6138

Form 504
Ed. June, 1928

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

State: California

DESCRIPTIVE REPORT

~~Topographic~~ Hydrographic } Sheet No. 42

LOCALITY

~~Vicinity of Shelter Cove, Calif.~~

Northern California Coast

~~From~~ Usal Rock To Big Flat

1935-1936

CHIEF OF PARTY

F. H. Hardy

U. S. GOVERNMENT PRINTING OFFICE: 1933

6138

Form 537

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REG. NO.

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. 42

REGISTER NO. H-6138

State California

General locality Northern California Coast

Locality ~~from~~ Usal Rock to Big Flat ~~Vicinity of Shelter Cove, California~~

Scale 1:40,000 Date of survey 6-23-35 to ~~8-27-36~~ 8-7-36 19

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

Chief of Party F. H. Hardy

Surveyed by Ray L. Schoppe and L. P. Raynor

Protracted by Curtis LeFever and Lawrence W. Swanson

Soundings penciled by -ditto-

Soundings in fathoms ~~xxxx~~x

Plane of reference M L L W

Subdivision of wire dragged areas by

Inked by L. A. McGann

Verified by L. A. McGann

Instructions dated May 2, 1935, 19

Remarks: Visual fix control.

U. S. GOVERNMENT PRINTING OFFICE

5602-2

DESCRIPTIVE REPORT
to accompany
HYDROGRAPHIC SHEET FIELD No.42
Project H.T.206
Coast of California
U.S.C. & G.S.S.GUIDE
1935 - 1936.

INSTRUCTIONS: The instructions for the hydrography on this sheet are dated May 2, 1935.

CHARACTER OF WORK: The hydrography on this sheet is all located by fixed positions. Soundings were obtained by Fathometer red light method except for 219 vertical casts for Fathometer comparisons. Of the Fathometer soundings 7775 were red light direct and 579 were red light times six.

It will be noted that a great many vertical casts were taken in the submarine valley. This was done at the suggestion of Dr. F. P. Shephard, of the University of Illinois.

The line spacing is well within the limits prescribed by the instructions. Tolo Bank and Shelter Cove were partially developed on this sheet.

Cross lines were run approximately four miles apart throughout this area covered by this sheet. Additional cross lines were run in the Shelter Cove area and over the submarine valley north of Point Delgada. A considerable number of vertical casts were taken in the submarine valley with many bottom specimens.

The position interval is in time two or three minutes with supplemental positions at radical changes in course or speed.

The scale of this sheet is 1:40,000.

LIMITS: The area surveyed on this sheet is a strip paralleling the coast, from a junction with Hydrographic Sheet Field No. H-5944 41, approximate Latitude 39° 46', northward to approximate Latitude 40° 06', joining Hydrographic Sheet Field No. 6-41 ? on the north. Its inshore limits are approximately the 20 fathom curve. It makes a junction inshore with Launch Sheets Nos. H 5920, 5945, 5956 1, 2, 3 and 6133 4, 1935; and Nos. H-6161 1 and H-6162 2, 1936. This sheet extends offshore to cover the 100 fathom curve and to a junction with Sheets H-4136 and H-4991.

CONTROL: The control for the hydrography on this sheet consists of hydrographic signals over triangulation and topographic stations, plotted on the North American 1927 Adjusted Datum.

TIDE REDUCERS: The tide reducers for all soundings on this sheet were obtained from the Shelter Cove Portable Automatic Tide Gage maintained by this party throughout the 1935-1936 field seasons.

Tide reducers were not corrected for range or time.

Further tidal information may be obtained in the Season's Tidal Reports covering all tidal work of the party of the Ship GUIDE for 1935 and 1936.

APPARATUS USED AND ITS CORRECTIONS: The starboard electric driven sounding machine was used for all vertical casts. Stranded wire with a 25 pound lead attached was used to obtain the soundings.

All fixes were taken from the bridge of the ship with sextants.

