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<small>Form 504</small> U. S. COAST AND GEODETIC SURVEY DEPARTMENT OF COMMERCE DESCRIPTIVE REPORT	
Type of Survey	<i>Hydrographic</i>
Field No.	Office No. <i>4560</i>
LOCALITY	
State	<i>California</i>
General locality	<i>Southern Coast</i>
Locality	<i>Gulf of Santa Catalina</i>
<u>1926</u>	
CHIEF OF PARTY	
<i>J. J. Maher</i>	
LIBRARY & ARCHIVES	
DATE	

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Form 504	
DEPARTMENT OF COMMERCE	
U. S. COAST AND GEODETIC SURVEY	
State: California	
11-5613	
DESCRIPTIVE REPORT.	
Sheet No.	4560
LOCALITY:	
Southern Coast	
Gulf of Santa Catalina, San Pedro	
Channel and Outer Santa	
Barbara Passage	
1926	
CHIEF OF PARTY:	
T.J. Maher	

G. & C. S. EY
L. & S.
OCT 2 1926
Acc. No.

U. S. COAST AND GEODETIC SURVEY

COL. E. LESTER JONES, DIRECTOR.

4560

DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC SHEET COVERING

THE AREA SOUTH OF SAN PEDRO AND BETWEEN CATALINA

ISLAND AND THE MAINLAND, CALIF.

Supplemental to Work Done During 1925.

Str. GUIDE
1926

Thos. J. Maher,
Chief of Party, Commanding.

DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC SHEET, AREA
SOUTH OF SAN PEDRO, CALIFORNIA, AND BETWEEN CATALINA
ISLAND AND THE MAINLAND.

The work was started on February 4, 1926, and ended on May 8, 1926.

The records consist of four (4) volumes of soundings, and six (6) graphs.

This work fills in some of the spaces left unfinished from previous years. It presents no unusual features. On the smooth sheet in the area immediately to the southward of San Pedro, the position numbers covering two days work appear in green, while the rest appear in blue. The reason for this is that during my absence the sonic apparatus operated in an irregular manner. A defect already existed in the oscillator which may have caused somewhat irregular results, or the trouble may have been due to the fact that the operator did not possess the acuteness of hearing necessary to obtain good results with the sonic apparatus. Upon my return I had this area covered with vertical casts, spaced closely enough together for the depths found. At first, consideration was given to rejecting the sonic soundings, but an examination showed that this procedure was not altogether desirable; so the sonic soundings have been plotted, but in such a way that they can be readily identified. By this means a more complete development of the area is shown.

During 1925 the area between Catalina Island and the mainland was covered with a series of sounding lines spaced in accordance with

instructions. Shortly before closing field work in 1926 I thought it desirable to split some of the lines between Catalina and the mainland for the reason that the battle fleet, en route between San Diego and San Pedro, passed over this section. I proceeded to the vicinity of latitude $33^{\circ} 25'$, longitude $118^{\circ} 00'$, and started to sound. Up-and-down casts gave a sounding of 65 fathoms in an area where soundings from 149 to 235 fathoms had previously been obtained. The weather was very hazy and we had great trouble in getting fixes. I waited for four days to develop this area, but conditions remained the same so field work was closed and the vessel proceeded to Oregon. If that were the only work to be done in this section I would have held the ship in the vicinity a longer time and, if necessary, established R.A.R. stations; but as inshore work in the area between Newport and San Pedro, as well as inshore work from Newport to the southward, must be done, work was terminated and the vessel left the vicinity.

To the southward of Newport there is an area where visual fixes were very hard to obtain, and the work was controlled to a great extent by compass bearings and single angles. I sent a party ashore to erect signals and recover old stations but they were spilled in the surf, the whaleboat was almost lost and one man nearly drowned. Methods had to be taken to resuscitate him.

The main working grounds of the ship were in the vicinity of Tanner Bank, far from this area, so work was done here only when visits were made to the party at Newport or else when en route to and from San Pedro. This work was supplemental to the main work of the ship, and no effort was made to carry on systematic surveys continuously here.

About 13 miles to the southeastward of Catalina Island depths

appear somewhat irregular. An attempt was made to further develop this section, but visual fixes could not be obtained. Two lines were run between Catalina and San Clemente Islands. This area was, I understand, developed by other parties in preceding years, but I considered it desirable to run in a few more lines. Haze obscured the signals and the results desired were not obtained. A photostat of the work done by other parties was not available and it might be advisable to inspect those sheets to determine if further work is warranted. Personally I think that the development in this entire area should be very close. The 65 fathom spot indicates the necessity for this, as well as the fact that the Pacific fleet and submarines frequently travel over it. The development in the vicinity of the 65 fathom spot is not finished.

