

7196

Diag'd. on Diag. Ch. No. 8556-2

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic
SU-4147 &
Field No. SU-12343 Office No. H-7196

LOCALITY

State Alaska
General locality Shelikof Strait
Locality Cape Kekurnoi to Cape Unalishagvak

1947

CHIEF OF PARTY

A.P.Ratti

LIBRARY & ARCHIVES

DATE October 5, 1948

OCT 5 1948

Form 537
(Ed. June 1946)

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

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

9616H

REGISTER No. H 7196

Field No. Su 4147 & Su 12343

State Alaska

General locality Shelikof Strait
Alaska Peninsula

Locality Cape Kekurnoi to Cape Unalishagvak

Scale 1/40,000 Date of survey 29 June to 29 Sept. 1947

19 Mar. 1942, 27 Feb. 1943, 12 Mar. 1943, 29 Feb. 1944

Instructions dated 31 Mar. 1947, 8 Apr. 1947.

Vessel Ship SURVEYOR

Chief of party A.P. Ratti
Chas. A. Schanck, J.C. Partington, J.E. Waugh, K.S. Ulm,
Surveyed by J.R. Plaggmier, H.P. Reed, W.B. Page, E.W. Richards.

Soundings taken by fathometer, graphic recorder, hand lead line

Fathograms scaled by McCaslin, Davis, Longwill, Stubb, Mears.

Fathograms checked by WBP, DDD, EWR, JRP, RLM, WBL, CAS, TAS.

Protracted by Carl O. Nyberg

Soundings penciled by Carl O. Nyberg

Soundings in fathoms XX feet at XXXX MLLW

REMARKS: Smooth sheet and plotting by Seattle Processing Office.

F. SHORELINE AND TOPOGRAPHY-

None.

G. SOUNDINGS-

The soundings on this survey were recorded on the NMC graphic recorder and corrected for initial, velocity and tide.

H. ADEQUACY OF SURVEY-

The Survey is adequate for the area.

I. CROSSLINES-

None

J. COMPARISON WITH PRIOR SURVEYS AND CHART 8556-

The original surveys of the area covered by this report are inadequate and should be superseded by the current survey.

K. DANGERS AND SHOALS-

None.

L. COAST PILOT INFORMATION-

None.

M. AIDS TO NAVIGATION-

None.

N. LANDMARKS FOR CHARTS-

None.

See L. 399 (1948)

O. GEOGRAPHIC NAMES-

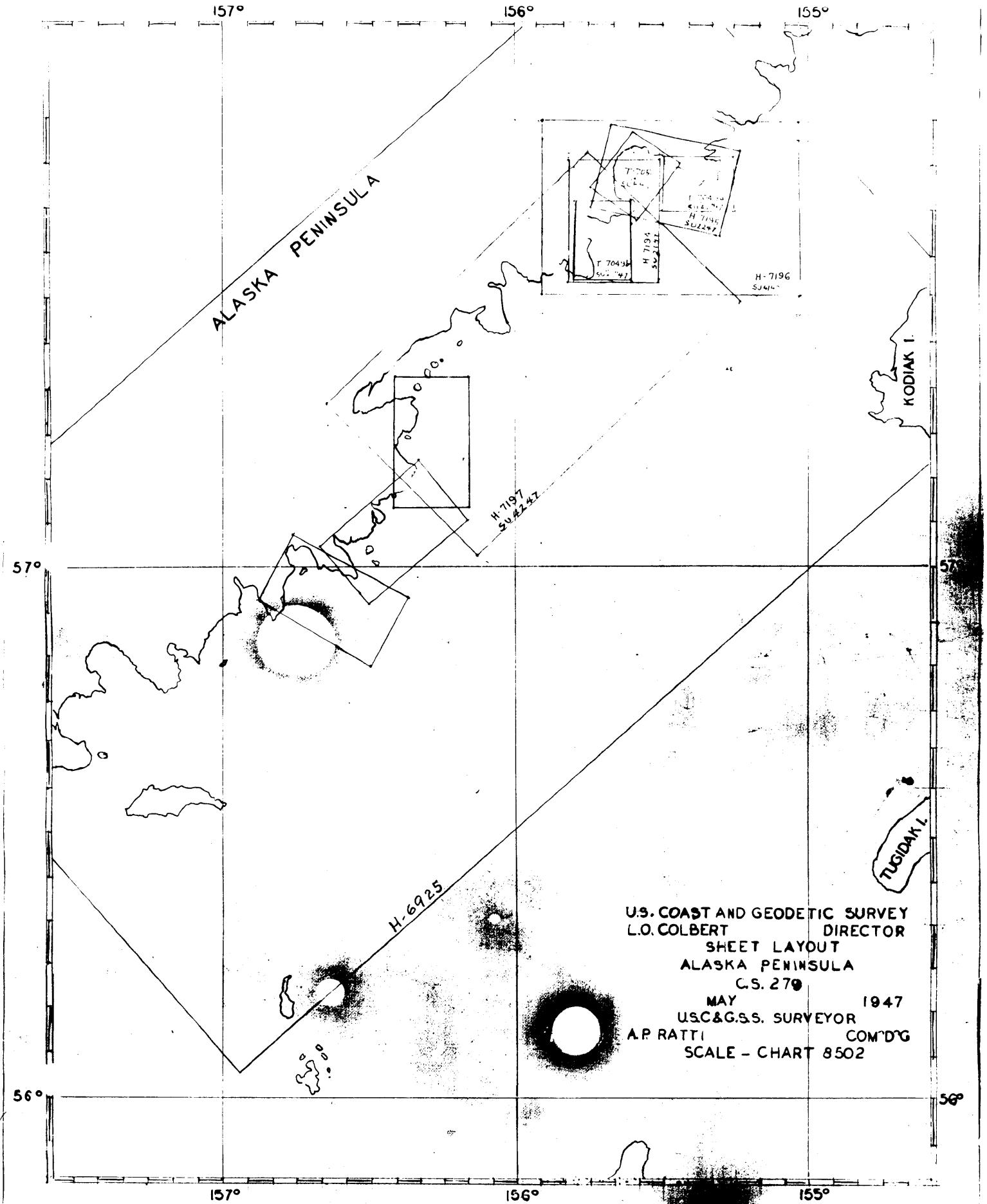
None.

P. STATISTICS-

Vol. 1 - Day letter "A" - Date 14 September 1947
No. of Positions - 77
Stat. Miles of Sounding Lines - 71.7
Area in Square Statute Miles - 70.

Respectfully submitted,

Charles A. Schanck
Charles A. Schanck
Lt. Comdr., USC&GS



DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SURVEY H-~~6925~~

Plotted as an
insert on H-7196
L.E.S.

7196

(Field No. SU 12343)

Scale 1:120,000

Ship SURVEYOR

A. P. Ratti, Comdg.

A. PROJECT AND INSTRUCTIONS-

The work covered by this report is a part of Project CS-279. Original and Supplemental Instructions for this project are addressed and dated as follows:

To:

Date

Commanding Officer, Ship EXPLORER	19 March 1942
Commanding Officer, Ship EXPLORER	27 February 1943
Commanding Officer, Ship WESTDAHL	29 February 1944
Commanding Officer, Ship SURVEYOR	31 March 1945
Commanding Officer, Ship SURVEYOR	8 April 1947.

B. SURVEY LIMITS AND DATE-

Work on this survey was done on one day only during the 1947 season - 14 September 1947. The area covered by this report extends ~~south~~^{southeast}ward from the southeast limits of survey H-7196, and was plotted on this sheet only because the work on sheet H-7196 had been extended eastward beyond the limits of the available protractors. The work done during the current season was recorded under day letter "A" although work by the same vessel had been so recorded during 1943.

C. VESSEL AND EQUIPMENT-

All soundings were taken with an NMC type graphic recorder from the Ship SURVEYOR running at standard speed of 90 R.P.M.

D. CONTROL-

The hydrography was controlled by sextant angles on mountain peaks. These peaks, with one exception, were located in 1919 and 1920 by the third order triangulation party of F. H. Hardy. Station DOG, the exception, was located by sextant cuts on survey H-7196 and transferred to H-6925 after converting its position from North American to Valdez datum.

E. SMOOTH SHEET-

See additional notes by Seattle Processing Office.

There are only two lines of soundings in this work. It could not be plotted on 1/40,000 on account of the distance to the signals. It was plotted as a sub-plan on H-7196, Scale 1/120,000.

The boat sheet used was the old H-6925, scale 1/120,000. The 2 lines on sub-plan have been transferred to 1/40,000 scale on smooth sheet.

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY H-7196
(Field No. SU 4147)

Scale 1:40,000

Ship SURVEYOR

A. P. Ratti, Comdg.

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A. PROJECT AND INSTRUCTIONS

The work covered by this report is a part of Project CS-279. Original and Supplemental Instructions for this project are addressed and dated as follows:

To:	Date
Commanding Officer, Ship EXPLORER	19 March 1942
Commanding Officer, Ship EXPLORER	27 February 1943
Commanding Officer, Ship WESTDAHLZ	29 February 1944
Commanding Officer, Ship SURVEYOR	31 March 1947
Commanding Officer, Ship SURVEYOR	8 April 1947.

B. SURVEY LIMITS AND DATES

The area covered by this survey includes the approaches to Puale Bay and Dry Bay from Shelikof Strait that lie between Cape Kekurnci and Cape Unalishagvak.

This survey is joined on all but its northeast side by surveys of the 1947 season executed by the Ship SURVEYOR. It joins survey H-7194 (1947) on the west, H-7195 (1947) on the northwest and north, H-7197 (1947) and H-6925 (1947) on the south, and H-6925 (1947) on the southeast. It supersedes parts of old surveys H-4157 (1920), scale 1:100,000 of 1920, H-4398, scale 1:80,000 of 1924, and H-4969, scale 1:100,000 of 1929, all of which are inadequate for modern surveys. *L 9/30 H-4101 (1919), 1:200,000*

*Additinal
* Hydrog. 69
B6M-6925
Accomplished
in 1947 was
Plotted on
S/S H-7196*

Hydrography was started on this sheet 29 June 1947 and completed ✓ 29 September 1947. Work on this survey was executed only on days that were unsuitable for small boat work on inshore sheets.

