

H11040

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. RA-05-01-02

Registry No. H-11040

LOCALITY

State Washington

General Locality Puget Sound

Sublocality Walan Point to Port Townsend Canal

2002

CHIEF OF PARTY

..... CAPT. James C. Gardner, NOAA

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DATE

NOAA FORM 77-28 (11-72)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION		REGISTER NO. H11040
HYDROGRAPHIC TITLE SHEET				
INSTRUCTIONS The hydrographic sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the office.				FIELD NO. RA-05-01-02
State <u>Washington</u>				
General Locality <u>Puget Sound</u>				
Sublocality <u>Walan Point to Port Townsend Canal</u>				
Scale <u>1:5,000</u>		Date of Survey <u>3/20-3/23/02, 10/19-10/31/02</u>		
Instructions Date <u>3/5/2002</u>		Project No. <u>OPR-N326-RA-02</u>		
Vessel <u>NOAA Ship RAINIER launches 2121, 2122, 2123, 2125, 2127</u>				
Chief of Party <u>CAPT James C. Gardner, NOAA</u>				
Surveyed by <u>RAINIER Personnel</u>				
Soundings taken by echo sounder <u>Knudsen 320M, Reson SeaBat 8101</u>				
Graphic record scaled by <u>RAINIER Personnel</u>				
Graphic record checked by <u>RAINIER Personnel</u>				
Evaluation by <u>R. Davies</u>		Automated plot by <u>HP Designjet 1050C</u>		
Verification by <u>R. Davies and E. Domingo</u>				
Soundings in <u>Fathoms and tenths</u>		at <u>MLLW</u>		
REMARKS: <u>Time in UTC. UTM Projection Zone 10</u>				
Revisions and annotations appearing as endnotes were				
generated during office processing.				
All separates are filed with the hydrographic data.				
As a result, page numbering may be interrupted or non-sequential				

Descriptive Report to Accompany Hydrographic Survey H11040

Project OPR-N326-RA
Approaches to Admiralty Inlet, Washington
Scale 1:5,000
March/October 2002
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-N326-RA, dated March 5, 2002, and the Draft Standing Project Instructions dated March 21, 2001. The survey area is located in the Southern portion of Port Townsend, WA. This survey corresponds to sheet "F" in the sheet layout provided with the Letter Instructions.

One hundred percent shallow-water multibeam (SWMB) coverage was obtained in the survey area in waters 8 meters and deeper. In waters from 4 meters to 8 meters, SWMB data were obtained at 25-meter line spacing, and in these areas additional coverage was obtained to obtain least depths over features or shoals. Vertical-beam echo sounder (VBES) data were acquired in depths from 4 to 50 meters, at a line spacing of 100 meters, to define the four-meter curve and to aid in the planning of SWMB data acquisition.

Data acquisition was conducted from March 20 to March 23, 2002 (DN 79 to 82) and from October 19 to October 31, 2002 (DN 292 to 304).

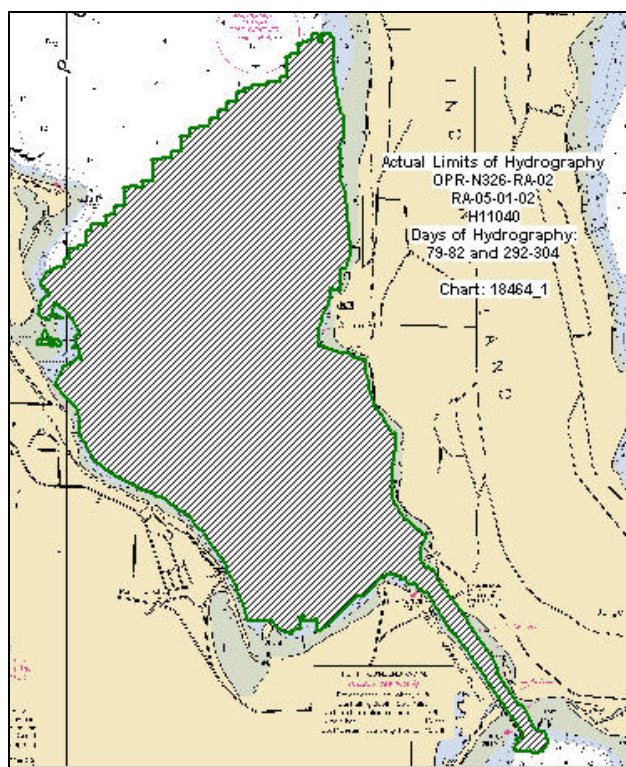


Figure 1. H11040 Survey Limits

B. DATA ACQUISITION 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-N326-RA-02 Data Acquisition and Processing Report*¹, 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 survey launches (vessel numbers 2121, 2122, 2123, and 2125). Vessels 2123, and 2125 were used to acquire shallow-water multibeam (SWMB) soundings and sound velocity profiles. Vessels 2121 and 2122 were used to acquire vertical-beam echo soundings (VBES) and detached positions (DPs) along with 2127 for shoreline verification. Vessel 2121 was used to collect bottom samples. No unusual vessel configurations or problems were encountered during this survey.²

In April of 2002, vessel numbers were changed on some of the survey launches. Vessel 2121 became vessel 2125 and 2125 became 2121. Vessel 2123 became vessel 2126 and 2126 became 2123. The data collected in March using these vessels were changed in HDCS data but the acquisition forms were not.

B2. Quality Control

Crosslines

Vertical Beam Echo Sounder (VBES) shoreline buffer was used in place of crosslines, which totaled 6.31 nautical miles, comprising 34.42% of VBES mainscheme hydrography. Crosslines generally agreed within 1 meter of mainscheme hydrography.

In HDCS subset mode, SWMB crosslines matched within 0.5 meters of SWMB mainscheme hydrography.

Shallow-Water Multibeam (SWMB) crosslines totaled 4.43 nautical miles, comprising 4.8% of SWMB hydrography. The Quality Control Report (CARIS HIPS) for the checkline file averaged 99.51228%, with a depth tolerance factor of 0.023, which conforms to International Hydrographic Organization Order 2 specifications detailed in Special Publication S-44, Edition 4,³ as well as NOS Hydrographic Surveys Specifications and Deliverables Manual. See Appendix V for the detailed report.⁴

Junctions⁵

The following contemporary survey junctions with H11040:

Registry #	Scale	Date	Junction side
H11038	1:20,000	2001	North

Survey H11038 junctions well with this survey, with differences generally less than one fathom.⁶

Final comparisons will be made at the Pacific Hydrographic Branch (PHB) after the application of smooth tides.⁷

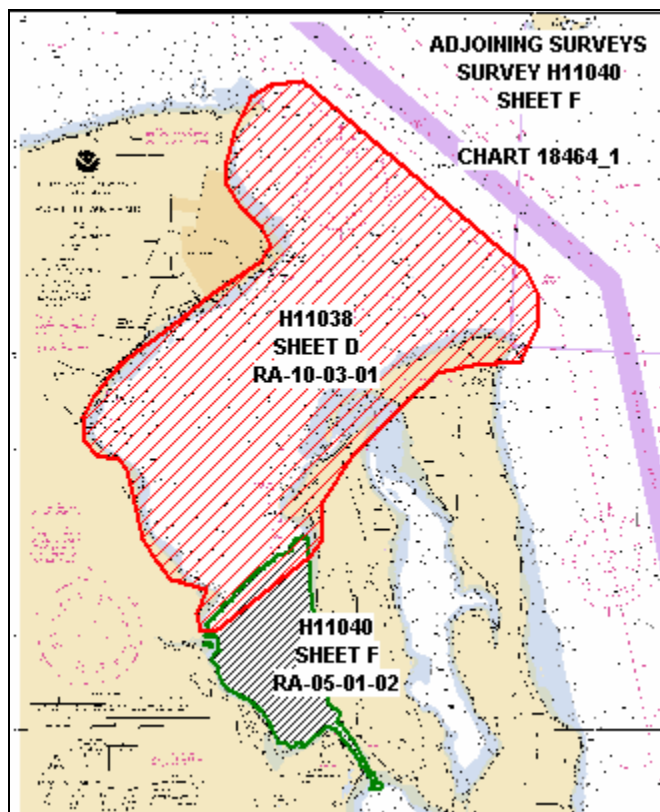


Figure 2. H11040 Junction Surveys

Data Quality Factors

In a few areas ten meters and shoaler, thick eelgrass often obscured the detection of the bottom. In the SWMB data, removal of soundings obtained over eelgrass was not possible in HDCS SwathEdit, as there is no definitive way to determine if a sounding is on a feature such as a rock, or on eelgrass. In HDCS Subset Mode, in some instances, it was possible to discern the true bottom, as eelgrass often appeared as soundings “disconnected” from the continuous bottom. In these instances soundings over eelgrass were rejected. However, when unable to clearly distinguish between the bottom and eelgrass, the eelgrass was not rejected. Areas with eelgrass were noted by the Hydrographer during shoreline verification and are also indicated in the “H11040_ShorelineNotes” table of the Detached Position and Bottom Sample Plot.⁸

B3. Data Reduction

Data reduction procedures for survey H11040 conform to those detailed in the *OPR-N326-RA-02 Data Acquisition and Processing Report*.⁹

C. VERTICAL AND HORIZONTAL CONTROL

A complete description of vertical and horizontal control for survey H11040 can be found in the *OPR-N326-RA-02 Horizontal and Vertical Control Report*,¹⁰ 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 beacons at Whidby Island (302 kHz) and Point Robinson (323 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-N326-RA-02 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(s) at Port Townsend, WA (944-4900) and Seattle, WA (944-7130) served as control for datum determination and as the primary source for water level reducers for survey H11040.

All data were reduced to MLLW using unverified observed tides from station Port Townsend (945-4900), WA and Seattle (944-7130), WA using the tide file 9444900.tid and 9447130.tid and time and height correctors using the zone corrector file N326RA2002CORP.zdf.

The Pacific Hydrographic Branch will apply final approved (smooth) tides to the survey data during final processing.¹¹ A request for delivery of final approved (smooth) tides for survey H11040 was forwarded to N/OPS1 on November 8, 2002 in accordance with FPM 4.8. A copy of the request is included in Appendix IV.¹²

D. RESULTS AND RECOMMENDATIONS

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

A total of twelve (12) AWOIS items were located within the limits of H11040 and investigated during this survey. Investigation methods, results, and charting recommendations have been entered into the Microsoft Access AWOIS database and are submitted with the digital data, digital photographs taken at some of the AWOIS locations are also included. Printouts of the AWOIS Database forms are included in Appendix VI of this report.¹³

D.2 Chart Comparison

Survey H11040 was compared with chart 18464 (22th Ed.; March 22, 1998 1:20,000).¹⁴

Chart 18464

Depths from survey H11040 compares well with the depths on chart 18464, with occasional differences of one to two meters.¹⁵ In some 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.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.¹⁷

Final chart comparisons will be made at the Pacific Hydrographic Branch after the application of smooth tides.¹⁸

D.3 Shoreline

Shoreline Source

Shoreline for this survey was from Digital Manuscript supplied by N/GS3. Shoreline was displayed in HYPACK for field verification. In addition, features shown on the current editions of charts 18464 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, although in many instances the quality of the prior surveys images was poor, and RAINIER was unable to register them in MapInfo.¹⁹

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 Pydro. These indicate revisions to features and features not found on the CFF 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, in both paper copy and MapInfo format,²⁰ 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 CFF shoreline that did not require revision is in the MapInfo table H11040_Shoreline and shown in black. New features, changes to the shoreline, CFF or charted, are displayed in red on the "H11040_Shoreline_Updates" Mapinfo table. Charted shoreline, when used for reference purposes or when source data were not available, is depicted in the MapInfo table "H11040_Ch18464_Shoreline" and is displayed in brown.²¹

Source Shoreline Changes and New Features²²

The CFF log booms at 48°02'56.07"N, 122°45'52.31"W (517,548.4 E, 5,321,763.0 N) and 48°02'47.66"N, 122°45'58.01"W (517,431.1 E, 5,321,503.0 N) were disproved (Position #50051; 517,548.4 E, 5,321,762.9 N) after conducting a ten minute visual and echosounder star-pattern search (VN 2121, DN 292, 000_1932) within a five hundred meter search radius. Sea conditions were zero and water visibility was clear to the bottom to a depth of three meters. One hundred per cent SWMB was obtained over the northern log boom to the limit of safe vessel navigation. Two of the log booms at 48°02'46.57"N, 122°46'03.12"W (517,325.5 E, 5,321,469.0 N) and 48°02'47.59"N, 122°46'05.67"W (517,272.6 E, 5,321,500.4 N) were too shoal for an echosounder search so a five-minute visual search was conducted (2127, DN 304). Sea conditions were zero and water depth was a half of a meter to two meters. Water visibility was clear to the bottom. The Hydrographer recommends not charting the CFF log booms.²³