Fathometer corrections of the red light direct soundings taken during the 1935 season were applied according to the Fathometer report submitted for the 1935 season. Red light times six and white light soundings on this sheet, taken during the 1935 season, were corrected according to the Fathometer report submitted for the 1936 season.

All Fathometer soundings taken during the 1936 season are corrected according to the 1936 Fathometer report. These corrections are in accordance with Field Memorandum No. 3, dated June 11, 1936.

No change was made on the Fathometer from the 1935 season until July 16, 1936; thus corrections determined for the period previous to that date during the 1936 season, affecting red light times six soundings, are applied to such soundings on this sheet taken during the 1935 season.

The reader is referred to the 1936 Report of Temperatures, Salinities and Fathometer Corrections. Library No. 97(1936)

DANGERS: No offshore dangers to navigation were located on this sheet.

COMPARISON OF CROSSINGS: In most of the area covered by this sheet the bottom is irregular. The differences in soundings on the crossing lines listed below are undoubtedly due to the abrupt changes in depth.

At Latitude 39° 58.9', Longitude 124° 04.5', a sounding of 20 fathoms was obtained between Positions 15 and 16, U day. This sounding falls on 17 fathoms obtained between Positions 116 and 117, Y day. See note top of next page

Both RLD '35

Note: Crossing discrepancies listed in this paragraph are due to irregular bottom, the shoaler depths being borne out by prior surveys and larger scale adjacent overlapping surveys. H.W.M.

At Latitude 39° 58.2', Longitude 124° 03.4', a sounding of 15 fathoms obtained between Positions 5 and 6, U day, falls on 18 fathoms obtained between 6 and 7, M day.

At Latitude 39° 57.4', Longitude 124° 03.6', a sounding of ~~20~~ 21 fathoms was obtained between Positions 4 and 5, C day, which fell on a 17 fathom sounding obtained between Positions 53 and 54, U day.

At Latitude 39° 58.9', Longitude 124° 04.8', between Positions 16 and 17, Y day, a sounding of 14 fathoms was obtained. Between Positions 6 and 7, Y day, a sounding of 20 fathoms was obtained crossing the 14 fathoms. This area was dragged on Wire Drag Sheet Field No. 10-1936. H-6153 WD

The crossings in the submarine valley are for the most part good. Those in the bottom of the valley are better than those on either side. A slight displacement of a sounding along the walls of the valley makes a great difference. It should be noted that in general there is greater differences between the vertical cast soundings and the Fathometer soundings along the walls of the valley.

COMPARISON WITH PREVIOUS SURVEYS: <u>Comparison with Sheet H-1643 b</u>: At Latitude 39° 57.2', Longitude 124° 05.0', a sounding of 14½ fathoms shown on Sheet H-1643 b, falls between two soundings of 17 ~~21~~ and ~~26~~ 25 fathoms on Sheet 42. H-6138 14 fms carried forward

At Latitude 39° 58.0', Longitude 124° 04.6', a sounding of 13¼ fathoms shown on Sheet H-1643b, falls between two soundings of 17 fathoms each on Sheet 42. H-6138 12 fm. sdg to southward carried forward.

At Latitude 39° 55.9', Longitude 124° 03.6', a sounding of 14½ fathoms falls between soundings of 17 and 20 fathoms on Sheet 42. The probability of such a depth existing here is indicated on Sheet 42 H-6138 by a sounding of 30 Not plotted. fathoms having been recorded and questioned by the man reading the Fathometer. This in all probability is a double echo. H-6171 14 fms sdg just N.W. carried forward. H.W.M.

These soundings were cleared by wire drag on Sheet Field No.21. Because of this it was felt that the additional time to develop these spots was not warranted.

With the exception of the above mentioned soundings this survey checks well with that of H-1643 b. Several add'l sdgs carried forward. See Rev., par. 7b(1)(2). H.W.M.

<u>Comparison with Sheet H-1778:</u> The work on H-1778 in general is in good agreement with that on the present survey, considering the irregularity of the area covered.

