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Form 504  
Ed. June, 1928  
DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY U. S. COAST AND GEODETIC SURVEY  
R. S. Patton Director LIBRARY AND CHIEF OF BUREAU

APR 19 1934
Acc. No. _____

State: ALASKA

### DESCRIPTIVE REPORT

<del>Topographic</del> Hydrographic	} Sheet No.	MIDDLETON #1	5422
		MIDDLETON #2	5423

LOCALITY

MIDDLETON ISLAND

ALASKA.

19 33

CHIEF OF PARTY

A. M. SOBIERALSKI, H. & G. E.

5422  
5423

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

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REG. NO. 5422

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.

Field No. Middleton #1

REGISTER NO. 5422

State S. W. ALASKA

General locality Gulf of Alaska.

Locality Middleton Island, ALASKA

Scale 1:20,000 Date of survey July 2- - Aug. 14, 19 33

Vessel U. S. C. & G. S. S. SURVEYOR

Chief of Party A. M. SOBIERALSKI

Surveyed by A. M. SOBIERALSKI, V. M. GIBBENS, R. C. ROWSE.

Protracted by R. C. ROWSE, V. M. GIBBENS

Soundings penciled by V. M. GIBBENS

Soundings in fathoms feet

Plane of reference M. L. L. W.

Subdivision of wire dragged areas by \_\_\_\_\_

Inked by S. E. Perkins

Verified by S. E. Perkins

Instructions dated APRIL 15, 1933

Remarks: \_\_\_\_\_

*applied to chart 8551 - Jan 1936 H.S. Gable*  
*" " " 8502 " " " H.S. Gable*

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEETS #1 & #2.

MIDDLETON ISLAND

ALASKA

These two sheets cover the surveys in the vicinity of Middleton Island, off Prince William Sound, Alaska out to a depth of about 50 fathoms.

GENERAL DESCRIPTION: South Side: Shoal water extends about  $1\frac{1}{2}$  miles to the southward terminating in a series of breakers. The area inside of these breakers is dangerous even for small boats. The 20 fathom curve is about  $1\frac{1}{2}$  miles to the southward of the line of the extreme point being about 3 miles  $222^{\circ}$  from the southern end of the island. Further to the southward, the bottom drops off gradually to depths over 50 fathoms.

EAST SIDE. The waters east of Middleton Island are characterized by numerous breakers extending about 2 miles eastward. Navigation inside of the 20 fathom curve is extremely hazardous. Any of the detached spots with depths of 5 or 6 fathoms probably breaks in rough weather.

Shoal water dangerous for navigation even for small boats extends about 1 mile off shore. Off the northeastern end, the approach to the shore is somewhat sheltered by breakers and kelp from the prevailing swell, which usually makes from the southeastward, but navigation among the breakers is precarious even in smooth weather.

NORTH SIDE: Fountain Rock,  $3\frac{1}{4}$  miles  <sup>$354^{\circ}$</sup>  (true) from the islet  $\frac{3}{4}$  mile northward of Middleton Island is the principal danger to the northward of the island. This rock breaks in heavy weather although the least depth found on it was  $4\frac{1}{2}$  fathoms.

The channel between Middleton Island and the islet to the northward of it has been used by halibut boats. Strong currents and overfalls make it dangerous to use this channel and it should be avoided.

WESTERN SIDE: The western side of the island is generally clear, and affords the best anchorage and landing place. A heavy

fringe of kelp extends out to the 10 fathom curve, making it necessary to cut a path through it for launches.

A bank with 19 fathoms on it lies about 6 miles west (magnetic) from the center of Middleton Island.

DANGERS: Some of the principal outermost dangers are listed below:

Fountain Rock,  $4\frac{1}{2}$  fathoms, breaks only in heavy weather,  $3\frac{1}{4}$  miles <sup>35°</sup> true from islet north of Middleton Island Latitude 59 - 32.1 Longitude 146 - 20.2.

A sunken rock, <sup>near</sup> position 13 e, 1.4 miles <sup>107°</sup> ~~135°~~ (true) from extreme northern point of Middleton Island.

A breaker, position 29 r, least water 1-4/6 fathoms 3.2 miles, 139° (true) from north point of Middleton Island.

A breaker, position <sup>-79 r</sup> 77 p., least water 3-4/6 fathoms, 2.9 miles 74° true from S.E. point of Middleton Island (near 0 Gold) breaks in moderate swell.

