8252

Diag. Cht. No. 6002-2.

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. WCSP-2155 *Office No.* H-8252

LOCALITY

State Washington

General locality Pacific Ocean

Locality Vicinity of Grays Harbor

19 55

CHIEF OF PARTY

H. G. Conerly

LIBRARY & ARCHIVES

DATE October 7, 1958

B-1870-1 (1)

8252

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Form 537
(Ed. June 1946)

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 8252

Field No. WCSP 2155

State Washington

General locality ~~Outer Coast~~ Pacific Ocean

Locality Vicinity of ~~Off~~ Grays Harbor

Scale 1:20,000 Date of survey April - October 1955

Instructions dated 18 February 1955 and 6 April 1955.

Vessel Launch CS 160

Chief of party Horace G. Conerly

Surveyed by H. G. C., H. L. R., C. D. U.

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

Fathograms scaled by A. W. B.

Fathograms checked by Various

Protracted by V. F. Flor

Soundings penciled by V. F. Flor

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

REMARKS:

U. S. GOVERNMENT PRINTING OFFICE 16—66520-1

RTM

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SURVEY

SHEET NO. WCSP-2155 - REGISTERY NO. H-8252

WASHINGTON COAST, APPROACH TO GRAYS HARBOR, WASHINGTON

PROJECT 1378 SCALE: 1:20,000

WEST COAST SHORE PARTY, HORACE G. CONERLY, CHIEF OF PARTY

SURVEYED BY: H. G. Conerly, C. D. Upham, H. L. Runge

PROJECT

This survey was executed in accordance with Director's Instructions dated 18 February 1955 and Supplemental Instructions dated 6 April 1955.

SURVEY LIMITS AND DATES

The general locality of this survey is Washington Coast, Approach to Grays Harbor. This survey is bounded on the north by latitude 46° 59' 12" N; on the west by longitude 124° 18' W; on the south by latitude 46° 51' N. The survey is bounded to the east as follows: Between latitudes 46° 52' N and 46° 58' N a junction was made with U. S. Engineers Bar and Entrance condition survey dated August 1954 (File No. E-5-7-125), between latitudes 46° 51' N and 46° 52' N the eastern boundry is the shoreline, and the area between the Grays Harbor North Jetty and latitude 46° 59' 12" N is bounded by the shoreline on the east and the above mentioned U. S. Engineers survey on the west . Bp 51847

Field work commenced on 20 May 1955 and continued intermittently until 21 October 1955. Cross lines were run thru the area 1-1/2 miles west of Grays Harbor North Jetty between latitudes 46° 54.7' N and 46° 56.6' N to check depths originating from U. S. Engineers surveys. A development of the 16 foot charted soundings at latitude 46° 55.9' N, longitude 124° 11.5' W and latitude 46° 55' N, longitude 124° 08.43' W which originated from U. S. Engineers surveys was also made.

VESSELS AND EQUIPMENT

USC&GS Launch CS-160 was used for all sounding on this survey. No turning radius was determined for this launch.

808 J type graphic recording fathometers Nos. 152 SPX and 154 SPX, calibrated to 800 fm/sec, with keel mounted acoustic units and Edo model 255 graphic recording fathometer no. 203, calibrated to 800 fm/sec, with fish mounted acoustic unit, were used.

TIDE AND CURRENT STATIONS

A portable automatic tide gage was maintained at Point Chehalis, Washington for the purpose of obtaining tide reducers for this survey. See TIDE NOTE, this report.

No current stations were observed.

SMOOTH SHEET

The smooth sheet will be plotted by the Seattle Processing Office at a later date.

CONTROL STATIONS

The source of control was as follows:

(1) Previous triangulation.

(2) T-9515, T-9517 N, T-9517 S.

(3) Combination photo and theodolite cuts.

(4) Sextant cuts.

(5) Combination sextant and theodolite cuts.

(6) Traverse.

(7) The position of topo station Pine, 1952 from Director's letter dated 29 April 1955 included with hydro records.

Signal Abe was located by two photo cuts on the blue line print of T-9515 as the manuscript was not available. Theodolite cuts to this signal were obtained from signals Ban and Cap.

SHORELINE AND TOPOGRAPHY

(1950-51-55), T-9518 S (1950-51-56) and T-9521 (1951-56)

The shoreline is from ~~T-9515~~, T-9517 N, T-9517 S. The shoreline south of T-9517 has not been available to this party and there is no shoreline on the boat sheet south of latitude 46° 52.5' N. Shoreline S. of φ 46° 52.5' added to smooth sheet from T-9518 S and T-9521. (See TP Review)

The position of the shoreline from the south limit of T-9517 N to the north limit of this survey was re-determined by a photogrammetry field edit party during the summer months, 1955. The results of this topography have been forwarded to the Washington Office and should be used for the smooth sheet

SOUNDINGS

Soundings were taken with 808 J and Edo model 255 graphic recording fathometers calibrated to 800 fm/sec. For method of computation of corrections see separate fathometer report. An abstract of corrections is appended to this report.

CONTROL OF HYDROGRAPHY

For fixing the positions of the launch sextant angles were used throughout.

ADEQUACY OF SURVEY

The survey is complete and adequate to supersede prior surveys for charting.

CROSSLINES

Enough crosslines have been run to comply with the instructions.

COMPARISON WITH PRIOR SURVEYS

The area between Grays Harbor North Jetty and the north limit of the sheet is within the area covered by prior Survey Reg. No. H-4710 dated June 1927, scale 1:20,000. The area west of longitude 124° 13.' W and the area south of latitude 46° 54.' and west of longitude 124° 10.' W is within the area covered by prior Survey Reg. No. H-4728 dated 1927, scale 1:40,000. The remainder of this survey is within the area covered by prior Survey Reg. No. H-4621 dated 1926, scale 1:20,000. A junction was made with U. S. Engineers Bar and Entrance Condition Survey dated August 1954 (File No. E-5-7-125). No comparison with these prior surveys will be made herein as it is felt that this may be more adequately done after smooth plotting has been completed.