The CFF piles at 48°02'45.67"N, 122°45'58.04"W (Position #20003; 517,475.8 E, 5,321,429.6 N) and 48°02'46.17"N, 122°45'55.52"W (Position #20004; 517,482.9 E, 5,321,457.0 N) were disproved after conducting a ten minute visual and three minute echosounder star-pattern search (VN 2122, DN 81, 003_1700) within a fifty meter search radius. Sea conditions were zero and water visibility was three

meters in depths of three and a half to five and a half meters. The Hydrographer recommends not charting the CFF piles.²⁴

A new wreck was found at 48°02'01.27"N, 122°44'50.24"W (Position #229448; 518,838.9 E; 5,320,075.1 N). A dive investigation found the least depth from the mast on the pilothouse at 12.92 meters. See attached dive investigation form and least depth report.²⁵ The Hydrographer recommends charting a new wreck with least depth of 12.92 meters.²⁶

A new metal obstruction was found that becomes partially visible at low water at 48°01'59.01"N, 122°45'03.93"W (Position #20022; 518,555.6 E, 5,320,004.5 N) and 48°01'58.81"N, 122°45'03.95"W (Position #50032; 518,555.9 E, 5,319,998.3 N). The new metal obstruction was also covered with one hundred per cent SWMB. See Figure 3 below.²⁷

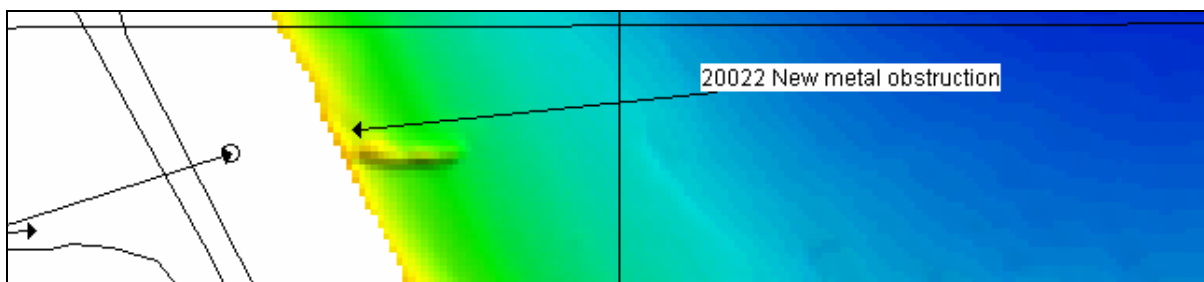


Figure 3. New Metal Obstruction

The CFF rock at 48°01'41.40 N, 122°44'55.11"W (518,740.0 E, 5,319,461.4 N) was found to be a high point of a shoal (Position #20005). The Hydrographer recommends not charting the CFF rock and charting the area around it as a shoal as displayed on the DPBS Plot.²⁸

The CFF dolphins at 48°01'55.07"N, 122°43'58.23"W (Position #20006; 519,916.4 E, 5,319,887.4 N), 48°01'52.97"N, 122°43'56.59"W (Position #20007; 519,950.6 E, 5,319,822.7 N), 48°01'56.88" N, 122°43'53.50"W (Position #20008; 520,014.1 E, 5,319,943.6 N) and 48°01'54.71"N, 122°43'51.76"W (Position #20009; 520,050.5 E, 5,319,876.7 N) were disproved after conducting a ten minute visual search within a fifty meter search radius for each dolphin. No echosounder search was conducted due to the shoal nature and high current of the area. Sea conditions were zero and water visibility was clear to the bottom to a depth of three meters. The CFF bridge supports connecting the dolphins to the bridge were also not seen and were covered with one hundred per cent SWMB or to the limit of safe vessel navigation. The Hydrographer recommends not charting the CFF dolphins or the connecting bridge supports. See Figure 4 below.²⁹

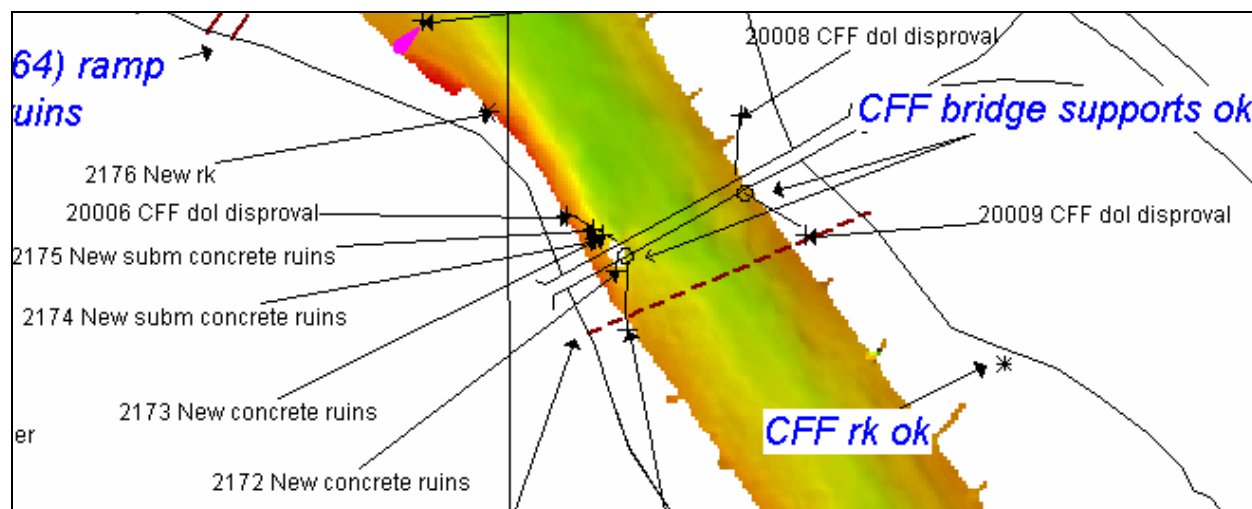


Figure 4. Bridge Supports

The CFF rocks at 48°01'28.19"N, 122°43'25.10"W (520,605.5 E; 5,319,057.2 N) and 48°01'27.43"N 122°43'24.80"W (520,611.8 E, 5,319,036.5 N) was found to be high points of a new reef (Position #2143, VN 2122, DN 82). The Hydrographer recommends not charting the CFF rocks and charting the new reef as portrayed on the DPBS Plot.³⁰

The CFF piles at 48°03'06.21"N, 122°44'31.05"W (Position #50048; 519,229.5 E, 5,322,081.3 N) and 48°03'05.63"N, 122°44'30.22"W (Position #50049; 519,246.8 E, 5,322,063.6 N) were disproved after conducting a ten minute visual and seven minute echosounder star-pattern search (VN 2121, DN 292, 000_1621) within a fifty meter search radius. Sea conditions were zero and water visibility was clear to the bottom to a depth of three meters. The Hydrographer recommends not charting the CFF piles.³¹

A CFF pier at 48°03'08.21"N, 122°44'33.30"W (519,182.7 E; 5,322,143.1 N) was found to be a submerged groin. The only feature still exposed is the CFF breakwater at the northeastern corner of the submerged groin and new extents are given at 48°03'09.41"N, 122°44'28.05"W (Position #129299; 519,291.3 E, 5,322,180.5 N) and 48°03'09.33"N 122°44'27.7"W (Position #1292270; 519,298.5 E, 5,322,178.0 N). See Figure 5 below.³²

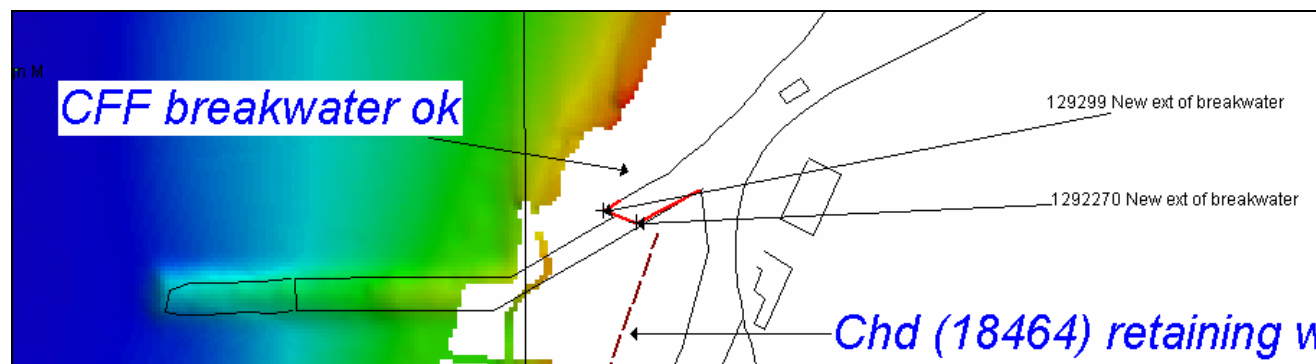


Figure 5. Submerged Groin

The CFF rock at 48°03'41.37"N, 122°44'20.94"W (Position #73049; 519,435.2 E, 5,323,167.8 N) was disproved after conducting a five minute visual search within a fifty meter search radius. No echosounder search was conducted due to the shoal nature of the area. Sea conditions were zero and water depth was a

half of a meter to two meters. Water visibility was clear to the bottom. The Hydrographer recommends not charting the CFF rock.³³

Charted Features

The charted (18464) pile at 48°02'54.60"N, 122°46'07.20"W (Position #73048; 517,240.3 E, 5,321,716.8 N) was disproved after conducting a five minute visual search within a fifty meter search radius. Sea conditions were zero and water depth was a half of a meter to two meters. No echosounder search was conducted due to the shoal nature of the area. Water visibility was clear to the bottom. A new pile was found seventy meters to the southwest. The Hydrographer recommends removing the original charted pile and charting the new position of the pile as displayed on the DPBS Plots.³⁴

The charted (18464) log booms in the northwestern corner at 48°02'54.30"N, 122°46'01.46"W (517,359.1 E, 5,321,707.8 N) were disproved after conducting a ten minute visual and echosounder star-pattern search (VN 2121, DN 292, 000_1932) within a five hundred meter search radius. Sea conditions were zero and water visibility was clear to the bottom to a depth of three meters. One hundred per cent SWMB was obtained over the log booms to the limit of safe vessel navigation. A large portion of the area was too shoal for an echosounder search so a fifteen-minute visual search was conducted (2127, DN 304). Sea conditions were zero and water depth was a half of a meter to two meters. Water visibility was clear to the bottom. During shoreline verification at low water, no log boom was visible either in the water or on shore. The Hydrographer recommends removing the log booms from the chart.³⁵

The charted (18464) pile at 48°02'54.08"N, 122°46'15.40"W (Position #73046; 517,070.5 E, 5,321,700.2 N) was disproved after conducting a five minute visual search within a fifty meter search radius. No echosounder search was conducted due to the shoal nature of the area. Sea conditions were zero and water depth was a half of a meter to two meters. Water visibility was clear to the bottom. A new pile was found 150 meters to the southeast (Position #73047) along with some pile ruins on the beach. The Hydrographer recommends removing the charted pile and charting the new pile as displayed on the DPBS Plot.³⁶

The charted (18464) wreck at 48°02'33.43"N, 122°45'55.66"W (Position #229450; 517,481.1 E, 5,321,063.8 N) was disproved after conducting a six minute visual and echosounder star-pattern search (VN 2121, DN 292, 000_1726) within a eighty meter search radius. Sea conditions were zero and water visibility was clear to the bottom to a depth of three meters. The Hydrographer recommends removing the wreck from the chart.³⁷

The charted (18464) ruins at 48°01'58.61"N, 122°45'05.25"W (518,528.3 E, 5 319,992.0 N) were found to be pile ruins at 48°01'58.62" N, 122°45'05.80" W (Position #50015; 518,516.9 E, 5,319,992.3 N). No other remains were found during a five-minute visual search where sea conditions were zero and water visibility was clear to the bottom to a depth of three meters. The Hydrographer recommends charting the new position of the charted pile ruins as displayed on the DPBS Plot.³⁸

The charted (18464) pile at 48°01'55.48"N, 122°45'01.58"W (Position #1292124; 518,604.6 E, 5,319,895.6 N) was disproved after conducting a six minute visual and echosounder star-pattern search (VN 2121, DN 292, 000_1754) within a sixty meter search radius. Sea conditions were zero and water visibility was clear to the bottom to a depth of three meters. The Hydrographer recommends removing the pile from the chart.³⁹

Two charted (18464) piles at 48°01'48.16"N, 122°44'59.88"W (Position #73043; 518,640.5 E, 5,319,669.6 N) and 48°01'45.91"N, 122°44'58.66"W (Position #73044; 518,666.1 E, 5,319,600.2 N) were disproved after conducting a five minute visual search within a fifty meter search radius for each pile.

