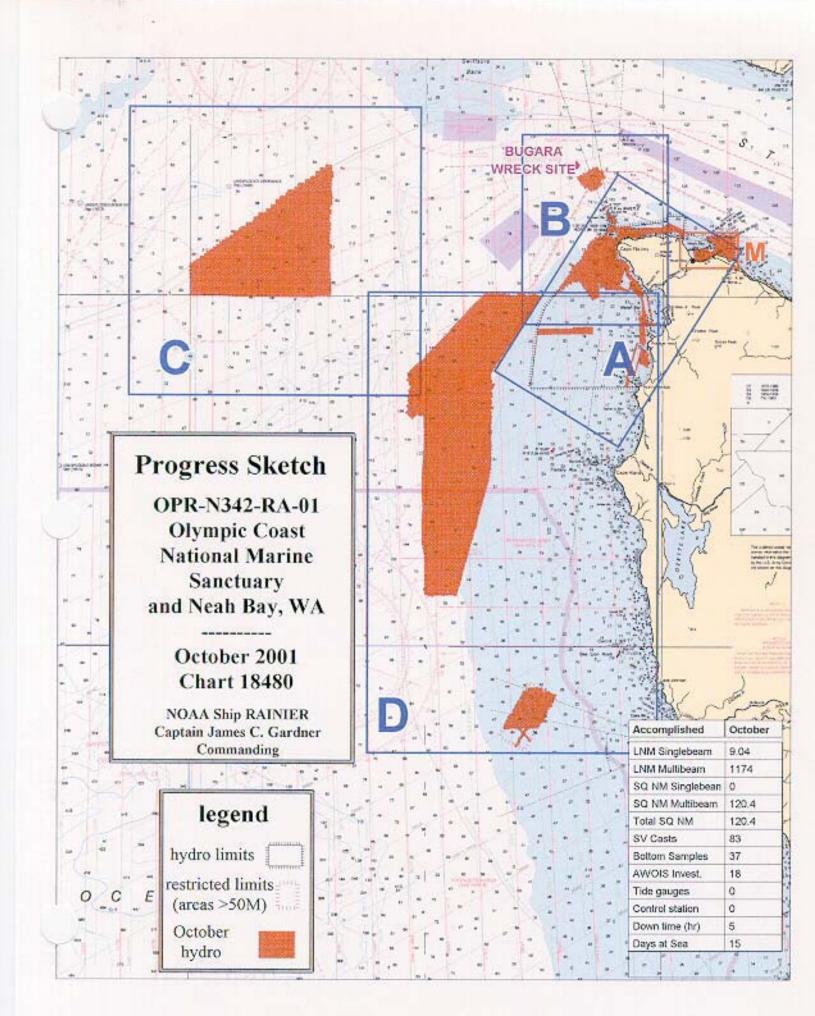
DES	CRIPTIVE REPORT
Type of Survey	Hydrographic
Field No.	RA-05-01-01
Registry No.	H-11086
State	LOCALITY Washington
	Strait of Juan De Fuca
Sublocality	Neah Bay
	2001
Cor	CHIEF OF PARTY mmander James C. Gardner, NOAA

H11086

NOAA FORM 77-28 (11-72)		U.S. DEPARTMENT OF COMMERCE DNAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTER NO.		
	HYDROGR	APHIC TITLE SHEET			
	mbrook		H-11086		
		heet should be accompanied by this form,	FIELD NO.		
filled in as compl	etely as possible, who	en the sheet is forwarded to the office.	RA-05-01-01		
State	Washington				
General Locality	Strait of Juan De	Fuca			
Sublocality	Neah Bay				
Scale	_1: 5,000	Date of Survey 10/06/01 to 1	0/25/01		
Instructions Date	d 9/21/2001	Project No. OPR-N342-I	RA-01		
Vessel	<u>RA-1(2121), RA-</u> RA-7(2127)	2(2122), RA-4(2124), RA-5(2125), RA-6(212	6) and		
Chief of Party	Captain James C	. Gardner, NOAA			
Surveyed by	yed by Ship personnel and physical scientists from				
Pacific Hydrographic Branch					
Soundings taken	Soundings taken by echo sounder, hand lead, pole Knudsen 320, RESON 8101 MB				
Graphic record sc	caled by RAI	NIER Personnel			
Graphic record cl	necked by RAI	NIER Personnel			
Evaluation by _	M. Bigelow, B. O	Automated plot by HP DesignJe	et 1050C		
Verification by _	M. Bigelow, R. M	Iayor, R. Davies, B. Olmstead			
Soundings in	Feet	at MLLW			
REMARKS:	Time in UTC.				
	Revisions and an	notations appearing as endnotes were genera	ated		
	during office pro	cessing. All separates are filed with th	e		
	hydrographic data. Thus page numbering may be interrupted.				
	All depths listed	in this report are referenced to mean			
	lower low water	unless otherwise noted.			

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537 U.S. GOVERNMENT PRINTING OFFICE: 1986 - 652-007/41215



Descriptive Report to Accompany Hydrographic Survey H11086

Project OPR-N342-RA-01 Olympic Coast National Marine Sanctuary and Neah Bay, Washington Scale 1:5,000 October 2001 **NOAA Ship RAINIER** Chief of Party: Captain James C. Gardner, NOAA

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-N342-RA-01, dated September 21, 2001 and the Draft Standing Project Instructions dated April 6, 1998. The survey is located near the entrance to the Strait of Juan De Fuca along the northern coast of the Olympic Peninsula approximately six nautical miles east of Cape Flattery, WA, and covers approximately two square nautical miles. This survey corresponds to sheet "M" in the sheet layout provided with the Letter Instructions.

One hundred percent shallow-water multibeam (SWMB) coverage was obtained in waters 4 meters and deeper with the exception of a few areas on the north side of Waadah Island that are foul with kelp and considered unsafe for navigation. The surrounding depths in these areas range between 6 and 10 meters and are within defined foul limits. One hundred percent SWMB coverage was also obtained in the "Area of Concern" at the entrance to Neah Bay as outlined in the Letter Instructions. Additional coverage was also obtained to ensure the least depth over features.¹

Data acquisition was conducted from October 6 through October 25, 2001 (Julian Day Numbers 279-298).²

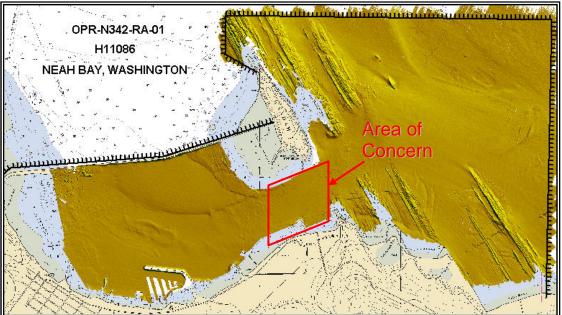


Figure 1. H11086 Survey Limits

B. DATA ACQUISTION AND PROCESSING

A complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods can be found in the *OPR-N342-RA-01 Data Acquisition and Processing Report* submitted under separate cover. Items specific to this survey, and any deviations from the aforementioned report are discussed in the following sections.

B1. Equipment and Vessels

Data were acquired by RAINIER survey launches (vessel numbers 2121, 2122, 2125, 2126, and 2127). Vessels 2121 and 2126 were used to acquire shallow-water multibeam (SWMB) soundings and sound velocity profiles. Vessel 2122 was used to acquire vertical-beam echo soundings (VBES) during shoreline verification, detached positions (DPs) and bottom samples.³ Vessel 2127 was also used to perform shoreline verification and acquire DPs. No unusual vessel configurations or problems were encountered during this survey.⁴

B2. Quality Control

Crosslines

Shallow-water multibeam (SWMB) crosslines totaled 151.43 nautical miles, equating to 3.96% of SWMB hydrography. The Quality Control Report (CARIS HIPS) for the checkline file averaged 96.8%, with a depth tolerance factor of 0.013, which conforms to International Hydrographic Organization Order I specifications detailed in Special Publication S-44, Edition 4, as well as NOS Hydrographic Surveys Specifications and Deliverables Manual. See Appendix V^5 for the detailed report.

Junctions

There are no contemporary surveys that junction with H11086.⁶

Data Quality Factors

In the near shore area around Waadah Island and Baada Point, thick kelp sometimes obscured the detection of the bottom. In the SWMB data, removal of obvious outliers obtained over kelp was possible during line cleaning in HDCS Swathedit. In HDCS Subset Mode, in some instances, it was possible to discern the true bottom, as kelp often appeared as soundings "disconnected" from the continuous bottom. In these instances soundings over kelp were rejected. However, when unable to clearly distinguish between the bottom and kelp, the kelp was not rejected. Areas with kelp were noted by the Hydrographer during shoreline verification and are also indicated in the "H11086_ShorelineNotes" table of the Detached Position and Bottom Sample Plot.⁷

No other unusual conditions were encountered during the survey that affected the expected accuracy and quality of survey data.

B3. Data Reduction

Data reduction procedures for survey H11086 conform to those detailed in the OPR-N342-RA-01 Data Acquisition and Processing Report.

C. VERTICAL AND HORIZONTAL CONTROL

A complete description of vertical and horizontal control for survey H11086 can be found in the *OPR-N342-RA-01 Horizontal and Vertical Control Report*, submitted under separate cover. A summary of horizontal and vertical control for this survey follows.

Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83). Differential GPS (DGPS) was the sole method of positioning. Differential corrections from U.S. Coast Guard beacon at Whidbey Island, WA (302 kHz), Robinson Point (323 kHz), Fort Stevens (287 kHz) and the Canadian Coast Guard beacon at Amphitrite Point (315 kHz) were utilized during this survey. Launch-to-launch DGPS performance checks were performed weekly in accordance with Section 3.2 of the FPM. Copies of the performance checks are included in the *OPR-N342-RA-01 Horizontal and Vertical Control Report*.

Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) primary tide station at Neah Bay, WA (944-3090) served as control for datum determination and as the primary source for water level reducers for survey H11086.

All SWMB and VBES data were reduced to MLLW using verified tides downloaded from the CO-OPS web site for station Neah Bay, WA (944-3090). The "Simple Tide File Converter" in HP Tools v11.5.1 was used to convert the "raw" CO-OPS format tide file "9443090.txt" to the COWLIS format "9443090.tid". These data and the preliminary zone file were used in creating the Zone Definition File (.ZDF) "H11086CORP.zdf" and applied in CARIS NT.

Detached position data were also reduced to MLLW using verified tides from station Neah Bay, WA (944-3090). These data were used in creating HPS tide table 98, which was utilized in HPTools to apply zoned tide correctors to the detached positions. Elevations have not been corrected to MHW where appropriate. The Hydrographer recommends that the Pacific Hydrographic Branch (PHB) correct all elevations to MHW, including reclassification of features, as necessary.⁸

The Hydrographer recommends that the Pacific Hydrographic Branch verify the final zoning to ensure that there are no differences between the preliminary and final zoning, in which case smooth tides and final zoning need not be applied. A request for delivery of final approved (smooth) tides for survey H11086 was forwarded to N/OPS1 on November 1, 2001 in accordance with FPM 4.8. A copy of the request is included in Appendix IV.⁹

D. RESULTS AND RECOMMENDATIONS

D.1 Automated Wreck and Obstruction Information System (AWOIS) Investigations

A total of eighteen (18) AWOIS items were located within the survey limits of H11086. Investigation methods, results, and charting recommendations have been entered into the Microsoft Access database file "H11086_AWOIS" and submitted with the digital data. Printouts of the AWOIS Database forms are included in Appendix VI¹⁰ of this report.

D.2 Chart Comparison

Chart	Edition	Date	Scale
18007	18^{th} Ed.	January 6, 2001	1:736,560
18484	10^{th} Ed.	July 5, 1997	1:10,000
18480	27 th Ed.	September 25, 1999	1:176,253
18460	9 th Ed.	July 2, 1998	1:100,00
18460	10^{th} Ed.	March 10,2001	1:100,00
18485	14^{th} Ed.	January 31, 1998	1:40,000

Survey H11086 was compared with the two larger scale charts, chart 18484 (10^{th} Ed.; July 5, 1997, 1:10,000) and chart 18485 (14^{th} Ed.; January 31, 1998, 1:40,000).

