U. S. COAST AND GEODETIC SURVEY
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey  HYDROGRAPHIC

Field No.  EX-2249  Office No.  H-7734

LOCALITY

State   ALASKA--- ALEUTIAN ISLANDS

General locality  RAT ISLANDS

Locality  ANCHITKA ISLAND

1949

CHIEF OF PARTY

H. A. Karo

LIBRARY & ARCHIVES

DATE  March 20, 1950
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.

REGISTER No. H - 7734
Field No. EX 2249

State Alaska - Aleutian Islands
General locality Aleutian Islands, Rat Islands
Locality Amchitka Island
Scale 1:20,000
Date of survey 21 May to 18 July 1949
Instructions dated 3 February 1938 - 11 April 1949
Vessel EXPLORER Launches Nos. 1 & 2.
Chief of party H. Arnold Karo
Surveyed by F. A. Riddell, J. S. Morton
Soundings taken by fathometer, graphic recorder, hand level
Protracted by J. L. Van Meter
Soundings penciled by J. L. Van Meter
Soundings in fathoms and are true depths

REMARKS:


U. S. GOVERNMENT PRINTING OFFICE 625075
A. PROJECT:

This survey was executed in accordance with Instructions for Project CS 218, dated 3 February 1948, and Supplemental Instructions received through 11 April 1949.

B. SURVEY LIMITS AND DATES:

This survey is along the north side of and at the northwest end of Amchitka Island, Aleutian Islands. Field work began 21 May 1949 and was completed 18 July 1949. Junction was made with contemporary surveys H-7731 (Field EX 1149) on the east, H - 7733 (Field EX 2149) on the west, and H - 7739 (Field EX 4249) on the north. Field work had to be accomplished during periods of southerly weather in order to take advantage of the lee afforded by Amchitka Island.

C. VESSEL AND EQUIPMENT:

EXPLORER Launches Nos. 1, 2, and 3 were used on this survey, and were operated from the ship. Launch No. 3 was used only one day when Launch No. 2 was disabled because of engine trouble. Launch No. 1 was used offshore where shoran fixes were possible. The inshore work was done with Launch No. 2. Launches were operated at full speed and each one's turning radius is approximately 20 meters at full speed. All soundings were made in fathoms with 808 depth recorders as follows:

<table>
<thead>
<tr>
<th>Launch No.</th>
<th>808 Fathometer No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>49</td>
</tr>
<tr>
<td>3</td>
<td>72</td>
</tr>
</tbody>
</table>
D. TIDE AND CURRENT STATIONS:

Soundings were reduced from tidal information obtained from the portable automatic tide gage operated in Constantine Harbor. Time and range corrections were unnecessary. During the short periods of time that this gage was not in operation reducers were furnished by the Washington Office based upon values observed on the standard gage at Sweeper Cove, Adak, Alaska. No current stations were observed.

E. SMOOTH SHEET:

The projection was made in Washington on the projection ruling machine. The shoreline and signals were also plotted in Washington. 

(For origin of shoreline & signals see Review, par. 1.)

F. CONTROL STATIONS:

The 2nd order NA 1927 triangulation on Amchitka Island was broken down to two mile spacing along the beach and triangulation stations were used to control the photographs and as signals. Topographic signals were located by photogrammetry. A preliminary plot was made in the field to provide boat sheet locations.

G. SHORELINE AND TOPOGRAPHY:

Shoreline and topography for the boat sheet was taken from the preliminary field plot, and was found accurate and adequate. No discrepancies between the hydrographic and topographic surveys were noted. The low water line is not defined by the soundings because of the rugged character of the beach, the matted kelp, and danger to personnel and equipment. No discrepancies between the topographic details and the hydrography were developed in the smooth plot.

H. SOUNDINGS:

Depths were measured in fathoms with the 803 depth recorders with the usual corrections.

I. CONTROL OF HYDROGRAPHY:

Hydrography was controlled by visual 3 point fixes supplemented by launch shoran where possible. Shoran corrections are covered by a special report.