C. VESSEL AND EQUIPMENT

The shoal area south of Cape Kekurnoi reefs was surveyed with Launch No. 2, operating from the ship. All other work was done with the ship. The approximate turning radius of the ship with rudder full left is 250 meters; with rudder full right, 200 meters. The exact value is not essential as no soundings were recorded on turns on this survey.

Electric fathometers were used as outlined in the table of statistics. In general, the 808 type fathometer was used to its limit and the NMC for greater depths. Occasionally the NMC was used in depths that could be read on the 808 when it was known that all soundings would be in excess of 100 fathoms.

D. TIDE STATION

All soundings on this survey were reduced to mean lower low water at the Puale Bay Tide Station without time or range corrections. A portable tide gage (No. 303) was used at this station. It was located at Latitude 57° 42'45" Longitude 155° 23'40".

E. SMOOTH SHEET

See additional notes by Processing Office. ✓

F. CONTROL STATIONS

The triangulation used for control on this survey was of third order accuracy, executed by F. H. Hardy in 1919 and 1920, or by the ship's complement during the current season. The topographic signals were located on surveys T-7049a, T-7049b, and T-7050 during the current (1947) season. Signals DOE, NEW and STY were located by sextant cuts which are recorded in Volume I of the sounding records. This is also Volume I of survey H-7195. A number of other stations were located by sextant cuts so that hydrography could be carried on in advance of the topography. The topographic locations should be used and the hydrographic locations rejected.

G. SHORELINE AND TOPOGRAPHY

The shoreline on the boat sheet was transferred from Office Compilation C.S. No. 316, Project Ph-8(46), scale 1:75,000 approximate. | See P1
of the Review

H. SOUNDINGS

All soundings were taken with 808 type or NMC type electric depth recorders, following standard practice for reading and recording the depths. The usual corrections for tide, velocity, index, scale and speed were applied.

I. CONTROL OF HYDROGRAPHY

All lines were controlled by sextant angles on shore stations located as indicated under paragraph F.

J. ADEQUACY OF SURVEY-

The survey is complete and adequate to supersede prior surveys for charting. It meets the requirements of the hydrographic manual and the project instructions. The junctions with contemporary surveys H-7194, ^{H-7195}, ~~H-7195~~, and H-^{H-7197} are satisfactory. The depth curves can be adequately drawn at the junctions.

* not received in Wash. Office as yet
5-10-49. b.d.

K. CROSSLINES.

No definite system of crosslines was run on this survey. Where lines were run as crosslines to and from the working grounds, the crossings were satisfactory.

L. COMPARISON WITH PRIOR SURVEYS-

Considering the fact that survey H-4157, 1920, scale 1:100,000, was a reconnaissance survey with limited control available, it compared very closely to the current season's work, particularly in depths less than 100 fathoms. The same applies to surveys H-4398, of 1924; scale 1:80,000, and H-4969 of 1929, scale 1:100,000. Where minor discrepancies were found, the current survey shows shoaler depths than the old surveys. This is to be expected when soundings by fathometer are compared with wire soundings.

See PPs
of Review.

M. COMPARISON WITH CHART-

Chart 8556, the largest scale chart of the area, apparently was compiled from the three surveys mentioned in the preceding paragraph, and the statements of that paragraph apply equally well to this.

N. DANGERS AND SHOALS-

There are no dangers to navigation in the area covered by this survey. The shoalest depth found was 9.8 fathoms in Latitude $57^{\circ} 39' 05''$ Longitude $155^{\circ} 28' 40''$, found with the launch on "b" day between positions 17 and 18. A least depth of 14.4 fathoms was found with the ship on E day between positions 30 and 31 in Latitude $57^{\circ} 34' 35''$ Longitude $155^{\circ} 30' .80''$. Numerous soundings of 13 to 15 fathoms were found in the shoal area which extends over two miles off shore in the vicinity of Cape Unalishagvak. The same applies to the shoal extending southward from the reefs of Cape Kekurnoi. The 15 fathom curve brings these shoals out clearly.

O. COAST PILOT INFORMATION-

See Coast Pilot Notes.

P. AIDS TO NAVIGATION-

There are no aids to navigation in the area covered by this survey.

Q. LANDMARKS FOR CHARTS

See special report. L.399(1948)

R. GEOGRAPHIC NAMES

~~41XVX~~

The names shown on Chart 8556 are adequate.

S. TABULATION OF APPLICABLE DATA

1. Triangulation records forwarded to Washington 20 & 22 Sept. 1947.
2. Tidal Data, Puale Bay, forwarded to Washington 5 July, 21 July and 8 October 1947.
3. Computation of velocity corrections forwarded to Washington 6 October 1947.
4. Coast Pilot Notes forwarded to Washington 6 October 1947.
5. Landmarks for Charts to be forwarded by Seattle Processing Office.

T. STATISTICS

See sheet attached.

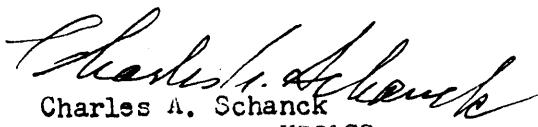
U. TIDAL NOTE

See sheet attached.

V. ATTACHMENTS

1. Statistics
2. Tidal Note
3. Abstract of Velocity Corrections
4. Abstract of Tide Reducers
5. Abstract of Scale Corrections.

Respectfully submitted,


Charles A. Schanck
Lieut. Comdr., USC&GS

H-7196

APPROVAL SHEET

The boat sheet and field records of survey H-7196 are approved as transmitted to the Seattle Processing Office for smooth plotting. The work of this survey was inspected daily and suitable suggestions made to the hydrographers. The survey is considered complete and adequate. No additional field work is recommended.



A. P. Ratti
Commander, USC&GS
Chief of Party

* Date: 20 November 1947

TIDE REDUCERS - PUALE BAY, ALASKA

8 June 1947

0 - 31 fms.

0900-0912 -0.3
 0912-0944 -0.2
 0944-1122 -0.1
 1122-1145 -0.2
 1145-1204 -0.3
 1204-1218 -0.4
 1218-1241 -0.5
 1241-1307 -0.6
 1307-1330 -0.7
 1330-1349, -0.8
 1349-1407 -0.9
 1407-1421 -1.0
 1421-1434 -1.1
 1434-1445 -1.2
 1445-1456 -1.3
 1456-1510 -1.4
 1510-1531 -1.5
 1531-1600 -1.6

31 - 100 fms.

9 June 1947

0 - 31 fms.

1413-1430 -1.0
 1430-1448 -1.1
 1448-1506 -1.2
 1506-1530 -1.3
 1530-1600 -1.4

13 June 1947
31 - 100 fms.

13 June 1947

31 - 100 fms.

1717-1753 -1.2
 1753-1825 -1.4
 1825-1904 -1.6
 1904-2000 -1.8

18 June 1947
0 - 31 fms.

0900-0912 -0.4
 0912-1145 -0.2
 1145-1218 -0.4
 1218-1307 -0.6
 1307-1349 -0.8
 1349-1421 -1.0
 1421-1445 -1.2
 1445-1510 -1.4
 1510-1600, -1.6

13 June 1947

0 - 31 fms.

0807-0822 -0.3
 0822-0838 -0.2
 0838-0851 -0.1
 0851-0903 -0.0
 0903-0912 -0.1
 0912-0922 -0.2
 0922-0933 -0.3
 0933-0944 -0.4
 0944-0955 -0.5
 0955-1006 -0.6
 1006-1017 -0.7
 1017-1028 -0.8
 1028-1040 -0.9

13 June 1947

0 - 31 fms.

9 June 1947

0 - 31 fms.

0900-0909 -0.6
 0909-0928 -0.5
 0928-0950 -0.4
 0950-1019 -0.3
 1019-1200 -0.2
 1200-1224 -0.3
 1224-1246 -0.4
 1246-1308 -0.5
 1308-1330 -0.6

31 - 100 fms.

1330-1343 -0.7
 1343-1356 -0.8
 1356-1413 -0.9

1200-1225 -1.0
 1225-1329 -0.8
 1329-1536 -0.6
 1536-1635 -0.8
 1635-1717 -1.0

1040-1050 -1.0
 1050-1100 -1.1
 1100-1112 -1.2
 1112-1126 -1.3
 1126-1136 -1.4
 1136-1150 -1.5
 1150-1204 -1.6
 1204-1217 -1.7
 1217-1241 -1.8
 1241-1345 -1.9
 1345-1422 -1.8
 1422-1441 -1.7
 1441-1456 -1.6
 1456-1516 -1.5
 1516-1530 -1.4
 1530-1547 -1.3
 1547-1603 -1.2
 1603-1620 -1.1
 1620-1636 -1.0
 1636-1652 -0.9

TIDE READERS - PUALE BAY, ALASKA

18 June 1947
31 - 100 fms.

0907-0838 +0.2
0838-0903 -0.0
0903-0922 -0.2
0922-0944 -0.4
0944-1006 -0.6
1006-1028 -0.8
1028-1050 -1.0
1050-1112 -1.2
1112-1136 -1.4
1136-1204 -1.6
1204-1241 -1.8
1241-1345 -2.0
1345-1441 -1.7
1441-1516 -1.6
1516-1547 -1.4
1547-1620 -1.2
1620-1652 -1.0

19 June 1947
0 - 31 fms.

0900-0907 +0.4
0907-0939 +0.2
0939-1002 -0.0
1002-1018 -0.2
1018-1037 -0.4
1037-1055 -0.6
1055-1113 -0.8
1113-1132 -1.0
1132-1151 -1.2
1151-1210 -1.4
1210-1236 -1.6
1236-1313 -1.8
1313-1455 -2.0
1455-1500 -1.8

20 June 1947
0 - 31 fms.

1300-1307 -1.5
1307-1318 -1.6
1318-1330 -1.7
1330-1348 -1.8
1348-1417 -1.9
1417-1534 -2.0
1534-1605 -1.9
1605-1626 -1.8
1626-1642 -1.7
1642-1654 -1.6
1654-1700 -1.5

31 - 100 fms.

