

4636

Form 504
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DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R. S. Patten, Director

U. S. COAST & GEODETIC SURVEY
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State: Alaska

Acc. No.

DESCRIPTIVE REPORT

Topographic
Hydrographic

Sheet No.
Field #C

4636

LOCALITY

Behm Canal

Fire Pt. to Channel Is.

1931

CHIEF OF PARTY

E. W. Eichelberg

DESCRIPTIVE REPORT
TO ACCOMPANY TOPOGRAPHIC SHEET "C"

BEHM CANAL

SAKS COVE to CHANNEL ISLANDS

S. E. ALASKA

INSTRUCTIONS:

The date of the instructions covering the topographic work done in this vicinity, and shown on this sheet, is March 7th, 1930, and March 24th, 1931.

PURPOSE:

The purpose of this topographic survey was to locate and show the nature of the shore line, islands, rocks, reefs, and the topographic signals for use in controlling the hydrography done in this part of Behm Canal. Also, to show, by form-lines, the nature of the topographic relief of the country along the shore-lines.

EXTENT:

The locality of the country as is shown on this sheet, includes that section of Behm Canal extending from Saks Cove southward to Channel Islands. Besides including Saks Cove, it also includes Portage Cove, and the wide bay at the mouth of Chickamin River.

GENERAL DESCRIPTION:

The shore lines along this part of Behm Canal are steep and rocky, the western shore line being much more irregular than the eastern shore line and much fouler. The mountains along the eastern shore line range in height from 3000 to over 4000 feet. Those along the western shore are not as high, which accounts for that shore being less steep and more irregular.

Except where shown, the forests extend all the way down to the shore line. The low water line is so close to the high water line along most of the shore that the horizontal difference between them is negligible, except where shown.

Throughout the mountains on both sides of the canal are several very wide ravines and basins, some of which contain large lakes. An approximate location of these lakes and streams was plotted on the topographic sheet having been transferred from the aerial photographs taken by the U. S. Naval Aviation Corps for use by the Geological Survey in connection with their topographic survey of Revillagigedo Island. These photographs were also used for

transferring the shore line at the head of the bay at the mouth of Chickamin River, all of the shore line in this vicinity east of the meridian $130^{\circ} 56'$ having been transferred from the aerial photographs. These photographs checked the rodded shore line around the rest of the bay so closely that it seemed sufficiently accurate to justify the use of a full block line instead of a dashed line to designate the high water line.

CONTROL:

All of the topography as shown on sheet "C" is controlled by the triangulation scheme executed by Mr. J. M. Smook, Chief of Party, in 1929, throughout the entire length of Behm Canal, which scheme is based on the North American Datum.

SURVEY METHODS:

The usual procedure of first occupying the triangulation stations and cutting in the topographic signals was used. After these signals were located by three or more good intersections, the shore line was located by rodding it in from plane table setups at or near these topographic stations. Resections and three point fixes were also used. Most of the western shore line was located before locating much of the eastern shore line.

Low and minus tides were taken advantage of in locating the numerous rocks and reefs along the western shore line extending north from Portage Cove.

These rocks were carefully located by telemeter readings, much care being taken to be sure of correct locations of the rocks. Their locations were also checked in many cases by cuts from other plane table setups.

LOW WATER LINE:

Most of the low water line shown on this sheet was estimated, a comparison made with the low water line as shown on the boat sheet, and an adjustment made. In some places, where it could be rodded, without an undue loss of time, it was located by plane table methods.

DECLINATION:

The magnetic declination in this vicinity averages about $30^{\circ} 28'$ Easterly. No local attraction was found by the topographic party. Magnetic observations with compass declinometer at triangulation station FAY 2, HAT 2 and OAR 2 were taken.

DISTORTION:

Much care and caution was taken with this sheet throughout its use in the field, no appreciable distortion being noticed while all the shore line topography was in progress, and while the signals were being located.