Sea conditions were zero and water depth was a half of a meter to two meters. No echosounder search was conducted due to the shoal nature of the area. Water visibility was clear to the bottom. The Hydrographer recommends removing the pile from the chart.⁴⁰

The charted (18464) piles at 48°01'59.20"N, 122°44'10.10"W (Position #229455; 519,670.3 E, 5,320,014.0 N) was disproved after conducting a five minute visual and echosounder star-pattern search (VN 2122, DN 294, 000_1700) within a fifty meter search radius. Sea conditions were zero and water visibility was clear to the bottom to a depth of three meters. The Hydrographer recommends removing the piles from the chart.⁴¹

The charted (18464) ruins at 48°01'59.11"N, 122°44'06.50"W (519,744.7 E, 5,320,011.4 N) were found as charted at 48°01'59.33"N, 122°44'06.64"W (519,741.9 E, 5,320,018.3 N, Position #73041). Submerged pile remains were found seaward of the pile ruins at 48°01'59.51"N, 122°44'06.28"W (Position #129296; 519,749.3 E, 5,320,023.9 N) and 48°01'59.53"N, 122°44'06.63"W (Position #73042; 519,742.1 E, 5,320,024.5 N). The Hydrographer recommends charting the new positions of the submerged piles and pile ruins as displayed on the DPBS Plot.⁴²

The charted (18464) overhead power cable at 48°01'53.95"N, 122°43'53.74"W (520,009.6 E, 5,319,853.1 N) was not seen through a visual investigation of the area. The Hydrographer recommends not charting the overhead cable.⁴³

The charted (18464) pile at 48°02'49.16"N, 122°44'22.12"W (Position #1292279; 519,416.1 E, 5,321,555.7 N) was disproved after conducting a six minute visual and echosounder star-pattern search (VN 2121, DN 292, 000_1754) within a sixty meter search radius. Sea conditions were zero and water visibility was clear to the bottom to a depth of three meters. The Hydrographer recommends removing the pile from the chart.⁴⁴

The charted (18464) ruins at 48°02'50.27"N, 122°44'23.58"W (519,385.8 E, 5,3215,89.9 N) were found to be on shore. Two detached positions were taken of the eastern and the western extents (Position #20013-14) of the western-most group of ruins. See Figure 7 below. A smaller group of ruins lay fifty meters northwest of there (Position #20015). Some metal submerged ruins in the form of a pipe laying on it's side were found a little offshore during a visual search of the area at 48°02'49.11"N, 122°44'21.97"W (Position #2081; 519,419.2 E, 5,321,554.2 N) where water visibility was clear to the bottom to a depth of three meters. The Hydrographer recommends charting the ruins on shore and charting the position of the metal ruins as displayed on the DPBS Plot. See Figure 6 below.⁴⁵



Figure 6. Pos. 20013-14, Charted Ruins

The charted (18464) dolphins at 48°02'51.46"N, 122°44'27.97"W (Position #50041; 519,294.7 E, 5,321,626.2 N) and 48°02'50.96"N, 122°44'26.26"W (Position #50042; 519,330.3 E, 5,321,610.8 N) were disproved after conducting a four minute visual and echosounder star-pattern search (VN 2122, DN 82, 000_0029) within a seventy meter search radius. Sea conditions were zero and water visibility was clear to the bottom to a depth of three meters. A dive investigation was conducted as well disproving the dolphins. See attached dive investigation report.⁴⁶ The Hydrographer recommends removing the dolphins from the chart.⁴⁷

The charted (18464) ramp at 48°02'59.91"N, 122°44'32.75"W (Position #20016; 519,194.9 E, 5,321,886.9 N) was disproved after conducting a five minute visual search within a fifty meter search radius. No echosounder search was conducted due to the shoal nature of the area. Sea conditions were zero and water visibility was clear to the bottom to a depth of three meters. The Hydrographer recommends removing the ramp from the chart.⁴⁸

Two charted (18464) mooring buoys at 48°03'33.02"N, 122°44'46.91"W (Position #50044; 518,898.4 E, 5,322,908.2 N) and 48°03'44.99"N, 122°44'51.71"W (Position #20017; 518,797.9 E, 5,323,277.6 N) were disproved with one hundred per cent SWMB. The Hydrographer recommends removing the mooring buoys from the chart.⁴⁹

Five charted (18464) piles were disproved with one hundred per cent SWMB. The Hydrographer recommends removing the piles from the chart at:⁵⁰

Latitude	Longitude	Easting	Northing
48°01'55.54"N	122°45'00.67"W	518,623.5	5,319,897.6
48°02'48.46"N	122°44'22.34"W	519,411.6	5,321,534.0
48°02'15.76"N	122°45'20.68"W	518,207.1	5,320,520.7
48°02'14.26"N	122°45'18.02"W	518,262.4	5,320,474.5
48°02'05.78"N	122°45'08.42"W	518,462.0	5,320,213.1

Recommendations⁵¹

The Hydrographer recommends that the shoreline as depicted on the Detached Position and Bottom Sample plot and final sounding plot supersede and complement shoreline information compiled on the CFF and charts as noted. These revisions are recorded in the MapInfo digital files named “H11040_Shoreline” and “H11040_Shoreline_Updates”. 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 “H11040_ShorelineNotes.”⁵²

D.4 Dangers to Navigation

Three dangers to navigation were found and reported to the Mapping and Charting Division for verification and final submission to the United States Coast Guard District Thirteen on May 23, 2003. A copy of the preliminary Danger to Navigation Report is included in this report.⁵³ A copy of the final report will be inserted by PHB following verification and submission to the U.S Coast Guard.⁵⁴

D.5 Aids to Navigation⁵⁵

All aids to navigation (ATONs) were found to be correctly charted and serve their intended purpose.

Detached positions were taken on each ATON for check purposes only. GPS static surveys were conducted on four ATON's within the limits of Survey H11040. These positions were reported to the United States Coast Guard District Thirteen. Below are the adjusted positions that were found:

Light number	Station ID	Latitude	Longitude
17570 Canal Daybeacon 3	CNL3	48°02'04.14"	122°44'01.44"
17575 Canal Light 4	CNL4	48°01'58.54"	122°44'02.13"
17585 Canal Light 6	CNL6	48°01'26.07"	122°43'29.71"
17580 Canal Daybeacon 7	CNL7	48°01'25.88"	122°43'24.36"

D.6 Miscellaneous

Bottom samples were collected and are depicted on the Detached Position and Bottom Sample Plot and mostly matched the historical ones found on chart 18464.⁵⁶

During the course of the survey, eelgrass was observed in a few locations. These areas are displayed on the DPBS Plot in the “H11040_ShorelineNotes” layer.⁵⁷

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.

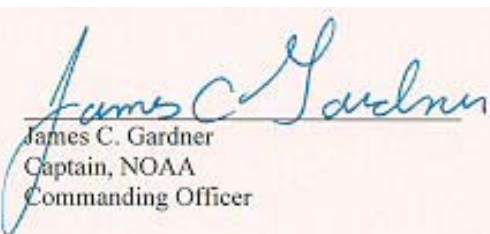
The digital data and supporting records have been reviewed by me, are considered complete and adequate for charting purposes, and are approved. All records are forwarded for final review and processing to N/CS34, Pacific Hydrographic Branch.

Survey H11040 is complete and adequate to supersede charted soundings in their common areas. No additional work is required for this survey.⁵⁸

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

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Data Acquisition and Processing Report for <i>OPR-N326-RA-02</i>	3/21/2003	N/CS34
Horizontal and Vertical Control Report for <i>OPR-N326-RA-02</i>	5/30/2003	N/CS34
Tides and Water Levels Package for <i>OPR-N326-RA-02</i>	N/A	N/OPS1
Coast Pilot Report for <i>OPR-N326-RA-02</i>	TBD ⁵⁹	N/CS26

Approved and Forwarded:


James C. Gardner
Captain, NOAA
Commanding Officer


5-26-03

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

Survey Sheet Manager:


Elaine S. Stuart
Senior Survey Technician, NOAA

Field Operations Officer:


Richard A. Fletcher
Lieutenant Commander, NOAA

Revisions Compiled During Office processing and Certification.

¹ Filed with project records.

² Concur

³ During office review of the survey by a hydrographer, it was the opinion of the hydrographer that the survey conforms to International Hydrographic Organization Order #1 as required by the Letter Instructions. This was determined by qualitative analysis of the data.

⁴ Filed with the hydrographic records.

⁵ The junction between survey H11040 and H11038 was not formally completed since survey H11038 was processed previously. Soundings are in good agreement within the common area. Depth curves on survey H11040 have been drawn in consideration for both data sets in the common area. An "Adjoins" note is shown on the smooth sheet in the junction area.

⁶ Concur,

⁷ Concur, results of the comparison after applications of approved tides are considered good.

⁸ These areas, eel grass, were transferred to the smooth sheet, see smooth sheet for the depiction of these areas.

⁹ Concur

¹⁰ Filed with the project records.

¹¹ Approved tide note dated December 23, 2002 is attached.

¹² Filed with the hydrographic records.

¹³ Attached to this report.

¹⁴ Chart 18464, 23rd Edition, dated April 1, 2003 was used for comparison during office processing.

¹⁵ Concur

¹⁶ Concur

¹⁷ Concur

¹⁸ With the application of smooth tides, no changes to the comparison were noticed. This survey is adequate to supersede all charted soundings within the common area, except where noted in this report.

¹⁹ A comparison with prior survey H-8910 (1966), scale 1:10,000 was accomplished during office processing. Generally, depths agree within 0 to 0.5 fathoms with a few exceptions in the range of 1 to 2 fathoms. Except for several rocks transferred from the prior survey, survey H11040 is recommended to supersede all prior surveys within the common area.

²⁰ Filed with the hydrographic records.

²¹ Shoreline verification conducted by the hydrographer and portrayed on the detached position plot has been analyzed during office processing and shown on the smooth sheet as warranted

²² After further office review in *CARIS*, a 9.5 fathom sounding, at lat. 48/02/17.0N, long. 122/44/51.0W and a 10.0 fathom sounding at lat. 48/02/12.8N, long. 122/44/47.9W, appear to be some kind of submerged obstructions. The nine fathom sounding was reported as a Danger to Navigation, the ten fathom sounding was not. Without further investigation to determine what these objects are, it is recommended by the evaluator to chart these soundings and label them *obstm* and recommend additional work on a time available basis.

²³ Concur

²⁴ Concur

²⁵ Filed with the hydrographic records.

²⁶ Concur, chart submerged wreck with a least depth of 6 fathoms 2 feet at MLLW at survey position. This item was reported as a 6.3 shoal in the danger to navigation letter.

²⁷ Concur, chart submerged obstruction with a least depth of zero fathoms four feet at MLLW.

²⁸ Concur, see smooth sheet for depiction of area.

²⁹ Concur

³⁰ Concur with clarification; the evaluator believes that the breakwater has been lengthen with rock riprap to the survey position, pos# 2143, at lat. 48/01/26.1N, long. 122/43/23.6W. Chart according to the smooth sheet.

³¹ Concur, remove charted piles.

³² Concur, chart submerged groin and pier and new MHWL change at survey position. See smooth sheet for depiction of the area.

³³ Concur

³⁴ Concur, remove charted piles and chart new pile at latitude 48/2/52.5N, longitude 122/46/8.4W.

³⁵ Concur

³⁶ Concur, remove charted pile and chart pile at lat. 48/2/50.2N, long. 122/46/11.0W.

-
- ³⁷ Concur
- ³⁸ Concur, chart single pile at survey position.
- ³⁹ Concur with clarification, remove two charted piles and chart piles at lat. 48/1/54.8N, long. 122/45/3.1W. This is AWOIS item 52684.
- ⁴⁰ Concur
- ⁴¹ Concur
- ⁴² Concur, see smooth sheet for depiction of area.
- ⁴³ Concur with clarification, evaluator recommends removal unless MCD has additional information to retain the charted feature.
- ⁴⁴ Concur with clarification, remove charted pile at survey location and remove charted pile at lat. 48/02/48.4N, long. 122/44/22.4W.
- ⁴⁵ Concur, see smooth sheet for depiction of the area.
- ⁴⁶ Filed with the hydrographic data.
- ⁴⁷ Concur
- ⁴⁸ Concur
- ⁴⁹ Concur with clarification. Remove charted buoy at first position mention. No buoy is charted at the second location.
- ⁵⁰ Concur
- ⁵¹ It is recommended that a caution note" Shoaling reported 2005" be added to the Point Townsend Canal at lat. 48/01/44.3N, long. 122/43/45.4W.
- ⁵² Shoreline verification conducted by the hydrographer and portrayed on the detached position plot has been analyzed during office processing and shown on the smooth sheet as warranted.
- ⁵³ The danger to navigation letter was checked and forward to the U.S. Coast Guard and N/CS26.
- ⁵⁴ Four additional dangers were found during office processing and were forwarded to the U. S. Coast Guard and N/CS26. See attached letter, dated September 29, 2005
- ⁵⁵ The evaluator recommends that MCD use the latest information to chart aids to navigation
- ⁵⁶ Concur
- ⁵⁷ See smooth sheet for the depiction of these areas.
- ⁵⁸ Concur, chart soundings and features except as noted in this report.
- ⁵⁹ Dated March 19, 2002.