Chart 18484

Depths from survey H11086 were generally two to three feet shoaler than depths on chart 18484 with the exception of the charted shoals of 14 to 16 feet in the entrance to the bay, where the current survey is 2 to 6 feet deeper. The shoalest depth in the entrance is 17 feet (48°22'28.138"N, 124°35'56.501"W (381,587.3E, 5,359,159.1N)) approximately 12 meters southwest of a charted 15. This sounding is over a rock which was detected with SWMB and investigated by divers. The least depth depicted on the Final Field Sheet was obtained with SWMB.¹²

This survey found that shoaling has occurred inshore of the Makah Marina and charted breakwater making these areas inaccessible for navigation. The Hydrographer recommends removing two charted soundings in this area, a 14-foot sounding at (48°22'03.48"N,124°36'33.64"W(380,807.4E,5,358,413.8N)) and a 13-foot sounding at (48°22'04.74"N,124°36'28.13"W(380,921.5E, 5,358,450.3N)).¹³

Two new submerged wrecks were detected with shallow-water multibeam and verified with dive investigations. The first wreck is a 32-foot fishing vessel located at 48°22'21.592"N, 124°37'15.192"W (379,964.4E, 5,358,991.0N) with a least depth of 11 feet (RA6/DN293/Line 168_2246/Ping 126/Beam 80). The second wreck is a 50-60 foot hull located at 48°22'39.080"N, 124°36'20.204"W (381,106.8E, 5,359,507.1N) with a height of approximately 8 feet and a least depth of 15 feet (RA1/DN281/Line 365_2223/Ping 436/Beam 70). The Hydrographer recommends charting the new submerged wrecks as depicted on the Final Field Sheet.¹⁴



Figure 4. Fishing Vessel

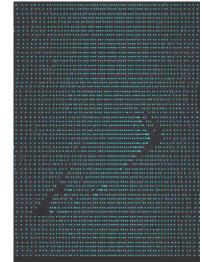


Figure 5. Vessel Hull

Three new submerged piles were detected with shallow water multibeam: The first submerged pile has a least depth of 7 feet (RA6/DN293/Line 163_1838/Ping 1358/Beam 4) located at 48°22'05.456"N, 124°37'13.098"W (379,996.9E, 5,358,491.9N). The second has a least depth of 11 feet (RA6/DN292/Line 058_1558/Ping 164/Beam 85) located at 48°22'06.881"N, 124°37'02.349"W (380,219.0E, 5,358,531.2N). And the third, reported as a danger to navigation, has a least depth of 1 foot (RA6/DN293/Line 005_2021/Ping 210/Beam 89) located at 48°22'09.692"N, 124°36'13.246"W (381,230.9E, 5,358,596.8N). The hydrographer recommends charting these three submerged piles.¹⁵

A new obstruction and submerged rock were found with SWMB near the entrance of Neah Bay, and investigated by divers. The rock has a least depth of 11 feet at 48°22'30.569"N, 124°36'01.895"W (381,477.9E, 5,359,236.5N). The obstruction has a least depth of 5 feet at 48°22'30.569"N, 124°36'01.895"W (381,477.9E, 5,359,236.5N), and appears to be the remains of the daybeacon which was previously charted at this position (refer to section D.6 for further information on this aid to navigation).¹⁶

The Hydrographer has determined that data accuracy standards and bottom coverage requirements have been met and survey data are adequate to supersede charted data in their common areas, with the following exceptions:

Charted cable areas were not addressed and should be retained as charted.¹⁷

In the vicinity of charted $\frac{1}{2}$ to 3-foot soundings, the present survey revealed least depths of 3 to 4 feet at 48°22'14.410"N, 124°36'04.034"W (381,423.5E, 5,358,738.5N) to 48°22'18.928"N, 124°35'54.966"W (381,612.9E, 5,358,874.1N). These soundings were obtained with VBES during shoreline verification and are inshore the limit of hydrography for H11086. It is possible that shoaler depths exist and therefore the Hydrographer recommends retaining the charted soundings.¹⁸

Chart 18485

Depths from survey H11086 were generally one-half of a fathom shoaler than depths on chart 18485 with the exception of the charted shoals of $2\frac{1}{4}$ to $2\frac{1}{2}$ fathoms in the entrance to the bay, where the current survey is approximately one fathom deeper. Neah Bay was found to be a suitable anchorage. The Hydrographer recommends retaining the charted anchorage.¹⁹

In many instances, this survey found shoaler soundings between charted soundings even though agreement at the position of the charted depths was good. This can be attributed to increased bottom coverage using SWMB methods.²⁰

D.3 Shoreline

Shoreline Source

Shoreline for this survey was from 1992 photogrammetric survey project CM9209 from which N/NGS3 supplied Cartographic Feature File (CFF) DM-10273.²¹ In addition, features shown on the current edition of chart 18484 that were not depicted on any shoreline source document were digitized in MapInfo by RAINIER personnel and displayed in Hypack for field verification. In instances in which charted features were digitized, RAINIER personnel attempted to identify the source of the feature by reviewing prior surveys.

Shoreline Verification

Shoreline verification was conducted near predicted low water in accordance with the Standing Project Instructions and FPM 6.1 and 6.2. Detached positions (DPs) taken during shoreline verification were recorded in HYPACK and on DP forms, and processed in HPS. These indicate revisions to features and features not found on the DM or chart. In addition, annotations describing shoreline were recorded on hard copy plots of digital shoreline. DP forms are included in Section I of the *Separates to be Included with Survey Data*.

A detailed Detached Position and Bottom Sample plot,²² in both paper copy and MapInfo format, is provided showing all detached positions and bottom samples with notes relating to each feature. The updated shoreline and features are also depicted on the final sounding plot. Verified DM shoreline that did not require revision is in the MapInfo table "H11086_Shoreline." New features, changes to the shoreline, and verified features are depicted in the MapInfo table "H11086_features" and "H11086_ShorelineUpdates." Charted shoreline from chart 18484 is depicted in the MapInfo table "H11086_ChdShoreline."

Source Shoreline Changes and New Features

A new marina opened in May of 1997. The "Makah Marina" (seaward extent at approximately 48°22'07.93"N, 124°36'47.08"W) has five main piers with 200 boat slips ranging from 30 to 70 feet. The piers and boat slips were positioned using differential GPS. The Hydrographer recommends charting the new marina as depicted in the Detached Position and Bottom Sample Plot (position numbers and remarks are omitted for clarity) unless the "As-built" survey blueprints can be acquired.²³ The following 1997 aerial photograph of the new marina is from the Makah Nation web site (http://www.makah.com/marinab.htm).



Figure 2. 1997 Aerial photograph of Makah Marina

A new bridge section, approximately 60-meters long and 25-meters wide, was found at 48°22'29.095"N, 124°37'23.489"W (379,798.6E, 5,359,226.3N). Detached positions 70124-70127 delineate the extents. The Hydrographer recommends charting the new bridge section as depicted on the Detached Position and Bottom Sample Plot.²⁴



Figure 3. Old Hood Canal bridge section

A new fish pen was found at 48°22'38.396"N, 124°36'23.651"W (381,035.5E, 5,359,487.5N). Detached positions 70014-70018 delineate the extents. The Hydrographer recommends charting the new fish pen as depicted on the Detached Position and Bottom Sample Plot.²⁵

New extents of the DM pier (48°22'21.95"N, 124°35'40.64"W (381,909.56E, 5,358,961.23N)) west of Baada Point were delineated with detached positions 70,023 and 70,024. The Hydrographer recommends charting the new extents as depicted on the Detached Position and Bottom Sample Plot.²⁶

Three DM reefs and four DM rocks were disproved with 100% SWMB. Thick kelp in these areas could have been a factor in the misinterpretation of features during the photogrammetric compilation process. However, these three areas do represent highpoints of submerged ledges. The following are the shoalest depths in the vicinity of each disproved feature.

In the vicinity of a disproved DM reef ($48^{\circ}22'32.39$ "N, $124^{\circ}34'56.26$ "W), is a 12-foot shoal located at $48^{\circ}22'32.075$ "N, $124^{\circ}34'56.431$ "W (382,825.4E, 5,359,255.0N). Within the same area, the shoalest depth in the vicinity of two DM rocks ($48^{\circ}22'30.62$ "N, $124^{\circ}34'55.06$ "W) is 14 feet ($48^{\circ}22'30.358$ "N,

124°34'55.223"W (382,849.2E, 5,359,201.5N)). The Hydrographer recommends charting the shoal versus the reef and rocks.²⁷

In the vicinity of a disproved DM reef ($48^{\circ}22'13.38"N$, $124^{\circ}34'07.56"W$), is an 8-foot shoal located at $48^{\circ}22'12.470"N$, $124^{\circ}34'07.155"W$ (383,826.6E, 5,358,628.9N). Within the same area, the shoalest depths in the vicinity of two DM rocks ($48^{\circ}22'14.98"N$, $124^{\circ}34'09.08"W$ and $48^{\circ}22'11.64"N$, $124^{\circ}34'06.03"W$) are 15 feet ($48^{\circ}22'14.760"N$, $124^{\circ}34'09.288"W$ (383,784.2E, 5,358,700.4N)) and 7 feet ($48^{\circ}22'11.139"N$, $124^{\circ}34'05.697"W$ (383,855.8E, 5,358,587.1N)) respectively. The Hydrographer recommends charting the shoal versus the reef and rocks.²⁸

In the vicinity of a disproved DM reef ($48^{\circ}22'09.62"N$, $124^{\circ}34'14.23"W$), is a 12-foot shoal located at $48^{\circ}22'09.684"N$, $124^{\circ}34'14.461"W$ (383,674.5E, 5,358,545.9N). The Hydrographer recommends charting the shoal versus the reef.²⁹

Charted Features

The charted (18484) Coast Guard pier with the seaward most extent at 48°22'15.59"N, 124°36'07.11"W is accurately charted versus the DM depiction and position. Detached position 70135 was taken as a check position. The Hydrographer recommends retaining the Coast Guard pier as charted.³⁰

The charted (18484) pier, originating from prior survey H-7036, off the southeast tip of Waadah Island at 48°22'39.83"N, 124°35'41.37"W(381,906.04E, 5,359,513.58N) was disproved after a five-minute visual search of the area. This area is thick with kelp but the water clarity was clear to the bottom. Refer to detached position 70,000 for additional information. In the vicinity of the charted pier is a DM pier that is adequately depicted and positioned. The Hydrographer recommends removing the charted pier and charting the DM pier as depicted on the Detached Position and Bottom Sample Plot.³¹

A charted (18484) pier with the seaward most extent at 48°22'06.70"N, 124°37'02.14"W was found to be three piles. Detached positions (70093 and 70094) delineate the extents. This refers to the floating pier or finger pier attached to the larger charted pier, which is adequately charted. The Hydrographer recommends removing the sub-pier from the chart and charting the piles as depicted on the Detached Position and Bottom Sample Plot.³²

A charted (18484) reef (48°22'31.69"N, 124°35'12.34"W) was not verified during low water. This area is unsafe for navigation due to thick kelp and breakers, which appeared to indicate the presence of the reef. The Hydrographer recommends retaining the reef as charted.³³

Recommendations

The Hydrographer recommends that the shoreline as depicted on the Detached Position and Bottom Sample plot and Final Field Sheet³⁴ supersede and complement shoreline information compiled on the charts as noted. These revisions are recorded in the MapInfo digital files named "H11086_ShorelineUpdates". In addition, field notes made by the Hydrographer, including verification of source features and descriptions of shoreline classification, are submitted in the digital MapInfo file "H11086_ShorelineNotes."³⁵

D.4 Prior Surveys³⁶

Survey H11086 was compared with the following prior surveys:

Survey	Scale	Year Surveyed	Datum
H-7036	1:5,000	1945	NAD27
H-7037	1:10,000	1945	NAD27
H-7044	1:5,000	1945	NAD27

Prior survey H-7036 covers from the entrance channel of Neah Bay into the bay. Soundings from prior survey H-7036 agree well with soundings from H11086, usually within two feet.³⁷

Prior survey H-7037 covers from the entrance channel of Neah Bay seaward to the Strait of Juan De Fuca and soundings also agree well with H11086, usually within half a fathom.³⁸

Prior survey H-7044 is a wire drag survey that covers the entrance channel of Neah Bay. The current charted shoals originate with this prior survey. Soundings from the present survey H11086 do not agree well with prior survey H-7044 depths, with differences up to six feet deeper than the prior survey reported clearings.³⁹

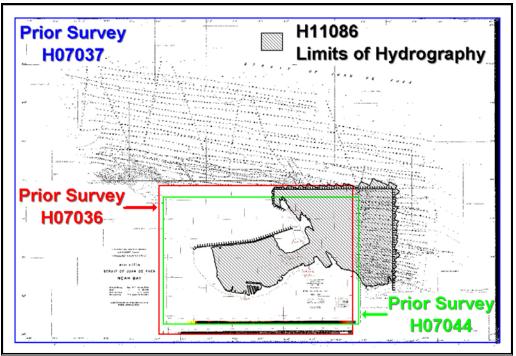


Figure 6. H11086 Prior survey comparison

D.5 Dangers to Navigation

Twenty-four dangers to navigation were found and reported to the Marine Chart Division for verification and final submission to the Thirteenth Coast Guard District on February 8, 2002. A copy of the preliminary Danger to Navigation Report is included in Appendix I.⁴⁰

One immediate danger to navigation was reported to the Thirteenth Coast Guard District on October 26, 2001. Follow-up correspondence with the Coast Guard has verified the removal of the obstruction. A copy of the email is included in Appendix I.⁴¹ The Hydrographer does not recommend charting this obstruction.⁴²

H11086

D.6 Aids to Navigation

Survey H11086 included seven aids to navigation (ATONs). Each of the ATONs was found to serve its intended purpose. However, there is one discrepancy between the chart and survey for the following ATON:

Neah Bay Inner Daybeacon "2" (USCG Light List 16165) no longer exists. A new buoy "4" has been positioned approximately 127 meters southwest from the charted daybeacon at 48°22'30.93"N, 124°36'07.72"W(381,358.32E, 5,359,250.10N).



Figure 7. New Buoy "4"

All other ATONs in the survey area are charted correctly.⁴³

D.7 Miscellaneous

Bottom samples were collected at thirty-six locations within the survey limit for H11086. The bottom characteristics at the entrance to the bay mainly consist of pebbles and broken shells, lending to the agreement with the current charted rocky and hard condition.⁴⁴

Courtesy sounding plots were supplied to Crowley Marine Services, Inc. and the Captain of the Barbara Foss Tug on November 26, 2001.⁴⁵ Copies of the correspondence are included in Appendix V. The Pacific Hydrographic Branch will supply a final copy of the smooth sheet upon completion.⁴⁶

H11086

OPR-N342-RA-01

E. APPROVAL

As Chief of Party, I have ensured that standard field surveying and processing procedures were followed in producing this examination in accordance with the Hydrographic Manual, Fourth Edition, Hydrographic Survey Guidelines, Field Procedures Manual and the NOS Hydrographic Surveys Specifications and Deliverables, as updated for 2001.

The digital data and supporting records have been reviewed by me, are considered complete and adequate for charting purposes, and are approved. All records are forwarded for final review and processing to N/CS34, Pacific Hydrographic Branch.

