.9679 THRU 9685

.9679 THRU 9685

Diag. Cht. No. 9302 and 9370.

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Topographic

Field No. Ph-56 *Office No.* T-9679 thru T-9685

LOCALITY

State Alaska

General locality Bering Sea

Locality Hooper Bay to Scammon Bay

1950-51

CHIEF OF PARTY

M.J.Tonkel, Chief of Field Party

E.H.Kirsch, Baltimore Photo. Office

~~L.W.Swanson, Div. of Photo. Wash.,D.C.~~

LIBRARY & ARCHIVES

DATE November 6, 1959

8-1870-1 (1)

T-9679 thru T-9685

DATA RECORD

T

T-9679 - Cape Romanzof
T-9680 - Scammon Bay Village
T-9681 - Kokechik Bay
T-9682 - Kokechik River
T-9683 - Dall Point
T-9684 - Hooper Bay
T-9685 - New Chevak

Project No. (II): Ph 56

Quadrangle Name (IV):

Field Office (II): Portland, Oregon

Chief of Party: M. J. Tonkel

Photogrammetric Office (III): Baltimore, Md.
Washington, D. C.

Officer-in-Charge: E. H. Kirsch
L. W. Swanson

Instructions dated (II) (III):
8 September 1949
2 April 1951
21 May 1951
14 December 1951
21 December 1951

Copy filed in Division of Photogrammetry (IV)

Method of Compilation (III):
Reading Nine Lens Plotter

Manuscript Scale (III): 1:20,000

Stereoscopic Plotting Instrument Scale (III): 1:20,000

Scale Factor (III):

Date received in Washington Office (IV):

Date reported to Nautical Chart Branch (IV):

Applied to Chart No.

Date:

Date registered (IV): 10/17/58

Publication Scale (IV):

Publication date (IV):

Geographic Datum (III): N. A. 1927

Vertical Datum (III):
Mean sea level except as follows:
Elevations shown as (25) refer to mean high water
Elevations shown as (5) refer to sounding datum
i.e., mean low water or mean lower low water

Reference Station (III):

Lat.:

Long.:

~~Adjusted~~
Unadjusted

Plane Coordinates (IV):

State:

Zone:

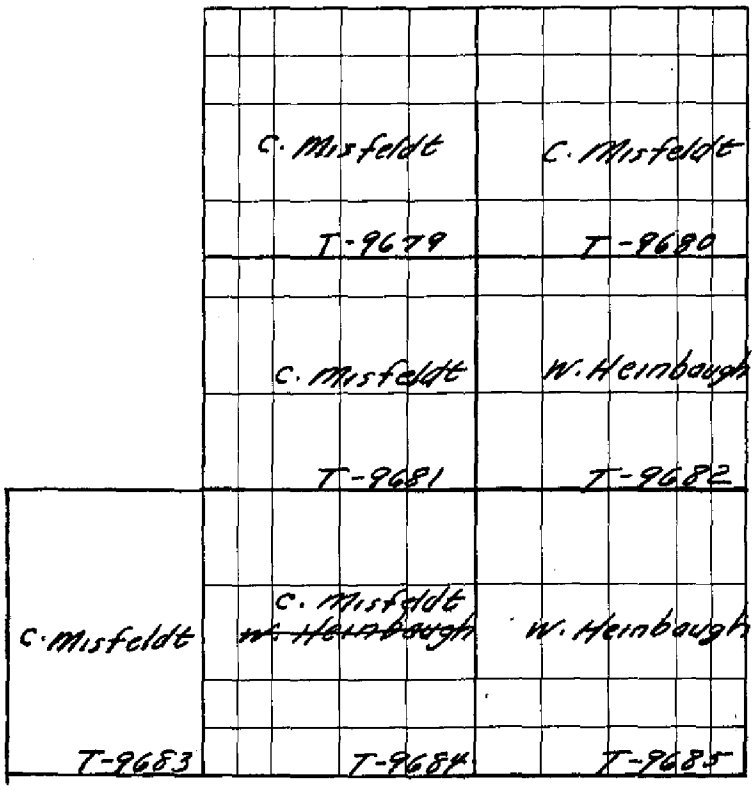
Y=

X=

Roman numerals indicate whether the item is to be entered by (II) Field Party, (III) Photogrammetric Office, or (IV) Washington Office.

When entering names of personnel on this record give the surname and initials, not initials only.

M-2618-12(4)



Areas contoured by various personnel
(Show name within area)
(II) (III)

DATA RECORD

Field Inspection by (II): V. E. Serena Date: May - Sept. 1951

Planetable contouring by (II): -- Date:

Completion Surveys by (II): -- Date:

Mean High Water Location (III) (State date and method of location): From office photos corrected with 1951 field inspection.

Projection and Grids ruled by (IV): A. Riley Date: Sept. 1954

Projection and Grids checked by (IV): A. Riley Date: Sept. 1954

Control plotted by (III): J. Schleudner Date: May 1955

Control checked by (III): J. Steinberg Date: May 1955

Radial Plot or Stereoscopic Control extension by (III): E. L. Williams Date: August 1955

Stereoscopic instrument compilation (III): Planimetry W. Heinbaugh, C. Misfeldt Date: Nov. 1956
Contours Date:

Manuscript delineated by (III): W. Heinbaugh, C. Misfeldt Date: Nov. 1956

Photogrammetric Office Review by (III): L. Levin Date: Dec. 1956

Elevations on Manuscript checked by (II) (III): L. Levin Date: Dec. 1956

M-2618-12(4)

Camera (kind or source) (III):

PHOTOGRAPHS (III)

Number	Date	Time	Scale	Stage of Tide
28496-502	8/13/50	11:00 (Approx.)	1:20,000	*
28793-801	8/14/50	10:50 "		
28805-814	"	11:20 "		
28822-831	"	11:45 "		
29049-059	"	17:20 "		
33647-657	6/26/51	13:10		
33658-667	"	13:30		
33716-33725	"	14:55		

Tide (III)

Diurnal

Ratio of Ranges	Mean Range	Spring Range
		8.5

Reference Station: Kodiak
Subordinate Station: *
Subordinate Station:

Washington Office Review by (IV): T-9679 Harrington T-9680 Parrish T-9681 Parrish
Date: 6-18-58 6-19-58 5-16-58

Final Drafting by (IV): T-9683 John H. Frazier T-9692 Taylor T-9693 Oakgrove T-9694 Chaffee
Date: JULY 25, 1958 7-17-58 5-12-58

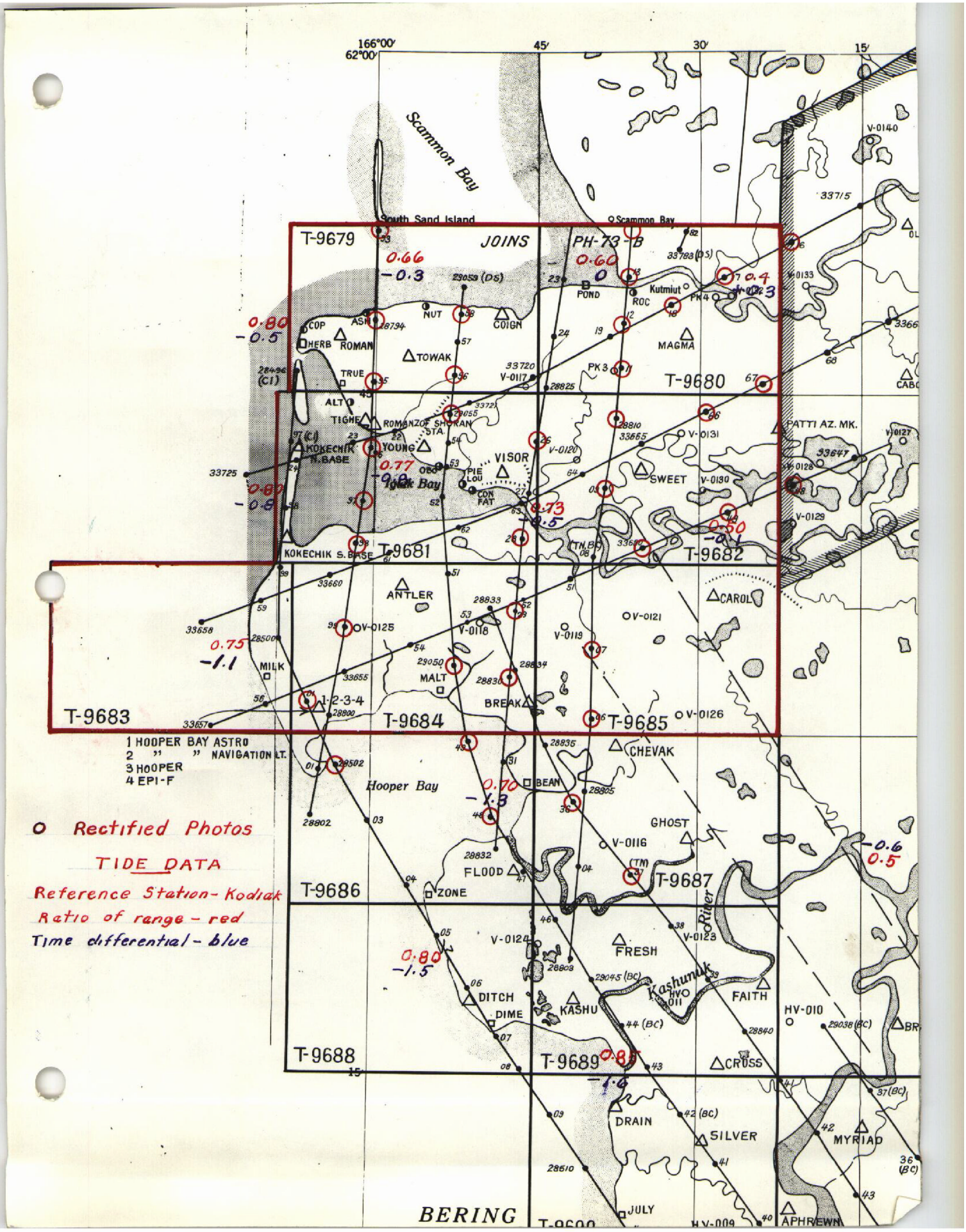
Drafting verified for reproduction by (IV): Wm O. Hallin
Date: 6-12-58 6-29-58

Proof Edit by (IV):
Date:

Land Area (Sq. Statute Miles) (III):
Shoreline (More than 200 meters to opposite shore) (III):
Shoreline (Less than 200 meters to opposite shore) (III):
Control Leveling - Miles (II):
Number of Triangulation Stations searched for (II): Recovered: Identified:
Number of BMs searched for (II): Recovered: Identified:
Number of Recoverable Photo Stations established (III):
Number of Temporary Photo Hydro Stations established (III):

Remarks: * - See sketch and tide curves on following pages.

