

5186

Form 504  
Ed. June, 1928

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R. S. ~~Patton~~, Director

U. S. COAST & GEODETIC SURVEY  
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APR 18 1932

State: SW. Alaska

Acc. No. \_\_\_\_\_

DESCRIPTIVE REPORT

~~Topographic~~  
Hydrographic

} Sheet No. 21 5186

LOCALITY

SOUTHWEST ALASKA

KENAI PENINSULA

PORT DISK TO ROCKY BAY

1931

CHIEF OF PARTY

H. B. Campbell

5186

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5186

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. 21

REGISTER NO. 5186

State SOUTHWEST ALASKA  
General locality KENAI PENINSULA  
Locality PORT DICK TO ROCKY BAY  
Scale 1/20,000 Date of survey August - October, 1931  
Vessel M. V. WESTDAHL, PORT MOTORSAILER, STARBOARD MOTORSAILER.  
Chief of Party H. B. Campbell  
Surveyed by L. D. Graham, F. B. Quinn, H. F. Garber.  
Protracted by F. B. Quinn.  
Soundings penciled by F. B. Quinn.  
Soundings in fathoms ~~666~~  
Plane of reference MLLW  
Subdivision of wire dragged areas by -----  
Inked by -----  
Verified by -----  
Instructions dated April 16, 1931  
Remarks: -----  
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DESCRIPTIVE REPORT

To Accompany

Sheet No. 21, Port Dick To Rocky Bay

Kenai Peninsula, S.W. Alaska

DATE OF INSTRUCTIONS: April 10, 1931.

LIMITS: This sheet extends from the westerly entrance of Port Dick to the easterly entrance of Rocky Bay (Windy Bay). It joins sheets Nos. 5101 and H-5083 at its easterly end and sheet No. 22 (1931) <sup>5187</sup> at the westerly end. At its southerly limits it overlaps sheet H-3802.

SURVEY METHODS: The inshore work was done by two standard Navy motor-sailers using both handlead and motor-driven machines. The offshore work was done by the motor-vessel Westdahl using a motor-driven machine and fathometer. Crossings and junctions made with the various types of sounding apparatus gave very satisfactory comparisons.

At the westerly limit of this sheet, twenty one positions of development were transferred, by tracing, to sheet No. 22, <sup>5187</sup> and fifteen positions were transferred by the same method from <sup>5187</sup> sheet 22. The latter appear on sheet 21 with yellow numbering.

The detached areas at the southern limit of the sheet are developments on previous surveys as specified in the instructions.

DISCREPANCIES: No discrepancies were noted.

DANGERS: The entire area covered by this sheet is irregular and marked by numerous shoals of 10 fathoms or less. Many rocks awash at various stages of the tide were located at distances of one to two miles offshore. A wire-drag survey would undoubtedly disclose

many shoals spots that would not be found by the most careful application of ordinary sounding methods.

The chief rocks and shoals found are listed in the order of their importance:

Two rocks awash at $\frac{3}{4}$ -tide,	lat. 59-12.5, long. 151-24.5	✓✓
$2\frac{1}{2}$ -fathom spot 1 $\frac{1}{3}$ miles offshore,	" 59-11.5, " 151-20.8	✓✓
Rock awash at $\frac{1}{2}$ -tide,	" 59-10.8, " 151-12.4	✓✓
" breaking at LLW,	" 59-11.0, " 151-12.5	✓✓
" awash at LLW, <i>Banks 2 ft</i>	" 59-11.3, " 151-10.3	✓✓
" awash at $\frac{1}{2}$ -tide,	" 59-11.5, " 151-12.2	✓✓
" " " LW,	" 59-11.7, " 151-11.3	✓✓
Two sunken rocks, <i>one not covered 2 ft MLW</i> <i>Banks 2 ft</i>	" 59-11.7, " 151-11.4	✓✓
<i>16</i> $9\frac{1}{2}$ -fathom spot $3\frac{1}{4}$ miles offshore,	" 59-10.1, " 151-23.4	✓✓
9-fathom spot 3 miles offshore,	" 59-10.8, " 151-24.6	✓
$8\frac{1}{2}$ -fathom spot 2 miles offshore,	" 59-10.8, " 151-20.4	✓✓
6 $\frac{5}{6}$ -fathom spot $1\frac{1}{2}$ miles offshore,	" 59-12.0, " 151-22.2	✓
2 $\frac{1}{6}$ -fathom spot $\frac{3}{4}$ miles offshore,	" 59-12.8, " 151-21.7	✓✓
<i>6</i> $6\frac{1}{2}$ -fathom spot 2 miles offshore,	" 59-10.8, " 151-06.7	✓✓
$5\frac{1}{2}$ -fathom spot 1 mile offshore,	" 59-11.0, " 151-11.5	✓✓
7-fathom spot 1 mile offshore,	" 59-12.2, " 151-05.6	✓✓

