

8353

*John
H. H.*

Diag. Cht. No. 5502-2.

Form 504

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. WCFP-1157 Office No. H-8353

LOCALITY

State California

General locality _____

Locality Northern Bodega Bay & Harbor

1957

CHIEF OF PARTY

A. L. Wardwell

LIBRARY & ARCHIVES

DATE December 11, 1957

USCOMM-DC 5087

8353

HWB

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

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.

REGISTER No. H-8353

Field No. WCFP 1157

State California

General locality ~~California Coast~~

Locality Northern Bodega Bay and Harbor

Scale 1:10,000 Date of survey 29 Jan - 13 Mar 1957

Instructions dated 22 August 1956, 29 August 1956

Vessel Launch C.S. 160

Chief of party CDR Arthur L. Wardwell

Surveyed by ENS Philip J. Taetz, ENS James K. Richards

Soundings taken by fathometer, ~~and by hand lead~~

Fathograms scaled by Albert W. Brain

G. W. Griffin, J. K. Richards

Fathograms checked by P. J. Taetz, A. L. Wardwell, R. G. Waterhouse

Protracted by ENS Mart Kask

Soundings penciled by ENS Mart Kask

Soundings in ~~fathoms~~ feet at ~~MLLW~~ and are true depths

REMARKS:

HWB

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SURVEY
FIELD NO. WCFP 1157 - REGISTRY NO. H-8353

BODEGA BAY, CALIFORNIA
PROJECT 13890

DATE OF SURVEY: 1957
SCALE: 1:10,000

WEST COAST FIELD PARTY - ARTHUR L. WARDWELL, CHIEF OF PARTY

SURVEYED BY: P.J. TAETZ, J.K. RICHARDS
(experience 6 to 9 months)

PROJECT

The work was done in accordance with instructions from the Assistant Director for project number 13890 dated 22 August 1956 ✓ with supplemental instructions dated 29 August 1956.

SURVEY LIMITS AND DATES

The general locality of the survey is Bodega Bay, Coast of ✓ California.

The limits of the survey enclose Bodega Harbor and a narrow area in Bodega Bay extending in a southeasterly direction ✓ from Bodega Head and Doran Beach to Latitude $38^{\circ}16'$.

Field work begun 29 January 1957 and was completed 13 March ✓ 1957.

The area covered by this survey had been previously surveyed ✓ in 1931 as shown on hydrographic survey sheets H-5162 (scale 1:10,000) 1931, and H-5163 (scale 1:10,000) 1931.

VESSELS AND EQUIPMENT

The hydrography was performed exclusively with launch C.S. 160 which operated from Bodega Harbor, California. The turning radius of the launch is about 15 meters at 5 to 6 knots, the speed at which the hydrography was performed. ✓

One fathometer 808-J 152 SPX with a keel-mounted acoustic unit was used for sounding during the entire survey. ✓

The unreduced depths encountered throughout the area ranged approximately from 3 feet to 100 feet. ✓

TIDE AND CURRENT STATIONS

A portable tide gage and staff were attached to the piling of Daybeacon No. 4 (Latitude $38^{\circ}18.47'$, Longitude $123^{\circ}03.31'$) in Bodega Harbor. The resulting tide records were used for reducing all soundings plotted on the smooth sheet. ✓

There were no current stations established. ✓

SMOOTH SHEET

The projection was ruled by hand at the C&GS Ships Base in Seattle by Ensign Philip J. Taetz. ✓

The shoreline was transferred from advance blue-line photographic manuscripts. Shoreline, piers, and other detail adjacent to water was not inked on the smooth sheet. All detail in the water area, however, (such as rocks and daybeacons) which originated with the manuscripts were inked on the smooth sheet. ✓

see TPI
Review

All positions were plotted by the use of the three-arm protractor. ✓

CONTROL STATIONS

Two of the signals were previously established triangulation stations. The remainder of the signals were located by photogrammetric methods or by the hydrographic party.

Hydrographic signals FOG and PAL were located by sextant cuts from the launch at various positions. The two other hydrographic signals KID and NIX were located by a three point fix.

For additional information regarding control stations see page 14 in back of the report, List of Signals Used.

- of 1955-57.

Topographic signals were transferred to the boat and smooth sheets by pricking through photographic manuscripts T-10410, T-10411, T-10412. Refer to Descriptive Report of the Planimetric Surveys, Project No. 25160 (6159) dated July and August 1956 and No. 25160 dated January thru February 1957, for further details regarding control for this survey.

*see TP1
Review*

SHORELINE AND TOPOGRAPHY

All shoreline for this survey was furnished by the Washington Office and transferred to the boat and smooth sheets from photographic manuscripts T-10410, T-10411, T-10412. The only discrepancy found between the topographic and the hydrographic survey was the distance the south jetty (at the entrance to the Bodega Harbor) extends east into Bodega Bay.

- of 1955-57

*see TP1
Review*

The low water line in Bodega Harbor is adequately defined. On the outside, Bodega Bay, it was impossible in some places to obtain the 6 foot curve because of alongshore breakers.

SOUNDINGS

Fathometer 152 SPX was used for most of the soundings during this survey. In shallow waters a sounding pole was used.

Fathometer corrections were obtained by a series of bar checks and phase comparisons, described in a separate fathometer report which has been forwarded to the Director. An abstract of echo corrections is attached to this report.

The low water line along the slough inside Bodega Harbor was determined by walking along the low water line at zero tide and taking sextant fixes to signals on shore.

CONTROL OF HYDROGRAPHY

Sextant fixes, using the three point method, were used for horizontal control of the survey.

