9878

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. FA-10-2-80

Office No. H-9878

LOCALITY

State Alaska

General Locality Cook Inlet

Locality Port Graham

1980

CHIEF OF PARTY
CAPT A. J. Patrick

LIBRARY & ARCHIVES

DATE October 4, 1982

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

9878

6
5
6645
6646
6640
6013
53

TO SIGN OFF SEE "RECORD OF APPLICATION"

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

H-9878

HYDROGRAPHIC TITLE SHEET

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

FIELD NO.

FA-10-2-80

State Alaska

General locality Cook Inlet

Locality Port Graham

Scale 1:10,000 Date of survey June 9 - July 24, 1980

Instructions dated April 10, 1980 Project No. OPR-P114-RA/FA-80

Vessel NOAA Ship FAIRWEATHER (2020), Launches 2023, 2024, 2025

Chief of party CAPT A. J. Patrick

Surveyed by LT D. G. Hennick, LTJG V. D. Ross, ENS C. P. Hancock, ENS A. F. Trimble, CST E. R. Krick

Soundings taken by echo sounder, hand lead, pole

Graphic record scaled by Hydroplot

Graphic record checked by LT D.G. Hennick, LTJG V.D. Ross, ENS C.P. Hancock, ENS A.F. Trimble, CST E. R. Krick

Verification ~~Protracted~~ by M. G. Sanders Automated plot by PMC Xynetics Plotter

Evaluation ~~Verification~~ by B. A. Olmstead

Soundings in fathoms and tenths 1 feet at MLW MLLW

REMARKS:

AWOIS + Surf GMSM 11/2/85

notes in red added during QC.

miscellaneous pages have been removed and filed with the field records

All times for this survey are GMT

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

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

PROGRESS SKETCH
OPR-P114-FA-80
LOWER COOK INLET, ALASKA
NOAA SHIP FAIRWEATHER (S-220)
CAPT A. J. PATRICK, CMDG
SCALE OF NOS CHART 16640 8554
-1980-

	MAY	JUNE	JULY	AUGUST
LNM SOUNDING LINE		703	978	69
90 NM SOUNDING LINE		68.8	106	2
NANSEN - MARTEK CAST		3	2	1
BOTTOM SAMPLE		64	73	0
HYDROGRAPHY				

STATIONS RECOVERED AND ESTABLISHED

MAY

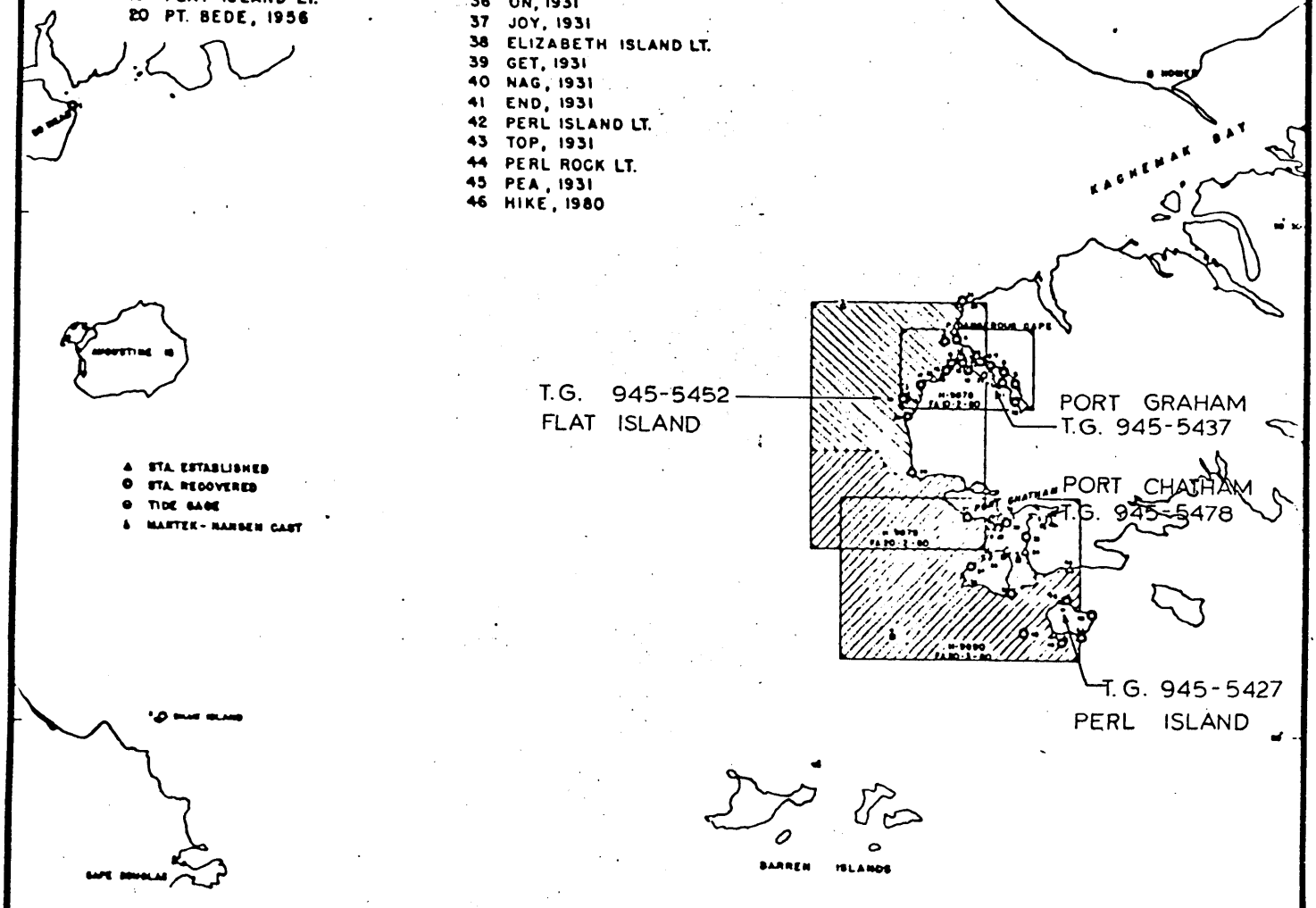
1 SO. HEAD RM-5, 1980
2 SHAW RM-4, 1965
3 BIRD 2, 1956
4 DOWN 2, 1956
5 POINT 2, 1956
6 GRASS 2, 1956
7 GRASS 2 RM-3, 1980
8 IVORY, 1956
9 JEWEL, 1956
10 LUCKY, 1956
11 OSAGE, 1956
12 LEDGE 2, 1956
13 MAPLE, 1956
14 PORT GRAHAM ENT. LT.
15 CHANNEL, 1956
16 SOUTH, 1956
17 HERON, 1956
18 FLAT ISLAND, 1956
19 FLAT ISLAND LT.
20 PT. BEDE, 1956

JUNE

21 COAL, 1980
22 SPIKE 3, 1980
23 ENGLISH, 1980

JULY

24 DANGEROUS, 1910-1956
25 PT. POGIBSHI LT.
26 ADAM, 1906-1931
27 GAB, 1931
28 CROW, 1931
29 CLAM, 1931
30 KELP, 1906
31 CROME, 1980
32 WHITE SCAR, 1980
33 STREAK, 1931
34 ALBERTA, 1980
35 JACQUELINE, 1980
36 ON, 1931
37 JOY, 1931
38 ELIZABETH ISLAND LT.
39 GET, 1931
40 NAG, 1931
41 END, 1931
42 PERL ISLAND LT.
43 TOP, 1931
44 PERL ROCK LT.
45 PEA, 1931
46 HIKE, 1980



Descriptive Report to Accompany Hydrographic Survey
H-9878 (Field No. FA 10-2-80)
Scale: 1:10,000
Year: 1980
Vessel: NOAA Ship FAIRWEATHER S220
Commanding Officer: Captain A. J. Patrick

A. PROJECT

The survey was performed in compliance with Project Instructions OPR-P114-RA/FA-80, Southern Cook Inlet, Alaska, dated 4/10/80; Change No. 1: Supplement to Instructions, dated 4/11/80; Change No. 2: Supplement to Instructions, dated 4/30/80, and Data Requirements Letter dated 4/11/79. The PMC OPORDER and the Hydrographic Manual are also applicable. ✓

B. AREA SURVEYED

The area surveyed is Port Graham, an inlet oriented roughly east-southeast on the east coast of Southern Cook Inlet, north of the Barren Islands, Alaska. Approximate limits of the survey are between latitudes 59°19'30"N and 59°23'30"N, and longitudes 151°57'00"W and 151°46'00"W. Hydrography was run between June 9, 1980 and July 24, 1980. See Verification Report Sec 1 ✓

C. SOUNDING VESSELS

The vessels used to run hydrography on this sheet were launches FA-3, 2023 and FA-4, 2024. FA-5, 2025 took bottom samples. No unusual sounding vessel configurations were used, nor any unusual problems encountered. All launches used Aircraft Standards Hydrographic Loggers for range/azimuth and the hydroplot/hydrolog system for range/range. All bottom samples were hand logged in a sounding volume. ✓

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

All launches were equipped with Ross echo sounders as per the following table.

Vessel	Instrument	Model	S/N
FA-3	Ross	200-A	1036
	Ross Fineline	5000	1054 (J. D. 198)
	Digitizer	Ross	1054
	Inverter	Ross	1046
FA-4	Ross Fineline	5000	1054
	Digitizer	Ross	1036
	Inverter	Ross	1054

✓

Vessel	Instrument	Model	S/N
FA-5	Ross Fineline	5000	1047

Nansen and MarTek casts were taken at various times and locations throughout the project including the waters of Port Graham to determine the velocity of sound through sea water. With the exception of a cast at the end of the project well after this survey was complete no significant temporal or spacial variations were found. Data from the casts in the following table were meaned to provide the velocity correctors for this survey. The velocity corrections were not applied to the final field sheet.

Type of Cast	Serial #	Date	Location
MarTek	395	6/12	59°25.1'N, 152°04.6'W
MarTek	395	6/15	59°22.8'N, 151°51.5"W
MarTek	395	7/18	59°05.8'N, 152°00.5'W
Nansen	---	6/12	59°25.1'N, 152°04.6'W
Nansen	---	7/18	59°05.8'N, 152°00.5'W

The MarTek instrument was calibrated in September, 1979 (temperature and conductivity) and March, 1979 (pressure). Instrument initials were maintained at 0.0 during survey operations by the echo sounder operators. Phase calibrations were made daily as a check between digital and analog output. When scanning the sounding rolls the difference between digital and analog records as determined by the phase calibrations were taken into account. Any subsequent scanning of the records should begin with a reference to the daily phase calibrations for a corrector. At times this corrector was as much as 0.2 or 0.3 fathoms.

TRA correctors are based on daily bar check measurements as per section 4.9.5.3 of the Hydrographic Manual and settlement and squat tests run in January, 1980.

All data was scanned for peaks and deeps and any indications of the presence of isolated rocks. The depths of this survey ~~range from 1 fathom to 31 fathoms~~ extend to 32 fathoms.

See Report on Corrections to Echo Soundings, OPR-P114-FA-80 for more details and raw data for determining corrections to echo soundings.

