

# 5146

Original

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Form 504  
Ed. June, 1928

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
R. S. Patton

State: Washington

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DESCRIPTIVE REPORT  
5146

~~Topographic~~ } Sheet No. 26 and  
Hydrographic } (insert) No. 5070a

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LOCALITY

Ozette Island to Cape Flattery

---

1931

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CHIEF OF PARTY

K. T. Adams.

U. S. COAST & GEODETIC SURVEY  
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# 5146

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5146

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. 26 and 5070a (insert)

REGISTER NO. 5146

State WASHINGTON

General locality West Coast of Washington  
~~Sheet 5070a - Vicinity of Carroll I. land, Flattery Rks., and~~  
Locality Sheet 26 - Vicinity of Osette Id., Mukkaw Bay to Tatoosh Id.

Scale 1:20,000 Date of survey May - June - July 19 31

Vessel U.S.C. & G.S.S. GUIDE.

Chief of Party K. T. Adams

Surveyed by George L. Anderson, J. C. Partington, John C. Mathisson

Protracted by E. H. Sheridan

Soundings penciled by E. H. Sheridan

Soundings in fathoms feet

Plane of reference M.L.L.W. - Tatoosh Island.

Subdivision of wire dragged areas by

Inked by E. H. Sheridan

Verified by E. H. Sheridan

Instructions dated April 16, 1930 and May 7, 21, 1931.

Remarks: Sheet No. 5070a is plotted on an insert on Sheet 26.

DEPARTMENT OF COMMERCE  
U.S. COAST AND GEODETIC SURVEY

R. S. PATTON, DIRECTOR

D E S C R I P T I V E -- R E P O R T

HYDROGRAPHIC

Sheet No. 26

and

(insert)  
No. 5070a

S T A T E  
of  
WASHINGTON.

Ozette Island to Cape Flattery

1931.

U.S.C. & G.S.S. GUIDE

K. T. Adams, Commanding

DESCRIPTIVE REPORT  
to accompany

Hydrographic Sheet - Field No. 26  
and  
Sheet No. 5070a (insert).

U. S. C. & G. S. S. GUIDE.

K. T. Adams, Commanding.  
Season 1931

INSTRUCTIONS:

The authority for the hydrography executed on this sheet was covered in the DIRECTOR'S instructions dated April 16, 1930, and May 7, 1931, and supplemental instructions dated May 21, 1931.

LIMITS AND LOCALITY:

The hydrography on Sheet 26 completes the area from Ozette Island to Cape Flattery. This work was started during the 1930 field season on Sheet No. 25<sup>5103</sup>, but was not completed due to the season being closed before it was finished. The sheet joins the ship sheets at its offshore limits and launch Sheet No. 24<sup>5110</sup> 1930 at its southern limit and launch Sheet No. 27 - 1931 at its northern limit at Cape Flattery.

The hydrography on <sup>insert</sup> ~~Sheet 5070~~ a constitutes additional soundings on Sheet Registry No. 5070 requested in the DIRECTOR'S supplemental instructions dated May 21, 1931.

ORGANIZATION:

The work on these two sheets was accomplished by two hydrographic parties working simultaneously from the GUIDE. Lieutenant (J.G.) J. C. Partington, in charge of the GUIDE'S gig, accomplished the work on the south portion of Sheet No. 26 around Ozette Island while hydrography on the northern portion and in Mukkaw Bay was done by the writer working in the GUIDE'S motorsailer. Lieutenant G. L. Anderson also ran some split lines and developed the section immediately west of Waatch Point.

