

8854

Diag. Cht No. 8551-3.

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. H0-20-1-65 Office No. H-8854

LOCALITY

State Alaska

General locality Orca Bay

Locality Nelson Bay

1965

CHIEF OF PARTY

J. B. Watkins, Jr.

LIBRARY & ARCHIVES

DATE August 10, 1968

8854

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-8854

Field No. HO-20-1-65

State ALASKA

General locality ORCA ~~INLET~~ BAY

Locality ~~CORDOVA~~ NELSON BAY

Scale 1:20,000 Date of survey 29 June '65 to 28 Aug. '65

Instructions dated 2 July 1964 and supp. instr. dtd. 10 February 1965

Vessel USC&GSS HODGSON

Chief of party JOHN B. WATKINS, JR.

Surveyed by LT(jg) WILLIAM J. COOKE, QS FELIPE L. ROSARIO

Soundings taken by fathometer, ~~graphic recorder~~, hand lead, ~~xxx~~

Fathograms scaled by Personnel of Ship HODGSON

Fathograms checked by Personnel of Ship HODGSON

Protracted by LT(jg) JAMES M. WINTERMYRE & Robert R. Jones

Soundings penciled by Robert R. Jones

Soundings in ~~XXXXXX~~ feet at ~~XXXX~~ MLLW

REMARKS:

J. J. G.

FIELD DESCRIPTIVE REPORT

for

HYDROGRAPHIC SURVEY H-8854

(HO-20-1-65)

USC&GS SHIP HODGSON

1965

A. PROJECT

This survey complies with the instructions for OPR-452 for Orca Inlet dated 2 July 1964 and supplemental instructions for OPR-452 Resurrection Bay, Valdez, Passage Canal and Cordova, Alaska dated 10 February 1965.

B. AREA SURVEYED

The area surveyed is in the head of Orca Bay from about one mile west of Channel Island to the navigable limits (northeast) of the bay. The approximate limits of hydrography are bounded by the rectangle including the following corners; Lat. 60° 37' N, Long. 145° 50' W; Lat. 60° 35.5' N, Long. 145° 50' W; Lat. 60° 40' N, Long. 145° 39' W; Lat. 60° 39' N, Long. 145° 37' W. The survey was conducted during the periods 29 June 1965 to 28 August 1965.

The survey junctions with the following surveys:

Contemporary: ^{H-8853} PF-10-1-64 on the south between Long. 145° 45.5' W to 145° 40.5' W.

^{H-8852} HO-5-1-65 in the vicinity of Lat. 60° 38' N, Long. 145° 40-41' W.

Prior: 1) No. 2970, 1/15000, 1908
2) No. 3001, 1/10000, 1909
3) No. 2940, 1/10000, 1908
4) H-7709, 1/10000, 1948

C. SOUNDING VESSEL

Hydrography was accomplished entirely with Survey Launch #1192.

D. SOUNDING EQUIPMENT

For the entire survey a DE-723, #534, fathometer was used. The corrections for the soundings were determined from bar checks and Nansen casts.

E. SMOOTH SHEET

To be completed by the smooth plotter.

F. CONTROL

Horizontal control for this survey included triangulation stations, sextant cuts and photo identified signals from the following incomplete manuscripts; T-12648^{to} 12652 dated November 1965.

G. SHORELINE

The source of shoreline is the above mentioned manuscripts. Further field editing will be accomplished during the 1966 field season. Where possible the low water line was delineated. In most of the survey the sheer coastline prevented low water delineation.

H. CROSSLINES

About 7% crosslines were run. The crossings appear to be satisfactory.

I. JUNCTIONS

There is generally good agreement at the junction except in two small areas. In the area immediately north of signal ROC to the 60 foot depth curve there is a maximum discrepancy of about 15 feet. Another area is immediately northwest of Lat. $60^{\circ} 37' N$, Long. $145^{\circ} 45'$. This discrepancy is in the area around the 120 foot depth curve and amounts to about 11 feet. This may be resolved in the smooth plot and checking the fathograms. *Resolved on smooth sheet.*

J. COMPARISONS WITH PRIOR SURVEYS

The presurvey review item No. 1 was checked on the boatsheet and found to be in the location described. The shoalest sounding was 3.4 feet, but this was based on predicted tides. *3.0 ft. pos. 36-37g $\phi 60^{\circ} 36.53$, $\lambda 145^{\circ} 48.75$ on smooth sheet.*

Comparison with survey no. ⁽¹⁹⁴⁸⁾H-2940 shows general shoaling as much as 16 feet in areas up 60 foot depth curve, using the present survey as a reference for the 60 foot curve.