J. ADEQUACY OF SURVEY:

The survey is complete and adequate for charting. Junctions with adjoining contemporary surveys are satisfactory and no holidays or excessive differences were noted. Depth curves can be adequately drawn at the junctions. To adequately define the submarine features it was necessary to draw a green 15 fathom curve and a brown 25 fathom curve on the boat sheet. All rocks and kelp have been plotted.
K. CROSSLINES:

There are about 8 percent crosslines. Crossings were in good agreement except for one place. Between positions 64 and 65 "b" day Launch 2, there is a 4 fathom crossing. This is explainable by the rough bottom in this area. (bottom extremely irregular)

L. COMPARISON WITH PRIOR SURVEYS:

In 1935 the U. S. Navy made a reconnaissance survey around Amchitka Island, but their control was weak and hydrography inadequate for proper delineation of the underwater features. In general, the two surveys agree. The 1949 survey reveals many features not shown in the 1935 reconnaissance survey. The 1949 survey should entirely supersede the 1935 reconnaissance survey.

M. COMPARISON WITH CHART:

There are no large scale charts of this area. The present survey should entirely supersede all previously charted soundings in the common area.

N. DANGERS AND SHOALS:

The coastline of this sheet is quite uneven and the water close inshore is generally foul. There are no dangers or shoals that extend more than a mile offshore. Ships should keep clear of this coastline by a mile or more.

O. COAST PILOT INFORMATION:

The ship anchored several times in the vicinity of Lat. 51° 39'15 N. Long. 178° 42'51 E. in 20 to 25 fathoms of water with good holding ground. It is suitable for an anchorage only during southerly weather.

P. AIDS TO NAVIGATION:

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

Q. LANDMARKS FOR CHARTS:

There are no prominent landmarks on this sheet.
R. GEOGRAPHIC NAMES:

The following geographic names are found within the area of this survey:

<table>
<thead>
<tr>
<th>Name</th>
<th>Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aleut Point</td>
<td>Chart No. 8864</td>
</tr>
<tr>
<td>Bird Rock</td>
<td>Chart No. 8864</td>
</tr>
<tr>
<td>Bird Cape</td>
<td>Chart No. 8864</td>
</tr>
<tr>
<td>Amchitka Island</td>
<td>Chart No. 8864</td>
</tr>
</tbody>
</table>

S - Z

Nothing to report.

Respectfully submitted

Glenn W. Moore
Lt. Comdr. C&GS

Approved and forwarded:

R. Arnold Karé, Comdr. C&GS
Commanding Ship EXPLORER
STATISTICS FOR HYDROGRAPHIC SHEET NO. H - 7734

Field No. EX 2249

USC&GS EXPLORER

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter</th>
<th>Vol.</th>
<th>Number of Pos.</th>
<th>Statute Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1949</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5/21</td>
<td>a</td>
<td>1</td>
<td>95</td>
<td>17.4</td>
</tr>
<tr>
<td>5/21</td>
<td>a</td>
<td>2</td>
<td>10</td>
<td>2.3</td>
</tr>
<tr>
<td>6/1</td>
<td>b</td>
<td>2</td>
<td>18</td>
<td>2.3</td>
</tr>
<tr>
<td>6/15</td>
<td>c</td>
<td>2</td>
<td>122</td>
<td>28.5</td>
</tr>
<tr>
<td>7/8</td>
<td>d</td>
<td>2</td>
<td>121</td>
<td>23.6</td>
</tr>
<tr>
<td>7/9</td>
<td>e</td>
<td>2</td>
<td>8</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Total</strong> 374</td>
<td><strong>76.4</strong></td>
</tr>
</tbody>
</table>

Launch No. 2

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter</th>
<th>Vol.</th>
<th>Number of Pos.</th>
<th>Statute Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/5</td>
<td>a</td>
<td>3</td>
<td>139</td>
<td>28.5</td>
</tr>
<tr>
<td>6/6</td>
<td>b</td>
<td>3</td>
<td>157</td>
<td>33.4</td>
</tr>
<tr>
<td>6/8</td>
<td>c</td>
<td>4</td>
<td>100</td>
<td>19.2</td>
</tr>
<tr>
<td>6/15</td>
<td>d</td>
<td>4</td>
<td>75</td>
<td>17.4</td>
</tr>
<tr>
<td>7/8</td>
<td>e</td>
<td>4</td>
<td>100</td>
<td>23.2</td>
</tr>
<tr>
<td>7/11</td>
<td>f</td>
<td>5</td>
<td>209</td>
<td>47.8</td>
</tr>
<tr>
<td>7/18</td>
<td>g</td>
<td>5</td>
<td>121</td>
<td>32.5</td>
</tr>
<tr>
<td>7/18</td>
<td>g</td>
<td>6</td>
<td>89</td>
<td>24.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Total</strong> 990</td>
<td><strong>226.8</strong></td>
</tr>
</tbody>
</table>