The hydrography on Sheet ~~No. 5070a~~, the insert, was executed by the writer in the GUIDE'S motorsailer. ✓

#### SURVEY METHODS AND EQUIPMENT:

The general system of sounding lines were run 200 meters apart and controlled by three point sextant fixes on natural shore objects and topographic signals. A hand lead, with a ten pound lead and graduated to fathoms and feet to six fathoms and to fathoms above this, was used in depths up to 10 or 11 fathoms. It was impossible to use the hand lead in deeper depths because the launch would not go slow enough. In depths greater than 10 or 11 fathoms a hand sounding machine was used. The sounding machine was rigged with stranded sounding wire and a 16 pound lead. Registering Sheave No. 137 was used in the motorsailer and No. 121 was used in the gig. These sheaves were tested at the beginning of this sheet and checked again at the end of the field season and found correct. ✓

No attempt was made to use the compass in running sounding lines. Ranges were used when possible and if no ranges were available the steering was done by estimation on shore objects and by guess. The mounting for the compass on the motorsailer and gig was near the engine and cast iron stanchions and for this reason they were very sluggish and would often come to rest from 40 to 50 degrees off the magnetic course. Attempts were made to run sounding lines with the compass in the gig but this was finally abandoned. ✓

Rocks and offshore dangers were located by sextant cuts and ranges. The rocks protruding from the large reefs in Mukkaw Bay were, in some cases, sketched in by the hydrographer and these locations are approximate. These rocks have been left in pencil on the boat sheet.

*These rocks as marked the reef line and have not been transferred to the new sheet. A.L.S.*

#### DISCREPANCIES:

Only one discrepancy exists on this sheet. A breaker located by the party in 1930 at Latitude 48°-20' plus 1182 meters, Longitude 124°-42' plus 343 meters was not searched for by the hydrography party this year. The Topographic sheet of this area, Sheet No. A - 1931, shows a cut to this breaker. This cut is combined with the cuts from Hydrographic Sheet No. <sup>H-5109</sup> 25 - 1930 to arrive at a location. The rock was overlooked when the area was developed and as the locality is very foul with sunken rocks it should be charted as fould ground. ✓

#### DANGERS:

There is a sunken rock covered about 2 fathoms at M.L.L.W. at

Latitude 48°-18' plus 118 meters, Longitude 124°-42' plus 944 meters. This rock was found on Sheet No. 26<sup>109</sup> 1930 but was charted as four fathom - five feet. The breaker was cut in this year when a moderate swell was running and the least depth estimated.

*2 fathoms estimated depth*

The sunken rock reported inshore from Umatilla Reef and searched for during 1930, was found to be covered by ~~the~~ foot of water at M.L.L.W. at Latitude 48°-11' plus 230 meters, Longitude 124°-46' plus 668 meters. A heavy swell was running on the day the rock was charted but a fix was taken 20 meters from it and the least depth estimated. The head of the rock was easily seen in the trough of the swells.

Mukkaw Bay is very foul and boats should not attempt to enter unless they have local knowledge. The northern portion is fairly free from dangers but the southern part is extremely foul. A large reef extends off of Portage Head to the north for a distance of 1600 meters. North of this there is another area of shoal water of large extent. There is a passage between these but dangerous even in fine weather and impassable in heavy weather as the seas break across all of this area.

Reefs of large extent lie offshore from Waatch Point to Topographic signal Jim. There are many sunken rocks in this area that break in a moderate sea.

COMPARISON WITH PREVIOUS SURVEYS:

Sheet No. 26: The previous survey, Registry Sheet No. H-1845, was executed in 1888. This survey compares favorably with the present survey but it is not in detail enough to make an accurate comparison as it was executed on a scale of 1:40,000. Not much natural change has taken place since the previous survey.

*Several sheet soundings on H-1845 not approved by new survey have been added to H-546  
only 6 copies recorded and no further notes in records.*

at Lat. 48°-08.4', Long. 124°-43.9' *No. of white Rk*

A breaker charted on Topographic Sheet, Registry No. 4450 was searched for by the party in the gig. The area was completely developed but no indication of a sunken rock could be found.

A thorough search was made for the reported breaker at Latitude 48°-12.1', Longitude 124°-46.2'. Two sounding parties from the GUIDE drift sounded for four hours for this breaker while a heavy sea was running. It was finally concluded that the breaker did not exist in this vicinity.