RECRD 52680 VESSLTERMS COMET CHART 18464 AREA N
CARTOCODE 098 SNDINGCODE DEPTH

LAT83 48/02/03 LONG83 122/44/59 NATIVDATUM 99
LATDEC: 48.034166666667 LONDEC: 122.74972222222 GPQUALITY Med
GPSOURCE Scaled

PROJECT OPR-N326-RA-02 ITEMSTATUS Assigned SEARCHTYPE Full
RADIUS 100 INIT DAS ASSIGNED 2/1/2001
TECNIQ VS, SD, S2, ES, DI

Techniqnote

History HISTORY
CL1620/81-- A boat named "Comet" which is about 75 feet long sank from old age in Hadlock Harbor in 1980. It is about one half submerged, lying 155 deg. True and 200 feet from the boat dock in Hadlock Harbor. (ENT DAS 2/01/01)

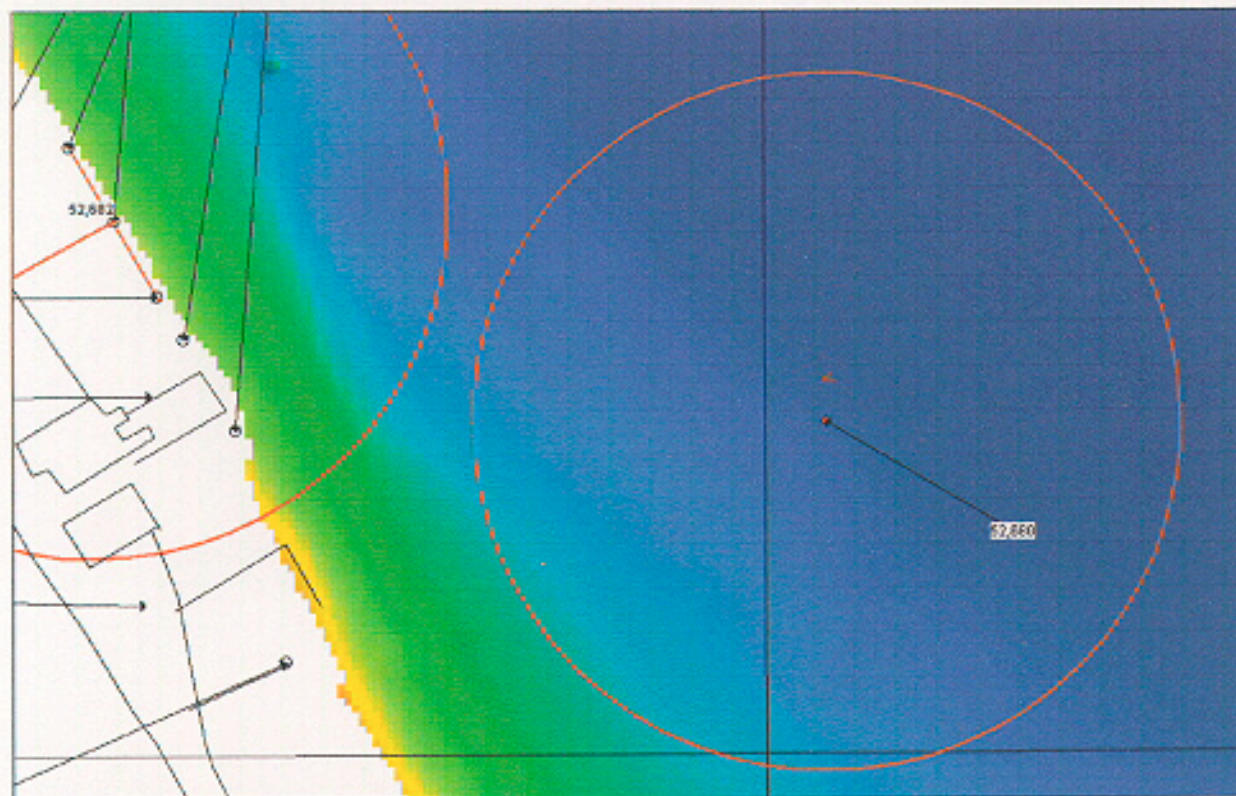
Fieldnote INVESTIGATION
DATE(S): 3/21/02 (DN:080)
VN: 2125 TIME: 18:40
INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER) 100% SWMB.
SURVEYED POSITION: LAT. 48° 02' 03" LON. 122°44' 59"
POSITION DETERMINED BY: DIFFERENTIAL GPS
INVESTIGATION SUMMARY: The charted 18464 wreck "Comet" was disproved with one hundred per cent SWMB (VN 2125, DN 80, LN 44_1833).
See attached photo.
CHARTING RECOMMENDATION (HYDROGRAPHER): The Hydrographer recommends removing the wreck from the chart.
EVALUATOR COMMENTS:Concur

Proprietary

YEARSUNK NIMANUM

Print Record

AWOIS 52680 Charted (18464) Wreck



AWOIS 52680—Chd (18464) wreck disproval

RECRD VESSLTERMS CHART AREA
CARTOCODE SENDINGCODE DEPTH

LAT83 LONG83 NATIVDATUM
LATDEC: LONDEC: GPQUALITY
GPSOURCE

PROJECT ITEMSTATUS SEARCHTYPE
RADIUS INIT ASSIGNED
TECNIQ

Techniqnote

History **HISTORY**
H8910/1966-- A group of piles in lat. 48-02.10, lon 122-45.07 charted from planetable survey T-6885a/1941 were not visible above the water surface and were not investigated during the present survey. Because submerged remains may exist, they were carried forward to the present survey as submerged piles. (ENT DAS 2/01/01)

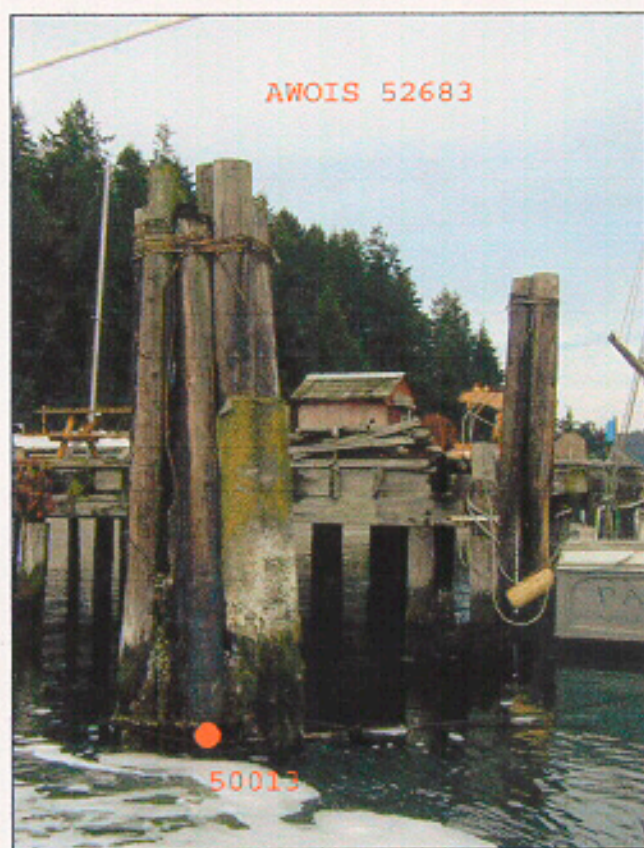
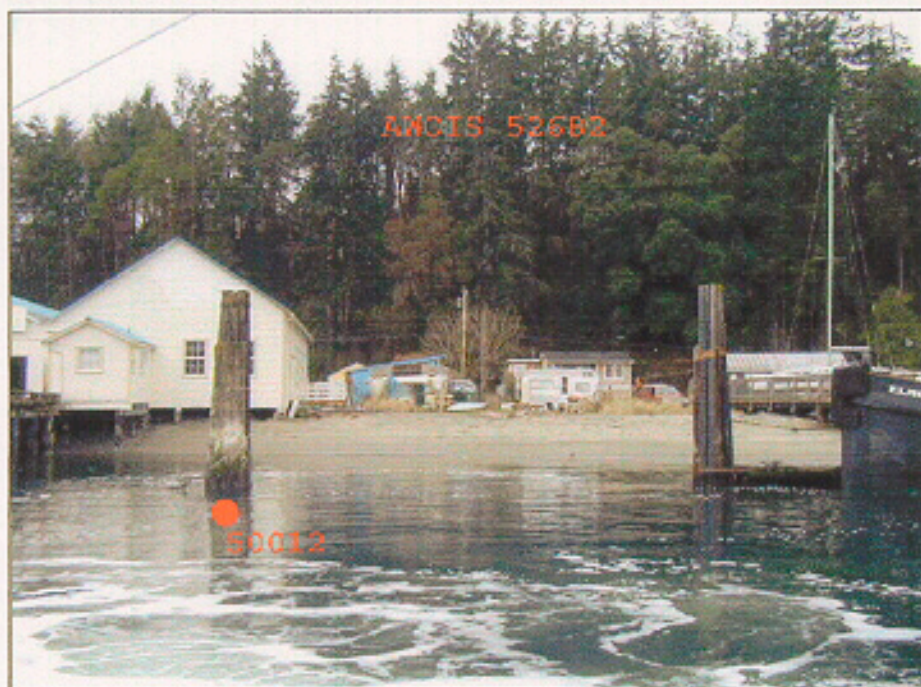
Fieldnote **INVESTIGATION**
DATE(S): 3/21/2002 (DN: 080)
VN: 2121 **TIME:** See below.
INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER) Visual search, detached positions.
SURVEYED POSITION:
48° 02' 05.45" N 122° 45' 10.45" W (518,419.8E, 5,320,203.0N) Time: 17:51:13 Pos. #50008
48° 02' 05.57" N 122° 45' 09.31" W (518,443.5E, 5,320,206.7N) Time: 17:53:38 Pos. #50009
48° 02' 04.89" N 122° 45' 08.73" W (518,455.6E, 5,320,185.7N) Time: 18:02:57 Pos. #50010
48° 02' 04.18" N 122° 45' 09.11" W (518,468.4E, 5,320,163.7N) Time: 18:05:33 Pos. #50011
48° 02' 03.78" N 122° 45' 07.76" W (518,475.7E, 5,320,151.6N) Time: 18:07:58 Pos. #50012
48° 02' 02.94" N 122° 45' 07.06" W (518,490.4E, 5,320,125.6N) Time: 18:12:01 Pos. #50013
POSITION DETERMINED BY: DIFFERENTIAL GPS
INVESTIGATION SUMMARY: A group of piles, represented as one pile on the chart at 48° 02' 05.373" N, 122° 45' 09.725" W (518,434.94 E, 5,320,200.56 N), was found at Pos. #50008, looking like the remains of a small pier. Positions 50009 through 50012 are charted 18464 dolphins that are part of a new pier, used for boats to moor up along side. Position 50013 is a new dolphin at the extent of a CFF floating pier.
See attached digital photographs.
CHARTING RECOMMENDATION (HYDROGRAPHER): The Hydrographer recommends charting the new position of the group of piles and the dolphins as positions of the new pier.
EVALUATOR COMMENTS: Concur, chart row of piles, position 50008, new pier with dols, positions 50009-50012, and single dol at position 50013. See smooth sheet for depiction of the area.

Proprietary

YEARSUNK NIMANUM

[Print Record](#)

AWOIS 52682
Detached Positions 50012-50013



AWOIS 52682 Piles
Detached Positions 50008-50009



AWOIS 52682 Dolphins
Detached Positions 50010-50011



RECRD VESSLTERMS CHART AREA
CARTOCODE SENDINGCODE DEPTH

LAT83 LONG83 NATIVDATUM
LATDEC: LONDEC: GPQUALITY
GPSOURCE

PROJECT ITEMSTATUS SEARCHTYPE
RADIUS INIT ASSIGNED
TECNIQ

Techniqnote

History **HISTORY**
H8910/1966-- Two piles in lat. 48-02.26, lon 122-45.25 charted from planetable survey T-6885a/1941 were not visible above the water surface and were not investigated during the present survey. Because submerged remains may exist, they were carried forward to the present survey as submerged piles. (ENT DAS 2/01/01)

Fieldnote **INVESTIGATION**

DATE(S): 3/21/02 (DN: 080)

VN: 2121 TIME: See below

INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER) Visual search, detached positions, 100% SWMB.

SURVEYED POSITION:

48° 02' 14.00" N 122° 45' 19.47" W (518,232.3E, 5,320,466.3N Time: 17:33:38 Pos. #50005
48° 02' 14.57" N 122° 45' 20.60" W (518,208.9E, 5,320,442.8N Time: 17:36:37 Pos. #50006

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: The charted 18464 piles were found to be a dolphin (Pos. #50005), and the charted 18464 ruins (Pos. #50006) were found as a slighty submerged concrete slab sitting behind the dolphin. No other evidence of the pier ruins were found after conducting a five minute visual search of the area or with one hundred per cent SWMB to the limit of safe vessel navigation.

See attached digital photographs.

CHARTING RECOMMENDATION (HYDROGRAPHER): The Hydrographer recommends charting the new positions of the dolphin and the concrete ruins.

