

7618

Diag. Cht. No. 8551-2.

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT (HYDROGRAPHIC)

Type of Survey ... HYDROGRAPHIC

Field No. DE 2147

Office No. H-7618

LOCALITY

State ALASKA

General Locality ... PRINCE WILLIAM SOUND

Locality PORT WELLS*, WELLS PASSAGE

19 47-48

CHIEF OF PARTY
H. A. KARO

LIBRARY & ARCHIVES

DATE 3/5/48

7618

MAR 5 1948

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. H7618

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. **H7618**

Field No. DE 2147

State Alaska

General locality Prince William Sound

Locality Port Wells - Wells Passage

Scale 1:20,000 Date of survey 4 Sept. - 11 Sept. 1947
Aug. - Sept. 1948

Instructions dated Project CS-277, 9 Feb. 1942, Supp. 5 Jan. 1943 and 6 Mar. 1947

Vessel Ship DERICKSON

Chief of party H. Arnold Karo

Surveyed by E. H. Kirsch

Soundings taken by ~~tachometer~~ graphic recorder, ~~hand level~~ Graphic Recorder N.M.C. 57

Protracted by W. M. Martin

Soundings penciled by W. M. Martin

Soundings in fathoms ~~xxx~~ at ~~XXXX~~ MLLW

REMARKS: Smooth Sheet & Plotting by Seattle Processing Office.

K.W.W. 2/7/94

Descriptive Report

Hydrographic Sheet DER 2147

20 September 1947

A. This survey was executed in accordance with instructions for project CS-277 dated 9 February 1942 and supplemental instructions for the same project dated 5 January 1943 and 6 March 1947. ✓

B. There is no index of hydrographic sheets. Hydrography was started 4 September 1947 and finished on 11 September 1947. The southern edge of this survey joins hydrographic survey No. H-3689 which was executed in 1914 on a scale of 1:20,000 and the southwest edge joins sheet DER 1147. Sheet DER 2147 covers the portion of Port Wells from Wells Passage to 2.0 miles south of Point Pakenham and as near to the east and west shore as existing control would allow, in general, a distance of about 0.7 mile. Hydrographic survey No. H-3689 was well overlapped. A 43 fathom spot was found on sheet DER 1147 in Lat. $60^{\circ} 48.6' N$, Long $148^{\circ} 19.0' W$ was further investigated in this survey. *42 fathoms corrected depth found* ✓

C. The Ship DERICKSON was used for the survey of sheet 2147 and all fathometer soundings were taken with NMC recording fathometer No. 57. In completing a U turn with rudder hard over the Ship DERICKSON will set 200 meters in the direction of the turn. ✓

D. All soundings were reduced from records of the tide station operating at Culross Bay, Lat $60^{\circ} 44.2' N$, Long. $148^{\circ} 11.6' W$. No time or range corrections were used. A one hundred hour series of currents were observed with a Roberts radio current meter at Lat. $60^{\circ} 46.35' N$, Long. $148^{\circ} 09.25' W$, in 230 fathoms, from 9 September 1947 to 13 September 1947. ✓

E.

F. Triangulation stations used on sheet DER 2147 were located in 1947, by the Ship DERICKSON, H. Arnold Karo, Chief of Party. ✓

Several topographic stations were transferred from ~~topo~~ sheet DER-A-47, executed by the Ship DERICKSON in 1947, H. Arnold Karo, Chief of Party. *graphic control T-7042 (1947)* The remaining *topog. signals are from T-7064 (1947).* ✓

G. No shoreline is shown on the hydrographic sheet as this will be obtained later from air photographs. ✓

There was no low water line development.