Survey H11086 is complete and adequate to supersede charted soundings in their common areas. No additional work is required for this survey. 47

Listed below are supplemental reports submitted separately that contain additional information relevant to this survey:

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Data Acquisition and Processing Report for OPR-N342-RA-01 Horizontal and Vertical Control Report for OPR-N342-RA-01 Coast Pilot Report for OPR-N342-RA-01

Contraction of the local sector	
February 4, 2002	N/CS34
February 4, 2002	N/CS34
TBD	N/CS26

Date Sent

Office

Approved and Forwarded:

Date:

James C. Gardner Captain, NOAA Commanding Officer

In addition, the following individuals were also responsible for overseeing data acquisition and processing of this survey:

Survey Sheet Manager:

Field Operations Officer:

adle

Kimberley S. Sampacian Physical Scientist, NOAA

Edward J. Van Den Ameele Lieutenant, NOAA

Revisions Compiled During Office Processing and Certification

¹ Concur with hydrographer's statements as made in paragraphs 1 and 2...

² Concur

³ The detached positions and bottom samples were graphically displayed on one MapInfo plot provided by the hydrographer. This plot is filed with the hydrographic data.

⁴ Concur

⁵ Concur. Appendix V is filed with the hydrographic data.

⁶ Concur. Hydrographic survey data collected during the 1940's is still the source for much of the charted information.

⁷ The shoreline verification and bottom sample plot was analyzed during office processing and portrayed on the smooth sheet as warranted. Depth data within the kelp areas appears to be consistent with surrounding hydrography and has been compiled based on the survey information.

⁸ Concur. Reclassification of features to mean high water were adjusted during office processing and portrayed on the smooth sheet as warranted.

⁹ Appendix IV is filed with the hydrographic data. The approved tide note dated December 19, 2001 is attached to this report.

¹⁰ Appendix VI is filed with the hydrographic data. The eighteen (18) AWOIS Item Investigation Forms and recommended final smooth sheet portrayal are attached to this report ¹¹ Comparison was made in the office with chart 18484, 10th Edition, July 5, 1997 and the 11th Edition, dated Feb. 1, 2004. This chart is the largest scale which falls completely within the survey area.

¹² Concur with hydrographer's statements. Chart 17 Rk as depicted on the smooth sheet.

¹³ Concur. Chart this area based on the present survey findings.

¹⁴ Concur with clarification. Chart submerged wrecks, 11 *Wk* and 15 *WK*, as portrayed on the smooth sheet.

¹⁵ Concur. Chart these piles as shown on the smooth sheet (7 *Obstn*, 11 *Obstn*, and pile, covers 1 foot at MLLW).

¹⁶ Concur. Chart 11 *Rk* and 5 *Obstn* as located by this survey and shown on the smooth sheet. ¹⁷ Concur

¹⁸ Concur. Soundings have been shown in green on the H-drawing.

¹⁹ Concur with hydrographer's statements.

²⁰ Concur. Except as noted by the hydrographer, the evaluator recommends the present survey supersede the charted data within the common area.

²¹ Concur. DM-10273 is not the source for charted shoreline depicted on 18484. Shoreline shown on chart 18484 originates from prior surveys and miscellaneous sources. Refer to the attached email regarding correspondence on this matter.

²² Filed with the hydrographic data.

²³ Concur with clarification. The new marina should be compiled on the chart as depicted on the smooth sheet unless the As-built blueprints are made available to the Marine Chart Division.

²⁴ Concur with clarification. Chart the bridge section as portrayed on the smooth sheet.

²⁵ Concur with clarification. Chart the new fish pen as portrayed on the smooth sheet.

²⁶ Concur with clarification. Chart the new pier extents as portrayed on the smooth sheet.

²⁷ Concur. Chart the shoal depths with rky note as portrayed on the smooth sheet.

²⁸ Concur. The two DM rocks were disproved during hydrographic survey operations. The area of investigation is made up of several shoal soundings marking the higher points of a submerged ledge which is covered by kelp. The evaluator recommends that the chart portray this area based on the smooth sheet.

²⁹ Concur. Chart 12 foot depth as shown on the smooth sheet.

³⁰ Concur

³¹ Concur with clarification. Chart this area based on the present survey findings.

³² Concur with clarification. Chart this area based on the present survey findings.

³³ Concur. The charted reef has been transferred to the smooth sheet from H-7036(1945) and shown in black on the smooth sheet and has been identified on a unique Microstation level.

³⁴ Detached position, bottom sample, and field sheet plots are filed with the hydrographic data.
 ³⁵ DM-10273 should be used on the chart as the source for the fast mean high water line, mean lower low water line and offshore point features not positioned during survey operations.

Attached cultural features on DM-10273 (Piers, breakwater, etc.) are shown as a single line width and differ from the charted depiction (see endnote 20). The evaluator recommends that MCD use the best source in these areas to portray on the chart.

³⁶ Differences with the prior surveys have been generally discussed below. Overall the present survey reflects a shoaler bias of 2-3 feet since the prior work. Additionally, several new cultural changes have occurred since the prior work and are graphically portrayed on the smooth sheet. Changes with the prior surveys is largely attributed to more modern data acquisition techniques. With the exception of those items discussed in the descriptive report, the present survey is adequate to supersede the prior work within the common area.

³⁷ Concur

³⁸ Concur

³⁹ Concur

⁴⁰ Danger to navigation report is attached to this report. Appendix I is filed with the hydrographic records. Not all the reported dangers to navigation were shown on the H-drawing during office compilation. This decision was based on a more comprehensive portrayal of the surveyed area using the final plotted data.

⁴¹ Correspondence with the US Coast Guard is attached to this report.

⁴² Concur

⁴³ Concur with hydrographer's statements as discussed in section D.6. The evaluator recommends that MCD chart the fixed and floating aids to navigation based on the latest source data.

⁴⁴ Concur. Bottom samples have been depicted on the smooth sheet and compiled on the chart as warranted.

⁴⁵ Concur

⁴⁶ Concur. Appendix V is filed with the hydrographic records.

⁴⁷ Concur. See endnotes 20 and 35.

Hydrographic Survey Registry Number: H11086

Survey Title:	State: Washington		
	Locality: Northwest Pacific Coast Sub-locality: Neah Bay		
Project Number:	OPR-N342-RA		
Survey Dates:	October 6 - 26, 2001		

Depths are reduced to Mean Lower Low Water using verified tides. Positions are based on the NAD83 horizontal datum.

CHARTS AFFECTED:

Chart	Scale	Edition	Date
18484	1:10,000	10 th	7/05/97
18485	1:40,000	14 th	1/31/98

DANGERS:

Feature	Depth(ft)	Depth(fm)	Latitude	Longitude
Obstruction	1	01%	48 [°] 22'09.692"N	124 [°] 36'13.246''W
Obstruction*	5	0%	48 [°] 22'31.297''N	124 [°] 36'01.902''W
Wreck	11	1%	48 [*] 22'21.592"N	124 [°] 37'15.192''W
Wreck	15	21/2	48 [*] 22'39.080"N	124 [°] 36'20.204''W
Sounding	3	0%	48 [*] 22'50.185"N	124 [°] 35'29.129''W
Sounding	8	1%	48 [°] 22'28.189"N	124 [°] 34'19.349'W
Sounding	8	1%	48 [°] 22'33.318''N	124 [°] 35'55.025'W
Sounding	8	1%	48 [*] 22'12.470"N	124 [°] 34'07.155''W
Sounding	9	11⁄2	48 [°] 22'34.710"N	124 [°] 35'49.820'W
Sounding	10	1%	48 [°] 22'28.829"N	124 [°] 34'53.485'W
Sounding	11	1¾	48 [°] 22'15.436''N	124 [°] 34'05.685''W
Sounding	12	2	48 [*] 22'32.948''N	124 [°] 34'57.008''W
Sounding	15	21⁄2	48 [*] 23'08.906"N	124 [°] 35'47.425'W
Sounding	16	21⁄2	48 [°] 22'23.778"N	124 [°] 34'49.596''W
Sounding	17	2¾	48 [°] 22'23.376"N	124 [°] 34'14.590'W
Sounding	18	3	48 [°] 22'26.667"N	124 [°] 35'39.890''W
Sounding	18	3	48 [°] 22'21.958"N	124 [°] 36'05.178''W
Sounding	19	3	48 [°] 22'35.559"N	124 [°] 35'17.221"W
Sounding	20	3%	48°22'27.248"N	124 [°] 36'08.705''W
Sounding	22	31%	48 [°] 22'26.610"N	124 [°] 37'08.316''W
Sounding	23	3%	48 [°] 22'11.745"N	124 [*] 36'51.206''W
Sounding	23	3%	48 [°] 22'37.451"N	124 [°] 36'29.510''W

ADVANCE INFORMATION

Sounding 25 41⁄4 48°22'19.070"N 124°34'24.355"W

Foul area with obstructions defined with the following extents: 48°22'36.90"N 124°37'31.43"W, 48°22'29.57"N 124°37'31.25"W, 48°22'25.13"N 124°37'19.08"W, 48°22'34.50"N 124°37'16.29"W, 48°22'33.92"N 124°37'10.11"W, 48°22'39.27"N 124°37'10.47"W.

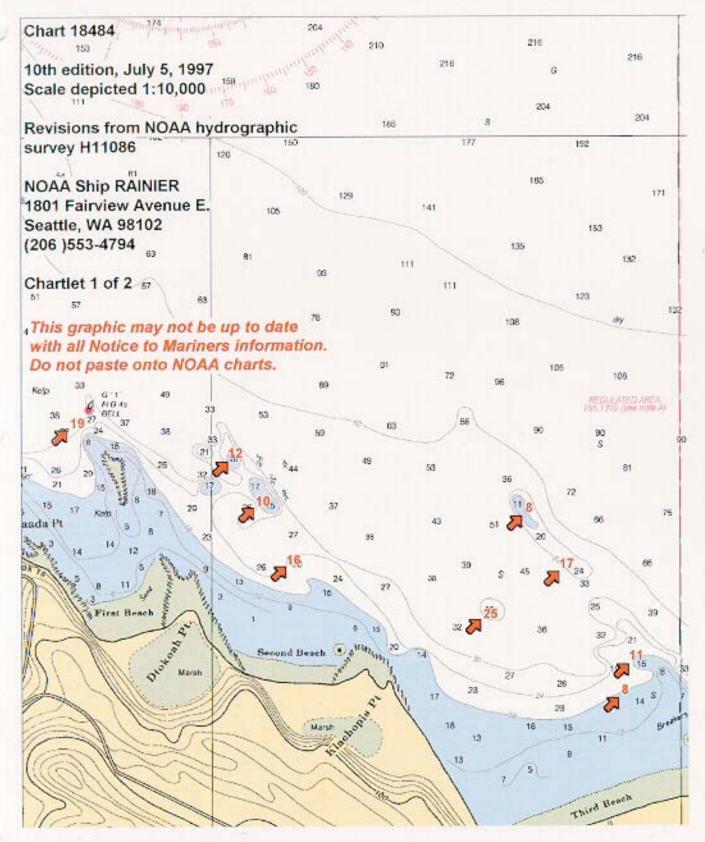
COMMENTS:

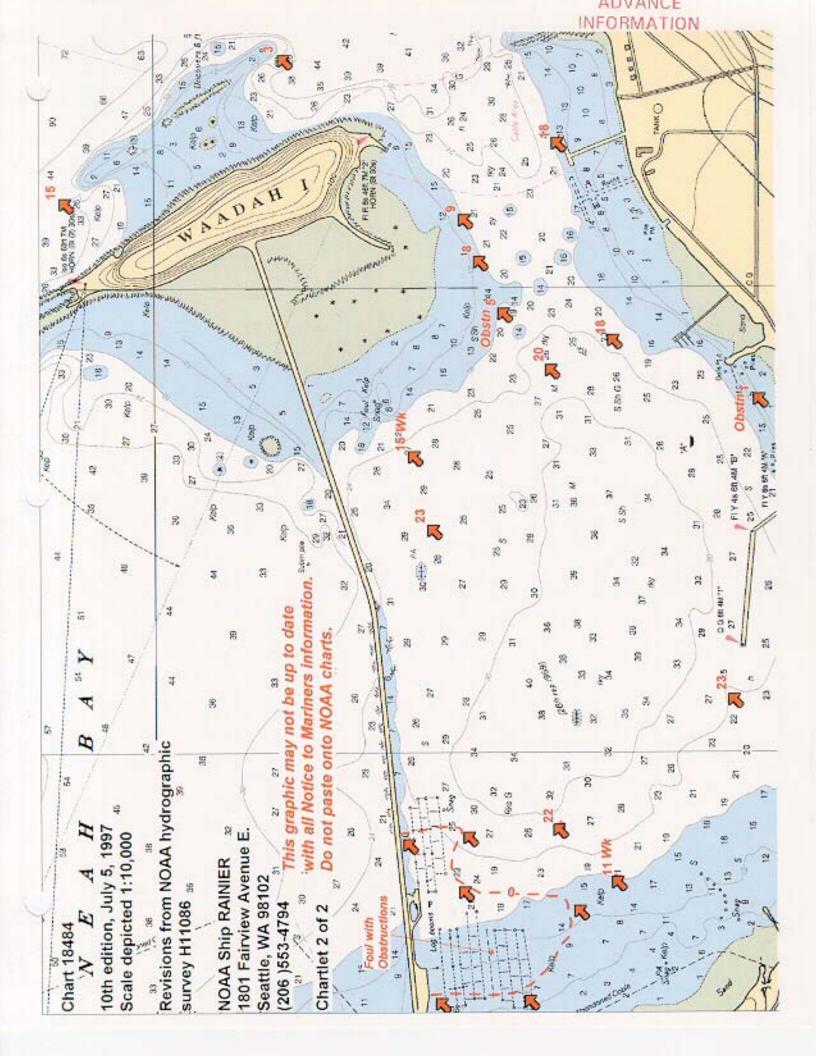
* 5-foot obstruction is the remains of charted daybeacon that no longer exists. A new buoy "4" is positioned approximately 127 meters southwest from the charted daybeacon at 48°22'30.93"N, 124°36'07.72"W.

ADVANCE INFORMATION

Questions concerning this report should be directed to the Commanding Officer, NOAA Ship RAINIER (206) 553-4194 or co.rainier@noaa.gov.