1300-1318 -1.6
1318-1348 -1.8
1348-1605 -2.0
1605-1642 -1.8
1642-1700 -1.6

23 June 1947
0 - 31 fms.

1300-1306 -0.1
1306-1318 -0.2
1318-1330 -0.3
1330-1342 -0.4

23 June 1947
0 - 31 fms.

1342-1354 -0.5
1354-1407 -0.6
1407-1419 -0.7
1419-1431 -0.8
1431-1443 -0.9
1443-1455 -0.0
1455-1507 -1.1
1507-1519 -1.2
1519-1533 -1.3
1533-1548 -1.4
1548-1609 -1.5
1609-1635 -1.6
1635-1700 -1.7

31 - 100 fms.

1300-1318 -0.2
1318-1342 -0.4
1342-1407 -0.6
1407-1431 -0.8
1431-1455 -1.0
1455-1519 -1.2
1519-1548 -1.4
1548-1635 -1.6
1635-1700 -1.8

24 June 1947
0 - 31 fms.

0800-0810 -1.0
0810-0824 -0.9
0824-0838 -0.8
0838-0851 -0.7
0851-0905 -0.6
0905-0919 -0.5
0919-0934 -0.4
0934-0952 -0.3
0952-1009 -0.2
1009-1030 -0.1
1030-1054 -0.0
1054-1245 +0.1
1245-1309 -0.0
1309-1329 -0.1
1329-1346 -0.2
1346-1400 -0.3
1400-1415 -0.4

TIDE REDUCERS - PUHALS BAY, ALASKA

16 July 1947 0 - 31 fms.	23 July 1947 0 - 31 fms.	24 July 1947 over 100 fms.
0600-0809 -0.7	1420-1432 -1.1	1300-1339 -0.5
0809-0923 -0.8	1432-1444 -1.2	1339-1500 -1.0
0823-0837 -0.9	1444-1456 -1.3	1500-1620 -1.5
0837-0852 -1.0	1456-1504 -1.4	1620-1700 -2.0
0852-0908 -1.1	1504-1514 -1.5	
0908-0925 -1.2	1514-1528 -1.6	26 July 1947
0925-0946 -1.3	1528-1546 -1.7	0 - 31 fms.
0946-1006 -1.4	1546-1603 -1.8	
1006-1038 -1.5		1300-1433 -0.8
1038-1210 -1.6	31 - 100 fms.	1433-1521 -0.9
1210-1249 -1.5		1521-1555 -1.0
1249-1318 -1.4	1000-1227 -0.2	1555-1625 -1.1
1318-1342 -1.3	1227-1302 -0.4	1625-1649 -1.2
1342-1400 -1.2	1302-1329 -0.6	1649-1700 -1.3
1403-1422 -1.1	1329-1354 -0.8	
1422-1446 -1.0	1354-1420 -1.0	31 - 100 fms.
1446-1513 -0.9	1420-1444 -1.2	
1513-1547 -0.8	1444-1504 -1.4	1300-1433 -0.8
1547-1710 -0.7	1504-1528 -1.6	1433-1555 -1.0
	1528-1603 -1.8	1555-1649 -1.2
31 - 100 fms.		1649-1700 -1.4
	24 July 1947	
0600-0823 -0.8	0 - 31 fms.	27 July 1947
0823-0852 -1.0		0 - 31 fms.
0852-0925 -1.2	1248-1318 -0.5	
0925-1006 -1.4	1318-1339 -0.6	0600-0622 -0.8
1006-1249 -1.6	1339-1358 -0.7	0622-0645 -0.9
1249-1342 -1.4	1358-1412 -0.8	0645-0708 -1.0
1342-1422 -1.2	1412-1427 -0.9	0708-0735 -1.1
1422-1513 -1.0	1427-1443 -1.0	0735-0806 -1.2
1513-1710 -0.8	1443-1500 -1.1	0806-0843 -1.3
	1500-1515 -1.2	0843-1049 -1.4
23 July 1947 0 - 31 fms.	1515-1533 -1.3	1049-1143 -1.3
	1533-1548 -1.4	1143-1225 -1.2
	1548-1603 -1.5	1225-1309 -1.1
1000-1013 -0.2	1603-1620 -1.6	1309-1400 -1.0
1013-1200 -0.1	1620-1638 -1.7	1400-1609 -0.9
1200-1227 -0.2	1638-1700 -1.8	1609-1649 -1.0
1227-1248 -0.3		1649-1718 -1.1
1248-1302 -0.4	31 - 100 fms.	1718-1743 -1.2
1302-1316 -0.5		1743-1808 -1.3
1316-1329 -0.6	1248-1339 -0.6	1808-1831 -1.4
1329-1343 -0.7	1339-1412 -0.8	1831-1856 -1.5
1343-1354 -0.8	1412-1443 -1.0	1856-1923 -1.6
1354-1408 -0.9	1443-1515 -1.2	1923-1954 -1.7
1403-1420 -1.0	1515-1548 -1.4	1954-2043 -1.8
	1548-1620 -1.6	2043-2134 -1.9
	1620-1700 -1.8	2134-2200 -1.8

TIDE REDUCERS - PUALE BAY, ALASKA

27 July 1947 31 - 100 fms.	28 July 1947 31 - 100 fms.	31 July 1947 0 - 31 fms.	
0600-0622 -0.8	0500-0555 -0.4	0800-0808 -0.2	
0622-0708 -1.0	0555-0647 -0.6	0808-0824 -0.3	
0708-0806 -1.2	0647-0731 -0.8	0824-0838 -0.4	
0806-1143 -1.4	0731-0812 -1.0	0838-0855 -0.5	
1143-1309 -1.2	0812-0855 -1.2	0855-0908 -0.6	
1309-1649 -1.0	0855-1009 -1.4	0908-0921 -0.7	
1649-1743 -1.2	1009-1200 -1.6	0921-0934 -0.8	
1743-1831 -1.4	1200-1320 -1.4	0934-0946 -0.9	
1831-1923 -1.6	1320-1428 -1.2	0946-0958 -1.0	
1923-2043 -1.8	1428-1600 -1.0	0958-1012 -1.1	
2043-2134 -2.0	over 100 fms.		
2134-2200 -1.8			
over 100 fms.		1046-1100 -1.4	
0600-0735 -1.0	0500-0647 -0.5	1100-1122 -1.5	
0735-1225 -1.5	0647-0832 -1.0	1122-1146 -1.6	
1225-1713 -1.0	0832-1354 -1.5	1146-1222 -1.7	
1718-1923 -1.5	1354-1600 -1.0	1222-1324 -1.8	
1923-2200 -2.0	30 July 1947 0 - 31 fms.		
28 July 1947 0 - 31 fms.		1324-1406 -1.7	
0500-0524 -0.3	0800-0816 -0.5	1406-1436 -1.6	
0524-0555 -0.4	0816-0832 -0.6	1436-1456 -1.5	
0555-0621 -0.5	0832-0848 -0.7	1456-1518 -1.4	
0621-0647 -0.6	0848-0904 -0.8	1518-1538 -1.3	
0647-0709 -0.7	0904-0918 -0.9	1538-1600 -1.2	
0709-0731 -0.8	0918-0935 -1.0	1600-1623 -1.1	
0731-0752 -0.9	0935-0949 -1.1	1623-1647 -1.0	
0752-0812 -1.0	0949-1004 -1.2	1647-1713 -0.9	
0812-0832 -1.1	1004-1020 -1.3	1713-1800 -0.8	
0832-0855 -1.2	1020-1041 -1.4	1800-1836 -0.7	
0855-0925 -1.3	1041-1104 -1.5	1836-1900 -0.8	
0925-1009 -1.4	1104-1138 -1.6	31 - 100 fms.	
1009-1200 -1.5	1138-1200 -1.7	0800-0808 -0.2	
1200-1247 -1.4	31 - 100 fms.		
1247-1320 -1.3	0800-0832 -0.6	0808-0838 -0.4	
1320-1354 -1.2	0832-0904 -0.8	0838-0908 -0.6	
1354-1428 -1.1	0904-0935 -1.0	0908-0934 -0.8	
1428-1510 -1.0	0935-1004 -1.2	0934-0958 -1.0	
1510-1600 -0.9	1004-1041 -1.4	0958-1027 -1.2	
	1041-1138 -1.6	1027-1100 -1.4	
	1138-1200 -1.8	1100-1146 -1.6	