E. HYDROGRAPHIC SHEETS

The field sheets were made aboard the FAIRWEATHER with the PDP 8/e computer (S/N 09524) and the complot (S/N 6166-22) in April and May, 1980. The scale is 1:10,000. Copies of the parameter tapes are attached. All field records will be forwarded to PMC for verification and smooth plotting.

F. CONTROL STATIONS

All horizontal control was done with respect to the North American Datam 1927 (NAD 1927). Most of the stations used for hydrographic control were previously established. However, three new stations were established using Third Order, Class I and better methods to control the launches in areas not adequately covered. An eccentric was established by traverse at Port Graham Entrance Light. SPIKE 3 1980 was established by traverse to replace lost station SPIKE 2 1956. A third reference mark at GRASS 2 1956 was established by resection.

Two visual hydrographic signals for bottom samples and other detached positions were located by sextant with third order or photogrammetrically located stations. No unconventional methods were used. There are no known photogrammetric problems. The control stations listed below have been monumented and described. See Horizontal Control Report, OPR-P114-FA-80 for more information and raw data concerning station location.

Lucky, 1956

Jewel, 1956

Ivory, 1956

Osage, 1956

Grass 2, 1956

Ledge 2, 1956

Point 2, 1956

Maple, 1956

Port Graham Entrance Light, 1956

Bird 2, 1956

Channel 1956 08

Down 2, 1956

South, 1908-~~1956~~

Grass 2, 1956 RM 3 ~~1980~~

English, 1980

G. HYDROGRAPHIC POSITION CONTROL

Teledyne - Hastings Raydist in range/range mode was used for control of hydrography west of Passage Island at the entrance to Port Graham Inlet. Visual sextant calibrations were used before and after hydrography each day to determine correctors. Mini Ranger III range/range and range/azimuth control was used in the rest of the inlet. Baseline calibrations as per PMC OPORDER, Appendix M were performed at the beginning and end of the project. Visual sextant fixes were used for daily Mini Ranger III systems checks, except in the inlet near Port Graham village where a dolphin just off Port Graham pier was located by intersection for use as a fixed point Mini Ranger III systems check site. The dolphin was located by Third Order, Class I methods. Visual sextant control was used for some bottom samples and detached positions during the survey.

The Raydist sites were set up on the west side of Cook Inlet to insure good arc intersections in the survey area. One site was South Head, at the entrance to Iliamna Bay, set up over a railroad spike driven into bedrock and located by a geodetic direct computation, using Third Order, Class I methods. The railroad spike is referred to as SOUTH HEAD 1907 - RM 5 1980 in field records (Signal 118, Green). The Raydist tower was 60 feet with a 35 foot whip, for a combined height of 95 feet. The other Raydist sight was on Shaw Island, set up over Shaw 1949 RM 4 1966 which was established as a Shoran site in 1966 (Signal 119, Red). This tower was also 60 feet with a 35 foot whip, for a combined height of 95 feet.

No unusual methods, equipment malfunctions, substandard operation, unusual atmospheric conditions, weak signals, poor geometric configuration or systematic errors were noted in the control system. There were no changes to tower heights.

See Electronic Control Report, OPR-P114-FA-80 for more information. Daily Raydist calibration and Mini Ranger systems check data have been submitted with the daily hydrographic records.

The electronic control equipment used by each sounding vessel is listed below.

FA-3

Mini Ranger Console/RT: 702
Raydist Navigator: 18
Raydist Interface: 37
Raydist Strip Chart: 11692
Raydist Mobile Transmitter: 28
Mini Ranger Transponders: 704 (702 on J. D. 161/162)

FA-4

Mini Ranger Console/RT: 701
Raydist Navigator: 16
Raydist Interface: 09
Raydist Strip Chart: 03171
Raydist Mobile Transmitter: 96
Mini Ranger Transponders: 701 on J. D.: 161/162, 177, 180, 182
702 on J. D.: 170, 176, 179, 180
703 on J. D.: 180, 181/182
704 on J. D.: 170/171, 171, 172, 179, 180

H. SHORELINE

All shoreline details on the final field sheet were taken from class three manuscripts TP-00815 and TP-00816. Field Edit was performed on all shoreline during and after hydrography. The manuscripts did not arrive until after this survey was nearly complete. All corrections and changes to the manuscripts are shown on the final field sheet in red. Foul line limits have been determined as described in P. MISCELLANEOUS and the FIELD EDIT REPORT OPR-P114-FA-80.

See Verification Report Sec 2

I. CROSSLINES

Crosslines were run according to the Hydrographic Manual. One hundred ninety two (192) nm of main scheme hydrography were run with 17 nm of crosslines or 9% of the total miles of main scheme. The crosslines agree well with the main scheme, within 1 fathom in depths over 10 fathoms after corrections and computer rounding is accounted for, and less than .5 fathom in depths of 10 fathoms or less. Inshore discrepancies are along rocky stretches of shoreline. Offshore discrepancies fall along slopes.

J. JUNCTIONS

This survey junctions on the west with the northeast portion of H-9879 (FA 20-2-80).

The two sheets junction exceptionally well. There are occasional soundings that differ by 1 fathom in 20 to 21 fathoms. This is most likely due to the higher density of soundings on the larger scale survey.

K. COMPARISONS WITH PRIOR SURVEYS

The prior surveys used for comparison are: H-2974, 1:10,000, 1908; H-2974a, 1:10,000, 1915; H-3804, 1:20,000, 1915; H-4467, 1:10,000, 1925.

PSR #29 FISHTRAP, 59°21.35'N, 151°55.6'W (from H-3804)
PSR #30 SOUNDING, 59°22.0'N, 151°55.06'W, Pos. 2696 - 2714, 2769 - 2786 (from H-2974)

H-2974 - 2974a: The soundings agree within 1 fathom in 15 to 20 fathoms with FA 10-2-80. However, there are two areas along sand and gravel beaches that have eroded and moved the 0 fathom contour inshore. Also in the head of the inlet, at the east end of the sheet, the 0 fathom contour has moved farther east. This is probably due to scouring of the soft mud bottom or to possible ground sinking during the 1964 earthquake.

The three areas are:

59°23'00"N, 151°53'00"W to 59°22'30"N, 151°52'00"W;
59°20'35'N, 151°49'15"W to 59°20'50"N, 151°48'30"W;
59°19°55"N, 151°47'25"W to 59°19'40"N, 151°46'15"W

The chart should be modified to reflect the changes.

Investigations discussed below were restricted to closely spaced sounding lines. Sweeps and drags were not feasible because of kelp. Dives were planned and attempted over several shoals but due to large currents and heavy swells only one dive was successful. Least depths were obtained by echosounder.

PSR #30: This PSR is a 3 fathom sounding charted at latitude 59°22.0'N, longitude 151°55.06'W. A development was run over the area at 20 meter spacing. Then a star pattern was run in toward the least depth to determine whether the least depth was a pinnacle. To further define the rock the 20 meter development lines were split. (source of 3fm is H-2974 and Ad WK (1908-15)) 22'00.00'

A rock was defined with a least depth of 2⁶ fathoms at latitude 59°~~21'59.9"N~~, longitude 151°55'03"W. Therefore, the 3 fathom sounding should be recharted as a 2⁶ fathom RK ~~sounding~~. (pos w 2710+6) concur

See Verification Report Sec 6

Several shoals on the prior survey were investigated and developed. Developments plotted on the 1:2500 scale blow-ups are lettered to distinquish from PSR developments and facilitate processing.

Development A: Arc spacing of 15 meters was run to develop a shoal indicated by a 8 fathom sounding at 59°21'59.5"N, 151°53'33"W. Several soundings shallower than 8 fathoms were found in the area.

The least depth found in the area was 7⁸ fathoms at 59°21'58.7"N, 151°53'31.0"W and 59°21'59.1"N, 151°53'31"W. This shoal should be recharted to show the 7 fathom sounding. chart area as shown on present survey Concur

Development B: A charted 2 1/2 fathom sounding at latitude 59°21'58.5"N, longitude 151°~~19'00~~"W. This sounding was verified during a development of the area with 45 meter line spacing. A ~~2 1/2~~ fathom sounding at 59°21'58"N, 151°51'18"W was found. No shallower soundings were found. However, a ~~2~~ fathom sounding was found at 59°21'49.9"N, 151°51'29"W. This is near, and should replace, a charted 3 1/4 fathom sounding at 59°21'49"N, 151°51'29"W. Concur

Development C: A charted shoal with a 2 1/2 fathom peak at latitude 59°22'49"N, longitude 151°54'08"W was developed. The shoal was developed using 10 meter line spacing run in both the north-south and east-west directions. The least depth was found at 59°22'49.8"N, 151°54'05"W. The least depth is 2 fathoms confirming the existance of the charted shoal. chart present survey data. Concur

Development D: A questionable 4 3/4 fathom sounding is ~~shown~~ charted at latitude 59°23'24"N, longitude 151°54'04"W. Forty five (45) meter lines were run both north-south and east-west. The sounding in question was not found. To further develop the area a 'star' pattern was run directly over the charted position of the sounding under investigation. Nothing was found. The bottom is gently sloping and fairly smooth. The 4 3/4 fathom sounding should be removed from the chart. concur

A charted 6 1/2 fathom sounding on the edge of a shoal at latitude 59°21'~~59~~49"N, longitude 151°50'37"W was developed by running 45 meter line spacing to define the limits of the shoal. A 6 fathom sounding was found at 59°21'50.5"N, 151°50'32"W. This is the least depth found on this shoal. Three other soundings of approximately 6 fathoms were found at the west end of this shoal. They are as follows: Concur

6 at 59°21'51.5"N, 151°50'38"W (excessed)
6 at 59°21'52"N, 151°50'38"W
6 at 59°21'52"N, 151°50'41"W

This shoal should be modified on the chart to show these peaks. chart area as shown on present survey.

H-3804: This prior survey covers only four lines in English Bay between latitude 59°15'00"N and 59°21'00"N and longitudes 151°55'30"W and 151°56'45"W. FA 10-2-80 and H-3804 agree within 1 fathom or less. ✓

PSR #29: PSR 29 is a fishtrap at latitude 59°21.35'N, longitude 151°55.6'W, in English Bay. Development with a launch was determined unfeasible due to heavy kelp beds in the area and the narrow beam transducer presently in use. A wire drag was not feasible because of the kelp. During field edit three local residents were asked about the existence of the fishtrap. All reported that it didn't exist or at least they had not seen or heard of it over the past 30 or 40 years. The residents report that local fishermen take boats through the area frequently and have never had a problem. See Verification Report Sec 6

A dive was made in the area to ascertain the existence of any remains that could be a hazard. A basic dive search was made using compasses and swimming lines north-south and east-west to cover the area. An automated launch using Raydist for positioning control and anchored at the inshore end of the area ✓

to be investigated provided a known starting position. Visibility was good, about 10 to 20 feet. No obstructions were found. The bottom is fairly flat, of sand and small rock with heavy kelp growth. The fishtrap should be removed from the chart. Concur

H-4467: H-4467 WD is a 10,000 scale wire-drag survey done in 1925. The area dragged is between latitude 59°21'10"N, 59°21'40"N and longitude 151°51'00"W, 151°49'10"W. This area was dragged at depths from 26 to 36 feet. The soundings in this area from FA 10-2-80 show depths from 5 to 17 fathoms. Therefore FA 10-2-80 shows depths greater than the wire drag by 1/2 to 12 fathoms. See Verification Report ~~See 4e~~ Sec 6 and QC. Rpt.