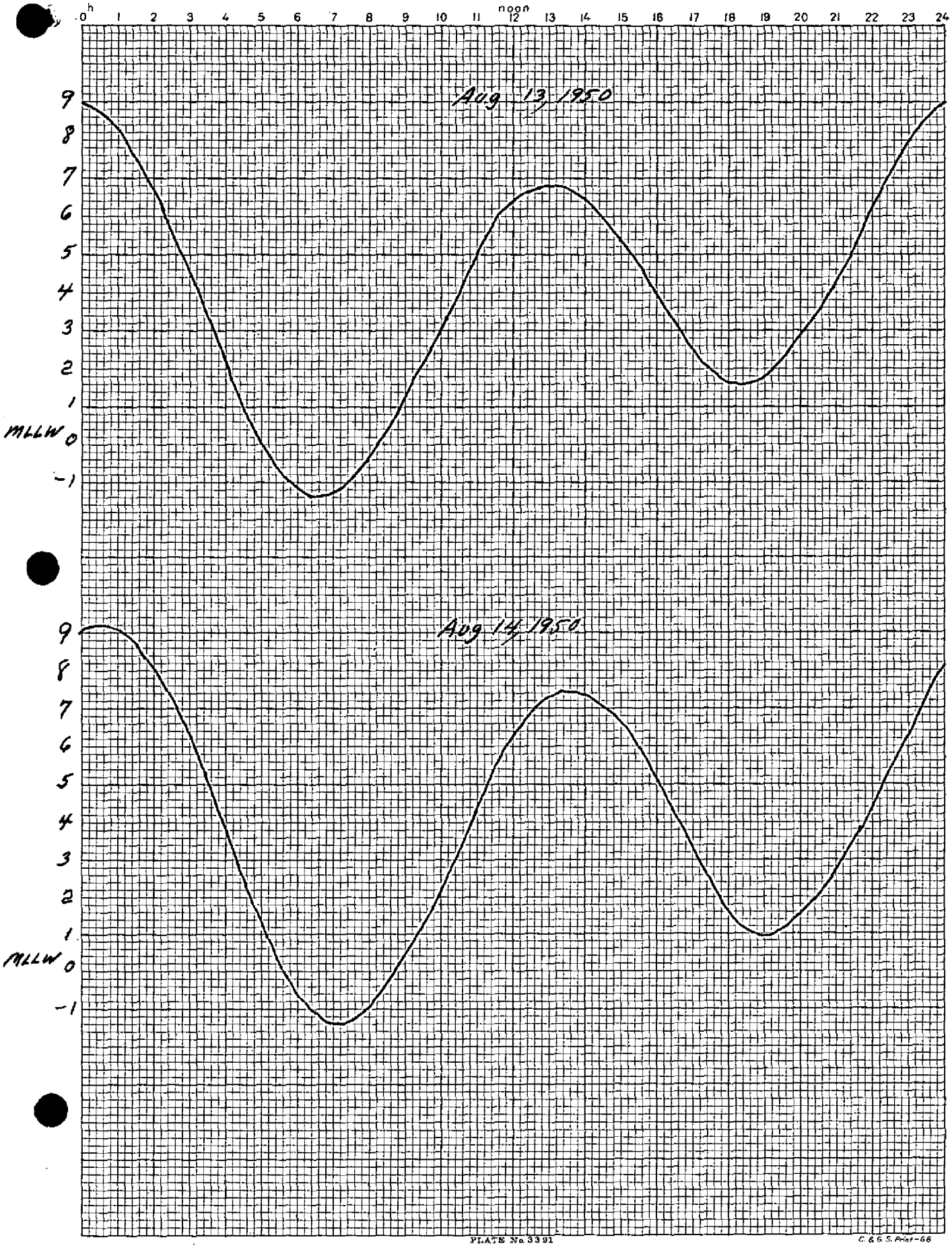
M-2618-12(4)



166°00′
62°00′
45′
30′
15′
Scammon Bay
South Sand Island
Scammon Bay
T-9679
JOINS
PH-73-B
0.66
-0.3
0.60
0
0.4
0.3
0.80
-0.5
0.80
-0.8
0.77
-0.8
0.73
-0.5
0.50
-0.1
0.75
-1.1
0.70
-1.3
0.80
-1.5
0.85
-1.6
-0.6
0.5
T-9680
T-9681
T-9682
T-9683
T-9684
T-9685
T-9686
T-9687
T-9688
T-9689
T-9690
Iglak Bay
Hooper Bay
Kashunuk River
BERING
KOKECHIK N. BASE
KOKECHIK S. BASE
ROMANZOF STA.
SHORAN STA.
PATTI AZ. MK.
VISOR
SWEET
ANTLER
CAROL
MILK
MALT
BREAK
CHEVAK
BEAN
GHOST
FLOOD
ZONE
FRESH
DITCH
DIME
KASHU
FAITH
CROSS
DRAIN
SILVER
MYRIAD
JULY
APHREWN
POND
ROC
Kutmiut
MAGMA
COIGN
NUT
ASH
COP
HERB
ROMAN
TOWAK
TRUE
ALT
TIGHE
YOUNG
OBO
PIE LOU
CON FAT
1-2-3-4
1 HOOPER BAY ASTRO
2 " " NAVIGATION LT.
3 HOOPER
4 EPI-F
O Rectified Photos
TIDE DATA
Reference Station - Kodiak
Ratio of range - red
Time differential - blue

Tide Curves

Station: Kodiak, Alaska



C & G.S. Print-68

Tide Curves

Station: Kodiak, Alaska

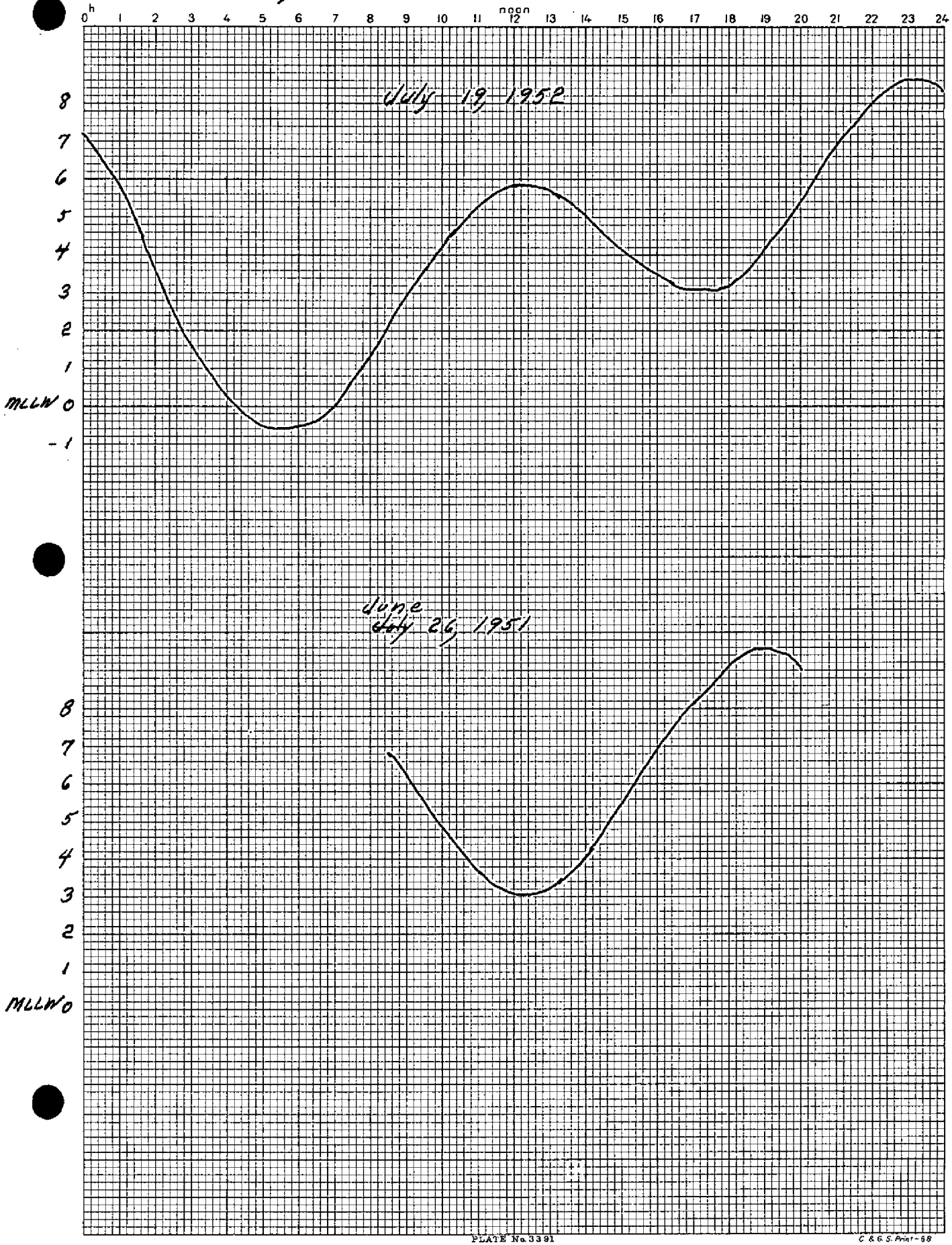


PLATE No. 3391

C & G.S. Print-68

AERIAL PHOTOGRAPH CONTROL AND INSPECTION
CAPE AVINOF TO CAPE ROMANZOF, ALASKA

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PART I

SEASON'S REPORT
AERIAL PHOTOGRAPH CONTROL AND INSPECTION
Cape Avinof to Cape Romanzof, Alaska

Project Number: G-1057 (Ph-56)

Chief of Party: Miller J. Tonkel

Chief Photogrammetric Unit: Victor E. Serena

Authority: INSTRUCTIONS - Triangulation in Alaska, Cape Avinof to Cape Romanzof, on Nunivak Island, dated 29 March 1951.

SUPPLEMENTAL INSTRUCTIONS - Photogrammetric Surveys - Project No. G-1057(Ph-56) - Cape Avinof to Cape Romanzof and Nunivak Island, Alaska, dated 2 April 1951.

Date of beginning field work: 30 May 1951

Date of ending field work: 12 September 1951

CHRONOLOGY OF ACTIVITIES:

The photogrammetric unit consisting of three civil service employees, reported to Lt. Miller J. Tonkel, Chief of the Triangulation party, in Seattle, Washington on 20 May 1951 and became an integral part of the party until the organization was disbanded upon return to Seattle on 29 September 1951.

The party left for Anchorage via Commercial Airlines on 24 May, was transported to Bethel by Military Transport Service on 26 May, and started the move into the working grounds at Kipnuk on 27 May. The contract airplanes moved all personnel and equipment into base camp and field operations began on 30 May.

Field conditions on that date were fully compatible with planned operations. The noonday temperature was 47°. All but a few of the deeper lakes were clear of ice.

Existing ice was broken and had drifted compactly to lee. Some flow ice was observable offshore and some snow covered the shoreline. Neither ice nor snow was in such quantity as to impede progress of the work.

Total transportation for the combined group consisted of four airplanes; three Piper Cubs (PA-18, 125 H.P.), and one Stinson (SR-JR). The Stinson had limited utility for field work because of small, shallow lakes general to the project area. Early in the season, one Cub was loaned to the Nunivak Party pending arrival of contract airplanes allotted that party.

Use of the airplanes was apportioned on an objective basis calculated to keep photogrammetric and geodetic work in a state of balance for mutual support, and to achieve full, economical utilization of all available flying time.

On 12 June a sub camp was established at Nichtmiut to shorten supply lines and eliminate fruitless flying time to that area. The Stinson was used as a liason airplane. All photo personnel operated from this base until work was completed as far north as Hazen Bay whereupon base camp and sub camp were transported to Hooper Bay. The remainder of the field work for G-1057(Ph-56) was accomplished from this latter camp. This project may be said to have been finished and work begun on Project Ph-73A(51) on 12 September 1951.

ACTIVITIES, OTHER:

Coast and Beach Intelligence data were gathered and forms completed by the photo unit with the advice and assistance of Lt. Tonkel. The completed forms were submitted to the Director as instructed. See SHORELINE, FIELD INSPECTION REPORT.

ORGANIZATION OF PHOTOGRAMMETRIC UNIT:

	Reported	Detached
Victor E. Serena, GS-5	5-21-51	10-2-51
Robert J. Heaslett, GS-4	5-21-51	10-2-51
Alfred W. Cresse, GS-4	5-23-51	10-1-51

The first two weeks of the season were employed in training Messrs. Heaslett and Cresse in field methods, problems and conditions peculiar to Alaska. The training proceeded in conjunction with field work in order to acquaint the men with actual field problems and to minimize delay in progress. Subsequently the two men were sent out as a team establishing photo topographic stations and gathering data for shoreline map compilation and Coast and Beach Intelligence.

Later in the season the two men were instructed in light-keeping duties and established, identified and posted lights on supplemental horizontal and vertical control stations for angular measurement by the observing units. These duties were supplemental to duties of establishing photo topo stations. In addition Mr. Cresse did most of the recording for supplemental control established by the photo unit. He was also employed in making an independent office check of field records for sketch incongruities, omissions, distance checks, etc.

It has been previously reported and is hereby repeated for emphasis, that sending untrained or inadequately trained men to Alaska is impractical and is not conducive to good field work. Close supervision of undertrained personnel is impractical under the pressure of the inordinate premium on time and transportation. I personally feel that I had had insufficient training and experience to direct all the activities of the photo unit.

METHODS EMPLOYED:

All horizontal control was identified either directly or by the substitute station method. Identification of triangulation stations preceeded occupation of stations by observing units. When weather was not favorable for instrument work, or the distances difficult to measure by one man, the substitute stations were flagged and instructions given the "O" parties to complete the measurements. This procedure made it possible to work in marginal non-observing weather when demand for transportation was least likely to be critical.

The method has one weakness that must be guarded against. It is possible for builders to place station marks in other than positions indicated by reconnaissance and identified by the photo unit. On two stations (MOUTH and KINIA) this ocurred and stations had to be revisited and additional field data obtained.