See P5 Review

└ BP 51847

Crosslines were run through the area approximatly 1-1/2 miles west of Grays Harbor North Jetty between latitude 46° 54.7' N and 46° 56.6' N to check depths determined by above mentioned Engineers survey. In general boat sheet depths are greater than those of U. S. Engineers survey.

16 foot soundings from U. S. Engineers surveys at latitude* 46° 55.~~9~~ 86' N, longitude 124° 11.5~~3~~' W and* latitude 46° 55' N, longitude 124° 08.4' W were investigated. Least depth on ~~boat~~ smooth sheet were ~~25~~ 29 foot and ~~24~~ 28-29 foot respectively.

See P6 Review

* This 16-ft. sdg. originates with U.S. Corps of Engineers' survey of 1951 (BP 48191) where it falls in a highly changeable area. US Corps of Engineers' surveys accomplished subsequent to the present survey shows a 16-ft. sdg. at the location of the charted feature. (BP 58647-1959) Retain 16 ft on chart.
# Disproved by present survey and subsequent Corps of Engineers' survey.

COMPARISON WITH CHART

In general charted depths along the western limit of chart 6195 are less than the boat sheet depths. The 30 foot curve as charted in the area approximatly 1-1/2 - 2 miles west of the entrance to Grays Harbor appears to have moved about 1/2 mile north. It is believed that a more adequate comparison can and should be made after smooth plotting has been completed.

See P6 Review

The 16 foot soundings charted at latitude 46° 55.9' N, longitude 124° 11.5' W and latitude 46° 55' N, longitude 124° 08.4' were investigated and least depth on boat sheet were 23 feet and 24 feet respectively.

See note preceding page.

COAST PILOT INFORMATION

No additions to or changes in present Coast Pilot Information are needed.

AIDS TO NAVIGATION

One fixed aid to navigation was located. The Point Chehalis Range, Front Light was relocated by three point fix. It has been moved approximately 45 meters ESE of 1951 location.

The following floating aids were located by the hydrographic party: They are Boat Sheet positions and some have been serviced by the buoy tender and possibly in a slightly different position.

See P6 B Review

Buoy	Date Located	Pos. No.	Depth (ft.)	Lat.	Long.
BW "GH" S-L Fl. Whistle	8 June 1955	138 e	128.1	46° 51.43'N	124° 14.05'W
R "2" Fl. W Whistle	24 May 1955	~~3 b~~	70.5	46° 52.68'N	124° 12.46'W
R "4" Fl. W Whistle	24 May 1955	2 b	45.8	46° 53.70'N	124° 11.54'W
R "6" Fl. R Whistle	24 May 1955	1 b	42.6	46° 54.28'N	124° 10.96'W
R "8" Qk Fl. R Whistle Radar Ref.	25 August 1955	1 r	45.1	46° 54.56'N	124° 10.79'W
R "2NB" Fl R 10 Sec. Whistle	26 August 1955	16 s	107.5	46° 55.15'N	124° 15.21'W
"3" Fl G 4 Sec. Bell	24 May 1955	11 b	38.5	46° 54.55'N	124° 13.69'W
C "5"	26 August 1955	5 s	44.8	46° 54.71'N	124° 12.1'W

AIDS TO NAVIGATION - Cont'd.

Buoy	Date Located	Pos. No.	Depth (ft.)	Lat.	Long.
"9" Whistle Radar Ref	20 May 1955	2 a	37.0	46° 54.65'N	124° 08.97'W
R "10" Bell	20 May 1955	1 a	63.6	46° 54.73'N	124° 07.64'W

LANDMARKS FOR CHARTS

No additional landmarks are recommended.

VELOCITY CORRECTIONS

Combined fathometer corrections were determined from bar checks, simultaneous pole-fathometer comparisons, simultaneous leadline-fathometer comparisons, and phase comparisons made during period of field work. An abstract of corrections is appended to this report.

For method of determining corrections see FATHOMETER REPORT, WCSP, Projects 1378, 1379 - 1955 Field Season.

TABULATION OF APPLICABLE DATA

	Date	Forwarded to	
Tidal Data			
Level Records, Point Chehalis, Washington		To The Director	
Tide Marigrams, Point Chehalis, Washington		The Director	
Smooth Curves and Reducers Point Chehalis, Washington		Seattle Processing Office	
Photogrammetric Data			
Field Photographs		Photo Field Edit Party	24 October 1955
Office Photographs		Photo Field Edit Party	24 October 1955
Manuscripts T-9517N, T-9517S, Blue line print T-9515		Seattle Processing Office	

TABULATION OF APPLICABLE DATA - Cont'd.

Date	Forwarded to
Hydrographic Data	
Fathograms	Seattle Processing Office
Boat Sheet, Fathometer Report, Control Data	Seattle Processing Office
Fathometer Report	The Director

Respectfully Submitted

Clinton D. Upham

Clinton D. Upham
Ensign, USC&GS

Approved and Forwarded:

Horace G. Conerly

Horace G. Conerly
Commander, USC&GS
OinC., West Coast Shore Party

COMBINED CORRECTIONS FOR EDO FATHOMETER #203
AS USED IN LAUNCH CS 160 - SEASON 1955

Reading In Feet	Frequency in Cycles per second										
	60.50	60.25	60.00	59.75	59.50	59.25	59.00	58.75	58.50	58.25	58.00
Scale				6		5	5	4	4	4	3
13.3	- 0.7	- 0.6	- 0.6	- 0.5	- 0.5	- 0.4	- 0.4	- 0.3	- 0.2	- 0.2	- 0.1
18.1	- 0.5	- 0.5	- 0.4	- 0.3	- 0.3	- 0.2	- 0.2	- 0.1	0.0	0.0	+ 0.1
22.6	- 0.4	- 0.3	- 0.2	- 0.1	0.0	+ 0.1	+ 0.2	+ 0.3	+ 0.4	+ 0.5	+ 0.5
28.2	- 0.2	- 0.1	0.0	+ 0.1	+ 0.2	+ 0.3	+ 0.4	+ 0.6	+ 0.7	+ 0.8	+ 0.9
37.5	- 0.1	+ 0.1	+ 0.2	+ 0.3	+ 0.5	+ 0.6	+ 0.8	+ 0.9	+ 1.0	+ 1.2	+ 1.3
46.7	0.0	+ 0.2	+ 0.4	+ 0.6	+ 0.8	+ 0.9	+ 1.1	+ 1.3	+ 1.5	+ 1.7	+ 1.8
53.3	+ 0.2	+ 0.4	+ 0.6	+ 0.8	+ 1.0	+ 1.2	+ 1.4	+ 1.6	+ 1.9	+ 2.1	+ 2.3
61.5	+ 0.3	+ 0.6	+ 0.8	+ 1.0	+ 1.3	+ 1.5	+ 1.8	+ 2.0	+ 2.3	+ 2.6	+ 2.8
68.9	+ 0.4	+ 0.7	+ 1.0	+ 1.3	+ 1.6	+ 1.8	+ 2.1	+ 2.4	+ 2.7	+ 3.0	+ 3.2
76.5	+ 0.6	+ 0.9	+ 1.2	+ 1.5	+ 1.8	+ 2.1	+ 2.4	+ 2.7	+ 3.1	+ 3.4	+ 3.7
84.2	+ 0.7	+ 1.1	+ 1.4	+ 1.7	+ 2.1	+ 2.4	+ 2.8	+ 3.1	+ 3.5	+ 3.9	+ 4.2
92.1	+ 0.8	+ 1.2	+ 1.6	+ 2.0	+ 2.4	+ 2.7	+ 3.1	+ 3.5	+ 3.9	+ 4.3	+ 4.6
99.0	+ 1.0	+ 1.4	+ 1.8	+ 2.2	+ 2.6	+ 3.0	+ 3.4	+ 3.8	+ 4.3	+ 4.7	+ 5.1
107.0	+ 1.1	+ 1.6	+ 2.0	+ 2.4	+ 2.9	+ 3.3	+ 3.8	+ 4.2	+ 4.7	+ 5.1	+ 5.6
114.2	+ 1.2	+ 1.7	+ 2.2	+ 2.7	+ 3.2	+ 3.6	+ 4.1	+ 4.6	+ 5.1	+ 5.6	+ 6.0
121.6	+ 1.4	+ 1.9	+ 2.4	+ 2.9	+ 3.4	+ 3.9	+ 4.4	+ 4.9	+ 5.4	+ 5.9	+ 6.5
128.8	+ 1.5	+ 2.1	+ 2.6	+ 3.1	+ 3.2	+ 4.2	+ 4.8	+ 5.3	+ 5.8	+ 6.4	+ 6.9
136.2	+ 1.6	+ 2.2	+ 2.8	+ 3.4	+ 4.0	+ 4.5	+ 5.1	+ 5.7	+ 6.3	+ 6.8	+ 7.4
144.3	+ 1.8	+ 2.4	+ 3.0	+ 3.6	+ 4.2	+ 4.8	+ 5.4	+ 6.0	+ 6.6	+ 7.2	+ 7.8
151.3	+ 1.9	+ 2.6	+ 3.2	+ 3.8	+ 4.4	+ 5.1	+ 5.7	+ 6.4	+ 7.0	+ 7.6	+ 8.3
159.0	+ 2.1	+ 2.7	+ 3.4	+ 4.1	+ 4.7	+ 5.4	+ 6.0	+ 6.7	+ 7.4	+ 8.0	+ 8.7
160.0	+ 2.2	+ 2.9	+ 3.6	+ 4.3	+ 5.0	+ 5.7	+ 6.4	+ 7.1	+ 7.8	+ 8.5	+ 9.1
B Scale											
4.0	- 0.5	- 0.3	- 0.1	+ 0.1	+ 0.3	+ 0.5	+ 0.7	+ 0.9	+ 1.2	+ 1.4	+ 1.6
62.2	- 0.4	- 0.1	+ 0.1	+ 0.3	+ 0.6	+ 0.8	+ 1.1	+ 1.3	+ 1.6	+ 1.9	+ 2.1
69.6	- 0.3	0.0	+ 0.3	+ 0.6	+ 0.9	+ 1.1	+ 1.4	+ 1.7	+ 2.0	+ 2.3	+ 2.5
77.2	- 0.1	+ 0.2	+ 0.5	+ 0.8	+ 1.1	+ 1.4	+ 1.7	+ 2.0	+ 2.4	+ 2.7	+ 3.0
84.9	0.0	+ 0.4	+ 0.7	+ 1.0	+ 1.4	+ 1.7	+ 2.1	+ 2.4	+ 2.8	+ 3.2	+ 3.5
92.8	+ 0.1	+ 0.5	+ 0.9	+ 1.3	+ 1.7	+ 2.0	+ 2.4	+ 2.8	+ 3.2	+ 3.6	+ 3.9
99.7	+ 0.3	+ 0.7	+ 1.1	+ 1.5	+ 1.9	+ 2.3	+ 2.7	+ 3.1	+ 3.6	+ 4.0	+ 4.4
107.7	+ 0.4	+ 0.9	+ 1.3	+ 1.7	+ 2.2	+ 2.6	+ 3.1	+ 3.5	+ 4.0	+ 4.4	+ 4.9
114.9	+ 0.5	+ 1.0	+ 1.5	+ 2.0	+ 2.5	+ 2.9	+ 3.4	+ 3.9	+ 4.4	+ 4.9	+ 5.3
122.3	+ 0.7	+ 1.2	+ 1.7	+ 2.2	+ 2.7	+ 3.2	+ 3.7	+ 4.2	+ 4.7	+ 5.2	+ 5.8
129.5	+ 0.8	+ 1.4	+ 1.9	+ 2.4	+ 3.0	+ 3.5	+ 4.1	+ 4.6	+ 5.1	+ 5.7	+ 6.2
136.9	+ 0.9	+ 1.5	+ 2.1	+ 2.7	+ 3.3	+ 3.8	+ 4.4	+ 5.0	+ 5.6	+ 6.1	+ 6.7
C Scale											
120.2	+ 2.8	+ 3.3	+ 3.8	+ 4.3	+ 4.8	+ 5.3	+ 5.8	+ 6.3	+ 6.8	+ 7.3	+ 7.9
127.4	+ 2.9	+ 3.5	+ 4.0	+ 4.5	+ 5.1	+ 5.6	+ 6.2	+ 6.7	+ 7.2	+ 7.8	+ 8.3
134.8	+ 3.0	+ 3.6	+ 4.2	+ 4.8	+ 5.4	+ 5.9	+ 6.5	+ 7.1	+ 7.7	+ 8.2	+ 8.8
142.9	+ 3.2	+ 3.8	+ 4.4	+ 5.0	+ 5.6	+ 6.2	+ 6.8	+ 7.4	+ 8.0	+ 8.6	+ 9.2
149.9	+ 3.3	+ 4.0	+ 4.6	+ 5.2	+ 5.8	+ 6.5	+ 7.1	+ 7.8	+ 8.4	+ 9.0	+ 9.7
157.6	+ 3.5	+ 4.1	+ 4.8	+ 5.5	+ 6.1	+ 6.8	+ 7.4	+ 8.1	+ 8.8	+ 9.4	+ 10.1
158.6	+ 3.6	+ 4.3	+ 5.0	+ 5.7	+ 6.4	+ 7.1	+ 7.8	+ 8.5	+ 9.2	+ 9.9	+ 10.5