*Note that the breaker was seen in 1930 (see Review) A.Z.S.*

Sheet 5070a (insert): This portion of the sheet covers additional soundings required in this area. It was impossible to carry the

soundings lines further inshore on account of the many rocks and reefs. The area is very foul inshore of the last sounding line. Additional rocks and several shoal soundings were found that were not discovered during the 1930 survey on this sheet. The rocks are left in pencil on the smooth sheet and the additional shoal spots found are as follows:

A shoal of 7 fathoms - 2 feet inshore from Carroll Island was found at Latitude  $48^{\circ}-00'$  plus 493 meters, Longitude  $124^{\circ}-42'$  plus 960 meters. This shoalest sounding is recorded on position 25a. ✓

Another shoal of 3 fathoms was found at Latitude  $47^{\circ}-59'$  plus 1710 meters. Longitude  $124^{\circ}-46'$  plus 00 meters on position 42a. Drift soundings were taken over this spot for ten minutes. ✓

At Latitude  $47^{\circ}-58'$  plus 484 meters, Longitude  $124^{\circ}-41'$  plus 1014 meters, position 113a, a depth of 3 fathoms - 3 feet was found. Drift soundings were taken here for fifteen minutes. ✓ *110-111a gives 3 fath. 197. Aff*

Respectfully submitted,

*John C. Mathisson.*

John C. Mathisson,  
Jr. H & G Engineer,  
U.S.C. & G. Survey.

Respectfully forwarded:  
approved:

*Fred. L. Peacock*  
Fred. L. Peacock,  
H. & G. Engineer,  
U.S.C. & G. Survey,  
Commanding Ship GUIDE.

STATISTICS

Sheet No. - 26

Season -- 1931

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DAY	DATE	VOL.	BOAT USED	Sta. Mil. of sounding line	Number of soundings	No. of Positions
a	May 29	I	Gig	13.7	193	78
b	May 30	I	"	21.4	274	102
c	May 31	I	"	17.2	238	81
d	June 2	I & II	"	11.6	188	79
e	July 14	II	"	7.2	160	160
a	May 21	III	Motor-sailer	9.7	142	44
b	May 28	III	"	5.9	193	43
c	May 30	III	"	15.7	424	111
d	May 31	III	"	11.2	265	76
e	June 2	III & IV	"	18.4	326	122
f	June 30	IV	"	10.8	176	55
<u>T O T A L S</u>				142.8	2,579	951

Area surveyed in square statute miles -- 23.3



STATISTICS

Sheet No. <sup>insert</sup> ~~5070~~ a.

Season 1931

DAY	DATE	VOL.	Boat Used	No. of Sta. Miles	No. of Soundings	No. of Positions
a.	May 29	I	Motorsailer	20.6	403	148
T O T A L S				20.6	403	148

Area surveyed in square statute miles -- 2.1

LIST OF SIGNALS.

Sheet No. 26 - 1931

NAME	LOCATION FROM	YEAR
Abe	Topo. Sheet A	1931
Bil	Topo. Sheet A	1931
Blu	Topo. Sheet 4450	1930
Bluff	Triangulation	1930
Ban	Topo. Sheet A	1931
Chim	Topo. Sheet A	1931
Cloth	Topo. Sheet 4450	1930
Dog	Topo. Sheet A	1931
Father	Triangulation	1930
Flat	Topo. Sheet 4450	1930
Fuca	Triangulation	1930
Gab	Topo. Sheet A	1931
Hi	Triangulation	1930
Hos	Topo. Sheet A	1931
Indian	Triangulation	1930
Jim	Topo. Sheet A	1931
Jo	Topo. Sheet A	1931
Knife	Triangulation	1930
Log	Topo. Sheet A	1931
Loon	Triangulation	1930
Mat	Topo. Sheet A	1931
Mug	Topo. Sheet A	1931
Nut	Topo. Sheet A	1931
Pi	Topo. Sheet A	1931
Pim	Topo. Sheet A	1931
Rock	Triangulation	1930
Red	Triangulation	1930