The supplemental control was of some concern in the lake-potted, flat, flood plain between Nelson Island and Hooper Bay. Refraction is excessive during daylight hours and the area lacks points of prominence from which lake surfaces or targets can be identified. Resort was made to posting lights on such stations for intersection by the observing units on their normal, night observing schedules. Some difficulty was encountered because of inadequate experience of photogrammetric personnel with lights. Two such stations (V-0115, V-0116) have but a single direction and an unchecked double zenith distance.

ADEQUACY OF INSTRUMENTS, MATERIALS AND EQUIPMENT;

A new pocket stereoscope (Fairchild Model C 2) is unsatisfactory for field use. The instrument is heavier than the older model, the

enamel finish easily chips away, no case is provided for protection against chance rough usage, and the open -end tripod legs slip and collapse under uneven supporting surfaces. The older, lighter instrument with closed, "U"-shaped support is a much better instrument.

From past experience the K-20 camera is judged to be an ideal camera for field party photography. However, the original and replacement K-20 cameras supplied for field use during the past season were defective upon receipt. A third camera arrived at a time when the pressure of completing the triangulation tie to Mountain Village made it impossible to spare time and transportation for field photography.

The Kern theodolite (#38642) supplied the photo unit has a sluggish vertical bubble. The horizontal and vertical motions become stiff in temperatures under 50° F. Comdr. F.A. Riddell has written a letter requesting advice on action to be taken regarding this instrument.

STATISTICS:

Area surveyed (square miles)	2130
Shoreline inspected (statute miles)	360
Triangulation stations identified	81
Supplemental control stations identified	46
Topographic stations established and identified	27
Photo hydro stations identified	38

PROGRESS SKETCH:

A sketch covering the seasons work is included in this report.

SUMMARY OF FIELD WORK NOT COMPLETED:

Paragraph 4C of supplemental instructions specified the establishment of a number of stations for horizontal control of the photogrammetric plot on the barrier islands off Cape Avinof. Aerial inspection revealed that the islands are low, bare, devoid of any vestige of vegetation and that storm water breaks over the barriers introducing constant change in their topographic character. Detail, as a basis for identification of the proposed control, does not exist. It is recommended these barrier islands be located by future hydrographic surveys by other than photogrammetric means. In this connection, note that the islands in Scammon Bay are similar in nature. Their control by photogrammetric methods likewise will be impractical.

A project plan was received in August placing the northern limits of Project Ph-56(49) at Latitude 62°. Geodesy had planned to extend the triangulation scheme one figure beyond the MAGMA-COIGN line into that general area, but the urgency of completing the triangulation connection to Mountain Village made this impractical. The photogrammetric work, in a northerly direction, was terminated at the mouth of the Kun River.

In two instances the vertical control spacing on Nelson Island is four rather than about three miles as specified in the instructions. Definite hill tops or points of detail could not be identified on the very round, characterless hills with any degree of accuracy for trigonometric levels. These areas are particularly difficult of access. It was considered impractical to control these points at the expense of other phases of the work.

The following stations (traverse stations but for exceptions noted) were not identified. Station PATTI could not be identified. A triangle was closed on PATTI AZ. MK. to serve as control instead. The remainder of these stations are in areas having adequate control and time did not permit identification.

Bluff Tide Staff, 1951
BM Igiak #1
BM Igiak #3
Dall Pt. Shoran Station
Hooper Bay Shoran Mast
PATTI, 1951 (Triangulation)
Towak Az. Mk., 1951 (Intersection)
Tununak Tide Staff, 1951

Approved:

Miller J. Tonkel
Lt. - USC&G Survey
Chief of Party

Respectfully submitted:

Victor E. Serena
Cartographic Survey Aid

PART II

FIELD INSPECTION REPORT
CAPE AVINOF TO CAPE ROMANZOF
Project G-1057 Ph-56(49)

2. AREAL FIELD INSPECTION:

(a) Description of Area:

The area covered by this field inspection report averages fifteen miles in width, and extends from Kipnuk up to and including the south shore of Scammon Bay.

CAPE AVINOF - CAPE VANCOUVER

From Cape Avinof to Cape Vancouver is a low, flat plain drained by four major tidal streams. The plain is relieved by several low hills, the terminal slopes of which break off sharply into the plain. The southern portion of this area is marked by large lakes whereas the northern portion is given to more numerous, lesser lakes. The hill on which station TERN is located and the contiguous companion hill are unquestionably volcanic in origin. Driftwood is in evidence as much as two miles inshore. The inference is drawn that extreme wind-driven tides inundate extensive shoreline areas.

CAPE VANCOUVER

Cape Vancouver is a bold headland. The volcanic mountains on the Cape trend in an easterly direction losing character and elevation proceeding to their termination at Baird Inlet. Only the lakes in the Chakchak Valley are of any size. The drainage system radiates from the approximate center of the mountain range. Streams are largely in narrow valleys and none are of remarkable proportion.

NELSON - HOOPER BAY

A low plain devoid of relief lies between the mountains of Nelson Island and Hooper Bay. Great tidal streams; the Keoklevik, Ninglikfak, Kashunuk, Aphrewn, Manokinak, Aknerkochik, Azun and Baird Inlet drain the area. Countless shallow, brackish lakes lace the terrain. Driftwood far inland lends credence to reports that extreme high storm tides flood extensive portions of this plain. Father Hargrave of New Chevak states this periodic flooding is the reason for abandoning Old Chevak in favor of New Chevak. The Hooper Bay people

state the low hill upon which that village is located was completely isolated by extreme tide water in the autumn of 1950.

HOOPER BAY - IGIAK BAY

The area between Hooper Bay and Igiak Bay consists of low rolling hills the highest of which are about sixty feet. Many of the plentiful lakes among these hills have steep banks at points where they abut the hills. The lakes contain fresh water and are somewhat deeper than those in the flats to the south. A steep fifty-foot bluff, apparently cut by meandering drainage, defines this area on the south. Likewise a similar bluff exists on the north and defines the limits of the Kokechik River Valley.

CAPE ROMANZOF

Cape Romanzof is marked by forbidding steep-to bluffs and prominent outcrops on the point. The Askinuk mountains run back from the cape in an easterly direction. The mountain tops are boulder strewn; the slopes bear alder and willow brush. A number of sharp outcrops are scattered throughout the range.

(b) Items of Historical Interest:

The low-cost federal housing program and a growing appreciation of schools and the products of modern civilization are factors modifying the nomadic habits of the native population in Alaska. Hooper Bay, Tanunak, and Nichtmiut owe much of their growth to these concentrating and stabilizing influences. The founding of New Chevak and New Kealevik was given appreciable impetus by the housing program.

(c) Photography:

Three triangulation stations (PLAIN, KEGUM, and TOOKSOOK) are not on present photographs but fall in the area of proposed new photography. These stations were identified for use as control when photographs become available. In cases where rephotography is planned stations were identified on existing photographs and marked for possible direct identification on the new photographs. Also note that towers were built over the stations in the area of proposed photography east of Hazen Bay and that direct identification of these stations on new photographs is a possibility that should be explored.

A measure of poor photography was encountered but alternate portions of overlapping photographs were adequate for field work. In some such cases substitute stations are not readily discernible on all photographs and transfer to overlapping photographs must be done stereoptically. In as much as some inferior photography must be expected as a result of unavoidable camera failure, poor photography resulting from such causes is not deemed a fit subject for criticism.

The best possible prints are not always made available for field use. This became apparent when field prints were compared with duplicate prints prepared for compilation. There is so little ground detail in much of the Alaskan terrain that print quality assumes the utmost importance. Poor quality adds to the difficulty of identifying detail. Often subtense methods of measuring distances must be used with ensuing loss of time and productivity. It is recommended that photographs be printed with the fullest range of tone possible, compatible with demands on equipment and quality of negatives, for use by field parties.

3. HORIZONTAL CONTROL:

(a) Supplemental control was established by intersection by the triangulation party and by resection on the base triangulation net by the photo unit. For a list of supplemental control see INDEX TO FIELD WORK.

(b) No datum adjustments were made by the field party.

(c) The Astro Stations at Kipnuk, Tanunak and Hooper Bay were established by the United States Air Force. Traverses were run to all three stations by the 1951 field party.

(d) All necessary control is considered positively identified.

(e) All Coast and Geodetic Survey stations in project area were recovered.

(f) Information pertinent to the identification of stations is stated on Form M-2226-12.

4. VERTICAL CONTROL:

Density of vertical control was planned so that no point in the project area was more than about three miles from tidal shoreline or a point of known elevation. Elevations, carried through the main scheme triangulation and tied to tide stations, provided the basic vertical control. Extension therefrom was by the following methods:

By intersection and resection where trigonometric elevations are to be computed from non-reciprocal double zenith distances and computed lengths of lines. The supplemental stations, the numerical designation of which is preceded by the letters HV (for horizontal-vertical) fall in this category. Their position may be computed for horizontal control. Due caution should govern the use of those stations having no position check.

Most of the supplemental vertical control is based on trigonometric elevations from non-reciprocal double zenith distance observations on points, the positions and distances of which must be determined by the radial plot. Such stations have been designated by a number preceded by the letter "V" (for vertical).

A list of supplemental vertical control and the stations on which computations are based is contained in the INDEX TO FIELD WORK.

Note that double zenith distances were observed on unidentified points of elevation on Nelson Island by the triangulation unit as follows:

Station	Object Observed
HUMPTY	hill
FRONT	plateau
GRASS	peak
TOOKSOOK	peak

It appears desirable to explore the possibility of identifying these points of elevation after the plot is laid.

5. CONTOURS AND DRAINAGE:

Contours - not applicable.

Drainage of area is mentioned in DESCRIPTION OF AREA.

6. WOODLAND COVER:

There is no true woodland cover in the area. Irregular patches of 4 to 7-foot high willow and alder brush grow on slopes of hills and mountains. Such cover has been noted on photographs in areas visited by the photo unit.

7. SHORELINE AND ALONGSHORE FEATURES:

The entire shoreline in the area surveyed was inspected. Actual inspection on the ground was at points in the vicinity of stations which were visited for other purposes. The remainder of the shoreline was inspected from the air by personnel familiar with the shoreline characteristics. (Supplemental data is contained on Beach Intelligence forms submitted to the Director as follows:)

Beach at	Submitted
Lite, 1951	July 1951
SHORE, 1949	"
Peas, 1951	August 1951
Tanunak Village	"
BLUFF, 1951	"
July, 1951	"
Ooze, 1951	September 1951
Kulu, 1951	"
Dope, 1951	"
Hooper Bay Village	October 1951
Milk, 1951	"
Dall Point	"

Of special interest in the low flat areas is the ragged nature of the sloughing marine bluffs. To a large extent the raggedness is due to differential resistance of the bluff to erosion because of slight variations in relief, because of the susceptibility of the mouths of drains to erosion, and because of the capture of lakes and ponds.

The bluffs are compounded of successive layers of blue-grey mud and fine sand interlarded between layers of root-bound humus material approaching, in some places, the consistency of peat. The peat-like material is tightly laced with roots and is relatively light. Wave action washes out the mud-sand layers causing the root material to collapse and accumulate at the base of the bluff. Subsequent wave action drags some clods considerable distances toward low water before breaking up. The incidence of high, storm driven tides tear similar root clods from the bluff and carry them inshore.

The numerous sharp points in the north shore of Tooksook Bay consist of tilted beds of sedimentary rock. The earth between these ridges of rock is a conglomeration of boulders and soil. The less rapid erosion rate of the rock beds established the prominent points. The isolated rock (RESIST, 1951), 1,000 meters out into the bay, is a resistant remnant of one of these beds.

There are great stretches of apparent shoreline in the project area. Most such shoreline occurs at the mouths of rivers and in protected bays and bights where beach gradients are gentle and a difference of tide of a few inches causes a wide horizontal displacement of the water line. Mean high water apparently flows back into the patchy marsh grass. In lieu of a distinct line, the outer limits of the marsh grass was indicated for mapping purposes.

The salt marsh grass areas, indicated on field photographs, constitute the driest and firmest footing encountered. As a rule the marshy grass and moss areas are wet and spongy - difficult to traverse even on points of elevation. It is believed the salt marsh grass areas, because of proximity to relatively warm sea water, have a lower or non-existent frost table which permits sub-surface drainage.