The initial soundings in between Latitudes $38^{\circ}16.6'$ and $38^{\circ}17.2'$ were rejected because of significant jumps in the lines which occurred when changing fixes. About a week was spent in trying to determine the cause of this discrepancy. Triangulation stations Bodega Head 2, 1906, and Trainor, 1906, were occupied with the theodolite and all signals involved were cut in and plotted on a planetable sheet. These positions all checked with the boat sheet locations.

Since some of the signals were somewhat higher in elevation than others, corrections were computed for the sextant angles to determine if this was causing the error, and the corrections were found to be negligible.

A new set of signals was finally located and the work in this area was redone on an overlay with the sounding lines running in an east-west direction. This work was satisfactory and was used on the smooth sheet in place of the initial work.

see
P 76
Review

ADEQUACY OF SURVEY

Survey sheet No. H-8353 is considered adequate and complete and should supersede prior surveys for charting. No extraordinary submarine features were found. Depth curves can be drawn adequately for the entire area.

P 5
Review

CROSSLINES

The crosslines constituted 5 per cent of total sounding lines. All crosslines in Bodega Harbor appeared satisfactory. In some instances, crosslines in Bodega Bay differed greatly from regular sounding lines. By inspecting the fathograms it appeared that rough water and very rugged bottom constituted the differences in soundings.

P 2
Review

COMPARISON WITH PRIOR SURVEYS

The area covered by this survey was previously surveyed in 1931 sheet H-5162, scale 1:10,000. Due to dredging operations and other harbor development projects, over the years, the harbor area has changed considerably so that the present work is not in agreement with the survey of 1931. The outside area, or Bodega Bay, is, however, in good agreement with the survey of 1931.

see
P5C
REVIEW

On April 1953, the U.S. Army Corps of Engineers made a condition survey of the channel in Bodega Harbor (No. 11-2-9, scale 1"-300'). Comparison shows the depths to be in agreement.

see
P6C
REVIEW

A comparison with the latest U.S. Army Corps of Engineers condition survey (May 1954, No. 11-21, scale 1"-100') shows the two to be in agreement.

see P6C
REVIEW

COMPARISON WITH CHART

Soundings compared with chart 5603 (November 1934 second edition, scale 1:30,000) are in good agreement.

see P6C
REVIEW

DANGERS AND SHOALS

There are no newly found dangers or shoals to report within the limits of this survey. ✓

AIDS TO NAVIGATION

All fixed aids to navigation are reported on form 567, see pages 16, 17, and 18 of this report. ✓

Bodega Rock Channel Lighted Gong Buoy 2 (see 1955 Pacific Coast Light List No. 716) was found to be located at Latitude $38^{\circ}17.24'$, Longitude $123^{\circ}02.30'$ in 70 feet of water (see position 4 d, 5 February 1957). ✓

Bodega Harbor Entrance Lighted Bell Buoy 1 (see 1955 Pacific Coast Light List No. 717) was found to be located at Latitude $38^{\circ}18.35'$, Longitude $123^{\circ}02.65'$ in 22 feet of water (see position 3 g, 17 February 1957). ✓

Bodega Harbor Red Nun Buoy 2A was found to be located at Latitude 38°18.39; Longitude 123°03.33 (see position 3 g, 17 February 1957).

LANDMARKS FOR CHARTS

Data for landmarks for charts has been submitted by the Portland Photogrammetric Office, on form 567, dated 30 April 1957. ✓

The only landmark within the limits of this survey is an unpainted cylindrical tank with conical roof, 22 feet above ground and 230 feet above MHW, Latitude 38°20' and 607.5(1242.5) meters, Longitude 123°02' and 914.4(542.7) meters. ✓

TABULATION OF APPLICABLE DATA

1. Bodega Harbor Tide Station marigrams Nos. 1 thru 6 were forwarded to the Director, 20 February 1957, Nos. 7 thru 10 were forwarded 2 July 1957. ✓

Bodega Harbor Tide Station Report was forwarded to the Director 1 February 1957. Level data for installation of Bodega Harbor Tide Staff was sent to the Director 6 February 1957. Level data for removal of the tide staff was sent to the Director 18 November 1957. ✓

Abstracts of tide reducers are attached to this report. ✓

2. Office photographs were forwarded to the Director 19 July 1957. ✓
3. Photo manuscripts and blue-line prints are to be forwarded to the Director. ✓
4. Special fathometer report was sent to the Director 15 November 1957. Abstract of fathometer corrections are attached to this report. ✓
5. Fathograms are to be forwarded to the Director. ✓

6. Sounding volumes are to be forwarded to the Director. ✓
7. The boat sheet is to be forwarded to the Director. ✓
8. Copies of old surveys are to be forwarded to the Director. ✓

Respectfully submitted,

Mart Kask

Mart Kask
ENS USC&GS

SPECIAL REPORT ON PRELIMINARY REVIEW

PROJECT 13890

HYDROGRAPHIC SHEETS NO.

WCFP 1157, H-8353

WCFP 1257, H-8354

WCFP 1357, H-8355

WCFP 1457, H-8356

All questionable areas shown on the Preliminary Review were investigated in the field by the hydrographic party, with the exception of the doubtful 13 foot rock sounding on sheet WCFP 1257 at latitude $38^{\circ} 15.62'$, longitude $122^{\circ} 58.62'$. This area could not be thoroughly investigated because of rough water.

The development of the other areas is shown on the respective smooth sheets. All shoal soundings in question were verified, and, in some cases, shoaler soundings were found.

The unsurveyed foul area indicated in the vicinity of latitude $38^{\circ} 14.25'$, longitude $122^{\circ} 59.10'$ was investigated to some extent, but rough water prevented a thorough job.

The condition of the oyster pens in the south end of Tomales Bay was described on sheet WCFP 1457.