TIDE REDUCERS - PUALE BAY, ALASKA

31 July 1947 31 - 100 fms.	6 August 1947 0 - 31 fms.	7 august 1947 0 - 31 fms.
1538-1623 -1.2	0800-0808 -0.3	1400-1412 -1.2
1623-1713 -1.0	0808-0835 -0.2	1412-1425 -1.3
1713-1900 -0.8	0835-0916 -0.1	1425-1439 -1.4
over 100 fms.	0916-1037 -0.0	1439-1455 -1.5
	1037-1108 -0.1	1455-1500 -1.6
	1108-1127 -0.2	
0800-0808 -0.0	1127-1147 -0.3	31 fms. - 100 fms.
0808-0908 -0.5	1147-1205 -0.4	
0908-1012 -1.0	1205-1220 -0.5	1400-1412 -1.2
1012-1146 -1.5	1220-1233 -0.6	1412-1439 -1.4
1146-1406 -2.0	1233-1245 -0.7	1439-1500 -1.6
1406-1600 -1.5	1245-1256 -0.8	
1600-1900 -1.0	1256-1307 -0.9	8 August 1947
	1307-1318 -1.0	0 - 31 fms.
1 August 1947 0 - 31 fms.	1318-1332 -1.1	
1000-1004 -0.6	1332-1346 -1.2	0900-0908 -0.7
1004-1018 -0.7	1346-1400 -1.3	0908-0932 -0.6
1018-1030 -0.8	1400-1415 -1.4	0932-1008 -0.5
1030-1042 -0.9	1415-1431 -1.5	1005-1154 -0.4
1042-1054 -1.0	1431-1451 -1.6	1154-1227 -0.5
1054-1106 -1.1	1450-1513 -1.7	1227-1250 -0.6
1106-1118 -1.2	1513-1700 -1.8	1250-1312 -0.7
1118-1132 -1.3		1312-1334 -0.8
1132-1148 -1.4	31 - 100 fms.	1334-1348 -0.9
1148-1203 -1.5	0800-0808 -0.4	1348-1403 -1.0
1203-1226 -1.6	0808-0916 -0.2	1403-1421 -1.1
1226-1300 -1.7	0916-1037 -0.0	1421-1436 -1.2
	1037-1127 -0.2	1436-1450 -1.3
	1127-1205 -0.4	1450-1500 -1.4
31 - 100 fms.	1205-1233 -0.6	31 - 100 fms.
	1233-1256 -0.8	
1000-1004 -0.6	1256-1318 -1.0	0900-0908 -0.8
1004-1030 -0.8	1318-1346 -1.2	0908-1008 -0.6
1030-1054 -1.0	1346-1415 -1.4	1008-1154 -0.4
1054-1118 -1.2	1415-1450 -1.6	1154-1250 -0.6
1118-1148 -1.4	1450-1700 -1.8	1250-1334 -0.8
1148-1226 -1.6		1334-1403 -1.0
1226-1300 -1.8		1403-1436 -1.2
over 100 fms.		1436-1500 -1.4
1000-1004 -0.5		
1004-1106 -1.0		
1106-1226 -1.5		
1226-1300 -2.0		

TIDE REDUCERS - PUALE BAY, ALASKA

10 August 1947 0 - 31 fms.	13 August 1947 0 - 31 fms.	31 - 100 fms.
0900-0942 -1.1	0800-0811 -0.6	1940-2011 -1.4
0942-1018 -1.0	0811-0827 -0.7	2010-2042 -1.6
1018-1056 -0.9	0827-0840 -0.8	2042-2100 -1.8
1056-1137 -0.8	0840-0854 -0.9	14 August 1947
1137-1345 -0.7	0854-0908 -1.0	0 - 31 fms.
1345-1426 -0.8	0908-0923 -1.1	
1426-1454 -0.9	0923-0943 -1.2	0806-0823 +0.1
1454-1519 -1.0	0943-1005 -1.3	0823-0839 -0.0
1519-1542 -1.1	1005-1038 -1.4	0839-0853 -0.1
1542-1603 -1.2	1038-1234 -1.5	0853-0908 -0.2
1603-1625 -1.3	1234-1310 -1.4	0908-0924 -0.3
1625-1643 -1.4	1310-1338 -1.3	0924-0939 -0.4
1643-1657 -1.5	1338-1400 -1.2	0939-0954 -0.5
1657-1700 -1.6	1400-1423 -1.1	0954-1008 -0.6
31 - 100 fms.	1423-1449 -1.0	1008-1022 -0.7
	1449-1521 -0.9	1022-1037 -0.8
	1521-1600 -0.8	1037-1051 -0.9
0900-0942 -1.2	1600-1732 -0.7	1051-1100 -1.0
0942-1056 -1.0	1732-1811 -0.8	31 - 100 fms.
1056-1426 -0.8	1811-1839 -0.9	
1426-1519 -1.0	1839-1900 -1.0	0806-0839 -0.0
1519-1603 -1.2	1900-1922 -1.1	0839-0908 -0.2
1603-1643 -1.4	1922-1940 -1.2	0908-0939 -0.4
1643-1700 -1.6	1940-1955 -1.3	0939-1008 -0.6
11 August 1947 0 - 31 fms.	1955-2010 -1.4	1008-1037 -0.8
	2010-2026 -1.5	1037-1100 -1.0
	2026-2042 -1.6	
	2042-2100 -1.7	
0800-1050 -1.2	31 - 100 fms.	15 August 1947 0 - 31 fms.
1050-1137 -1.1		
1137-1218 -1.0		
1218-1310 -0.9	0800-0811 -0.6	0800-0823 -0.1
1310-1543 -0.8	0811-0840 -0.8	0823-0855 -0.2
1543-1628 -0.9	0840-0908 -1.0	0855-0921 -0.3
1628-1700 -1.0	0908-0943 -1.2	0921-0944 -0.4
31 - 100 fms.	0943-1038 -1.4	0944-1004 -0.5
	1038-1234 -1.6	1004-1020 -0.6
	1234-1338 -1.4	1020-1038 -0.7
0900-1137 -1.2	1338-1423 -1.2	1038-1053 -0.8
1137-1310 -1.0	1423-1521 -1.0	1053-1108 -0.9
1310-1543 -0.8	1521-1811 -0.8	1108-1122 -1.0
1543-1700 -1.0	1811-1900 -1.0	1122-1136 -1.1
	1900-1940 -1.2	1136-1150 -1.2

TIDE REDUCERS - FAULK BAY, ALASKA

15 August 1947
0 - 31 fms.

1150-1203 -1.3
1203-1217 -1.4
1217-1230 -1.5
1230-1243 -1.6
1243-1257 -1.7
1257-1354 -1.8
1354-1424 -1.7
1424-1448 -1.6
1448-1510 -1.5
1510-1529 -1.4
1529-1548 -1.3
1548-1605 -1.2
1605-1620 -1.1
1620-1636 -1.0
1636-1653 -0.9

31 - 100 fms.

0800-0855 -0.2
0855-0944 -0.4
0944-1020 -0.6
1020-1053 -0.3
1053-1122 -1.0
1122-1150 -1.2
1150-1217 -1.4
1217-1243 -1.6
1243-1242 -1.8
1424-1510 -1.6
1510-1548 -1.4
1548-1620 -1.2
1620-1653 -1.0

19 August 1947
0 - 31 fms.

0808-0839 +0.3
0839-1000 +0.4
1000-1024 +0.3
1024-1043 +0.2
1043-1100 +0.1
1100-1112 -0.0
1112-1124 -0.1
1124-1135 -0.2
1135-1146 -0.3
1146-1157 -0.4
1157-1209 -0.5
1209-1220 -0.6
1220-1231 -0.7
1231-1241 -0.8
1241-1252 -0.9

19 August 1947
0 - 31 fms.

1252-1304 -1.0
1304-1316 -1.1
1316-1327 -1.2
1327-1340 -1.3
1340-1353 -1.4
1353-1407 -1.5
1407-1424 -1.6
1424-1446 -1.7
1446-1520 -1.8
1520-1621 -1.9
1621-1651 -1.8
31 - 100 fms.

0800-0839 +0.2
0839-1000 +0.4
1000-1043 +0.2
1043-1112 -0.0
1112-1135 -0.2
1135-1157 -0.4
1157-1220 -0.6
1220-1241 -0.8
1241-1304 -1.0
1304-1327 -1.2
1327-1353 -1.4
1353-1424 -1.6
1424-1520 -1.8
1520-1621 -2.0
1621-1700 -1.8

20 August 1947
0 - 31 fms.

0806-0817 -0.3
0817-0832 -0.2
0832-0850 -0.1
0850-0911 -0.0
0911-0947 +0.1
0947-1035 +0.2
1035-1114 +0.1
1114-1132 -0.0
1132-1144 -0.1
1144-1154 -0.2
1154-1206 -0.3
1206-1217 -0.4
1217-1229 -0.5
1229-1240 -0.6
1240-1251 -0.7
1251-1302 -0.8
1302-1311 -0.9

20 August 1947
0 - 31 fms.

1311-1320 -1.0
1320-1330 -1.1
1330-1341 -1.2
1341-1352 -1.3
1352-1404 -1.4
1404-1416 -1.5
1416-1429 -1.6
1429-1442 -1.7
1442-1457 -1.8
1457-1519 -1.9
1519-1547 -2.0
1547-1632 -2.1
1632-1700 -2.0

31 - 100 fms.

0800-0817 -0.4
0817-0850 -0.2
0850-0947 -0.0
0947-1035 +0.2
1035-1132 -0.0
1132-1154 -0.2
1154-1217 -0.4
1217-1240 -0.6
1240-1302 -0.8
1302-1320 -1.0
1320-1341 -1.2
1341-1404 -1.4
1404-1429 -1.6
1429-1457 -1.8
1457-1547 -2.0
1547-1632 -2.2
1632-1700 -2.0

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21 August 1947

0 - 31 fms.

0800-0815 -0.7
 0815-0831 -0.6
 0831-0849 -0.5
 0849-0910 -0.4
 0910-0934 -0.3
 0934-1008 -0.2
 1008-1121 -0.1
 1121-1152 -0.2
 1152-1215 -0.3
 1215-1232 -0.4
 1232-1245 -0.5
 1245-1256 -0.6
 1256-1309 -0.7
 1309-1322 -0.8
 1322-1334 -0.9
 1334-1345 -1.0
 1345-1357 -1.1
 1357-1410 -1.2
 1410-1422 -1.3
 1422-1435 -1.4
 1435-1448 -1.5
 1448-1505 -1.6
 1505-1521 -1.7
 1521-1541 -1.8
 1541-1616 -1.9
 1616-1700 -2.0
 1700-1749 -1.9
 1749-1812 -1.8
 1812-1830 -1.7
 1830-1847 -1.6
 1847-1900 -1.5

31 - 100 fms.

1322-1345 -1.0
 1345-1410 -1.2
 1410-1435 -1.4
 1435-1505 -1.6
 1505-1541 -1.8
 1541-1749 -2.0
 1749-1830 -1.8
 1830-1900 -1.6

22 August 1947

0 - 31 fms.

0800-0803 -1.1
 0803-0818 -1.0
 0818-0840 -0.9
 0840-0905 -0.8
 0905-0930 -0.7
 0930-1000 -0.6
 1000-1046 -0.5
 1046-1140 -0.4
 1140-1228 -0.5
 1228-1250 -0.6
 1250-1310 -0.7
 1310-1330 -0.8
 1330-1352 -0.9
 1352-1409 -1.0
 1409-1427 -1.1
 1427-1444 -1.2
 1444-1456 -1.3
 1456-1500 -1.4

31 - 100 fms.