However, the last day that was spent on locating the shore line, an accident happened to the sheet, which caused a large amount of distortion, causing the sheet to contract quite irregularly. It came about in the following manner: The topographic party had gone up the mouth of Chickamin River, above the head of the bay, to check the aerial photographs against the existing topography. As it was almost lunch time we ran up into the mouth of a stream and into a small slough as far as we could go, to a point about 125 meters south of the shack shown on the sheet on the east side of the stream, and secured the power skiff to the bank with a painter and grapnel hook, near an old raft, lying partly on the bank and partly in the mud, having secured the skiff at this same spot a couple of times before. After checking the photographs for awhile, we went up to the deserted shack to boil coffee and eat lunch, leaving the topographic gear in the skiff. Upon our return to the skiff it was found that the rising tide had floated it just far enough under the old raft to get its bow caught, and the tide had risen sufficiently to lift the stern as far as it would go, and then started filling the skiff. The chart tube became filled with water and the sheet soaked. When the sheet was examined, the cloth was beginning to peel from off the back of the sheet. It was laid out flat on boards and dried immediately, so that the cloth backing would not continue to come off. As a result the sheet became badly distorted and wrinkled. This regrettable occurrence was a source of worry the rest of the season, however, it is hoped that this experience will prove valuable in the future in showing what damage a changing tide can do when least expected.

USE OF AERIAL PHOTOGRAPHS:

The aerial photographs, previously mentioned, were used principally in obtaining the approximate location of lakes, water sheds, and drainage streams. This assisted much in obtaining a more accurate location of the form lines.

These photographs were used in locating the high water line, islands, and sloughs at the mouth of Chickamin River where it enters the wide bay. Due to the inaccessibility of this section, except at high water, and also due to the swift currents, and silt which tended to clog up the outboard motor, this method was deemed advisable, instead of taking the additional time to locate the unimportant high water line in this vicinity by the usual plane table methods. Due to the freshets, and the resulting swollen river with its strong currents, this section is subject to considerable change throughout a period of years, as this river heads over near the upper end of Portland Canal and drains a very large mountainous area.

FORM LINES:

The form lines were done by two separate topographic parties working at the same time. Mr. R. C. Rowse doing those on the west side of Behm Canal, using a separate sheet onto which the triangulation and topographic stations had been transferred after the topographic sheet had gotten wet and distorted. The form lines on the east side of the canal were done by me.

In order to get good intersections and accurate determinations of the elevation points, an orientation was taken on the topographic station nearest in line to the elevation point observed. This method was used by both Mr. Rowse and myself. However, due to the unusual amount of distortion, the distances from the observer to these points was affected, thereby affecting the elevations to a certain extent.

Respectfully submitted,

Chas. M. Thomas,
Chas. M. Thomas,
Hydro. & Geod. Engineer,
U.S.C. & G.S.S. EXPLORER.

Approved and forwarded,

G. C. Jones
G. C. Jones,
Commanding Officer,
U.S.C. & G.S.S. EXPLORER.

LIST OF STATISTICS

Number of Statute mile of high water line..... 58.3
Number of Statute mile of low water line,
 rodged or estimated..... 7.0
Number of elevations determined.....227

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 4636

TOPOGRAPHIC TITLE SHEET

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

Field No. " C "

REGISTER NO. 4636

State ALASKA
General locality Behm Canal
SOUTHEASTERN ALASKA
Locality Channel Is. to Fire Pt.
Behm Canal, from Saka Cove to Channel Islands.
Scale 1:20,000 Date of survey May & June, 1931
Vessel U.S.C. & G.S.S. EXPLORER
Chief of Party E. W. Eickelberg
Surveyed by Chas. M. Thomas
Inked by Chas. M. Thomas
Heights in feet above M.H.W. to ground ~~to tops of trees~~
~~Contours. Approximate contours.~~ Form line interval 100 feet
Instructions dated March 7, 1930 & March 24, 1931
Remarks: Work was done from chartered launch "Elsinore".