LIST OF SIGNALS  
( Continued )  
Sheet No. 26 - 1931

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NAME	LOCATION FROM	YEAR
Shak	Topo. Sheet A	1931
Skag	Topo. Sheet A	1931
Spike	Triangulation	1930
Tim	Topo. Sheet 4450	1930
Tip	Topo. Sheet A	1931
Toosh	Triangulation	1930
Tree	Topo. Sheet 4450	1930
Umatilla	Triangulation	1930
Wat	Triangulation	1930
White	Triangulation	1930

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## LIST OF SIGNALS

insert  
Sheet ~~5070~~-a  
1931

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NAME	LOCATION FROM	YEAR
Ann	Topo. Sheet 4450	1929-30
Cake	Topo. Sheet 4448	1929
Can	Topo. Sheet 4450	1929-30
De	Topo. Sheet 4450	1929-30
Dog	Topo. Sheet 4450	1929-30
Ear	Topo. Sheet 4450	1929-30
Foot	Triangulation	1930
Glo	Topo. Sheet 4450	1929-30
Hand	Triangulation	1930
Hump	Topo. Sheet 4448	1929
Jag	Triangulation	1930
Rat	Topo. Sheet. 4450	1929-30
Sharp	Topo. Sheet 4448	1929
Top.	Topo. Sheet 4450	1929-30

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## Section of Field Records

Sheet No 5146

Surveyed in 1931

Chief of Party - H. T. Adams

Surveyed by - George S. Anderson,  
J. C. Partington, and John C. Mathison.

Protected by - E. H. Sheridan

Soundings plotted by - E. H. Sheridan

Verified and Inked by - E. C. McGlosson

1. The records conform to the requirements of the general instructions.

2. The plan and character of development fulfill the requirements of the general instructions.

3. The sounding line crossings are adequate.

4. The usual depth curves can be completely drawn within the limits of the sheet.

5. The field plotting was completed to the extent prescribed in general instructions.

6. The office draftsman did not have to do over any part of drafting done by field party.

except as noted on statistic sheet  
and the following:

A great many changes were made in the soundings on the smooth sheet because the field party did not allow for irregular intervals but plotted the soundings as if they were spaced at even or regular intervals. ✓

Also the pencil depth curves were placed on the smooth sheet with a hard lead pencil and were very, very hard to remove.

The shore line and the topography was omitted on the smooth sheet, except on the North end of the sheet from Point of the Archer to Cape Lottery. The remainder of the shore line and the topography was placed on the smooth sheet by the ✓  
officer draftsman.

7. The junctions with adjacent sheets are satisfactory.

8. Discrepancies:

In long  $124^{\circ} 41' + 863$  and lat  $48^{\circ} 00' + 830$  one sunken rock and one low rock ✓ were shown on the smooth sheet. Both of these <sup>should be</sup> sunken rocks and can be

verified by the <sup>(3)</sup> sounding records.

In the foul area around long.  $124^{\circ} 41' + 890$  and lat.  $48^{\circ} 01' + 150$ , there are two sunken rocks shown on the topographic sheet and two rocks awash on the boat sheet. These rocks were in pencil on the smooth sheet or sunken rocks. Consequently they were inked on sunken rocks as I can find no verifying facts that they are awash.

In long  $124^{\circ} 44' + 1200$  and lat  $48^{\circ} 9' + 1630$  there is a rock shown awash on the smooth sheet. This rock is not shown on the topographic nor boat sheet. In all probability it does not exist.

In long  $124^{\circ} 43' + 665$  and lat  $48^{\circ} 11' + 525$ , there is a rock shown awash on smooth sheet but it does not exist on topographic nor boat sheet. In all probability it is a misplaced rock. O.K. noted in side record.

In long  $124^{\circ} 42' + 360$  and lat  $48^{\circ} 15' + 325$ , there is a sunken rock on smooth sheet which does not exist on topographic nor boat sheet. Erased.

Proc. Minn. Geol. Surv. 1948  
\* at pos. 35 b. er. 1948

The following (4) rocks were all shown on the smooth sheet but cannot find them on the topographic sheet. However they are shown on the boat sheet and probably do exist even though they are not mentioned in the sounding records.