ADVANCE INFORMATION





Subject: Danger to Navigation in Neah Bay

Date: Fri, 26 Oct 2001 19:55:33 +0000

From: "FOO Rainier" <foo.rainier@ranems.pmc.noaa.gov>

Reply-To: foo.rainier@noaa.gov

- Organization: NOAA Ship RAINIER
 - To: rsandhu@pacnorwest.uscg.mil
 - CC: Dennis Hill <Dennis.Hill@noaa.gov>, Don Haines <Don.Haines@noaa.gov>, "Kimberley S. Sampadian" <kimberley.s.sampadian@ranems.pmc.noaa.gov>, CO Rainier <co.rainier@ranems.pmc.noaa.gov>

Dir sir/madam:

While conducting hydrographic survey H11086 in Neah Bay, Washington, the NOAA Ship RAINIER discovered the following danger to navigation on October 25:

A submerged mooring buoy was located in position 48/22/11.0 N, 124/36/21.5 W. The mooring bouy measures 10 ft high by 4 feet wide, and is submerged to approximately 6 inches below the surface. The buoy was investigated by divers and is believed to be fast to the bottom.

It is requested that this information be included in the Local Notice to Mariners and considered for a Broadcast Notice to Mariners. Further information can be obtained on RAINIER survey projects by contacting the Operations Officer at foo.rainier@noaa.gov.

LT Edward J. Van Den Ameele, NOAA Field Operations Officer NOAA Ship RAINIER foo.rainier@noaa.gov 1-877-665-6533 at sea 1-206-553-4794 in port Seattle ADVANCE

INFORMATION

Hydrographic Survey Registry Number: H11086

Survey Title:	State: Washington
	Locality: Strait of Juan de Fuca
	Sub-locality: Neah Bay

Project Number: OPR-N326-RA

Survey Dates: October 25, 2001

Depths are reduced to Mean Lower Low Water using predicted tides. Positions are based on the NAD83 horizontal datum.

CHARTS AFFECTED:

Chart	Scale	Edition	Date
18484	1:40,000	14	1/31/1998

DANGERS:

Feature	Depth(ft or fms)	Latitude	Longitude	
Obstn	Awash	48°22'11.0"N	124°36'21.5"W	

COMMENTS:

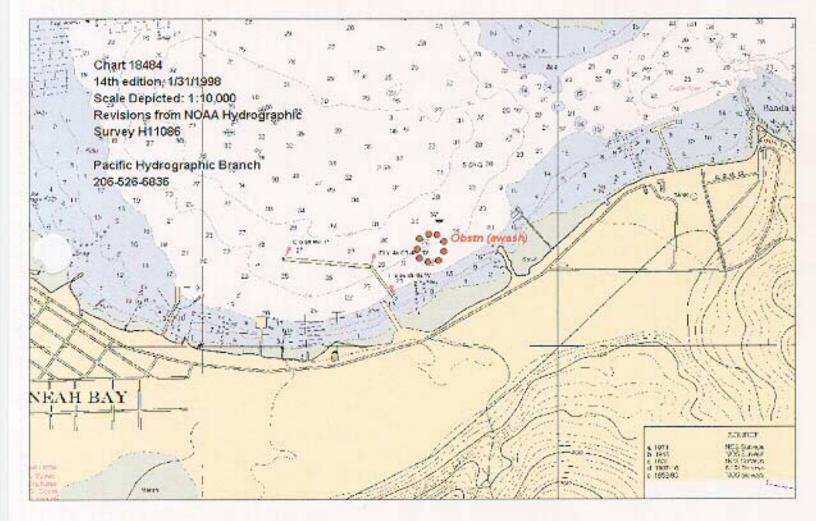
A mooring buoy measuring 10ft, high by 4ft, wide covered approximately 6 inches at the time of observation. Buoy investigated by divers and believed to be fast to the bottom.

Click here to view chartlet 18484

Questions concerning this report should be directed to the Chief, (Pacific or Atlantic) Hydrographic Branch at telephone 206-526-6836

ADVANCE INFORMATION

ADVANCE



ADVANCE INFORMATION

Subject: RE: Danger to Navigation in Neah Bay Resent-From: FOO.Rainier@noaa.gov Date: Wed, 30 Jan 2002 07:27:58 -0800 From: "Sandhu, Ryan" <RSandhu@pacnorwest.uscg.mil> To: "foo.rainier@noaa.gov'" <foo.rainier@noaa.gov>

LT Van Den Ameele,

Yes, the submerged Neah Bay mooring buoy that you previously reported was removed by USCGC Henry Blake. After your email, the hazard was immediately reported in a Broadcast Notice to Mariners and then also in Local Notice to Mariners 44/01 (10/30/01). Since Henry Blake's schedule did not allow then to get out to Neah Bay until December the hazard was added to the chart as a temporary correction in LNM 47/01 (11/20/01). After the mooring buoy was removed on 13 Dec 01 a Broadcast Notice to Mariners was issued and the temporary chart correction was deleted in LNM 51/01 (12/18/01). Thanks for your help in identifying this hazard to navigation.

I guess the short answer would have been - No - the buoy does not need to be applied to the chart.

Sincerely,

Ryan Sandhu

USCG District 13 Aids to Navigation (206) 220-7280 rsandhu@pacnorwest.uscg.mil

> -----Original Message-----From: FOO Rainier [mailto:foo.rainier@ranems.pmc.noaa.gov] Sent: Tuesday, January 29, 2002 1:25 PM To: Sandhu Ryan Subject: Re: Danger to Navigation in Neah Bay

Mr. Sandhu:

Just following up on this submerged buoy in Neah Bay. Do you know if it was ever removed? We are at a point where we need to decide if it should be appled to the nautical chart.

Thanks for your help,

-EJ

LT Edward J. Van Den Ameele, NOAA Field Operations Officer NOAA Ship RAINIER foo.rainier@noaa.gov www.moc.noaa.gov/ra 1-206-553-4794 in port Seattle

"Sandhu, Ryan" wrote:

RE: Danger to Navigation in Neah Bay

ADVANCE INFORMATION

Lt Van Den Ameele,

The buoy should be removed by the middle of December. A work order to remove the buoy was issued to USCGC Henry Blake out of Everett. Thanks for the heads up on the buoy.

In the next Local Notice to Mariners the buoy will be included as a temporary chart correction on charts 18460, 18484, and 18485.

Ryan Sandhu Marine Information Specialist (206) 220-7280 rsandhu@pacnorwest.useg.mil

-----Original Message-----From: FOO Rainier [mailto:foo.rainier@ranems.pmc.noaa.gov] Sent: Monday, November 19, 2001 4:32 PM To: Sandhu, Ryan Subject: Re: Danger to Navigation in Neah Bay

Mr. Sandhu,

Just following up on this item....could you tell me, would you happen to know if this buoy was removed by the USCG?

Thanks very much for any information you can provide.

-EJV

LT Edward J. Van Den Ameele, NOAA Field Operations Officer NOAA Ship RAINIER foo.rainier@noaa.gov 1-877-665-6533 at sea 1-206-553-4794 in port Seattle

"Sandhu, Ryan" wrote:

> > Dear LT Van Den Ameele,

>

>

> Thanks for the information. I will put out a BNM and include this > info in the next LNM.

>

> I have a couple of questions about the buoy I was hoping you could

> answer. Did you notice any markings on the buoy that might help to

> identify the owner? Did it have a light - extinguished or not? What

> color was it? This information will help determine who owns the buoy

> so they can fix it or remove it.

>

> Thanks again.

×

> Ryan J. Sandhu

> Marine Information Specialist

RE: Danger to Navigation in Neah Bay

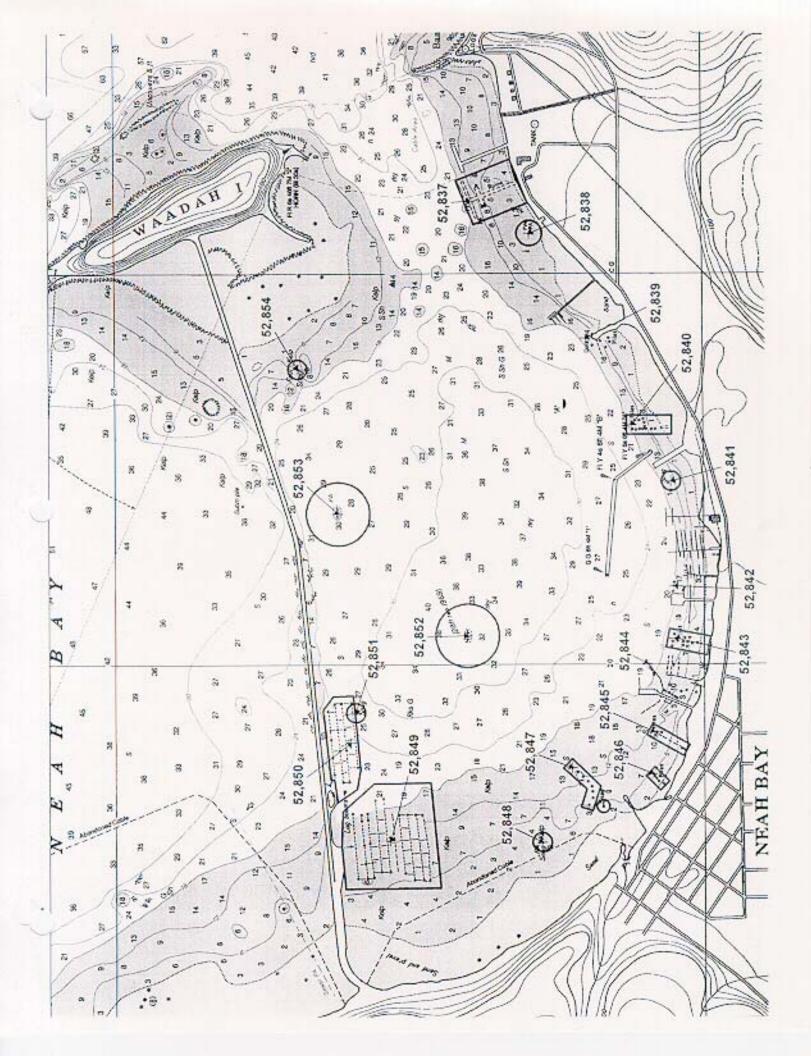
ADVANCE INFORMATION

> Aids to Navigation and Waterways Management Branch > USCG District 13 > 915 Second Avenue, Suite 3510 > Seattle, WA 98174 > (206) 220-7280 > > > ----- Original Message-----> From: FOO Rainier [mailto:foo.rainier@ranems.pmc.noaa.gov] > Sent: Friday, October 26, 2001 12:56 PM > To: Sandhu, Ryan > Cc: Dennis Hill; Don Haines; Kimberley S. Sampadian; CO Rainier > Subject: Danger to Navigation in Neah Bay > > Dir sir/madam: 3 > While conducting hydrographic survey H11086 in Neah Bay, Washington, > the > NOAA Ship RAINIER discovered the following danger to navigation on > October 25: > > A submerged mooring buoy was located in position 48/22/11.0 N, > 124/36/21.5 W. The mooring bouy measures 10 ft high by 4 feet wide, > and > is submerged to approximately 6 inches below the surface. The buoy > was > investigated by divers and is believed to be fast to the bottom. 5 > It is requested that this information be included in the Local Notice. > to > Mariners and considered for a Broadcast Notice to Mariners. Further > information can be obtained on RAINIER survey projects by contacting > the > Operations Officer at foo.rainier@noaa.gov. > > -->LT Edward J. Van Den Ameele, NOAA > Field Operations Officer > NOAA Ship RAINIER > foo.rainier@noaa.gov > 1-877-665-6533 at sea > 1-206-553-4794 in port Seattle -ZCZC WAS7