A  $5\frac{1}{2}$  fathom spot position 72 p, 2.6 miles 77° from the same S.E. point. Probably breaks in heavy weather.

A  $6\frac{1}{2}$  fathom spot, position 45 e, <sup>0.95</sup> ~~2.3~~ miles <sup>145°</sup> ~~79°~~ from the same S.E. point. Probably breaks in heavy weather.

A breaker  $1\frac{1}{4}$  miles 179° from the pinnacle rock at south end of Middleton Island, position 17 c. <sup>between</sup> 18 c.

<sup>near</sup> A breaker 1.4 miles, 205° (true) from the pinnacle rock, position 22 c. This breaker is the most southerly one off Middleton Island, and a line of breakers extends eastward to the one described in preceding paragraph, and westnorthwestward to the one described in following paragraph.

<sup>near</sup> A breaker 1.6 miles, 238° (true) from the pinnacle rock, position 24 c. This breaker is visible even in comparatively calm weather and marks the southwestern end of the foul area extending southward from Middleton Island.

SURVEY METHODS: The work on this sheet was done partly with a ship's launch, using hand lead and wire soundings, the balance with the ship using the Fathometer. In some places a few soundings under 15 fathoms were taken with the Fathometer, but it is believed that these could all be rejected and still leave the area fairly well covered.

Visual fixes were used throughout and several floating signals were placed to facilitate development in vicinity of Fountain Rock.

The three point fixes in general are none too strong and for this reason the verification of this sheet should be done by an experienced cartographer. The smooth plotting was done very carefully, and in verifying the sheet it is suggested that the positions as plotted be accepted unless there is evidence of an error.

This applies particularly to lines to the northward and southward of the island where the fixes are so weak that the work is little better than dead reckoning in some cases. In some cases both angles are less than the limiting angle on a steel protractor. The angles were laid off on a piece of tracing paper and this used as a protractor.

DISCREPANCIES: In general the crossings of fathometer with lead line, are good. In depths of 14 - 20 fathoms, especially where there is irregular bottom, the fathometer usually gives shoaler depths than the hand lead. It is difficult to determine whether such shoaler depths actually exist. However, it is on the safe side to retain these shoaler soundings, and no serious discrepancies were noted.

ANCHORAGES: The anchorage used by the SURVEYOR about  $1\frac{1}{2}$  miles west of the bight on the western side of the island in 12 - 14 fathoms, sand, is protected from north (mag.) to south (mag.). As practically all the gales in this vicinity are from E to N, this anchorage furnishes good shelter in bad weather. In southwesterly weather, a temporary anchorage with some shelter may be found  $1\frac{1}{2}$  miles northeastward of the northern part of the island. The anchorage just east of the north point of the island is uncomfortable on account of tide rips and swirls.

Off the southeastern end of the island there are areas where anchorage could be found, but the bottom is very irregular and the proximity to known dangers, together with strong variable currents, makes this area undesirable for anchorage.

LANDINGS: The best landing is in the bight about the middle of the western side of the island. In any but westerly weather, a landing can easily be made. A heavy bed of kelp helps to make the landing smooth, but may cause some difficulty in approaching it. At high water, the beach is easier to approach than at low water.

In westerly weather, a landing can be made along the northeastern shore, which is somewhat protected by offlying breakers etc.

CURRENTS: On the flood, the current sets northward and the ebb southward along the shore, with an estimated maximum velocity of about 2 knots. A velocity of 1.3 knots was measured at the anchorage. At the southern and northern ends the current is irregular, and sets eastward and westward. Tide rips are visible several miles to the southward of the island and to the northwestward in the vicinity of Fountain Rock.

Currents sweep through the channel between Middleton Island and the islet to the northward, creating eddys and swirls, and apparently making considerable changes in the outline of the spit and the islet. When there is much swell this islet may be mistaken for a breaker.

COMPARISON WITH BOAT SHEET: As the hydrography was done before the geographic position of the triangulation station on Middleton Island had been determined, the meridian on the boat sheets is not accurate and comparisons with the smooth sheets must be made by distance and direction from the various signals, rather than by latitude and longitude. It is to be noted that the orientation of the whole sheet depends on the short azimuth from  $\Delta$  Middleton to  $\Delta$  Spit, but this azimuth was measured with 2nd order accuracy and should be dependable.