All shoreline features such as docks and piers were verified by the field inspection party from the photogrammetry division.

Respectfully submitted,

Philip J. Taetz
Philip J. Taetz
Ensign, C&GS

Charles L. Hoover
Superior Seattle
District

STATISTICS FOR HYDROGRAPHIC SURVEY

FIELD NO. WCFP 1157 - REGISTRY NO. H- 8353

LAUNCH CS 160 - PROJECT 13890

Vol.No.	Day Letter	Date	No.Pos.	H.L.& Pole Sdgs.	Stat.Miles	Method
1	a	29 January	146	0	21.0	L
1	b	30 "	15	0	2.3	L
1 & 2	c	31 "	145	0	17.9	L
2	d	5 February	112	0	13.2	L
2 & 3	e	11 "	118	0	15.8	L
3	f	16 "	172	182	15.2	L
4	g	17 "	108	134	8.7	L
4	h	19 "	55	0	6.8	L
4	j	8 March	31	0	3.6	L
4	k	11 "	48	11	4.8	W L
3	l	13 "	8	0	0.0	L
			<u>958</u>	<u>327</u>	<u>109.3</u>	

Total area, square statute miles 4.03

L Launch

W Walking shoreline

TIDE NOTE FOR HYDROGRAPHIC SURVEY

Bodega Bay, Coast of California

Field No. WCFP 1157
Registry No. H-8353

A portable tide gage and staff were attached to the piling of Daybeacon No. 4 (Latitude $38^{\circ}18.47'$, Longitude $123^{\circ}03.31'$) in Bodega Harbor. The resulting tide records were used for reducing all soundings plotted on the smooth sheet.

The MLLW, to which all soundings were referred to, read 2.5 feet on the tide staff.

No corrections to time or height for distance from the gage were applied to the above tides.

ABSTRACT OF SMOOTH TIDE REDUCERS

BODEGA HARBOR ENTRANCE DIRECT

SHEET WCFP 1157 REGISTRY NO. H- 8353

"a" day, 29 Jan.

1000-1029	- 6.0	ft.
-1050	- 5.8	
-1107	- 5.6	
-1121	- 5.4	
-1134	- 5.2	
-1145	- 5.0	
-1157	- 4.8	
-1208	- 4.6	
-1218	- 4.4	
-1228	- 4.2	
-1237	- 4.0	
-1246	- 3.8	
-1255	- 3.6	
-1305	- 3.4	
-1313	- 3.2	
-1322	- 3.0	
-1330	- 2.8	
-1340	- 2.6	
-1349	- 2.4	
-1358	- 2.2	
-1407	- 2.0	
-1416	- 1.8	
-1425	- 1.6	
-1435	- 1.4	
-1445	- 1.2	
-1455	- 1.0	
-1507	- 0.8	
-1520	- 0.6	
-1534	- 0.4	
-1550	- 0.2	
-1611	0.0	

"b" day, 30 Jan.

1430-1440	- 1.6	ft.
-1449	- 1.4	
-1458	- 1.2	
-1509	- 1.0	

"c" day, 31 Jan.

1020-1050	- 5.6	ft.
-1126	- 5.4	
-1146	- 5.2	
-1204	- 5.0	
-1220	- 4.8	
-1235	- 4.6	
-1248	- 4.4	
-1300	- 4.2	
-1310	- 4.0	
-1320	- 3.8	
-1329	- 3.6	
-1338	- 3.4	
-1347	- 3.2	
-1356	- 3.0	
-1405	- 2.8	
-1414	- 2.6	
-1422	- 2.4	
-1431	- 2.2	
-1441	- 2.0	
-1450	- 1.8	
-1500	- 1.6	
-1511	- 1.4	

"d" day, 5 Feb.

1100-1110	- 2.4	ft.
-1136	- 2.6	
-1156	- 2.8	
-1214	- 3.0	
-1235	- 3.2	
-1300	- 3.4	
-1522	- 3.6	
-1600	- 3.4	

"e" day, 11 Feb.

1044-1050	- 3.8	ft.
-1057	- 3.6	
-1103	- 3.4	
-1110	- 3.2	
-1117	- 3.0	
-1123	- 2.8	
-1130	- 2.6	
-1138	- 2.4	
-1145	- 2.2	
-1152	- 2.0	
-1200	- 1.8	
-1210	- 1.6	
-1220	- 1.4	
-1229	- 1.2	
-1239	- 1.0	
-1250	- 0.8	
-1300	- 0.6	
-1310	- 0.4	
-1322	- 0.2	
-1336	0.0	
-1350	∕ 0.2	
-1420	∕ 0.4	
-1500	∕ 0.6	
-1507	∕ 0.4	

"f" day, 16 Feb.

0939-0947	- 4.8	
-0957	- 5.0	
-1005	- 5.2	
-1016	- 5.4	
-1028	- 5.6	
-1040	- 5.8	
-1054	- 6.0	
-1114	- 6.2	
-1249	- 6.4	
-1308	- 6.2	
-1322	- 6.0	
-1334	- 5.8	
-1345	- 5.6	
-1355	- 5.4	
-1405	- 5.2	
-1414	- 5.0	
-1423	- 4.8	
-1431	- 4.6	
-1440	- 4.4	
-1448	- 4.2	
-1455	- 4.0	

ABSTRACT OF SMOOTH TIDE REDUCERS

BODEGA HARBOR ENTRANCE DIRECT

SHEET WCFP 1157 REGISTRY NO. H- 8353

"g" day, 17 Feb.

1120-1132	- 5.0	ft.
-1148	- 5.2	
-1205	- 5.4	
-1334	- 5.6	
-1355	- 5.4	
-1410	- 5.2	
-1424	- 5.0	
-1436	- 4.8	
-1448	- 4.6	
-1500	- 4.4	
-1510	- 4.2	
-1520	- 4.0	

"h" day, 19 Feb.