I think that the inshore hydrography of Catalina Island as well as that of San Clemente Island should be done in a more thorough manner than was necessary when the original surveys were made. There is a great deal of yachting during the summer months, particularly in the vicinity of Catalina Island, and mining operations give promise of reaching a considerable magnitude. This, of course, will mean that vessels larger than the ordinary small yacht will navigate in these waters.

This work cannot be considered as completed. It had to stop somewhere, and if all of the surveys called for in my instructions had been done the ship would not have proceeded to Oregon until late in the summer months.

*Transmitted
Repts. 27, 19, 26*

O. B. Allen

STATISTIC SHEET

Date 1926	Letter	Vol. No.	Pos. No.	Tube	Soundings		Stat. Miles	Vessel
					Sonic	Wire		
Feb.4	A	1	42	-	-	46	18.4	GUIDE
" 5	B	1	21	-	-	27	9.2	"
" 6	C	1	16	-	-	39	11.5	"
Mch.1	D	1	67	37	37	27	60.0	"
" 2	E	1	63	-	146	22	73.6	"
" 8	F	1	44	54	29	3	21.3	"
" 8	F	2	26	3	48	2	22.0	"
" 15	G	2	37	29	33	4	23.2	"
" 20	H	2	33	35	-	1	19.0	"
" 22	J	2	62	23	86	4	42.0	"
Apl.7	K	2	31	-	76	12	31.5	"
" 8	L	2	47	35	75	18	42.8	"
" 9	M	3	58	2	103	14	48.0	"
" 10	N	3	18	-	35	2	13.3	"
" 30	P	3	59	-	72	8	37.2	"
May 3	Q	3	18	-	-	18	19.4	"
" 4	R	3	9	-	-	9	8.0	"
" 5	S	3	106	116	48	29	60.4	"
" 6	T	4	66	63	55	24	42.0	"
" 7	U	4	12	-	7	12	11.5	"
" 8	V	4	37	-	-	38	35.0	"
<hr/>								
TOTALS:	-	4	872	397	850	359	649.3	-

Hyd. 4560

The soundings on this sheet consist of vertical casts, sonic and tube soundings. The vertical casts or wire soundings may be distinguished by a (W), which is inked beside them. Sonic soundings for depths under one hundred and ten fathoms have not been inked and are underlined in pencil.

There are two days, namely N and P day, on which the sonic apparatus was not working properly. These days are discussed in the descriptive report and are also covered by a note in the sounding record. The depths agree very well with the vertical casts which were taken later, but these days have been left in pencil until after the sheet is reviewed.

There is a tube sounding of sixty seven fathoms, between pos 20 D and pos 21 D, which has not been inked. It is possible that they did not get bottom here as there is a sounding of no bottom at eighty fathoms in the same position on Hyd. 4504.

The records are satisfactory.

The protracting and plotting of soundings has been well done.

R. L. Johnston

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

AND REFER TO NO. 11-DRM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

February 14, 1927.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4560

Southern Coast, California

Surveyed in 1926.

Instructions dated Jan. 12, 1924 (GUIDE)

Chief of Party, T. J. Maher.

Surveyed by T. J. M.

Protracted and soundings plotted by W. F. Malnate.

Verified and inked by R. L. Johnston.

1. The records conform to the requirements of the General Instructions.
2. The plan and character of development satisfy the General Instructions.
3. The plan and extent of development satisfy the specific instructions except that lines were run north and south and east and west instead of 245° and 65° as called for. This, however, does not appear objectionable.

This sheet fills some gaps left unfinished by previous surveys, but does not entirely complete the area. Attention will be called to these in subsequent paragraphs.

4. The information is sufficient for drawing the usual depth curves.
5. The usual field plotting was done by the field party and was well executed.
6. The junction with H. 4559 is satisfactory. There are differences in depths between the two sheets, but considering the fact that the soundings are principally sonics, such differences as exist are not surprising.

The gap in the work south and SxE of Fermin Lighthouse has been covered by H. 4547 (not yet verified).

The junction with H. 4162 is satisfactory wherever the two sheets join. There is a large gap between these sheets in the vicinity of lat. 33° 36', long. 118° 10'. This area has, however, been covered by H. 4547 (not yet verified) and will be considered in the review for that sheet.