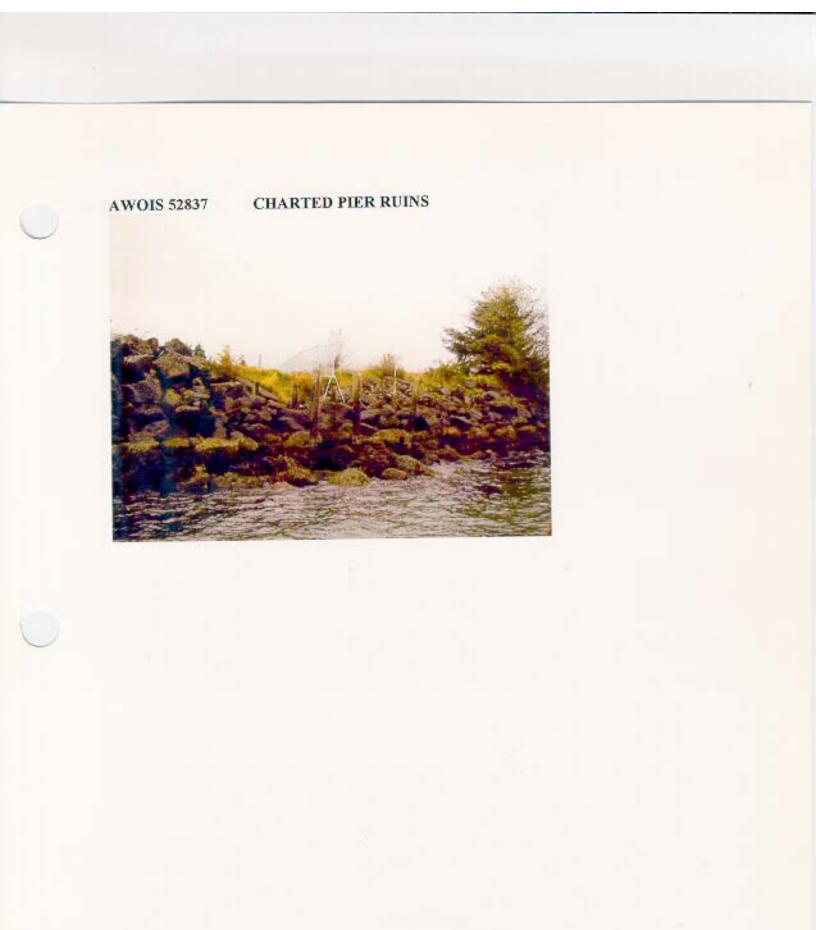
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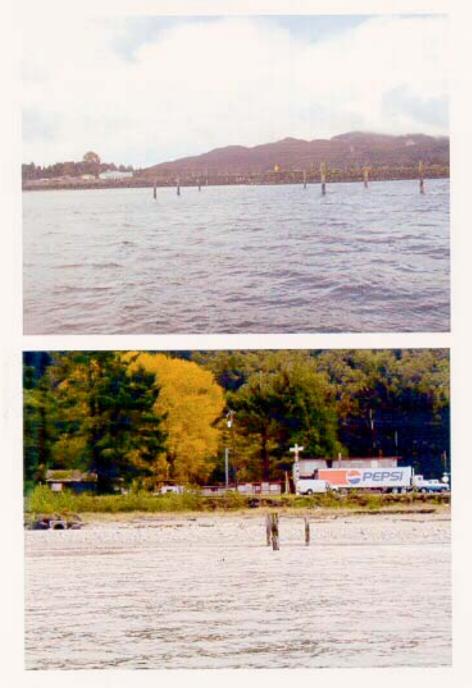
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istory		DRY 8/63CHART CORI RED 9/01 MCR	RECTION LETTER	t; PILING	3 AND FLOATS F	REPORTED TO) BE ESTABLISHE	D IN JUNE, 19	62.
	CL16 ENTE	8/63-CHART CORI	RECTION LETTER	t: Piling	3 AND FLOATS F	REPORTED TO) BE ESTABLISHE	D IN JUNE, 19	62.
	CL16 ENTER	8/63CHART CORI RED 9/01 MCR		e piling	3 AND FLOATS F	REPORTED TO) BE ESTABLISHE	D IN JUNE, 19	62.
	CL16 ENTER INVES	8/63-CHART CORI RED 9/01 MCR TIGATION	292)		3 AND FLOATS F	REPORTED TO) BE ESTABLISHE	D IN JUNE, 19	62.
	CL16 ENTER INVES	8/63-CHART CORI RED 9/01 MCR TIGATION S): 10/19/01 (DN: OGRAPHIC SURVE	292) Y NUMBER: H11(S AND FLOATS F	REPORTED TO) BE ESTABLISHE	D IN JUNE, 19	62.
	CL16 ENTER INVES DATER HYDR VN: 21	8/63-CHART CORI RED 9/01 MCR TIGATION S): 10/19/01 (DN: OGRAPHIC SURVE	292) Y NUMBER: H11(43 (UTC)		S AND FLOATS F	REPORTED) BE ESTABLISHE	D IN JUNE, 19	62.
	CL16 ENTER INVES DATER HYDR VN: 21 INVES	8/63-CHART CORI RED 9/01 MCR TIGATION S): 10/19/01 (DN: OGRAPHIC SURVE 27 TIME:18:27:	292) Y NUMBER: H11(43 (UTC) DS USED: VS	086		REPORTED	D BE ESTABLISHE	D IN JUNE, 19	62.
fistory	CL16 ENTER INVES DATER HYDR VN: 21 INVES SURV	8/63-CHART CORI RED 9/01 MCR TIGATION S): 10/19/01 (DN: OGRAPHIC SURVE 27 TIME:18:27: TIGATION METHO	292) Y NUMBER: H11(43 (UTC) DS USED: VS AT. 48/22/07.3N	086 LON. 124		REPORTED	D BE ESTABLISHE	D IN JUNE, 19	62.
	CL16 ENTER INVES DATER HYDR VN: 21 INVES SURV POSIT INVES 124/30 positio	8/63-CHART CORI RED 9/01 MCR TIGATION S): 10/19/01 (DN: OGRAPHIC SURVE 27 TIME:18:27: TIGATION METHO EYED POSITION: L	292) Y NUMBER: H110 43 (UTC) DS USED: VS AT, 48/22/07.3N BY: DIFFERENTI RY: The two swm proved with 100% is e extents that were	LON. 124 AL GPS charted (SWMB. E accessit	19484) piles (48/ Eleven piles were bie (70033-70037	22/07.22 N 12 visually verifie	4/36/23.93 W and 4 d within the search	18/22/07.34 N area and delac	:hed
	CL16 ENTER INVES DATER HYDR VN: 21 INVES SURV POSITI INVES 12430 positio attach CHAR positio	8/63-CHART CORI RED 9/01 MCR TIGATION S): 10/19/01 (DN: OGRAPHIC SURVE 27 TIME:18:27: TIGATION METHO EYED POSITION: L ION DETERMINED TIGATION SUMMA (/23.08 W) were disp ns were taken on the	292) Y NUMBER: H110 43 (UTC) DS USED: VS AT. 48/22/07.3N BY: DIFFERENTI RY: The two swm roved with 100% (e extents that were 2840.jpg and awoin 0ATION (HYDROO d piles based on n	D86 LON. 124 AL GPS charted (SWMB. E accessit s_52840_ GRAPHEF ew positic	4/36/23.3W 18484) piles (48/ Eleven piles were bio (70033-70037 near_shore.jpg. R): Remove the b ons (70033-70037	22/07.22 N 12 visually verifie). No floats we wo swm dispro 7). Replace cha	4/36/23.93 W and 4 d within the search are found within the ved charted (18484	18/22/07.34 N area and detau search radius.) piles and revi	ched Refer b

AWOIS 52840 CHARTED PILES



RECRD	52841 VESSLTERMS OBSTRUCTION CHART 18484 AREA N CARTOCODE 0284 SNDINGCODE DEPTH
LAT83 LATDEC:	48 22 03.3 LONG83 124 36 31.9 NATIVDATUM 06 48.367583333333 LONDEC: 124.60886111111 GPQUALITY High GPSOURCE Scaled
PROJEC RADIUS	s 30 INIT MCR ASSIGNED 9/24/2001
Techniq	anote
listory	HISTORY H7036/44-45; SNAG SHOWN IN POS.48 22 04.1 N 124 35 27.1 W NAD 27

YEARSUNK

NIMANUM

Print Record

PROJECT OPR-N34 RADIUS TECNIQ VS,DI, ME Techniqnote SEARCH History HISTORY AIR PHOTO REVI IN THE FOLLOWI 48-22-03.23 N 12 48-22-03.08 N 12 48-22-03.08 N 12 48-22-02.16 N 12 48-22-02.16 N 12 48-22-02.16 N 12 ENTERED 9/01 M DATE(S): 10/19/ HYDROGRAPHIC VN: 2127,2126 INVESTIGATION SURVEYED POSI POSITION DETEI INVESTIGATION	LONG83 48.3675 LONDEC: 42 IT	124 3	6 48 61333333333	NATIVDATUM	31		
RADIUS TECNIQ VS,DI, ME Techniqnote SEARCH History HISTORY AIR PHOTO REVI IN THE FOLLOWI 48-22-03.23 N 12 48-22-03.13 N 12 48-22-03.08 N 12 48-22-03.08 N 12 48-22-03.08 N 12 48-22-02.06 N 12 ENTERED 9/01 M Fieldnote INVESTIGATION DATE(S): 10/19/ HYDROGRAPHIC VN: 2127,2126 INVESTIGATION SURVEYED POSI POSITION DETEI INVESTIGATION	42ITE			GPQUALITY	Med Scaled		
TECNIQ VS.DI, ME Techniqnote SEARCH distory HISTORY AIR PHOTO REVI IN THE FOLLOWI 48-22-03.23 N 12 48-22-03.03 N 12 48-22-03.		EMSTATUS	Assigned	-	SEARCHTYPE	Full	
Techniqnote SEARCH listory HISTORY AIR PHOTO REVI IN THE FOLLOWI 48-22-03.03 N 12 48-22-03.03 N 12 48-22-03.03 N 12 48-22-03.08 N 12 48-22-03	IN	т	MCR		ASSIGNED		9/24/2001
HISTORY AIR PHOTO REVI IN THE FOLLOWI 48-22-03.23 N 12 48-22-03.13 N 12 48-22-03.08 N 12 48-22-02.16 N 12 48-22-02.06 N 12 ENTERED 9/01 M DATE(S): 10/19/ HYDROGRAPHIC VN: 2127,2126 INVESTIGATION SURVEYED POSI POSITION DETER INVESTIGATION	B,ES,BD.SD			White		1	
AIR PHOTO REVI IN THE FOLLOWI 48-22-03.23 N 12 48-22-03.13 N 12 48-22-03.13 N 12 48-22-03.08 N 12 48-22-02.16 N 12 48-22-02.16 N 12 48-22-02.06 N 12 48-22-02.06 N 12 ENTERED 9/01 M DATE(S): 10/19/0 HYDROGRAPHIC VN: 2127,2126 INVESTIGATION SURVEYED POSI POSITION DETEIN INVESTIGATION	20M ABOUT THE POS	SITIONS GIVE	N IN HISTORY				
DATE(S): 10/19/ HYDROGRAPHIC VN: 2127,2126 INVESTIGATION SURVEYED POSI POSITION DETER INVESTIGATION	24-36-47.41 W 24-36-48.66 W 24-36-48.2 W MCR	2				3	
HYDROGRAPHIC VN: 2127,2126 INVESTIGATION SURVEYED POSI POSITION DETER INVESTIGATION	01 and 10/20/01 (DN:2	292 and 293)					
INVESTIGATION SURVEYED POSI POSITION DETER INVESTIGATION	C SURVEY NUMBER: H	an a					
SURVEYED POSI POSITION DETER	TIME: 20:32:18 (UTC	.)					
POSITION DETER	METHODS USED: VS	and 100% SV	VMB				
INVESTIGATION	SITION: LAT. 48/22/03.4	13 N LON. 1	24/36/47.47 W				
	RMINED BY: DIFFERE	NTIAL GPS					
	SUMMARY: All five ch	arted(18484) p	piles were disprove	ed with 100% SV	VMB and visual :	search (Po	ıs#70067).
CHARTING RECO	OMMENDATION (HYDI	ROGRAPHER	t): Remove the live	e charted (18484) piles.		
EVALUATOR CO	MMENTS: Concur						

	36	_		-						-	
LAT83 LATDEC:	[44	22 03	48.3675	LONGS		36 56 4.61555555555	NATIVD/ GPQUAL GPSOUF	JTY.	31 Med Scaled		
PROJEC	т	OPR-N3	42	3	ITEMSTATUS	Assigned		SE	EARCHTYPE	Full	1
RADIUS	(_]]		INIT	MCR		AS	SIGNED		9/24/2001
TECNIQ	I	VS.DIM	B,ES,BD.	SD					Ξ		
Techniqn	iote	SEARCH 124-36-		FROM A	N AXIS DRAW	N BETWEEN POS	3.48-22-03.7	N 124-	36-56 W AND	48-21-59	.5 N
listory	HISTO		VISION, 1	1965; GRC		LES AND PIER RI	JINS APPIED		IE CHART. E	INTERED	9/01 MCR
and the second	AIR PI			1965; GRC	OUPING OF PI	LES AND PIER RI	JINS APPIEC	D TO TI	IE CHART. E	INTERED	9/01 MCR
in the second second	AIR PI	IOTO RE			OUPING OF PI		JINS APPIED	TO TO	IE CHART. E	NTERED	9/01 MCR
	AIR PI	IOTO RE IGATION): 10/19	01 and 10	X20/01 (D			JINS APPIEL	D TO TI	HE CHART. E	NTERED	9/01 MCR
	AIR PI	IGATION IGATION): 10/19 GRAPHIC	01 and 10 C SURVE	X20/01 (D	IN: 292 and 29 R: H11086		JINS APPIEC	D TO TI	IE CHART. E	INTERED	9/01 MCR
listory Tieldnate	AIR PI INVEST DATE(S HYDRO VN: 212	IOTO RE IGATION): 10/19 GRAPHIC 7, 2126	(01 and 10 C SURVE TIME: 1	0/20/01 (D Y NUMBE) 20:43:52 (0	IN: 292 and 29 R: H11096	3)	JINS APPIEC	11 OT C	IE CHART. E	NTERED	9/01 MCR
	AIR PI INVEST DATE(S HYDRO VN: 212 INVEST	IGATION IGATION): 10/19 GRAPHIC 7, 2126 IGATION	I METHOD SITION: L/ L/ L/ L/ L/ L/ L/ L/ L/ L/ L/ L/ L/ L	0/20/01 (D Y NUMBE) 20:43:52 (U 25 USED: AT, 48/22/0 AT, 48/20/0 AT, 48/20/0 A	N: 292 and 29 R: H11096 UTC) VS and 100% 03.0 N LON. 03.22 N LON. 12.17 N LON. 12.21 N LON. 10.21 N LON. 10.24 N LON.	3)	s # 70071) s # 70072) is # 70073) is # 70074) is # 70076) is # 70076) is # 70077)	DTOT	IE CHART. E	NTERED	9/01 MCR
	AIR PI INVEST DATE(S HYDRO VN: 212 INVEST SURVE	IGATION IGATION): 10/19 GRAPHIC 7, 2126 IGATION YED POS	I METHOD SITION: LA LA LA LA LA LA LA LA LA LA LA LA LA L	0/20/01 (D Y NUMBE) 20:43:52 (U 20:43:52 (U 20:43:52 (U 20:43:52) XT. 48/22/0 XT. 48/22/0 XT. 48/22/0 XT. 48/22/0 XT. 48/21/5	N: 292 and 29 R: H11096 UTC) VS and 100% 03.0 N LON. 03.22 N LON. 12.17 N LON. 12.21 N LON. 10.21 N LON. 10.24 N LON.	3.) SWMB 124/36/56.0 W. (Pc 24/36/56.48 W. (Pc 24/36/56.21 W. (Pc 24/36/56.84 W. (Pc 24/36/56.84 W. (Pc 24/36/56.92 W. (Pc 24/36/57.10 W. (Pc	s # 70071) s # 70072) is # 70073) is # 70074) is # 70076) is # 70076) is # 70077)		IE CHART. E	NTERED	9/01 MCR
	AIR PI INVEST DATE(S HYDRO VN: 212 INVEST SURVE POSITIO	IGATION IGATION): 10/19 GRAPHIC 7, 2126 IGATION YED POS ON DETE	INC SURVE TIME: 1 IMETHOD SITION: LA LA LA LA LA LA LA LA LA LA LA LA LA L	0/20/01 (D Y NUMBE) 20:43:52 (U 20:43:52 (N: 292 and 29 R: H11096 UTC) VS and 100% 03.0 N LON. 13.22 N LON. 10.21 N LON. 10.21 N LON. 101.24 N LON. 11.24 N LON. 11.24 N LON. 11.25 N LON. 12.25 N LON. 12.	3.) SWMB 124/36/56.0 W. (Pc 24/36/56.48 W. (Pc 24/36/56.21 W. (Pc 24/36/56.84 W. (Pc 24/36/56.84 W. (Pc 24/36/56.92 W. (Pc 24/36/57.10 W. (Pc	s # 70071) s # 70072) s # 70073) s # 70076) s # 70076) s # 70077) s # 70078) even piles (P	°cs#700	71-70078). Th		
	AIR PI INVEST DATE(S HYDRO VN: 212 INVEST SURVE	IGATION IGATION CRAPHIC 7, 2126 IGATION YED POS ON DETE IGATION with 100	INTION: LA C SURVE TIME: 1 I METHOD SITION: LA LA LA LA LA LA LA LA LA LA LA LA LA L	0/20/01 (D Y NUMBE) 20:43:52 (U 20:43:52 (IN: 292 and 29 R: H11096 UTC) VS and 100% 03.0 N LON. 03.22 N LON. 1 03.22 N LON. 1 03.22 N LON. 1 03.22 N LON. 1 01.21 N LON. 1 01.24 N LON. 1 01.24 N LON. 1 01.24 N LON. 1 01.24 N LON. 1 0.94 N LON. 1 Search verified search verified surve. Refer to	3) SWMB 124/36/56.0 W (Pc 24/36/56.48 W (Pc 24/36/56.75 W (Pc 24/36/56.75 W (Pc 24/36/56.92 W (Pc 24/36/57.10 W (Pc 5 1 the existence of s	s # 70071) 2s # 70072) 2s # 70073) 2s # 70076) 2s # 70076) 2s # 70078) 2s # 70078) even piles (P re awpis_52)	Pos#700 843_jpg	71-70078). Th	nis area w	as also