H. All soundings were obtained with echo sounding equipment. There were no unusual corrections. Wire soundings were recorded when obtaining bottom samples. ✓

I. The usual 3 point fix was used throughout the survey. ✓

J. The survey is complete and adequate for charting except the shore edges which must be completed with small boats. The junction with H-3689 was well overlapped and the soundings on survey DER 2147 were from 5 to 10 fathoms shoaler than the wire soundings on H-3689. Simultaneous fathometer and wire soundings obtained while taking bottom samples on survey DER 2147 (H-718) were in excellent agreement. The junction with DER 1147 is satisfactory. No non-standard depth curves were used to define submarine features. ✓

K. Approximately 8% of the milage is cross lines and the crossings are in agreement. ✓

L. Processing office will compare with prior surveys. ✓

M. Processing office will compare with chart. ✓

N. No uncharted dangers were found. A sixty five fathom spot in Lat. $60^{\circ} 48.6' N$, Long. $148^{\circ} 17.3' W$ was investigated with a system of cross lines. ✓

O. Coast Pilot information will be submitted in a coast pilot report at the end of the season. ✓

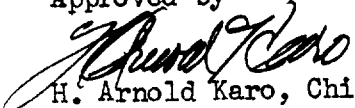
P. There are no fixed ^{or} floating aids to navigation. ✓

Q. There are no special landmarks for charts. ✓


R. No new geographic names. ✓

S. No special silted areas. The bottom of the entire reach is covered with a layer of thick ~~blue~~ ^{grey} clay as shown by the bottom samples. ✓

Approved by


H. Arnold Karo, Chief of Party
Lt. Comdr., USC&GS

Submitted by


E. H. Kirsch
Lt. Comdr., USC&GS

Statistics for Hydrographic Sheet DER 2147 (H-7618)

Day Letter	Date	No. of Wire Sdgs.	No. of positions	Statute miles	Vol.
A	4 Sept.	1	136	61.0	I
B	5 Sept.	- -	225	101.2	I & II
C	6 Sept.	- -	71	30.0'	II
D	7 Sept.	- -	44	16.9	II
E	8 Sept.	- -	149	67.5	III
F	9 Sept.	- -	23	6.9	III
G	11 Sept.	<u>17</u>	<u>17</u>	<u>- -</u>	III
TOTAL		⁹ <u>18</u>	665	283.6	

H-7618(1947)

List of Signals for DE 2147--Port Wells

Aunt 1947	Fourth Order	Amy	T-7064
Barry 1947		Cat	T-7064
Best 1947	Fourth Order	Dot	T-7064
Bird 1947	" "	Eat	T-7064
Bob (USE) 1947		Maw	T-7064
Bowl 1947	Fourth Order		
Coch 1914			
Craig (USE) 1943			
Culross 1914			
Dove 1947	Fourth Order		
Est 1912			
Golden 1947			
Gull 1947	Fourth Order		
Ham 1947			
Hobo 1947			
Hummer 1947			
Judge 1947			
Man 1947	Fourth Order		
Order 1947			
Pigot Pt. Lt. 1947			
Pitch 1947			
Port 1914			
Split 1914			
Tex (USE) 1943			
Wells 1914			

All computed points are from the field computations of triangulation by Karo 1947.

DE 2147

16 June to 25 Sept. 1947

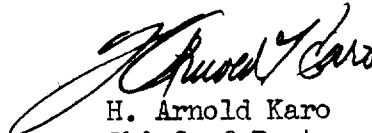
Calibrated Velocity of Fathometer 800 fms/sec.

<u>DEPTH</u> <u>FATHOMS</u>	<u>CORR.</u> <u>FMS.</u>
0.0 to 9.5	0.0
9.6 to 101.0	+ 0.2
101.1 to 178.0	+ 0.0
178.1 to - - -	+ 0.5

Approval Sheet

The boat sheet, sounding records and fathograms have been examined and approved by me.

The smooth sheet is to be plotted by the Seattle Processing Office.



H. Arnold Karo
Chief of Party

DE 2147 (H-7618)

PORT WELLS

PRINCE WILLIAM SOUND

Seattle Processing Office Notes

SMOOTH SHEET:

This projection is hand made on K & E paper 13314DM. The geographic positions are from field computations of triangulation by Karo 1947. Topographic Signals are from T-7064 of 1947. (T-7064 not registered in the Wash. Office during the ver. & review of this survey)

SHORELINE:

To be added from photogrammetric sources.