1020-1039	- 1.6
-1054	- 1.8
-1110	- 2.0
-1124	- 2.2
-1140	- 2.4
-1153	- 2.6
-1207	- 2.8
-1221	- 3.0
-1236	- 3.2
-1250	- 3.4
-1303	- 3.6
-1317	- 3.8
-1331	- 4.0
-1350	- 4.2
-1600	- 4.4

"j" day, 8 Mar.

1311-1330	- 2.6
-1349	- 2.8
-1405	- 3.0
-1423	- 3.2
-1441	- 3.4

"k" day, 11 Mar.

1046-1057	- 1.4
-1108	- 1.2
-1122	- 1.0
-1138	- 0.8
-1152	- 0.6
-1208	- 0.4
1450-1507	- 0.4
-1521	- 0.6
-1534	- 0.8

LIST OF SIGNALS USED

FIELD NO. WCFP 1157 REGISTRY NO. H- 8353

Hydrographic Name	Origin of Signal
AEE	Manuscript T-10410
AMY	Manuscript T-10410
BOA	Manuscript T-10410
BOX	Manuscript T-10411
CUP	Manuscript T-10410
DEG	BODEGA, 1855-1929-1930-1949
EAR [△]	Manuscript T-10410 (TRIANG.-1957) N. Range Rear Lt.
EGO	Manuscript T-10410
[△] FIT (ENTRANCE RANGE FRONT LIGHT #3, 1957)	Manuscript T-10411 (TRIANG., 1957)
FOG	2 cuts, "e" day Vol. 2 page 64
[△] FUN (ENTRANCE RANGE REAR Lt., 1957)	Manuscript T-10411 (TRIANG., 1957)
GAB	Manuscript T-10410
GUS	Manuscript T-10411
HAG	Manuscript T-10411
[△] HOP (Upper Range Rear Lt, 1957)	Manuscript T-10411 (TRIANG. 1957)
HUM	Manuscript T-10410
IDA	Manuscript T-10410
IRK	Manuscript T-10410
[△] JOB (CHAN LT. 14, 1957)	Manuscript T-10410 (TRIANG. 1957)
[△] KID (Bodega Hbr. Chan Dy Br. 16, 1957)	3 pt. fix, "g" day Vol. 4 page 13 (TRIANG.) 1957
LEO	Manuscript T-10411
LIP	Manuscript T-10410

LIST OF SIGNALS USED

FIELD NO. WCFP 1157 REGISTRY NO. H- 8353

Hydrographic Name	Origin of Signal
[△] LOW (LOWER RANGE FRONT LT.#5, 1957)	Manuscript T-10411 (TRIANG., 1957)
MAN	Manuscript T-10410
NED	Manuscript T-10410
NIX (BODEGA HBR. CHAN. DAY BN.#2, 1957)	3 pt. fix, "f" day Vol. 3 page 23 (TRIANG.-1957)
NOR (N. Range Fr. Lt. #21, 1957)	Manuscript T-10410 (TRIANG.-1957)
OAK	Manuscript T-10410
OFF	Manuscript T-10410
PAL	2 cuts, "e" day Vol. 2 page 64
[△] POD (DORAN, 1957)	Manuscript T-10410 (TRIANG., 1957)
[△] RAT (Upper Range Fr. Lt. #8, 1957)	Manuscript T-10410 (TRIANG., 1957)
RED	Manuscript T-10410
ROB	ROBINSON, 1930
[△] RAN (LOWER RANGE REAR LIGHT, 1957)	Manuscript T-10411 (TRIANG., 1957)
WIN	Manuscript T-10410
YAK	Manuscript T-10412

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WEST COAST FIELD PARTY

NONFLOATING AIDS ~~ON THE COAST OF OREGON~~

TO BE CHARTED
~~TO BE DELETED~~

STRIKE OUT ONE

Portland, Oregon

2 May 1957

I recommend that the following objects which have (have not) been inspected from seaward to determine their value as landmarks be charted on (deleted from) the charts indicated.

The positions given have been checked after listing by Charles H. Bishop

V. Ralph Sobieralski
Chief of Party.

STATE	CHARTING NAME	DESCRIPTION	SIGNAL NAME	POSITION				METHOD OF LOCATION SURVEY No.	DATE OF LOCATION	HARBOR CHART	INSHORE CHART	OFFSHORE CHART	CHARTS AFFECTED
				LATITUDE * ° ' "	LONGITUDE * ° ' "	DATUM	D.P. METERS "						
California	Light	Triangular daymark, vertex up on pile structure. (Bodega Harbor)		38 18	123 03	N.A. 1927	498.9 (988.9)	1957	X			5603	
		Entrance Range Front Light #3 Light List No. 718											
	Light	Triangular day mark, vertex down, on timber structure. (Bodega Harbor Entrance Range Rear Light)		38 18	123 03	"	635.3 (822.5)	"	X			"	
		Light List No. 719											
	Day-Beacon	Red square on pile. (Bodega Harbor Channel Daybeacon 2)		38 18	123 03	"	691.5 (1054.1)	"	X			"	
	Day-Beacon	Red square on pile. (Bodega Harbor Channel Daybeacon 4)		38 18.5	123 03.3	"		"	X			"	
	Light	Triangular day mark, vertex up, on pile structure (Bodega Harbor Lower Range Front Light 5)		38 18	123 03	"	750.1 (1099.8)	"	X			"	
		Light List No. 720											
	Light	Triangular day mark, vertex down, on pile structure. (Bodega Harbor Lower Range Rear Light)		38 18	123 03	"	602.0 (822.7)	"	X			"	
		Light List No. 721											
	Day-Beacon	Red square on pile. (Bodega Harbor Channel Daybeacon 6)		38 18.6	123 03.2	"		"	X			"	
	Light	Triangular day mark, vertex up, on pile structure. (Bodega Harbor Upper Range Front Light 8)		38 18	123 03	"	1469.2 (380.8)	"	X			"	
		Light List No. 722					94.4 (1363.2)	"	X			"	