The sounding of 185 fathoms in Latitude 40° 03.5', Longitude 124° 09.5', on Sheet H-1778 is 100 fathoms shoaler than soundings in that vicinity on this survey. Because of the close development in this vicinity it is felt this sounding is probably 100 fathoms in error. This is a no-bottom sdg. H.W.M.

The two soundings of 436 and 429 fathoms on H-1778, in Latitude 40° 01.2', Longitude 124° 11.8', are considerably deeper than those of the present survey. 436 fms. is probably 100 fms. in error. 429 fms. carried forward. H.W.M.

Two soundings on Sheet H-1778 in Latitude 40° 01.3', Longitude 124° 08.6', are approximately 50 fathoms deeper than soundings on the present survey in this vicinity.

A sounding of 228 fathoms on H-1778 in Latitude 40° 03.8', Longitude 124° 09.1' appears to be somewhat deeper than soundings in this vicinity. A slight displacement on the older work would account for this difference.

The soundings mentioned above that are deeper than soundings of this survey might be correct, because of the very steep slopes in this submarine valley. Slope corrections have not been applied to the Fathometer soundings and it so happens that a vertical cast was not taken in the vicinity of these soundings. Several soundings which would assist in defining the axis of this valley have been carried forward. H.W.M.

<u>Comparison with Sheet H-4136;</u> The work on Sheet H-4136 is generally in good agreement with the work on Sheet 42 (H-6138). In several places there are differences as great as 5 to 7 fathoms, the soundings on Sheet H-4136 being generally the deeper soundings.

<u>One sounding on Sheet H-4136</u> of 102 fathoms in Latitude 39° 47.7', Longitude 124° 02.1', falls in general depths of 88 to 90 fathoms. There is a considerable difference in the 100 fathom curve in this vicinity.

See Rev. (par. 7c) for unreliability of these surveys.

<u>Comparison with Sheet H-4183</u>: This sheet agrees very well with Sheet 42.

<u>Comparison with Sheet H-4991;</u> This is an R. A. R. controlled sheet and it compares exceptionally well with this survey. In and around the submarine valley there are some differences. These however are not bad except for a very few soundings. This difference is probably due to the abrupt changes in depths in and adjacent to the submarine valley.

Two soundings in Latitude 40° 01.2', Longitude 124° 13.0' and 124° 14.2', of 227 and 318 fathoms, do not agree with the soundings on this sheet. These sdgs not carried forward as overlap, see Rev., par. 6c for general discussion of discrepancies.

JUNCTIONS: The junctions with Sheet Field No. 41 (H-5944) on the south, and Launch Sheets Nos. 1, 2, 3 and 4, 1935 (H-5920, 5945, 5956 + 6135), on the ~~west~~ east, are good.

Junction with Ship Sheet No. 41-1936 (5944, 35) and Launch Sheets Nos. 1 (H-6161) and 2 (H-6162), 1936, will be taken up in the reports of those sheets.

Respectfully submitted,

Lawrence W. Swanson

Lawrence W. Swanson,
Jr. H. & G. Engineer,
Coast & Geodetic Survey.

Forwarded, approved:

F. H. Hardy

F. H. Hardy, Chief of Party,
U. S. Coast & Geodetic Survey,
Commanding Ship GUIDE.

STATISTICS

Date 1935	Day Letter	Number of Soundings: Fathometer RLD	Fathometer RLx6	WL	Machine	No. Pos.	Statute Miles
6-23	A	138				30	16.2
6-24	B	145			10	40	26.1
6-25	C	364				68	39.2
6-26	D	194			5	37	18.4
7-7	E	122				29	18.4
8-4	F	241				30	20.7
8-6	G	188				26	19.5
8-7	H	30				5	2.0
8-8	J	160				27	16.0
8-11	K	172				30	17.2
8-23	L	60				12	5.4
8-26	M	366			5	65	35.9
8-27	N	280				51	29.2
9-6	P	144				23	14.0
9-11	Q	479			9	148	86.8
9-25	R	159			5	33	17.2
10-10	S	727	96		5	124	69.3
10-13	T	246				44	22.3
10-14	U	591	3		10	125	69.5
10-15	V	243	12			74	44.8
10-16	W	384	84		9	121	77.0
10-17	X	639	45		10	168	88.7
10-18	Y	378	101			119	49.2
10-19	Z	166			5	45	18.4
SUB-TOTALS		6,580	341		64	1,474	885.2
Area of sheet in square statute miles - 225							
1936				WL			
5-22	Z1	89	3		5	21	5.8
5-23	AA	47	6		6	12	4.0
5-28	BB	124			5	24	8.5
6-7	CC	73	8	1		22	7.1
6-23	DD	175	113			99	38.5
6-26	EE	9	9	8	9	4	detach.sdgs.
7-16	FF	52	25		52	4	"
7-17	GG	17			20	20	10.8
7-25	HH	104			50	63	15.5
7-28	JJ	68				16	4.7
8-7	KK	437	74		9	96	32.0
SUB-TOTALS		1,195	238	9	155	381	126.9
TOTALS		7,775	579	9	219	1,855	1,012.1

TIDAL DATA
to accompany
HYDROGRAPHIC SHEET FIELD No. . 42 . . H 6138

The data from Portable Automatic Tide Gage No. H-131, at Shelter Cove, California was used for reduction of soundings and wire drag depths on this sheet during 1935. During 1936 the reducers were obtained from gages Nos. H-131 and H-142. No corrections were applied.

POSITION OF GAGE: Latitude 40° 01.5', Longitude 124° 03.9'.

For days on which tides were not obtainable from the above gages, San Francisco records were used with the following corrections:

Ratio of Ranges................1.12
Time of High Water......(-)....0.85
Time of Low Water.......(-)....0.42

M L L W (furnished by Washington Office)....1935.....1936
2.7 feet 2.9 feet

Report on H-6138 (1935)

The records conform to the requirements of the General Instructions except as noted in the review. ✓

The usual depth curves can be completely drawn. ✓

There is a wide descrepancy between the vertical casts and the fathometer readings in the vicinity of latitude 40° 05' longitude 124° 09'; submarine valley. ✓ mentioned in D.R. + Rev.

Crossings. The discrepancies in soundings at crossings are listed on pages 2 and 3 of this report. They are probably due to abrupt changes of depth. These discrepancies are limited to a small area of this sheet. Elsewhere on this sheet the crossings are satisfactory. ✓ Crossings OK, see note appended to D.R., page 3.

Two soundings made on "DD" day in lat. 39° 58' longitude 124° 13' namely the 211 and 220 between positions 89DD and 91DD are probably erroneous. These depths were obtained by the red light x 6 on the fathometer. The depth correction using the red light X 6 appears too high. Note that on the last day in Vol. 7 the correction is +11 fathoms while on DD day it is +22 fathoms. The comparisons on FF day Vol 6 page seem to verify the +11 fathom correction. * accepted. H.W.M. ✓

The 200-fathom curve has not been completed in the area discussed in the above paragraph pending the disposition of the soundings believed to be in error. Completed. H.W.M. ✓

Satisfactory junctions have been made with H-6135 (1935) 1/10,000. H-5956 (1935) 1/10,000. H-5945 (1935) 1/10,000. H-5920 (1935) 1/10,000. H-5944 (1935) 1/40,000. An entirely satisfactory junction could not be effected with H 4991 (1929) 1/120,000 which joins on the long western edge of H-6138. The soundings of H-4991 which fall within the limits of H 6138 in disagreement with H 6138 are shown in pencil. These are recommended for rejection. See Rev. for add'l remarks and dispositions. ✓

* On FF day a correction factor of +12 was obtained for Red Lt X6 and this factor was used on KK day. ✓

Elsewhere the correction factors of +20 to +23 for red Lt X6 (from previous season's work) were used. Almost invariably these soundings show excessive jumps. EPE

tdgs accepted. H.W.M.