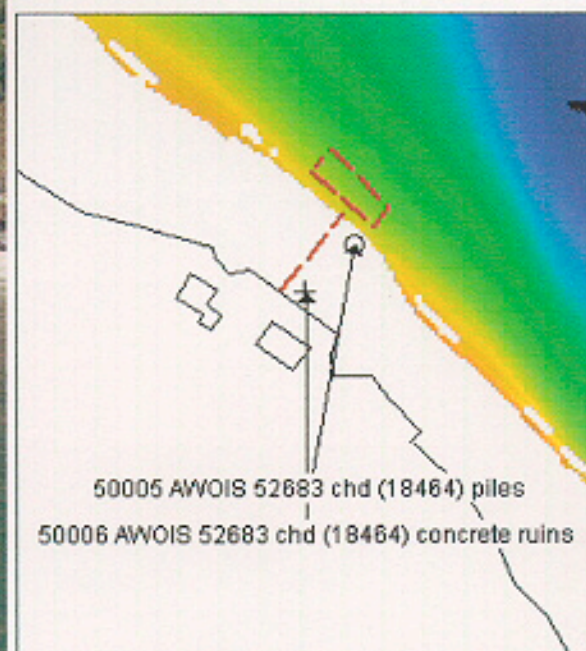
EVALUATOR COMMENTS: Concur with clarification, remove charted dols and ruins. Chart new ruins and dol at the survey position.

Proprietary

YEARSUNK NIMANUM

[Print Record](#)

AWOIS 52683 Piles & Ruins



Detached Position 50005—Pile ruins



Detached Position 50006—Concrete pier ruins

RECRD 52684 VESSLTERMS OBSTRUCTION CHART 18464 AREA N
CARTOCODE 067 SENDINGCODE DEPTH

LAT83 48/01/56 LONG83 122/45/01 NATIVDATUM 06
LATDEC: 48.032222222222 LONDEC: 122.75027777778 GPQUALITY Med
GPSOURCE Direct

PROJECT OPR-N326-RA-02 ITEMSTATUS Assigned SEARCHTYPE Full
RADIUS 100 INIT DAS ASSIGNED 2/1/2001
TECNIQ VS, DI, S4

Techniqnote

History HISTORY
H8910/1966-- Five piles between lat. 48-01.94, lon 122-44.94 and lat. 48-01.73, lon. 122-44.88 charted from planetable survey T-6885a/1941 were not visible above the water surface and were not investigated during the present survey. Because submerged remains may exist, they were carried forward to the present survey as submerged piles. (ENT DAS 2/01/01)

Fieldnote INVESTIGATION
DATE(S): 3/21/2002 (DN:080)
VN: 2121 TIME: 18:51:00
INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER) Visual search, detached position.
SURVEYED POSITION: LAT. 48° 01' 54.85" N LON. 122° 45' 03.11"W (518,573E, 5,319,876.6W) Pos. #50017
POSITION DETERMINED BY: DIFFERENTIAL GPS
INVESTIGATION SUMMARY: Five pile remains were found on shore (Pos. #50017) at high water. Each pile stood approximately 0.2 meters tall. See attached digital photograph.
CHARTING RECOMMENDATION (HYDROGRAPHER): The Hydrographer recommends charting the new position of the pile remains on shore.
EVALUATOR COMMENTS: Concur, and remove the two charted piles at AWOIS position.

Proprietary

YEARSUNK NIMANUM

Print Record

AWOIS 52684 Pile Ruins



Detached Position 50017—AWOIS 52684 piles (5) on shore

RECRD 52686 VESSLTERMS OBSTRUCTION CHART 18464 AREA N
CARTOCODE 067 SENDINGCODE DEPTH

LAT83 48/03/16 LONG83 122/44/29 NATIVDATUM 06
LATDEC: 48.054444444444 LONDEC: 122.74138888889 GPQUALITY Med
GPSOURCE Direct

PROJECT OPR-N326-RA-02 ITEMSTATUS Assigned SEARCHTYPE Full
RADIUS 100 INIT DAS ASSIGNED 2/1/2001
TECNIQ VS, DI, S4

Techniqnote

History HISTORY
H8910/1966-- Piling in lat. 48-03.28, lon 122-44.40 charted from planetable survey T-6885a/1941 were not visible above the water surface and were not investigated during the present survey. Because submerged remains may exist, it was carried forward to the present survey as submerged piles. (ENT DAS 2/01/01)

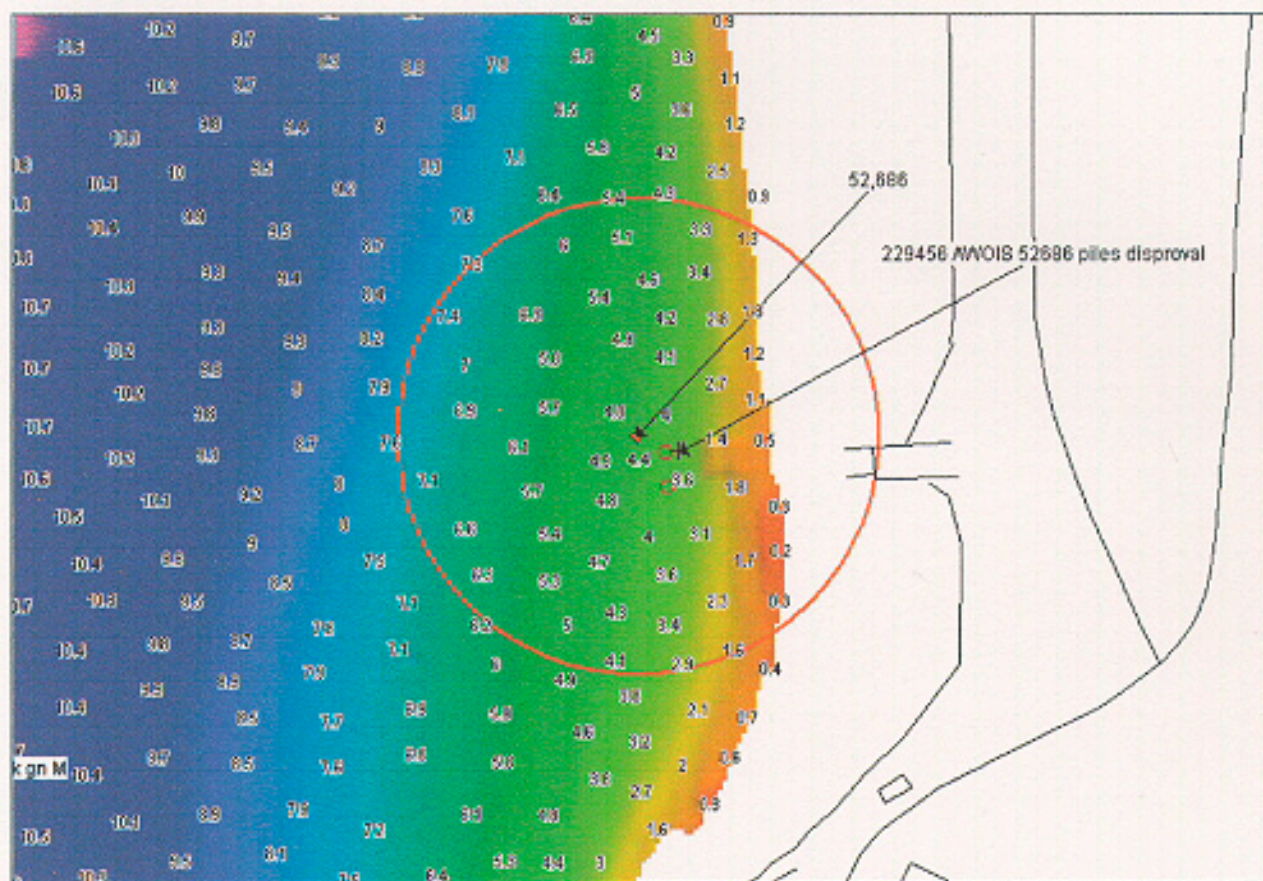
Fieldnote INVESTIGATION
DATE(S): 10/21/02 (DN: 294)
VN: 2122 TIME: 00:29:04
INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER) Dive investigation, 100% SWMB, visual search.
SURVEYED POSITION: LAT. 48° 03' 15.78" N LON. 122° 44' 28.14" W (519,288.7E, 5,322,377.1W) Pos. #229456
POSITION DETERMINED BY: DIFFERENTIAL GPS
INVESTIGATION SUMMARY: The charted 18464 submerged piles were disproved with a circle search dive investigation. See attached dive investigation form. The charted 18646 piles were also covered with one hundred per cent SWMB to an inshore depth of less than a meter. A five minute visual search was performed and detached position taken (Pos. #229456). Water visibility was ten feet and sea conditions were flat.
See attached photo.
CHARTING RECOMMENDATION (HYDROGRAPHER): The Hydrographer recommends removing the piles from the chart.
EVALUATOR COMMENTS: Cocnur

Proprietary

YEARSUNK NIMANUM

Print Record

AWOIS 52686 Piles Disproval



Detached Position 229456—AWOIS 52686 piles disproval

RECRD VESSLTERMS CHART AREA
CARTOCODE SNDINGCODE DEPTH

LAT83 LONG83 NATIVDATUM
LATDEC: LONDEC: GPQUALITY
GPSOURCE

PROJECT ITEMSTATUS SEARCHTYPE
RADIUS INIT ASSIGNED
TECNIQ

Techniqnote

History **HISTORY**
H8910/1966-- Dolphin in lat. 48-02.07, lon 122-44.04 charted from planetable survey T-6885a/1941, formerly a navigational light structure, was not visible above the water surface and was not investigated during the present survey. Because submerged remains may exist, it was carried forward to the present survey as a submerged pile. (ENT DAS 2/01/01)

Fieldnote **INVESTIGATION**

DATE(S): 3/22/2002 (DN:081)

VN: 2123 TIME: 17:59:07

INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER) 100% SWMB.

SURVEYED POSITION: LAT. 48° 02' 02" LON. 122° 44' 07" (519,733.93 , 5,320,162.49)

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: The charted 18464 pile was disproved with one hundred per cent SWMB (VN 2123, DN 81, LN 117_1759). A new submerged pile was found approximately 220 meters to southwest and this is believed to be the location of the AWOIS 52687 submerged pile:

48° 02' 01.17" N 122° 44' 18.00" W (519,506.4E, 5,320,074.4W) Time 20:59:59 Pos. #50035 VN 2121 Dn 80

See attached digital photograph.

CHARTING RECOMMENDATION (HYDROGRAPHER): The Hydrographer recommends removal of the original position of the pile and charting the new position.

EVALUATOR COMMENTS: Concur with clarification, remove charted dol and chart pile with a height of 2 ft at MLLW. The evaluator believes that the AWOIS item and pile are two separate features.

Proprietary

YEARSUNK NIMANUM

[Print Record](#)

AWOIS 52687 Submerged Pile



Detached Position 50035—AWOIS 52687 new subm pile

RECRD 52689 VESSLTERMS OBSTRUCTION CHART 18464 AREA N
CARTOCODE 067 SENDINGCODE DEPTH

LAT83 48/03/02 LONG83 122/46/05 NATIVDATUM 06
LATDEC: 48.050555555556 LONDEC: 122.768055555556 GPQUALITY Med
GPSOURCE Direct

PROJECT OPR-N326-RA-02 ITEMSTATUS Assigned SEARCHTYPE Full
RADIUS 100 INIT DAS ASSIGNED 2/1/2001
TECNIQ VS, DI, S4

Techniqnote

History HISTORY
H8910/1966-- A pile in lat. 48-03.05, lon. 122-46.00 charted from air photographs of 1965 was not visible above the water surface and was not investigated during the present survey. Because submerged remains may exist, it was carried forward to the present survey as a submerged pile. (ENT DAS 2/01/01)