ANCHORAGES: A small-boat anchorage is recommended at the head of (Anchor Bay), lat. 59-13.8, long. 151-18.3, just beyond the pinnacle rocks near the westerly shore. To enter, steer true North, passing approximately  $\frac{1}{2}$  mile west of the easterly entrance, giving due respect to the sunken rocks and rocks awash that extend  $\frac{1}{2}$  mile offshore. At a point about  $\frac{1}{4}$  mile east of the island 1 mile from the entrance, steer mid-channel course to the pinnacle rocks mentioned above. The bottom is muddy, and the sea is smooth even during rough weather outside. During heavy

weather, the swells break somewhat across the bar near the entrance.

COMPARISONS WITH PREVIOUS SURVEYS: Satisfactory junctions were made, at all points, with previous surveys.

GEOGRAPHIC NAMES: The names Worthless Bay and Anchor Bay for the first and second bays, respectively, west of Port Dick were suggested by local fishermen.

STATISTICS: The statistics for this sheet appear on an extra sheet attached to this report.

Respectfully Submitted,

*F. B. Quinn*

Francis B. Quinn,  
Jr. H. & G. E., C. & G. S.

Forwarded, Approved,

*H. B. Campbell*

H. B. Campbell, H. & G. E.,  
Chief of Party.

STATISTICS FOR SHEET, FIELD NO. 21

BOAT	DAY	DATE 1931	VOL.NO.	POSITIONS	NO. OF SOUNDINGS		STAT. MI. OF SDGS.		
					H.L.	WIRE	PATH.	WIRE	PATH.
Stbd.	a	Aug. 13	1	77	62	102		10.0	2.0
M.S.	b	" 14	1	116	47	204		19.6	1.0
"	c	" 17	1	111	-	218		16.5	-
"	d	Sept. 3	1	58	64	77		6.8	3.4
"	e	" 4	2	100	53	209		17.0	2.0
"	f	" 5	2	70	96	102		7.5	5.4
"	g	" 8	2	68	85	77		4.7	4.4
"	h	" 9	2&3	98	116	139		7.4	6.6
"	j	" 10	3	131	-	254		16.0	-
"	k	" 11	3	111	8	221		13.0	1.0
"	m	" 14	3&4	133	79	168		9.6	5.1
"	n	" 15	4	155	141	234		14.3	9.1
"	p	" 29	4	132	18	261		14.5	0.5
"	q	Oct. 1	5	87	-	170		8.2	-
"	r	" 2	5	104	-	213		12.0	-
"	s	" 3	5	55	-	105		6.3	-
TOTALS:-				1606	789	2754		183.4	40.5
Port	a	Aug. 13	6	69	197	-		-	8.5
M.S.	b	" 14	6	117	249	63		5.0	10.5
"	c	" 17	6	133	127	131		5.0	10.0
TOTALS:-				319	573	194		10.0	29.0
WEST-DAHL	a	Aug. 12	7	7		27		----	1.5
"	b	" 13	7	83		162		12.0	----
"	c	Sept. 19	7	193		65 535		3.0	35.0
"	d	" 22	7&8	255		23 1005		----	68.8
"	e	" 23	8	251		147 652		8.8	41.6
"	f	" 24	9	16		1 62		----	3.5
"	g	Oct. 1	9	77		8 288		----	21.1
"	h	" 2	9	158		1 247		----	29.3
"	j	" 3	9	42		56 ----		4.5	----
TOTALS:-				1082		463 2816		28.3	200.8
TOTALS OF ALL BOATS:-				3007	1362	3411 2816		221.7	200.8 69.5