L. COMPARISON WITH THE CHART

Chart 16646, 8th Edition, 18 Feb 1978 at 1:20,000 was used for comparison. The soundings on this chart are taken from prior surveys H-2974, 1:10,000, 1908; H-2974a, 1:10,000, 1915. The soundings on the chart agree within 1 fathom with FA 10-2-80. However, in three areas the 0 fathom contour has changed. For more detail see section K. COMPARISON WITH PRIOR SURVEYS in this report. Several shoals and soundings were investigated which originated with H-2974, 1:10,000, 1908. These investigations are discussed in section K. COMPARISONS WITH PRIOR SURVEYS in this report. No major changes in the shoreline were found. Two foul areas have been established for charting. One is in English Bay at the kelp limits. Around English Bay Reef, and around the north of Russian Point. The other limit is around the point of land that forms the southeast mouth of Coal Cove, continues south then east to ~~Selenie~~ Wards Johnson Slough. ~~Lagoon~~. Kelp beds are charted accurately. The area has few landmarks. However, the landmarks that are of navigational value are correctly charted. Two cabins which were located on the north shore near latitude 59°21'45"N, longitude 151°48'45"W are not on the chart. An old native fisherman lives there who has a lot of knowledge of the area and was helpful to field parties during this survey. For more information see FIELD EDIT REPORT, OPR-P114-FA-80. See Verification Report Sec 7

PSR 28b, Rocks, 59°22.43'N, 151°52.41'W
PSR 28c, Rocks, 59°22.05'N, 151°51.05'W, Pos. 5045-5123 } from H-2974 and Ad. Wk. (1908-15)

PSR #28b: PSR 28b is rocks charted in the vicinity of latitude 59°22.43'N, longitude 151°52.41'W. Two rocks were found in the area during field edit at a negative tide. The field editor stood on each rock and took sextant fixes to locate the rocks for charting. The positions are as follows: See Verification Report Sec 6

59°22'~~03~~ 25"N, 151°52'~~36~~ 26"W
59°22'~~06~~ 27"N, 151°52'~~11~~ 26"W

The chart should be modified to show these two rocks only. Concur

PSR #28c: PSR 28c is three sunken rocks charted in the vicinity of latitude 59°22.05'N, longitude 151°51.05'W. These rocks were searched for at negative tides by the field editor, but were never found. The bottom could be seen clearly at 10 foot depths. Therefore, an automated launch was used to develop the area with 10 meter lines running north-south. The bottom trace is slpping and fairly smooth. No indication of these rocks were found. These rocks should be removed from the chart. Concur

M. ADEQUACY

All sounding rolls were scanned for peaks and deeps as well as isolated rocks. The mean lower low water line was delineated except in inaccessible areas. This survey is complete and adequate to supercede all previous surveys for charting. ✓

N. AIDS TO NAVIGATION

There are five floating and one fixed Aid to Navigation on FA 10-2-80. A comparison was made with U. S. Coast Guard Light List, Volume III, 5 Jan 1980, CG-162 and chart 16646, 8th Edition, 18 Feb 1978 and their positions were verified. The aids adequately serve the apparent purpose for which they were established. No new aids were located during this survey. See Verification Report Sec 7 ✓

O. STATISTICS

Vessel	Position	NM
2023	678	92
2024	1138	139
2025	32	B.S.
TOTAL	1848	231

✓

192 NM of crosslines: 9% of main scheme hydrography

Bottom Samples: 32
MarTek Casts: 3
Nansen Casts: 2
Tide Stations: 1

P. MISCELLANEOUS

The Alaska earthquake of 1964 reportedly caused subsidence of some locations in this vicinity. This is apparent in some of the shoal areas. ✓

Greenwich Mean Time (+9 hrs) was used on the entire project.

Q. RECOMMENDATIONS

None ✓

R. AUTOMATED DATA PROCESSING

The following hydroplot programs were used for data acquisition and processing.

Number	Version Date	Program Name
RK 111	1/30/76	R/R Real time Plot
RK 112	3/12/80	R/R and Hyperbolic Real Time Plot
RK 201	4/18/80	Grid, Signal, and Lattice Plot
RK 211	1/15/76	R/R Non-real time Plot

✓

Number	Version Date	Program Name
RK 212	4/1/74	Visual Station Load and Plot
RK 215	8/16/74	Visual Non-real time Plot
RK 216	8/16/74	Range/azimuth Non-real time Plot
RK 300	2/10/76	Utility Package
RK 330	5/4/76	Data Reformat and Check
RK 360	2/2/76	Electronic Corrector Abstract
AM 602	5/21/75	Elinore
AM 500	11/10/72	Predicted Tides
RK 530	5/10/76	Velocity Corrections

Range/azimuth data was collected by Aircraft Standards Hydrographic Logger, then processed as stated above.

S. REFERRAL TO REPORTS

Horizontal Control Report, OPR-P114-FA-80
Field Edit Reports, OPR-P114-FA-80
Electronic Control Report, OPR-P114-FA-80
Corrections to Echo Soundings Report, OPR-P114-FA-80
U. S. Coast Guard Light List, 5 Jan 1980, CG-162
Coast Pilot Report, OPR-P114-FA-80
Geographic Names Report, OPR-P114-FA-80

✓

Separates Following Text

A. Hydrographic Sheet Projection Parameters

B. Field Tide Note
Times of Hydrography Abstracts

C. Geographic Names List

D. Abstracts of Corrections to Echo Soundings
(Velocity Tables and TC/TI Tape Listings)

E. Abstracts of Corrections to Electronic Position Control

F. List of Stations

G. Abstract of Positions

H. Bottom Samples (Log Sheets M)

I. Landmarks for Charts (NOAA Form 76-40)

J. Approval Sheet

```
001 FEST=68000
002 CLAT=6512755
003 CMER=152/30/00
004 GRID=30
005 PLSCL=10000
006 PLAT=59/21/02
007 PLON=151/59/20
008 VESNO=2020
009 YR=80
010 ANDIST=0.0
```

FA-10-2-80
Skew 348, 22, 54

```
001 FEST=68000
002 CLAT=6512755
003 CMER=152/30/00
004 GRID=10
005 PLSCL=2500
006 PLAT=59/21/42
007 PLON=151/53/57
008 VESNO=2020
009 YR=80
010 ANDIST=0.0
```

1: 2500
Development A
Skew 0, 20, 18

```
001 FEST=68000
002 CLAT=6512755
003 CMER=152/30/00
004 GRID=10
005 PLSCL=2500
006 PLAT=59/21/40
007 PLON=151/51/55
008 VESNO=2020
009 YR=80
010 ANDIST=0.0
```

PSR Item 28c and Development B
1:2500
Skew 0, 20, 18

```
001 FEST=68000
002 CLAT=6512755
003 CMER=152/30/00
004 GRID=10
005 PLSCL=2500
006 PLAT=59/22/40
007 PLON=151/53/10
008 VESNO=2020
009 YR=80
010 ANDIST=0.0
```

Developments C + D
1:2500
Skew 90, 21, 26

```
001 FEST=68000
002 CLAT=6512755
003 CMER=152/30/00
004 GRID=10
005 PLSCL=2500
006 PLAT=59/21/50
007 PLON=151/55/20
008 VESNO=2020
009 YR=80
010 ANDIST=0.0
```

PSR Item 30
1:2500
Skew 0,12,12

```
001 FEST=68000
002 CLAT=6512755
003 CMER=152/30/00
004 GRID=30
005 PLSCL=5000
006 PLAT=59/19/30
007 PLON=151/47/30
008 VESNO=2020
009 YR=80
010 ANDIST=0.0
```

Tidal Flats
1:5000
Skew 0,8,12

```
001 FEST=68000
002 CLAT=6512755
003 CMER=152/30/00
004 GRID=10
005 PLSCL=2500
006 PLAT=59/21/50
007 PLON=151/55/20
008 VESNO=2020
009 YR=80
010 ANDIST=0.0
```

PSR Item 30
1:2500
Skew 0,12,12

```
001 FEST=68000
002 CLAT=6512755
003 CMER=152/30/00
004 GRID=30
005 PLSCL=5000
006 PLAT=59/19/30
007 PLON=151/47/30
008 VESNO=2020
009 YR=80
010 ANDIST=0.0
```

Tidal Flats
1:5000
Skew 0,8,12

```
001 FEST=68000
002 CLAT=6512755
003 CMER=152/30/00
004 GRID=10
005 PLSCL=2500
006 PLAT=59/21/50
007 PLON=151/55/20
008 VESNO=2020
009 YR=80
010 ANDIST=0.0
```

PSR Item 30
1:2500
Skew 0,12,12

```
001 FEST=68000
002 CLAT=6512755
003 CMER=152/30/00
004 GRID=30
005 PLSCL=5000
006 PLAT=59/19/30
007 PLON=151/47/30
008 VESNO=2020
009 YR=80
010 ANDIST=0.0
```

Tidal Flats
1:5000
Skew 0,8,12

✓

Field Tide Note
OPR-P114-FA-80
Southern Cook Inlet

Field tide reduction of soundings was based on predicted tides from Seldovia, Alaska (945-5500), interpolated by PDP8/E computer utilizing AM500, and corrected according to the preliminary zoning chart as follows:

H-9878, FA-10-2-80; -0 hr. 05 min HW,
-0 hr 01 min LW, Height 0.97X

H-9879, FA-20-2N -80;-0 hr 05 min HW,
-0 hr 01 min LW, Height 0.97X

H-9879, FA-20-2c&2s-80; -0 hr 33 min HW,
-0 hr 25 min LW, Height 0.78X

H-9890, FA-20-3-80, -0 hr 41 min HW,
-0 hr 43 min LW, Height 0.75X

Reduction of soundings in the small lagoon inshore of Koyuktolik Bay on H-9879 was based on the following correctors to Seldovia tides which were calculated in the field from non-recording tide gage data:

+0 hr 15 min HW; +1 hr 29 min LW; Height 0.55X

All times of both predicted and recorded tides are GMT.

The control station was Seldovia (945-5500), which was leveled by RAINIER personnel at the beginning and end of the project.

Four recording gages were installed during this project as follows:

Station #	Located Name	Type	Location	Survey Controlled
945-5437	Port Graham	ADR	59°21'04.7"N 151°49'27.2"W	H-9878 (FA-10-2-80)
945-5452	Flat Island	Bubbler	59°19'48"N 151°59'30"W	H-9879 (FA-20-2-80) & H-9890 (FA-20-3-80)
945-5427	Perl Island	Bubbler	59°07'48"N 151°41'48"W	H-9890 (FA-20-3-80)
945-5428	Port Chatham	Bubbler	59°12'41"N 151°43'38"W	Field edit TP-0820 in Port Chatham. No Hydrography

In addition, a non-recording tide gage was installed in Koyuktolik (Dogfish) Bay Lagoon at 59°14'41"N, 151°51'26"W to control two days of hydrography on H-9879.