This form shall be prepared in accordance with Hydrographic Manual, pages 800 to 804. Positions of charted landmarks and nonfloating aids to navigation, if redetermined, shall be reported on this form. The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

NONFLOATING AIDS ~~ON THE COAST OF OREGON~~

TO BE CHARTED
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STRIKE OUT ONE

Portland, Oregon

2 May 1957

I recommend that the following objects which have ~~been~~ been inspected from seaward to determine their value as landmarks be charted on ~~(charts)~~ the charts indicated.

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V. Ralph Sobieralski

Chief of Party.

STATE	CHARTING NAME	DESCRIPTION	SIGNAL NAME	POSITION				METHOD OF LOCATION AND SURVEY NO.	DATE OF LOCATION	HARBOR CHART	OFFSHORE CHART	CHARTS AFFECTED	
				LATITUDE*		LONGITUDE*							DATUM
				° ' "	D. M. METERS	° ' "	D. P. METERS						
California	Light	Triangular day mark, vertex down, on pile structure. (Bodega Harbor Upper Range Rear Light) Light List No. 723		38 18	1265.1 (584.9)	123 03	91.9 (1365.7)	N.A. 1927	1957	X		5603	
	Light	Triangular day mark, vertex up, on pile structure. (Bodega Harbor North Range Front Light 21) Light List No. 724		38 19	1754.8 (95.2)	123 03	121.2 (1336.1)	"	"	X		"	
	Light	Triangular day mark, vertex down, on white timber structure. (Bodega Harbor North Range Rear Light) Light List No. 725		38 20	172.0 (1677.9)	123 03	124.4 (1332.9)	"	"	X		"	
	Day Beacon	Red square on pile (Bodega Harbor Channel Daybeacon 10)		38 18.9		123 03.0		"	"	X		"	
	Day Beacon	Red square on pile (Bodega Harbor Channel Daybeacon 12)		38 19.2		123 03.0		"	"	X		"	
	Light	Red day mark on pile structure (Bodega Harbor Channel Light 14) Light List No. 726		38 19	698.0 (1152.0)	123 03	79.0 (1378.4)	"	"	X		"	
	Day Beacon	Red square on pile. (Bodega Harbor Channel Daybeacon 16)		38 19	1062.2 (787.8)	123 03	84.0 (1373.4)	"	"	X		"	
	Day Beacon	Red square on pile (Bodega Harbor Channel Daybeacon 18)		38 19.7		123 03.0		"	"	X		"	
	Day Beacon	Red square on pile. (Bodega Harbor Channel Daybeacon 20)		38 19.9		123 03.1		"	"	X		"	
	Day Beacon	Red square on pile. (Bodega Harbor Channel Daybeacon 22)		38 19.9		123 03.0		"	"	X		"	

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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

NONFLOATING AIDS ~~TO BE CHARTED~~

~~TO BE CHARTED~~
STRIKE OUT ONE

Portland, Oregon

2 May, 19 57

I recommend that the following objects which have ~~been~~ been inspected from seaward to determine their value as landmarks be charted on ~~the~~ the charts indicated.

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V. Ralph Sobieralski
Chief of Party.

CHARTING NAME	STATE	DESCRIPTION	SIGNAL NAME	POSITION						METHOD OF LOCATION AND SURVEY No.	DATE OF LOCATION	HARBOR CHART	OFFSHORE CHART	CHARTS AFFECTED
				LATITUDE*		LONGITUDE*		DATUM						
				D. M. METERS	"	D. P. METERS	"							
Day Beacon Light	California	Black square on pile (Bodega Harbor Channel Daybeacon 23) Red day mark on pile structure (Bodega Harbor Channel Light 24) Light List No. 727		38 20.0	123 03.0	N.A. 1927		Photo Plot	1957	X		5603		
Day Beacon		Black square on pile (Bodega Harbor Channel Daybeacon 25)		38 20.0	123 02.9	"		Photo Plot	"	X		"		
Day Beacon		Red square on pile (Bodega Harbor Channel Daybeacon 26)		38 19.7	123 02.7	"		"	"	X		"		
Day Beacon		Red square on pile (Bodega Harbor Channel Daybeacon 28)		38 19.6	123 02.5	"		"	"	X		"		
Day Beacon		Red square on pile (Bodega Harbor Channel Daybeacon 30)		38 19.4	123 02.4	"		"	"	X		"		

This form shall be prepared in accordance with Hydrographic Manual, pages 800 to 804. Positions of charted landmarks and *nonfloating aids* to navigation, if redetermined, shall be reported on this form. The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

APPROVAL SHEET

HYDROGRAPHIC SURVEY WCFP 1157 H-8353

Survey sheet H-8353, Bodega Bay, Coast of California,
is considered complete and adequate and should supersede
prior surveys for charting purposes.

Approved and forwarded,



Curtis LeFever
Captain, USC&GS
Seattle District Officer

2080
22110
453 NOV 20 1957

FATHOMETER REPORT

Project 13890

TOMALES and BODEGA BAYS, CALIFORNIA

EQUIPMENT:

All fathometer soundings were taken on launch C.S. 160 by an 808 J type fathometer, No. 152 SPX. The acoustic unit was mounted in the keel, and the initial was held at three feet.