SUMMARY

Total number of Positions - - - - 3007  
 " " " Soundings - - - - 7589  
 " " " Stat. Mi. - - - - 492

FATHOMETER CORRECTIONS

HYDROGRAPHIC SHEET  
Project #57

In obtaining fathometer corrections for this sheet all comparisons were listed and by inspection corrections were selected which seemed to be the average during the time the soundings were taken, allowance being made for uneven bottom. Corrections for salinity and temperature were not made as the corrections would be negligible in these depths. A mean correction cannot be taken for a whole day as the zero of the fathometer shifts during the days work.

FATHOMETER CORRECTIONS

HYDROGRAPHIC SHEET #21.

PROJECT #57.

September 19, 1931.

Pos.	V.C.	Fath.	Corr.
10 c	112.0	110.0	2.0
18 c	64.0	63.0	1.0
34 c	59.3	58.0	1.3
46 c	26.6	25.0	1.6
55 c	40.2	39.0	1.2
76 c	50.8	49.5	1.3
107 c	44.0	42.0	2.0
113 c	43.6	42.5	1.1
114 c	23.8	22.5	1.3
119 c	23.7	22.5	1.2
121 c	23.2	21.0	2.2
123 c	24.5	22.5	2.0
125 c	30.4	28.5	1.9
163 c	27.5	24.0	3.5
175 c	13.5	11.0	2.5

Positions	1 - 10	Add	2.0 fathoms
"	10 - 34	"	1.0 "
"	34 - 119	"	1.5 "
"	119 - 163	"	2.0 "
"	163 - 193	"	2.5 "

AP



September 22, 1932.

Pos.	V.C.	Fath.	Corr.
1 d	38.8	36.0	2.8
7 d	47.0	46.0	1.0
15 d	34.3	33.5	0.8
25 d	20.0	20.0	0
34 d	18.5	17.0	1.5
39 d	80.2	79.0	1.2
60 d	25.0	24.0	1.0
84 d	29.0	27.5	1.5
99 d	35.5	34.5	1.0
105 d	52.9	51.5	1.4
113 d	29.8	27.0	2.8
124 d	18.0	16.5	1.5
144 d	16.0	15.0	1.0
155 d	23.8	22.0	1.8
172 d	13.1	12.0	1.1
202 d	12.0	11.0	1.0
224 d	83.0	80.0	3.0 R wire leading aft.
255 d	83.0	81.0	2.0

Positions	1 - 3	Add 2 fathoms
"	3 - 5	" 1.5 "
"	5 - 15	" 1.0 "
"	15 - 27	" 0.5 "
"	27 - 32	" 1.0 "
"	32 - 39	" 1.5 "
"	39 - 100	" 1.0 "
"	100 - 108	" 1.5 "
"	108 - 120	" 2.0 "
"	120 - 160	" 1.5 "
"	160 - 224	" 1.0 "
"	224 - 255	" 1.5 "

210

September 23, 1932.

Pos.	V.C.	Fath.	Corr.
49 e	23.5	22.5	1.0
73 e	22.3	21.0	1.3
93 e	30.7	28.0	2.7
95 e	14.3	13.0	1.3
101 e	19.0	17.5	1.5
107 e	23.7	22.0	1.7
142 e	28.0	26.5	1.5
221 e	41.5	40.0	1.5
230 e	26.1	24.0	2.1
241 e	17.7	16.0	1.7
	Positions 49 - 73	Add 1.0 fathoms	
	" 73 - 85	" 1.5	"
	" 85 - 94	" 2.0	"
	" 94 - 225	" 1.5	"
	" 225 - 241	" 2.0	"

R44

September 24, 1931.

Pos.	V.C.	Fath.	Corr.
1 f	31.0	29.5	1.5

Add 1.5 fathoms all day.

October 1, 1931.