31 - 100 fms.

0800-0815 -0.8
 0815-0849 -0.6
 0849-0934 -0.4
 0934-1152 -0.2
 1152-1232 -0.4
 1232-1256 -0.6
 1256-1322 -0.8

0800-0803 -1.2
 0803-0840 -1.0
 0840-0930 -0.8
 0930-1046 -0.6
 1046-1140 -0.4
 1140-1250 -0.6
 1250-1330 -0.8
 1330-1409 -1.0
 1409-1444 -1.2
 1444-1500 -1.4

<u>25 Sept.</u>	1638-1653 -0.8	1224-1400 -2.1	1518-1541 -2.1
<u>0-31 fms.</u>	1653-1707 -0.7	1400-1420 -2.0	1541-1560 -2.0
1300-1306 -1.4	1707-1722 -0.6	1420-1439 -1.9	1600-1617 -1.9
1306-1341 -1.3	1722-1737 -0.5	1439-1454 -1.8	1617-1630 -1.8
1341-1412 -1.2	1737-1754 -0.4	1454-1506 -1.7	1630-1643 -1.7
1412-1448 -1.1	1754-1800 -0.3	1506-1518 -1.6	1645-1655 -1.6
1448-1525 -1.0	<u>31-100 fms.</u>	1518-1530 -1.5	1655-1706 -1.5
1525-1737 -0.9	0700-0745 -0.2	1530-1543 -1.4	1706-1718 -1.4
1737-1812 -1.0	0745-0820 -0.4	1543-1600 -1.3	1718-1750 -1.3
1812-1843 -1.1	0820-0848 -0.6	<u>31-100 fms.</u>	1750-1742 -1.2
1843-1900 -1.2	0848-0916 -0.8	0800-0817 -0.8	1742-1757 -1.1
<u>31-100 fms.</u>	0916-0942 -1.0	0817-0848 -0.4	<u>31-100 fms.</u>
1300-1341 -1.4	0942-1008 -1.2	0848-0910 -0.6	0700-0715 -0.8
1341-1448 -1.2	1008-1036 -1.4	0910-0934 -0.8	0715-0754 -0.6
1448-1512 -1.0	1036-1104 -1.6	0934-1000 -1.0	0754-0928 -0.4
1512-1900 -1.2	1104-1123 -1.8	1000-1024 -1.2	0928-1008 -0.6
	1123-1148 -2.0	1024-1048 -1.4	1008-1036 -0.8
<u>29 Sept.</u>	1418-1450 -1.8	1048-1118 -1.6	1036-1100 -1.0
<u>0-31 fms.</u>	1450-1518 -1.8	1118-1147 -1.8	1100-1124 -1.2
0700-0722 -0.1	1518-1546 -1.4	1147-1224 -2.0	1124-1148 -1.4
0722-0745 -0.2	1546-1613 -1.2	1224-1400 -2.2	1148-1216 -1.6
0745-0804 -0.3	1613-1638 -1.0	1400-1439 -2.0	1216-1245 -1.8
0804-0820 -0.4	1638-1707 -0.8	1439-1506 -1.8	1245-1222 -2.0
0820-0834 -0.5	1707-1737 -0.6	1506-1530 -1.6	1222-1541 -2.2
0834-0848 -0.6	1737-1800 -0.4	1530-1600 -1.4	1541-1617 -2.0
0848-0902 -0.7	<u>Over 100 fms.</u>		1617-1643 -1.8
0902-0916 -0.8	1600-1707 -1.0	<u>3 October</u>	1643-1706 -1.6
0916-0929 -0.9	1707-1800 -0.5	<u>0-31 fms.</u>	1706-1730 -1.4
0929-0943 -1.0		0700-0715 -0.7	1730-1757 -1.2
0942-0955 -1.1	<u>30 Sept.</u>	0715-0733 -0.6	<u>Over 100 fms.</u>
0955-1008 -1.2	<u>0-31 fms.</u>	0733-0754 -0.5	<u>0700-0715 -1.0</u>
1008-1022 -1.3	0800-0817 -0.2	0754-0928 -0.4	0715-1008 -0.5
1022-1036 -1.4	0817-0833 -0.3	0928-0950 -0.5	1008-1118 -1.0
1036-1050 -1.5	0833-0848 -0.4	0950-1008 -0.6	1118-1216 -1.5
1050-1104 -1.6	0848-0900 -0.5	1008-1022 -0.7	1216-1348 -2.0
1104-1118 -1.7	0900-0916 -0.6	1022-1036 -0.8	1348-1518 -2.5
1118-1133 -1.8	0916-0922 -0.7	1036-1048 -0.9	1518-1643 -2.0
1133-1200 -1.9	0922-0934 -0.8	1048-1100 -1.0	1643-1742 -1.5
1200-1350 -2.0	0934-0947 -0.9	1100-1112 -1.1	1742-1757 -1.0
1350-1416 -1.9	0947-1000 -1.0	1118-1124 -1.2	
1418-1435 -1.8	1000-1012 -1.1	1124-1136 -1.3	
1435-1450 -1.7	1012-1034 -1.2	1136-1148 -1.4	
1450-1504 -1.6	1024-1036 -1.3	1148-1203 -1.5	
1504-1518 -1.5	1036-1048 -1.4	1203-1216 -1.6	
1518-1532 -1.4	1048-1100 -1.5	1216-1230 -1.7	
1532-1546 -1.3	1100-1118 -1.3	1230-1245 -1.8	
1546-1600 -1.2	1116-1138 -1.7	1245-1304 -1.9	
1600-1613 -1.1	1138-1147 -1.8	1304-1322 -2.0	
1613-1625 -1.0	1147-1205 -1.9	1322-1346 -2.1	
1625-1638 -0.9	1205-1224 -2.0	1346-1518 -2.2	

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23 August 1947 0 - 31 fms.		26 August 1947 0 - 31 fms.		28 August 1947 0 - 31 fms.		29 August 1947 31 - 100 fms.	
0800-0835	-1.2	1400-1510	-1.1	0818-0836	-0.9	0800-0830	-0.6
0835-0908	-1.1	1510-1713	-1.0	0836-0849	-1.0	0830-0858	-0.8
0908-0937	-1.0	1713-1750	-1.1	0849-0905	-1.1	0858-0922	-1.0
0937-1011	-0.9	1750-1800	-1.2	0905-0918	-1.2	0922-0950	-1.2
1011-1050	-0.8			0918-0935	-1.3	0950-1023	-1.4
1050-1315	-0.7		31 - 100 fms.	0935-0952	-1.4	1023-1100	-1.6
1315-1347	-0.8			0952-1011	-1.5	1100-1125	-1.8
1347-1415	-0.9	0800-0845	-1.2	1011-1036	-1.6		
1415-1436	-1.0	0845-1308	-1.4	1036-1107	-1.7	Over 100 fms.	
1436-1459	-1.1	1308-1510	-1.2	1107-1300	-1.8		
1459-1522	-1.2	1510-1713	-1.0	1300-1342	-1.7	0800-0830	-0.5
1522-1544	-1.3	1713-1800	-1.2	1342-1412	-1.6	0830-0936	-1.0
1544-1608	-1.4			1412-1437	-1.5	0936-1100	-1.5
1608-1638	-1.5	27 August 1947		1437-1456	-1.4	1100-1421	-2.0
1638-1714	-1.6	0 - 31 fms.		1456-1518	-1.3	1421-1600	-1.5
1714-1800	-1.7			1518-1546	-1.2	1600-1900	-1.0
		0800-0803	-0.9	1546-1618	-1.1		
31 - 100 fms.		0803-0822	-1.0	1618-1700	-1.0		
		0822-0842	-1.1	1700-1800	-0.9		
0800-0908	-1.2	0842-0900	-1.2				
0908-1011	-1.0	0900-0920	-1.3	31 - 100 fms.			
1011-1347	-0.8	0920-0945	-1.4				
1347-1436	-1.0	0945-1012	-1.5	0700-0704	-0.4		
1436-1522	-1.2	1012-1052	-1.6	0704-0743	-0.6		
1522-1608	-1.4	1052-1241	-1.7	0743-0818	-0.8		
1608-1714	-1.6	1241-1326	-1.6	0818-0849	-1.0		
1714-1800	-1.8	1326-1356	-1.5	0849-0918	-1.2		
		1356-1424	-1.4	0918-0952	-1.4		
		1424-1455	-1.3	0952-1036	-1.6		
24 August 1947		1455-1537	-1.2	1036-1342	-1.8		
0 - 31 fms.		1537-1700	-1.1	1342-1437	-1.6		
				1437-1518	-1.4		
0800-0949	-1.2		31 - 100 fms.	1518-1618	-1.2		
0949-1048	-1.1			1618-1800	-1.0		
1048-1142	-1.0	0800-0822	-1.0				
1142-1200	-0.9	0822-0900	-1.2	29 August 1947			
		0900-0945	-1.4	0 - 31 fms.			
31 - 100 fms.		0945-1052	-1.6				
		1052-1241	-1.8	0800-0811	-0.5		
0800-1048	-1.2	1241-1356	-1.6	0811-0830	-0.6		
1048-1200	-1.0	1356-1455	-1.4	0830-0845	-0.7		
		1455-1700	-1.2	0845-0858	-0.8		
26 August 1947				0858-0910	-0.9		
0 - 31 fms.		28 August 1947		0910-0922	-1.0		
		0 - 31 fms.		0922-0936	-1.1		
0800-0816	-1.1			0936-0950	-1.2		
0816-0845	-1.2	0700-0704	-0.4	0950-1006	-1.3		
0845-0918	-1.3	0704-0724	-0.5	1006-1023	-1.4		
0918-1218	-1.4	0724-0743	-0.6	1023-1041	-1.5		
1218-1308	-1.3	0743-0803	-0.7	1041-1100	-1.6		
1308-1400	-1.2	0803-0818	-0.8	1100-1125	-1.7		