AWOIS 52843 CHARTED PILES

LAT83	48 22 05.8 LONG83 124 36 59.94 NATIVDATUM 31 48.368277777778 LONDEC: 124.61665 GPQUALITY Med
	GPSOURCE Direct
PROJEC	OPR-N342 ITEMSTATUS Assigned SEARCHTYPE Full
RADIUS	INIT MCR ASSIGNED 9/24/2
TECNIQ	VS.DI, MB,ES,8D.SD
Techniqr	SEARCH 10M OUT FROM THE ROWS OF PILES GIVEN BELOW AND 10M OUT FROM INDIVIUAL PILES
	48-22-03.6N 124-37-03.1 W 48-22-02.4 N 124-37-04.1 W 48-22-01.8 N 124-37-03.9 W 48-22-00.8 N 124-37-04.3 W N W
ieldnote	INVESTIGATION
THE PART OF A DAY	INVESTIGATION .
	DATE(S): 10/19/01and 10/20/01 (DN: 292 and 293)
	DATE(S): 10/19/01and 10/20/01 (DN: 292 and 293)
	DATE(S): 10/19/01and 10/20/01 (DN: 292 and 293) HYDROGRAPHIC SURVEY NUMBER: 11086
	DATE(S): 10/19/01and 10/20/01 (DN: 292 and 293) HYDROGRAPHIC SURVEY NUMBER: 11086 VN: 2127 , 2126 TIME: 21:25:30 (UTC)
	DATE(S): 10/19/01and 10/20/01 (DN: 292 and 293) HYDROGRAPHIC SURVEY NUMBER: 11096 VN: 2127 , 2126 TIME: 21:25:30 (UTC) INVESTIGATION METHODS USED: VS and 100% SWMB SURVEYED POSITION: FROM 48/22/05.84 N 124/37/00.15 W TO 48/22/04.54 N 124/37/03.37 W Row of eight piles FROM 48/22/04.25 N 124/37/04.25 W TO 48/22/02.91 N 124/37/05.39 W Row of ten piles LAT, 48/22/00.97 N LON. 124/37/04.52 W (Pos #70090)
	DATE(S): 10/19/01and 10/20/01 (DN: 292 and 293) HYDROGRAPHIC SURVEY NUMBER: 11086 VN: 2127 , 2126 TIME: 21:25:30 (UTC) INVESTIGATION METHODS USED: VS and 100% SWMB SURVEYED POSITION: FROM 48/22/05.84 N 124/37/00.15 W TO 48/22/04.54 N 124/37/03.37 W Row of eight piles FROM 48/22/04.25 N 124/37/04.25 W TO 48/22/02.91 N 124/37/05.39 W Row of ten piles LAT. 48/22/01.88 N LON. 124/37/04.13 W (Pos #70091)
	DATE(S): 10/19/01and 10/20/01 (DN: 292 and 293) HYDROGRAPHIC SURVEY NUMBER: 11086 VN: 2127 , 2126 TIME: 21:25:30 (UTC) INVESTIGATION METHODS USED: VS and 100% SWMB SURVEYED POSITION: FROM 48/22/05.84 N 124/37/00.15 W TO 48/22/04.54 N 124/37/03.37 W Row of eight piles FROM 48/22/04.25 N 124/37/04.25 W TO 48/22/02.91 N 124/37/05.39 W Row of ten piles LAT. 48/22/01.95 N LON. 124/37/04.52 W (Pos #70090) LAT. 48/22/01.98 N LON. 124/37/04.13 W (Pos #70091) POSITION DETERMINED BY: DIFFERENTIAL GPS INVESTIGATION SUMMARY: The first row of charted five piles were verified as a row of eight piles (Pos #70086-70087). The second row of charted five piles were verified as a row of 10 piles (Pos # 70089-70089). The charted (18484) single piles a 48/22/02.4 N 124/37/04.1 W and 48/22/03.6 N 124/37/03.1 W were disproved after visual search (Pos#70090, 70091) in v water clarity was clear to bottom. The remaining charted single piles (48/22/03.6N 124/37/03.1 W and 48/22/02.4 N 124/37/

	CARTOCODE 0085 SNDINGCODE	ОЕРТН							
LAT83	48 22 05.13 LONG83 124 37 10.42 NATIVDATUM 3 C: 48.3680916666667 LONDEC: 124.61956111111 GPQUALITY M	1 fed							
DATOEC.		lirect							
PROJE	JECT OPR-N342 ITEMSTATUS Assigned SEAF								
RADIUS	IUS INIT MCR ASSI	GNED 9/24/2001							
TECNIC	VS,DI,.MB,ES,BD.SD								
Techniq	nignote SEARCH 20M OUT FROM A RADIUS DRWN BETWEEN POS.48-22-05.5 N 124-37- 37-13.1 W	10.0 W TO 48-22-01.95 N 124-							
listory	HISTORY AIR PHOTO REVISION, 1965: THREE PILES AND PIER RUINS APPLIED TO THE CHART	. ENTERED 9/01 MCR							
eldnote	INVESTIGATION								
	DATE(S): 10/19/01 (DN: 292)								
	HYDROGRAPHIC SURVEY NUMBER: H11086								
	VN: 2127 TIME: 22:07:53 (UTC)								
	INVESTIGATION METHODS USED: VS								
	SURVEYED POSITION: FROM 48/22/04.74 N 124/37/10.68 W TO 48/22/03.49 N 124/37/12.69 W								
		POSITION DETERMINED BY: DIFFERENTIAL GPS							
	POSITION DETERMINED BY: DIFFERENTIAL GPS INVESTIGATION SUMMARY: The charted (18484) piles and pier ruins were verified as elever	1.							

AWOIS 52845 CHARTED PILES AND PIER RUINS



LAT83		48 22 05.3	LONG83 124 3	7 16.8	NATIVDATUM	31	
LATDEC:		48.368138888889	LONDEC: 124.	62133333333	GPQUALITY GPSOURCE	High Direct	
PROJE	ст	OPR-N342		Assigned	s	BEARCHTYPE	Full
RADIUS	5		INIT	MCR	A	SSIGNED	9/24/2001
TECNIC	2	VS,DI,MB,ES,BD,SI	D				
Technic	note	SEARCH 20M OUT 124-37-18.7 W	FROM AN AXIS DRAWN	BETWEEN POS.	48-22-05.5 N 124	-37-16,4 W TO	48-22-04.1 N
istory	Luch						
		FORY 36/45PILES AND CA	TWALK SHOWN, ENTER	ED 9/01 MCR			
eldnote	H70		TWALK SHOWN, ENTER	ED 9/01 MCR			
eldnote	H70	036/45PILES AND CA		ED 9/01 MCR			
eldnote	INVE DATE	36/45PILES AND CA	12)	ED 9/01 MCR			
ieldnote	INVE DATE	036/45-PILES AND CA STIGATION E(S): 10/19/01 (DN:29 ROGRAPHIC SURVEY	2) ' NUMBER: H11086	ED 9/01 MCR			
ieldnote	H70 INVE DATE HYDI VN: 3	036/45PILES AND CA STIGATION E(S): 10/19/01 (DN:29 ROGRAPHIC SURVEY	12) 7 NUMBER: H11086 7 (UTC)	ED 9/01 MCR			
ieldnote	H70 INVE DATE HYDE VN: 3 INVE	236/45PILES AND CA STIGATION E(S): 10/19/01 (DN:29 ROGRAPHIC SURVEY 2127 TIME: 22:31:1 STIGATION METHOD	12) 7 NUMBER: H11086 7 (UTC)				
eldnote	H70 INVE DATE HYDI VN: 3 INVE SUR	236/45-PILES AND CA STIGATION E(S): 10/19/01 (DN:29 ROGRAPHIC SURVEY 2127 TIME: 22:31:1 STIGATION METHOD VEYED POSITION: LA	12) ⁷ NUMBER: H11086 7 (UTC) S USED: VS				
ieldnote	H70 INVE DATE HYDI VN: 1 INVE SUR POSI INVE	236/45PILES AND CA ISTIGATION E(S): 10/19/01 (DN:29 ROGRAPHIC SURVEY 2127 TIME: 22:31:1 ISTIGATION METHOD VEYED POSITION: LA ITION DETERMINED E	12) 7 NUMBER: H11086 7 (UTC) S USED: VS T. 48/22/04.9 N LON. 12 3Y: DIFFERENTIAL GPS Y: The five charted (18484	4/37/17.8 W	oved (Pos#70118)) after a visual s	earch of the area with
ieldnote	H70 INVE DATI HYDI VN: 1 INVE SUR POSI INVE water	236/45PILES AND CA STIGATION E(S): 10/19/01 (DN:29 ROGRAPHIC SURVEY 2127 TIME: 22:31:1 STIGATION METHOD VEYED POSITION: LA ITION DETERMINED R STIGATION SUMMAR r clarity clear to the both	12) 7 NUMBER: H11086 7 (UTC) S USED: VS T. 48/22/04.9 N LON. 12 3Y: DIFFERENTIAL GPS Y: The five charted (18484	4/37/17.8 W 4) piles were dispr			earch of the area with

YEARSUNK

RECRD [52	847 VESSLT CARTC		JCTION	SNDINGCO	_	DEPTH	
LAT83 LATDEC:	I	48 22 13.5 48.37041665665	LONGB3		37 15.9 .62108333333	NATIVDA GPQUAL GPSOUR	ITY High	
PROJEC	ст	OPR-N342	ITEM	STATUS	Assigned	_	SEARCHTYPE	Full
RADIUS			' INIT		MCR	I	ASSIGNED	9/24/2001
TECNIQ	i .	VS,DI,MB,ES,BI	D,SD					
Techniqr	note	15.87 W , 48-22		8.68 W AN	D 48-22-11.87 M	124-37-21.5	G POSITIONS; 48-2 7 W. CONDUCT A	2-13.55 N 124-37- 20M RADIUS SEARCH
History	HIST H703	The second s	ILES AND SNAG S	HOWN. E	NTERED 9/01 M	ICR		
	HYDR VN: 2' INVES SURV and L POSIT INVES dispro piles, and 7/ CHAR concre	COGRAPHIC SUR 127,2122,2126 STIGATION METH EYED POSITION: AT. 48/22/10.95 N TION DETERMINE STIGATION SUMM ved with a visual s The charted (1848 0143-70145) were STING RECOMME ste blocks as an of	I LON.124/37/21.4 D BY: DIFFERENT MARY: Six of the eig learch. Two detach (4) snag was dispro- found within the sn NDATION (HYDRO bstruction.	1088 Id 100% S 4 N 124/3 4 W (seaw FIAL GPS Ight charted positio ved after v ag search IGRAPHE	WMB 7/21.38 W (Pos ard most concre 1 (18484) piles w ns were taken at fsual search of t area. R): Remove cha	te block) ere disproved the extents (F he area. How rted (18484) p	with 100% SWMB a Pos#70121-70122) o ever, four new concr illes and charted (18-	7/15.72 W (Pos #7012) Ind the inshore two were f the disproved charted ete blocks (Pos#20141 484) snag. Chart new
	EVAL	UATOR COMMEN	its: Concur with d	antication.	Chart concrete	DIOCKS 35 005	structions as shown (on the smooth sheet.
Proprietary								