8. OFFSHORE FEATURES:

Offshore areas around Capes Vancouver and Romanzof are commonly foul with boulders. Most of these are small and near shore. Many cannot be detected on the photographs. Due to the number and close-in position of these hazards, applicable areas were designated "Foul with boulders". Complete offshore detail must await hydrographic surveys.

9. LANDMARKS AND AIDS:

Form 567 is being submitted as part of this report.

10. BOUNDARIES, MONUMENTS, AND LINES:

Not applicable.

11. OTHER CONTROL:

Lists of recoverable topographic and of photo hydrographic stations are included in the INDEX TO FIELD WORK.

Note that a position of unknown accuracy is available for topographic station Chen, 1951. This station was cut in by personnel from the USC&GS Ship EXPLORER after being established by the photo unit.

12. OTHER INTERIOR FEATURES:

Not applicable.

13. GEOGRAPHIC NAMES:

See Special Report, PART III, being submitted under separate cover.

14. SPECIAL REPORTS AND SUPPLEMENTAL DATA:

Coast and Beach Intelligence - See SHORELINE AND ALONGSHORE FEATURES, PART II, of this report.

Geographic Names - See 13 above.

Transmitting Letter, 13 December 1951 - To: The Director.
Transmitting Letter, 8 January 1952 - To: The Director
Transmitting Letter, 8 January 1952 - To: The Director
Transmitting Letter, 1 February 1952 - To: The Director
Transmitting Letter, 6 February 1952 - To: The Director

15. RECORDS:

The Triangulation Party records for Ph-56(49) and Ph-73A(51) are combined under Project G-1057.

All "V" station data except V-0115 and V-0116 are submitted with the photogrammetric records.

The observations and abstracts for PK 01, from CHAIN and GRASS are submitted with the triangulation records along with angular records and abstracts for all HV stations except HV-004.

Approved:

Miller J. Tonkel
Lt.-USC&G Survey

Respectfully submitted:

Victor E. Serena
Cartographic Survey Aid

INDEX TO FIELD WORK

TRIANGULATION STATIONS, RECOVERED AND IDENTIFIED:

Stations identified on trimetrogon and 620 field photos by field party in 1949.

Station	Photo No.
CURLEW, 1949	28713
KIPNUK, 1949	28696
KIPNUK NE BASE, 1949	28698
KIPNUK SW BASE, 1949	28698
MANY, 1949	28547
SHORE, 1949	28548
TERN, 1949	28713

TRIANGULATION STATIONS, IDENTIFIED:

Station	Photo No.
AKUM, 1951	28717
ANTLER, 1951	28798
APHREWN, 1951	29040
ASTER, 1951	29030
BLUFF, 1951	28531
BOTTOM, 1951	28545
BRANCH, 1951	29038
BREAK, 1951	28834
CAROL, 1951	28807
CHAIN, 1951	28523
CHEVAK, 1951	28806
CHUKCHAK, 1951	28522
COIGN, 1951	29058
CROSS, 1951	28840
DITCH, 1951	28506
DRIFT, 1951	28848
ELBOW, 1951	29036
FAITH, 1951	28839
FILCH, 1951	28502
FLOOD, 1951	29047
CABOOSE, 1951	33647
JELLY, 1951	33647
OLIVE, 1951	33716

(Refer to n.t. opposite p. 12)

Station	Photo No.
FRESH, 1951	28838
FRONT, 1951	29027
GANDER, 1951	28845
GHOST, 1951	28838
GRASS, 1951	28523
GREEN, 1951	29033
HAZEN, 1951	29039
HEART, 1951	28720
HOOPER, 1951	28800
HUMPTY, 1951	29023
KASHU, 1951	29045
KEGUM, 1951	off photo limits
KINAK, 1951	28711
KINIA, 1951	28715
KOKECHIK N. BASE, 1951	28497
KOKECHIK S. BASE, 1951	28499
MAGMA, 1951	28812
MEANDER, 1951	28539
MOUTH, 1951	28857
MYRIAD, 1951	28843
NELSON, 1951	28532
NINGA, 1951	28516
NIPPLE, 1951	29020
PATTI AZ. MK., 1951	33667 3rd order, no check
PLAIN, 1951	off photo limits
PORTAL, 1951	28530
ROMAN, 1951	28794
SLIVER, 1951	29042
SLUMP, 1951	29028
SPADE, 1951	29034
STUMP, 1951	28515
TABLE, 1951	29018
TOOKSOOK, 1951	off photo limits
TOWAK, 1951	28795
TUNUNAK, 1951	29018
VICUN, 1951	28551
VISOR, 1951	28827
YOUNG, 1951	29053

TRIANGULATION INTERSECTION STATIONS, IDENTIFIED:

Station	Photo No.
Drain, 1951	28509
Inlet, 1951	28519
Muddle, 1951	28543
Patch, 1951	28524
Resist, 1951	28530
Cape Romanzof, Shoran Station, 1951	28797
Salty, 1951	28512
Slough, 1951	28535
Sweet, 1951	28809
Tighe, 1951	28796
Tununak, Catholic Church, Spire, 1951	29018

TRAVERSE STATIONS, IDENTIFIED:

Station	Photo No.
EPI-F	28800
Hooper Bay Aid Light, 1951	28501
Hooper Bay Astro (USAF), 1942,1951	28501
Kipnuk Astro (USAF), 1942, 1951	28549
Tununk Astro (USAF), 1942, 1951	29018

SUPPLEMENTAL STATIONS, HORIZONTAL-VERTICAL CONTROL:
Established and Identified.

Station	Photo No.	Compute from observations at
HV-001	28717	AKUM, KINIA
HV-002	28716	AKUM, KINIA
HV-003	28859	MOUTH, NELSON, PORTAL
HV-004	28721	Resection station
HV-005	28526	NIPPLE, TOOKSOOK, resection
HV-006	28719	AKUM, KEGUM
HV-007	28848	DRIFT, NINGA, STUMP
HV-008	29031	GREEN, ASTER
HV-009	29041	APHREWN, HAZEN, SLIVER
HV-010	29038	BRANCH, CROSS, FAITH
HV-011	28839	FAITH, FRESH, KASHU

Note: Field data on stations noted in red have been duplicated from PH-73A(51) and submitted for the records of this project (PH-56). These stations, prior to forwarding all field records on PH-73A to the AMS, were selected in the event they were needed to supplement the control data on PH-56.

CH

SUPPLEMENTAL STATIONS, VERTICAL CONTROL: Identified:

Station	Photo No.	Compute from observations at
V-0100 A&B	28713	CURLEW
V-0101 A&B	28713	CURLEW
V-0102 A&B	28713	CURLEW
V-0103 A&B	28712	CURLEW
V-0104 A&B	28712	CURLEW
V-0105 A&B	28715	KINIA ECC.
V-0106 A&B	28714	KINIA ECC.
V-0107 A&B	28715	KINIA ECC.
V-0108 A, B&C	29029	FRONT
V-0109 A&B	28527	HV-005 Ecc.
V-0110 A&B	28522	CHUKCHAK
V-0111 A&B	28522	CHUKCHAK
V-0112 A&B	29020	NIPPLE
V-0113 A&B	28522	CHUKCHAK
V-0114 A&B	28852	FRONT
V-0115	29034	SPADE
V-0116	28804	GHOST
V-0117 A&B	28826	VISOR
V-0118 A&B	28829	VISOR
V-0119 A&B	28829	VISOR
V-0120 A&B	28827	VISOR
V-0121 A&B	28807	VISOR
V-0122 A&B	28808	VISOR
V-0123	28838	resection on FAITH, FRESH, GHOST
V-0124	29046	Resection on KASHU, FLOOD, DITCH
V-0125	28800	resection on HOOPER, ANTLER, VISOR
V-0126	28806	resection on COIGN, BREAK
V-0129 A&B	33648	PATTI AZ. MK.
V-0130 A&B	33649	PATTI AZ. MK.
V-0131 A&B	33649	PATTI AZ. MK.
V-0132 A&B	33716	CABOOSE
Pk. 01	28524	CHUKCHAK, CHAIN, GRASS
Pk. 02	28853	CHUKCHAK, FRONT
Pk. 03	28811	VISOR
Pk. 04	28813	CABOOSE
V-0127 A&B	33647	PATTI AZ MK
V-0128 A&B	33647	" " "
V-0133 A&B	33715	CABOOSE
V-0134 A&B	33716	"
V-0140 A&B	33716	OLIVE

(see page opposite)

TOPOGRAPHIC STATIONS, MARKED AND IDENTIFIED: (To be located by radial plot.)

Station	Photo No.
Able, 1951	28533 2
Andy, 1951	28544
Babe, 1951	28519
Bean, 1951	28835
Cain, 1951	29018
*Chen, 1951	28802
Como, 1951	28798
Dime, 1951	28507
Dolt, 1951	28858
Dope, 1951	28513
Good, 1951	29017
Herb, 1951	28496, 28795 4
Hoop, 1951	29052
July, 1951	28511
Kulu, 1951	28844 T-9694
Lite, 1951	28546
Malt, 1951	29049
Milk, 1951	28500
Ooze, 1951	28536
Oral, 1951	28847 T-9694
Peas, 1951	28538
Pond, 1951	28823
Sand, 1951	28515
Tame, 1951	28517, 28518
True, 1951	28795
Type, 1951	28540
Zone, 1951	28504

* Position available from observations by Ship EXPLORER.

HYDROGRAPHIC STATIONS, IDENTIFIED: (To be located by radial plot.)

Station	Photo No.	Station	Photo No.
Alt	28795	Boy	28531
Arm	28531	Cam	28532
Ash	28795 4	Con	29053
Bit	28532	Cop	28794
Bob	29020	Dag	28532

HYDROGRAPHIC STATIONS, IDENTIFIED: - Continued - (To be located by radial plot.)

Station	Photo No.	Station	Photo No.
Egg	28532	Nut	29059
Fat	29053	Obo	29053
Fin	28531	Orb	29018
Fun	29016	Pea	28531
Gob	29016	Pie	29053
Hap	28530	Pin	28530
Imp	29016	Pun	28857
Jig	28794	Roc	28813
Job	29016	Rom	28795
Ken	29016	Ute	29020
Lou	29053	Vet	29022
Lum	29016	War	29022
Mad	29017	Yel	29021
Nog	28530	Zof	28795

LANDMARKS, IDENTIFIED:

Station	Photo No.
*OUTCROP, pinnacle of massive group (Hydro Cop)	28794
PEAK, chimney rock (NIPPLE, 1951)	29020
ROCK (RESIST, 1951)	28530
SPIRE, church (TUNUNAK, CATHOLIC CHURCH, SPIRE, 1951)	29018
*SPIRE, church (Kipnuk)	28549
TOWER, Aid Light, open construction, 40 feet high. (HOOPER BAY AID LIGHT, 1951)	28501

* To be located by the radial plot.

SHORELINE, INSPECTED:

Photo No.	Photo No.	Photo No.	Photo No.
28501	28508	28514	28519
28504	28510	28515	28520
28505	28511	28516	28529
28506	28512	28517	28530
28507	28513	28518	28531

SHORELINE, INSPECTED: - Continued

Photo No.	Photo No.	Photo No.	Photo No.
28532	28547	28844	29021
28533	28548	28845	29022
28535	28697	28846	29023
28536	28794	28849	29032
28537	28795	28850	29033
28538	28796	28851	29039
28539	28797	28857	29040
28540	28801	28858	29043
28541	28823	29016	29050
28542	28828	29017	29052
28543	28830	29018	29058
28544	28831	29019	*33659
28545	28832	29020	*33724
28546	28843		

* 1951 photography

VEGETAL COVER AND CULTURAL FEATURES:

Photo No.	Photo No.	Photo No.	Photo No.
28500	28520	28544	28717
28501	28522	28545	28720
28504	28523	28546	28721
28505	28530	28547	28794
28506	28531	28548	28795
28507	28532	28549	28796
28508	28535	28551	28797
28510	28536	28696	28798
28511	28537	28697	28799
28512	28538	28698	28800
28513	28539	28711	28801
28515	28540	28713	28805
28516	28541	28714	28806
28518	28542	28715	28809
28519	28543	28716	28812

VEGETAL COVER AND CULTURAL FEATURES: - Continued

Photo No.	Photo No.	Photo No.	Photo No.
28827	28848	29027	29045
28828	28849	29028	29046
28830	28850	29031	29050
28831	28851	29032	29051
28832	28852	29033	29052
28834	28857	29036	29053
28838	28858	29038	29058
28839	29016	29039	*33659
28843	29018	29040	*33667
28844	29020	29042	*33722
28845	29022	29043	*33724
28846	29023		

*1951 photographs being submitted with Project Ph-73A(51).