COMBINED FATHOMETER CORRECTIONS

Fathometer 152 SPX - Launch CS 160

Hydrographic Survey Reg. No. H 8252 - Field No. WCSP 2155

"a" Scale		"b" Scale		"c" Scale		"d" Scale	
Fathometer Reading(ft)	Corr. (ft)	Fathometer Reading(ft)	Corr. (ft)	Fathometer Reading(ft)	Corr. (ft)	Fathometer Reading(ft)	Corr. (ft)
2.6 - 5.2	-0.6						
8.6	-0.4						
17.7	-0.2						
34.7	0.0						
40.0	+0.2	39.1	+1.1				
45.0	+0.4	44.1	+1.3				
47.9	+0.6	47.0	+1.5				
50.1	+0.8	49.2	+1.7				
52.2	+1.0	51.3	+1.9				
54.0	+1.2	53.1	+2.1				
55.9	+1.4	55.0	+2.3				
57.5	+1.6	56.6	+2.5				
59.6	+1.8	58.7	+2.7				
		61.2	+2.9				
		63.7	+3.1				
		66.7	+3.3				
		70.1	+3.5	72.1	+1.5		
		73.5	+3.7	75.5	+1.7		
		77.3	+3.9	79.5	+1.9		
		81.9	+4.1	83.9	+2.1		
		85.9	+4.3	87.9	+2.3		
		91.0	+4.5	93.0	+2.5		
				98.3	+2.7		
				133.6	+2.9	136.8	-0.3
						164.3	-0.1

Combined corrections when sounding in fathoms with initial set at 0.0 fathoms

"a" Scale Fathometer Reading(fm)	Corr. (ft)
14.5 - 15.3	+6.6
16.2	+6.8
22.1	+7.0
30.0	+7.2

COMBINED FATHOMETER CORRECTIONS

Fathometer 154 SPX - Launch CS 160

Hydrographic Survey Reg. No. H 8252 - Field No. WCSP 2155

"a" Scale		"b" Scale		"c" Scale		"d" Scale	
Fathometer Reading(ft)	Corr. (ft)	Fathometer Reading(ft)	Corr. (ft)	Fathometer Reading(ft)	Corr. (ft)	Fathometer Reading(ft)	Corr. (ft)
3.9 - 6.3	- 0.8						
9.4	- 0.6						
21.4	- 0.4						
31.4	-0.2						
40.0	0.0	39.4	+ 0.6				
45.0	+0.2	44.4	+ 0.8				
50.3	+ 0.4	49.7	+ 1.0				
53.1	+ 0.6	52.5	+ 1.2				
55.8	+ 0.8	55.2	+ 1.4				
57.5	+ 1.0	56.9	+ 1.6				
59.9	+ 1.2	59.3	+ 1.8				
		61.5	+ 2.0				
		63.4	+ 2.2				
		65.5	+ 2.4				
		68.6	+ 2.6	70.3	+ 0.9		
		71.7	+ 2.8	73.4	+ 1.1		
		77.3	+ 3.0	79.0	+ 1.3		
		81.3	+ 3.2	83.0	+ 1.5		
		86.3	+ 3.4	88.0	+ 1.7		
		92.4	+ 3.6	94.1	+ 1.9		
				112.9	+ 2.1	114.5	+ 0.5
				161.1	+ 2.3	162.7	+ 0.7