COMPUTATION OF CORRECTIONS:

During the field season, three bar checks, a series of pole comparisons, and phase comparisons between the A and B scales and B and C scales were taken. Only comparisons taken under good conditions were considered in determining the fathometer corrections.

On a graph with "fathometer correction" as ordinate and "true depth" as abscissa, points which were meaned from the pole comparisons and bar checks were plotted. The pole comparisons were used to plot fathometer corrections in depths under 10 feet, and the bar checks were used for depths from 10 to 50 feet (A scale) and 40 to 70 feet (B scale). The B scale corrections were converted to A scale values, using a mean value from the A - B phase comparisons. A smooth curve was then drawn through the points. The A scale corrections were scaled directly off the curve to the nearest 0.1 foot. The B scale corrections were determined from the A scale corrections and the A-B phase comparison. Similarly, the B scale corrections and the B-C phase comparison were used to determine the C scale corrections.

James K. Richards
James K. Richards
ENS, C&GS

COMBINED CORRECTIONS FOR FATHOMETER 152 SPX
 when being used in Launch CS 160, Winter 1956 - 1957

Project 13890 Tomales & Bodega Bays

<u>"A" Scale</u>		<u>"B" Scale</u>		<u>"C" Scale</u>	
Fathometer Reading (ft.)	Correction (ft.)	Fathometer Reading (ft.)	Correction (ft.)	Fathometer Reading (ft.)	Correction (ft.)
5.0-14.7	-0.2				
-31.7	-0.1				
-38.8	0.0				
-43.8	0.1	37.3-42.3	1.6		
-48.1	0.2	-46.6	1.7		
-52.3	0.3	-50.8	1.8		
-56.3	0.4	-54.8	1.9		
-60.2	0.5	-58.7	2.0		
		-63.1	2.1		
		-69.0	2.2	63.7-69.6	1.6
		-87.7	2.3	-92.0	1.7

GEOGRAPHIC NAMES

Survey No. H-8353

Name on Survey	Source									
	A	B	C	D	E	F	G	H	K	
	On Chart No.	On previous survey No.	On U. S. quadrangle Maps	From local information	On local Maps	P. O. Guide or Map	Rand McNally Atlas	U. S. Light List		
<u>California</u>			(title)						BGN	1
<u>Bodega Bay</u>									"	2
<u>Bodega Rock</u>										3
<u>Bodega Head</u>										4
<u>Doran Beach</u>										5
<u>Bodega Harbor</u>			(tide station)						BGN	6
<u>Bodega Bay</u>			(small town)						"	7
										8
			Names approved			12-19-57				9
						h. Heck				10
										11
										12
										13
										14
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										16
										17
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										23
										24
										25
										26
										27

This sheet also verified in accordance with Suggestion No. 2218. Time below is total for combined work.

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8353...

Records accompanying survey:

Boat sheets ..1...; sounding vols. .4...; wire drag vols.; bomb vols.; graphic recorder rolls 4. Envelopes special reports, etc. .1-Smooth sheet and 1-Descriptive report. Source material filed in vault: blue line tracings and black line impression.

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

Table with 2 columns: Description and Time/Count. Rows include: Number of positions on sheet (958), Number of positions checked (141), Number of positions revised (33*), Number of soundings revised (refers to depth only) (16), Number of soundings erroneously spaced (50), Number of signals erroneously plotted or transferred (16), Topographic details (Time 40), Junctions (Time 8), Verification of soundings from graphic record (Time 6).

Verification by F.P. SAULSBURY Total time 180 Date 2-1-61

Reviewed by [Signature] Time 45 Date 2-23-61

*16 of these were pos. which prev. were not plotted on the S.S.

INKING SDC'S ON SS. --- 10 hrs - 3-24-61
INKING CURVES ON SS. - 2 hrs - 3-27-61
INKING CURVES ON FILM 1 hr - 3-27-61

M-2232-1

F. Sausbury

OFFICE OF CARTOGRAPHY

REVIEW SECTION -- NAUTICAL CHART DIVISION

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8353

FIELD NO. WCFP-1157

California, Northern Bodega Bay and Harbor

SURVEYED: Jan. - Mar. 1957

SCALE: 1:10,000

PROJECT NO. 13890

SOUNDINGS: 808 Depth Recorder
Sounding Pole

CONTROL:

Chief of Party ----- A. L. Wardwell
Surveyed by ----- P. J. Taetz; J. K. Richards
Protracted by ----- M. Kask
Soundings plotted by ----- M. Kask
Verified and inked by ----- F. P. Saulsbury
Reviewed by ----- I, M. Zeskind
Inspected by ----- R. H. Carstens

DATE 2-23-61

1. Shoreline and Control

The shoreline originates with reviewed photogrammetric surveys T-10410, T-10411 and T-10412 of 1955-1957.

The source of the control is given in the Descriptiver Report. However, it was necessary during the verification of the present survey to revise the locations and/or symbolization of a number of topographic stations which were smooth plotted by the field party as follows:

- a. Twelve triangulation stations which were established in 1957 and are now shown on the smooth sheet were originally shown as topographic stations. Differences of as much as 10 meters between the topographic and triangulation locations of 10 of these stations were noted. The locations of these stations as originally plotted on the smooth sheet were revised to agree with their location as determined by triangulation.
- b. The locations of 4 topographic stations were revised as much as 10 meters because they were originally plotted out of position.

2. Sounding Line Crossings

The sounding line crossings are in good agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves were adequately delineated, except in Bodega Bay where breakers prevented development to the low-water line.

The bottom is fairly irregular with shoals, ridges and flats contributing to the irregularity.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-5162 (1931) on the east and southwest, and with H-5163 (1931) on the south.