The junction with H. 4545 is adequate except in the vicinity of the submarine valley, as mentioned in paragraph 8 of the review for that sheet. While the distance between the limits of these two sheets meets the requirements for the spacing of lines, it would have been more desirable, in view of the large scale chart to be published of Newport Bay and vicinity, if the close development would have extended further offshore, so as to obviate the necessity of using soundings from the old surveys on the new chart.

The junction with H. 4366 is satisfactory.

An adequate junction was effected with the outer limits of H.4504. There are one or two instances of excessive differences in depths between these two sheets that could not be accounted for unless the sonic apparatus was not working properly. These soundings are located about 5 1/2 miles S.S.E. of the southeastern end of Catalina Island. The differences amount to as much as 200 fathoms. It would appear from the surrounding depths that the deeper soundings are more correct. However, the shoal soundings were retained.

The junction with H. 4549 will be taken up in the review for that sheet.

7. The junctions with the old surveys that border this sheet will now be considered:

H. 1908. - A junction was effected with this sheet. The depths agree well wherever there were sufficient soundings to form a comparison. At the northwestern end of this sheet the 50 and 100 fathom curves extend considerably further offshore than shown. There appears to be no reason why this sheet cannot be used in conjunction with the new survey. The work between the 20 and the 100 fathom curves is too sparse to meet modern requirements in this locality and additional work should be done here. Inside the 20 fathom curve, the work seems adequate, except on the 17 ft. spot in lat. 33° 28' 960 m., long. 117° 43' 1030 m., and the area off San Juan Pt. north of the limits of H. 1783. Test lines should be run on the inshore work to assure that no marked changes have taken place.

H. 1907. - The above comment applies as well to this sheet.

H. 1414^a. - There is a general good agreement with this sheet. Some differences exist, due perhaps to erroneous sonic soundings. The two sheets together give a complete development of the offshore area.

In view of the statement made in the Descriptive Report (H. 4560) that "mining operations give promise of reaching a considerable magnitude" in this locality, it is recommended that a close development be made of the entire inshore area.

The inshore area of San Clemente Island will be taken up in the review for H. 4549^a.

8. Additional work will be required as mentioned in paragraph 7 and in the following places:
- a. The 67 fathom sounding (tube) in vicinity of lat. $33^{\circ} 33 \frac{1}{4}'$ long. $118^{\circ} 08 \frac{1}{2}'$ should be investigated. (*First wire sdgs on H 4547 c*)
 - b. Between the limits of H. 4162 and H. 4545 the work should be extended inshore, being careful to develop the 15 fathom tube sounding in lat. $33^{\circ} 35 \frac{1}{2}'$, long. $118^{\circ} 00 \frac{1}{2}'$.
 - c. From the eastern limit of this sheet the work should be extended inshore to join with H. 1907 at the 20-fathom curve and to effect a proper junction with H. 4368. The area around the 112 and 116-fathom soundings in lat. $33^{\circ} 20'$, long. $118^{\circ} 40'$ should be developed.
 - d. A closer development of the 65 fathom (wire) sounding in lat. $33^{\circ} 24 \frac{1}{2}'$, long. $118^{\circ} 59'$ and enough lines to the westward to develop the 200-fathom curve.

It is submitted for consideration the advisability of splitting some of the lines in this locality, in view of the fact that the area is traversed by the Pacific fleet. (See Descriptive Report, page 21, and letter from T.J. Maher, Jan. 24, 1927.)

- e. A line of soundings (119 - 185 fathoms) in lat. $33^{\circ} 25 \frac{1}{2}'$, long. $118^{\circ} 21'$ falls in much deeper water on H. 1414^a. If inshore work is done along Catalina Island this area should be investigated at the same time.
9. Attention is called to the fact that the work on N and P days when the sonic apparatus was not working properly, has been accepted. The subsequent wire soundings on Q day covering the same area and the overlapping soundings on H. 4559 show such a good agreement that the acceptance is regarded as justifiable.

Sonic soundings of less than 110 fathoms have been omitted, as they are considered not sufficiently accurate to meet present standards.

10. Character and scope of field operations - very good.
Field drafting - excellent.
11. Reviewed by A. L. Shalowitz, February, 1927.

Approved:

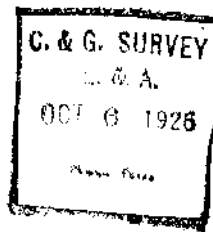
A. L. Shalowitz

Chief, Section of Field Records (Charts)

L. O. Pollard

Chief, Section of Field Work (H. & T.)