17 Sept. 0-31 fms.	18 Sept. 0-31 fms.	18 Sept. 0-31 fms.	19 Sept. 0-31 fms.
1500-1525 -2.3	0600-0613 -1.1	1815-1827 -1.1	0600-0603 -1.4
1525-1548 -2.2	0613-0625 -1.0	1827-1839 -1.0	0603-0621 -1.3
1548-1606 -2.1	0625-0637 -0.9	1839-1850 -0.9	0621-0637 -1.2
1606-1619 -2.0	0637-0649 -0.8	1850-1902 -0.8	0637-0655 -1.1
1619-1632 -1.9	0649-0702 -0.7		0655-0700 -1.0
1632-1643 -1.8	0702-0717 -0.6	31-100 fms.	
1643-1655 -1.7	0717-0735 -0.5		31-100 fms.
1655-1706 -1.6	0733-0750 -0.4	0600-0613 -1.2	
1706-1718 -1.5	0750-0811 -0.3	0613-0637 -1.0	0600-0621 -1.4
1718-1728 -1.4	0811-0846 -0.2	0637-0702 -0.8	0621-0655 -1.2
1728-1739 -1.3	0846-0936 -0.1	0702-0733 -0.6	0655-0700 -1.0
1739-1750 -1.2	0936-1014 -0.2	0733-0811 -0.4	
1750-1800 -1.1	1014-1036 -0.3	0811-1014 -0.2	
1800-1809 -1.0	1036-1052 -0.4	1014-1052 -0.4	
1809-1819 -0.9	1052-1108 -0.5	1052-1123 -0.6	
1819-1828 -0.8	1108-1123 -0.6	1123-1148 -0.8	
1828-1837 -0.7	1123-1136 -0.7	1148-1213 -1.0	
1837-1848 -0.6	1136-1148 -0.8	1213-1235 -1.2	
1848-1900 -0.5	1148-1202 -0.9	1235-1254 -1.4	
1900-1905 -0.4	1202-1213 -1.0	1254-1312 -1.6	
	1213-1225 -1.1	1312-1338 -1.8	
31-100 fms.	1225-1235 -1.2	1338-1414 -2.0	
	1235-1244 -1.3	1414-1610 -2.2	
1500-1525 -2.4	1244-1254 -1.4	1610-1648 -2.0	
1525-1606 -2.2	1254-1303 -1.5	1648-1714 -1.8	
1606-1632 -2.0	1303-1312 -1.6	1714-1739 -1.6	
1632-1655 -1.8	1312-1323 -1.7	1739-1804 -1.4	
1655-1718 -1.6	1323-1338 -1.8	1804-1827 -1.2	
1718-1739 -1.4	1338-1355 -1.9	1827-1850 -1.0	
1739-1800 -1.2	1355-1414 -2.0	1850-1902 -0.8	
1800-1819 -1.0	1414-1442 -2.1		
1819-1837 -0.8	1442-1536 -2.2	over 100 fms.	
1837-1900 -0.6	1536-1610 -2.1		
over 100 fms.	1610-1631 -2.0	0600-0702 -1.0	
	1631-1648 -1.9	0702-0846 -0.5	
	1648-1700 -1.8	0846-0936 -0.0	
1500-1548 -2.5	1700-1714 -1.7	0936-1123 -0.5	
1548-1655 -2.0	1714-1726 -1.6	1123-1225 -1.00	
1655-1750 -1.5	1726-1739 -1.5	1225-1312 -1.5	
1750-1837 -1.0	1739-1753 -1.4	1312-1442 -2.0	
1837-1900 -0.5	1753-1804 -1.3	1442-1536 -2.5	
	1804-1815 -1.2	1536-1714 -2.0	
		1714-1815 -1.5	
		1815-1902 -1.0	

5 Sept. 0-31 fms.	5 Sept. over 100 fms.	12 Sept. 31-100 fms.	15 Sept. 0-31 fms.
0800-0811 -0.7	0800-0811 -1.0	1037-1305 -1.8	1531-1542 -1.6
0811-0831 -0.6	0811-1136 -0.5	1305-1345 -1.6	1542-1554 -1.5
0831-0900 -0.5	1136-1248 -1.0	1345-1413 -1.4	1554-1604 -1.4
0900-1036 -0.4	1248-1357 -1.5	1413-1443 -1.2	1604-1614 -1.3
1036-1110 -0.5	1357-1800 -2.0	1443-1512 -1.0	1614-1625 -1.2
1110-1136 -0.6		1512-1547 -0.8	1625-1636 -1.1
1136-1200 -0.7	12 Sept. 0-31 fms.	1547-1631 -0.6	1635-1646 -1.0
1200-1214 -0.8		1631-1700 -0.4	1646-1656 -0.9
1214-1226 -0.9			1656-1707 -0.8
1226-1236 -1.0	0803-0815 -0.5	14 Sept. 31-100 fms.	1707-1718 -0.7
1236-1248 -1.1	0815-0826 -0.6	1100-1112 -1.6	1718-1729 -0.6
1248-1303 -1.2	0826-0838 -0.7	1112-1134 -1.8	1729-1739 -0.5
1303-1317 -1.3	0838-0850 -0.8	1134-1210 -2.0	1739-1751 -0.4
1317-1329 -1.4	0850-0903 -0.9	1210-1349 -2.2	1751-1803 -0.3
1329-1343 -1.5	0903-0915 -1.0	1349-1427 -2.0	1803-1815 -0.2
1343-1357 -1.6	0915-0927 -1.1	1427-1450 -1.8	1815-1830 -0.1
1357-1412 -1.7	0927-0940 -1.2	1450-1514 -1.6	1830-1847 -0.0
1412-1432 -1.8	0940-0954 -1.3	1514-1536 -1.4	1847-1900 +0.1
1432-1455 -1.9	0954-1006 -1.4	1536-1558 -1.2	31-100 fms.
1455-1532 -2.0	1006-1019 -1.5	1558-1620 -1.0	1300-1437 -2.2
1532-1624 -2.1	1019-1037 -1.6	1620-1642 -0.8	1437-1509 -2.0
1624-1700 -2.0	1037-1106 -1.7	1642-1704 -0.6	1509-1531 -1.8
1700-1726 -1.9	1106-1234 -1.8	1704-1730 -0.4	1531-1554 -1.6
1726-1745 -1.8	1234-1305 -1.7	1730-1805 -0.2	1554-1614 -1.4
1745-1800 -1.7	1305-1326 -1.6	1805-1900 -0.0	1614-1636 -1.2
31-100 fms.	1326-1345 -1.5		1636-1656 -1.0
	1345-1358 -1.4		1656-1718 -0.8
	1358-1413 -1.3		1718-1739 -0.6
0800-0811 -0.8	1413-1428 -1.2	over 100 fms.	1739-1803 -0.4
0811-0900 -0.6	1428-1443 -1.1	1100-1112 -1.5	1803-1830 -0.2
0900-1036 -0.4	1443-1457 -1.0	1112-1242 -2.0	1830-1900 -0.0
1036-1136 -0.6	1457-1512 -0.9	1242-1311 -2.5	over 100 fms.
1136-1214 -0.8	1512-1528 -0.8	1311-1450 -2.0	1300-1416 -2.5
1214-1236 -1.0	1528-1547 -0.7	1450-1548 -1.5	1416-1531 -2.0
1236-1303 -1.2	1547-1606 -0.6	1548-1642 -1.0	1531-1625 -1.5
1303-1329 -1.4	1606-1631 -0.5	1642-1746 -0.5	1625-1718 -1.0
1329-1357 -1.6	1631-1700 -0.4	1746-1900 -0.0	1718-1815 -0.5
1357-1432 -1.8			1815-1900 -0.0
1432-1532 -2.0	31-100 fms.		
1532-1624 -2.2		15 Sept. 0-31 fms.	
1624-1726 -2.0	0803-0826 -0.6	1300-1516 -2.2	
1726-1800 -1.8	0826-0850 -0.8	1416-1437 -2.1	
	0850-0915 -1.0	1437-1454 -2.0	
	0915-0940 -1.2	1454-01509 -1.9	
	0940-1006 -1.4	1509-1520 -1.8	
	1006-1037 -1.6	1520-1531 -0.7	

7196 (insert)
H-6925

APPROVAL SHEET

The boat sheet and field record for the
1947 work on survey H-6925^{7196 (insert)} are approved as trans-
mitted to the Seattle Processing Office.

The survey is considered complete and
adequate for the area covered. No additional work
is recommended in the area surveyed during the
current season.

A.P. Ratti

A. P. Ratti
Commander, USC&GS
Chief of Party

Date: 20 November 1947

VELOCITY CORRECTIONS-FATHOMETER
SHIP SURVEYOR

These corrections are to be used between
 6 August 1947 and 15 October 1947
 in the locality of Shelikof Straits, for
 surveys (field) 2147, 2247, and 4147.