{ Long  $124^{\circ} 41' + 390$  ✓  
 { Lat  $48^{\circ} 18' + 1560$  ✓

{ Long  $124^{\circ} 41' + 260$  ✓  
 { Lat  $48^{\circ} 18' + 1500$  ✓

{ Long  $124^{\circ} 41' + 150$  ✓  
 { Lat  $48^{\circ} 18' + 1420$  <sup>80</sup> ✓

{ Long  $124^{\circ} 41' + 200$  ✓  
 { Lat  $48^{\circ} 18' + 1380$  ✓

{ Long  $124^{\circ} 41' + 240$  ✓  
 { Lat  $48^{\circ} 18' + 450$  ✓

{ Long  $124^{\circ} 41' + 250$  ✓  
 { Lat  $48^{\circ} 18' + 400$  ✓

{ Long  $124^{\circ} 40' + 1070$  ✓  
 { Lat  $48^{\circ} 18' + 450$  ✓

{ Long  $124^{\circ} 40' + 20$  ✓  
 { Lat  $48^{\circ} 18' + 775$  ✓

{ Long  $124^{\circ} 40' + 370$  ✓  
 { Lat  $48^{\circ} 18' + 1590$  ✓

{ Long  $124^{\circ} 40' + 400$  ✓  
 { Lat  $48^{\circ} 18' + 1650$  ✓

{ Long  $124^{\circ} 40' + 670$  ✓  
 { Lat  $48^{\circ} 19' + 160$  ✓

{ Long  $124^{\circ} 40' + 584$  ✓  
 { Lat  $48^{\circ} 19' + 1480$  ✓

{ Long  $124^{\circ} 40' + 260$  <sup>700</sup>  
 { Lat  $48^{\circ} 19' + 1480$

The following rocks were on the smooth sheet in pencil and were inked on the boat sheet. Consequently they were inked on the smooth sheet but can find no authority for them except that they were placed



on the boat sheet. <sup>(5)</sup> However the entire area of this sheet is very ragged and in all probability they do exist.

{ Long.  $124^{\circ} 41' + 1050$ , { Long.  $124^{\circ} 42' + 590$ ,  
{ Lat.  $48^{\circ} 01' + 1520$ , { Lat.  $47^{\circ} 58' + 1730$

{ Long.  $124^{\circ} 41' + 1010$ , { Long.  $124^{\circ} 42' + 350$ ,  
{ Lat.  $48^{\circ} 00' + 1650$ , { Lat.  $47^{\circ} 58' + 1600$

{ Long.  $124^{\circ} 42' + 450$ , { Long.  $124^{\circ} 41' + 830$ ,  
{ Lat.  $47^{\circ} 58' + 1650$ , { Lat.  $47^{\circ} 57' + 1500$

Respectfully submitted,  
E. C. McElroy

IN REPLY ADDRESS THE DIRECTOR  
S. COAST AND GEODETIC SURVEY  
AND NOT THE SIGNER OF THIS LETTER

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. 5146

Vicinity of Carroll Island, Flattery Rocks and Mukkaw Bay, Washington

Surveyed in 1931

Hand lead and machine soundings

Instructions dated April 16, 1930 and May 7 and 21, 1931 (GUIDE)

Chief of Party, K. T. Adams

Surveyed by Geo. L. Anderson, J. C. Partington, John C. Mathisson

Protracted and soundings plotted by E. H. Sheridan

Verified and inked by G. C. McGlasson

1. The records conform to the requirements of the Hydrographic Manual. However, there are not enough descriptive notes in the sounding records for this character of hydrography. Kelp is noted only on topographic sheet.
2. The plan and extent of development in general satisfy the specific instructions. Some of the detailed development should have been carried farther either by additional soundings or by descriptive notes in the records. A case in point is the breaker located by topography in 1930 (lat.  $48^{\circ} 08'.4$ , long.  $124^{\circ} 43'.9$ .) A search was made for this rock but only 5 soundings are recorded and no note indicating the extent of the investigation was made in the sounding record or on the boatsheet.
3. Soundings:
  - (a) The additional work in the vicinity of Carroll Island done under supplementary instructions of May 21, 1931 should have been plotted on H. 5070 instead of being made a sub-sketch on H. 5146. The soundings and additional rocks discovered by the 1931 survey have been transferred to H. 5070 in ~~black~~ brown to show the area complete on that sheet.
  - (b) The hydrography off Cape Alava fills a gap in the previous season's work (H. 5109) and includes a further development around Umatilla Reef and Bodeliteh Islets. The agreement of the overlapping areas is good considering the nature of the area. There is an 8 fathom depth shown on H. 5109 in lat.  $48^{\circ} 10'.3$ , long.  $124^{\circ} 46'.5$  where the later survey shows no less than 10 fathoms.