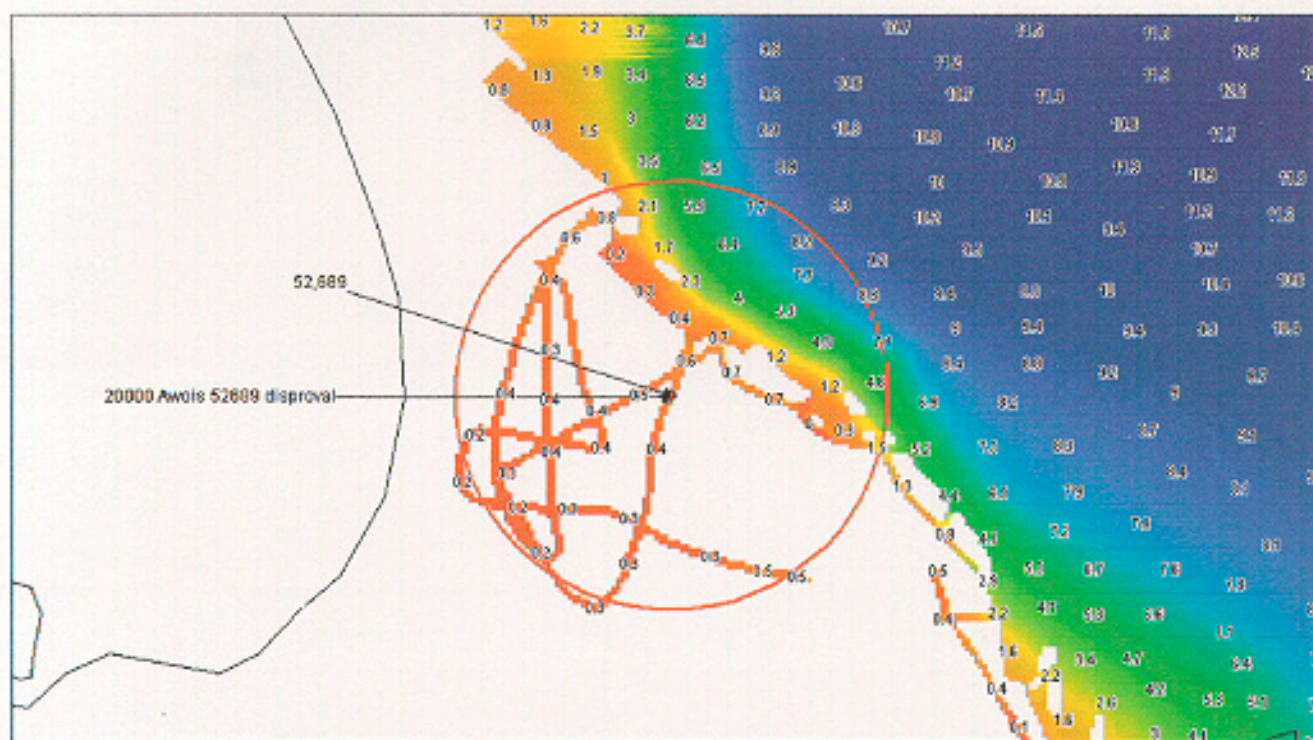
Fieldnote INVESTIGATION
DATE(S): 3/22/2002 (DN:081)
VN: 2122 TIME: 16:40:34
INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER) 100% SWMB, echosounder search, detached position, visual search.
SURVEYED POSITION: LAT. 48° 03' 01.99" N LON. 122° 46' 08.44" W (517,283.8E, 5,321,944.9N) Pos. #20000
POSITION DETERMINED BY: DIFFERENTIAL GPS
INVESTIGATION SUMMARY: The charted 18464 pile was disproved with one hundred per cent SWMB to the limit of safe vessel navigation. The remaining AWOIS search radius was disproved with a ten minute visual and echosounder search (VN 2122, DN 81, LN 001_1628). Water visibility was clear to the bottom to a depth of three meters and sea conditions were flat.
See attached photo.
CHARTING RECOMMENDATION (HYDROGRAPHER): The Hydrographer recommends removing the pile from the chart.
EVALUATOR COMMENTS: Concur with clarification, no pile is currently charted at AWIOS position, however there are charted ruins in the radius of the AWOIS item. It is believe that these ruins are the AWOIS item. Remove charted ruins at lat. 48/3/2.7N, long. 122/46/5.8W.

Proprietary

YEARSUNK NIMANUM

Print Record

AWOIS 52689 Pile Disproval



Detached Position 20000—AWOIS 52689 disproval

RECRD 52690 VESSLTERMS OBSTRUCTION CHART 18464 AREA N
CARTOCODE 067 SENDINGCODE DEPTH

LAT83 48/02/32 LONG83 122/45/55 NATIVDATUM 06
LATDEC: 48.042222222222 LONDEC: 122.76527777778 GPQUALITY Med
GPSOURCE Direct

PROJECT OPR-N326-RA-02 ITEMSTATUS Assigned SEARCHTYPE Full
RADIUS 100 INIT DAS ASSIGNED 2/1/2001
TECNIQ VS, DI, S4

Techniqnote

History HISTORY
H8910/1966-- A pile in lat. 48-02.55, lon. 122-45.84 charted from air photographs of 1965 was not visible above the water surface and was not investigated during the present survey. Because submerged remains may exist, it was carried forward to the present survey as a submerged pile. (ENT DAS 2/01/01)

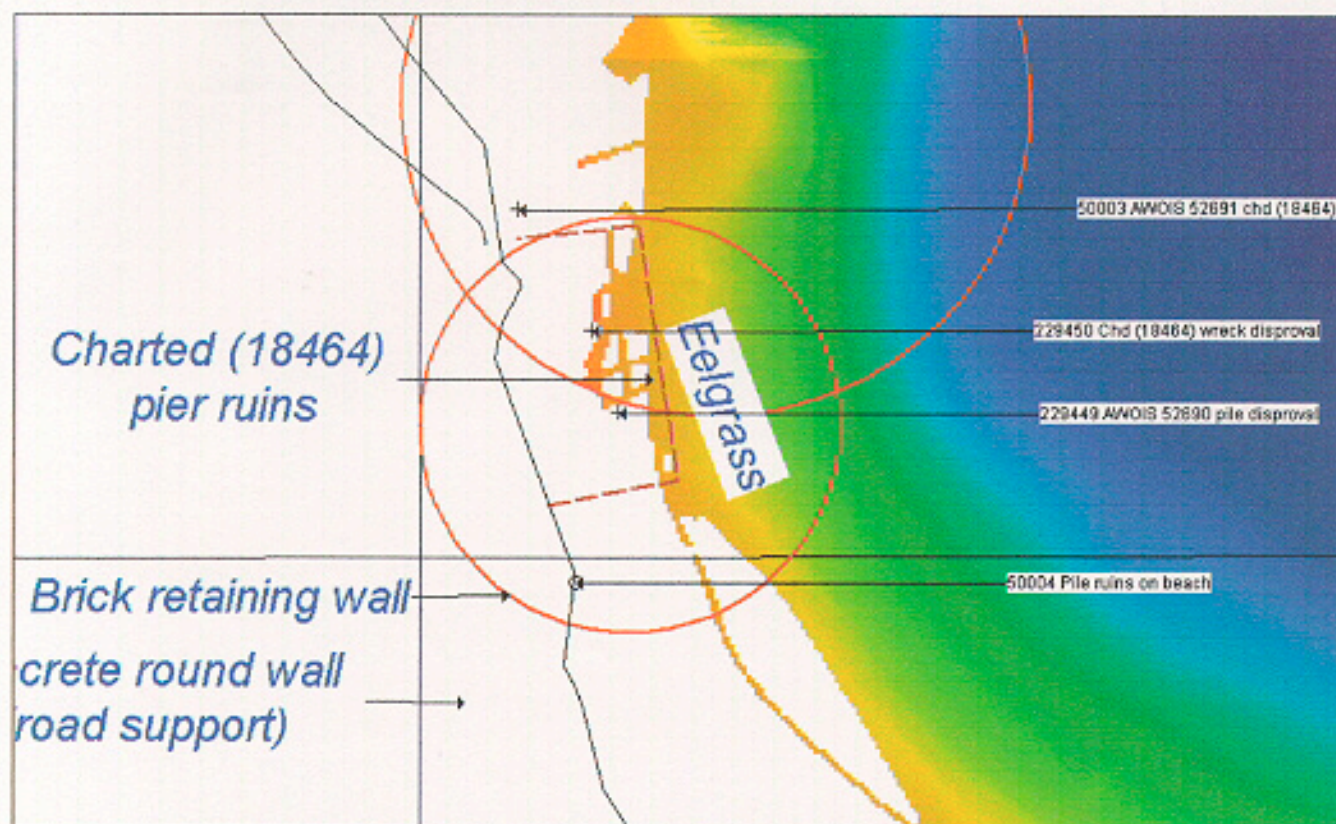
Fieldnote INVESTIGATION
DATE(S): 10/21/2002 (DN: 294)
VN: 2122 TIME: 00:05:36
INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER) Dive investigation, 100% SWMB, visual search, detached position.
SURVEYED POSITION: LAT. 48° 02' 32.16" N LON. 122° 45' 55.21" W (517,490.5E, 5,321,024.6N) Pos. #229449
POSITION DETERMINED BY: DIFFERENTIAL GPS
INVESTIGATION SUMMARY: The charted 18464 submerged pile was disproved with a circle search dive investigation. See attached dive investigation form. The charted 18646 pile was also covered with one hundred per cent SWMB to the limit of safe vessel navigation. A five minute visual search was performed and detached position taken (Pos. #229449). Water visibility was ten feet and sea conditions were flat. The charted 18464 pier ruins surrounding the pile at 48°02'33.12 N, 122°45'54.34 W (517,508.48 E, 5,321,054.34 N) were not seen. The dive investigation saw no sign of the ruins. A six minute visual and echosounder search (VN 2121, DN 292, 000_1726) was performed within a eighty meter search radius. Sea conditions were zero and water visibility was clear to the bottom to a depth of three meters. One hundred per cent SWMB was run over the ruins to the limit of safe vessel navigation.
See attached photo.
CHARTING RECOMMENDATION (HYDROGRAPHER): The Hydrographer recommends removing the pile and surrounding pier ruins from the chart.
EVALUATOR COMMENTS: Concur

Proprietary

YEARSUNK NIMANUM

Print Record

AWOIS 52690 Pile and Pier Ruins Disproval



Detached Position 229449—AWOIS 52690 pile disproval

RECRD VESSLTERMS CHART AREA
CARTOCODE SNDINGCODE DEPTH

LAT83 LONG83 NATIVDATUM
LATDEC: LONDEC: GPQUALITY
GPSOURCE

PROJECT ITEMSTATUS SEARCHTYPE
RADIUS INIT ASSIGNED
TECNIQ

Techniqnote

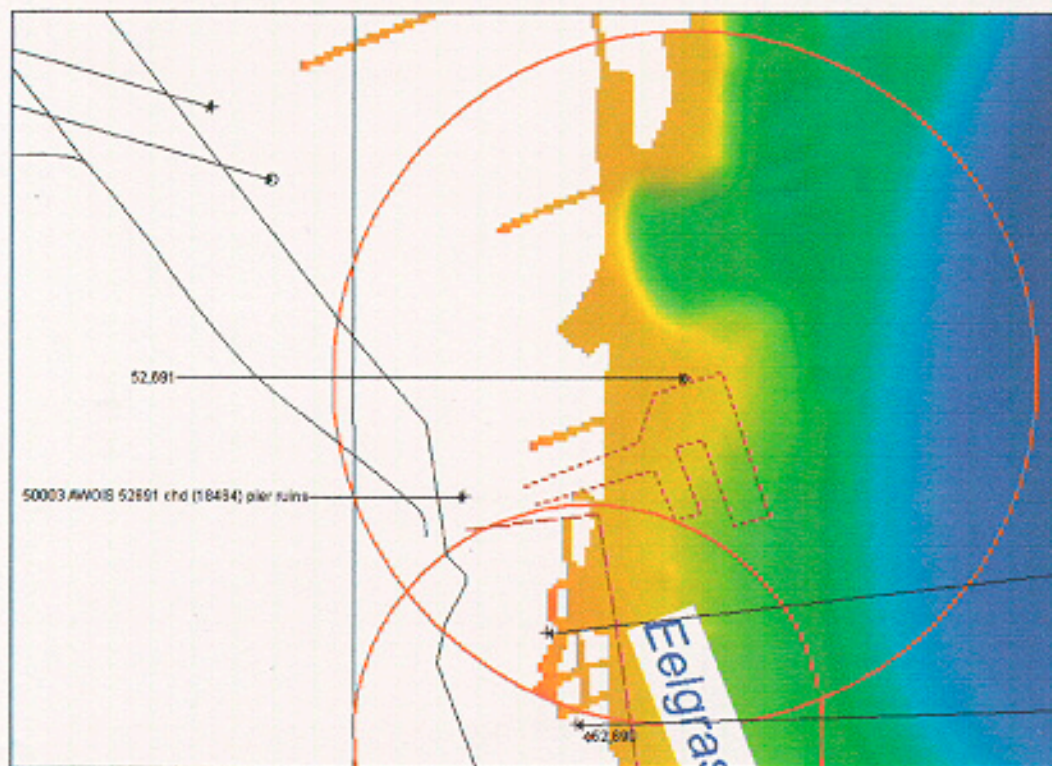
History
Charted pier in ruins.
H8910/1966-- Pier in ruins in lat. 48-02.62, lon. 122-45.80 charted from T-4224/1926. Present survey shows the inshore end of ruins. The offshore area was not investigated for submerged remains. (ENT DAS 2/01/01)

Fieldnote
DATE(S): 3/21/2002 (DN:080)
VN: 2121 TIME: 17:07:38
INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER) Visual search, detached position, 100% SWMB.
SURVEYED POSITION: LAT. 48° 02' 35.35" N LON. 122° 45' 57.54" W (517,442 E, 5,321,122.9 N) Pos. #50003
POSITION DETERMINED BY: DIFFERENTIAL GPS
INVESTIGATION SUMMARY: The charted 18464 pier ruins were found on shore at high water in the form of a broken concrete slab near the water's edge (Pos. #50003) and pieces of wood high upon the beach. No submerged remains were found with one hundred per cent SWMB.
See attached photographs.
CHARTING RECOMMENDATION (HYDROGRAPHER): The Hydrographer recommends charting the new position of the ruins on shore.
EVALUATOR COMMENTS: Concur, and remove charted ruins.