ADDITIONAL WORK: While much additional work could be done inside of the breakers, these areas should be avoided by all vessels, and the survey answers the needs of any reasonably careful navigator. The exposed character of the area, limited the time when surveying was practicable, and the survey was the best which could be done under the prevailing conditions. No additional work is considered necessary, unless some development makes a more detailed survey of the areas inside of breakers desirable.

RECOMMENDATION FOR NEW CHART: On account of the importance of the anchorage as a port of refuge, it is recommended that a large scale chart including the approximate limits of these sheets be published. This recommendation has been made in a separate letter.

Respectfully submitted,

*A. M. Sobieralski*

A. M. SOBIERALSKI, H. & G. E.

Commanding, Str. SURVEYOR

2ae

August 6, 1934

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in  
14 volumes of sounding records for

HYDROGRAPHIC SHEET 5422

Locality Middleton Island, Gulf of Alaska

Chief of Party: A. M. Sobieralski in 1933

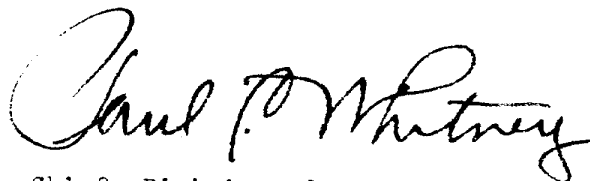
Plane of reference is mean lower low water reading

3.9 ft. on tide staff at Latouche (Tides reduced to Middleton I.

13.4 ft. below B. M. 2 (Range 0.86 of range at Latouche

Height of mean higher high water above plane of reference  
is approximately 10 feet

Condition of records satisfactory except as noted below:



Chief, Division of Tides and Currents

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5422

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

Number of positions on sheet	3,967
Number of positions checked	46
Number of positions revised	1
Number of soundings recorded	14,183
Number of soundings revised	50
Number of signals erroneously plotted or transferred	0

Date:.....September 20, 1934.....

Cartographer:.....*S. E. Perkins*.....

Verification of protracting

Verification & inking of rocks and shoals

by

*S. E. Perkins*

Time:

125 1/4 hrs.

Verification of inking by

Time:

Review by

*Harold W. Murray*

Time:

14 hrs.





7. No rocks awash were determined by the Hydrographic party. Sunken rocks were usually determined by estimating a breakers distance and direction from a sounding line. ✓
8. The field plotting of positions was exceptionally well done. Much care was taken by the field plotter (see page 3 of F. P. report). Only one position was changed; 46 positions were checked. A great deal of weight was given the statement in the F. P. report, so that even when crossings were a fathom or two in error no change was made, by the verifier. Weak fixes were the rule in the north west section of the sheet, particularly. The plotting of soundings <sup>with respect to</sup> and the timing <sup>intervals was</sup> were not up to the high standard of the position plotting, several errors having been picked up by the verifier. Some careless mistakes, such as plotting  $7\frac{1}{2}$  fathoms as  $2\frac{1}{6}$  fathoms, were noted. ✓
- Fathometer* 9. Line 159<sup>J</sup> - 162<sup>J</sup> was consistently deeper than nearby soundings. The slope correction changed at 26 fathoms. The bad crossings were due largely to the rapid change of correction. Where discrepancies existed the shoaler depths were plotted. *A minor discrepancy, shoaler sdgs plotted - Wym* ✓
10. Fathometer soundings less than 15 fathoms were plotted, and not rejected as the descriptive report proposes. *(Authority of K.T.A.)* ✓
11. The boat sheet was of little use to the verifier ( see <sup>P.R.</sup> ~~F.P.~~ report). ✓
12. The location of Middleton Island on the present chart is out in both latitude and longitude. The location of Fountain Rock is far out of position to the East on the present chart. A rock shown on the chart South and East of the Island is not shown on this sheet. ✓
13. For the delineation of the Island as shown on the present chart see 945 GA 1874 D page 10. See 945 ALOZ 1874 D, GA 1106 page 64 and 61, for computations. See H-3024 for present chart location of the Island. ✓
14. The 1, 2, 3, and 5 fathom curves could not be completely drawn, since information around several foul areas was lacking, in detail. ✓

Respectfully submitted

*S. E. Perkins*  
S. E. Perkins

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5422 (1933)

Middleton Island, Gulf of Alaska, S. W. Alaska.  
Instructions dated April 15, 1933 (SURVEYOR).  
Surveyed July-August, 1933.

Hand Lead, Machine and Fathometer Soundings - 3-Point Control on  
Shore Signals and  
Hydrographic Buoys.