DISCREPANCIES

LAT.	LONG.	POS.	DEPTH	REMARKS	
60° 56.7'	148° 09.8'	92E	200	Three Soundings of 200 fathoms possibly 5 fathoms too shoal.	✓ <i>corrected</i>
60° 48.7'	148° 16'	85B 4-5D	219 226	Soundings on "B" day line appear too shoal.	✓ <i>corrected</i>

COMPARISON WITH CHART 8517:

The charted soundings are five to twenty fathoms deeper than DE 2147. (H-7618)

COMPARISON WITH ADJACENT SURVEYS:

The Surveys across the south end of the Sheet are not available, except H-718₇ in Pigot Bay. H-718₇ and DE 2147 are in agreement. (H-7618)

Respectfully submitted,

Edgar E. Smith
Cartographic Engineer
Seattle Processing Office

MEAN LOWER LOW WATER is 5.9 feet on the tide staff at the tide station in Culross Bay, Lat. 60 44.2' N, Long. 148 11.6' W. The records from this tide station were used for tidal corrections to all sounding on this survey with no correction for time or range.

TIDAL NOTE

DE 2147

Prince William Sound

Culross Bay Tide Station:

Lat. 60° 44.2'
Long. 148° 11.6'

Staff reading of MLLW 5.9 ft.

The records of this station were used for tidal correction to all soundings of this Survey without correction for time or range.

Supplemental Descriptive Report
To Accompany Sheet H-7629/8

Wells Passage
Prince William Sound, Alaska

Ship DERICKSON H. Arnold Karo, Comdg.

Scale 1:20,000

1. Authority:

Supplemental hydrography was executed in accordance with Instructions dated 9 February 1942 and supplemental instructions dated 5 February 1948, Project CS-277. ✓

2. Survey Limits and Dates:

The middle portion of Port Wells was sounded by the Ship DERICKSON in 1947 on sheet H-7629/8 and forwarded to the Seattle Processing Office for plotting. The boat sheet was returned to the DERICKSON in the spring of 1948 for additional hydrography in Wells Passage. The additional sounding was done in August and September 1948. ✓

The additional area is that part of Wells Passage between Perry Passage and Passage Canal. It joins Sheet DER-1148 to the westward and Sheet DER-2548 to the southwestward. The inshore hydrography was not undertaken at this time. It is joined by sheet DER-2248 to the eastward. ✓

3. Vessel and Equipment:

All sounding was done with the Ship DERICKSON using the NMC Fathometer. ✓

4. Tide Stations:

Tide reducers were obtained from tide stations located at Culross Bay and Whittier. (See Tidal note) ✓

5. Control Stations:

In 1947 the Ship DERICKSON carried a scheme of triangulation along the north side of Prince William Sound from Valdez. This scheme tied into the 1914 line of SPLIT-PORT giving slightly different values of the stations. However, the 1914 position of this line was used in carrying the field computations into Port Wells, and these positions were plotted on the boat sheet. ✓

The triangulation was later computed from the 1947 positions of PORT and SPLIT, and the smooth sheet was to be plotted on that datum.

The 1947 positions of stations were replotted on the boat sheet and used in the 1948 hydrography.

All determinations are on the Valdez datum.

6. Shoreline and Topography:

The shoreline is to be delineated from aerial photographs, none of which were available in 1948.

7. Soundings:

Soundings were taken with NMC fathometer calibrated at 800 fms/sec. Velocity corrections were negligible and only index corrections applied. (See Season's Fathometer report)

8. Control of Hydrography:

All positions were determined by three point fixes, observed with sextant angles.

9. Adequacy of Survey:

The central part of Wells Passage is adequately surveyed. The inshore hydrography, however, needs further development.

10. Comparison with Prior Surveys and Chart 8517:

The 1948 hydrography covers parts of Sheets H-3676¹⁹⁴⁷ and 3689¹⁹⁴⁷. The mid-channel depths are from 2 to 6 fathoms shallower on the present survey than on the earlier surveys. This condition was found both in 1947 and 1948 in the vicinity of Passage Canal and Wells Passage. The same is true on Chart 8517 as the soundings were derived from the above hydrographic sheets.