Form 567
April 1945

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

TO BE CHARTED } STRIKE OUT ONE
~~TO BE DELETED~~

KIPNUK, ALASKA — Season, 1951

I recommend that the following objects which have *(have not)* been inspected from seaward to determine their value as landmarks be charted on *(deleted from)* the charts indicated.

The positions given have been checked after listing by O.S. Risvold

O.S. Risvold

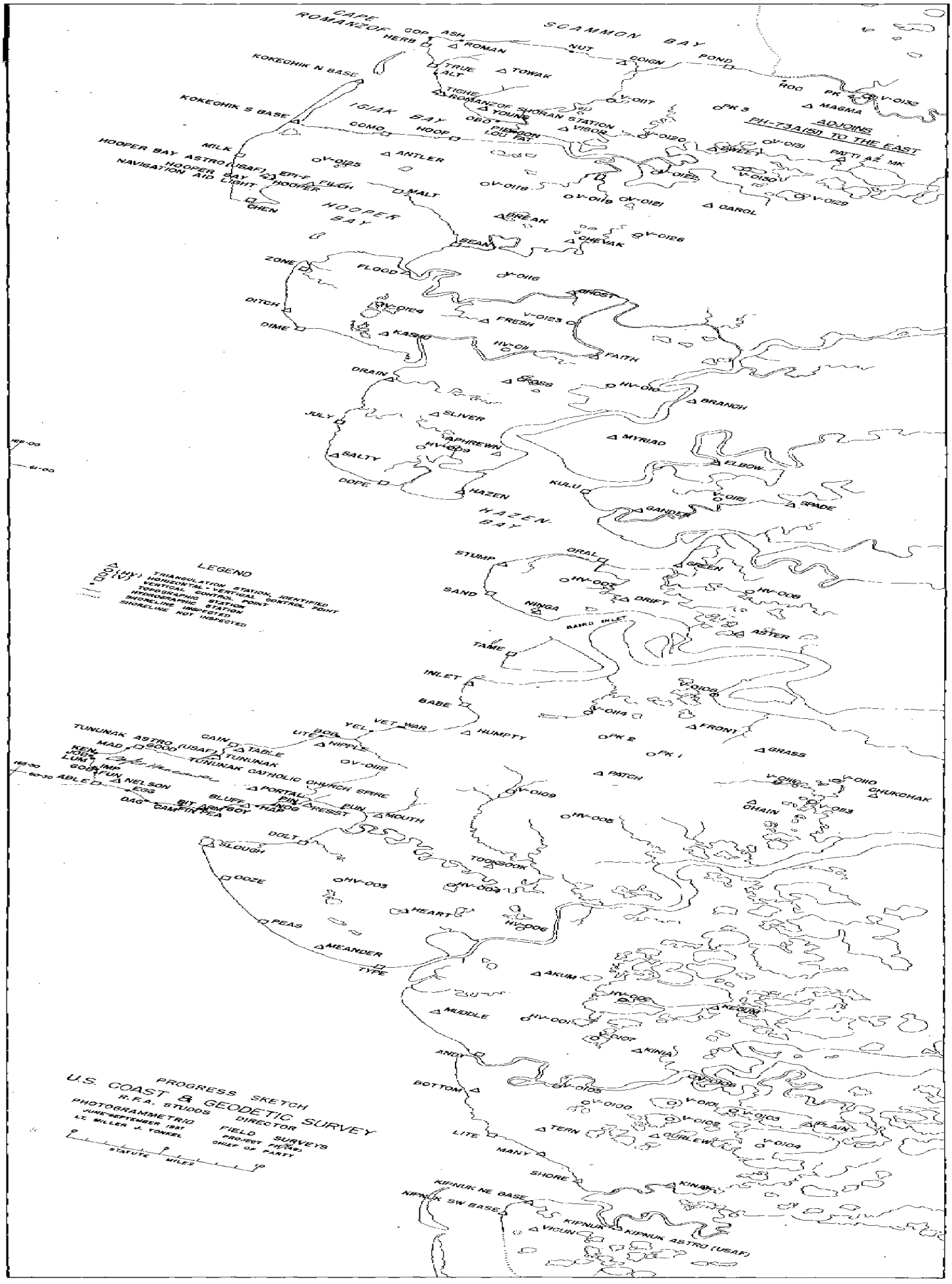
Miller J. Tonkel
By: Victor E. Serena
Chief of Party.

~~XXXX~~ Territory of Alaska

CHARTING NAME	DESCRIPTION	SIGNAL NAME	POSITION LATITUDE ° '	LATITUDE D.M. METERS	LONGITUDE ° '	LONGITUDE D.P. METERS	DATUM	METHOD OF LOCATION AND SURVEY No.	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
OUTCROP	Pinnacle of massive group T-9679	Hydro. Cop	61 49		166 06		N.A. 1927	Radial Plot	1951			X	9302 9370
PEAK	Chimney rock (NIPPLE, 1951)		60 38	415.52	165 08	28.74	"	Tri.	"			X	9302
ROCK	(Resist, 1951)		60 31	1810.11	165 03	151.40	"	"	"			X	9000 9302
SPIRE	Church, Kipnuk		59 56		164 02		"	Radial Plot	"			X	9000 9302
SPIRE	Church (Tununak Catholic Church Spire, 1951)		60 35	19.81	165 15	433.70	"	Tri.	"			X	9302
TOWER	Open construction (Hooper Bay Aid Light, 1951)	(T-9689)	61 32		166 06		"	Traverse	"			X	9302

This form shall be prepared in accordance with Hydrographic Manual, pages 800 to 804. Positions of charted landmarks and *nonfloating aids* to navigation, if redetermined, shall be reported on this form. The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

U. S. GOVERNMENT PRINTING OFFICE: 1949 O - 853418


CAPE ROMANZOF
SCAMMON BAY
IGIAK BAY
HOOPER BAY
HAZEN BAY
KOKECHIK N BASE
KOKECHIK S BASE
HOOPER BAY ASTRO (USAF)
HOOPER BAY NAVIGATION AID LIGHT
ROMANZOF SHORAN STATION
ADJOINS PH-73A(ISI) TO THE EAST
KIPNUK NE BASE
KIPNUK SW BASE
KIPNUK ASTRO (USAF)
TUNUNAK ASTRO (USAF)
TUNUNAK CATHOLIC CHURCH SPIRE
LEGEND
PROGRESS SKETCH
U.S. COAST & GEODETIC SURVEY
R.F.A. STUDDS DIRECTOR
PHOTOGRAMMETRIC FIELD SURVEYS
JUNE-SEPTEMBER 1951
LT. MILLER J. TONKEL PROJECT (HEAD) CHIEF OF PARTY
STATUTE MILES

PHOTOGRAMMETRIC PLOT REPORT
PROJECT PH-56
Surveys T-9679 thru T-9685

21. AREA COVERED:

This radial plot covers area of Surveys T-9679 thru T-9685. These surveys cover the area between Scammon Bay and Hooper Bay, along the Bering Sea on the west coast of Alaska. The surveys will be compiled with the Reading Plotter.

22. METHOD - RADIAL PLOT

Map manuscripts:

Vinylite sheets with polyconic projections in black and Universal Transverse Mercator grids in red, at a scale of 1:20,000, were furnished by the Washington Office.

All control stations and substitute stations were plotted using beam compass and meter bar.

A sketch showing the layout of these surveys and the distribution of photograph centers and control is attached to this report.

Photographs:

All photographs used were nine-lens metal mounted at a scale of 1:20,000. Fifty-seven (57) photographs were used in the plot, numbered as follows:

28496 thru 28503	28809 thru 28815	33665 thru 33668
28793 thru 28799	28821 thru 28832	33715 thru 33718
28806 thru 28807	28836 thru 28837	
	29047 thru 29059	
	33647 thru 33651	

Templets:

Vinylite templets were made from all photographs using a master templet to adjust for errors due to chamber displacement. Radial lines were scratched on the templets and filled in with china marking pencils. Red pencil was used for all shoreline (rectification) pass points and black pencil was used for all other radial lines.

Closure and adjustment to control:

The plot was laid starting with photo. 29059 and continued southerly to photo. 29054. Then part of the flight to the east was laid starting with photo. 28821 and continuing southerly to photo. 28826. Then templets for photographs 28793 thru 28796 were laid. This completed the portions of these flights which had continuous flight lines and adequate control. The southerly portion of these

flights; templets 28797 thru 28799, 29053 thru 29047, and 28827 thru 28832 were then laid by a process of continuous adjustment between flights to make a rigid plot. After these three flights were laid, flight 28496 thru 28503 was laid. At first, considerable difficulty was encountered in adjusting to control in this area because of photograph 29056. This photograph has five control stations pricked on it, all of which seem to be positive points. All of the flights in this area had to be adjusted before a final fix could be made for this photograph. All control was held in this portion of the plot.

After adjusting these four flights, photos. nos. 28809 thru 28815 were laid. Photograph 28808 could not be used because almost all of the fiducial marks were missing. Photograph 33651 was prepared and used in place of 28808. The flight was then continued southerly to 28806. The entire flight was difficult to adjust because photographs 28809 thru 28811 were badly tilted. In addition, photograph 33651 was not a satisfactory substitute for photograph 28808 because of differences in tone, lack of a continuous flight line, and poor placement of pass points due to the position of the photograph in the flight. In laying this flight it was necessary to readjust flight 29050 thru 29059 particularly in the area about VISOR, 1951, before a satisfactory plot could be obtained. After these five flights were laid running from north to south, the three short flights running from west to east were laid. Tilted photographs caused most of the difficulty in this area. In addition, the position given for PATTI AZ MK, 1951, could not be held in the plot. The position was recomputed in this office and then held in the final plot. This data was immediately forwarded to the Washington Office.

Transfer of points:

The positions of all centers, pass points and control stations were pricked on the top templets and circled with a 3mm circle. They were then established on the remaining templets and map manuscripts by drilling down through them with a small, .01 inch, jewlers drill. All points were circled on each templet as it was removed and on the map manuscript.

23. ADEQUACY OF CONTROL

The control was adequate for this plot.

All control stations were held except as follows:

COIGN, 1951. Sub Pt B was held, but the radially plotted position of Sub Pt A was 0.6mm west of the geographic position. Neither A nor B appear to be good points on the photographs and identification on the ground could easily be in error.

MAGMA, 1951. Sub Pt A was held, but Sub Pt B was 1.4mm E.S.E. of the plotted position. This appears to be another case of misidentification. The field man had spotted in pencil the approximate position of the station MAGMA, 1951 on the field photograph. The distance scaled on the field photograph to Sub Pt A seems to be correct while that to Sub Pt B appears to be in error.

ANTLER, 1951, Sub Sta. B was held in the plot. Sub Sta. A falls 0.9mm S.S.W. of the plotted position. On form M-2226-12 the field man notes that Sub Sta. A should be used with caution.

PATTI AZ MK, 1951. The position given this office could not be held in the plot. A new position was computed from field data available. This position differed from the original by about 60 meters to the north. The original plotting was removed from the manuscript, the new position plotted and held in the plot.

Considerable adjustment was necessary in this plot because of the following factors: (1) The plot had been started by Washington office personnel who seem to rely entirely on the floating circles in pricking pass points; this office while using that method also, still attempts to pick points which are identifiable on the several flights. This practice leads, in our opinion, to a tighter plot and to less chance of having several intersections in the plot because different points were selected in each flight even though all points are on the ground. (2) Of the five(5) north-south flights only one flight had continuous flight lines, the others were broken by water centers, bad photography, or tilted photographs. (3) Although most of the terrain had little relief and tilted photographs should not have affected the plot; in some areas so many of the photographs were tilted that adjustments were difficult to make. The letter No. 711-lmh, dated 27 July, 1955 pertaining to tilted photographs arrived after the plot was finished; therefore, no photographs were sent to Washington for a preliminary rectification. However, this method will be followed in the future when necessary. (4) Considerably less adjustment between flights would have been necessary if the substitute stations which fell just short of reaching a flight had been supplemented with another substitute station. For example other sub. stations for VISOR, 1951 and for SWEET, 1951 could have been selected about a hundred meters further to the west, thus reaching another flight.