Comparison with survey no. ⁽¹⁹⁴⁸⁾H-2970, the area southwest of Channel Island cannot be adequately compared since most soundings in this area on the prior survey indicate no bottom. The shoal immediately southwest of Channel Island compared with the prior location but the depth is shoaler. The soundings on the prior survey were so widely spaced that an adequate comparison is practically impossible.

(1964)

Comparison with survey no. ^{H-3001} shows the zero depth curve has been moved further southwest. The rest of the head of the bay is in satisfactory agreement with the zero depth curve. Likewise the 120 foot depth curve has been pushed off-shore all around the head of the bay. In general, there seems to be a rising of the bottom about 10-30 feet in the head of the bay. There is a general trend in the middle of the bay of a 30-40 foot shoaling. Out to the 120 foot curve there is evidence of silting. To the southwest the general trend shows shoaling of about 40 feet.

K. COMPARISON WITH THE CHART

In general the chart shows a depth of 10-40 feet greater than those on the survey. Comparisons were made with C&GS Charts 8520 dated 20 July 1964 and 8525 dated 14 December 1964. On chart 8525 there is a 90 foot sounding at Lat. 60° 36' 43" N, Long. 145° 48' 52" W. which is in an area of depths of 175-200 feet on the survey.

*Derrickson 1964 work
July spent 1 hour
90-18 not found
consider discrepancy*

The reported 3 foot shoal at the southwest end of Channel Island was found in that location with a sounding of 3.0 feet on the ~~beatsheet~~.

Smooth Sheet. pos. 36-37g

L. ADEQUACY OF SURVEY

This survey is considered complete and adequate to supersede prior surveys for charting purposes.

M. AIDS TO NAVIGATION

The only floating aid to navigation is a black can buoy (C "3") on the southwest side of Channel Island at the shoal previously mentioned. It adequately serves the purpose for which it was intended. *There are two fixed aids.*

N. STATISTICS

The following statistics were obtained by Launch #1192.

Number of positions	1089
Miles of sounding lines	167.4 n. mi.
Bottom samples	26
Area surveyed	6 sq. n. mi.

O. MISCELLANEOUS

There has evidently been considerable silting in the head of Orca Bay as discussed in Sections J and K.

P. RECOMMENDATIONS

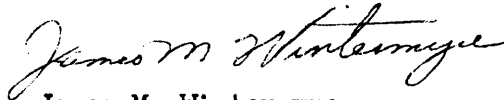
It is recommended that another comparison be made with the charts and prior surveys after the smooth sheet is plotted. *done*

Q. REFERENCE TO REPORTS

For further information see the following reports:

- 1) Cordova Tide Station Report and leveling records - 1965.
- 2) Coast Pilot Report - HODGSON 1965.
- 3) Fathometer Report - HODGSON 1965.
- 4) 1965 Season's Report for Ship HODGSON, 1965.
- 5) Fathometer Report - PATHFINDER 1964.

Respectfully submitted:



James M. Wintermyre
LTJG USESSA

TIDE NOTE

PROJECT OPR-452

SHEET NO. H-8854

FIELD NO. HO-20-1-65

TIDE STATION USED IN THIS SURVEY:

CORDOVA 60° 33' 25.5" N 145° 45' 16" W

TIME MERIDIAN 150° W

HEIGHT MLLW ON STAFF 5.9 FT

The Cordova tide gage was used as the reference station on all hydrography on the sheet.

All hourly heights were scaled and curves drawn from values furnished for these dates by the Washington, D. C. Office.