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY



REG. NO. 4560

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. _____

REGISTER NO. 4560

State CALIFORNIA

General locality ~~Southern California~~ ^{Coast}

Locality ~~East of Santa Catalina Island~~ Gulf of Santa Catalina, San Pedro Channel and Outer Santa Barbara Passage

Scale 1 : 120,000 Date of survey February 4 -- May 8, 1926

Vessel USC & GSS GUIDE

Chief of Party ~~Thos. J. Maher~~

Surveyed by ~~Thos. J. Maher~~

Protracted by W. F. Malnate

Soundings penciled by W. F. Malnate

Soundings in fathoms ~~fathoms~~

Plane of reference M.L.L.W.

Subdivision of wire dragged areas by none

Inked by _____

Verified by _____

Instructions dated Jan. 12th., 1924 and Jan. 17th., 1926

Remarks: ~~Tide station at Long Beach except when data was~~

~~missing. See letter from Director, June 4, 1926. Rfe 25-MP~~

Four (4) volumes soundings etc
Six (6) sheets Tide Correction Graphs.

11
November 5, 1926.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
4 volumes of sounding records for

HYDROGRAPHIC SHEET NO. 4560

Locality: SOUTHERN CALIFORNIA

Chief of Party: T. J. Maher in 1926

Plane of reference is MLLW
4.0 ft. on tide staff at Long Beach
3.8 ft. ----- do----- La Jolla

For reduction of soundings, 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 each 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.

G. Rude

Chief, Division of Tides and Currents.

4560 Add'l. Wk.

4560 Add'l. Wk.

Form 504	
DEPARTMENT OF COMMERCE	
U. S. COAST AND GEODETIC SURVEY	
E. Lester Jones, Director	
State: <u>Calif.</u>	
DESCRIPTIVE REPORT	
Topographic Hydrographic	Sheet No. 4560 4560 Add'l. Wk.
LOCALITY	
Coast of Southern California,	
Southeast from San Pedro.	
1928	
CHIEF OF PARTY	
F. G. Engle	

DESCRIPTIVE REPORT
TO ACCOMPANY

HYDROGRAPHIC SHEET #4560 - - - - - SCALE: 1:120,000
COAST OF SOUTHERN CALIFORNIA - - - SOUTHEAST FROM SAN PEDRO.

ADDITIONAL WORK DONE BY DISCOVERER - 1928

This work was done in accordance with Par., 12 and 13 Director's Instructions dated Dec. 16, 1928

The soundings are all by fathometer. Attached to this report is a cross section sheet on which the corrections to the fathometer soundings are derived. The following method was used.

The graph was made up prior to sending water samples to the Scripps Institute and the value of salinity 36.8 used was obtained from the city chemist Long Beach. Bottom temperatures were plotted and a temperature depth curve #1 was drawn. From this, Table #1 was made listing the average temperatures for various depths and the corresponding factor.


Tables and Graphs with Vol-5dqs

A smooth curve #2 was then made of these factors and a Table #2 was constructed from it giving the correction in fathoms and tenths for each fathom depth up to 100 fathoms.

It was found that the fathometer soundings under 100 fathoms corrected for temperature and salinity were all greater than the wire comparisons by 1-1/2 fathoms. This correction was obtained from curve #3.

For the work Southeast of Abalone Pt., it was necessary to recover triangulation stations Flores Hill, Cuate Bluff, San Mateo Rock and Abalone Knoll and build signals on them as no objects for fixes were available. In addition it was necessary to cut in two artificial objects and two Hydrographic signals. This work was done on a 1:40,000 scale and for greater accuracy. Throughout the work is well located and discrepancies in depth from previous work where such discrepancies occur must be ascribed to weak or uncertain fixes on the previous work.

Respectfully submitted,


F. G. Engle,
H. & G. Engineer,
Chief of Party.

STATISTICS FOR SHEET NO. 4560

COAST OF SOUTHERN CALIFORNIA - - - SOUTHEAST FROM SAN PEDRO.

<u>Date, 1928</u>	<u>:</u>	<u>Letter</u>	<u>:</u>	<u>Volume</u>	<u>:</u>	<u>Positions</u>	<u>:</u>	<u>Soundings</u>	<u>:</u>	<u>Miles (st.)</u>	<u>:</u>	<u>Vessel</u>
Feb. 8	:	A	:	1	:	27	:	221	:	21.9	:	Ship
" 9	:	B	:	1	:	44	:	293	:	27.2	:	"
" 10	:	C	:	1	:	82	:	562	:	73.5	:	"
" 11	:	D	:	2	:	101	:	627	:	71.3	:	"
" 14	:	E	:	2	:	77	:	459	:	54.3	:	"
" 16	:	F	:	2 & 3	:	80	:	345	:	60.7	:	"
" 27	:	G	:	3	:	26	:	80	:	17.2	:	"
Mar. 8	:	H	:	4	:	107	:	536	:	85.7	:	"
						Totals -----	:	544	:	3123	:	411.8

May 26, 1928.