Proprietary

YEARSUNK NIMANUM

AWOIS 52691 Pier Ruins



RECRD 52693 VESSLTERMS OBSTRUCTION CHART 18464 AREA N
CARTOCODE 085 SNDINGCODE DEPTH

LAT83 48/02/47.33 LONG83 122/44/29.60 NATIVDATUM 06
LATDEC: 48.046480555556 LONDEC: 122.741555555556 GPQUALITY Med
GPSOURCE Direct

PROJECT OPR-N326-RA-02 ITEMSTATUS Assigned SEARCHTYPE Full
RADIUS 200 INIT DAS ASSIGNED 2/1/2001
TECNIQ VS, SD, S2, ES, SWMB
Techniqnote Acquire detached positions to delineate extents of structure outside search radius.

History HISTORY
CL922/83-- USACOE permit for installation of floating fish pens issued to Domsea Farms, Inc., 6720 Old Belfair Hwy., Bremerton, WA. Approx. SE corner lat. 42-02-48 lon. 122-44-25; proposed approx. dimensions: 807 ft. NW-SE, 132 ft. SW-NE; Purpose: commercial fish rearing with protective log boom. (ENT DAS 2/01/01)

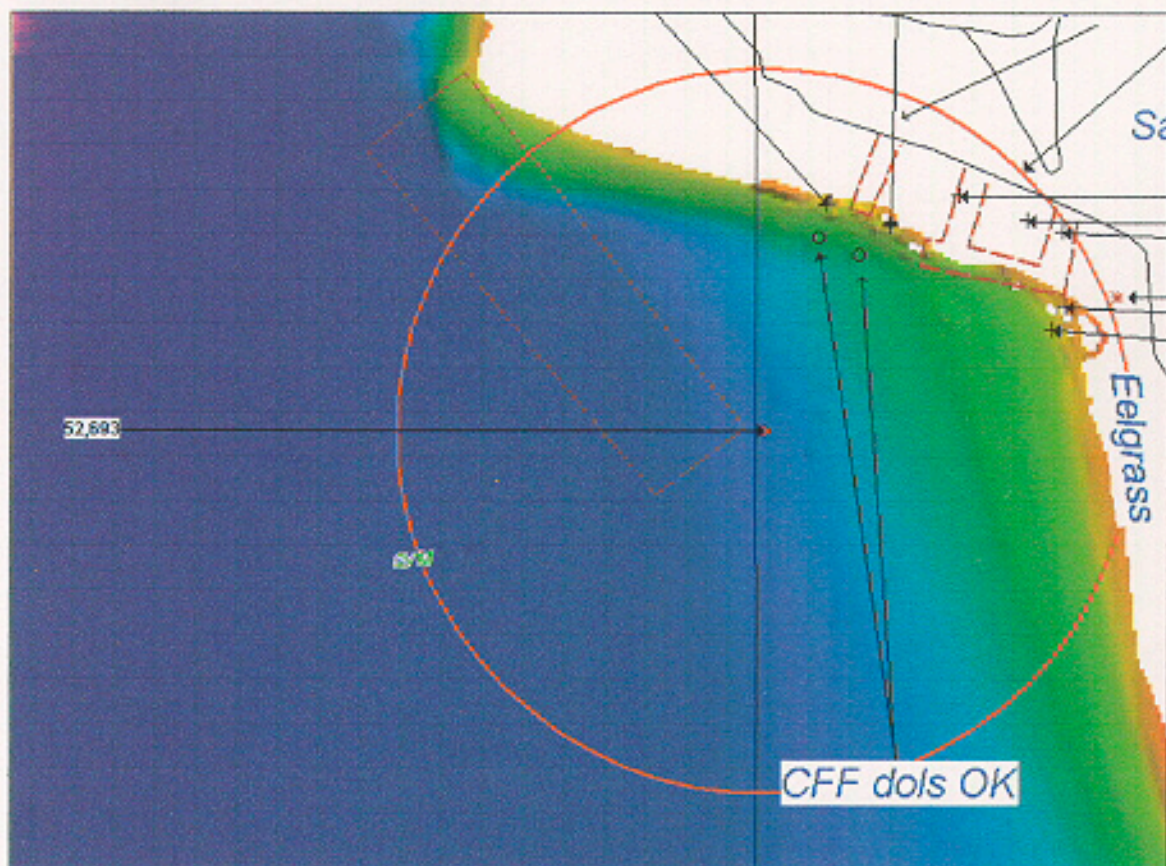
Fieldnote INVESTIGATION
DATE(S): 3/21/2002 (DN: 080)
VN: 2123 TIME: 21:26:00
INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER) 100% SWMB.
SURVEYED POSITION: LAT. 48° 02' 47.33" N LON. 122° 44' 29.6" W
POSITION DETERMINED BY: DIFFERENTIAL GPS
INVESTIGATION SUMMARY: The charted 18464 fish pen was disproved with one hundred per cent SWMB (VN 2123, DN 80, LN 006_2140).
See attached photo.
CHARTING RECOMMENDATION (HYDROGRAPHER): The Hydrographer recommends removing the fish pen from the chart.
EVALUATOR COMMENTS: Concur

Proprietary

YEARSUNK NIMANUM

Print Record

AWOIS 52693 Charted (18464) Fish Pen



AWOIS 52693—Chd (18464) fish pen disproval

RECRD VESSLTERMS CHART AREA
CARTOCODE SNDINGCODE DEPTH

LAT83 LONG83 NATIVDATUM
LATDEC: LONDEC: GPQUALITY
GPSOURCE

PROJECT ITEMSTATUS SEARCHTYPE
RADIUS INIT ASSIGNED
TECNIQ

Techniqnote

History **HISTORY**
H8910/1966-- Piling in lat. 48-03.45, lon. 122-44.40 charted from planetable survey T-6885a/1941 were not visible above the water surface and were not investigated during the present survey. Because submerged remains may exist, they were carried forward to the present survey as submerged piles. (ENT DAS 2/01/01)

Fieldnote **INVESTIGATION**

DATE(S): 10/21/2002 (DN: 294)

VN: 2122 TIME: 00:31:02 Pos. #229457

INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER) Dive investigation, 100% SWMB, visual search, detached position.

SURVEYED POSITION: 48° 03' 25.71" N 122° 44' 28.25" W (519,285.4E, 5,322,683.7N)

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: The charted 18464 submerged piles were disproved with a circle search dive investigation. See attached dive investigation form. The charted 18646 piles were also covered with one hundred per cent SWMB to an inshore depth of less than a meter. A fifteen minute visual search was performed and detached position taken (Pos. #229457). Water visibility was ten feet and sea conditions were flat.

See attached photo.

CHARTING RECOMMENDATION (HYDROGRAPHER): The Hydrographer recommends removal of the charted 18464 piles.

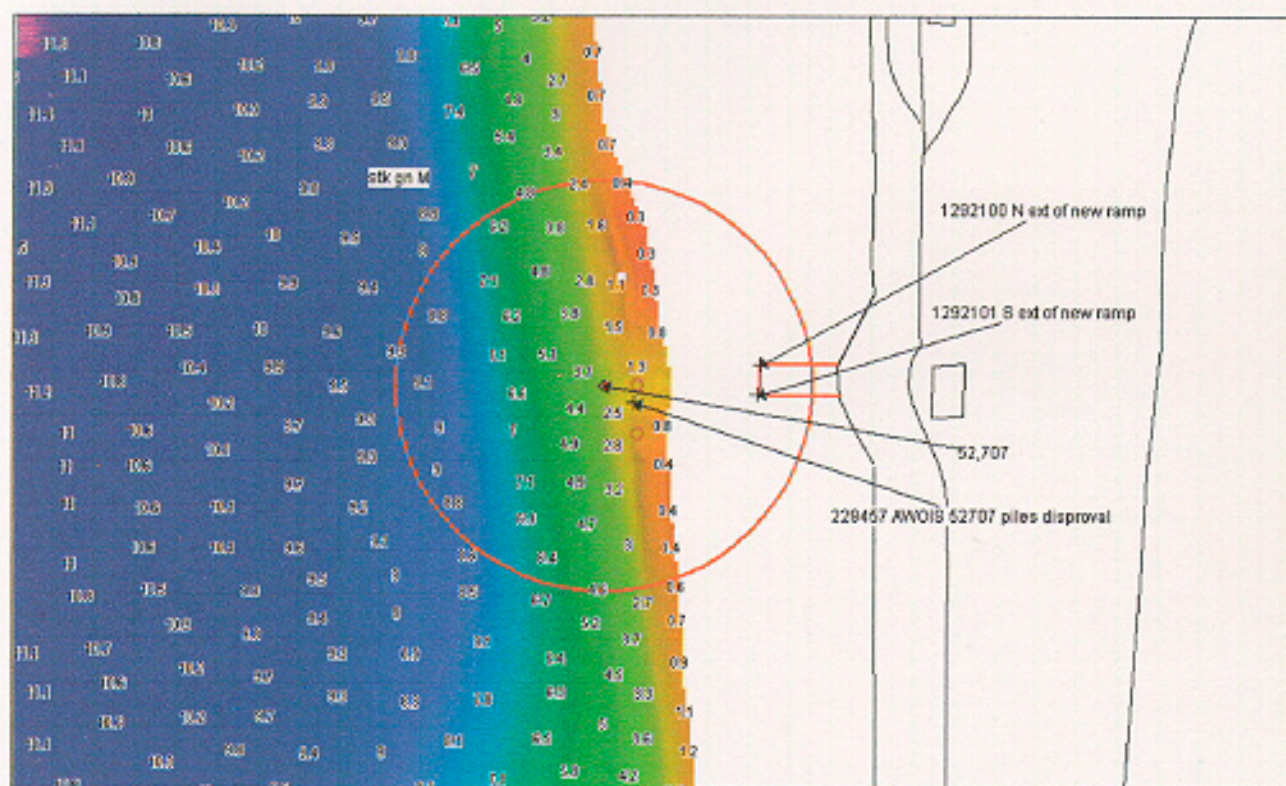
EVALUATOR COMMENTS: Concur

Proprietary

YEARSUNK NIMANUM

[Print Record](#)

AWOIS 52707 Piles Disproval



Detached Position 229457—AWOIS 52707 piles disproval

RECRD VESSLTERMS CHART AREA
CARTOCODE SENDINGCODE DEPTH

LAT83 LONG83 NATIVDATUM
LATDEC: LONDEC: GPQUALITY
GPSOURCE

PROJECT ITEMSTATUS SEARCHTYPE
RADIUS INIT ASSIGNED
TECNIQ

Techniqnote

History
Charted ruins. Source unknown. Aprox. position scaled in MapInfo from NOS chart 18464, 22nd ed. March, 1998 at 48/02/10.15N, 122/44/0.22W. (Ent. DAS 2/01/02)

Fieldnote
DATE(S): 3/21/2002 (DN: 080)
VN: 2121 TIME: See below
INVESTIGATION METHODS USED: (IE DI, 200% SIDE SCAN SONAR, ECHO SOUNDER) Visual search, detached positions.
SURVEYED POSITION:
48° 02' 07.280" N 122° 44' 00.710" W (519,863.70 E, 5,320,264.20 N) Time: 21:07:20 Pos. #50036
48° 02' 09.100" N 122° 44' 00.350" W (519,871.10 E, 5,320,320.50 N) Time: 21:13:13 Pos. #50037
48° 02' 00.160" N 122° 44' 00.180" W (519,874.40 E, 5,320,337.30 N) Time: 21:16:20 Pos. #50038
48° 02' 10.590" N 122° 44' 00.300" W (519,872.00 E, 5,320,366.30 N) Time: 21:19:51 Pos. #50039
48° 02' 10.400" N 122° 44' 00.330" W (519,871.30 E, 5,320,360.70 N) Time: 21:23:30 Pos. #50040
48° 02' 08.334" N 122° 44' 00.854" W (519,860.74 E, 5,320,296.73 N) Time: 01:03:09 Pos. #2108
48° 02' 07.463" N 122° 44' 00.540" W (519,867.34 E, 5,320,269.86 N) Time: 01:06:41 Pos. #2109
POSITION DETERMINED BY: DIFFERENTIAL GPS
INVESTIGATION SUMMARY: The charted 18464 ruins were found as pile ruins (Pos. #50036, 50039-40) and metal posts (Pos. #50038, 2108-2109). The CFF ruins were found as pile ruins as well (Pos. #50037).
See attached digital photographs.
CHARTING RECOMMENDATION (HYDROGRAPHER): The Hydrographer recommends charting the new extents and positions of the charted and CFF pile ruins.
EVALUATOR COMMENTS: Concur, see smooth sheet for depiction of the area.