LIST OF SIGNALS

<u>NAME</u>	<u>TYPE</u>	<u>SOURCE</u>
ART	Photo-hydro	T-12651
BIL	Photo-hydro	T-12650
BOB	Photo-hydro	T-12649
BOM	Triangulation	Bomb, 1964
BOY	Hydro	Volume I
DEN	Photo-hydro	T-12649
DOP	Triangulation (hydro)	DOP 1964 (hydro)
EDD	Hydro	Volume I
FIX	Photo-hydro	T-12648
GAS	Photo-hydro	T-12648
HUM	Photo-hydro	T-12651
IVY	Photo-hydro	T-12651
JAW	Photo-hydro	T-12651
JIM	Hydro	Volume I
KED	Photo-hydro	T-12651
LEG	Photo-hydro	T-12649
LEO	Photo-hydro	T-12652
LID	Triangulation	SLIDE, 1964
LIT	Triangulation	CHANNEL IS. LIGHT, 1964
LUF	Hydro	Volume I
MIC	Triangulation	ATOMIC, 1964
OLD	Triangulation (hydro)	OLD 1964 (hydro)
PAL	Photo-hydro	T-12651
ROC	Triangulation	NORTH IS. ROCK LT. 1964
ROS	Photo-hydro	T-12650
ROO	Triangulation	ROOT 2, 1964
SAL	Triangulation	SALMO, 1900
SAM	Photo-hydro	T-12804
SAW	Triangulation	SAW, 1964
SHI	Triangulation	SHINGLE 3, 1964
SKI	Photo-hydro	T-12651
VIA	Photo-hydro	T-12651
WIN	Triangulation	WINDY, 1964
ZOO	Photo-hydro	T-12648

APPROVAL SHEET

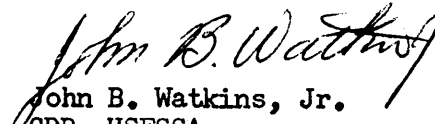
PROJECT OPR-452

CORDOVA, ALASKA

HYDROGRAPHIC SURVEY NO. H-8854

The field records have been inspected and are approved up to commencement of the smooth sheet.

This survey is considered complete and adequate and no additional field work is recommended.


John B. Watkins, Jr.

CDR, USESSA

Comdg., Ship HODGSON

TIDE NOTE FOR HYDROGRAPHIC SHEET

November 10, 1966

~~NAUTICAL CHART DIVISION~~ Pacific Marine Center

Plane of reference approved in
5 volumes of sounding records for

HYDROGRAPHIC SHEET 8854

Locality: Orca Inlet, Alaska

Chief of Party: J. B. Watkins Jr., (1965)

Plane of reference is mean lower low water

Tide Station Used (Form C&GS-681):

Cordova, Alaska

Height of Mean High Water above Plane of Reference is as follows:

11.5 feet

Remarks Tide reducers for the following positions have been revised in red and verified.

<u>Vol.</u>	<u>Pos.</u>
5	K1 - K32


Chief, Tides and Currents Branch

USC&GSS HODGSON (CSS-27)
JOHN B. WATKINS, JR., COMDG.

VELOCITY CORRECTIONS
CORDOVA, ALASKA

To be applied to all hydrography accomplished in the
Cordova area on Project OPR-452 from 29 April 1965
through 31 August 1965.

Correction to Depth

+0.2 feet	0-10 feet
0.3	30
0.4	50
0.4	70
0.4	90

The above data was obtained from the following sources:

Oceanographic Station #2
24 June 1965
Lat. 60° 37' 50"N.
Long. 145° 04' 45"W.

Bathythermograph cast of September 3, 1965,
BT # 12244

GEOGRAPHIC NAMES PENCILED ON H-8854

CHANNEL ISLANDS

CORDOVA CR.

SALMO PT.

SHEPARD PT.