Pos.	V.C.	Fath.	Corr.
1 g	37.8	38.0	-0.2
12 g	23.8	23.5	0.3
23 g	34.0	34.0	0
35 g	27.0	27.0	0
57 g	23.5	24.0	-0.5
59 g	23.1	25.0	-1.9
77 g	37.2	39.5	-2.3

Positions 1 - 57 Add 0 Fathoms.

" 57 - 59 Subtract 0.5 fathoms.

" 59 - 70 " 1.5 "

" 70 - 77 " 2.0 "

APPROVAL OF CHIEF OF PARTY

Sheet 21 and accompanying records have been inspected and approved by me. The work of both motor sailers was inspected daily until August 17. The work of the starboard motor sailer was later inspected on Sept.15 and Oct.3. The work of the WESTDAHL was inspected after the end of each period of continuous work.

No further work is considered necessary in the area covered by this sheet.



H.B. Campbell  
Chief of Party,  
C. & G. S.

July 13, 1932

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in  
9 volumes of sounding records for

HYDROGRAPHIC SHEET 5186

Locality Port Dick to Rocky Bay, Kenai Peninsula, Southwest Alaska

Chief of Party: H. B. Campbell in 1931  
Plane of reference is mean lower low water, reading  
6.8 ft. on tide staff at Picnic Harbor  
22.3 ft. below B. M. 1

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

*H. B. Campbell*  
Acting Chief, Division of Tides and Currents.

Aug. 17, 1932

Section of Field Records

Report on H-5186

Port Dick to Rocky Bay, Alaska  
Instructions dated Apr. 10, 1931, Discoverer  
Fathometer, Machine & Hand Lead Soundings

Chief of Party — H. B. Campbell  
Surveyed by — L. D. Graham, F. B. Quinn & H. F. Jarboe  
Protracted by — F. B. Quinn  
Soundings penciled by — F. B. Q.  
Inked & Verified by — Harold W. Murray

1. The records conform to the requirements of the Hydrographic Manual except that:-
  - a. Though the records were very neatly kept, notes were frequently added in such fine characters that the reading thereof was difficult.
  - b. Soundings commonly known as minus (-) soundings were reduced in the records as plus (+).
  - c. Fathometer soundings were reduced in fathoms and tenths rather than fathoms & feet. Consequently in soundings of less than 10 fms.

2

considerable trouble was had by the plotter and verifier in computing the proper fractional unit.

2. The plan & character of development fulfill the requirements of the Hydrographic Manual except that firmer fixes resulting in easier plotting & checking could have been obtained at the western limit of the sheet. ✓

3. The plan & extent of development satisfy the Specific Instructions.

4. Sounding line crossings are excellent. ✓

5. The field plotting was very accurate and the plotting of soundings satisfactory except as noted:-

a. The size of pencilled soundings were too large.

b. In specific instances, soundings were not plotted tho the lines were plotted. No specific reason could be found.

c. Soundings above 10 fms having a decimal value of 0.7 (and frequently 0.6) were plotted as the next whole fathom rather than "0.8" which is more consistent with the instructions set forth in the Hydrographic Manual.

d. Check casts of Fathometer soundings were not plotted.

e. Soundings were not accurately and consistently plotted. Frequently 5 and 6 fms. plus were plotted as quarters rather than sixths. In others no regard was given to fractional values.

In a sheet of this character, so much original work was added by the verifier that the sheet could not be strictly spoken of as verified.

6. In specific areas, the slope of the bottom is quite rapid and accounts for the proximity of soundings possessing considerable difference. From time to time notes in the records substantiate this.

7. Of the soundings taken, about 45% were with the Fathometer. Check casts were recorded on the sheet where practicable. The offshore soundings were obtained with the fathometer but practically all shoal development was made with vertical casts. Hence with fathometer soundings predominate, it was not deemed advisable to label all vertical casts because of the resultant congestion.