11. Dangers and Shoals:

There are no dangers or shoals within the area covered.

12. Coast Pilot Information:

See Season Coast Pilot Notes.


13. Aids to Navigation:

Two fixed aids to navigation, Point Esther Light and Culross Island Light are within the limits of the sheet. (See special reports on Aids to Navigation listed on form 567.)

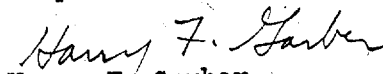
14. Geographic Names:

All prominent features are named on Chart 8517. No new names are recommended.

Approved and Forwarded:


H. Arnold Karo
Comdr., USC&GS
Chief of Party

Respectfully submitted


Harry E. Garber
Lt. Comdr., USC&GS

Statistics for 1948 additional work on Sheet 76¹⁸~~29~~:

Vol.	Day Ltr.	No. of Wire Sdgs.	No. of Positions	Statute Miles Sdg. Line
I	A	--	29	15.0
I	B	--	82	45.2
I & II	C	--	130	52.8
TOTALS		--	241	113.0

Area in square statute miles 14.5

Abstract of Fathometer Corrections 13
for 1948 Additional work on Sheet H-7628

(See 1948 fathometer report)

For **MNC** Fathometer
100 fm. and 200 fm. scale

Velocity Corrections	0.0
Index Correction	+ 1.0
Total	<u>+1.0 fm.</u>

For 2000 fm. scale

Velocity Correction	0.0
Index Correction	+1.0
Initial Correction	+7.0
Total	<u>+8.0 fms.</u>

List of Signals used for 1948 additional work, Sheet H-76⁵⁸~~29~~:

Hydrographic Name	Location
Amber	Amber 1948
Coch	Coch 1914
Cora	Cora 1948
Culross	Culross 1914
Est	Est 1912
Earn	Earn 1948
Eat *	Graphic Control Sheet DER-C-48
Dot *	Graphic Control Sheet DER-C-48
Nit	Pt. Esther Lt. 1947
Port	Port 1914
Pig	Pt. Pigot Light 1948
Rane	Rane 1914
Ross	Culross Id. Lt. 1947
Split	Split 1914
Wells	Wells 1914

* GP given in report.

Tidal Note to Accompany Sheet H-76~~29~~¹⁸
(Additional work in 1948)

For August 11 and 12, 1948 the tide reducers were obtained from the tide station at Whittier, Alaska, Lat. $60^{\circ} 46.65'$, Long $148^{\circ} 40.15'$.

MLLW on staff is 3.8 feet

On Sept. 14, 1948 the tide station at Culross Bay was used for the reduction of soundings. Lat. $60^{\circ} 43.3'$; Long. $148^{\circ} 11.1'$.

No time or height corrections were applied to either station.

18

Memorandum concerning Sheet H 7629.

Attention is called to the fact that the 1947 triangulation into Port Wells, starting from the base Split 1914-Port 1914, were not derived from the new values of the base obtained from the second order triangulation of Karo 1947. The 1947 triangulation into Port Wells depends on the older (Rude 1914) determination of the base line Split-Port.

The datum differences between the 1914 and 1947 values follow.

Latitude				Longitude			
Station PORT 1914							
1914	60 47	56.819	Met. 1758.6	148 11	06.375	Met. 96.4	
1947		56.916	1763.1		05.328	83.6	
Diff.		<u>0.143</u>	<u>4.5</u>		<u>0.847</u>	<u>12.8</u>	

Station SPLIT 1914							
1914	60 45	43.347	Met. 1341.7	148 14	06.886	Met. 104.3	
1947		43.533	1347.4		06.005	90.0	
Diff.		<u>0.186</u>	<u>5.8</u>		<u>0.881</u>	<u>13.4</u>	

Sheet H 7629¹⁸ is on the 1914 datum. ✓
 All the 1947 and 1948 triangulation stations required (for plotting the additional soundings of 1948) will be subject to correction from the new to the older values.