THE NARROWS

GEOGRAPHIC NAMES

Survey No. H-8854

Name on Survey	A On Chart No.	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
Channel Islands									1
Cordova Creek									2
North Island									3
Salmo Point									4
Shepard Point									5
The Narrows									6
Nelson Bay									7
									8
									9
									10
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20
									21
									22
									23
									24
									25
									26
									27

Names approved
Oct. 29, 1968
Frank W. Fiskott

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. *H-8854 (HO-20-1-65)*

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		<i>1</i>	BOAT SHEETS <i>destroyed 1/27/70</i>		<i>1</i>	
DESCRIPTIVE REPORT		<i>1</i>	OVERLAYS		<i>0</i>	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	<i>1</i>	<i>X</i>				
VOLUMES	<i>5</i>					
BOXES						
T-SHEET PRINTS (<i>List</i>) <i>F-12648</i> <i>A-12652</i>						
SPECIAL REPORTS (<i>List</i>)						

OFFICE PROCESSING ACTIVITIES


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

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				<i>1089</i>
POSITIONS CHECKED		<i>445</i>		
POSITIONS REVISED		<i>5</i>		
DEPTH SOUNDINGS REVISED		<i>378</i>		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		<i>150</i>		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		<i>0</i>		
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS		<i>2</i>		
JUNCTIONS		<i>6</i>		
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		<i>12</i>		
SPECIAL ADJUSTMENTS		<i>-</i>		
ALL OTHER WORK		<i>83</i>		
TOTALS		<i>103</i>	<i>234</i>	
PRE-VERIFICATION BY	BEGINNING DATE		ENDING DATE	
VERIFICATION BY <i>Cornelius A. J. Farrow</i>	<i>Nov 28 1966</i>		<i>Dec 16 1966</i>	
REVIEW BY <i>D. H. Benson</i>	<i>June 14, 1969</i>		<i>Sept 8, 1969</i>	

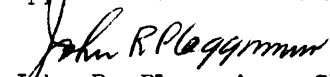
H-8854

This survey was smooth plotted and verified in the Pacific Marine Center. The smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual.

Examined and approved


William M. Martin
Supervisory Carto. Tech.

Approved and forwarded


John R. Flaggmier, CBR, USESSA
Chief, Processing Division, PMC

OFFICE OF HYDROGRAPHY AND OCEANOGRAPHY

MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8854

FIELD NO. HO-20-1-65

Alaska, Orca Bay, Nelson Bay

SURVEYED: June 29, 1965 through August 28, 1965

SCALE : 1:20,000

PROJECT NO.: OPR-452

SOUNDINGS: DE-723 Fathometer
534

CONTROL: Sextant angles
on shore signals

Chief of Party..... J. B. Watkins, Jr.
Surveyed by..... W. J. Cooke
..... F. L. Rosario
Protracted by..... J. M. Wintermyre
..... R. R. Jones
Soundings Plotted by..... R. R. Jones
Verified and Inked by..... C. A. J. Pauw (Seattle)
Reviewed by..... D. H. Benson
..... Date: Sept. 8, 1969
Inspected by..... R. H. Carstens

1. Description of the Area

The area surveyed is the head of Orca Bay from one mile southwest of the Channel Islands to the mouth of Cordova Creek. The water is generally deep, with 100 feet being available to within a quarter mile of the low water line at the northeast end of the bay. There is one danger spot, marked by black buoy C"3" southwest of the Channel Islands. This buoy marks a shoal with a least depth of 3 ft. coming up out of depths of over 200 feet to the north and south of it.

2. Control and Shoreline

The survey is controlled by sextant fixes on visual signals discussed in the Descriptive Report.

The shoreline is from reviewed topographic surveys T-12648, T-12649, T-12650, T-12651, and T-12652 of 1964-66.

2.

3. Hydrography

The crosslines are in satisfactory agreement with the regularlines. The hydrography was developed sufficiently to show all the depth curves except that inshore where the bottom dropped away rapidly. The zero, 6-ft., 12-ft., and 18-ft. curves could not be shown over much of the area. The development of the bottom configuration and determination of least depths are adequate.

4. Condition of the Survey

Bar checks were taken but not used. The echo corrections were computed from temperature and salinity tests of June 24, 1965, and were in adequate accord with bar check values.