Chief of Party - A. M. Sobieralski.  
Surveyed by - A. M. Sobieralski and V. M. Gibbens.  
Protracted by - V. M. Gibbens and R. C. Rowse.  
Soundings penciled by - V. M. Gibbens.  
Verified and inked by - S. E. Perkins.

1. Condition of Records.

The records are neat, legible and conform to the requirements of the Hydrographic Manual except as follows:

- a. The verification of the plotting of the topographic signals was not certain due to omission of the initials on Stamp 26. This was accomplished in the office.
- b. No cuts were recorded in the sounding volumes for the location of hydrographic signal "Out" nor was an index of cuts taken to other signals given in the front of the sounding volumes (Par. 60a).
- c. Two triangulation stations were incorrectly shown as topographic signals. These were corrected in the office.
- d. No statistics sheet accompanied the report (Par. 164).
- e. No boat sheet was received covering the inshore hydrography.
- f. Descriptive notes relative to rocks awash as shown on the topographic sheet were not transferred to the smooth sheet (Par. 160c). These were transferred in the office.

2. Compliance with Instructions for the Project.

The plan, character and extent of the survey satisfy the instructions for the Project.

3. Sounding Line Crossings.

There is no regular system of cross lines. Such lines as were used are generally in good agreement with the main system of lines.

4. Depth Curves.

Within the area covered the usual depth curves may be satisfactorily drawn except around Middleton Island. The foul nature of the area contiguous to the shore prohibited a complete development of this area and although many of the shoaler depth curves cannot be completely shown, any further development would be dangerous and unwarranted.

5. Junction with Contemporary Surveys.

a. The junction on the south and southwestern portion of this sheet with H-5423 (1933) is satisfactory.

b. Junction on the west, north and east with H-5447 (1933) will be considered when that sheet is reviewed.

c. No further field work is contemplated at this time off the southeastern portion of this survey.

6. Comparison with Prior Surveys.

H-3024 (1909)

But one sounding from this survey falls within the limits of H-5422 (1933) and it is in good agreement.

7. Comparison with Chart Nos. 8551 and 8502.

a. The detail embracing Middleton Island and including the line of soundings extending about 6 miles to the northwestward originates from a sketch contained in "Descriptions of Stations" (Page 10), Library No. 945 GA 1874 D which was made by the party of W. H. Dall (Schooner-YUKON). Comparison with H-5422 (1933) shows the sketch as applied to the chart to be out in azimuth and position. The numerous sunken rocks shown inside the danger curve and originating from the same source are doubtless a generalized representation of what is more accurately shown on H-5422 (1933). The new survey should supersede this information in its entirety.

b. The sources of the following charted items could not be traced at this time:

1. 11 fm. sounding; lat. 59°22'.9, long. 146°21'.1

This sounding falls in depths of about 13 fm. on H-5422 (1933) and about 225 meters from a 10½ fm. sounding. The 11 fms. should be disregarded in future chartings.

2. Charted sunken rock; lat. 59°22'.2, long. 146°18'.1

This rock which is probably a breaker indication falls in depths of about 50 fms. on H-5422 (1933). Since the bottom is uniform in this vicinity, the rock is obviously misplaced and should be omitted in future chartings.

7. (b).

3. Charted sunken rock; lat.  $59^{\circ}32'.2$ , long.  $146^{\circ}17'.3$

This rock falls in depths of about 31 fms. on H-5422 (1933) and is about  $1\frac{1}{2}$  miles due east of Fountain Rock as shown on H-5422 (1933). It is probably an erroneous location of Fountain Rock and should be omitted in future chartings (see next paragraph).

4. "Fountain Rock"

The name "Fountain Rock" is shown on chart 8500 (Edition of 1868) as applying to the rock mentioned in the preceding paragraph. On the 1917 edition of chart 8502, the name was inadvertently applied to the charted rock in lat.  $59^{\circ}33'.9$ , long.  $146^{\circ}10'.5$  and the name thus carried on the large scale chart 8551. Although the present field party makes no mention of the discrepancy they refer to Fountain Rock as the sunken rock ( $4\frac{1}{2}$  fms.) in lat.  $59^{\circ}32'.1$ , long.  $146^{\circ}20'.3$  which corresponds nearly to the rock so designated originally on chart 8500. That the designation on H-5422 (1933), is the correct one is further borne out by the fact that the  $4\frac{1}{2}$  fm. rock located on H-5422 is the only offshore rock in this vicinity (see also H-5447-(1933).