(c) The breaker charted 1.1 miles 37° true from Umatilla Reef was reported in 1907 by the U.S.S. EXPLORER (Chart Division letter No. 681) with location somewhat indefinite. Breakers were seen in the vicinity by the survey party in 1930 but a careful search in 1931 failed to find any shoal in this vicinity. The recommendation of the survey party that the breaker be removed from the chart is concurred in by the reviewer. (See note by A. L. Shalowitz.)

(d) The 8, 8 3/4 and 11 fathom soundings from H. 1845 noted in the review of H. 5109 were not examined by the survey party in 1931. In view of the character of this coast they should be retained on H. 5109.

4. Depth curves: The 20 fathom and 10 fathom curves are fairly well determined; the 5 fathom and lesser curves have been indicated only in sections.
5. Junctions with H. 5070, H. 5109 and H. 5111 are satisfactory. The overlapping areas have been combined on one or the other of the sheets. The additional work northward of Cape Johnson has been transferred to H.5070 in brown.
6. Comparison with H. 1845 (survey of 1888) and T. 1789 and 1790 (survey of 1887) shows no great changes. The modified rock and reef symbol of the earlier surveys are replaced in several cases by the rock awash symbol on the present survey. (See note by A. L. Shalowitz)
7. Recommendations:

(a) The sunken rock symbol and word "breaker" should be removed from the chart as recommended in the Descriptive Report, and it should also be noted in the Coast Pilot as searched for and not found. (See paragraph 3 (c) of this report.) (See additional notes by A. L. Shalowitz.)

(b) The rock noted in paragraph 2 of this report should be charted as a sunken rock as the evidence of sufficient search is not conclusive. The sounding record does not indicate the extent of search and the writer of the Descriptive Report was not the officer in charge of the sounding boat at the time the search was made. (See notes by A. L. Shalowitz.)

(c) This sheet (H. 5146) in combination with the contemporary sheets H. 5109 and H. 5111 for overlapping areas, should supersede the survey of 1888 (H. 1845) for charting purposes in the area covered by H. 5146.

Although the inshore areas are not fully developed, they are of little importance and no further surveys are deemed necessary at this time.

8. Field drafting was good except that soundings were not always spaced in accordance with time run, and too hard a pencil was used in drawing the depth curves, making it difficult to clean the sheet after inking.
9. Reviewed by R. J. Christman, July 1932.

Sheet inspected by A. L. Shalowitz

SUPPLEMENTAL NOTES ON H. 5146

By A. L. Shalowitz

1. Referring to paragraph 3 (c) of review: Breaker 1.1 miles 37° true from Umatilla Reef.

The recommendation of the field party and of the reviewer that this rock be removed from the charts is not concurred in. The fact that it was originally reported by one of our own vessels, was seen to break twice and a sextant cut actually taken to it (Chart Division letter No. 681 of 1907) gives it far greater authenticity than if it was one of the many vague reports that come into the office. Coupled with this is the fact that the survey party of 1930 also reports having seen the breaker during a light swell at low tide (see descriptive report, H. 5109, page 1). The examination by the present party does not appear to be conclusive. While the descriptive report states that two sounding parties spent four hours drift sounding during a heavy sea, no record appears of this and hence it is not certain where these soundings were made. The only soundings of record are those taken on "d" day (pos. 45 to 52) covering a period of 20 minutes. Although the area in the vicinity of the reported breaker is unusually flat, other sections of this coast indicate it is not improbable for shoals and rocks to rise out of apparently uniform bottom. It is therefore recommended that for the present this breaker be retained on the charts.