Leonard A. McGann.
February 11, 1937

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. H6138

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

Number of positions on sheet	1828
Number of positions checked	112
Number of positions revised	23
Number of soundings recorded	8466
Number of soundings revised	26
Number of signals erroneously plotted or transferred	—

Date: February 11, 1937

Verification by Leonard A. McGann — Time: 105.5 hours.

Review by Harold W. Murray — Time: 63 "

Ver. Cor. by " — 8½ "

HYDROGRAPHIC SURVEY NO. H-6138

Smooth Sheet Yes

Boat Sheet Yes Inquiry made June 30th, 1937 indicates that B.S. was sent to Comdg. Office of Ship GUIDE, possibly for Ad Wk. H.m.

Sounding Records 7 Vols.

Descriptive Report Yes

Title Sheet Yes

List of Signals D.R.

Landmarks for Charts (Form 567) Yes

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) None

Special Chart for Lighthouse Service (Circular Nov. 30, 1933) No. mentioned in Rev. H.m.

Remarks

HYDROGRAPHY

Total Days 35

Last Date Aug. 7, 1936

705

Names marked *
to be inked only
on this sheet.

	Remarks	Decisions
1		
2		see T-6486
3		See T-6486
4		see H-5920
5		see H-6169
6		see H-5920
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		

M 234

GEOGRAPHIC NAMES

Survey No.

H6138

Name on Survey	A On Chart No. 5602	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K	
* Tolo Bank	✓ app'd									1
Shelter Cove	✓ app'd									2
* Point Delgada	✓ app'd									3
* Us~~y~~al Rock	✓ app'd									4
* Big Flat	✓ app'd									5
Double Cone Rk	✓ app'd									6
California	✓									7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

Names underlined in red approved by GTE on 4/2/37

M 234

FORM M-238

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT } No. H6138
~~PHOTOSTAT OF~~ ~~MAP~~

{ received Dec. 18, 1936
registered
verified
reviewed
approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22			
24			
25			
26			
30			
40			
62			
63			
✓ 82	A. L. Shalowitz E. P. Ellis	A.L.S. E.P.E.	Boat sheet to be returned to field
83			before April 15, '37
88			
90			

RETURN TO

82	C. K. Green

✓

L.Q.C.

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Ed. Feb. 1935

TIDE NOTE FOR HYDROGRAPHIC SHEET

January 14, 1937

Division of Hydrography and Topography:

✓ Division of Charts: **Att: Mr. E. P. Ellis**

Tide Reducers are approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 6138

Locality **Ussal Rock to Big Flat, California Coast**

Chief of Party: **F. H. Hardy in 1935-1936**
Plane of reference is **mean lower low water reading**
2.9 ft. on tide staff at **Shelter Cove**
7.1 ft. below B.M. **1A**

Height of mean high water above plane of reference is 5.6 feet

Condition of records satisfactory except as noted below:

Paul C. Whitney
Chief, Division of Tides and Currents.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6138 (1935-36) FIELD NO. 42

Ussal Rock to Big Flat, Northern California Coast, California
Surveyed in 1935-36, Scale 1:40,000
Instructions dated May 2, 1935 (GUIDE)

Fathometer and Machine Soundings. 3 Point fixes on shore signals.

Chief of Party - F. H. Hardy.
Surveyed by - Ray L. Schoppe and L. P. Raynor.
Protracted by - C LeFever and L. W. Swanson.
Soundings plotted by - C. LeFever and L. W. Swanson.
Verified and inked by - L. A. McGann.

1. Condition of Records.

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

a. The type of soundings obtained was not consistently noted at the beginning of each day's work.

b. Signals shown on the smooth sheet located by plane table methods and originating with topographic sheets were accompanied by the year date of the topographic survey location. The accepted practice is to reserve such dates for signals of triangulation origin only. (Par. 23). These were removed in the office.

c. The duplicate of the chart forwarded to the Lighthouse Bureau containing objects for locating aids to navigation was not received by this office.