No unusual fluctuations between adjacent gages were noticed, nor were any unusual tidal or current conditions noticed.

No recommendations for zoning or time corrections could be made in the field.

The times of hourly heights, recorded for the bubbler gages on forms C&GS-362, are corrected for timer errors. There were no clock errors involved in the non-recording gage operation.

The Port Graham gage (945-5437) was an ADR installed May 8, 1980 (J. D. 129) and removed July 24, 1980 (J. D. 206). It worked properly through May 16, 1980 (J. D. 137) but then was left untended, due to ship operations in another area, until May 28, 1980 (J. D. 149) when it was found to be 32 minutes slow. It was reset and checked frequently thereafter. The timer was replaced on June 9, 1980 (J. D. 161) because the gage continued to lose time. Thereafter the gage worked properly until it was removed, but the record is disrupted in four places, apparently due to accidental advances of the tape. Although no vandalism occurred to gage itself, the lid locking mechanism was broken. It is speculated that local people lifted the cover out of curiosity and in so doing advanced the tape.

This occurred as follows:

Date	J. D.	Time (GMT)	Amount of Advance
June 23, 1980	175	0600	12 minutes
June 23, 1980	175	0642	30 minutes
July 13, 1980	195	0724	30 minutes
July 15, 1980	197	0124	12 minutes

After each disruption the gage was reset at the next check, except July 15, 1980 (J. D. 197), when it was not corrected until July 22, 1980 (J. D. 204).

The gage read 16.76 feet higher than the staff, based on the mean of 29 comparisons.

The Flat Island gage (945-5452) was a bubbler installed on May 15, 1980 (J. D. 136) and removed August 7, 1980 (J. D. 220). It was allowed to run down immediately after installation because the ship moved to another area until May 28, 1980 (J. D. 149). On that date it was restarted, and gage to staff readings were taken at 12 minute intervals. It was not possible to get readings at high water becaused the staff was submerged. Therefore they were made for 2 hours 12 minutes as soon as the staff emerged after high water, and they were also made bracketing the subsequent low. Gage to staff differences were consistant throughout these initial observations, with the gage averaging 9.0 feet higher than the staff.

On June 3, 1980 (J. D. 155) a second staff, higher than the original one, was installed and leveled to allow for gage checks at high water. The zero mark of the upper staff was 9.66 feet higher than the lower, so that correction was added to readings from the upper staff for comparisons. However this correction caused the comparisons to be smaller than those from the lower staff. At the end of the project two sets of levels were run to the upper staff, which confirmed each other, but which disagreed by 0.15 feet from the original levels. Since the upper staff was solidly bolted directly to bedrock, it was concluded that the original leveling was erroneous and a new corrector of 9.51 feet was used to recalculate the five staff to gage comparisons which involved the upper staff.

The gage worked well until the rock securing the orifice started to move due to storm waves at 2313 GMT on July 9, 1980 (J. D. 191). Apparently the small boulder to which it was attached moved in and out of a "cradle", because during the following 10 hours the orifice was displaced up and down several times. The movements occurred in definite jumps of less than 1/2 foot, which cancelled themselves out at 0921 GMT July 10, 1980 (J. D. 192). Because the jumps were discrete, correctors of between 0.3 and 0.5 feet could be determined for the hourly heights during this period. They were applied to the data. Following the last jump at 0921 GMT July 10, 1980 (J. D. 192) the orifice and boulder were apparently back in their original positions, generating good data, until the record was abruptly ended at 1130 GMT July 11, 1980 (J. D. 193) when the storm broke the orifice loose from the boulder. Apparently the bolt pulled out of the rock, or the hose clamp parted, because there is no indication on the marigram that the rock moved immediately prior to the break, nor was there any damage to the orifice or tubing. The tubing was pressurized to test for leaks; there were none so the orifice was reinstalled on July 14, 1980 (J. D. 196) at 2145 GMT. Staff to gage comparisons were taken every 12 minutes during the subsequent 3 3/4 hours, and the record is complete thereafter.

The gap in the record is 3 days 10 1/4 hours. Attempts were made to repair the gage sooner, but heavy surf prevented beach landings on the island. During these three days hydrography and field edit were confined to H-9890 (FA-20-3-80), which should be controlable mostly by the Perl Island gage in case precise interpolation of the Flat Island tides is impossible.

The missing hourly heights required are as follows:

J. D. 193	1500 - 2300 GMT
J. D. 195	1200 - 2400 GMT
J. D. 196	0100 - 0900 GMT
J. D. 196	1200 - 2200 GMT

The staff value equivalents of the zero line on the marigrams are as follows:

installation to July 11, 1980 (J. D. 193) 1130 GMT:
lower staff -8.96 feet; upper staff 0.55 feet

July 14, 1980 (J. D. 196) 2145 GMT to end:
lower staff - 10.56 feet; -1.05 feet

The Perl Island gage (945-5427) was a bubbler installed on July 1, 1980 (J. D. 183) and removed on August 7, 1980 (J. D. 220). Because the ship moved to another area after installation, 12 minute staff/gage comparisons were not taken until July 7, 1980 (J. D. 189).

The chart drive mechanism malfunctioned so the record was ruined until July 8, 1980 (J. D. 190) 1800 GMT when the gage was reset utilizing a new chart drive. Thereafter it performed well until its removal at 1832 GMT August 7, 1980 (J. D. 220).

The staff value equivalent to zero on the marigram was -6.6 feet.

There are no missing hourly heights.

The Port Chatham gage (945-5428) was a bubbler installed on July 2, 1980 (J. D. 184) and removed on August 8, 1980 (J. D. 221). Because the ship moved to another area after installation, 12 minute staff/gage comparisons were not taken until July 7, 1980 (J. D. 189).

The gage worked well with the exception of a chronic wobble on the trace of about 0.2 feet. The cause of this slight occillation is unknown. The regulator was replaced with no effect, and there is no reason to suspect that the orifice was unstable. It was attached to a 40 lb. rock set on firm bottom in a calm bay.

No hydrography was controlled by this gage, but field edit was. There are no missing hourly heights.

There are no photographs of the three bench marks that were established, but the accuracy of the stamping on them is certain.

The non-recording gage in Koyuktolik Bay Lagoon was installed and leveled on July 26, 1980 (J. D. 208), and removed and leveled on July 28, 1980 (J. D. 210 GMT). It was used for two days without problems. On the second day the low following the period of hydrography could not be observed due to logistics. The entrance to the lagoon was not navigable at low water in the dark, so the observer had to leave early. The magnitude of the tidal range on July 26, 1980 (J. D. 208) was divided by the magnitude of the range at Seldovia to calculate the corrector used for the reduction of soundings in the lagoon.

The tidal currents in the entrance to the lagoon were always strong, and at maximum current they must be treacherous. There was virtually no slack current in the lagoon or entrance.

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

ABSTRACT OF TIME OF HYDROGRAPHY AND/OR FIELD EDIT

Date _____

Project No. OPR-P114-FA-80 Vessel 2023

Date of Survey June – August, 1980

Field Sheet No. FA 10-2-80 Registry No. H-9878

Field Sheet is Complete/Incomplete

J.D.	Time (Z)		J.D.	Time (Z)
161	204953	-	162	010717
169	201820	-	170	013736
170	032318	-	170	041452
170	200718	-	171	015242
171	191129	-	172	002928
177	183842	-	178	033959
178	195924	-	179	003345
182	230913	-	182	231225
198	015030	-	198	024824

J.D.	Time (Z)		J.D.	Time (Z)
		-		

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

ABSTRACT OF TIME OF HYDROGRAPHY AND/OR FIELD EDIT

Date _____

Project No. OPR-P114-FA-80 Vessel 2024

Date of Survey June - August, 1980

Field Sheet No. FA 10-2-80 Registry No. H-9878

Field Sheet is Complete/Incomplete

J.D.	Time (Z)		J.D.	Time (Z)
161	215432	-	162	004020
163	190609	-	164	032704
164	231814	-	165	020715
167	004002	-	167	021724
170	015836	-	170	040915
170	174818	-	171	035720
171	190136	-	172	031316
176	183400	-	177	004623
177	184400	-	178	015212
179	203200	-	180	025930
180	190842	-	180	224542
182	011302	-	182	020142

J.D.	Time (Z)		J.D.	Time (Z)

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

ABSTRACT OF TIME OF HYDROGRAPHY AND/OR FIELD EDIT

Date _____

Project No. OPR-P114-FA-80 Vessel 2025

Date of Survey JUNE - AUGUST, 1980

Field Sheet No. FA 10-2-80 Registry No. H-9878

Field Sheet is Complete/Incomplete

J.D.	Time (Z)		J.D.	Time (Z)
176	231000	-	177	005000
178	193000	-	179	032000

J.D.	Time (Z)		J.D.	Time (Z)
		-		

Velocity Corrector Table I, for vessel 2023 between J. D. 155 thru 210 inclusive, on surveys H-9878, H-9879 and H-9890.

Depth in Fathoms	Correction in Fathoms
0.0- 1.5	0.0
1.6- 2.5	0.1
2.6- 5.0	0.0
5.1- 15.0	0.1
15.1- 25.0	0.2
25.1- 35.0	0.3
35.1- 45.0	0.4
45.1- 55.0	0.5
55.1- 65.0	0.6
65.1- 75.0	0.7
75.1- 85.0	0.8
85.1- 95.0	0.9
95.1-105.0	1.0

See updated Velocity Corr.

Velocity Corrector Table II, for vessel 2024 between J. D. 155 thru 210 inclusive, on surveys H-9878, H-9879 and H-9890.