Launch No. 3

<table>
<thead>
<tr>
<th>Date</th>
<th>Letter</th>
<th>Vol.</th>
<th>Number of Pos.</th>
<th>Statute Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/9</td>
<td>a</td>
<td>7</td>
<td>137</td>
<td>29.0</td>
</tr>
</tbody>
</table>

**GRAND TOTAL** 1501 332.2

Square statute miles = 23
TIDAL NOTE

Hydrographic Survey H - 7734 (Field EX 2249)

EXPLORER CS 218

Tide gage at Constantine Harbor, Amchitka Island

Latitude 51° 24.8' N  Longitude 179° 16.8' E.

MLLW on tide staff + 2.5 feet

No corrections for difference in time or height were applied to observed tides. 165th meridian time (west) was used.

During the short periods of time that this gage was not in operation, reducers were furnished by the Washington Office based upon values observed on the standard gage at Sweeper Cove, Adak, Alaska.
APPROVAL SHEET

The boat sheet, smooth sheet, and records have been inspected and approved.

H. Arnold Karo, Comdr. C&GS
Commanding Ship EXPLORER
SHORAN SUMMARY

1949

1. The EXPLORER used the following shoran stations:

   STEM (1949) on SE end of Little Sitkin Island at an elevation of 440 feet.

   BIRD (1948 - 1949) on Bird Cape at NW end of Amchitka Island at an elevation of 167 feet.

   CAPE (1949) on highest peak on NW end of Amchitka Island at an elevation of 376 feet. This was the same equipment as used at BIRD in 1949.

   HART (1949) on highest peak near the center of Amchitka Island at an elevation of 1034 feet.

The PIONEER's stations CABLE and VALY on Semisopochnoi Island and TINY at Constantins Harbor, east end of Amchitka Island.

2. The ZERO SETTINGS were obtained by a comparison of the shoran distances and the computed distances obtained in the following manner.

   On 27 August, triangulation stations RIM 2 and OTT 2 were occupied with theodolites and the ship's mast cut in simultaneously with shoran readings on CAPE and HART. True distances were obtained by computation.

   On 4 September, sextant fixes on triangulation stations from both the Ship and Launch No. 1 were taken simultaneously with shoran readings on stations TINY and HART. True distances were computed.

   Theodolite cuts were taken from stations WEB 2 and CHITKA on 6 June along with shoran readings from STEM and BIRD. Apparently these were not properly synchronized as the corrections obtained appear erroneous. The summations of the corrected shoran distances along the baseline do not agree with the true distances. Inasmuch as the same equipment was used at both BIRD and CAPE the correction obtained for CAPE has been applied to BIRD. Using correction for BIRD and the sums of 37 baseline crossings a correction was deduced for STEM.

   No observations for corrections were made for the stations VALY and CABLE. The 1948 values for the equipment at these stations are therefore used.

   With Launch 1 in the chocks, comparative distances were read with the Ship and the Launch to BIRD, STEM CAPE and HART. The launch distances were reduced to the ship distances and compared and the launch corrections thereby obtained.
<table>
<thead>
<tr>
<th>SHORE SET</th>
<th>SHIP (1)</th>
<th>LAUNCH (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 VARI</td>
<td>99.816</td>
<td>not used</td>
</tr>
<tr>
<td>#2 HART</td>
<td>99.828</td>
<td>99.823</td>
</tr>
<tr>
<td>#3 TINY</td>
<td>99.809</td>
<td>99.803</td>
</tr>
<tr>
<td>#4 BIRD</td>
<td>99.822</td>
<td>99.820</td>
</tr>
<tr>
<td>CAPE</td>
<td>99.822</td>
<td>99.826</td>
</tr>
<tr>
<td>#5 STEM</td>
<td>99.807</td>
<td>99.793</td>
</tr>
<tr>
<td>#6 CABLE</td>
<td>99.811</td>
<td>99.806</td>
</tr>
</tbody>
</table>

3. The shoran equipment gave little operational difficulties outside of the generators.

To correct this and to minimize radio communication transfer switches are to be installed at the shore stations so that the operators may change generators whenever convenient. Also variacs are to be supplied the stations in case the AC output voltage will not come up to normal.