Two stations were scaled from the topographic plate De-C-48 which is based on the 1947 values of the triangulation. They follow.

Sta.	Latitude	Meters	Longitude	Meters
Eat.	60 48	1482	148 20	411 (496)
Dot	60 48	663	148 20	490 (417)

The differences between the 1947 and 1914 determinations of the triangulation will be applied to these stations before plotting them on smooth sheet H 7629.¹⁸

18

Edgar E. Smith

Edgar E. Smith
 Cart. Engr.
 Seattle Processing Office

4/13/49

HMM

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~

24 March 1948

Division of Charts: H. W. MURRAY

Plane of reference approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET 7618

Locality Culross Bay, Prince William Sound, Alaska

Chief of Party: H. A. Karo in 1947

Plane of reference is mean lower low water, reading
5.9 ft. on tide staff at Culross Bay
12.4 ft. below B. M. 1 (1912)

Height of mean high water above plane of reference is 11.1 feet.

Condition of records satisfactory except as noted below:

E.C. McKay
Chief, Division of Tides and Currents
Section

GEOGRAPHIC NAMES

Survey No.

H7618

Name on Survey

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

Name on Survey	A	B	C	D	E	F	G	H	K
<u>Alaska</u> ✓				(for title)					1
<u>Prince William Sound</u> ✓				"	"			USGB	2
<u>Port Wells</u> ✓									3
<u>Point Esther</u> ✓✓								USGB	4
<u>Esther Rock</u> ✓								"	5
<u>Point Pigot</u> ✓✓									6
<u>Point Culross</u> ✓✓									7
<u>Wells Passage</u> ✓ <i>CGH 12/17-75</i>									8
									9
									10
									11
									12
									13
<u>Culross Bay</u> ✓				(location of tide staff)				USGB	14
									15
									16
									17
									18
									19
									20
									21
									22
									23
									24
									25
									26
									27

Names underlined in red are approved. 3/19/48 L.Heck.

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. **H7618**

Records accompanying survey:

Boat sheets **.1**...; sounding vols. **.3**...; wire drag vols. **.0**...;
 bomb vols. **.0**...; graphic recorder rolls **.1**...;
 special reports, etc.

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

Number of positions on sheet	.....	906
Number of positions checked	.....	45
Number of positions revised	.....	9 - 3
Number of soundings revised (refers to depth only)	.....	62 - 79
Number of soundings erroneously spaced	.....	28
Number of signals erroneously plotted or transferred	.....	—
Topographic details	Time	.....
Junctions	Time	2 hrs. - 16 hrs
Verification of soundings from graphic record	Time	4 hrs.

OTHER WORK

Verification by D.A. Buzzell Total time 92 hrs. Date 9/23/49.

Reviewed by Dennis Hill Time 38 hrs Date 11-14-75

Corsary Engr DJ Romasburg 11-24-75 13 hrs. Begin Oct 6, 75
Passed RHC 4/76

RAC

TIDE NOTE FOR HYDROGRAPHIC SHEET

May 3, 1949

~~Division of Hydrography and Topography~~

Division of Charts: R. H. Carstens

Plane of reference approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET 7618

Locality Wells Passage, Prince William Sound, Alaska

Chief of Party: H. A. Karc in 1948
Plane of reference is mean lower low water, reading
3.8 ft. on tide staff at Whitier
16.3 ft. below B. M. 1 (1948)

5.8 ft. on tide staff at Culross Bay
10.8 ft. below B. M. 4 (1947)

Height of mean high water above plane of reference is as follows:

Whitier = 11.1 feet
Culross Bay = 11.2 feet

Condition of records satisfactory except as noted below:

E. C. McKay
Section
Chief, ~~Division of Tides and Currents.~~

H-7618

Items for Future Presurvey Reviews

This area appears to be relatively stable; however, comparisons with later inshore work should take into account land subsidence of approximately 5 feet due to the earthquake of 1964.