LAUNCH - 808		SHIP - 808		SHIP - NMC	
Depth	Corr.(fms.)	Depth	Corr.(fms.)	Depth	Corr.(fms.)
0.0- 07.0	0.0	0.0-08.5	0.0	04.5-10.5	+0.1
07.5- 16.5	-0.1	08.5-18.0	-0.1	10.5-18.0	+0.2
16.5- 22.5	-0.2	18.5-24.0	-0.2	18.5-31.5	+0.3
22.5- 28.0	-0.3	24.5-29.5	-0.3	32.0-100	+0.4
28.5- 34.0	-0.4	29.5-35.5	-0.4	101 - 180	+0.5
34.5- 44.0	-0.6	36.0-45.5	-0.6		
44.5- 54.0	-0.8	46.0-55.5	-0.8		
54.5- 63.0	-1.0	56.0-64.5	-1.0		
63.5 - 72.0	-1.2	65.0-75.5	-1.2		
72.5- 80.5	-1.4	74.0-82.0	-1.4		
81.0- 88.5	-1.6	82.5-90.0	-1.6		
89.0- 97.0	-1.8	90.5-98.5	-1.8		
97.5-106.0	-2.0	99.0-108	-2.0		
		109-131	-2.5		
		132-156	-3.0		

5 Sept. 0-31-fms.	5 Sept. over 100 fms.	12 Sept. 31-100 fms.	15 Sept. 0-31 fms.
0800-0811 -0.7	0800-0811 -1.0	1037-1305 -1.8	1531-1542 -1.6
0811-0831 -0.6	0811-1136 -0.5	1305-1345 -1.6	1542-1554 -1.5
0831-0900 -0.5	1136-1248 -1.0	1345-1413 -1.4	1554-1604 -1.4
0900-1036 -0.4	1248-1357 -1.5	1413-1443 -1.2	1604-1614 -1.3
1036-1110 -0.5	1357-1800 -2.0	1443-1512 -1.0	1614-1625 -1.2
1110-1136 -0.6		1512-1547 -0.8	1625-1636 -1.1
1136-1200 -0.7	12 Sept. 0-31 fms.	1547-1631 -0.6	1638-1646 -1.0
1200-1214 -0.8		1631-1700 -0.4	1646-1656 -0.9
1214-1226 -0.9			1656-1707 -0.8
1226-1236 -1.0	0803-0815 -0.5	14 Sept. 31-100 fms.	1707-1718 -0.7
1236-1248 -1.1	0815-0826 -0.6	1100-1112 -1.6	1718-1729 -0.6
1248-1303 -1.2	0826-0838 -0.7	1112-1134 -1.8	1729-1739 -0.5
1303-1317 -1.3	0838-0850 -0.8	1134-1210 -2.0	1739-1751 -0.4
1317-1329 -1.4	0850-0903 -0.9	1210-1349 -2.2	1751-1803 -0.3
1329-1343 -1.5	0903-0915 -1.0	1349-1427 -2.0	1803-1815 -0.2
1343-1357 -1.6	0915-0927 -1.1	1427-1450 -1.8	1815-1830n-0.1
1357-1412 -1.7	0927-0940 -1.2	1450-1514 -1.6	1830-1847 -0.0
1412-1432 -1.8	0940-0954 -1.3	1514-1536 -1.4	1847-1900 +0.1
1432-1455 -1.9	0954-1006 -1.4	1536-1558 -1.2	31-100 fms.
1455-1532 -2.0	1006-1019 -1.5	1558-1620 -1.0	1300-1437 -2.2
1532-1624 -2.1	1019-1037 -1.6	1620-1642 -0.8	1437-1509 -2.0
1624-1700 -2.0	1037-1106 -1.7	1642-1704 -0.6	1509-1531 -1.8
1700-1726 -1.9	1106-1234 -1.8	1704-1730 -0.4	1531-1554 -1.6
1726-1745 -1.8	1234-1305 -1.7	1730-1805 -0.2	1554-1614 -1.4
1745-1800 -1.7	1305-1326 -1.6	1805-1900 -0.0	1614-1636 -1.2
31-100 fms.	1326-1345 -1.5		1636-1656 -1.0
	1345-1358 -1.4		1656-1718 -0.8
	1358-1413 -1.3	over 100 fms.	1718-1739 -0.6
0800-0811 -0.8	1413-1428 -1.2	1100-1112 -1.5	1739-1803 -0.4
0811-0900 -0.6	1428-1443 -1.1	1112-1242 -2.0	1803-1830 -0.2
0900-1036 -0.4	1443-1457 -1.0	1242-1311 -2.5	1830-1900 -0.0
1036-1136 -0.6	1457-1512 -0.9	1311-1450 -2.0	over 100 fms.
1136-1214 -0.8	1512-1528 -0.8	1450-1548 -1.5	1300-1416 -2.5
1214-1236 -1.0	1528-1547 -0.7	1548-1642 -1.0	1416-1531 -2.0
1236-1303 -1.2	1547-1606 -0.6	1642-1746 -0.5	1531-1625 -1.5
1303-1329 -1.4	1606-1631 -0.5	1746-1900 -0.0	1625-1718 -1.0
1329-1357 -1.6	1631-1700 -0.4		1718-1815 -0.5
1357-1432 -1.8	31-100 fms.		1815-1900 -0.0
1432-1532 -2.0		15 Sept. 0-31 fms.	
1532-1624 -2.2	0803-0826 -0.6	1300-1516 -2.2	
1624-1726 -2.0	0826-0850 -0.8	1416-1437 -2.1	
1726-1800 -1.8	0850-0915 -1.0	1437-1454 -2.0	
	0915-0940 -1.2	1454-1509 -1.9	
	0940-1006 -1.4	1509-1520 -1.8	
	1006-1037 -1.6	1520-1531 -0.7	

South side of Alaska Peninsula.
C. Kekurnoi to C. Unalishagvak.

Processing office notes.

Smooth sheet.

The projection is hand made on Dietzgen paper D-117. Datum is NA 1927. Triangulation was by Hardy 1919 and 1920 (See adjusted triangulation of Alaska Vol.V Pages 10 to 20) and Ratti 1947, field computations of the current season. The shoreline is outlined by transfers from graphic control sheets of the 1947 season.

Peak C.

In the 1919 triangulation there is a GP computed from the line Karluk--C.Uyak. This point did not agree well with the hydrographic cuts. Photo copies of the 1919 lists of directions were obtained. The point was established from two triangulation cuts and two hydrographic cuts, the four passing through a point. The triangulation cuts from Uyak and Rocky Point were plotted by computing a GP from the slim triangle Peak C-Rocky Point-Uyak, plotting the resulting position of Peak C, then plotting the back azimuths through this point. The intersection obtained with theodolite and sextant cuts was used, not the computed GP. From the air photographs Peak C appears as a hogback or rooster comb ridge running to southeastward. There seems to be some uncertainty of its identity when viewed from some parts of the working grounds. The signal caused some inconsistencies in time and line on the outer sounding lines of the sheet but it is believed that a satisfactory plotting was achieved.

Plotting of positions using "Peak C" adequate.

Sub-plan.

One day's soundings were plotted on the old boatsheet H 6925 (Su 12343). As the signals were too distant to plot on the 1/40 000 scale part of the smooth sheet H 7196, a subplan was provided on scale 1/160 000. These soundings could now be transferred to the 1/40 000 area.

Sdg. trans-ferred to 1/40,000 scale proj. of smooth sheet

Sounding reductions.

The field party contributed to the processing of the sheet by reducing the soundings.

Important soundings.

These have been pointed out on the face of the sheet.

Crossings.

Good. However, note the four fathom difference at Lat. 57° 32.0' Long. 155° 32.4'.
33.0'

Correction made for error in initial crossing now ade-quate.

Peak I.

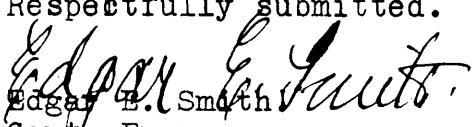
There was some confusion in the sounding record as to Peak I. It was usually miscalled "Kub".

Sdg. Records corrected to read Peak I.

Current.

On the boatsheet at Lat. 57 40 Long 155 19
there is a note that from 8:56 to 9:56 on 19 September 1947
the ship drifted at the rate of 0.7 knots per hour
in the direction 194 true, light WNW breeze. ✓

Respectfully submitted.


Edgar E. Smith
Cart. Engr.
Seattle Processing Office.

1500 Westlake Ave. N., Seattle 9, Wash.

25 February 1948

To: The Director
U. S. Coast and Geodetic Survey
Washington, D. C.

Subject: Position of Peak "C"--Hardy 1919.

Reference: G. P. Accession No. 73691.

Some difficulty has been found with hydrographic cuts to Peak C, a triangulation intersection point near Puale Bay, Alaska Peninsula at: Lat. $57^{\circ} 48' 19.4$ North

Long. $155^{\circ} 21' 46.0$ West, Valdez Datum.

It is possible that a slightly different point is being observed by the hydrographic party. We note that the position was computed from a weak triangle.

The triangulation Progress Sketch shows that it was observed from Kubugakli, Uyak and Karluk. It is requested that the lists of directions of stations Sturgeon, Grant, Ikolik, Ridge and Kekurnoi be examined for possible cuts on this point. Photostat copies of all lists of directions which include Peak C are requested.

If an air photograph showing this point is available we would appreciate a print from it.

Edgar E. Smith
Cartographic Engineer
Seattle Processing Office

An photo was supplied. It was examined and returned.
Triangulation cuts were used as explained elsewhere.

EES

H-7196

STATISTICS

Vol. No.	Day Letter	Date 1947	Vessel	No. of Positions	Stat. Mi. Sdg. Lines	Fathometer Used
2	a	15 August	Launch 2	135	48.5	808-S110
2	b	19 August	"	44	12.6	"
2	c	20 August	"	81	29.4	"
3	A	29 June	Ship	130	89.9	808-47S, NMC
3	B	30 June	"	77	53.7	" "
4	B	30 June	"	96	69.4	" "
4	C	24 July	"	14	6.9	"
4	D	27 July	"	57	37.7	" "
5	D	27 July	"	183	107.2	" "
5	E	28 July	"	36	19.8	"
6	E	28 July	"	56	38.6	"
6	F	31 July	"	134	84.4	"
7	F	31 July	"	12	7.4	"
7	G	1 August	"	45	24.7	" "
7	H	21 August	"	178	80.0	"
8	H	21 August	"	25	9.1	"
8	J	23 August	"	155	56.8	"
8	K	29 August	"	61	37.1	" "
9	K	29 August	"	100	67.5	"
9	L	29 September	"	15	8.6	" "

&

TOTALS ----- 1614 889.3

AREA -- SQ. STATUTE MILES—234

(5012343) 1 A 14 Sept Ship 77 71.7
 178 1691 961.0
 178
 1691
 961.0

H-7196

TIDAL NOTE

The soundings on this survey were reduced to mean lower low water using tides as observed at Puale Bay Tide Station.

Latitude 57° 42'45"
Longitude 155 23.40.