There was confusion about the draft and index corrections, and even the transducer draft was not reported correctly. In the sounding volumes, some days being recorded as 3 feet, and other days recorded as 1 foot. The fathometer report for the season gives 1.2 feet as the draft of launch 1192, which was used for all of the hydrography on H-8854. The initial was set at 1 ft. After position 158"d" day the correctors were improperly entered, a minus 1 being shown for the initial and a plus 0.2' for the draft. Thus all fathometer soundings after 158"d" day are one foot too shoal. In general, the waters of Orca Inlet in this area are so deep that the error is inconsequential. The soundings of less than 100 feet would be subject to change to keep within the 1% error limitation, but the bottom is not smooth and the along shore gradients are so steep that it was considered unnecessary to change the depths shown except for shoalest depths on isolated shoals. JK

5. Junctions

Junctions were made with contemporary surveys H-8852 (1965) and H-8853 (1965) which are south of the current survey. Both surveys are on larger scales than H-8854. On the west of H-8854 there is no contemporary survey. Here, present depths are in adequate agreement with the charted hydrography.

All junctions were adequate.

3.

6. Comparison With Prior Surveys

H-2328 (1897-1906)
H-2502 (1900)
H-2970 (1906-1908)
H-3001 (1909)

The present survey shows generally shoaler depths than the earlier surveys. On the shoal at lat. 60°36!53, long. 145°48!75 the least depth found on the current survey is 3 feet, which is in the same location as the 12 ft. found on H-2970 (1908). This 9 foot difference tends to support the amount of the uplift during the 1964 earthquake. In the deeper waters, the shoaling amounts to 10 to 40 feet, which indicates that beside the uplift of the bottom, considerable sedimentation also took place since 1909.

The 78- to 102-ft. shoal, uncharted, in lat. 60°36!7, long. 145°49!0 on H-2970 originates with a special examination made in 1906. The present development showing soundings of 180 to 200 ft. is adequate to disprove the prior shoaler depths.

The present survey supersedes the above listed surveys for the common areas.

7. Comparison With Charts, Chart 8525, 8th Ed., Rev. 11/14/66
Chart 8520, 13th Ed., March 7, 1966

A. Hydrography

Most of the charted hydrography is from boat sheets of H-8854, H-8853, and H-8852 (1965). Some is from H-2970 (1906-08), H-3001 (1909), and Bp-65287 (1964 Recon.)

The present survey is adequate to supersede all of the charted hydrography.

B. Controlling Depths

There are no dredged channels or controlling depth notes in the area of the present survey.

C. Aids to Navigation

There are two fixed aids to navigation on the present survey and one floating aid. The fixed aid positions were determined by triangulation in 1964. The floating

4.

aid is Black Can Buoy "3" and adequately marks the dangerous 3-ft. shoal southwest of the Channel Islands.


8. Compliance With Instructions

The survey adequately complies with the project instructions.


9. Additional Field Work

This is a good basic survey. Additional field work is not required.

Examined and Approved:



Chief
Marine Chart Division



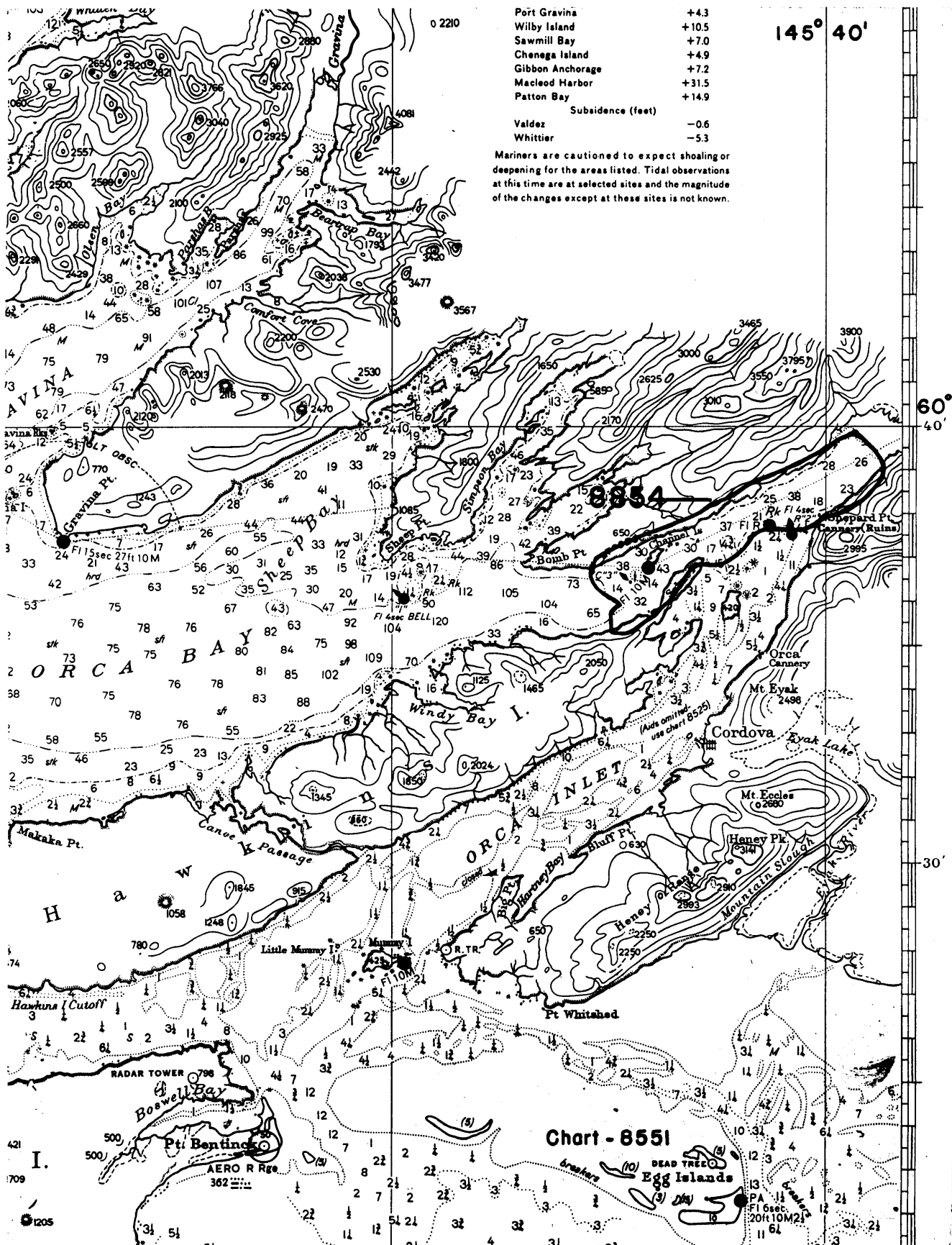
Associate Director
Hydrography and Oceanography

INFORMATION FOR FUTURE PRE-SURVEY

REVIEWS

The inshore hydrography on the south shore at the head of the bay from signal Boy to Tent (1909) was not obtained close enough to shore to show the 10-fathom depth curve, and should be better developed.

The same thing is true at the small cove on the south shore south of the Channel Islands.



Port Gravina	+4.3
Wilby Island	+10.5
Sawmill Bay	+7.0
Chenega Island	+4.9
Gibbon Anchorage	+7.2
Macleod Harbor	+31.5
Patton Bay	+14.9
Subsidence (feet)	
Valdez	-0.6
Whittier	-5.3

Mariners are cautioned to expect shoaling or deepening for the areas listed. Tidal observations at this time are at selected sites and the magnitude of the changes except at these sites is not known.

145° 40'

60° 40'

30'

Chart - 8551

DEAD TREES Egg Islands

Fl 6 sec 20 ft 10 M 2

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-8854

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
8520	8-26-69	Jeffrey Stuart	Full Part Before After Verification Review Inspection Signed Via Drawing No. 10 No CORR
8525	8-27-70	R. D. Sanochi	Full Part Before After Verification Review Inspection Signed Via Drawing No. before
8551	3-29-70	C. S. Forbes	Full Part Before After Verification Review Inspection Signed Via Drawing No. Examined thru 8525 critical corrections appl only. To be applied thru Ch 8525 to 8520 at next printing 85
8525	5-30-74	C. S. Forbes	Full Part Before After Verification Review Inspection Signed Via Drawing No. /
8551	6/20/74	Forbes	Full Part Before After Verification Review Inspection Signed Via Drawing No.
8520	6/20/74	Forbes	Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
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