The Descriptive Report is clear and comprehensive and satisfactorily covers all items of importance.

2. Compliance with Instructions for the Project.

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

3. Shoreline and Signals.

a. This is an offshore survey and contains no topography.

b. The signals originate with plane table surveys: T-6377 (1935), T-6378 (1935), T-6379 (1935), T-6485 (1935), T-6486 (1935) and T-6516 (1935).

4. Sounding Line Crossings.

Agreement of sounding line crossings is generally satisfactory, however, mention is made of the following:

a. In the general vicinity of Tolo Bank (lat. 39° 58.5', long. 124° 04.0') numerous depths of 10 to 17 fathoms are shown in close proximity to other depths varying 3 to 6 fathoms deeper, the more important being listed in the Descriptive Report (pages 2 and 3). These differences as noted in the Descriptive Report are attributed to uneven bottom which fact is generally borne out by comparison and junctions with other surveys discussed elsewhere in this review.

b. The 125, 115 and 120 fathom soundings (R.L.D. soundings) of line 14 to 15 Z' in lat. 40° 04.6', long. 124° 08.9' vary about 70 fathoms shoaler than the surrounding nearby depths on the present survey and on H-1681 (1886) which covers this area (discussed in par. 7b, this review). These will be investigated when additional work is accomplished in this area (see par. 11, this review).

5. Depth Curves.

Within the limits of the survey, the usual depth curves may be satisfactorily drawn.

6. Junctions with Surveys.

a. The junctions to the eastward with H-6161 (1936), H-5956 (1935), H-5945 (1935) and H-5920 (1935) and to the southward with H-5944 (1935) are satisfactory.

b. The junction to the eastward with H-6135 (1935) is generally satisfactory, the abrupt changes in depths shown here on the present survey being generally borne out by soundings on the adjoining sheet. However, in the vicinity of lat. 39° 59.5', long. 124° 03.0' portions of several Red Light Direct sounding lines (run on different days) on the present survey vary 1 to 3 fathoms deeper (except for an occasional sounding which is in good agreement) than the machine soundings on H-6135 (1935). No satisfactory reason for this discrepancy can be advanced other than the fact that on one line a remark in the sounding records at Pos. 3M states "Stopped. Fathometer not working properly." Because of these discrepancies, the conflicting soundings from H-6138 (1935-36) have not been transferred to H-6135 (1935) in the common area. They have, however, been retained on H-6138 (1935-36). In charting the common area, only those soundings from H-6138 (1935-36) that have been transferred to H-6135 (1935) should be used.

c. The junction to the westward with H-4991 (1929) is satisfactory except that the 1929 work in lat. 39° 49.4', long. 124° 03.5'; lat. 39° 56.2', long. 124° 10.5' and lat. 40° 00.3', long. 124° 13.0' is in disagreement with the depths on the present survey. The RAR control of the 1929 lines is weak, many returns being incomplete and the plotting based on single arcs, dead reckoning or combinations thereof. In view of the larger scale development and more rigid 3 point fix control on the present survey, these lines were omitted in the overlapping area. For charting the overlapping area, only these depths on H-4991 (1929) that have been transferred to the present survey should be used.

d. The junction with H-6162 (1936) on the north is satisfactory except in the submarine valley near the northwest end of the sheet where a number of the fathometer soundings from the present survey are in disagreement with the wire soundings in H-6162 (1936). For a detailed discussion of the discrepancies and the recommendations for additional work see paragraphs 6b and 11a of the review of H-6162 (1936). Pending an investigation of this area the soundings on the present survey that fall within the limits of H-6162 (1936) should not be used in charting.

e. The junctions on the northwest and westward with field sheets Nos. 6-41 and 121 will be considered when those sheets have been received in the office.

7. Comparison with Prior Surveys.

a. H-241 (1851) and H-401 (1854).

These are reconnaissance surveys on scales of 1:1,000,000 and 1:375,000 respectively. They contain no information not fully covered by the present survey.

b. H-1469 (1880), H-1643a (1885), H-1643b (1885), H-1681 (1886) and H-1778 (1885-86).