The height of MLLW was 3.5 feet above the 0 mark on the tide staff. No time or height correction was applied to the observed tide. The tide gage was not recovered after the storm of 30 September to 2 October.

All reducers after 25 September are from inferred values of MLLW furnished by the Washington Office.

H 7196 (Su 4147 & Su 12343)

South side of The Alaska Peninsula.

C. Kekurnoi to C. Unalishagvak.

List of geographic names pencilled on smooth sheet.

ALASKA PENINSULA

PUALE BAY

DRY BAY

CAPE UNALISHAGVAK

CAPE AKLEK

CAPE KEKURNOI

GEOGRAPHIC NAMES

Survey No. 17196

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K
<u>Alaska</u>			(for title)						1
<u>Shelikof Strait</u>		"	"						2
									3
<u>Alaska Peninsula</u>							USGB		4
<u>Cape Kekurnoi</u>						"			5
<u>Puale Bay</u>						"			6
<u>Cape Aklek</u>									7
<u>Dry Bay</u>									8
<u>Cape Unalishagvak</u>						USGB			9
									10
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20
									21
									22
									23
									24
									25
									26
									27
									M 234

Names underlined in red are
approved. 11/3/48

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H7196

Records accompanying survey:

Boat sheets .2...; sounding vols. 9....; wire drag vols.;
 bomb vols.; graphic recorder rolls .4...;
 special reports, etc.

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

Number of positions on sheet	1691
Number of positions checked	221
Number of positions revised	46
Number of soundings revised (refers to depth only)	65
Number of soundings erroneously spaced	36
Number of signals erroneously plotted or transferred	1
Topographic details
Junctions	24 hrs
Verification of soundings from graphic record	15 hrs
Verification by <i>Charles R. Wittmann</i>	Total time 259.49 Date 5/12/49
Reviewed by <i>Indeckind</i>	Time 46 Date 5/12/49

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. June 1937

TIDE NOTE FOR HYDROGRAPHIC SHEET

Division of Hydrography and Topography

4 November 1948

Division of Charts: R. H. Carstens

Plane of reference approved in
9 volumes of sounding records for

HYDROGRAPHIC SHEET 7196

Locality - Alaska Peninsula, Alaska

Chief of Party: A. P. Ratti

Plane of reference is mean lower low water reading
3.5 ft. on tide staff at Puale Bay
15.1 ft. below B. M. l (1947)

Height of mean high water above plane of reference is 11.3 feet.

Condition of records satisfactory except as noted below:

E. C. McKay
Section
Chief, Division of Tides and Currents.

DIVISION OF CHARTS

REVIEW SECTION -- NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7196

SU-4147

FIELD NO. SU-12343

Alaska, Shelikof Strait, Cape Kekurnoi to Cape
Unalishagvak

Surveyed in June - Sept., 1947 Scale 1:40,000
Project No. CS-279

Soundings:

808 Fathometer
NMC Fathometer

Control:

Sextant fixes on shore
signals

Chief of Party - A. P. Ratti

Surveyed by - C. A. Schanck, J. C. Partington, J. E. Waugh,
K. S. Ulm, J. R. Plaggmier, H. P. Reed, W. B.
Page and E. W. Richards

Protracted by - C. O. Nyberg

Soundings plotted by - C. O. Nyberg

Verified and inked by - C. R. Wittmann

Reviewed by - I. M. Zeskind, May 6, 1949

Inspected by - R. H. Carstens

1. Shoreline and Signals

The portions of the shoreline shown on H-7196 originate with graphic control surveys T-7049a and b (1947) and T-7050 (1947). Completion of the shoreline is deferred until air photographic compilations are available for this area.

The source of the signals is given in the Descriptive Report.

2. Sounding Line Crossings

The depths at crossings are in adequate agreement.

3. Depth Curve and Bottom Configuration

The usual depth curves were adequately delineated.

This offshore survey lies in the entrance to Shelikof Strait. The bottom inside the 100-fm. curve is very irregular and contains many knolls, ridges and troughs. Beyond the 100-fm. depth curve, the bottom is generally smooth.

4. Junction with Contemporary Surveys

Adequate junctions were effected with H-7197 (1947) on the southwest and H-7194 (1947) on the west. The junction with H-7195 (1947) on the north will be considered in the review of that survey. The present survey forms the limits of the present project on the south and east. Here depths charted from H-4969 (1929) and H-4157 (1920) are in adequate agreement with present depths.

5. Comparison with Prior Surveys

- A. H-4101 (1919) 1:200,000
- H-4157 (1920) 1:100,000
- H-4398 (1924) 1:80,000
- H-4969 (1929) 1:100,000

Only one line of soundings on H-4101, a small-scale reconnaissance survey, falls within the area of the present survey. Depths on this survey differ with the present depths by 2 to 3 fms.

A comparison between the other prior surveys and the present survey reveals no important differences in bottom configuration, except offshore from the 50-fm. depth curve. Here depths on H-4157 are in some places 3 to 20 fms. deeper than present survey depths. An example of these differences is found at lat. $57^{\circ} 40.2'$, long. $155^{\circ} 18.60'$, where a prior 187 fm. sounding falls in present depths of 166-170 fms. These deeper prior soundings are wire soundings and are considered to be faulty.

A few supplementary bottom characteristics and one sounding have been carried forward from the prior surveys. The present survey with these additions is adequate to supersede the prior surveys within the common area.

5

6. Comparison with Chart 8556 (Latest print date 2/28/49) Chart 8541 (Latest print date 11/28/42)

A. Hydrography

The charted hydrography originates with the previously discussed surveys supplemented by a few critical soundings from the present survey prior to verification and review. The present survey supersedes the charted hydrography.

B. Aids to Navigation

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

7. Condition of Survey

- a. The field records and Descriptive Report are complete and comprehensive.
- b. The protracting and plotting was carefully executed and is in compliance with the requirements of the Hydrographic Manual.

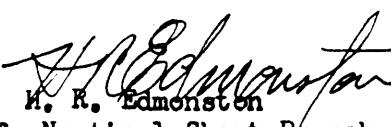
8. Compliance with Project Instructions

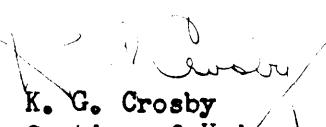
The survey adequately complies with the Project Instructions.

9. Additional Field Work Recommended

This is a very good basic survey and no additional field work is recommended.

Examined and approved:


H. R. Edmonston
Chief, Nautical Chart Branch


K. G. Crosby
Chief, Section of Hydrography


Casper M. Durgin
Chief, Division of Charts


W. M. Scaife
Chief, Division of Coastal Surveys

NAUTICAL CHARTS BRANCH

SURVEY NO. 7196

Record of Application to Charts

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

TIDE REDUCERS - FAULE BAY, ALASKA

24 June 1947

0 - 31 fms.

1415-1426 -0.5
1426-1438 -0.6
1438-1452 -0.7
1452-1505 -0.8
1505-1518 -0.9
1518-1531 -1.0
1531-1545 -1.1
1545-1557 -1.2
1557-1613 -1.3
1613-1630 -1.4
1630-1648 -1.5
1648-1700 -1.6

31 - 100 fms.

0800-0824 -1.0
0824-0851 -0.8
0851-0919 -0.6
0919-0952 -0.4
0952-1030 -0.2
1030-1309 -0.0
1309-1346 -0.2
1346-1415 -0.4
1415-1438 -0.6
1438-1505 -0.8
1505-1531 -1.0
1531-1557 -1.2
1557-1630 -1.4
1630-1700 -1.6

29 June 1947

0 - 31 fms.

1000-1012 -1.3
1012-1227 -1.4
1227-1256 -1.3
1256-1326 -1.2
1326-1352 -1.1
1352-1417 -1.0
1417-1442 -0.9
1442-1508 -0.8
1508-1537 -0.7
1537-1744 -0.6
1744-1808 -0.7
1808-1831 -0.8
1831-1854 -0.9
1854-1900 -1.0

31 - 100 fms.

1000-1256 -1.4
1256-1352 -1.2
1352-1442 -1.0
1442-1537 -0.8
1537-1744 -0.6
1744-1831 -0.8
1831-1900 -1.0

Over 100 fms.

30 June 1947

0 - 31 fms.

0409-0432 -0.1
0432-0507 -0.0
0507-0615 +0.1
0615-0652 -0.0
0652-0717 -0.1
0717-0737 -0.2
0737-0754 -0.3
0754-0808 -0.4
0808-0822 -0.5
0822-0836 -0.6
0836-0851 -0.7
0851-0906 -0.8
0906-0920 -0.9
0920-0936 -1.0
0936-0952 -1.1
0952-1010 -1.2

1010-1032 -1.3
1032-1100 -1.4
1100-1145 -1.5
1145-1229 -1.6
1229-1319 -1.5
1319-1352 -1.4
1352-1415 -1.3
1415-1435 -1.2
1435-1454 -1.1
1454-1514 -1.0
1514-1536 -0.9
1536-1604 -0.8
1604-1644 -0.7
1644-1749 -0.6

30 June 1947

0 - 31 fms.

1749-1800 -0.7

31 - 100 fms.

0400-0432 -0.2
0432-0652 -0.0
0652-0737 -0.2
0737-0808 -0.4
0808-0836 -0.6
0836-0906 -0.8
0906-0936 -1.0
0936-1010 -1.2
1010-1100 -1.4
1100-1319 -1.6
1319-1415 -1.4
1415-1454 -1.2
1454-1536 -1.0
1536-1644 -0.8
1644-1749 -0.6
1749-1800 -0.8

over 100 fms.

0409-0717 -0.0
0717-0836 -0.5
0836-0952 -1.0
0952-1435 -1.5
1435-1644 -1.0
1644-1749 -0.5
1749-1800 -1.0

13 July 1947

0 - 31 fms.

0800-1000 -1.4
1000-1049 -1.3
1049-1123 -1.2
1123-1155 -1.1
1155-1200 -1.0

31 - 100 fms.

0800-1049 -1.4
1049-1155 -1.2
1155-1200 -1.0