Depth in Fathoms	Correction in Fathoms
0.0- 5.0	0.0
5.1- 15.0	0.1
15.1- 25.0	0.2
25.1- 35.0	0.3
35.1- 45.0	0.4
45.1- 55.0	0.5
55.1- 65.0	0.6
65.1- 75.0	0.7
75.1- 85.0	0.8
85.1- 95.0	0.9
95.1-105.0	1.0

FM-10-2-80
TC/TI Tape

```
001 204953 0 0003 0001 161 202300 000000
002 012000 0 0000 0001 180 202300 000000
003 021148 0 0003 0001 180 202300 000000
004 235900 0 0000 0000 198 000000 000000
```

```
001 215432 0 0003 0002 161 202400 000000
002 235959 0 0000 0000 182 000000 000000
```

```
001 231000 0 0003 0001 176 202500 000000
002 235959 0 0000 0000 206 000000 000000
```

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2023 SHEET : FA-10-2-80 (H-9878)

TIME	DAY	PATTERN 1	PATTERN 2
204953	161	-00002	
002425	162	-00002	
231540	169	-00004	
000406	170	-00004	
032318		+00001	
200718		-00004	
000436	171	-00004	
013024		-00004	
193900	178	-00004	
000124	179	-00004	
002857		-00004	
003400		+00000	

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2023 SHEET : FA-10-2-80 (H-9878)

TIME	DAY	PATTERN 1	PATTERN 2
231942	169	-00004	
013736	170	-00004	
013800		+00000	
003222	171	-00004	
003300		+00000	

D.P.'s

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2023 SHEET : FA-10-2-80 (H-9878)

TIME	DAY	PATTERN 1	PATTERN 2
191129	171	-00010	-00032
000119	172	-00010	-00032
192635	177	+00009	-00014
222540		+00006	-00014
000000	178	+00006	-00014
230913	182	-00001	-00006

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2023 SHEET : FA-10-2-80 (H-9878)

TIME	DAY	PATTERN 1	PATTERN 2
183842	177	+00009	-00014
031714	178	+00009	-00014
015030	198	+00002	+00016
021456	198	+00002	+00016

PSP & Development

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2024 SHEET : FA-10-2-80 (H9878)

TIME	DAY	PATTERN 1	PATTERN 2
190609	163	+00009	+00004
000006	164	+00009	+00004
231814		-00059	+00011
001531	165	-00059	+00011
004002	167	+00047	+00012
174818	170	-00001	-00003
000240	177	+00002	-00001
211914		-00001	+00002
003516	178	+00002	-00001
234050	179	-00001	-00003
223724	180	-00001	-00003

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2024 SHEET : FA-10-2-80 (H-9878)

TIME	DAY	PATTERN 1	PATTERN 2
010427	178	-00001	-00003
203200	179	-00001	-00003

PSR

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2024 SHEET : FA-10-2-80 (H-9878)

TIME	DAY	PATTERN 1	PATTERN 2
215432	161	+00005	
001047	162	+00005	
015836	170	-00003	
032000		-00003	
185323		-00003	
011115	171	+00005	
032200		+00005	
034449		+00005	
035310		+00005	
190136		-00001	
010440	172	-00001	
183400	176	-00003	
184400	177	+00005	
021148	180	+00002	
190842		+00005	
194142		+00005	
200036		+00005	
232122	181	+00002	
000048	182	+00002	
011302		+00005	
020200	999	+00000	

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2024 SHEET : FA-10-2-80 (H-9878)

TIME	DAY	PATTERN 1	PATTERN 2
215502	176	-00003	
234000		+00000	

Post Development

ELECTRONIC CORRECTOR ABSTRACT

VESSEL : 2025 SHEET : FA-10-2-80 (H-9878)

TIME	DAY	PATTERN 1	PATTERN 2
193000	178	-00002	-00001
021000	179	+00029	-00170

```
001 CONTROL STATIONS                                    NGS Quad/Sta# or Source
002
003 LUCKY,1956                                          591513  1063
004 100 7  59 19 44837 151 46 58112  250 0001 000000
005
006 JEWEL,1956                                          591513  1053
007 101 1  59 20 49824 151 47 00592  250 0001 000000
008
009 IVORY,1956                                          591513  1052
010 102 1  59 21 33051 151 48 13439  250 0001 000000
011
012 OSAGE,1956                                          591513  1067
013 103 6  59 20 50531 151 48 19777  250 0006 000000
014
015 GRASS 2,1956                                        591513  1045
016 104 0  59 21 54270 151 49 55861  250 0006 000000
017
018 LEDGE 2,1956                                        591513  1061
019 105 5  59 21 38914 151 52 28037  139 0004 000000
020
021 POINT 2,1956                                        591513  1079
022 106 1  59 22 19069 151 51 55233  139 0005 000000
023
024 MAPLE,1956                                          591513  1064
025 107 2  59 22 02708 151 52 58033  250 0003 000000
026
027 PORT GRAHAM ENTRANCE LIGHT,1956                     591513  1088
028 108 6  59 22 23066 151 52 59092  139 0004 000000
029
030 BIRD 2,1956                                         591513  1009
031 109 1  59 23 21584 151 54 55408  139 0001 000000
032
033 CHANNEL,1958                                        591513  1014
034 110 1  59 22 03054 151 54 15638  139 0001 000000
035
036 DOWN 2,1956                                         591513  1027
037 111 5  59 23 22189 151 53 37575  139 0009 000000
038
039 FLAT ISLAND LIGHT,1956                              591513  1038
040 113 1  59 19 53806 151 59 34030  139 0007 000000
041
042 HERON,1956 (1980)                                   591513  1049
043 114 4  59 20 41961 151 57 36949  139 0008 000000
044
045 POINT BEDE,1956                                     591513  1081
046 115 7  59 18 48527 151 59 13374  250 0003 000000
047
048 SOUTH,1908-1956                                     591513  1099
049 116 4  59 21 42282 151 54 37927  139 0002 000000
050
```

```
051 SHAW, 1946 RM 4 ~~1966~~                                  591532/1008
052 117 4   59 00 28107 153 22 27890   250 0003 330040
053
054 SOUTH HEAD, 1907 RM 5 ~~1980~~
055 118 5   59 36 20098 153 33 32620   250 0004 330040
056
057 GRASS 2, 1956 RM 3 ~~1980~~
058 119 2   59 21 54328 151 49 55784   139 0006 000000
059
060 POINT POGIBSHI LIGHT, 1980                  FAIRWEATHER-1980
061 120 4   59 25 30165 151 53 05110   139 0009 000000
062
063 SPIKE 3, 1980
064 121 6   59 21 14871 151 49 59041   250 0003 000000
065
066 ADAM, 1906 ~~31~~                                  591513  1001
067 122 6   59 15 23500 151 58 25420   250 0049 000000
068
069 ENGLISH, 1980
070 123 1   59 21 02761 151 55 49306   139 0005 000000
071
072 COAL, 1980
073 124 7   59 23 43459 151 54 11838   250 0005 000000
074
075 PORT GRAHAM ENTRANCE LIGHT, 1956 ECC.       FAIRWEATHER-1980
076 125 5   59 22 23097 151 52 58992   250 0004 000000
077
078 PORT GRAHAM CALIBRATION DOLPHIN, 1980       FAIRWEATHER-1980
079 200 3   59 21 04862 151 49 26292   139 0000 000000
080
081 PILE (F.E.)                                 TP-0816
082 300 7   59 21 01323 151 49 26007   252 0000 000000
083
084 FISH & GAME TRIPOD (F.E.)                   TP-0816
085 301 7   59 20 20932 151 46 43122   252 0005 000000
```

Position Abstract
2023

Positions	S-1	S-2	Control
2000-2093	104	119 (I)	Range/azimuth
2097-2193	107		Range/azimuth
2195-2228	101		Range/azimuth
2229-2330	107		Range/azimuth
2331-2390	117	118	Range/range
2403-2446	117	118	Range/range
2498-2598	117	118	Range/range
2599-2695	117	118	Range/range
2716-2764	121		Range/azimuth
2765-2768	117	118	Range/range

Rejected Positions

2094 - 2096 2715

NOTE: I = Instrument Location

Position Abstract
2024

Position	S-1	S-2	Control
4000-4093	101		Range/azimuth
4094-4461	117	118	Range/range
4462-4531	104	119 (I)	Range/azimuth
4533-4544	107	104	Range/range
4547-4626	107	119 (I)	Range/azimuth
4627-4697	101		Range/azimuth
4701-4798	107		Range/azimuth
4805-4860	100		Range/azimuth
4861-4904	107		Range/azimuth
4924-4938	107		Range/azimuth
4952-4975	103	121	Range/range
4977-5009	125		Range/azimuth
5010-5044	104	102	Range/range
5129-5133	121	107	Range/range
5154-5167	102		Range/azimuth
5170-5215	125		Range/azimuth
5216-5223	121	107	Range/range
5224-5254	124		Range/azimuth
5255-5285	125		Range/azimuth

Rejected Positions

4532, 4545-4546, 4698-4700, 4799-4804, 4976, 5124-5128, 5137-5153, 5168-5169

NOTE: I = Instrument Location

To Vault
H-9878

File with
H-9878 data

Position Abstract

PSR #28c

5045-5123

PSR #30

2696-2714 2769-2786

Developments

2391-2402 4939-4951
2447-2497 4905-4923
2787-2811

Leadline D. P.'s

5134, 5136

Buoy D. P.'s

2136, 2194, 2305, 6032, 6033

Bottom Samples

6000-6031

Not Used

1-1999, 6034-8999, 2812-3999

NOAA FORM 75-44
(11-72)

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

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
2025	OPR P114-FA-80	1980	FA 10-2-80 H-9878		

SERIAL NO.	DATE	SAMPLE POSITION		DEPTH (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
		LATITUDE	LONGITUDE								
6000	6/24/80	59/20/15	151/47/08	3.9				gy	M, P		
6001	6/24/80	59/20/45	151/47/27	11.5				gy	M		
6002	6/24/80	59/21/01	151/47/55	18.0				gy	M, P, brk Sh		
6003	6/25/80	59/20/53	151/48/55	4.8				gy	M, P, brk Sh		
6004	6/25/80	59/21/06	151/49/19	10.4				gy	M, P, brk Sh		
6005	6/25/80	59/21/24	151/48/18	12.4				gy	M, G, St		
6006	6/25/80	59/21/34	151/49/10	10.3				gy	M, brk Sh		
6007	6/26/80	59/21/29	151/50/04	13.5				gn	crs S, brk Sh, P		
6008	6/26/80	59/21/48	151/49/41	10.7				gn	fne S, brk. Sh		
6009	6/26/80	59/21/50	151/50/34	9.5				gn	fne S, brk Sh		
6010	6/26/80	59/21/31	151/51/23	18.5				gn	fne S, brk Sh		
6011	6/26/80	59/22/02	151/51/15	6.7				gn	crs S, brk Sh, G		
6012	6/26/80	59/21/52	151/52/13	19.6				gn	fne S		
6013	6/26/80	59/22/08	151/52/02	22.5				gn	crs S, brk Sh		
6014	6/26/80	59/21/53	151/53/16	18.3				gn	fne S		
6015	6/26/80	59/21/57	151/54/03	18.2				gn	fne S, brk Sh		
6016	6/26/80	59/22/00	151/55/05						hrd	no sample	

Use more than one line per sample if necessary.

☆ U.S.GPO:1978-765-092/1190 Region No. 6

NOAA FORM 75-44
(11-72)

U.S. DEPARTMENT OF COM. ...RCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

OCEANOGRAPHIC LOG SHEET - M
BOTTOM SEDIMENT DATA

VESSEL	PROJ. NO.	YEAR		CHECKED BY	DATE CHECKED
2025	OPR P114-FA-80	1980	FA 10-2-80 H-9878		

SERIAL NO.	DATE	SAMPLE POSITION		DEPTH (Fathoms)	WEIGHT OF SAMPLER	APPROX. PENETRATION	LENGTH OF CORE	COLOR OF SEDIMENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
		LATITUDE	LONGITUDE								
6017	6/26/80	59/22/21	151/54/47	21.2				gn	fne S		
6018	6/26/80	59/22/38	151/54/17	26.4				gn	fne S		
6019	6/26/80	59/23/00	151/54/28	21.0					crs S, brk Sh		
6020	6/26/80	59/23/10	151/55/05	22.9					S, P, Sh		
6021	6/26/80	59/23/13	151/53/56	9.7					Wd, hrd	2 drops; no sample 1st drop	
6022	6/27/80	59/22/50	151/53/34	14.7					G, Sh		
6023	6/27/80	59/22/49	151/52/23	9.4					fne S		
6024	6/27/80	59/22/38	151/52/04	4.9					fne S		
6025	6/27/80	59/22/30	151/52/35	10.2				gn	fne S		
6026	6/27/80	59/21/20	151/56/17	9.3					Wd, hrd		
6027	6/27/80	59/21/19	151/55/37	3.1					Wd, hrd		
6028	6/27/80	59/21/36	151/55/33	4.3					Wd, hrd	2 drops; depth meaned	
6029	6/27/80	59/21/54	151/55/36	13.4					G, Sh		
6030	6/27/80	59/22/48	151/55/20	19.4					crs S, Sh		
6031	6/27/80	59/22/22	151/53/54	13.5				gn	crs S, Sh, G		

Use more than one line per sample if necessary.