Copy for Section of Field Records files.

(11)

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
volumes of sounding records for

4

HYDROGRAPHIC SHEET 4560 add'l.

Locality: SOUTHERN CALIFORNIA.

Chief of Party: F. G. Engle, 1928.
Plane of reference is M L L W
3.5 ft. on tide staff at Los Angeles, Harbor.

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 each 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.

F. G. Engle
Chief, Division of Tides and Currents.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

AND REFER TO NO. 11-~~DRM~~

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4560 (Additional Work)

California - Southeast of San Pedro

Surveyed in 1928

Instructions dated Dec. 16, 1927

Chief of Party, F. G. Engle.

Surveyed by F. G. E.

Protracted and soundings plotted by T. B. Reed.

Verified and inked by F. B. Kelly.

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 work in general does not show good agreement with the original work nor with other surveys in this locality, although in some localities it agrees fairly well.
4. The southern shore of Catalina Island was changed to fit T.1606 because this shore was used as left tangent in some of the additional work.
5. Several changes were made in the original survey as follows:
 - (a) Position of 67 fathom sounding between 20 D and 21 D ($33^{\circ} 33'$, $118^{\circ} 09'$) was changed slightly.
 - (b) A sounding of 15 fathoms, 83 S to 84 S ($33^{\circ} 35'$, $118^{\circ} 00'$) was changed to 17 fathoms due to the use of a composite curve for tube corrections instead of the curve for S day.
 - (c) Quite a number of soundings in the shoal ($33^{\circ} 24'$, $118^{\circ} 00'$) were rejected as the area is fully covered by the additional work which shows less water than the original survey.

(d) Due to many discrepancies between the old and new work, especially at $33^{\circ} 29'$, $117^{\circ} 48'$ and $117^{\circ} 30'$ to $117^{\circ} 40'$ and $33^{\circ} 10'$ to $33^{\circ} 20'$, the curves were not completed as the matter is to be referred to Capt. Engle for clarification if possible.

6. Five hydrographic signals were located by the field party and all of them plotted incorrectly on the smooth sheet. This accounts for all of the corrections, made by the office draftsman, in plotting.
7. With the exception mentioned in paragraph 6, the plotting of positions was excellent. Plotting of soundings was fair.
8. Report by F. B. Kelly, November 24, 1928.

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

AND REFER TO NO. **11-DEM**

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

SECTION OF FIELD RECORDS

Hydrographic Sheet No. 4560 (Additional Work in 1928)

1. With several adjustments and omission of some of the 1926 soundings, most of which are noted in the cartographer's report, a very fair agreement was obtained between the 1926 and 1928 work except at the southeastern part of the sheet. All soundings between 37 T and 59 T (1926) disagreed so radically with F day (1928) that it was evident that one or the other of these surveys was erroneous in this locality. The perfect agreement of the lower part of F day soundings with those on H. 4568, and the excellent plotting and smooth curves of F day, indicate their substantial accuracy. On recommendation of the Chief of Field Records Section, 37 T to 59 T has been rejected and erased from the sheet.
2. The specific instructions have been complied with.

Inspected by E. P. Ellis, January, 1929.

Approved:



Chief, Section of Field Records (Charts)

Chief, Section of Field Work (H. & T.)

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REG. NO. 4560 Add'l Wk.

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. _____

REGISTER NO. ⁴⁵⁶⁰
4560 Add'l Wk.

State California

General locality ~~Southern California~~ SE. of San Pedro

Locality ~~Newport & Vicinity~~ Between San Juan Pt and San Clemente I.

Scale 1:120,000 Date of survey Feb. 8 - Mar. 8, 1926

Vessel DISCOVERER

Chief of Party F. G. Engle

Surveyed by F. G. E.

Protracted by T. B. R.

Soundings penciled by T. B. R.

Soundings in fathoms ~~xxxx~~

Plane of reference MLLW

Subdivision of wire dragged areas by _____

Inked by _____

Verified by _____

Instructions dated December 16, 1927

Remarks: _____

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. *4560 Addl Work*

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

Number of positions on sheet .*544*.
Number of positions checked .*178*.
Number of positions revised .*78*.
Number of soundings recorded *3122*.
Number of soundings revised .*460*.
Number of signals erroneously
plotted or transferred*5*

Date: - *November 24, 1928* - - - -

Cartographer: *Francis B. Kelly* - - - -