24. SUPPLEMENTAL DATA

None.

25. PHOTOGRAPHY:

The definition of the photographs was good. Photographic coverage was adequate.

The following photographs were found to be tilted:

28809 thru28811	33665	33716
28813	33667	33718
28826 +1°07' -3°20'	33668	

No tilt determination was made for any of the tilted photographs as it is impractical to determine tilt and correct for it in the plot. The photographs tilted are denoted by a small red "T" on the sketch.

Photograph 28808 could not be used because there were no visible fiducial marks for making adjustments on a templet.

26. VERTICAL CONTROL:

After the plot was completed, azimuths to vertical control points were checked with the field identified points and the elevations were computed.

Lake A is a point pricked on the lake near V-0126. Lake B is adjacent to Lake A.

The following vertical control stations had elevations of four (4) feet or less. They are points on lakes in marsh and can be used without adjustment, similar to shoreline points, for rectification. A red "R" in china marking pencil was placed on the templets for these points:

V-0117
V-0119 thru V-0122
V-0127 thru V-0134
LAKE A & B

27. RECOVERABLE TOPOGRAPHIC STATIONS

All identified recoverable topographic stations which were identified were established in the radial plot. Those identified by a substitute station were plotted with a steel protractor before the manuscripts were disassembled.

All photo hydro stations identified in the field were established in the radial plot and shown on the map manuscripts.

Respectfully Submitted
15 August, 1955

E.L. Williams
E.L. Williams
Carto. Photo. Aid

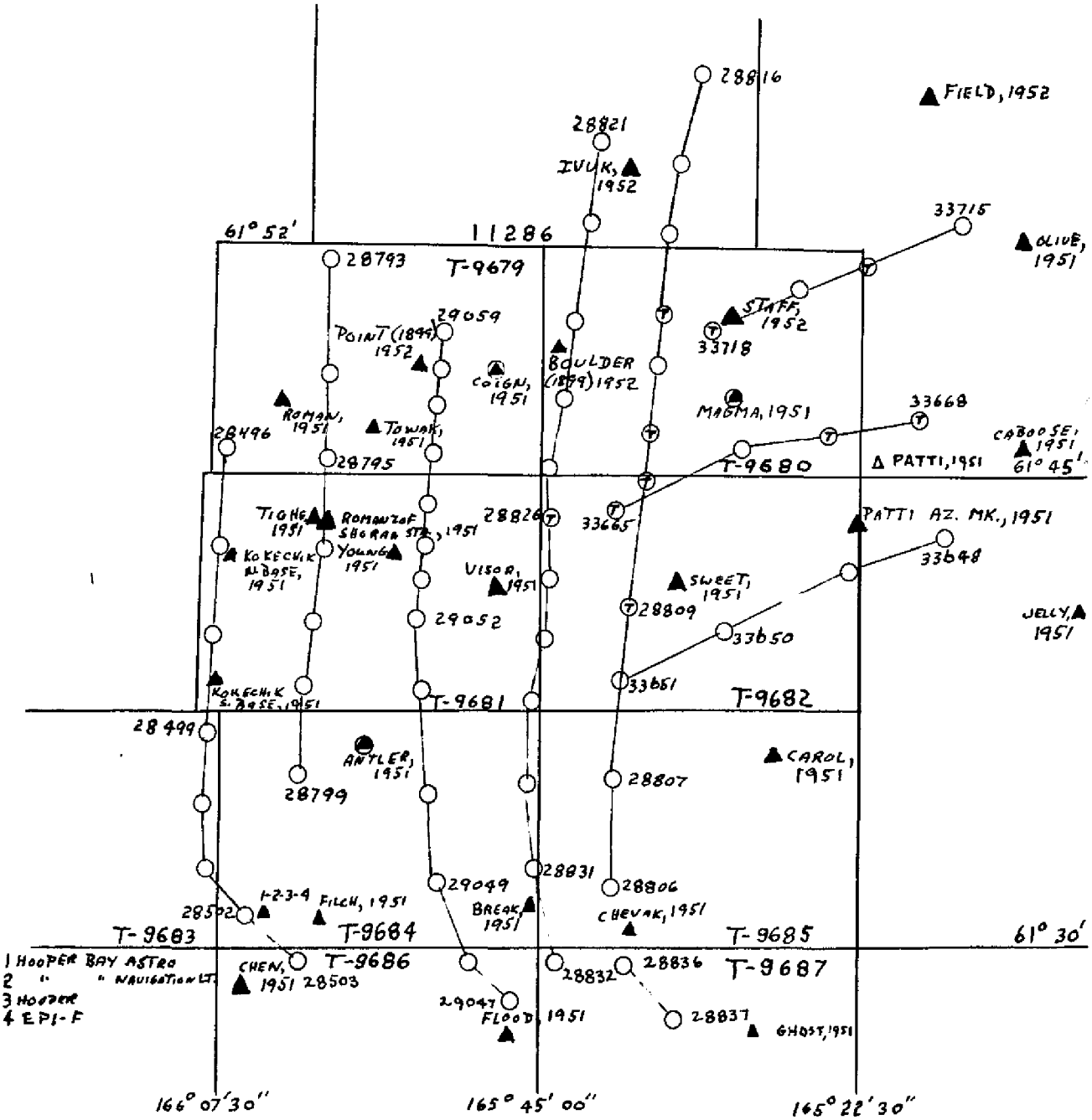
Approved and Forwarded

E. H. Kirsch
E. H. Kirsch
Comndr. U.S.C.& G.S.
Balto. Photo. Office

LAYOUT SKETCH

PROJECT PH 56

SURVEYS — T-9679 THRU 9685



○ NINE LENS OFFICE photographs

▲ CONTROL stations (identified)

◬ CONTROL stations (not held in plot)

⊤ TILTED photographs

Δ Control stations (not identified)

Photogrammetry

RESTRICTED

MAP T- 9679 PROJECT NO. Ph - 56 SCALE OF MAP 1:20,000 SCALE FACTOR -

STATION	SOURCE OF INFORMATION (INDEX)	DATUM	LATITUDE OR y-COORDINATE / LONGITUDE OR x-COORDINATE	DISTANCE FROM GRID IN FEET, OR PROJECTION LINE IN METERS FORWARD (BACK)	DATUM CORRECTION	N.A. 1927 - DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)	FACTOR DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)
TOWAK, 1951	IV Pg 334	N A 1927	61 46 56.400 165 56 53.463			1746.0 (111.4) 783.7 (95.8)	
Sub. Pt. TOWAK, 1951			61 46 165 56			1745.3 (112.1) 786.3 (93.2)	
ROMAN, 1951	IV Pg 336	"	61 48 07.563 166 03 07.107			234.1 (1623.3) 104.1 (774.9)	
Sub. Pt. A ROMAN, 1951			61 48 166 03			229.7 (1627.7) 84.4 (794.6)	
Sub. Pt. B ROMAN, 1951			61 48 166 03			172.0 (1685.4) 98.9 (780.1)	
COIGN, 1951	IV Pg 334	"	61 49 15.992 165 49 26.490			495.1 (1362.4) 387.8 (490.6)	
Sub. Pt. A COIGN, 1951			61 49 165 49			460.3 (1397.2) 366.6 (511.8)	
Sub. Pt. B COIGN, 1951			61 49 165 49			436.9 (1420.6) 402.7 (475.7)	
POINT, 1899	IV Pg 335	"	61 49 46.56 165 55 11.25			1441.4 (416.0) 164.7 (713.6)	
Sub. Pt. POINT, 1899			61 49 165 55			1408.0 (449.4) 161.9 (716.4)	

1 FT. = .3048006 METER

COMPUTED BY: L. C. Lande DATE 9/8/54 CHECKED BY: C. O. DeMarr DATE 9/13/54

M-2368-12

Photogrammetry

RESTRICTED

MAP T-9680 PROJECT NO. Ph - 56 SCALE OF MAP 1:20,000 SCALE FACTOR -

STATION	SOURCE OF INFORMATION (INDEX)	DATUM	LATITUDE OR y-COORDINATE, LONGITUDE OR x-COORDINATE	DISTANCE FROM GRID IN FEET, OR PROJECTION LINE IN METERS FORWARD (BACK)	DATUM CORRECTION	N.A. 1927 - DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)	FACTOR DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)
✓MAGMA, 1951	IV Pg 334	N A 1927	61 48 35.486 165 31 14.170			1098.5 (758.9) 207.5 (671.3)	
Sub. Pt. A MAGMA, 1951			61 48 165 31			1117.6 (739.8) 124.8 (754.0)	
✓Sub. Pt. B MAGMA, 1951			61 48 165 31			1082.1 (775.3) 86.1 (792.6)	
✓BOULDER, 1899	IV Pg 334	"	61 50 46.339 165 40 42.856			1434.5 (422.9) 626.9 (250.8)	
✓STAFF, 1952	IV Pg 334	"	61 50 57.862 165 34 25.599			1791.2 (66.2) 374.4 (503.2)	
✓CAIRN AT PATTI, 1951	IV Pg 332	"	61 45 54.955 165 23 11.416	Not plotted		1701.2 (156.2) 167.4 (712.6)	
✓PATTI, 1951	IV Pg 329	"	61 45 54.865 165 23 11.534			1698.5 (159.0) 169.2 (710.8)	
✓OLIVE, 1951	IV Pg 332	"	61 53 20.277 165 10 10.187	E of project		627.7 (1229.7) 148.8 (727.7)	
✓Sub. Pt. OLIVE, 1951			61 53 165 10			583.4 (1274.0) 105.7 (770.8)	
✓CABOOSE, 1951	IV Pg 329	"	61 46 45.583 165 10 43.769	E of project		1411.1 (446.3) 641.7 (237.9)	
✓Sub. Pt. CABOOSE, 1951			61 46 165 10			1371.9 (485.5) 694.0 (185.6)	
✓Sub. Pt. STAFF, 1952			61 50 165 34			1793.1 (64.3) 347.1 (530.5)	

1 FT. = .3048006 METER

COMPUTED BY: L. C. Lande DATE 9/8/54 CHECKED BY: C. O. DeMarr DATE 9/13/54

M-2388-12

Photogrammetry

RESTRICTED

MAP T-9681 PROJECT NO. Ph - 56 SCALE OF MAP 1:20,000 SCALE FACTOR -

STATION	SOURCE OF INFORMATION (INDEX)	DATUM	LATITUDE OR y-COORDINATE LONGITUDE OR x-COORDINATE	DISTANCE FROM GRID IN FEET, OR PROJECTION LINE IN METERS FORWARD (BACK)	DATUM CORRECTION	N.A. 1927 - DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)	FACTOR DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)
DALL POINT SHORAN STATION, 1951	IV Pg 336	N.A. 1927	61 38 15.726 166 10 06.138			486.8 (1370.6) 90.4 (793.3)	685.3
KOKECHIK SOUTH BASE, 1951	IV Pg 330	"	61 38 16.057 166 10 07.670			497.1 (1360.3) 113.0 (770.7)	
Sub. Pt. A KOKECHIK SOUTH BASE, 1951			61 38 166 10			335.4 (1522.0) 78.8 (804.9)	
Sub. Pt. B KOKECHIK SOUTH BASE, 1951			61 38 166 10			364.1 (1493.3) 175.8 (707.9)	
VISOR, 1951	IV Pg 330	"	61 42 24.089 165 47 16.637			745.7 (1111.7) 244.5 (637.3)	
Sub. Pt. A VISOR, 1951			61 42 165 47			653.8 (1203.6) 337.7 (544.1)	
Sub. Pt. B VISOR, 1951			61 42 165 47			655.1 (1202.3) 358.3 (523.5)	
YOUNG, 1951	IV Pg 330	"	61 42 46.212 165 55 57.187			1430.6 (426.8) 840.2 (41.3)	
Sub. Pt. A YOUNG, 1951			61 42 154 55			1388.5 (468.9) 799.3 (102.2)	
Sub. Pt. B YOUNG, 1951			61 42 165 55			1377.4 (480.0) 787.4 (94.1)	
KOKECHIK NORTH BASE, 1951	IV Pg 330	"	61 43 16.781 166 08 39.171			519.5 (1337.9) 575.4 (305.9)	
Sub. Pt. A KOKECHIK NOR TH BASE, 1951			61 42 166 08			1075.9 (781.5) 841.4 (39.9)	