RECRD		CARTOC		SNDINGCOL		DEPTH	N
LAT83 LATDEC:		48 22 16.6 48.371277777778	-	24 37 27.35 124.62426388889	NATIVDATU GPQUALITY GPSOURCE	Med	
PROJE	2.00	OPR-N342		JS Assigned		SEARCHTYPE	Full 9/24/2001
TECNIC	2	VS,DI,ES		Inor			J
istory	HISTO						
	CL92 ONE F CHAR	1/74-NOAA SHIP F					
	CL92 ONE F CHAR INVES DATE(HYDR) VN: 21	1/74-NOAA SHIP F OOT AWASH AT A T SECTION. ENTER TIGATION (S): 10/19/01 (DN: 2 OGRAPHIC SURVE 127 TIME: 22:53:	TIME OF 6.5 FOOT TIL RED B/01 MCR 292) Y NUMBER: H11086 18 (UTC)				
story	CL92 ONE F CHAR INVES DATE(HYDR) VN: 21 INVES SURVI	1/74-NOAA SHIP F OOT AWASH AT A T SECTION. ENTER TIGATION (S): 10/19/01 (DN: 2 OGRAPHIC SURVE 127 TIME: 22:53: STIGATION METHOD EYED POSITION: L	TIME OF 6.5 FOOT TIL 292) Y NUMBER: H11086 18 (UTC) OS USED: VS AT. 48/22/16.2 N LON	DE. APRROX POS.			
	CL92 ONE F CHAR INVES DATE(HYDR) VN: 21 INVES SURVI POSIT INVES	1/74-NOAA SHIP F OOT AWASH AT A T SECTION. ENTER (S): 10/19/01 (DN: 2 OGRAPHIC SURVE 27 TIME: 22:53: STIGATION METHOD EYED POSITION: L TON DETERMINED STIGATION SUMMAI	TIME OF 6.5 FOOT TH RED B/01 MCR 292) Y NUMBER: H11086 18 (UTC) OS USED: VS	. 124/37/27.2 W PS ed the existence of th	e charted (18484) snag at a new l	ocation (Pos#70123)

NIMANUM

LAT83 LATDEC:
PROJECT
RADIUS
TECNIQ
Techniqnate
D/ H [*] VI

	-						
LAT83	F	48 22 36	LONG83	37 12	NATIVDATU	M 31	
LATDEC:	Γ	48.3766666666667	LONDEC:	124.62	GPQUALITY GPSOURCE	10.00	
PROJE	ст	OPR-N342	ITEMSTATUS	Assigned	_	SEARCHTYPE	Full
RADIUS	\$		INIT	MCR		ASSIGNED	9/24/2001
TECNIC	2	VS,DI,MB,SD					
Techniq	nate	DETERMINE THE	EXTENT AND CONDITIO	N OF CHARTED L	OG BOOMS		
	FT CO	NCRETE BLOCKS,	OMS APPLIED TO THE WITH 90FT ANCHOR CH				
	FT CO	70/60-COE, LOG BO	WITH 90FT ANCHOR CH				
ieldnote	FT CO TO TH	70/60-COE, LOG BC	WITH 90FT ANCHOR CH				
ieldnote	FT CO TO TH	70/60-COE, LOG BO NCRETE BLOCKS, E ANCHOR, ENTER	WITH 90FT ANCHOR CI ED MCR 9/01				
ieldnote	FT CO TO TH INVES DATE	70/60-COE, LOG BC NCRETE BLOCKS, E ANCHOR, ENTER TIGATION	WITH 90FT ANCHOR CI ED MCR 9/01 I (DN: 292,293)				
ieldnote	FT CO TO TH INVES DATE(HYDR	70/60–COE, LOG BC NCRETE BLOCKS, E ANCHOR, ENTER TIGATION S): 10/19/01, 10/20/01	WITH 90FT ANCHOR CI ED MCR 9/01 (DN: 292,293) NUMBER: H11086				
ieldnote	FT CO TO TH INVES DATE(HYDR VN: 21	70/60–COE, LOG BC NCRETE BLOCKS, E ANCHOR, ENTERI TIGATION S): 10/19/01, 10/20/01 OGRAPHIC SURVEY 27,2126 TIME: Va	WITH 90FT ANCHOR CI ED MCR 9/01 (DN: 292,293) NUMBER: H11086	HAINS. CHAINS E			
ieldnote	FT CO TO TH INVES DATE(HYDR VN: 21 INVES SURV	70/60–COE, LOG BC NCRETE BLOCKS, E ANCHOR, ENTERI TIGATION S): 10/19/01, 10/20/01 OGRAPHIC SURVEY 27,2126 TIME: Va TIGATION METHOD EYED POSITION: NO	WITH 90FT ANCHOR CI ED MCR 9/01 I (DN: 292,293) I NUMBER: H11086 Iries	HAINS. CHAINS E SWMB d LONG83: 48/22/3	XTEND AT AN A	ANGLE, OUTWA	RD FROM THE BOOM
Fieldnote	FT CO TO TH INVES DATE(HYDR VN: 21 INVES SURV 124/37	70/60-COE, LOG BC NCRETE BLOCKS, E ANCHOR, ENTERI TIGATION S): 10/19/01, 10/20/01 OGRAPHIC SURVEY 27,2126 TIME: Va TIGATION METHOD EYED POSITION: Ni /24 W, 48/22/25 N 1	WITH 90FT ANCHOR CI ED MCR 9/01 I (DN: 292,293) I NUMBER: H11086 Irles S USED: VS and 100% S ew foul area in LAT83 and	HAINS. CHAINS E SWMB d LONG83: 48/22/3 124/37/16 W, 48/2	XTEND AT AN A	ANGLE, OUTWA	RD FROM THE BOOM
ieldnote	FT CO TO TH INVES DATE(HYDR VN: 21 INVES SURV 124/37 POSIT INVES ancho	70/60–COE, LOG BC NCRETE BLOCKS, E ANCHOR, ENTERI TIGATION S): 10/19/01, 10/20/01 OGRAPHIC SURVEY 27,2126 TIME: Va TIGATION METHOD EYED POSITION: No 724 W, 48/22/25 N 11 TON DETERMINED E TIGATION SUMMAR red with a chain to an	WITH 90FT ANCHOR CI ED MCR 9/01 (DN: 292,293) NUMBER: H11086 rries S USED: VS and 100% 5 sw foul area in LAT83 and 24/37/19 W, 48/22/34 N	WMB LONG83: 48/22/3 124/37/16 W, 48/2 with a detached po rconnected with ea	XTEND AT AN A 17 N 124/37/31 2/34 N 124/37/1 esition and the ch ch other. This ar	ANGLE, OUTWA	RD FROM THE BOOM 24/37/31 W, 48/22/25 124/37/10 W. sproved. Each boom i ered with 100% swmb
ieldnote	FT CO TO TH INVES DATE(HYDR VN: 21 INVES SURV 124/37 POSIT INVES ancho and co CHAR	70/60-COE, LOG BC NCRETE BLOCKS, E ANCHOR, ENTERI TIGATION S): 10/19/01, 10/20/01 OGRAPHIC SURVEY 27,2126 TIME: Va TIGATION METHOD EYED POSITION: No 724 W, 48/22/25 N 11 ION DETERMINED E TIGATION SUMMAR red with a chain to an insidered foul with obs	WITH 90FT ANCHOR CI ED MCR 9/01 (DN: 292,293) NUMBER: H11086 rifes S USED: VS and 100% 9 w foul area in LAT83 and 24/37/19 W, 48/22/34 N BY: DIFFERENTIAL GPS Y: Each boom is verified anchor block but not inte structions. The new extent ATION (HYDROGRAPHE	HAINS. CHAINS E SWMB d LONG83: 48/22/3 124/37/16 W, 48/2 with a detached po roonnected with ea nts of the foul area	XTEND AT AN A 17 N 124/37/31 2/34 N 124/37/1 psilion and the ch ch other. This ar are based on the	ANGLE, OUTWA W, 48/22/29 N 1: IO W, 48/22/39 N harted extents dis rea was also covr e bathymetry and	RD FROM THE BOOM 24/37/31 W, 48/22/25 124/37/10 W. sproved. Each boom i ered with 100% symb I delached positions.

YEARSUNK NIMANUM

TECNIQ VS.DI,MB,ES,BD,SD Technignote listory HISTORY HT038/45SNAG SHOWN. ENTERED 9/01 MCR INVESTIGATION DATE(S): 10/08/01 and 10/20/01 (DN: 281and 293) HYDROGRAPHIC SURVEY NUMBER: H11086 VN: 2122, 2126 TIME: Varies INVESTIGATION METHODS USED: VS and 100% SWMB SURVEYED POSITION: LAT. 48/22/35.7 N LON. 124/37/07.0 W POSITION DETERMINED BY: DIFFERENTIAL GPS INVESTIGATION SUMMARY: The charted (18484) snag was disproved with visual search (Pos#20367) and 100% SWMB. CHARTING RECOMMENDATION (HYDROGRAPHER): Remove charted (18484) snag.	ECRD	52851 VESSLTERMS OBSTRUCTION CHART 18484 AREA N CARTOCODE 0284 SNDINGCODE DEPTH
RADIUS 30 INIT MCR ASSIGNED 9/24/2001 TECNIQ VS.DI.MB.ES.8D.SD Init MCR 9/24/2001 Techniqnote Init MCR ASSIGNED 9/24/2001 Istory HISTORY HISTORY HISTORY HISTORY Hold MCR Init MCR ASSIGNED Init Istory HISTORY HISTORY Init MCR Init Istory Init MCR Init Init Init Init Istory Init Visitication Init <th></th> <th>48.376530555556 LONDEC: 124.61872222222 GPQUALITY High</th>		48.376530555556 LONDEC: 124.61872222222 GPQUALITY High
Investigation Provide the search of the sear	RADIUS TECNIQ	30 INIT MCR ASSIGNED 9/24/2001 VS.DI,MB,ES,BD,SD
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ETAEVATOR COMMENTO, SUMM	eldnote	DATE(S): 10/08/01 and 10/20/01 (DN: 281and 293) HYDROGRAPHIC SURVEY NUMBER: H11086 VN: 2122, 2126 TIME: Varies INVESTIGATION METHODS USED: VS and 100% SWMB SURVEYED POSITION: LAT. 48/22/35.7 N LON. 124/37/07.0 W POSITION DETERMINED BY: DIFFERENTIAL GPS INVESTIGATION SUMMARY: The charted (18484) snag was disproved with visual search (Pos#20367) and 100% SWMB.

B TH (N/ Fieldnote IN/ DA HY	ISTORY 3P76685-NOS, NOAA S HE WRECK TO HAVE A IAD 83) VESTIGATION ATE: 10/08/01 (DN: 2)	ITEM INIT	T124.	6 55.6 6154444444 Assigned MCR MCR	GPOU GPSO	JRCE SE AS	31 Med Scaled EARCHTYPE SSIGNED 2 FT FISHING SITION 48-22	Full	9/24/2001 . REVEALE 24-36-55.6 V
RADIUS TECNIQ Techniqnote fistory HI B TH (N/ Fieldnote IN/ DA	100 MB,S2,DI,SD SP76685-NOS, NOAA S HE WRECK TO HAVE A IAD 83) VESTIGATION ATE: 10/08/01 (DN: 24	INIT	HER, 1969	MCR	TION OF WR	AS ECKED 33		VESSEL	REVEALE
Techniqnote fistory HI B TH (N/ Fieldnote IN DA HY	ISTORY 3P76685NOS, NOAA S HE WRECK TO HAVE A IAD 83) VESTIGATION ATE: 10/08/01 (DN: 2)	A LEAST DEPTH (HER, 1968 OF 28 FT); INVESTIGA MLLW (PRED	TION OF WR	ECKED 33	2 FT FISHING SITION 48-22	VESSEL	. REVEALE 24-36-55.6 \
History HI B TH (N/ Fieldnote IN DA HY	ISTORY 3P76685-NOS, NOAA S HE WRECK TO HAVE A IAD 83) VESTIGATION ATE: 10/08/01 (DN: 2)	A LEAST DEPTH (HER, 1969 OF 28 FT); INVESTIGA MLLW (PRED	TION OF WR	ECKED 3	2 FT FISHING SITION 48-22	9 VESSEL -24.1 N 1	. REVEALE 24-36-55.6 \
B TH (N/ Fieldnote IN/ DA HY	P76685NOS, NOAA S HE WRECK TO HAVE A IAD 83) VESTIGATION ATE: 10/08/01 (DN: 2)	A LEAST DEPTH (HER, 1969 OF 28 FT); INVESTIGA MLLW (PRED	TION OF WR	ECKED 3:) , IN POS	2 FT FISHING SITION 48-22	VESSEL -24.1 N 1	REVEALE
DA	ATE: 10/08/01 (DN: 2)								
		81)							
VN	YDROGRAPHIC SURVE	EY NUMBER: H11	1086						
	N: 2126 TIME: Varie	rs							
IN	VESTIGATION METHO	DDS USED: 100%	SWMB						
su	URVEYED POSITION: L	LAT. 48/22/24.1 N	LON. 12	24/36/55.6 W					
PC	OSITION DETERMINED	DBY: DIFFERENT	FIAL GPS						
not	VESTIGATION SUMMA bled that a new wreck wi eters southwest (48/22/2	ith similar descript	tion and a	least depth of	11 feet was d	% SWME etected ar	B coverage. H nd investigate	lowever, i d approxir	t should be mately 400
	HARTING RECOMMEN	DATION (HYDRO	GRAPHE	R): Remove th	e charted (18	484) wrec	k and chart th	ic new wr	eck in its
EV	VALUATOR COMMENT	S: Concur with cl	lanfication.	Chart new w	reck, least de	pth 11 fee	et, as shown o	n the smo	olh sheet.
roprietary									