These surveys taken together cover the entire area of the present survey. The first sheet is on a scale of 1:10,000, the others being on 1:20,000. Comparison with the present survey indicates no general differences in depths except in the following areas:

(1). H-1778 (1885-86).

(a). In the vicinity of the submarine valley, differences of as much as 100 fathoms are noted, some of which are listed in the Descriptive Report (pages 3 and 4). A few soundings in this area, however, that were not obviously in error and assisted in defining the axis of the valley were carried forward to the present survey.

(b). The bottom in the vicinity of lat. 39° 58', long. 124° 04' is very irregular, the old survey showing a number of depths varying 1 to 6 fathoms shoaler than the present survey. While there are indications in some cases that changes have occurred, the evidence is not conclusive and several shoal depths have been carried forward on the present survey.

(c). The 7-3/4 fathom sounding (charted as 7 fathoms) on Tolo Bank (lat. 39° 58.3', long. 124° 04.0') falls close to a 10 fathom shoal on the present survey and a 9-3/4 fm. sounding on H-6171 (1935-36). The 7-3/4 fm. is a single sounding on line, the original entry in the records being 8 fms. 0 feet which corrected for a tide of 2.1 feet and 1.2 feet to bring the plane of MLW on the old survey to the plane of MLLW on the present survey reduces to 7-1/4 fms. or 44.7 feet. This shoal spot was cleared by an effective drag depth of 47 feet on H-6153 (1935-36) W.D., 47 and 49 feet on H-6171 (1935-36) W.D. This difference between the maximum effective depth of 49 feet and the least depth of 9-3/4 fms. (58 feet) found on H-6171 (1935-36) is too great for a shoal on which 44.7 feet was formerly found. Additional drag work is therefore recommended on this shoal in the review of H-6153 (1935-36) W.D. (par. 6a(1)). Pending this additional work the 7-1/4 fm. sounding is being carried forward on the present survey. A final disposition will be made when such additional work is accomplished.

Disproved. See Rev., par. 3 H-6171 (1938) WD-Ad. Wk.

(2). <u>H-1643b (1885).</u>

The bottom in the vicinity of lat. 39° 56', long. 124° 04' is very irregular, numerous shoal spots being shown with least depths varying 1 to 5 fms. less than the surrounding depths. Most of these were confirmed on the present survey by similar depths or depths not differing by more than 1 fm. Several, however, fall midway between sounding lines on the present survey the spacing of which is not sufficiently close to afford an adequate basis of comparison. In these cases, representative soundings have been carried forward on the present survey. Exceptions are as follows:

(a). The 14-1/4 fm. sounding (charted) on line 31 to 32x day, red, in lat. 39° 55.0', long. 124° 02.6' is incorrectly plotted as to depth, the correct recorded depth being 19-1/4 fms. which agrees favorably with a 20 fm. depth on the present survey shown just northeastward.

(b). Portions of soundings on line 48 to 49 0 day, red (22 fms. charted) in lat. 39° 56.2', long. 121° 05.4' and line 32 to 33 N in lat. 39° 54.3', long. 124° 04.6' (no soundings charted) consistently vary as much as 14 to 20 fms. shoaler than the general depths of 30 to 44 fms. on the present survey. These soundings are obviously misplaced or incorrect and should be disregarded in future charting.

(c). A number of overlapping soundings originating with H-1643b (1885) and shown on H-1778 (1885-86) in red in lat. 39° 58', long. 124° 05' are incorrectly transferred, differences of 1½ to 2 fathoms being noted. The correct depths have been indicated on the smooth sheet in blue.