Combined corrections when sounding in fathoms with initial set at 0.0 fathoms

"a" Scale	
Fathometer Reading(fm)	Corr. (ft)
15.0 - 18.7	+ 6.2
30.0	+ 6.4

LIST OF SIGNALS USED

ON HYDROGRAPHIC SHEET WCSP 2155 - REG. NO. H-8252

Name	Origin of Signal
ABE	T-9515 and theodolite cuts recorded pg. 2, vol. 1.
BAN	T-9517 N.
BAR	GRAYS HARBOR BAR RANGE, REAR LIGHT, 1951.
CAP	T-9517 N.
CUP	GRAYS HARBOR COAST GUARD STATION CUPOLA, 1951.
DUN	Theodolite cut recorded pg. 2, vol. 1; Sextant cuts; 161 g, 57 p, 58 p, 59 p.
ELM	T-9517 N and theodolite cuts recorded pg. 2, vol. 1.
FAN	T-9517 N.
FRO	GRAYS HARBOR BAR RANGE, FRONT LIGHT, 1951.
GAB	T-9517 N.
HAL	POINT CHEHALIS RANGE, FRONT LIGHT (Three point fix pg. 2, vol. 1, sdg line on range "a" day).
JAP	T-9517 N.
JET	Sextant cuts positions 1 d, 2 d, 3 d.
LIGHT	GRAYS HARBOR LIGHT HOUSE, 1909.
LOOK	~~GRAYS HARBOR~~ PT. CHEHALIS, COAST GUARD STATION LOOKOUT TOWER, 1951.
MAL	T-9517 S.
NOR	North (USE) T-9517 N and theodolite cuts recorded pg. 2 vol. 1.
OWL	T-9517 N and theodolite cuts recorded pg. 2, vol. 1.
PINE	PINE, 1952. Position from Director's letter dated 29 April 1955, included with hydro records.
POINT	POINT CHEHALIS RANGE, REAR LIGHT, 1951.
SAG	Traverse and position computation WCSP. See this report.

LIST OF SIGNALS - Cont'd.

Name	Origin of Signal
TANK	WESTPORT MUNICIPAL TANK, 1951.
USE	WHITE (USE) Traverse and position computation WCSP. See this report., 1955
WES	T-9517 N.

TIDAL NOTE

HYDROGRAPHIC SHEET REG. NO. H 8252 - FIELD NO. WCSP 2155

For tide reducers in the area of this sheet a portable tide gage was maintained at Point Chehalis, Latitude ~~55° 45' 94"~~ 46° 54.6', Longitude ~~127°~~ 124° 06' 45".

No corrections were applied for distance from the gage.

The reading of MLLW on the staff was 2.9.

APPROVAL SHEET

HYDROGRAPHIC SURVEY WCSP 2155 - REG. NO. H 8252

WEST COAST SHORE PARTY

The work done on this survey is considered complete and adequate and no additional field work is recommended. The records have been examined and are approved.

Horace G. Conerly
Commander, USC&GS
OinC., West Coast
Shore Party

STATISTICS FOR HYDROGRAPHIC SURVEY

FIELD NO. WCSP 2155 (1955) - REG. NO. H 8252

Vol. No.	Day Letter	Date	H.L.Sdgs.	No. Pos.	Stat.Miles Sdg.
1	a	20 May		13	2.3
1	b	24 May		81	23.5
1 & 2	c	27 May		84	19.9
2	d	7 June		123	29.2
2 & 3	e	8 June		157	33.5
3	f	9 June		35	7.5
3	g	14 June		161	32.9
4	h	16 June		128	28.5
4	j	17 June		102	20.0
5	k	23 June		103	24.6
5	l	24 June		126	31.5
6	m	29 June		62	12.0
6	n	22 August		98	21.3
7	p	23 August		118	27.1
6 & 8	q	24 August		115	20.7
7 & 9	r	25 August		132	31.4
8	s	26 August		89	20.7
9	t	30 August		109	27.2
8,9 & 10	u	31 August		116	28.7
11	v	12 Sept.		58	13.9
10	w	21 Sept.		102	27.7
10	x	28 Sept.		109	40.5
11	y	20 Oct.		29	10.4
11	z	21 Oct.		73	29.1
			TOTALS	2,323	564.1

Total area 44.8 square statute miles.

COPY COPY COPY COPY COPY COPY COPY

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Washington 25

refer to 22/MEK
FP-West Coast

OST-OFFICE ADDRESS:

TELEGRAPH ADDRESS:

EXPRESS ADDRESS:

29 April 1955

To: Officer in Charge
U. S. Coast and Geodetic Survey
West Coast Field Party
General Delivery
Westport, Washington

Subject: Geographic Position, Request for

As requested in your letter of 26 April 1955 the geographic position of topographic station PINE 1952 is given below:

Latitude 46° 50' 50(1803) meters

Longitude 124° 06' 123(1149) "

S/H. E. Finagan
Acting Director

cc: Supervisor, Northwestern District

For Hydro Sheet H 5 5

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 27
Ed. April 1945

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

			°	′	″				°	′	″
α	2 D Last	to 3 Grays Harbor L.H.	176	23	10	α	3 A Last	to 2 Grays Harbor L.H.	176	23	10
2d ∠		&	+159	24	53	3d ∠		&	-288	19	36
α	2	to 1	335	48	03	α	3	to 1	104	42	46
Δα						Δα					
			180	00	00.0				180	00	00.0
α′	1	to 2				α′	1	to 3			

First Angle of Triangle

	°	′	″			°	′	″		°	′	″		°	′	″
φ	46	51	49.415	2 D Last	λ	124	06	48.096	φ	46	51	49.415	3 D Last	λ	124	06	48.096
Δφ	−	00	28.320	958.78	Δλ		−	18.552	Δφ	+	00	00.834	101.41 m	Δλ	+	00	04.631
φ′	46	51	21.095	1 White	λ′	124	06	29.544	φ′	46	51	50.249	1 Sag	λ′	124	06	52.727

	Logarithms	Values in seconds
s	2.981 7190	
Cos α	9.960 0549	
B	8.516 3237	
h	1.452 0976	1st term + 28.320
s^2	5.9634	
$\sin^2\alpha$	9.2253	
C	1.4321	
	6.6208	2d term + 0.0004
h^2		
D		
		3d term +
		−Δφ 28.320