☆ U.S.GPO:1978-765-092/1190 Region No. 6

J. APPROVAL SHEET

This survey is complete and adequate to supercede prior surveys of the area. The commanding officer supervised and examined the work daily.

Submitted by:

V. D. Ross
LT(JG), NOAA

Approved by:

A. J. Patrick
CAPT, NOAA

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS ~~OR LANDMARKS~~ FOR CHARTS

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

(See reverse for responsible personnel)

☒ TO BE CHARTED
☐ TO BE REVISED
☐ TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office): COASTAL MAPPING DIVISION AMC NORFOLK VA

STATE: ALASKA

LOCALITY: COOK INLET. EAST SIDE CAPE KASILOF TO BARREN ISLANDS

DATE: OCT 1981

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

OPR PROJECT NO.: PI14-FA-80

JOB NUMBER: CM-7412

SURVEY NUMBER: TP-00816

DATUM: N.A. 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
	NONE							

0.2 0.4 0.6 0.8

(Let 1 inch equal 4 fathoms for deep water and 1 inch equal 0.4 fathom for shoal.)

CORRECTIONS IN [redacted] FATHOMS

NOAA FORM 75-21 (10-72) U.S. DEPARTMENT OF COMMERCE NOAA NATIONAL OCEAN SURVEY

VELOCITY CORRECTIONS

Ship FAIRWEATHER

Comdg.

These corrections are to be used

between _____ 19___ and _____ 19___

in the locality _____

for hydrographic surveys Nos. H-9878

Marotek Cast 6/15/80

Table generated at PMC. ϕ 59/22/50

Velocity Corr based on one cast λ 154/51/30

Applicable Depth		Correction
0.0	5.5	0.0 fm.
5.6	15.3	0.1
15.4	24.4	0.2
24.5	33.5	0.3

DEPTHS IN FATHOMS

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190

☆ U.S. GOV. PRINTING OFFICE: 1977—767-212

COP

May 21, 1981

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 945-5437 Port Graham, Alaska
945-5452 Flat Island, Alaska

Period: May 15 - July 16, 1980

HYDROGRAPHIC SHEET: H-9878

OPR: P-114

Locality: Cook Inlet, Alaska

Plane of reference (mean lower low water) 945-5437 = 3.83 feet
945-5452 = 13.0 feet

Height of Mean High Water above Plane of Reference is 945-5437 = 16.15 feet
945-5452 = 15.4 feet

REMARKS: Recommended Zoning:

From ~~latitude~~ longitude 152°00.0' east to 151°53.0' zone direct on 945-5452 Flat Island. For days 136 through 149 and 193 through 196 when the gage at Flat Island was inoperative zone on 945-5437 Port Graham and apply x0.94 range ratio.

From 151°53.0' east to 151°45.0' zone direct on 945-5437 Port Graham.

Chief, Datums and Information Branch

NOAA FORM 76-40
(8-74)

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

Replaces C&GS Form 567.

[redacted] LANDMARKS FOR CHARTS

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

(See reverse for responsible personnel)

☒ TO BE CHARTED
☐ TO BE REVISED
☐ TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office): AMC. (offices) – Coastal Mapping Division – Norfolk Virginia

STATE: Alaska

LOCALITY: Cook Inlet, Eastside Cape Kasilof to Barren Islands

DATE: Oct. 30 1981

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

OPR PROJECT NO.: PI14-FA-80

JOB NUMBER: CM-7412

SURVEY NUMBER: TP-00815

DATUM: N.A. 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
BUILDING	South corner of orange building, largest in the English Bay settlement.	59 21	17.26 534	151 55	5.95 94	76 E(1) 4525 28 June 1976	P-5-V June 1980 76 E(1) 4525	16440 16645 16646
WATERFALL	Prominent for the south entrance of Port Graham	59 21	35.45 1097	151 53	22.40 354	76 E(1) 4524 28 June 1976	P-5-V June 1980 76 E(1) 4524	"
BUILDING	N E end of building on pier, largest of three buildings	59 21	29.02 898	151 51	54.05 854	76 E(1) 4523 28 June 1976	P-5-V June 1980 75 B(1) 4023	"
PINNACLE ROCK	West of Passage Island	59 22	17.32 536	151 53	24.87 392	76 E(1) 4524 28 June 1976	P-5-V June 1980 76 E(1) 4524	"
WATERFALL	Prominent for the entrance of Port Graham.	59 22	58.55 1812	151 52	11.33 179	75 B(1) 4025 10 Aug. 1975	P-5-V-Vis June 1980 75 B(1) 4025	"
BLUFF	200 ft. high, diagonal white rock-streak accross face	59 22	8	151 51.9		75 B(1) 4025 10 Aug. 1975	P-5-V June 1980 75 B(1) 4025	"
	L- (85)							

Compilation Chart in Anchorage Oct 31 1981

NOAA FORM 76-40
(2-71)
PRESCRIBED BY
PHOTOGRAMMETRY INSTRUCTION NO. 64.

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

NONFLOATING AIDS [redacted] FOR CHARTS

ORIGINATING ACTIVITY
- ☐ FIELD INSPECTION
- ☐ FIELD EDIT
- ☑ COMPILATION
- ☐ FINAL REVIEW
- ☐ QUALITY CONTROL AND REVIEW

(See reverse for responsible personnel)

☒ TO BE CHARTED
☐ TO BE DELETED

ORIGINATING LOCATION: Coastal Mapping Division, Norfolk Va.

DATE: Oct 28 1981

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

JOB NUMBER: ~~PH~~ CM-7412

STATE: Alaska

SURVEY NUMBER: T - TP-00815

DATUM: NA 1927

CHARTING NAME	DESCRIPTION	POSITION LATITUDE ° ′	LATITUDE ″ D.M. METERS	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. METERS	METHOD AND DATE OF LOCATION (See instructions on reverse of this form) FIELD INSPECTION	COMPILATION	FIELD EDIT	CHARTS AFFECTED
LIGHT	Port Graham Entrance Light 2 (Port Graham Entrance Light, 1956) L-286(85)	59 22	23.066 713.6	151 52	59.092 933.2		19 E(c) 9344	Triang. Rec. June 1980	16640 16645 16646
	Copied by C. Blood oct 1981 Checked by								

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

~~AIDS TO NAVIGATION~~ LANDMARKS FOR CHARTS

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

(See reverse for responsible personnel)

☑ TO BE CHARTED
☐ TO BE REVISED
☐ TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office): ~~CHARTING~~ MAPPING DIVISION, AMC NORFOLK, VA

STATE: ALASKA

LOCALITY: COOK INLET, EAST SIDE
CAPE KASILOF TO BARREN ISLANDS

DATE: Oct 1981

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
PI14-FA-80	CM-7412	TP-00816	N.A. 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
CABIN		59° 21′	57.30 1773.	151° 49′	53.54 846	76 E(I)4511 28 JUNE 1976	VIS-V ~ JUNE '80 ~	16640 ~ 16645 ~ 16646 ~
	L- (85)							

S Parkinson Checked by C Bleed Nov 1981

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-9878

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 16640	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL Coast Pilot INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H	U.S. LIGHT LIST T-Sheets 00815-16 K	
BIRD REEF	X								X	1
COOK INLET	X								X	2
DUCAN SLOUGH				X					X	3
ENGLISH BAY	X								X	4
JOHNSON SLOUGH				X					X	5
KENAI PENINSULA	X									6
PASSAGE ISLAND	X								X	7
PORT GRAHAM	X								X	8
RUSSIAN POINT	X								X	9
TULCAN SLOUGH				X					X	10
ALASKA (title block)										11
ENGLISH BAY (locality)										12
ENGLISH BAY REEF										13
PORT GRAHAM (locality)										14
										15
										16
										17
										18
						Approved:				19
										20
						Charles E. Harrington				21
						Chief Geographer - N/CG2x5				22
						4 Aug. 1983				23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 77-27 (5-77) | U. S. DEPARTMENT OF COMMERCE NOAA | HYDROGRAPHIC SURVEY NUMBER

HYDROGRAPHIC SURVEY STATISTICS

H-9878

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS (1W/Traverclays 12)	20
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS 4, ARC 1, EXCESS 6	10

DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	X		1 raw P			
VOLUMES	2					
BOXES			1 - smooth P/O - 2 sounding volumes			

T-SHEET PRINTS (List) Class I Manuscripts TP-00815 & TP-00816

SPECIAL REPORTS (List)

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

PROCESSING ACTIVITY	AMOUNTS: PRE-VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			
POSITIONS CHECKED		2043	2043
POSITIONS REVISED		1	1
SOUNDINGS REVISED		200	200
SOUNDINGS ERRONEOUSLY SPACED		0	0
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		0	0
	TIME — HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	4	*(VER)/(EVAL)	
VERIFICATION OF CONTROL		09/00	09
VERIFICATION OF POSITIONS		92/00	92
VERIFICATION OF SOUNDINGS		334/00	334
COMPILATION OF SMOOTH SHEET		200/00	200
APPLICATION OF TOPOGRAPHY		95/00	95
APPLICATION OF PHOTOBATHYMETRY		NA	NA
JUNCTIONS		16/00	16
COMPARISON WITH PRIOR SURVEYS & CHARTS		00/28	28
VERIFIER'S REPORT		00/36	36
OTHER		16/00	16
Quality Control		00/80	80
TOTALS		762/144	906

Pre-Verification by J. S. Green	*Beginning Date* Mar. 20, 1981	*Ending Date* Mar. 20, 1981
Verification by M. G. Sanders Evaluated by B. A. Olmstead	*Beginning Date* June 7, 1981	*Ending Date* Aug. 31, 1982
Verification Check by S. H. Otsubo, J. S. Green	*Time (Hours)* 63	*Date* Sept. 3, 1982
Marine Center Inspection by HIT	*Time (Hours)* 8.5	*Date* Sept. 13, 1982
Quality Control Inspection by S R Baumgardner	*Time (Hours)* 171	*Date* June 24, 1983
Requirements Evaluation by	*Time (Hours)*	*Date*

8/5/83 27 hrs.