RECRD	52853 VESSLTERMS SOGNEFJORD CHART 18484 AREA N CARTOCODE 0100 SNDINGCODE DEPTH
LAT83 LATDEC:	48 22 37.24 LONG83 124 38 36.85 NATIVDATUM 06 48.377011111111 LONDEC: 124.61023611111 GPQUALITY Med GPSOURCE Direct Direct Direct Direct
PROJEC	T OPR-N342 ITEMSTATUS Assigned SEARCHTYPE Full
RADIUS	100 INIT MCR ASSIGNED 9/24/2001
TECNIQ	MB.S2,ES,DI,SD
Techniqu	note
listory	HISTORY CL1356/84USCG AUX, 7/7/83; THE 37 FT SOGNEFJORD SUNK IN 29 FT OF WATER AFTER CATCHING FIRE. POSITIC DERIVED FROM COMPASS BEARINGS AND GIVEN AS 48 22 38N, 124 36 32W NAD 27, ENTERED 9/01 MCR
ieldnote	INVESTIGATION
	DATE(S): 10/08/01 (DN: 281)
	HYDROGRAPHIC SURVEY NUMBER: H11086
	VN: 2126 TIME: Varies
	INVESTIGATION METHODS USED: 100% SWMB
	SURVEYED POSITION: LAT, 48/22/37.4 N LON, 124/36/36.6 W
	POSITION DETERMINED BY: DIFFERENTIAL GPS
	INVESTIGATION SUMMARY: The charted (18484) wreck was disproved with 100% SWMB coverage. However, it should be noted that a new wreck hull with a least depth of 15 feet was detected and investigated approximately 340 meters northeast (48/22/39.08 N 124/36/20.2 W) of the charted wreck.
	CHARTING RECOMMENDATION (HYDROGRAPHER): Remove charted (18484) wreck and chart new wreck hull in its survey position.
	EVALUATOR COMMENTS: Concur with clarification. Chart new wreck, least depth 15 feet, as shown on the smooth shet.
Proprietary	
TODI COBI V	

LATDEC: 48.378138888889 LONDEC: 124.6040694444 GPQUALITY High GPSOURCE Scaled PROJECT OPR-N342 ITEMSTATUS Assigned SEARCHTYPE Full RADIUS 30 INIT MCR ASSIGNED 9/24/2001 TECNIQ VS,DI,ES,MB,BD Technignote story HISTORY H7036/44-45; SNAG SHOWN IN POS. 48 22 42,1N, 124 36 09.8W NAD 27. ENTERED 9/01 MCR	ECRD	52854 VESSLTERMS OBSTRUCTION CHART 18484 AREA N CARTOCODE 0284 SNDINGCODE DEPTH
RADIUS 30 INIT MCR ASSIGNED 9/24/2001 TECNIQ VS.DI.ES.MB.BD Techniquote Init MCR ASSIGNED 9/24/2001 Istory HISTORY HT036/44-45; SNAG SHOWN IN POS. 48 22 42.1N, 124 36 09.8W NAD 27. ENTERED 9/01 MCR Investigation eldnote INVESTIGATION DATE(S): 10/19/01 (DN: 292) HYDROGRAPHIC SURVEY NUMBER: H11086 VN: 2127 TIME: 15:42:48 (UTC) INVESTIGATION METHODS USED: VS SURVEYED POSITION: LAT. 48/22/40.8 N LON. 124/36/13.6 W POSITION DETERMINED BY: DIFFERENTIAL GPS INVESTIGATION SUMMARY: The charted (18484) snag was verified in a new location (Posi/70008). Refer to the attachment avois _52854.jpg. CHARTING RECOMMENDATION (HYDROGRAPHER): Revise charted (18484) snag based on the new surveyed position.	LAT83 LATDEC:	48.378138888889 LONDEC: 124.60406944444 GPQUALITY High
H7036/44-45; SNAG SHOWN IN POS. 48 22 42.1N, 124 36 09.8W NAD 27. ENTERED 9/01 MCR eldnote INVESTIGATION DATE(S): 10/19/01 (DN: 292) HYDROGRAPHIC SURVEY NUMBER: H11096 VN: 2127 TIME: 15:42:48 (UTC) INVESTIGATION METHODS USED: VS SURVEYED POSITION: LAT. 48/22/40.8 N° LON. 124/36/13.6 W POSITION DETERMINED BY: DIFFERENTIAL GPS INVESTIGATION SUMMARY: The charted (18484) snag was verified in a new location (Posil/70008). Refer to the atlachment avois_52854.jpg. CHARTING RECOMMENDATION (HYDROGRAPHER): Revise charted (18484) snag based on the new surveyed position.	RADIUS TECNIQ	30 INIT MCR ASSIGNED 9/24/2001 VS.DI.ES.MB.BD
DATE(S): 10/19/01 (DN: 292) HYDROGRAPHIC SURVEY NUMBER: H11086 VN: 2127 TIME: 15:42:48 (UTC) INVESTIGATION METHODS USED: VS SURVEYED POSITION: LAT. 48/22/40.8 N LON. 124/36/13.6 W POSITION DETERMINED BY: DIFFERENTIAL GPS INVESTIGATION SUMMARY: The charted (18484) snag was verified in a new location (Pos//70008). Refer to the atlachment avois_52854.jpg. CHARTING RECOMMENDATION (HYDROGRAPHER): Revise charted (18484) snag based on the new surveyed position.	story	
	eldnote	DATE(S): 10/19/01 (DN: 292) HYDROGRAPHIC SURVEY NUMBER: H11096 VN: 2127 TIME: 15:42:48 (UTC) INVESTIGATION METHODS USED: VS SURVEYED POSITION: LAT. 48/22/40.8 N LON. 124/36/13.6 W

YEARSUNK





UNITED STATES DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration NATIONAL OCEAN SERVICE Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: December 19, 2001

HYDROGRAPHIC BRANCH: Pacific HYDROGRAPHIC PROJECT: OPR-N342-RA-2001 HYDROGRAPHIC SHEET: H11086

LOCALITY: Olympic Coast National Marine Sanctuary and Neah Bay, WA TIME PERIOD: October 6 - 25, 2001

TIDE STATION USED: 944-3090 Neah Bay, Strait of Juan de Fuca, WA Lat. 48° 22.1'N Lon. 124° 37.0'W PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.168 meters

REMARKS: RECOMMENDED ZONING Use zone(s) identified as: PAC230 & PAC233.

Refer to attachments for zoning information.

Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time.

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

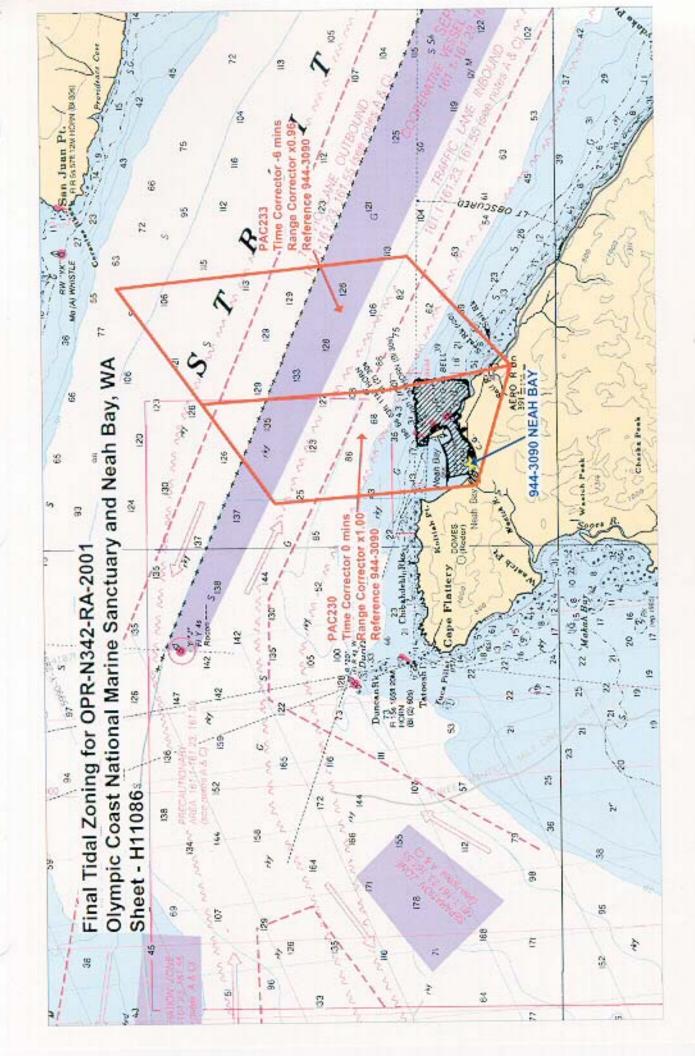


Final tide zone node point locations for OPR-N342-RA-2001, Sheet H11086.

Format:

Tide Station (in recommended order of use) Average Time Correction (in minutes) Range Correction Longitude in decimal degrees (negative value denotes Longitude West), Latitude in decimal degrees

	Tide Station Order	AVG Time Correction	Range Correction
Zone PAC230 -124.639559 48.44798	944-3090	0	1.00
-124.629548 48.36596 -124.556283 48.351617			
-124.570704 48.401589 -124.578447 48.477342			
-124.639559 48.44798			
Zone PAC233			
-124.578447 48.477342	944-3090	-6	0.96
-124.570704 48.401589			
-124.556283 48.351617			
-124.488952 48.393423			4
-124.507047 48.511664			
-124.578447 48.477342			



Subject: Re: [Fwd: Source Shoreline for Chart 18484 (Neah Bay)]

Date: Tue, 22 Oct 2002 10:11:07 -0400

From: "David Merke" <David Merke@noaa.gov>

To: Bruce.Olmstead@noaa.gov

Bruce,

I reviewed the histories and standards for any shoreline changes for chart 18484. The original shoreline was compiled using T-6984 A&B 1942-44. This T-sheet was also used for both H-7036 and H-7037. There has been no major shoreline change to this chart since. There was a minor change through a chart letter at N48°22'38"/W124°37"24.3" near some log booms within the area H-7036 covers. Also, A large number of piers were added and deleted through chart letters over the years.

Chart 18484 is at a 1 to 10,000 scale, therefore DM-10273 was not applied to the chart.

I hope this will clarify any discrepancy you might still have. If you need any other assistance don't hesitate to ask. Dave Merke

David Poltilove wrote:

> Could you please check this out and get back to Bruce Omstead in > Seattle. 5 > Thanks!!! > ----- Original Message ------> Subject: Source Shoreline for Chart 18484 (Neah Bay) > Date: Fri, 18 Oct 2002 11:08:46 -0700 > From: "Bruce Olmstead" <Bruce.Olmstead@noaa.gov> > Organization: phb > To: David Poltilove <David.Poltilove@noaa.gov> > Dave, > > Can you help me to identify the source shoreline for Chart 18484 in Neah > Bay. It appears that prior survey H-7037 may be the source on the > eastern half but the western half of the Bay doesn't match up as well > with H-7036. Additionally, the more recent photography compiled to > DM-10273 shows many of the pier structures as single lines and not piers > drawn at scale. The current chart shows some of these piers as doubled > lined structures. This maybe due to the fact that the DM was compiled > at 1:20,000. I'm thinking there may be some other source data for > shoreline? > Anyhow, any assistance on this would be appreciated.

> Bruce



UNITED STATES DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration Office of Marine and Aviation Operations Marine Operations Center 1801 Fairview Avenue East Seattle, Washington 96102-3767

NOAA Ship RAINIER

November 26, 2001

Mr. Scott Craig Senior Port Captain Crowley Marine Services, Inc. Post Office Box 2287 Scattle, WA 98111-2287

Dear Mr. Craig:

Enclosed as a courtesy is a preliminary sounding plot of NOAA hydrographic survey H11086, Neah Bay, Washington, conducted by NOAA Ship RAINIER in October 2001. Soundings depicted on this plot are based on full bottom coverage obtained using state-of-the-art shallow-water multibeam sonar. Depths are depicted in feet, reduced to mean lower-low water using verified water level data.

Information depicted on the plot is subject to office review and verification, and reflect the state of the sea floor in existence at the time of the survey. The survey has not been updated for inclusion of the latest Local Notice to Mariners information. Do not use this data for navigation.

A final, verified version of this survey, approved for nautical charting purposes, will be forwarded to you once it has been reviewed and certified by NOAA's Pacific Hydrographic Branch. Additional information can be obtained by contacting the Chief, Pacific Hydrographic Branch, and Northwest Regional Navigation Manager, Commander John Lowell, at (206) 526-6835. Reference project OPR-N342-RA-01, and survey H11086.

Sincerely,

Jardner

ames C. Gardner Captain, NOAA Commanding Officer

N/CS31 (Haines) N/CS34 (Lowell)

cc:





UNITED STATES DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration Office of Marine and Aviation Operations Marine Operations Center 1801 Fair/lew Avenue East Seattle, Washington 98102-3767

NOAA Ship RAINIER

November 26, 2001

Captain Bill Archer Tug Barbara Foss P.O. Box 863 Neah Bay, WA 98357

Dear Captain Archer:

Enclosed as a courtesy is a preliminary sounding plot of NOAA hydrographic survey H11086, Neah Bay, Washington, conducted by NOAA Ship RAINIER in October 2001. Soundings depicted on this plot are based on full bottom coverage obtained using state-of-the-art shallow-water multibeam sonar. Depths are depicted in feet, reduced to mean lower-low water using verified water level data.

Information depicted on the plot is subject to office review and verification, and reflect the state of the sea floor in existence at the time of the survey. The survey has not been updated for inclusion of the latest Local Notice to Mariners information. Do not use this data for navigation.

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Sincerely,

ulnu

Captain, NOAA Commanding Officer

cc: N/CS31 (Haines) N/CS34 (Lowell)



APPROVAL SHEET H11086

Initial Approvals:

The survey and associated records have been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The survey records and digital data comply with NOS requirements except where noted in the Descriptive Report and are adequate to supersede prior surveys and nautical charts in the common area.

Gary Nelson Date: 9 June 2005 Chief, Cartographic Team

Pacific Hydrographic Branch

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Descriptive Report.

D. COR/NOAA

Date: 9 JUNE 2005

Donald W. Haines CDR, NOAA Chief, Pacific Hydrographic Branch

U.S. DEPARTMENT OF COMMERCE NATIONAL DOEANIC AND ATMOSTHETIC ADMINISTRATION

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. 4. 11086

INSTRUCTIONS A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. I. 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.			
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SUPERSEDES CAUS FORM 8052 WHICH MAY BE USED.