8. Field Plotting.

Field protracting and plotting of soundings were accurate and conform to the requirements of the Hydrographic Manual except as follows:

a. Where bottom characteristics such as "gray sand and gravel" were recorded in the records only one characteristic was plotted on the sheet. The other was added in the office.

b. Plotting of soundings with respect to recorded time intervals were not consistently adhered to (Par. 147). Those so plotted were revised in the office.

9. Additional Field Work Recommended.

While there are many shoals and shoal indications on this sheet that undoubtedly have less water on them than the survey indicates, additional work is not considered necessary at this time. The survey gives a good representation of the broken character of the area inside the 20 fm. curve.

10. Superseding Old Surveys.

Within the area covered, the present survey supersedes the following surveys for charting purposes:

H-3024 (1909) In part.

11. Reviewed by - Harold W. Murray -- September 25, 1934.

Inspected by - A. L. Shalowitz.

Examined and approved:

*K. T. Adams*  
K. T. Adams,  
Chief, Section of Field Records.

*F. S. Gordon*  
Chief, Section of Field Work.

*L. O. Polbit*  
Chief, Division of Charts.

*G. H. Huse*  
Chief, Division of H. & T.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

U. S. COAST & GEODETIC SURVEY  
LIBRARY AND ARCHIVES  
APR 9 1934  
REG. NO. 5423  
Acc. No.

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.

Field No. MIDDLETON #2

REGISTER NO. 5423

State S. W. ALASKA

General locality Gulf of Alaska

Locality SOUTH ON MIDDLETON ISLAND, ALASKA

Scale 1:20,000 Date of survey July 20 - Aug. 14, 1933

Vessel U. S. C. & G. S. S. SURVEYOR

Chief of Party A. M. SOBIERALSKI

Surveyed by A. M. SOBIERALSKI, V. M. GIBBENS

Protracted by V. M. GIBBENS

Soundings penciled by V. M. GIBBENS

Soundings in fathoms feet

Plane of reference M L L W

Subdivision of wire dragged areas by

Inked by A. H. YCOMANS

Verified by A. H. Y.

Instructions dated APRIL 15, 1933

Remarks:

*Applied to CM 8551 - Jan 1935. J.H. Lamb  
" " 8552 " " J.H.S.*

RAC

August 6, 1934

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in  
2 volumes of sounding records for

HYDROGRAPHIC SHEET 5423

Locality South of Middleton Island, Gulf of Alaska

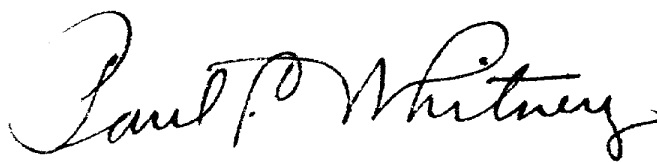
Chief of Party: A. M. Sobieralski

Plane of reference is mean lower low water reading

3.9 ft. on tide staff at Latouche (Tides reduced to Middleton I.  
13.4 ft. below B. M. 2 (Range 0.86 of range at Latouche

Height of mean higher high water above plane of reference is  
approximately 10 feet

Condition of records satisfactory except as noted below:



Chief, Division of Tides and Currents



Joins H 54-17

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5423

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

Number of positions on sheet	.330.
Number of positions checked	..160.
Number of positions revised	...138
Number of soundings recorded	.1357.
Number of soundings revised	...422
Number of signals erroneously plotted or transferred	...1...

Date:.....9/7/34.....

Cartographer:..A.H.YEOMANS.....

Verification of pretracing	) by	a.H.y.	Time: 26hr
Verification & inking of rocks and shoals)			
Verification of inking by		a.H.y.	Time: 26hr
Review by	Harold W. Murray		Time: 5 hr.

52 hrs

Report on Sheet No. H-5423

Chief of Party - A. M. Sobieralski

Protracted by V. M. Gibbens

Surveyed by A. M. Sobieralski, V. M. Gibbens

~~Surveyed by~~

Soundings plotted by V. M. Gibbens

Verified and inked by A. H. Yeomans

1 The records conform to the requirements of the  
General Instructions ✓

2 The usual depth curves were completely drawn  
with the exception of parts that might be  
altered by overlap from H 5422 and H 5447  
and these parts were left until the <sup>sheets</sup> overlaps were  
completed. ✓

