>Depth</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
3 ⁸	58°53'01.99"	152°01'26.43"
8 ₇	58°58'15.47"	152°02'53.42"
3 ₇	58°57'06.81"	152°01'28.97"
1 ₃	58°54'49.31"	151°57'11.55"
* 9 ₆	58°55'00.89"	151°56'21.87"
5 ₅	58°54'46.39"	152°05'11.21"
6 ₉	58°53'28.85"	152°01'22.61"
5 ₈	58°53'20.53"	152°01'01.78"
9 ₈	58°53'02.63"	152°01'04.40"
* 3 ⁸	58°55'20.63"	152°04'55.32"

*Soundings exsessed for H-5189 (1931) data

4. CONDITION OF SURVEY

The hydrographic records and reports are adequate and conform to the requirements of the Hydrographic Manual except as noted in the Preprocessing Examination, dated November 2, 1984, and the following:

- a. Several soundings warranted further development to locate the least depths (see Section 3, Hydrography, and prior soundings brought forward on the smooth sheet). The investigations of these features were incomplete (Hydrographic Manual 4.3.4 and 4.1.1.7), however, additional field work to resolve these problems should have no special priority due to the generally rocky nature of the entire area.
- b. One danger to navigation was found during the Preprocessing Examination of the final field sheets. The hydrographer should review the final field sheet for possible dangers to navigation and should initiate the reporting of these dangers (Hydrographic Manual 1.6.4, 5.9, PMC OORDER appendix A, and project instructions 6.13).
- c. A sufficient number of bottom samples were not on H-10149. Frequencies of bottom samples in various depths of water are specified in section 1.6.5 of the Hydrographic Manual.

5. JUNCTIONS

H-10149 joins H-10137 to the west, H-10143 to the east and H-10105 to the north. Junction with H-10105 was not formally completed because the survey was processed earlier and is not at the Pacific Marine Center; however, comparison was made with a copy of the survey and soundings are in agreement. The soundings and depth curves for all other surveys are inked in agreement.

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-3805 (1915) 1:120,000
 H-5189 (1931) 1:20,000
 H-5192 (1931) 1:40,000
 H-5193 (1931) 1:40,000
 H-5194 (1931) 1:120,000

The effects of the 1964 Prince William Sound earthquake were considered in the comparison of this survey. A comparison of the common rock elevations indicates a possible subsidence of approximately 2 feet within the survey area. A comparison between soundings indicates a general agreement within ± 1 to 2 fathoms. Although a subsidence of approximately 2 feet in the area may have occurred as a result of the 1964 earthquake, the major differences between soundings are attributed to the relative accuracy of the data acquisition techniques and the datum adjustments. Data brought forward to this survey from the prior surveys were not corrected for the possible subsidence.

Several prior soundings, features, and descriptive notes were transferred from H-5189 (1931) and H-5192 (1931) to depict shoaler information, bottom samples, and tide rips. With the transfer of the prior information onto the H-10149 smooth sheet, this survey is adequate to supersede the prior surveys within the areas of common coverage.

7. COMPARISON WITH CHART

Chart 16606 7th Edition, dated October 20, 1979.

a. Hydrography - Charted information originates with the prior surveys discussed in section 6 of this report and from miscellaneous sources. For an adequate discussion of the comparison between the chart and the present survey, see section L of the hydrographer's report.

H-10149 is adequate to supersede charted hydrography within the common area.

The geographic names shown on the smooth sheet were approved by the Chief Geographer and were placed on the smooth sheet in accordance with this chart.

The area covered by H-10149 was examined for dangers to navigation. One danger was found during the Preprocessing Examination and was reported to the Seventeenth Coast Guard District, see letter attached, and DMAHTC via Automated Notice to Mariners System.

b. Controlling Depths - There are no controlling depths within the limits of H-10149.

c. Aids to Navigation - There is one fixed aid and no floating aids to navigation within the limits of H-10149. The survey position is contained in Section N of the hydrographer's report. This aid adequately serves the purpose intended.

8. COMPLIANCE WITH INSTRUCTIONS

H-10149 adequately complies with the project instructions except where noted in section 4 of this report.

9. ADDITIONAL FIELD WORK

This is an adequate hydrographic survey and no additional field work is recommended at this time.

Respectfully submitted,

Charles R. Davies

C.R. Davies
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-10149

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.


Chief, Nautical Chart Branch (Date)

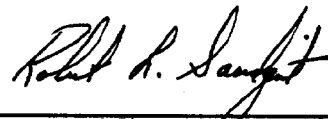
CLEARANCE:

N/MOP2:LWMordock

SIGNATURE AND DATE:



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.


Director, Pacific Marine Center (Date)