1 FT. = .3048006 METER

M-2388-12

COMPUTED BY: L. C. Lande DATE 9/13/54 CHECKED BY: A Queen DATE 4/15/55

Photogrammetry

RESTRICTED

MAP T- 9681 PROJECT NO. Ph - 56 SCALE OF MAP 1:20,000 SCALE FACTOR -

STATION	SOURCE OF INFORMATION (INDEX)	DATUM	LATITUDE OR y-COORDINATE LONGITUDE OR x-COORDINATE	DISTANCE FROM GRID IN FEET, OR PROJECTION LINE IN METERS FORWARD (BACK)	DATUM CORRECTION	N.A. 1927 - DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)	FACTOR DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)
Sub. Pt. B KOKECHIK NORTH BASE, 1951			61 42 166 08			307.8 (1549.6) 546.6 (334.7)	
CAPE ROMANZOF SHORAN STATION, 1951	IV Pg 336	N.A. 1927	61 43 24.201 166 00 34.696			749.2 (1108.2) 509.6 (371.7)	
TIGHE, 1951	IV Pg 332	"	61 43 27.849 166 00 44.535			862.1 (995.3) 654.1 (227.1)	
Sub. Pt. A TIGHE, 1951			61 43 166 00			848.1 (1009.3) 659.7 (221.5)	
Sub. Pt. B TIGHE, 1951			61 43 166 00			830.1 (1027.3) 655.3 (225.9)	

1 FT. = .3048006 METER

M-2388-12

COMPUTED BY: L. C. Lande DATE 9/13/54 CHECKED BY: A. Queen DATE 4/15/55

Photogrammetry

RESTRICTED

MAP T-9682 PROJECT NO. Ph - 56 SCALE OF MAP 1:20,000 SCALE FACTOR *

STATION	SOURCE OF INFORMATION (INDEX)	DATUM	LATITUDE OR y-COORDINATE LONGITUDE OR x-COORDINATE	DISTANCE FROM GRID IN FEET, OR PROJECTION LINE IN METERS FORWARD (BACK)	DATUM CORRECTION	N.A. 1927 - DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)	FACTOR DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)
SWEET, 1951	IV Pg 332	N.A. 1927	61 43 04.971 165 33 41.521			153.9 (1703.5) 610.0 (271.4)	
Sub. Pt. A SWEET, 1951			61 43 165 33			156.9 (1700.5) 610.9 (270.5)	
Sub. Pt. B SWEET, 1951			61 43 165 33			151.0 (1706.4) 602.3 (279.1)	
JELLY, 1951	IV Pg 332	"	61 41 19.514 165 07 00.922	E of Limits		604.1 (1253.3) 13.6 (868.6)	
Sub. Pt. JELLY, 1951			61 41 165 07			521.4 (1336.0) 69.3 (812.9)	
✓ CAROL, 1951	IV Pg 332	"	61 37 32.914 165 28 51.635			1018.9 (838.5) 760.8 (123.2)	
Sub. Pt. CAROL, 1951			61 37 165 28			1089.0 (768.4) 828.8 (55.2)	
PATTI AZ. MK., 1951	Computed Form 25	"	61 44 24.452 165 23 28.032			756.96 (1100.5) 411.5 (469.3)	
Not listed in GIPS							

1 FT. = .3048006 METER

COMPUTED BY: L. C. Lande DATE 9/13/54 CHECKED BY: A. Queen DATE 4/15/55

M-2388-12

Photogrammetry

RESTRICTED

MAP T-9684 PROJECT NO. Ph - 56 SCALE OF MAP 1:20,000 SCALE FACTOR -

STATION	SOURCE OF INFORMATION (INDEX)	DATUM	LATITUDE OR y-COORDINATE LONGITUDE OR x-COORDINATE	DISTANCE FROM GRID IN FEET. OR PROJECTION LINE IN METERS FORWARD (BACK)	DATUM CORRECTION	N.A. 1927 - DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)	FACTOR DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)
ANTLER, 1951	IV Pg 330	N.A. 1927	61 36 43.506 165 59 17.720			1346.8 (510.6) 261.2 (623.2)	
Sub. Pt. A ANTLER, 1951			61 36 165 59			1323.6 (533.8) 307.5 (576.9)	
Sub. Pt. B ANTLER, 1951			61 36 165 59			1221.4 (636.0) 113.9 (770.5)	
FILCH, 1951	IV Pg 384	"	61 32 05.652 166 02 05.349			175.0 (1682.3) 79.0 (807.7)	
Sub. Pt. A FILCH, 1951			61 32 166 02			311.0 (1546.3) 44.0 (842.?)	
Sub. Pt. B FILCH, 1951			61 32 166 02			319.5 (1537.8) 61.9 (824.8)	
HOOPER, 1951	IV Pg 384	"	61 31 54.908 166 05 50.497			1699.7 (157.6) 741.8 (144.9)	
Sub. Pt. A HOOPER, 1951			61 31 166 05			1694.3 (163.0) 739.7 (147.0)	
Sub. Pt. B HOOPER, 1951			61 31 166 05			1720.9 (136.4) 729.2 (157.5)	
SIM No. 2026, 1951 (U.S.B.L.M.)	IV Pg 389	"	61 31 55.014 166 05 49.200	not plotted		1703.0 (154.3) 727.1 (159.6)	
HOOPER BAY ASTRO (U.S.A.F.) 1951	IV Pg 389	"	61 31 55.481 166 05 51.923	not plotted		1717.5 (139.8) 767.3 (119.4)	
HOOPER NAVIGATION AID LIGHT, 1951	IV Pg 389	"	61 31 54.895 166 05 51.500			1699.3 (158.0) 761.1 (125.6)	

1 FT = .3048006 METER

M-2388

COMPUTED BY: C. O. DeMarr DATE 9/10/54 CHECKED BY: A. Queen DATE 4/15/55

Photogrammetry

RESTRICTED

MAP T- 9684 PROJECT NO. Ph - 56 SCALE OF MAP 1:20,000 SCALE FACTOR -

STATION	SOURCE OF INFORMATION (INDEX)	DATUM	LATITUDE OR y-COORDINATE LONGITUDE OR x-COORDINATE	DISTANCE FROM GRID IN FEET, OR PROJECTION LINE IN METERS FORWARD (BACK)	DATUM CORRECTION	N.A. 1927 - DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)	FACTOR DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)
EPI F, 1951	IV Pg 389	N.A. 1927	61 31 58.630 166 05 52.738			1815.0 (42.3) 779.4 (107.3)	
Sub. Pt. EPI F, 1951			61 31 166 05			1757.0 (100.3) 753.6 (133.1)	
HOOPER BAY SHORAN STATION, 1951	IV Pg 389	"	61 31 57.467 166 05 53.374			1778.9 (78.4) 788.8 (97.9)	

1 FT. = .3048006 METER

COMPUTED BY: C. O. DeMarr DATE 9/20/54 CHECKED BY: A. Queen DATE 4/15/55

M-2388-12

Photogrammetry

RESTRICTED

MAP T-9685 PROJECT NO. Ph - 56 SCALE OF MAP 1:20,000 SCALE FACTOR

STATION	SOURCE OF INFORMATION (INDEX)	DATUM	LATITUDE OR y-COORDINATE LONGITUDE OR x-COORDINATE	DISTANCE FROM GRID IN FEET, OR PROJECTION LINE IN METERS FORWARD (BACK)	DATUM CORRECTION	N.A. 1927 - DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)	FACTOR DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)
BREAK, 1951	IV Pg 330	N.A. 1927	61 32 25.786 165 44 05.826			798.2 (1059.1) 86.1 (800.3)	
Sub. Pt. A BREAK, 1951			61 32 165 44			833.7 (1028.6) 96.4 (790.0)	
Sub. Pt. B BREAK, 1951			61 32 165 44			718.4 (1138.9) 247.5 (638.9)	
CHEVAK, 1951	IV Pg 384	"	61 31 29.040 165 35 59.343			899.0 (958.3) 877.2 (9.7)	
Sub. Pt. A CHEVAK, 1951			61 31 165 35			880.0 (977.3) 876.4 (10.5)	
Sub. Pt. B CHEVAK, 1951			61 31 165 36			878.6 (978.7) 12.4 (874.5)	

1 FT. = .3048006 METER

COMPUTED BY: A. Queen DATE 4/25/55 CHECKED BY: E. L. Williams DATE 5/2/55

M-2388-12

31. Delineation:

The manuscripts were compiled on the Reading Nine Lens plotters and graphically. The graphic compilation method was used only to compile the low marshy areas where the manuscript could be placed directly over the rectified photographs. On T-9679 the road leading to the Romanzof Radar Station was not complete at the time of photography. The upper portion of this road and the building at its terminus were delineated from an approximate alignment furnished by the field party. The radar tower, which was not built at the time of photography, was delineated at the highest point of the mountain (as indicated by the field party).

32. Control:

See radial plot report for discussion of horizontal control.

The vertical control was adequate. Several unchecked field elevations of lake surfaces in the marsh areas were neither verified on the instruments nor carried on the manuscript. Sufficient tide water streams were available to orient the stereo models.

33. Supplemental Data: None

34. Contours and Drainage:

No difficulty was encountered in delineating the contours.

Due to the numerous ponds in the marsh areas, only the larger ponds in these areas were delineated.

35 and 36. Shoreline, Alongshore and Offshore Details:

The shoreline inspection was generally adequate. There was, however, no shoreline inspection on Nerragon Island (T-9679), and North of Kun River, T-9680. In areas where the shoreline was covered by both 1950 and 1951 photography (see enclosed index), the MHWL was delineated from the latter photos. The approximate low water line was delineated, in all cases, from the photography taken at the lowest stage of tide (see enclosed index and tide data).

37. Landmarks and Aids:

Form 567 was submitted for two landmarks on T-9679 - OUTCROP, which was submitted by the field party without a position, and ROMANZOF RADAR TOWER

which was under construction at the time of field inspection. Eight channel stakes leading to Hooper Bay Village were plotted on the manuscript from sextant fixes. Due to their temporary nature, they were not submitted on form 567.

38. Control for Future Surveys:

Forms 524 for the following topographic stations were submitted:

T-9679	T-9680	T-9683	T-9684
TRUE, 1951	POND, 1951	MILK, 1951	MALT, 1951
HERB, 1951			

Lists of the topographic and photo hydro stations are included in the notes to the hydrographer.

39. Junctions:

Junctions were made with all contemporary surveys. Due to the lack of photography, T-9685 was only partially compiled.

40. Horizontal and Vertical Accuracy: No comment.

46. Comparison with Existing Maps:

These maps are covered by USGS map - "Hooper Bay" - 1:250,000 scale, 1951.

47. Comparison with Nautical Charts:

Nautical Chart No. 9302 is the largest scale chart on which these maps fall.

Items to be carried forward immediately: None

Items to be applied to nautical charts immediately: None

From these two statements, one would think the survey accomplished little toward nautical charting - Forms 567 where previously submitted listing objects to be charted.

Submitted by

Louis Levin

Louis Levin
Supervisory Cartographer

Approved by:

K. N. Maki

K. N. Maki
Photogrammetric Engineer

GEOGRAPHIC NAMES

Survey No. T-9679

ALASKA

SCAMMON BAY

BERING SEA

NERAGON ISLAND

CAPE ROMANZOF

WINDY COVE

POINT SMITH

EDMONDS COVE

KOWQUIUKPUK RIVER

EKASHLUAK RIVER

TOWAK RIVER

EDMONDS COVE

ANIKTUN ISLAND

KOKECHIK BAY

TOWAK MOUNTAIN

EKASLUKTULI RIVER

LITHKEALIK RIVER

ROMANZOF RADAR STATION

Askinuk Mountains

Names approved
2-8-57
L. Heck

GEOGRAPHIC NAMES

Survey No. T-9680

ALASKA

SCAMMON BAY

SCAMMON BAY (VILLAGE)

POINT DYER

EAR RIVER

KUN RIVER

ASKINUK MOUNTAINS

Names approved
2-8-57 L. Heck

GEOGRAPHIC NAMES

Survey No. T-9681

ALASKA

BERING SEA

KOKECHIK BAY

ASKINUK MOUNTAINS

ANIKTUN ISLAND

PANOWAT SPIT

EKASLUKTULI RIVER

LITHKEALIK RIVER

PAIMIUT

KOKECHIK RIVER

KOLOMAK RIVER

KIKUKTOK MOUNTAIN

Names approved
11-29-56 (rechecked
2-8-57)
L. Heck

GEOGRAPHIC NAMES

Survey No. T-9682

ALASKA

KOKECHIK RIVER

KOMOIRAK SLOUGH

KWECHARAK RIVER

KUTFAK RIVER

NAROOYAHT BLUFFS

Names approved
2-8-57. L. Heck.