Two types of generators were used in Launch #1. A light "Onan" gasoline generator was mounted on the stern. An inboard belt driven AC generator was installed in the engine compartment. The output voltage of this was controlled by a variac and DC voltage obtained by rectification. The variac only permitted a variance in speed from 800 to 1200 rpm for the launch when using the inboard generator. It would be advisable to install a variable speed drive between the engine and generator. In any case a clutch should be inserted before the generator so that it may be cut out while the launch is dead heading or running visual hydrography. The generator mounted on the stern has only one defect - gasoline must be carried in the launch. With different pulleys or a variable speed drive the inboard generator will give just as good service as the gasoline generator.
VELOCITY CORRECTIONS

1949

200 Fath. Ship & Launches

<table>
<thead>
<tr>
<th>Corr'n. fns.</th>
<th>Depth fns.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4.5</td>
<td>176.1 to 196.0</td>
</tr>
<tr>
<td>-4.0</td>
<td>146.8 to 170.0</td>
</tr>
<tr>
<td>-3.5</td>
<td>124.8 to 146.7</td>
</tr>
<tr>
<td>-3.0</td>
<td>105.9 to 124.7</td>
</tr>
<tr>
<td>-2.6</td>
<td>98.2 to 105.6</td>
</tr>
<tr>
<td>-2.4</td>
<td>91.0 to 98.1</td>
</tr>
<tr>
<td>-2.2</td>
<td>83.1 to 90.9</td>
</tr>
<tr>
<td>-1.8</td>
<td>67.5 to 75.0</td>
</tr>
<tr>
<td>-1.6</td>
<td>59.3 to 67.4</td>
</tr>
<tr>
<td>-1.4</td>
<td>51.1 to 59.2</td>
</tr>
<tr>
<td>-1.2</td>
<td>43.3 to 51.0</td>
</tr>
<tr>
<td>-1.0</td>
<td>35.7 to 43.2</td>
</tr>
<tr>
<td>-0.8</td>
<td>32.1 to 39.6</td>
</tr>
<tr>
<td>-0.6</td>
<td>25.0 to 28.3</td>
</tr>
<tr>
<td>-0.7</td>
<td>28.4 to 32.0</td>
</tr>
<tr>
<td>-0.5</td>
<td>21.0 to 24.9</td>
</tr>
<tr>
<td>-0.4</td>
<td>17.1 to 20.9</td>
</tr>
<tr>
<td>-0.3</td>
<td>12.5 to 17.0</td>
</tr>
<tr>
<td>-0.2</td>
<td>8.4 to 12.4</td>
</tr>
<tr>
<td>-0.1</td>
<td>4.1 to 8.3</td>
</tr>
<tr>
<td>0.0</td>
<td>0.0 to 4.0</td>
</tr>
</tbody>
</table>
TIDE NOTE FOR HYDROGRAPHIC SHEET

Division of Hydrography and Topography

24 March 1950

Division of Charts: R. H. Carstens

Plane of reference approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 7734

Locality Amchitka Island, Aleutian Islands

Chief of Party: H. A. Karo in 1949
Plane of reference is mean lower low water, reading
2.5 ft. on tide staff at Constantine Harbor
9.9 ft. below B. M. 1 (1944)

Height of mean high water above plane of reference is 2.2 feet.

Condition of records satisfactory except as noted below:

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

R. E. Government Printing Office 766675
<table>
<thead>
<tr>
<th>Name on Survey</th>
<th>On Chart</th>
<th>On previous survey</th>
<th>On U. S. quadrangle maps</th>
<th>On local maps</th>
<th>P. O. Guide or Map</th>
<th>Printed Nautical Atlas</th>
<th>U. S. Light List</th>
<th>H</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aleutian Islands</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rat Islands</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avachitka Island</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avant Point</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>05816</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bird Rock</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bird Cape</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chitka Cove</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constantine Harbor</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Location of tide gage)</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. \(H-7734\)

Records accompanying survey:

- Boat sheets \(2\)...
- Sounding vols. \(7\)...
- Wire drag vols. \(\ldots\)
- Bomb vols. \(\ldots\)
- Graphic recorder rolls \(1\) envel
- Special reports, etc. \(\ldots\)

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

- Number of positions on sheet \(\ldots 1501\)
- Number of positions checked \(\ldots 80\)
- Number of positions revised \(\ldots 2\)
- Number of soundings revised (refers to depth only) \(\ldots 180\)
- Number of soundings erroneously spaced \(\ldots 2\)
- Number of signals erroneously plotted or transferred \(\ldots\)
- Topographic details Time \(\ldots 16\)
- Junctions Time \(\ldots 24\)
- Verification of soundings from graphic record Time \(\ldots 45\)