2. Referring to paragraph 7 (b) of review - Recommendations:

In connection with the breaker north of White Rock in lat. 48° 08'.4, long. 124° 43'.9, it should be further noted that although two sounding parties failed to locate this breaker the work was done at 9 and 4 foot stages of tide, whereas the topographer in 1930 (T. 4450) notes that the breaker does not always show even at low water. It takes a moderate swell at low water to make it break. It does not seem possible that with six cuts taken by the topographer at low water (see descriptive report, T. 4450) he could have been mistaken regarding the breaker. The sounding records for the 1931 survey (H. 5146) do not show that an extensive examination was made here. Although 13 minutes were spent in the vicinity, the recorded soundings actually plot to the northward of the breaker. The recommendation of the reviewer that the sunken rock symbol and breaker be charted is therefore concurred in.

3. Rock to eastward of Umatilla Reef: This rock is shown on chart 6102 as a rock awash having been charted from a Coast Guard report (Chart Division letter 207 of 1930) that the rock was "just awash at a zero tide." The present party located the ~~rock~~ breaker at a minus 1 foot tide and estimated that the rock was covered 2 feet, which makes the rock covered 3 feet at M.L.L.W. Inasmuch as the Coast Guard actually saw the rock, it is recommended that the sunken rock symbol be charted with a notation "awash at extreme low tides." *chart 1/2 fathom. awash*
4. Comparison with old surveys: A close comparison has been made between this survey and H. 1845 (surveyed in 1888) and the significant information appearing on the old survey that was not absolutely disproved by the new survey has been carried forward to H. 5146. In no case were soundings transferred unless the old records were clear and unmistakable as to their existence. Within its limits, H. 5146 can now supersede the work on H. 1845 for charting purposes.
5. Additional work: The area covered by this survey is so pregnant with possibilities that it is hesitated to say that no further work is necessary. While further leadline work over some of the areas left unsettled would undoubtedly add materially to the information, it is believed that if and when it is found practicable to do so the area between the 10 and 20 fm. curves should be wire dragged. It is such rocks as the one east of Umatilla Reef and the one in lat. 48° 18', long. 124° 42'.8 rising abruptly out of deep water that emphasize the need for wire drag work along a coast of this character.

An apparent discrepancy in soundings that could not be rectified in the office exists inside the 10 fm. curve just north of O Flat (approx. lat. 48° 11'.2, long. 124° 44'.5). The positions involved are 18-19 c (blue) and 53-55 d (blue). While not extremely important, unless a shoaling is indicated this should be cleared up if work is done here again.

Approved:

*A. M. Sobieralski*

Chief, Field Records Section

*J. S. Borden*

Chief, Field Work Section

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5146

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

Number of positions on sheet	1523
Number of positions checked	270
Number of positions revised	5
Number of soundings recorded	3648
Number of soundings revised	94
Number of signals erroneously plotted or transferred	None

Date: 13 June 1932  
Cartographer: E. M. Gibson

April 25, 1932.

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in  
5 volumes of sounding records for

HYDROGRAPHIC SHEET 5146

Locality Vicinity of Carroll I., Flattery Rocks, and Mukkaw Bay,  
Washington Coast

Chief of Party: K.T. Adams in 1931

Plane of reference is mean lower low water, reading

4.1 ft. on tide staff at Neah Bay

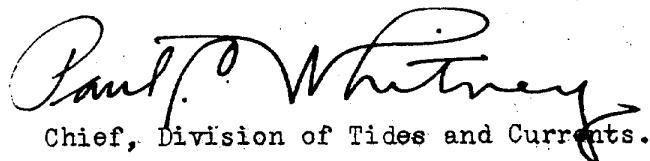
22.3 ft. below B. M. 3

4.6 ft. on tide staff at Tatoosh Island

22.0 ft. below B. M. 4

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.

  
Chief, Division of Tides and Currents.