½(φ+φ′)	°	′	″	Values in seconds
	Logarithms			
s	2.981 7190			
Sin α	9.612 6883			
A′	8.508 9428			
Sec φ′	0.165 0478			
Δλ	1.268 3977			18.552
$\sin\frac{1}{2}(\phi+\phi')$				
−Δα				

	Logarithms	Values in seconds
s	2.006 0808 −	
Cos α	9.404 7887 −	
B	8.510 3237	
h	9.921 1932 −	1st term − 0.834
s^2	4.0121 −	
$\sin^2\alpha$	9.9710 −	
C	1.4321 −	
	5.4152 −	2d term + —
h^2		
D		
		3d term +
		−Δφ 0.834

½(φ+φ′)	°	′	″	Values in seconds
	Logarithms			
s	2.006 0808 −			
Sin α	9.985 5213 −			
A′	8.508 9428			
Sec φ′	0.165 1129 −			
Δλ	0.665 6578	+		4.6307 −
$\sin\frac{1}{2}(\phi+\phi')$				
−Δα				

16—44238-1 U. S. GOVERNMENT PRINTING OFFICE

PROCESSING OFFICE NOTES H-8252

SMOOTH SHEET

The smooth sheet was hand constructed using standard methods of construction and checking, by the Seattle Hydrographic Processing Unit.

SHORELINE AND TOPOGRAPHY

The shoreline was transfered from T-9515, T-9517N, T-9517S, T-9518S and T-9521. Necessary reductions in scale were made using a Salzman Projector.

ADEQUACY OF SURVEY

The survey appears complete and adequate for charting.

The only junction with contemporary surveys is the small area in the entrance to Grays Harbor at Lat. 46° 55!0 N., Long. 124° 08!5 W, where there is a junction with H-8251. Some shifting of the bottom appears to have occured between the dates of the two surveys and the depth curves do not agree very well.

CROSSLINES

Generally the crossings are satisfactory. Some differences of about two feet do appear in deeper depths. The line 4 "d" thru 20 "d", Lat. 46° 55!78 to 46° 58!98N., Long. 124° 11!0 to 124° 10!6 W., appears too shoal. Differences of up to 3 feet between this line and adjacent lines are noted, in depthsof 10 to 15 feet. The fathograms were checked but no apparent malfunction was found. Because of the practice of using the time lines on the fathograms for marking the fixes and then marking down the, somewhat variable, clock time, it is difficult to check the fathometer speed very closely. The difference may, ~~however~~, have been caused by a storm shifting the sand on the bottom. There are no crosslines over this area.

COMPARISON WITH PRIOR SURVEYS

A detailed comparison with prior surveys is not considered practical because of the numerous differences that occur.

In general the soundings on the present survey are somewhat deeper than those of the prior surveys. Except in the area of the entrance to Grays Harbor the agreement with H-4621 and H-4710 appears to be within a foot or two. Considerable change has occured around the entrance to the harbor and there are large differences in depth on the lines of this survey that run into that area. The agreement with H-4728 is rather resonable, but with many minor changes over the area, both deeper and shoaler soundings occuring. The 16 fathom sounding on H-4728, shown as rejected, at Lat. 46° 53!8N, Long. 124° 16!9, is in an area where the depth is about 143 feet on this survey.

In comparing the U. S. Engineer's Bar and Entrance Condition Survey, dated August 1954 (File No. E- 5- 7-125), differences in depth again show the present survey to be generally deeper. The differences are progressively more as the depth increases. There are differences of eight or nine feet in depths 70 feet of water.

COMPARISON WITH CHART

The Smooth sheet has been compared with Chart 6195, 53rd Ed. Revised 1/20/58.

In general the charted depths are less than the smooth sheet depths. The 30 foot curve as charted in the area 2 miles West of the entrance to Grays Harbor has moved north about a half mile.

There are a few soundings over the area of the smooth sheet that have deeper charted depths than those shown on the smooth sheet. The most notable being the 90 foot charted sounding at Lat. 46° 56!0N., Long. 124° 14!4W. That sounding is surrounded by smooth sheet depths ranging from 67 to 78 feet.

The two 16 foot soundings mentioned in the field report are in smooth sheet depths of 26 to 29 feet. Possibly these soundings were 10 feet in error originally.

AIDS TO NAVIGATION

Conversion to smooth sheet values made in ink on the field report.

Respectfully submitted

William M. Martin

WILLIAM M. MARTIN
Supervisory Cartographer

Approved and forwarded

E. H. Kirsch

E. H. KIRSCH
Captain, C&GS
Seattle District Officer

GEOGRAPHIC NAMES PENCILED ON H-8252

GRAYS HARBOR

PACIFIC OCEAN

PT. BROWN

PT. CHEHALIS

WESTHAVEN

WESTPORT

GEOGRAPHIC NAMES

Survey No. H-8252

Name on Survey	On Chart No. A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Washington			(title)						BGN	1
Pacific Ocean										2
Westport										3
Point Chehalis			(tide station)						BGN	4
Westhaven										5
Grays Harbor										6
Point Brown										7
				Names approved 10-29-58						8
				L.Heck						9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

M 234

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8252

Records accompanying survey:

Boat sheets 1; sounding vols. 11; wire drag vols. .....;
bomb vols. .....; graphic recorder rolls ~~13~~ 13-Envelopes
special reports, etc. 1-Smooth sheet and 1-Descriptive report.
1-Piper Overlay

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

Number of positions on sheet		2321
Number of positions checked		254
Number of positions revised		30
Number of soundings revised (refers to depth only)		1033
Number of soundings erroneously spaced		57
Number of signals erroneously plotted or transferred		0
Topographic details	Time	8 hrs.
Junctions	Time	4 hrs.
Verification of soundings from graphic record	Time	23 hrs.