Remarks H-5184

1. Sufficient time was not had by the reefers to completely clean up the work on this sheet.
2. Notes relative to rocks awash should be checked, also against T-4663 and the boat sheet. The help shown on the sheet is from the sounding records only. The help of the boat sheet more tops. has not been transferred as yet.
3. In lat.  $59^{\circ} 11.53$ , long  $151^{\circ} 20.8$ , 14' additional time was spent in development of this shoal.  $2\frac{1}{2}$  fm. ✓ (cross 59p) was the least depth found.
4. In lat  $59^{\circ} 11.7$ , long  $151^{\circ} 11.45$ , the Hydro. Party obtained a  $-2$  over the sunken rock on T-4663 and ✓ a  $+2$  on the one about 30 m to the North. + and \* plotted
5. The sheet abounds with shoals of 10 fm character. See F.P. recommendations for additional work.
6. In general Fair checks agree well. There are about 3 instances at least where differences of 4-5 fm were ✓ obtained with the check cast.
7. Junction with H-5101 is satisfactory. The  $28453$  fm rdg. in approx. lat  $59^{\circ} 12.5$ , long  $151^{\circ} 05'$  were verified from the records. The junction with H-5083 was made by photostit\* is satisfactory. The corners of both adjoining sheets were adjusted.

H-5187

8. In approx. lat.  $59^{\circ}12'$ , long  $157^{\circ}23.4$ , nos 1c to 2e Vol #8, were transferred by tracing to H-5187 in pencil by the Field plotter.

9. In approx. lat  $59^{\circ}12.5$ , long  $157^{\circ}24.5$ , nos 6d to 20d of H-5187 were transferred to this sheet by the Field plotter. These rdp were verified and inked in red by the verifier on this sheet.

~~10. See D.R. for part of report on verification.~~

AND REFER TO No. 82-DRM

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

SECTION OF FIELD RECORDS

Review of Hydrographic Sheet No. 5186

Port Dick to Rocky Bay, Kenai Peninsula, Alaska

Surveyed August-October, 1931

Instructions dated April 10, 1931

Chief of Party, H. B. Campbell

Surveyed by L. D. Graham, F. B. Quinn and H. F. Garber

Protracted and soundings plotted by F.B.Q.

Verified and inked by Harold W. Murray

Fathometer, machine and hand lead

1. The records comply with the requirements of the Hydrographic Manual except that the reduced soundings in the sounding records of the Westdahl were entered in fathoms and tenths instead of in fathoms and feet. Some notes in the Motor-sailer records were too faint and were hard to read.

2. The extent of development satisfies the specific instructions except that the soundings in the recommended anchorage in Anchor Bay are in excess of 100 meters apart; also some of the sounding lines in the approach channel in Anchor Bay are too far apart.

A small islet or highwater rock (Topo. sheet) in lat.  $59^{\circ}12'.3$  long.  $151^{\circ}18'.8$  was shown by a rock awash symbol on the boat sheet without note or explanation. It was retained on the smooth sheet as an island.

3. Soundings - The bottom of the entire area represented by this sheet is very irregular. Although many shoals of 10 fathoms and less are shown, the descriptive report says, "A wire-drag survey would undoubtedly disclose many shoal spots that would not be found by the most careful application of ordinary sounding methods." The most important dangers found are listed in the descriptive report. Kelp marks many of the dangers but for some of them no definite statement was made in the records. The lead does not give adequate warning on approaching the shoals. It is not practicable to distinguish between fathometer and vertical casts on this sheet but all shoals were developed with the lead or by vertical casts.

4. Curves - The usual depth curves are shown on the sheet, the lesser curves necessarily are incomplete. The short dash line is the low water line transferred from T. 4663. ~~and the broken lines enclose four areas as indicated on T. 4663.~~

5. Junction with the previous season's work (H. 5083 and H. 5101) is satisfactory. The sheet to westward (H. 5187) has not yet been verified.

To southward the sheet overlaps H. 3802, scale 1:60,000, survey of 1915. The additional development discloses the same or less depths with the exception of one shoal, lat. 59°10'.9, long. 151° 07'.0, where H. 3802 has a sounding of 6 3/4 fathoms and H. 5186 no less than 8 3/4 fathoms. The 6 3/4 was a tube sounding, ship going slow speed.