5. Comparison with Prior Surveys

- A. H-241 (1851), 1:100,000
- H-401 (1854), 1:375,000
- H-889 (1866), 1:100,000

The few soundings on these small-scale reconnaissance surveys which fall in the area of the present survey affords no adequate basis for comparison with the present survey.

The present survey is adequate to supersede the prior surveys within the common area.

- B. H-806 (1862), 1:10,000

This is a reconnaissance survey which covers the area of the present survey. A comparison between the prior and present surveys reveals changes in depths and bottom configuration, the greatest of which occur in Bodega Harbor. Here these changes are attributed to dredging operations, the reclaiming of land, and the construction of piers and jetties. An example of the change in depths in Bodega Harbor occurs in Lat. $38^{\circ}19.58'$, Long. $123^{\circ}02.94'$, where a prior depth of 8 ft. falls on the present survey in an area which uncovers 2 ft. at MLLW. In Bodega Bay the present depths are generally 2-4 ft. shoaler, except in the vicinity of the entrance to Bodega Harbor where the construction of the jetties and the dredging of a channel between the jetties has caused greater changes in depths.

The 9-ft. sounding charted in Lat. $38^{\circ}17.52'$, Long. $123^{\circ}02.54'$ originates with H-8061 (1862) where it was plotted out of position. The sounding actually falls about 260 meters north-westward where comparable depths are found on the present survey. The 9-ft. sounding should, therefore, be deleted from the chart.

The present survey is adequate to supersede the prior survey within the common area.

- C. H-5162 (1931), 1:10,000
- H-5163 (1931), 1:10,000

These prior surveys cover the area of the present survey. Considerable changes in depths and bottom configuration in Bodega Bay are attributed to causes similar to those enumerated in paragraph B above. The southwest end of Doran Beach on the prior survey has shifted about 200 meters and has enlarged as much as 100 meters. In Bodega Bay the greatest changes in depths have occurred in the vicinities of the jetties and Bodega Rock. Here changes in depths of as much as 8 ft. are noted. Elsewhere, the present depths are generally 2-3 ft. shoaler. However, in several areas depths are as much as 6 ft. shoaler.

A number of bottom characteristics have been carried forward from the prior surveys. With these additions the present survey is adequate to supersede the prior surveys within the common area.

6. Comparison with Chart 5603 (Latest print date 9-14-59)

A. Hydrography

The charted hydrography originates principally with prior surveys H-5162 and H-5163 of 1931 which were previously discussed and which need no further consideration, supplemented by a few soundings from the present survey prior to verification and review, and from subsequent Corps of Engineers' survey Bp. 56053.

The inshore rocks charted west of Lat. $38^{\circ}17.95'$, Long. $123^{\circ}03.17'$, from plane table survey T-4596 (1931), should be revised to agree with these features shown on T-10411 (1955-57). This latter survey is a photogrammetric compilation which in this area is based on an offshore aerial photograph which is approximately centered over these rocks. It is thought that the old topographic location of the rocks might have been obtained from elevated positions of the nearby bluff

which could have incurred errors in the positions of the rocks and the shoreline.

The present survey is adequate to supersede the charted hydrography within the common area.

B. Aids to Navigation

The present survey positions of aids to navigation are in substantial agreement with the charted positions and adequately mark the features intended. Beacon No. 10 shown on the present survey in Lat. $38^{\circ}18.93'$, Long. $123^{\circ}03.06'$ was deleted from the chart subsequent to the present survey in accordance with HON to M No. 49, 1958.

C. Dredged Channel

The controlling depth of 8 ft. in Bodega Harbor as far as beacon 28 originates with the U. S. Corps of Engineers' survey of July 1957 (Bp. 56053) which was accomplished subsequent to the present survey. The controlling depth is in agreement with the present survey, except in Lat. $38^{\circ}19.96'$, Long. $123^{\circ}02.98'$, where the present survey shows a depth of zero feet.

Southeast of beacon 28 a half-foot sounding charted in Lat. $38^{\circ}19.48'$, Long. $123^{\circ}02.40'$, originates with the U. S. Corps of Engineers' reconnaissance survey of 1957 (Bp. 56053). The charted sounding falling in present depths of 5-6 ft. is considered to be unrealistic and probably falls about 100 meters southeastward. Adjacent depths of 4-5 ft. on the Corps of Engineers' survey also discredits the $\frac{1}{2}$ ft. sounding.

7. Condition of Survey

- a. The Descriptive Report and sounding records are complete and adequate.
- b. A number of sounding lines were not plotted by the field party in Bodega Bay between Lat. $38^{\circ}16.6'$ and Lat. $38^{\circ}17.2'$ because of jumps in the sounding lines when changing fixes. These sounding lines were plotted on an overlay by the verifier who found in some instances that no jumps in sounding lines occurred. Those sounding lines which showed no jumps were transferred to the smooth sheet by the verifier. It is believed the jumps in sounding lines were caused by misidentification of signals. (See page 5 of the Descriptive Report)

c. The locations of 16 signals were revised during verification of the smooth sheet because they were originally plotted out of position as much as 10 meters. This condition resulted in the changing of a number of sounding lines. (See paragraph 1a above)

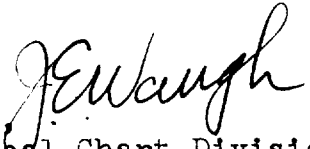
8. Compliance with Project Instructions


The survey adequately complies with the Project Instructions.

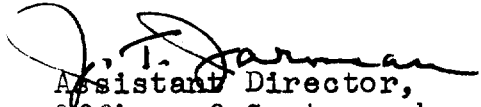
9. Additional Field Work Recommended

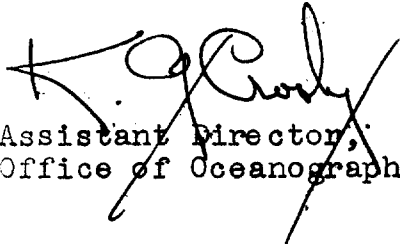
The survey is considered basic and no additional field work is recommended.