* Time in this column is for Verification (VER) and Evaluation (EVAL)

REGISTRY NO. H-9878

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

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

MAGNETIC TAPE CORRECTED

DATE_____ TIME REQUIRED_____ INITIALS_____

REMARKS:

PACIFIC MARINE CENTER
VERIFICATION/EVALUATION REPORT

REGISTRY NO: H-9878 FIELD NO: FA-10-2-80

Alaska, Cook Inlet, Port Graham

SURVEYED: June 9 to July 24, 1980

SCALE: 1:10,000 PROJECT NO: OPR-P114-RA/FA-80

SOUNDINGS: Ross Fineline Fathometer

CONTROL: Mini-Ranger Range/Range Range-Azimuth, Raydist Range/Range Sextant angles on shoresignals

Chief of Party.....CAPT A. J. Patrick

Surveyed by.....LT D. G. Hennick
LTJG V. D. Ross
ENS C. P. Hancock
ENS A. F. Trimble
CST E. R. Krick

Automated Plot by.....PMC Xynetics Plotter

Verified by.....M. G. Sanders

Evaluated by.....B. A. Olmstead

I. INTRODUCTION

NOTE: This survey has been processed utilizing a procedure developed to work in conjunction with the Verification Branch realignment, which established an evaluation process. The survey data was first verified and a smooth sheet compiled by a verifier. Then an evaluator reviewed the work of the verifier, made the necessary comparisons with prior surveys and charts and wrote the Verification/Evaluation Report.

H-9878 (FA-10-2-80) is a basic survey conducted under the current National Ocean Survey methods of planning, executing and processing a hydrographic survey as defined in the Hydrographic Manual, 4th Edition. The PMC OPORDER and the Data Requirements Letter for 1979 further define field procedures. Project Instructions OPR-P114-RA/FA-80, Southern Cook Inlet, Alaska dated April 10, 1980 were generated to supplement the Hydrographic Manual. Two supplements to instructions were appended for the 1980 field work; Change 1 dated April 11, 1980 and Change 2 dated April 30, 1980.

H-9878 (FA-10-2-80) is an inshore survey situated along the extreme southwestern portion of Kenai Peninsula approximately ten miles south of the entrance to Kachemak Bay. The area of hydrography includes all of Port Graham from the mouth to the head of the bay. The entrance to Port Graham between Russian Point on the south and Dangerous Cape on the north has extensive outlying reefs. Additionally, once inside the entrance, five prominent shoal areas are marked by floating aids.

This area includes more than 15 miles of shoreline, with alongshore and offshore characteristics composed primarily of submerged ledges, reefs, isolated rocks and kelp. Two navigational channels into Port Graham are readily evident on the chart and substantiated by the present survey. One, a passage with depths of water 6-8 fathoms south of Passage Island exists; however, the channel north of the island is better defined by fixed and floating aids with depths of water 14-18 fathoms. There are several all weather harbors or anchorages. The best area for refuge is northeast of the town of Port Graham. Bottom characteristics are composed primarily of sand, mud and broken shells. The most prominent features in this area are Passage Island and adjoining outlying reef, Bird Reef and Port Graham. Port Graham contains a 100 foot pier face, cannery and availability of emergency fuel supplies.

Two tide gages, Port Graham and Flat Island were installed and operating during the survey. Both gages were employed to zone the survey for office reduction of sounding data. Field tide reduction of soundings was based on predicted from Seldovia, Alaska with time and range ratios.

Sounding differences between the final field sheet and the smooth sheet are attributed to the application of approved tidal zoning and application of velocity correctors during processing at the Marine Center. Depths of water range from the zero curve to 32 fathoms. However, general depths in areas of navigation are from 6-15 fathoms.

The Projection Parameters, Signal List and Electronic Corrector Abstract were amended during the verification process. Additionally, Velocity Table #1 was recomputed in the Processing Office based on one Martek Cast in Port Graham. Differences between the mean of two casts accomplished in the field and the final velocity correctors is negligible. All corrected data is listed in the smooth printouts to accompany the final PMC plot.

2. CONTROL AND SHORELINE

Stations located to Third Order Class I standards were used to control the hydrographic survey. Two visual hydrographic stations (300, 301) were located by sextant. The smooth sheet was plotted using preliminary adjusted field positions on the North American datum of 1927.

The Teledyne/Hastings Raydist and Motorola Miniranger III were employed in the range-range mode. Additionally, range-azimuth operations were conducted using the Miniranger III system. The second range value was collected for redundancy during range/azimuth operations. Visual sextant control was also utilized for a very minimal amount of work.

Visual sextant and fixed point calibrations were used to verify the operational accuracy of both electronic systems.

The mean high water line and other photogrammetrically determined features were applied from Class I unreviewed manuscripts.

	Dates of Photography	Dates of Field Edit
TP-00815	July-August 1975, June 1976	May-June 1980
TP-00816	July-August 1975, June 1976	June 1980

The field edit reports for TP-00815 and TP-00816 stated that there were deficiencies depicting many features visible on the photograph. Additionally, several rocks awash and ledges are shown in red on the final field sheet but not applied by photogrammetry. The hydrographic records provided no source information to substantiate these positions. These items have been transferred from the final field sheet and are listed below:

		Latitude	Longitude
1.	3 rocks awash	59°20'26"N	151°47'30"W
2.	rock awash	59°20'32"N	151°47'57"W
3.	revised ledge	59°19'55"N	151°47'15"W
4.	ledge symbol	59°21'20"N	151°47'39"W
5.	2 rocks awash	59°21'38"N	151°48'38"W
6.	rock awash	59°21'53"N	151°49'43"W
7.	rock awash	59°21'23"N	151°51'30"W
8.	rock awash	59°22'18"N	151°51'44"W
9.	rock awash	59°22'50"N	151°52'00"W
10.	rock awash	59°22'55"N	151°52'51"W
11.	rock awash	59°23'01"N	151°53'29"W
12.	rock awash	59°23'18"N	151°53'37"W
13.	2 rocks awash	59°23'25"N	151°53'43"W
14.	rock awash	59°21'38"N	151°55'19"W
15.	rock awash	59°22'06"N	151°54'55"W
16.	rock awash	59°21'03"N	151°56'34"W
17.	rock awash	59°21'04"N	151°56'29"W
~~18.~~	~~rock awash~~	~~59°21'48"N~~	~~151°55'13"W~~
19.	rock awash	59°22'11"N	151°54'07"W

3. HYDROGRAPHY

Depths at crossings are in good agreement.

The bottom configuration was adequately developed. Generally, all standard depth curves are complete and adequately defined. Parts of the low water line and one fathom curve could not been well delineated due to the foul nature of the inshore area. The determination of least depths was satisfactory with the exception of a few isolated peaks:

a. 7.9 fathom sounding at latitude 59°21'27"N, longitude 151°50'03"W.

b. 4.8 fathom sounding at latitude 59°22'08"N, longitude 151°52'14"W.

c. 5.6 fathom sounding at latitude 59°23'15"N, longitude 151°53'56"W.

d. 5.4 fathom sounding at latitude 59°23'12"N, longitude 151°54'55"W.

e. 4.5 fathom sounding at latitude 59°21'47"N, longitude 151°55'18"W.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports are adequate and conform to the requirements as stated in the Hydrographic Manual, PMC OPORDER and the Data Requirements Letter with the exception of:

a. The final field sheet graphically portrays additional field edit information (rocks awash, ledges) not compiled on the Class I shoreline manuscript. This necessitated the transfer of numerous items to the smooth sheet with nonsupporting data. (See Section 2, Control and Shoreline) Hydrographic Manual 4.5.8, Verification of Alongshore and Offshore Detail.

b. Several charted items were not resolved during the present work. This will necessitate a discussion for each unresolved discrepancy between the new survey and the charted data. (See Section 7, Comparison with Chart) Hydrographic Manual 5.3.4, Descriptive Report Text.

c. Discrepancies exist between the Horizontal Control Report, ship's Descriptive Report and the Preliminary Adjusted Geodetic Data accomplished at PMC. These discrepancies involve the names and years of several Third Order, Class I stations. For example, SOUTH, 1908, is SOUTH 1908-1956 in the Control Report and ship's Descriptive Report. SHAW, 1946RM4 is shown as SHAW, 1946RM4 1966. (See Hydrographic Manual 3.1.1.2 and 3.1.1.3, Recovery of Existing Stations, Station Marks and Descriptions.)

d. There were no soundings transferred from the limits of adjoining survey H-9879 (FA-20-2-80). The Data Requirements Letter does not mandate this process on the final sheet. However, the preliminary field sheets (semi-smooth) should graphically portray junctional soundings to ensure continuity in survey coverage and depths. Additionally, the final field sheet did not reference the adjoining survey. See Hydrographic Manual 4.3.2, Junctions and Overlaps.

e. The comparison with H-4467WD (1925) was not accomplished correctly. The depths with the present survey were compared with the maximum effective depths at which the drag had been set. These depths were not measurements of the bottom. See C.C. Rpt.

5. JUNCTIONS

H-9878 (FA-10-2-80) is bordered by one contemporary survey: H-9879 (FA-20-2-80), which joins the southwest, west, and northern limits of the present work 1.5 to 2 miles offshore of Passage Island. Depth curves were in good agreement and an adequate junction was effected. The junctional note is inked accordingly. Not available during Q.C.

6. COMPARISON WITH PRIOR SURVEYS

a. H-2974 (1908) and H-2974a (1915) 1:10,000
H-3804 (1915) 1:20,000
Soundings from these prior surveys agree very well. Basically, no significant changes appear to have occurred in the last 65-72 years. Because the work in 1908 and 1915 only carries fathoms and tenths to 11 fathoms, an accurate comparison is only subjective. In depths less than 11 fathoms, the present survey has deepened by .5 - 1.0 fathom. A subtle indication of this change is reflected in the depth curves which do reveal a small shoreward migration. The shoreline has remained relatively stable.

Pre-survey Review Item #30, a 3 fathom sounding at latitude 59°22.0'N, longitude 151°55.06'W, originates from prior survey H-2974-2974a (1908-15). An intensive development of this area confirmed the existence of a rock covered 2.6 fathoms. The evaluator recommends charting a 2½ Rk at latitude 59°22'00"N, longitude 151°55'03"N.

Pre-survey Review Item #28b, two rocks awash at latitude 59°22'25"N, longitude 151°52'24"W, originates from prior survey H-2974-2974a (1908-15). Two rocks awash were located in this area during field edit operations. However, the geographic positions in the ship's descriptive report were amended to reflect their true location. The evaluator agrees with the ship's recommendation for charting.

Pre-survey Review Item #28c, three sunken rocks at latitude 59°22'03"N, longitude 151°51'03"W, originates from prior survey H-2974-2974a (1908-15). These items were probably shown to display the bottom characteristic of this area; i.e., rocky. The evaluator agrees with the ship's recommendation for charting.

Pre-survey Review Item #29, a fishtrap at latitude 59°21'21"N, longitude 151°55'36"W, originates from prior survey H-3804 (1915). A dive investigation was conducted to verify or disprove the existence of this feature. The evaluator concurs with the ship's recommendation for charting.