Although the scale of these sheets is larger than the present survey, the lines are widely spaced so that in effect they give no closer development than is contained on the present survey. The latter survey, with the indicated additions from the prior surveys should, therefore, be used for charting this area.

c. <u>H-4136 (1919-21) and H-4183 (1921).</u>

The first survey is on a scale of 1:120,000 and covers the area outside the limits of the 50 fm. curve. The latter survey is on a scale of 1:20,000 and covers the vicinity of Tolo Bank. The reliability of these surveys is none too good, the respective reviews listing a number of discrepancies among which are frequent recording of soundings unaccompanied by time, and dead reckoning plotting based on uncertain compass courses. A comparison of these surveys with the present survey is included in the Descriptive Report (page 4). The present survey should supersede these surveys in future charting.

8. <u>Comparison with Contemporary Wire Drag Surveys. H-6135 (1935-36) W.D. and H-6149 (1935) W.D.</u>

The present survey contains no information that is in conflict with the effective drag depths on these surveys.

Comparison with other wire drag surveys: H-6151 (1936) W.D., H-6152 (1936) W.D., H-6153 (1936) W.D., H-6168 (1936) W.D., H-6169 (1936) W.D., and H-6171 (1936) W.D. was accomplished in the reviews of those surveys.

9. <u>Comparison with Charts Nos. 5773 (New Print dated March 22, 1937) and 5602 (New Print dated April 4, 1937).</u>

a. <u>Hydrography.</u>

Within the area of the present survey hydrography on the charts is based on surveys discussed in the foregoing paragraphs and no further consideration in this review is necessary.

b. Aids to Navigation.

Bell buoy "4A"(lat. 40° 03.6', long. 124° 06.0') and the lighted whistle buoy "4" (lat. 40° 00.3', long. 124° 04.8') were located in substantially the same positions as charted and satisfactorily mark the features intended. Buoy "4" was also located on H-6135 (1935) and agrees with the position shown on the present survey. Buoy "4A" was likewise located on H-6161 (1936) but is shown approximately 50 meters N x E of the present survey location. The position on H-6161 (1936) should be used for charting purposes since it was located one day later (May 23, 1936) and is more rigidly determined, being located by a 3-point fix with supplemental cuts whereas the present survey location is based solely on cuts observed on passing lines about 1-1/3 miles distant.

10. Field Plotting.

Field protracting and plotting were accurate and conform to the requirements of the Hydrographic Manual.

11. Additional Field Work Recommended.

In order to complete this survey, the following additional work is necessary:

a. An investigation of the 76, 84 and 83 fathom soundings in lat. 40° 05.4', long. 124° 08.4' which fall in depths 35 to 70 fathoms deeper on H-6162 (1936). (For further discussion, see review of that survey, par. 6b). This additional work was requested in the review of H-6162 (1936), par. 11a.

b. Development of the 125, 115 and 120 fathom soundings (line 14 to 15 Z') in lat. 40° 04.6', long. 124° 08.9' which vary about 70 fathoms shoaler than the surrounding depths.

c. Additional lines for a better delineation of the depth curves of the mouth of the submarine valley in the vicinity of the junction with H-4991 (1929). A portion of this may have already been covered by field sheet 121 (1935-36) which has not yet been received in the office.

12. Note to Compiler.

Attention is called to paragraph 9b of this review regarding the position of buoy "4A."

13. Superseded Prior Surveys.

Within the area covered, the present survey with the indicated additions from previous surveys supersedes the following surveys for charting purposes:

H- 241	(1851)	In part
H- 401	(1854)	" "
H-1469	(1880)	" "
H-1643a	(1885)	" "
H-1643b	(1885)	" "
H-1681	(1886)	" "
H-1778	(1885-86)	" "
H-4136	(1919-21)	" "
H-4183	(1921)	" "

14. Reviewed by - Harold W. Murray, July and October, 1937.

Inspected by - A. L. Shalowitz.

Examined and approved:

C. K. Green, C. K. Green.
Chief, Section of Field Records.

L. O. Colbert.
Chief, Division of Charts.

Fred. L. Peacock
Chief, Section of Field Work.

G. T. Rude
Chief, Division of H. & T.

applied to Chart 5773 (in part) Oct. 1939

Applied to Chts 5602 + 5052 — 6/2/38 PBC