6. The area represented by this sheet (H. 5186) is shown as unsurveyed on charts 8554 and 8502. The name Anchor Bay does not appear on the chart. It is in pencil on T. 4663 but should be approved before using on the chart.

7. Recommendation: The 6 3/4 from H. 3802 noted above should be retained on the chart.

In view of the statement in the descriptive report it is recommended that the steamer routes through this area but surveyed with the wire-drag.

8. Reviewed by R. J. Christman, September 15, 1932.

Memo. by A. L. Shalowitz

1. Comparison with H. 3802 (survey of 1915).

A comparison has been made between this survey and the present survey and a general agreement as to shoals was found to exist. The new survey being on a much larger scale, developed a number of additional shoals not shown on the 1915 survey. However, three soundings were transferred from the 1915 survey to H. 5186 since they showed less water than was found on the new survey. Because of the greater detail on the new survey and because the important soundings have been transferred to the new survey, it is recommended that within its limits the new survey supersede the work on H. 3802 for charting purposes.

2. New geographic names - The name Worthless Bay suggested by local fishermen for the first bay to the westward of Port Dick (see page 3, descriptive report) would seem to be a misnomer. An examination of the hydrographic survey of this bay indicates good protection from the northeast and northwest with good holding ground. It is suggested that some other name be adopted for this bay.

3. Fathometer results - Impact Type Oscillator.

While the corrections that have been applied to the fathometer soundings have doubtless resulted in a greater degree of accuracy, it is nevertheless a disappointment that the instrument is subject to such erratic fluctuations as indicated by the comparisons made on the various days the fathometer was in use (see tabulation attached to descriptive report). It would seem that eliminating such fluctuations or adequately allowing for them with a minimum of comparisons is a problem which merits further investigation.

4. Additional work - The area covered by this sheet abounds in so many irregularities that it is difficult to determine how much additional development is justifiable. There is no doubt that shallower water would be found on many of the indicated shoals as well as on many of the already developed shoals. In preference to a more intensive lead line examination, the following is recommended:

- a. A wire drag examination of the area to the westward of Anchor Bay from the main 20 fathom curve to the offshore limits of the sheet.
- b. From Anchor Bay to the eastern limit of the sheet the entire area inside the 20 fathom curve and as close to shore as practicable should be wire dragged.
- c. In the areas not covered by the drag undeveloped indications of important points and at the entrance to bays such as the 4 fm. sounding in lat.  $59^{\circ}12'$ , long.  $151^{\circ}12'.4$ , and the 7 fm. sounding in lat.  $59^{\circ}11'.9$ , long.  $151^{\circ}13'.5$ , should be further examined.
- d. The survey of the area to the southward of this sheet should be extended to a satisfactory junction with H. 5083 and H. 5091 (surveys of 1930 and 1931). At the present time this gap (about 25 square miles) is filled by H. 3802 (surveyed in 1915). The latter survey is on scale of 1:60,000 in a broken bottom, surveyed with the questionable Bassnet tubes. While a general good agreement was found to exist between ~~that~~ <sup>the</sup> overlapping portion of H. 3802 and the present survey (H. 5186) there is no assurance that all the tube soundings on the remaining portion of H. 3802 are reliable. A resurvey of this area would place all the work to the eastward of East Chugach Island on a strictly modern basis.

5. Miscellaneous - Attention is called to the fact that the location of  $\Delta$  Dick<sub>2</sub> '31 is in doubt. It appears that the 1930 determination ~~of~~ by Siems for apparently the same point places the station about 30 meters to the eastward of Campbell's 1931 determination. This matter has been referred to the respective Chiefs of Party and will be finally disposed of when information is received. It might be mentioned that regardless of which location is correct, the hydrography surveyed in 1930 and using Siems' determination will not be affected because of scale and other factors. The present sheet (H. 5186) is the only sheet that will be affected in case the 1930 determination of  $\Delta$  Dick is found to be correct. While it may affect the locations of some of the shoals the shift will not be material as far as the charts are concerned.

6. Sheet inspected by A. L. Shalowitz, September 1932.

Approved:

*A. M. Sobieralski*  
Chief, Section of Field Records

*J. S. Borden*  
Chief, Section of Field Work