GEOGRAPHIC NAMES

Survey No. T-9683

ALASKA

DALL POINT

MANAYAGAVIK SLOUGH

BERING SEA

Names approved
11-29-56 (re-checked
2-8-57)
L. Heck

GEOGRAPHIC NAMES

SURVEY No. T-9684

ALASKA

HOOPER BAY (VILLAGE)

HOOPER BAY

NAPAREAYAK SLOUGH

KOMOIARAK SLOUGH

NUOK SPIT

Names approved
11-29-56 (rechecked 2-8-57)
L. Heck

GEOGRAPHIC NAMES

Survey No. T-9685

~~ALASKA~~

KOMOIARAK SLOUGH

KWECHARAK RIVER

NINGLIKAK RIVER

New Cherak

Names approved
2-8-57 L. Heck

Notes to Hydrographer
T-9679

The following topographic stations were located by radial plot:

TRUE, 1951

HERB, 1951

The following photo hydro stations were established:

Name	Identified on Photo No.	Description
ASH	28794	Top of pinnacle
COP	28794	Top of pinnacle of higher massive outcrop
JIG	28794	Top of rock outcrop
RUM	28795	Top of pinnacle
ZOF	28795	Center of outcrop
ALT	28795	Top of pinnacle
NUT	29059	Tip of vegetation to west of stream

Notes to Hydrographer
T-9680

One topographic station, COP 1951, was established in the field and its position determined by radial plot.

The following photo hydro station was established:

ROC - Identified on photo 28813 - highest point of rock outcrop

Notes to Hydrographer
T-9681

The following topographic stations were located by radial plot:

HOOP, 1951

COMO, 1951

The following photo hydro stations were established:

Name	Description	Photo No.
CON	Top of Pinnacle on Bluff	29053
PIE	" " " " "	"
FAT	Center of Boulder	"
LOU	" " "	"
OBO	Top of Pinnacle	"

Notes to Hydrographer
T-9683

One topographic station MILK, 1951, was established in the field and its position determined by radial plot.

No photo hydro stations were established.

Notes to Hydrographer
T-9684

One topographic station, MALT, 1951, was established in the field and its position determined by radial plot.

No photo hydro stations were established.

Form 567
April 1945

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

TO BE CHARTED
TO BE DELETED
STRIKE OUT ONE

Washington, D. C. NOV 9, 1956

I recommend that the following objects which ~~have~~ *(have not)* been inspected from seaward to determine their value as landmarks be charted on *(deleted from)* the charts indicated.

The positions given have been checked after listing by L. Levin

C. Theurer *Chief of Party.*

STATE / CHARTING NAME	DESCRIPTION	SIGNAL NAME	POSITION LATITUDE ° ′	LATITUDE D.M. METERS	LONGITUDE ° ′	LONGITUDE D.P. METERS	DATUM	METHOD OF LOCATION AND SURVEY No.	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
OUTCROP	Pinnacle of massive group	hydro sop	61 48	1279	166 05	718	NA 1927	photo-grammetric	1951			X	9302 9370
	Previously submitted without position (Chart letter No.)												
~~TOWER~~	Romanzof Radar Tower		61 47	243	165 56	542	"	"	"				"
	Duplicate of L. 923 (1956) Chart files												

This form shall be prepared in accordance with Hydrographic Manual, pages 800 to 804. Positions of charted landmarks and *nonfloating*

Review Report
of Topographic Maps T-9679 thru T-9685

February 1957

62. Comparison with Registered Topographic Surveys

T-2336	1:200,000	1898
T-2338	1:200,000	1898
T-2431	1:40,000	1899
T-2432	1:120,000	1899

T-2431 of sufficiently large scale for adequate comparison agrees generally with identical areas covered by T-9679 and T-9680. Completely detailed topographic surveys T-9679 thru T-9685 with adequate control are to supersede the above-listed surveys for nautical charting purposes for common areas.

63. Comparison with Maps of other Agencies

See Item 46.

64. Comparison with Contemporary Hydrographic Surveys

H-7913	1:20,000	1951
H-7936	1:20,000	1951

Shoreline has not been added to these two surveys. Hydrographic information appearing in pencil only will readily accommodate shoreline, alongshore and offshore details as shown on corresponding topographic surveys.

65. Comparison with Nautical Charts

9302 1:1,534,076 1952 corr. to 12-24-56

This is the only Nautical chart covering all topographic surveys of this project.

66. Adequacy of Results and Future Surveys

Though incomplete, shoreline inspection appears adequate. Lack of inshore inspection (except for control) may have resulted in minor inaccuracies in office interpretation. Other than these, no deficiencies in accuracy and adequacy were indicated.

Reviewed by:

Josef J. Streifler

APPROVED BY:

L C Lauch
Chief, Review & Drafting Sec.
Photogrammetry Division

Chief, Nautical Chart Branch
Charts Division

Chief, Photogrammetry Div.

4 Nov. 59

Chief, Coastal Surveys

History of Hydrographic Information for AMS Quadrangles

Only limited hydrography was available (Kokechik Bay) and west of, and a small area at the entrance of Hooper Bay. This information was added to effected manuscripts in accordance with AMS Technical Instructions.

Depth curves and soundings are in fathoms at mean lower low water and originate with the following:

H-7936 1:20,000 1951 (Hooper Bay Entrance)
H-7913 1:20,000 1951 (Kokechik Bay and west)

Hydrography was compiled by J. J. Streifler and verified by Nautical Charts.

J. J. Streifler

Summary to Accompany Topographic Maps T-9679 thru T-9685

This covers the northernmost seven (7) sheets of Ph-24090 (6056 - see accompanying project index. It extends from Scammon Bay to Hooper Bay, Bering Sea.

Extensive low marsh areas were compiled graphically and direct from rectified photographs. All other features were compiled on the Reading Nine-lens Plotters, except some limited cultural features under construction near Cape Romanzof at the time of the shoreline inspection. These appear on T-9679 and were delineated from information furnished by the field party.

After addition of limited hydrogtaphic information, a portion of subject manuscripts will be published by the Army Map Service as standard topographic quadrangles at the scale of 1:50,000 - see accompanying project index.

A "Cronar" film positive at manuscript scale and the descriptive report, as well as a cloth-backed print of the two AMS quadrangles in color after final printing, will be registered and filed in the Bureau Archives.

February 1957

TOPOGRAPHIC MAPPING PROJECT ~~6056~~ 24090

ALASKA-BERING SEA, Scammon Bay to Kuskokwim Bay and Nunivak Island

OFFICIAL MILEAGE FOR COST ACCOUNTS

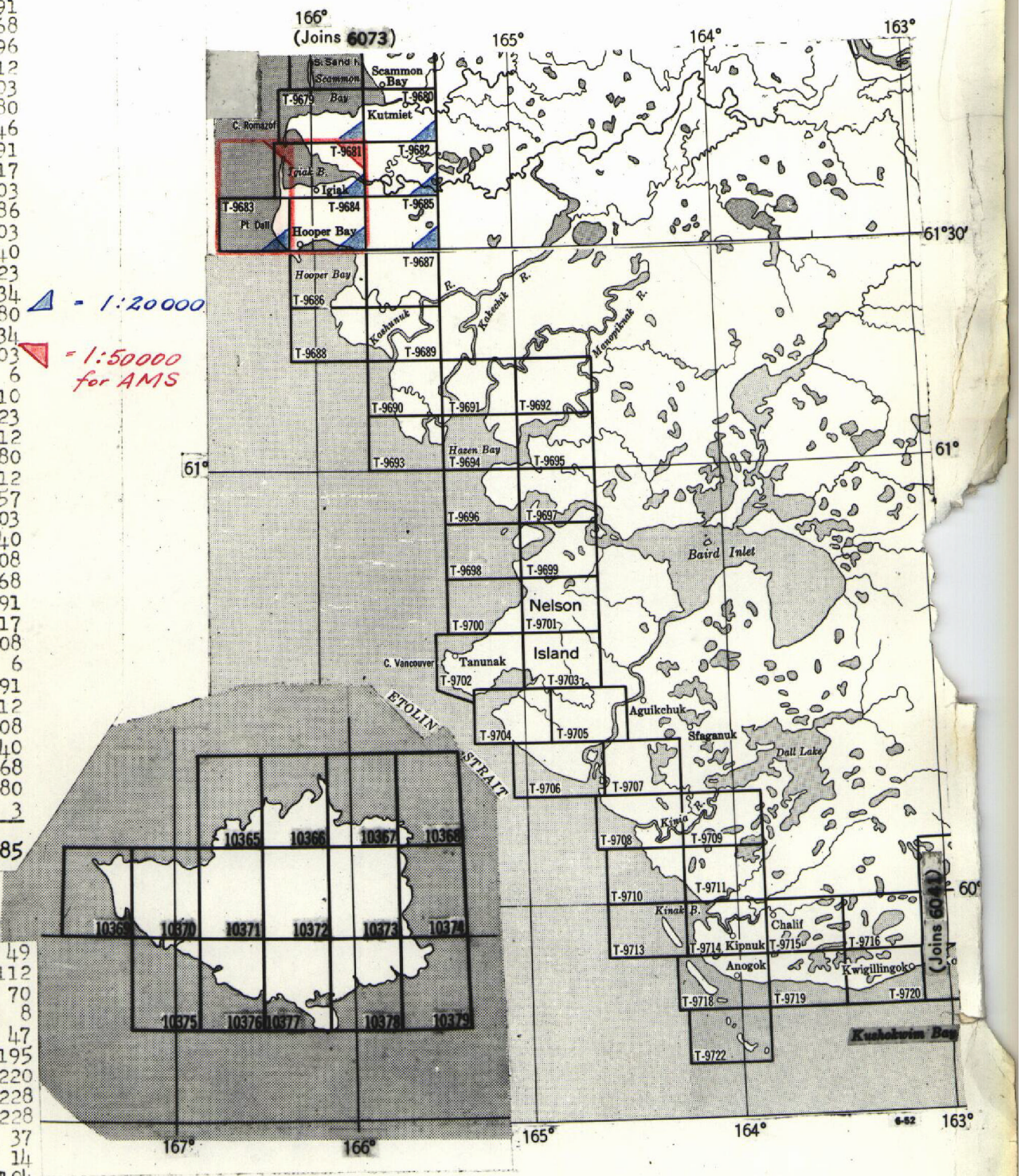
Sheet No.	Area sq.miles
9[illegible]	46
9[illegible]	91
9681	68
9682	96
9683	12
9684	103
9685	80
9686	46
9687	91
9688	17
9689	103
9690	86
9691	103
9692	40
9693	23
9694	34
9695	80
9696	34
9697	103
9698	6
9699	110
9700	23
9701	112
9702	80
9703	112
9704	57
9705	103
9706	40
9707	108
9708	68
9[illegible]	91
9[illegible]	17
9711	108
9713	6
9714	91
9715	112
9716	108
9718	40
9719	68
9720	80
9722	3
Sub-total	2,685

Δ - 1:20000

= 1:50000 for AMS

Nunivak Island

10365	49
10366	112
10367	70
10368	8
10369	47
10370	195
10371	220
10372	228
10373	228
10374	37
10375	14
10376	104
10377	158
10[illegible]	109
10[illegible]	35
Sub-total	1,614
Sub-total	2,685
TOTAL	4,299



Compiled 1:20,000 scale, from 1:20,000 scale nine-lens photographs taken August 1950 and June, 1951; additional nine-lens photography to be taken Season 1952.

(Refer to Air-Photo Indexes B-42, 50, 51, 52 and E-10).

731 u

Department of Commerce
Coast and Geodetic Survey
Washington 25, D.C.

Gentlemen:

Reference is made to your letter of 14 January 1957, Subject: Security Review - Topographic Map.

The print of manuscript No. T-9679 has been reviewed by this command and it is recommended that it be published in an unclassified form.

Yours truly,

Encl
Manuscript No. T-9679
57-1363 (Conf)

NAUTICAL CHARTS BRANCH

SURVEY NO. T-9679 thru T-9685

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
6-21-68	9374	R.A. Lillis	T-9681, 9683, 9684 ~~Before~~ After Verification and Review fully applied
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review

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.