Disregard - these items have been previously discussed in the field report (see sections K and L)

With the exception of those items brought forward to supplement the present survey, H-9878 (FA-10-2-80) is adequate to supersede the prior information within the common area.

b. H-4467WD (1925) 1:10,000
The ship's comparison with this prior work was probably made with a the A and D sheet ~~copy containing insufficient information.~~ This led the ship's personnel to compare the cleared swept depths to the present survey

soundings. However, these prior depth values do not indicate whether deeper soundings exist but only that no hangs were encountered at the set depth of the drag. The evaluator secured another copy of H-4467WD (1925) that contained numerous soundings plotted throughout the wire drag schematic (probably leadline generated). Agreement of these soundings with the present survey are within .5-1.0 fathom.

~~Although wire drag information is not normally superseded by a basic hydrographic survey,~~ the evaluator feels this prior data is from leadline determination and not drag methods. H-9878 (FA-10-2-80) is adequate to supersede the prior ~~information~~ sounding data within the common area. See QC Rpt.

7. COMPARISON WITH CHART

a. Hydrography - A comparison was made with Chart 16646, 8th Edition, February 18, 1978. The charted information originates with the previously discussed prior surveys and unknown source(s).

The following items were not spoken to during the present survey and originate from an unknown source(s). The chart compiler should chart these features as discussed below unless additional information is available for supersession.

1. Item A, three piles centered at latitude 59°20'45"N, longitude 151°49'04"W., from T-9742 (1953-56), were carried forward to the present survey.

2. Item B, five piers centered at latitude 59°21'02"N, longitude 151°49'30"W. These piers were not visible on the infrared photography and a field investigation was not accomplished. The evaluator recommends that these features be shown as ~~submerged~~ ruins. Concur

3. Item C, two piles centered at latitude 59°21'02"N, longitude 151°49'23"W., from T-9742 (1953-56), were carried forward to the present survey.

4. Item D, the double lined pier at latitude 59°21'06"N, longitude 151°49'27"W, conflicts with the Class I shoreline manuscript. ~~as to symbolization. However, the orientation of this structure is correct.~~ The evaluator recommends that this pier be charted as ~~per the photogrammetric delineation.~~ pier ruins

5. Item E, three rocks awash centered at latitude 59°22'12"N, longitude 151°53'51"W. Do not concur. Chart present survey data

6. Item F, two rocks awash centered at latitude 59°22'11"N, longitude 151°53'59"W. Do not concur. Chart present survey data.

7. Item G, a rock awash centered at latitude 59°23'00"N, longitude 151°53'22"W. Do not concur. Chart present survey data.

8. Item H. a rock awash centered at latitude 59°23'19.5"N, longitude 151°53'43"W., from ~~T-9742~~ T-8608 (1953-56), were carried forward to the present survey

With consideration of the above items, the present survey is adequate to supersede the charted hydrography within the common area.

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

c. Aids to Navigation - There are five floating aids and one fixed aid within the limits of this survey. Three floating aids (C "1", C "3", N "4") and Port Graham Entrance Light 2 adequately mark the features intended. However, floating aids C "5" and N "6" appear displaced approximately 150 meters shoreward of their respective shoal features. The evaluator recommends that the positions of these aids be verified through the Coast Guard.

8. COMPLIANCE WITH INSTRUCTIONS

H-9878 (FA-10-2-80) adequately complies with the project instructions except as noted in Section 4, Condition of Survey.

9. ADDITIONAL FIELD WORK

H-9878 (FA-10-2-80) is a good basic survey. Additional field work is not required.

Respectfully submitted,

Bruce Alan Olmstead

Bruce Alan Olmstead
Evaluator

Examined and Approved,

James S. Green
Branch Chief

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

TO: C3 - C. William Hayes

FROM: CPM - Charles K. Townsend

SUBJECT: Administrative Approval of H-9878, Port Graham, Cook Inlet, Alaska

The smooth sheet and reports of this survey have been examined and the survey is adequate for charting and to supersede common areas of prior surveys.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

N/CG242:SRB

April 4, 1985

TO: Roy K. Matsushige
Chief, Hydrographic Surveys Branch

THRU: Chief, Standards Section

FROM: S. R. Baumgardner
Quality Evaluator

SUBJECT: Quality Control Report for Survey H-9878 (1980), Alaska, Cook Inlet, Port Graham

A quality control inspection of survey H-9878 was accomplished to monitor the survey for adequacy with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, smooth plotting, shoreline transfer, decisions made and actions taken by the verifier, and the cartographic presentation of data. Revisions and additions to the smooth sheet, plus helpful comments made to the verifier, are identified on a ½-scale copy of the survey to be furnished the verifier. In general, the survey was found to conform to National Ocean Service standards and requirements except as stated in the Verifier's Report and the HIT Report.

The following supplements paragraph 6 of the Verifier's Report:

b. H-4467 (1925) WD 1:10,000

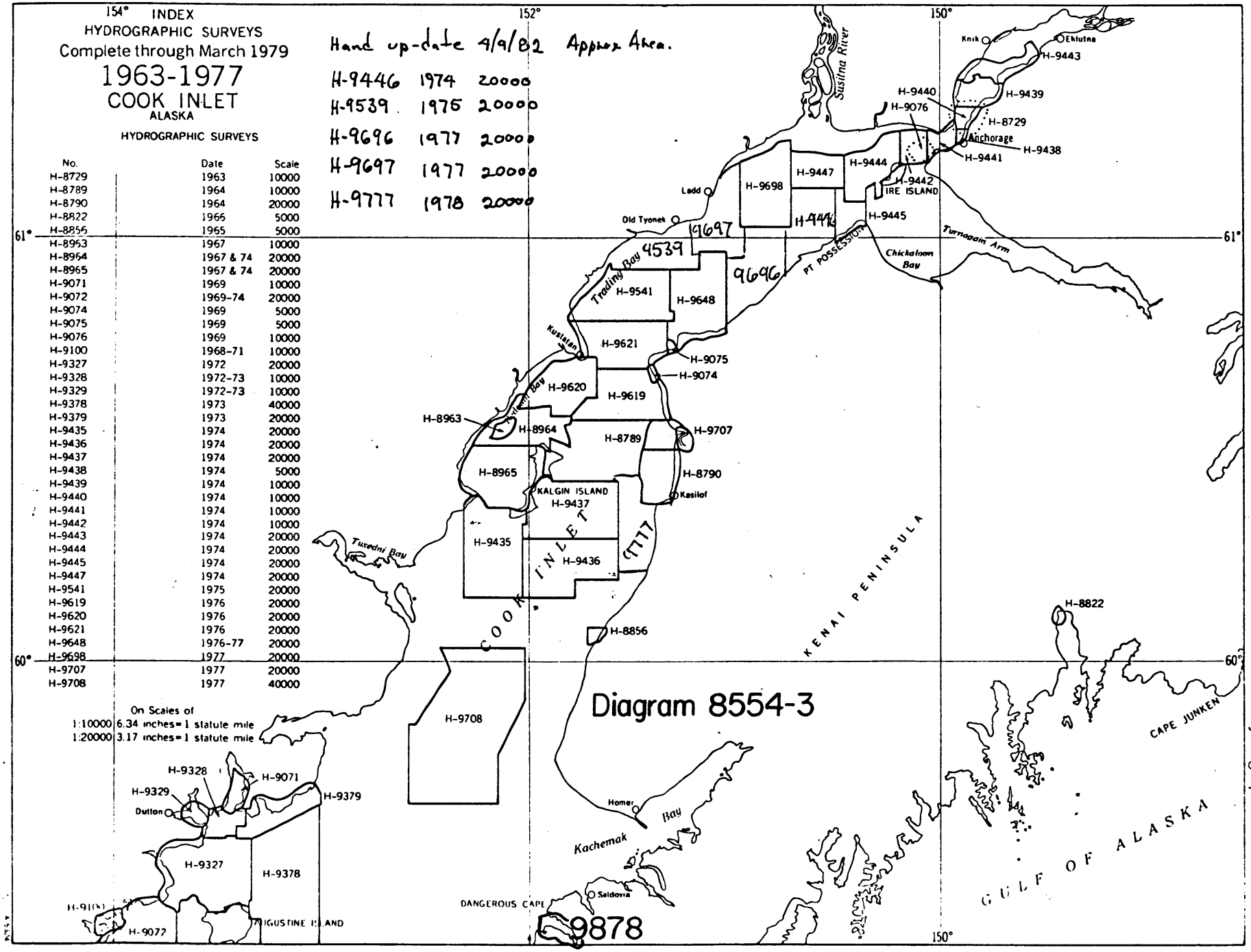
With one minor exception, effective drag depths on this survey do not conflict with the depths on the present survey. The conflict exists in the vicinity of latitude 59°21'24"N, longitude 151°50'07"W, where a small area is indicated to have been effectively cleared to depths of 27 and 28 feet. The present survey shows lesser depths along a steep slope approaching a 2.6-fathom shoal. The conflict is attributed to inaccuracies in the prior wire-drag survey.

c. T-8608 (1953-56) 1:10,000
T-9560 (1953-56) 1:10,000
T-9568 (1953-56) 1:10,000
T-9742 (1953-56) 1:10,000

These topographic surveys cover the area common to the present survey. Several rocks and piles have been brought forward to supplement the present survey.

With these additions, the present survey is adequate to supersede these prior topographic surveys within the common area.

cc:
N/CG241



DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Washington, D.C.

Hydrographic Index No. 1141

APPROVAL SHEET
FOR
SURVEY H-9878

A. This hydrographic survey has been verified, evaluated and inspected. It meets the requirements of the Hydrographic Manual except as noted in the Verification/Evaluation Report. The automated data file has been updated to reflect the data presented on the smoothsheet.

Date: September 9, 1982

Signed: [signature]

Title: Chief, Verification Branch

B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the Verification/Evaluation Report.

Date: SEPTEMBER 22, 1982

Signed: [signature]

Title: Chief, Marine Surveys Division

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

N/CG241:MSM

NOV 14 1985

TO: N/MOP - Robert L. Sandquist

FROM: N/CG2 - J. Austin Yeager

SUBJECT: Report of Compliance for Survey H-9878

The smooth sheet and Descriptive Report for survey H-9878 (1980), Alaska, Cook Inlet, Port Graham, have been reviewed. Please extend my appreciation to FAIRWEATHER and your processing unit at the Pacific Marine Center for their efforts in completing this survey. This survey, except as noted in the Quality Control Report, dated April 4, 1985 (copy attached), is complete and adequate for the purposes intended and is in compliance with Project Instructions OPR-P114-RA/FA-80, dated April 10, 1980.

Attachment

cc:
N/CG242 w/o att.

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9878

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
16646	8/30/84	J. Baily	Full ~~Part Before~~ After ~~Verification Review~~ Inspection Signed Via
			Drawing No. 13 Fully applied.
16645	9/14/84	L.J. Brauski	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. Fully appl'd thru 16646
16646	0-17-87	J. Graham	~~Full Part~~ FULL ~~Before~~ After Verification Review Inspection Signed Via
			Drawing No. Reconstr # 1
16013	2-21-89	ED MARTIN	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 28 EXAM THRU 16646 NO CORRS FULLY APPLYD
#16640	6-21-89	Pearce Hunt	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. 23 20th Ed.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
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			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

USCOMM-DC 8558-P63

Appd. To Stds 9-13-85