3 The field plotting was completed to the extent  
prescribed in the general instructions ✓

4 The office draftsman had to revise 138 positions  
and 422 soundings due to reasons for  
changing Bouy "Fry" as given at the conclusion  
of this report. ✓

5 The adjacent sheets H 5422 and H 5447 have  
not been completed. ✓

6 According to the location of bouy "Fry" as  
located at the beginning of E day, position  
42E <sup>was</sup> will be shifted 370 meters. It is  
felt that the location of bouy "Fry" is  
wrong. The position of bouy "Fry" checked  
with the plotted position on sheet H 5422. ✓

rewritten

"G. Bouey Fry" in lat  $59^{\circ}29'$  long  $146^{\circ}28'$  appears to move from day to day which is evident by the fact that a new position was given at the beginning of each days work in which this signal was used. It was found that the field plotting of "a" and "E" day was based on the position of "Fry" as located by the mean position of all cuts taken during the work in this vicinity on sheet #5422. All cuts were plotted on #5422 and the bouey "Fry" verified as being in its correct position according to these cuts. When this position of "Fry" was used crossings in some cases had discrepancies of about 5 fathoms in 40 or an error of 12%; therefore it was felt that the position of "Fry" as located at the beginning of each day should be used for plotting that day's work. The verifier plotted Fry 1 from its position located at the beginning of "a" day, and "Fry" 2 for E day, and all positions using this signal were revised clearing up all bad crossings.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5423 (1933).

South of Middleton Island, Gulf of Alaska, S. W. Alaska.

Instructions dated April 15, 1933 (SURVEYOR).

Surveyed July-August 1933.

Fathometer and Machine Soundings - 5 Point Control on Shore Signals  
and Buoys.

Chief of Party - A. M. Sobieralski.  
Surveyed by - A. M. Sobieralski; V. M. Gibbens.  
Protracted by - V. M. Gibbens.  
Soundings penciled by - V. M. Gibbens.  
Verified and inked by - A. H. Yeomans.

1. Condition of Records.

The records are neat, legible and conform to the requirements of the Hydrographic Manual with the exception that no statistics sheet accompanied the report. (Par. 164).

2. Compliance with Instructions for the Project.

The plan, character and extent of the survey satisfy the instructions for the project with the exception that additional lines should have been run in the southern portion of the sheet so as to permit a more accurate delineation of the 50 fathom curve. (Par. 17 (2)b of instructions).

3. Sounding Line Crossings.

No cross lines were required by the instructions for the project. Such lines as were run are in excellent agreement with the main system of lines.

4. Depth Curves.

The 20 fathom and portions of the 50 and 100 fathom curves may be satisfactorily drawn within the limits of the survey.

5. Junctions with Contemporary Surveys.

The junction on the north with H. 5422(1933) and on the south and west with H. 5447(1933) will be considered when those sheets have been ~~verified.~~ reviewed.

6. Comparison with Prior Surveys.

There are no prior surveys in the area covered by this sheet.

7. Comparison with Charts No. 8502 and 8551.

The source of the soundings shown on the chart in this vicinity could not be traced at this time. Only one sounding, 36 fathoms, falls

within the limits of H. 5423 (1933) and is in excellent agreement.

8. Field Plotting.

Field protracting and plotting of soundings were accurate and conform to the requirements of the Hydrographic Manual except as follows:

a. 138 positions and accompanying soundings of <sup>a</sup> (launch) and E (Ship) days were replotted in the office because a mean position based on cuts taken on several days was used for Buoy Fry in lat.  $59^{\circ}24'.3$ , long.  $146^{\circ}27'.5$  instead of the 3-point fix location taken at the beginning of each day's work. Soundings which previously differed by as much as 12% were then brought into perfect agreement with the main system of lines.

9. Additional Field Work Recommended.

a. For Future Consideration.

Additional lines should be run in the vicinity of the 50 fathom curve on the southern portion of this sheet so as to permit a more accurate delineation of that curve.

10. Superseding Old Surveys.

Within the area covered, the new survey, H. 5423 (1933), should supersede all previous chartings shown on Charts No. 8502 and 8551.

11. Reviewed by - Harold W. Murray - September 11, 1934.

Inspected by - A. L. Shalowitz.

*K. T. Adams*  
K. T. Adams,  
Chief, Section of Field Records.

*F. Borden*  
Chief, Section of Field Work.

Examined and approved:

*L. D. Polbut*  
Chief, Division of Charts.

*G. Wade*  
Chief, Division of H. & T.

25 Jan 24, 1936  
L.H.G.