<u>Position</u>	<u>Index</u>	<u>Bottom Change</u>	<u>Use</u>	<u>Resurvey</u>
<u>Lat.</u>	<u>Long.</u>	<u>Index</u>	<u>Index</u>	<u>Survey</u>
604	1481	1	1	50 years
605	1481	2	1	50 years
604	1482	0	1	50 years
605	1482	2	1	50 years

OFFICE OF MARINE SURVEYS AND MAPS
MARINE SURVEYS DIVISION
MODIFIED HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-7618

FIELD NO. DE-2147

Alaska, Prince William Sound, Port Wells - Wells Passage

SURVEYED: September 4-11, 1947; August 11 - September 14, 1948

SCALE: 1:20,000

PROJECT NO.: CS-277

SOUNDINGS: NMC Depth Recorder,
Leadline

CONTROL: Sextant Fixes
on Shore Signals

Chief of Party H. A. Karo
Surveyed by E. H. Kirsch
Manual Plot by W. M. Martin
Verified by D. A. Buzzell
Reviewed by D. J. Hill
..... Date: November 14, 1975
Cursory inspection made--survey processing considered complete.
D. J. Romesburg..... Date: November 24, 1975

1. Control and Shoreline

The origin of control is adequately covered in Parts F, I, 5 and 8 of the combined Descriptive Report.

Since the survey is entirely offshore and there are no contemporary topographic manuscripts for this area, the shoreline was not added to the smooth sheet.

2. Hydrography

A. Depths at crossings are in good agreement.

B. The usual depth curves are adequately delineated except in inshore areas where lack of hydrography precludes their delineation.

C. The development of the bottom configuration and investigation of least depths is considered adequate.

3. Condition of Survey

The survey records, plotting, and Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual except as follows:

A. Simultaneous comparisons were conducted only on September 9 and September 11, 1947.

B. Bottom samples were not acquired on the 1948 portion of this survey.

4. Junctions

Adequate junctions were effected with H-7678 (1948-49) on the southeast, H-7732 (1948) on the southwest, H-6981 (1948) and H-7187 (1947) on the west. No contemporary surveys join the present survey on the east, north, and northwest; however, present survey depths are in harmony with those charted in these areas. The junction with unverified survey H-8608 (1961) on the south will be discussed in the review of that survey.

5. Comparison with Prior Surveys

H-3408	(1912)	1:20,000
H-3689	(1914)	1:20,000

These prior surveys together cover the 1948 southern portion of the present survey. While agreement is good in depths less than 100 fathoms, depth discrepancies increase to a maximum of about 30 fathoms at depths of 200 fathoms. These differences are attributed to the earlier less accurate survey techniques employing sounding tubes and sounding machines versus the fathometer utilized on the present survey. No prior surveys exist in the area covered by the northern portion of the present survey.

With the exception of several bottom samples brought forward from H-3408 (1912) and H-3689 (1914), the present survey is adequate to supersede the prior surveys within the common area.

6. Comparison with Charts 16700 (8551), 15th Ed., Sept. 28, 1974 16705 (8517), 11th Ed., July 20, 1974

A. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration, a 1947 USC&GS reconnaissance survey, and the partial application of depths from the verified smooth sheet of the present survey.

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

B. Aids to Navigation

Point Pigot Light and Point Esther Light as charted agree with their survey positions and adequately serve their purpose as intended.

7. Compliance with Project Instructions

This survey adequately complies with the Project Instructions.

8. Additional Field Work

This is a good basic survey and no additional field work is recommended.

Examined and Approved:

A. J. Petard
Chief
Marine Surveys Division

Robert C. Munson
Associate Director
Office of Marine Surveys
and Maps

NAUTICAL CHARTS BRANCH

SURVEY NO. H-7618

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
1/18/52	8551	Risegani	Before After Verification and Review ^{Before} Fully appl'd.
3-17-55	8502	McAndrew	Before After Verification and Review " " Through Chart 8551
12/15/77	8517	Mark F. Rice	Before After Verification and Review, Insp. Signature Fully appl'd hydro throughout common area after signature
1/10/70	8551	Richter	Before After Verification and Review + inspection thru 8517
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
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			Before After Verification and Review
			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.