Verification by: \(\text{William Klein}\) Total time \(\ldots 145\) Date 8 Dec 1950 20 April 1951

Reviewed by: \(\text{J. D. Creamer}\) Time \(\ldots 16 \text{ hrs}\) Date 2 May 1951
DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7734

FIELD NO. EX-2249

Alaska-Aleutian Islands, Rat Islands, Amchitka Island
Surveyed in May - July, 1949
Scale 1:20,000
Project No. CS-218

Soundings:

808 Fathometer

Control:

Shoren
Sextant fixes on shore signals

Chief of Party - H. A. Kero
Surveyed by - F. A. Riddell and J. S. Morton
Protracted by - J. L. Van Meter
Soundings plotted by - J. L. Van Meter
Verified and inked by - W. Klein and E. Yearley
Reviewed by - T. A. Dinsmore, 2 May 1951
Inspected by - R. H. Carstens

1. Shoreline and Signals
The shoreline and signals originate with T-5593, T-5594 and T-5595 (1949).

2. Sounding Line Crossings
Considering the irregularity of the bottom, depths at crossings are in good agreement.

3. Depth Curves and Bottom Configuration
The usual depth curves are adequately delineated except in foul inshore areas.

The bottom is very irregular inshore from 30-fm. depths and fairly irregular beyond these depths. Several off-lying reefs constitute dangers to navigation in the area.

4. Junctions with Contemporary Surveys
Adequate junctions were effected with H-7738 (1949) and H-7739 (1949) on the north, H-7731 (1949) on the east and H-7733 (1949) on the west.
5. **Comparison with Prior Surveys**

| H-6904 (1935) 1:60,000 | H-6906 (1935) 1:150,000 |

The present survey falls within the area covered by these small-scale reconnaissance surveys by the U. S. Navy. A few differences revealed by a comparison between the prior and present depths are attributed to the weak control and inaccurate soundings on the prior surveys.

The most noticeable difference between prior and present depths occurs in lat. $51^\circ 39.0'$, long. $178^\circ 44.5'$, where a 7-fm. sounding charted from H-6906 falls in present depths of 12 fms. The prior sounding is probably out of position and should actually fall about 400 meters inshore where comparable depths were obtained on the present survey.

The present large-scale survey is sufficiently developed to reveal all hydrographic information necessary to supersede the prior surveys within the common area.

6. **Comparison with Chart 8864 (Latest print date 3/19/51)**

   **A. Hydrography**

   Charted hydrography originates with the previously discussed surveys supplemented by partial application of the present survey prior to verification and review.

   The 6½-fm. sounding charted in lat. $51^\circ 40.3'$, long. $178^\circ 40.2'$, originates with the present survey prior to verification and review. This sounding was read on kelp and has been subsequently revised in depth. The least depth in the vicinity has now been determined to be 9.6 fathoms.

   The present survey entirely supersedes the charted hydrography.

   **B. Aids to Navigation**

   No aids to navigation are charted in this area.

7. **Condition of Survey**

   **a.** The sounding records are complete; the Descriptive Report covers all matters of importance.

   **b.** The smooth plotting was satisfactory.

   **c.** No bottom characteristics were obtained on this original survey.
8. Compliance with Project Instructions
The survey adequately complies with the Project Instructions except as noted in paragraph 7c above.

9. Additional Field Work
Except for the absence of bottom characteristics, the surveys is considered to be basic and no additional field work is recommended.

Examined and approved:

H. R. Edmonston
Chief, Nautical Chart Branch

L. S. Hubbard
Chief, Section of Hydrography

H. Arnold Kero
Acting Chief, Division of Charts

W. M. Scaife
Chief, Division of Coastal Surveys
<table>
<thead>
<tr>
<th>DATE</th>
<th>CHART</th>
<th>CARTOGRAPHER</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/27/53</td>
<td>8344</td>
<td>E. E.</td>
<td>Before Verification and Review</td>
</tr>
<tr>
<td>5/24/54</td>
<td>8362</td>
<td>Wittmann</td>
<td>After Verification and Review</td>
</tr>
<tr>
<td>1/61</td>
<td>8364</td>
<td>E. E.</td>
<td>After Verification and Review</td>
</tr>
<tr>
<td>1/93</td>
<td>16450</td>
<td>Don Corrals</td>
<td>Before After Verification and Review</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>New metric chart</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fully applied</td>
</tr>
</tbody>
</table>

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.