Examined and Approved:


Chief,
Nautical Chart Division


Projects Officer,
Operations Division


Assistant Director,
Office of Cartography


Assistant Director,
Office of Oceanography

RHC

TIDE NOTE FOR HYDROGRAPHIC SHEET

Chart Division: R. H. Carstens

16 Jan. 1958

Plane of reference approved in
4 volumes of sounding records for

HYDROGRAPHIC SHEET 8353

Locality Bodega Bay, California

Chief of Party: A. L. Wardwell in 1957

Plane of reference is mean lower low water, reading

2.5 ft. on tide staff at Bodega Harbor Entrance

8.0 ft. below B.M. 1 (1931)

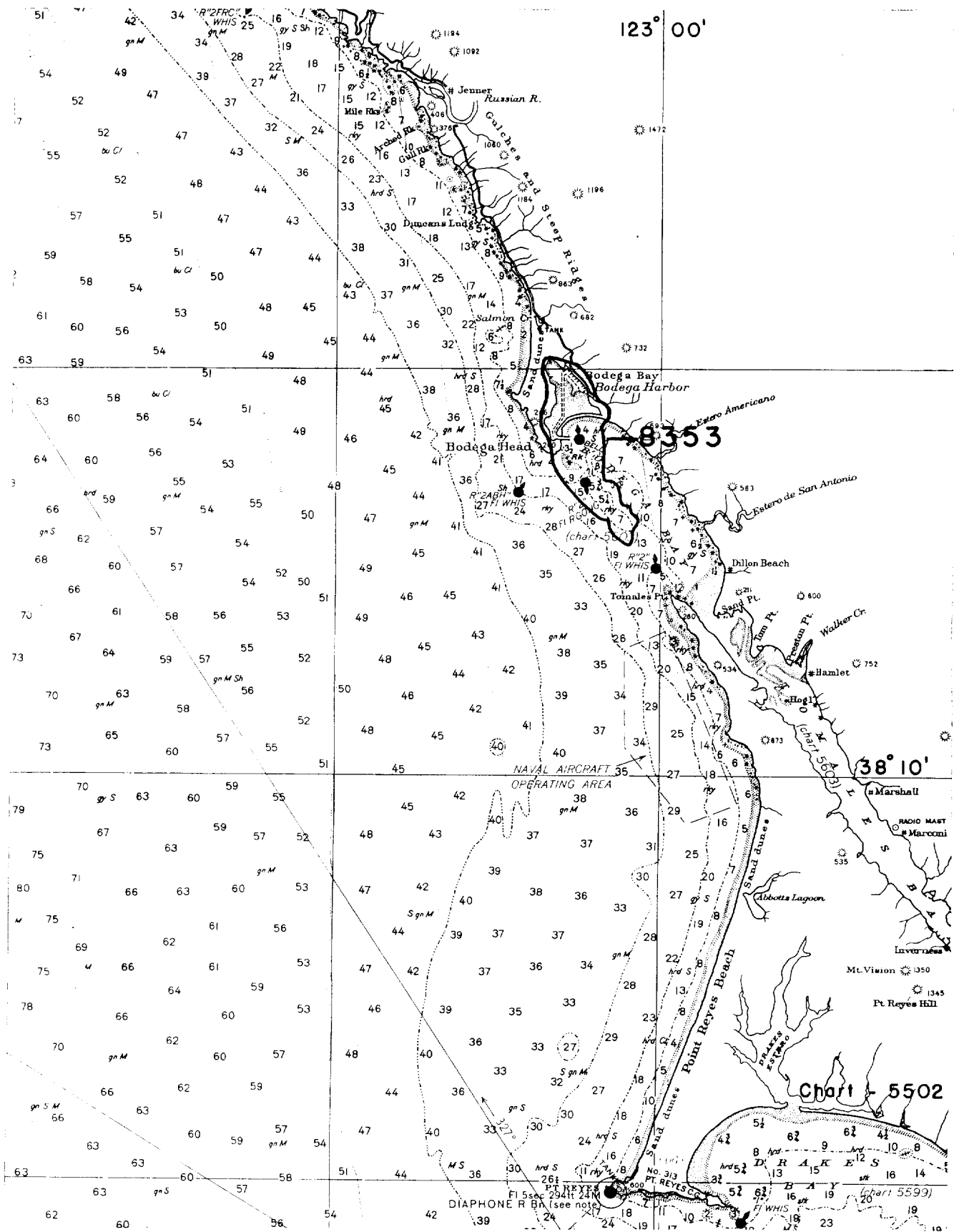
Height of mean high water above plane of reference is 5.0 feet.

Condition of records satisfactory except as noted below:



Signature

Chief, Tides Branch



123° 00'

8353

38° 10'

Chart - 5502

DIAPHONE R B A (see note)

NAUTICAL CHARTS BRANCH

SURVEY NO. H-8353

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
2/12/58	5603	<i>Seamus A. McKean</i>	Before After Verification and Review <i>Part. applied.</i>
9/17/58	5502	<i>John M. McAinden</i>	Before After Verification and Review <i>Part. applied - no correction</i>
4-13-61	5603	<i>R. E. Elkins</i>	Before After Verification and Review <i>Fully applied.</i>
5/24/67	5603	<i>John P. Wein</i>	Before After Verification and Review <i>Fully applied to inset</i>
			Before After Verification and Review
			Before After Verification and Review
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			Before After Verification and Review

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.