Verification by William E. Reig Total time 158 hrs. Date Oct. 6, 59

Reviewed by J. M. Beskind Time 55 Date Feb. 15/60

M-2232-1

RHC

Form 712
(11-30-55)

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Chart Division: R. H. Carstens: 19 November 1958

Plane of reference approved in
11 volumes of sounding records for

HYDROGRAPHIC SHEET 8252

Locality Grays Harbor, Washington

Chief of Party: H. G. Conerly in 1955

Plane of reference is mean lower low water, reading

2.8ft. on tide staff at Point Chehalis

17.5ft. below B.M. 1 (1927)

Height of mean high water above plane of reference is 8.3 feet.

Condition of records satisfactory except as noted below:

William Shapiro
Signature

Chief, Tides Branch

Comm-DC 34330

DIVISION OF CHARTS

REVIEW SECTION -- NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8252 FIELD NO. WCSP-2155

Washington, Pacific Ocean, Vicinity of Grays Harbor

SURVEYED: April-October 1955 SCALE: 1:20,000

PROJECT NO. 1378

SOUNDINGS: Edo Depth Recorder
808 Depth Recorder
Leadline

CONTROL: Sextant fixes on shore signals

Chief of Party ---------- H. G. Conerly
Surveyed by ---------- H. G. Conerly, H. L. Runge, and C. D. Upham
Protracted by ---------- V. F. Flor
Soundings plotted by ------- V. F. Flor
Verified and inked by ------ W. E. Roig
Reviewed by ---------- I. M. Zeskind DATE: 2/15/60
Inspected by ---------- R. H. Carstens

1. Shoreline and Control

The shoreline originates with reviewed air-topographic surveys T-9517 N & S (1950-51-55), T-9518 S (1950-51-56), and T-9521 (1951-56).

The source of the control is given in the Descriptive Report.

2. Sounding Line Crossings

Depths at crossings are in good agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves were adequately delineated.

The bottom is fairly smooth, except in the vicinity of the north jetty where it is slightly irregular.

4. Junctions with Contemporary Surveys

An adequate junction was effected with H-8251 (1955-56) northwest of Pt. Chehalis. Butt junctions were effected with H-4728 (1927) on the north-west, west and southwest,

with H-4710 (1927) on the northeast and with H-4621 (1926) on the southeast. Periodic surveys by the Corps of Engineers cover the approach to Grays Harbor.

5. Comparison with Prior Surveys

A. H-334 Rec. (1852), 1-221,360
H-809 (1862), 1-20,000
H-1589a (1883), 1-20,000
H-1800 (1887), 1-40,000
H-2085 (1891), 1-20,000
H-2371 (1898), 1-20,000

These early surveys fall within the area of the present survey. A comparison between the prior and present surveys reveals many changes in the shoreline and bottom configuration which are attributed to natural and artificial causes. Considerable accretion has occurred in the shoreline both north and south of the jetties. Although only a few sounding lines on the present survey traverse the area in the vicinity of the entrance to the jetties, differences in depths of as much as 30 ft. were noted here. Elsewhere differences in depths of as much as 10 ft. are noted. These changes in the shoreline and depths are attributed to the construction of the jetties at the entrance to Grays Harbor, the reclaiming of land, and the action of the current on the bottom.

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

B. H-4621 (1926), 1-20,000
H-4710 (1927), 1-20,000
H-4728 (1927), 1-40,000

These surveys cover the area of the present survey. A comparison between the prior and present surveys reveals changes in the shoreline and bottom configuration which are attributed to causes similar to those mentioned in paragraph A above. The greatest change in the shoreline occurs north of the jetties where it has accreted as much as 400 meters with the resultant changes in depths. The bottom in the area west of the entrance to the jetties is in a constant state of flux with great changes in depths. Here the difference in depths is as much as 28 ft. The 60-ft. depth curve west of the jetties on the present survey has moved about 400 meters further offshore than its location on H-4728. In the southeastern portion of the present survey, a comparison with the prior surveys reveals differences in depth of as much as 8 ft. Elsewhere only minor differences in depths of 2-5 are noted.

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

6. Comparison with Chart 6002 (Latest print date 12/15/58)
Chart 6195 (Latest print date 2/3/59)

A. Hydrography

The charted hydrography originates with the previously discussed prior surveys which need no further consideration, with boat sheet information of the present survey, and with the U. S. Corps of Engineers' surveys accomplished between 1948 and 1959 inclusive. The charted shoreline falls as much as 150 meters east of that shown on the present survey. Differences of 2-12 ft. are noted between the charted and present survey depths. Attention is specifically directed to the following charted soundings which fall in an area that is constantly changing:

1. The 13-ft. sounding charted in lat. 46°54.98', long. 124°08.74', falls in present depths of 23-25 ft. The sounding originates with the U. S. Corps of Engineers' survey of 1959 (Bp. 58647) which was accomplished subsequent to the present survey. The sounding should, therefore, be retained on the chart.

2. The 16-ft. sounding charted in lat. 46°55.0', long. 124°08.45', from the U. S. Corps of Engineers' survey of 1951 (Bp. 48191), falls in present depths of 28-29 ft. The sounding falls in a changeable area where a depth of 23 ft. is found on a subsequent U. S. Corps of Engineers' survey of 1959 (Bp 58647). The charted sounding should be deleted from the chart.

The present survey supersedes the charted hydrography within the adequately surveyed areas, except as noted in items Nos. 1 and 2 above, and for other information charted from Corps of Engineers surveys made subsequent to the present survey.

B. Aids to Navigation

The present survey positions of aids to navigation are in substantial agreement with the charted positions and adequately mark the intended features. Lighted buoy "7" charted in lat. 46°54.74', long. 124°09.87' originates with H.O.N. to M. 37, 1959, and was charted subsequent to the present survey.

7. Condition of Survey

a. The sounding records and Descriptive Report are complete and comprehensive.

b. The smooth plotting was accurately done, However, the following deficiencies in the survey were noted:

1. No bottom characteristics were obtained during the present survey.

2. Reducers for fathometer soundings for the entire survey which were compiled from bar checks, phase differences, and comparisons of lead line soundings with fathometer soundings were obtained on only one day for each fathometer. The fathometer corrections for this survey may, therefore, be somewhat approximate.

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.

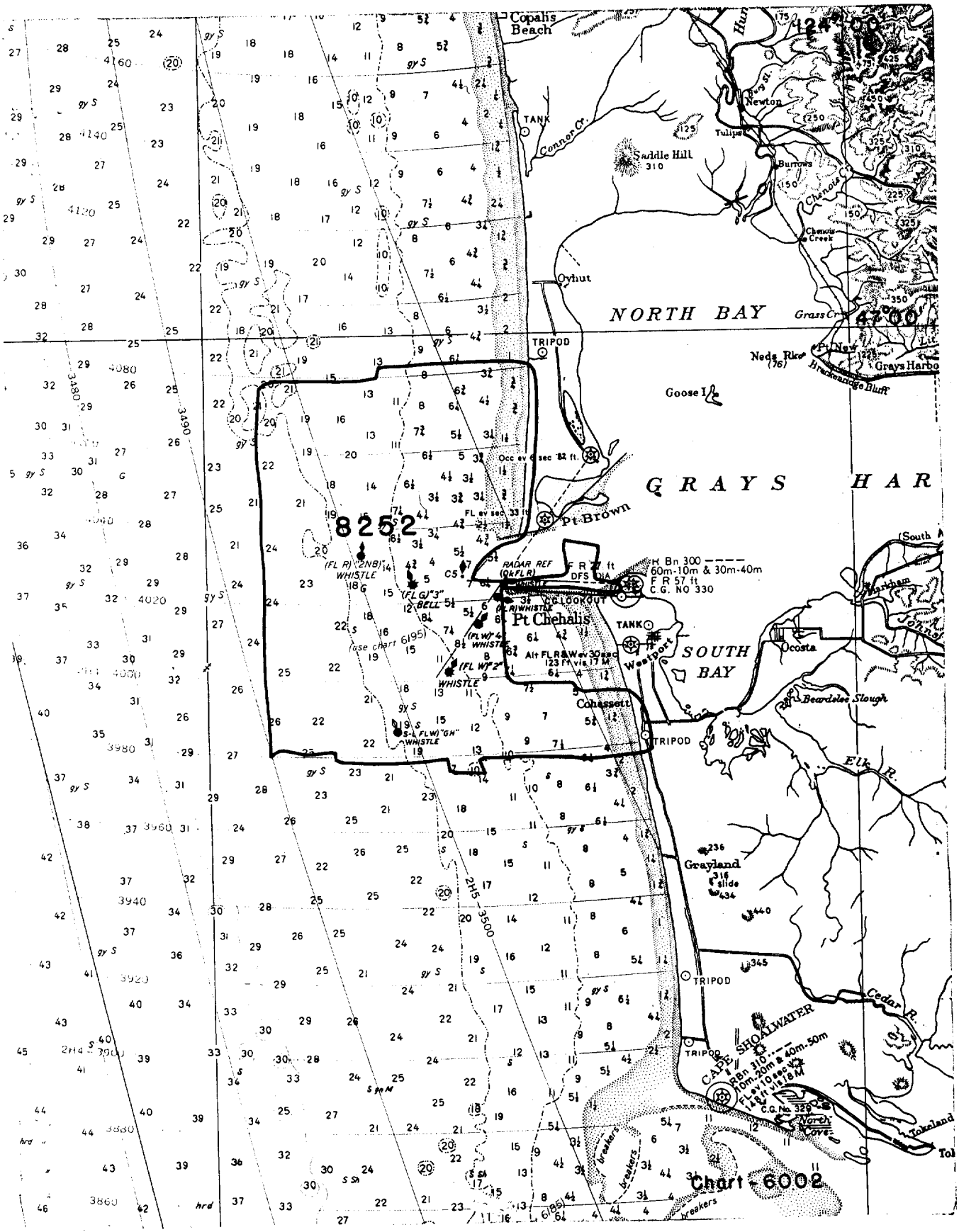
Examined and Approved:

Chief, Nautical Chart Branch

Chief, Division of Charts

Chief, Hydrography Branch

Chief, Division of Coastal Surveys


Copalis Beach
TANK
Connor Cr.
Saddle Hill
310
Oyhut
NORTH BAY
TRIPOD
Goose I.
Pt Brown
8252
Pt Chehalis
TANK
Westport
SOUTH BAY
Ocosta
Cohassett
TRIPOD
Beardslee Slough
Elk R.
Grayland
TRIPOD
Cedar R.
CAPE SHOALWATER
TRIPOD
Tokeland
North Cove
Grays Harbo
Chart 6002

NAUTICAL CHARTS BRANCH

SURVEY NO. H - 8252

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
1-29-59	6195	R.N. DeLaunder	Part. appld - no correction Before ~~After~~ Verification and Review (Examined before)
2-8-~~60~~	6195	E.E. Thomas	Part appld Verified after review. ~~Before~~ After Verification and Review Completely applied. Final
3/15/60	6002	JFE	Part. appld thru ch 6195 ~~Before~~ After Verification and Review
Feb. 1961	6195	CRW	~~Before~~ After Verification and Review
Jan 1968	6002	J W Dailey	~~Before~~ After Verification and Review Applied in part thru 6195 & 6002. (Consider fully applied until reconstr of chart)
4-14-70	6195	Eric Frey	~~Before~~ After Verification and Review Filled in holiday at 46°51'-46°52' & 124°12' with 5 sdgs.
			Before After Verification and Review
			Before After Verification and Review
			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.