Proprietary

YEARSUNK NIMANUM

AWOIS 52922 Charted 18464 Pile Ruins



Detached Position 50036—SWM ext pile ruins



**Detached Position 50037—CFF row of piles
Fence enclosing Indian Island Naval Facilities extends to shore**

AWOIS 52922 Charted 18464 Ruins



Detached Position 50038—Charted metal ruins



**Detached Positions 50039-50040—N and S extents
charted pile ruins**

Hydrographic Survey Registry Number: H11040

Survey Title: State: Washington
Locality: Puget Sound
Sub-locality: Walan Point to Port Townsend Canal

Project Number: OPR-N326-RA

Survey Dates: March 20 to 23, 2002 and October 19 to 31, 2002

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

CHARTS AFFECTED:

Chart	Scale	Edition	Date
18464	1:20,000	22 th	March 22, 1998

DANGERS TO NAVIGATION:

Feature	Depth(fms)	Latitude	Longitude
Shoal	9.5	48/02/17	122/44/51
Obstruction	1.1	48/02/06	122/45/06
Shoal	6.3	48/02/01	122/44/50

COMMENTS:

Questions concerning this report should be directed to the Commanding Officer, NOAA Ship RAINIER, at (206) 553-4794 (inport November through mid-March), (877) 665-6533 (at sea, mid-March through November), or by e-mail at co.rainier@noaa.gov.

Danger to Navigation Report

Hydrographic Survey Registry Number: H11040

Survey Title:

State: WASHINGTON

Locality: PUGET SOUND

Sub-locality: WALAN POINT TO PORT TOWNSEND CANAL

Project Number: OPR-N326-RA-02

Survey Dates: MARCH TO OCTOBER, 2002

Depths are reduced to Mean Lower Low Water using verified tides.

Positions are based on the NAD83 horizontal datum.

CHARTS AFFECTED:

<u>Chart</u>	<u>Scale</u>	<u>Edition</u>	<u>Date</u>
18464	1:20,000	23rd	04/01/03

DANGER:

<u>Feature</u>	<u>Depth (Fms and Ft)</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
Sounding	1fms 5 ft	48/01/44.1	122/43/44.2
Sounding	2fms	48/01/42.9	122/43/43.2
Sounding	1 fms 5ft	48/01/53.3	122/43/54.5
Sounding	2 fms	48/01/34.5	122/43/36.3

It is recommended that the mariner use caution, because of shoaling, when transiting the Port Townsend Canal between lat 48/01/53.3N, long 122/43/54.5 and lat 48/01/34.5N, long 122/43/36.3W.

COMMENTS: The DTONs noted above were found during office processing of survey H11040.

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

NOAA Ship RAINIER
April 11, 2003

United States Coast Guard District Thirteen
Commander (OAN)
Federal Building, Room 3510
915 Second Avenue
Seattle, WA 98174-1067

Commander (OAN):

Four fixed Aids to Navigation in the Port Townsend area were positioned to Third Order Class I standards in the process of NOAA Ship RAINIER's scheduled hydrographic survey operations. Using the accurate positions generated by these static GPS surveys, current charts and publications were evaluated for agreement. Enclosed are corrections recommended for the Light List Volume VI (2002 Edition, corrected through NTM 10/03). Existing text recommended for deletion is shown with a strike-through. New recommended for addition is shown in red. Full documentation of the above static surveys is included in the Hydrographic Survey Project OPR-N326-RA-02 Horizontal and Vertical Control Report:

"The static surveys conducted on October 31 and November 1, 2002 successfully positioned the selected ATONs in the Port Townsend area to Third Order Class I standards. The Hydrographer recommends 'Table 2. Final Positions for Charting' be used for charting and publication purposes." (p.6)

"Current positions as published on chart 18471 (8th Edition, January 19, 2002, corrected through NTM 07/03) are in agreement with the results of these static surveys. The positions published in the Light List Volume VI (2002 Edition, corrected through NTM 10/03) are within 0-3.1 arc seconds (approximately 0-93 meters) of these results. The Hydrographer recommends issuing a Notice to Mariner correction to edit the Light List to agree with Table 2. The recommendations have been communicated to the U.S. Coast Guard District 13." (p.7)

For any questions please contact the NOAA Ship RAINIER's Horizontal Control Officer, ENS Amanda Bittinger, by email at Amanda.Bittinger@noaa.gov.

Sincerely,

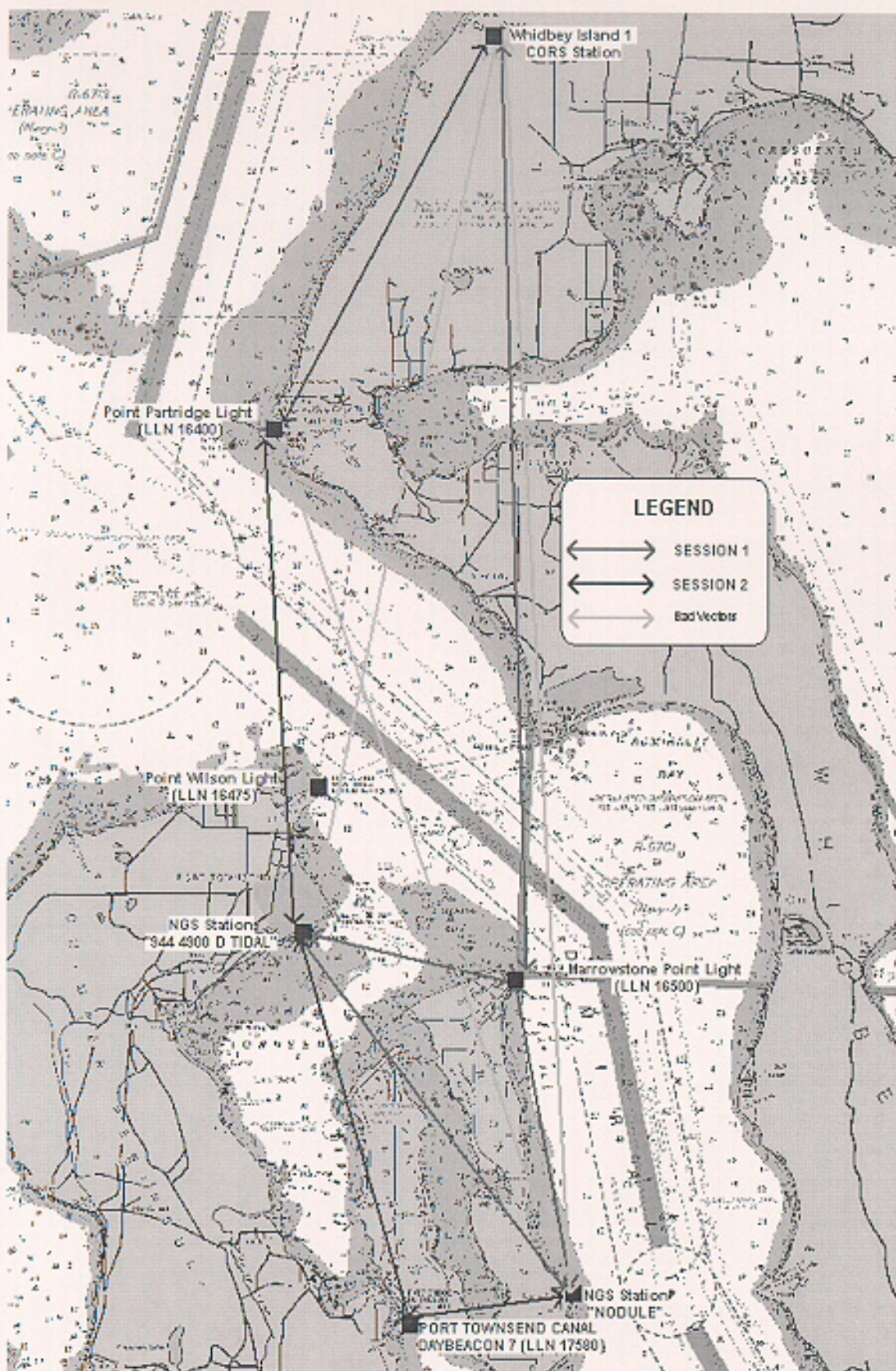
CAPT James C. Gardner, NOAA
Commanding Officer

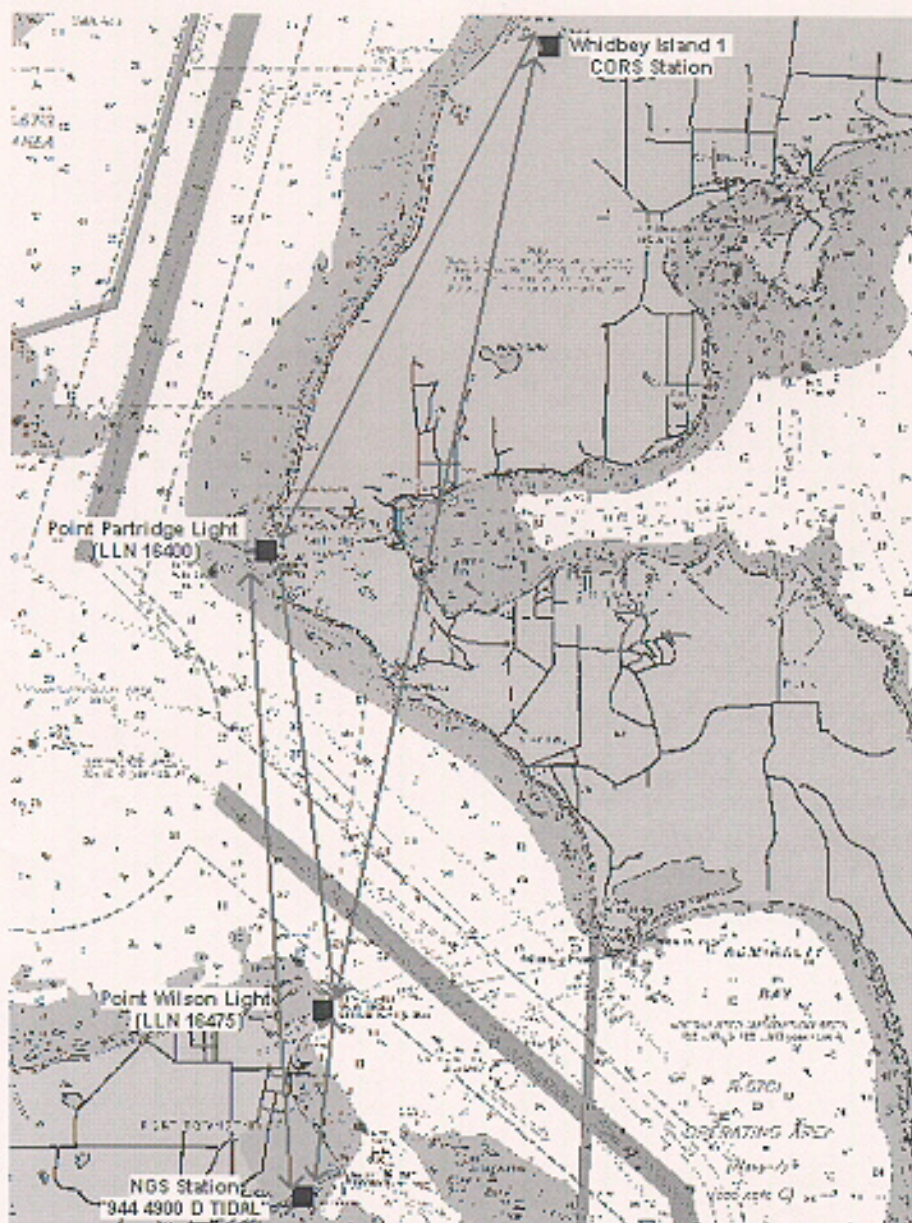
Enclosures

cc: N/CS34 Pacific Hydrographic Branch

(1) No.	(2) Name and Location	(3) Position	(4) Characteristic	(5) Height	(6) Range	(7) Structure	(8) Remarks
WASHINGTON - Thirteenth District							
16400	Point Partridge Light	48 13 30 29 N 122 46 42 10 W	Fl W 5s	105	18	NB on skeleton tower HORN: 1 blast ev 30s (3s bl).	(NTM 10/03) Lighted throughout 24 hours.
...							
16475	Point Wilson Light	48 08 36 39 N 122 45 48 17 W	Oc W & Fl R 20s 15s W fl 2.4s ec. 0.2s R fl 2.5 ec.	51	W 16 R 15	White octagonal tower on fog signal building	Emergency light Iso W 6s. Lighted throughout 24 hours. HORN: 1 blast ev 30s (3s bl).
...							
16500	MARROWSTONE POINT LIGHT	48 06 06 N 122 41 48 16 W	Oc W 4s	28	9	White Square Structure 20	Light obscured from 040° to 090° HORN: 2 blasts ev 30s (2s bl- 2s sl-2s bl-2.4s sl).

(1) No.	(2) Name and Location	(3) Position	(4) Characteristic	(5) Height	(6) Range	(7) Structure	(8) Remarks
WASHINGTON - Thirteenth District							
17580	Canal Daybeacon 7	48 01 26 N 122 43 24 W				SG on dolphin.	Ra ref.







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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: December 23, 2002

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-N326-RA-2002
HYDROGRAPHIC SHEET: H11040

LOCALITY: Port Townsend, WA
TIME PERIOD: March 20 - 24, 2002 and October 19-31, 2002

TIDE STATION USED: 944-4900 Port Townsend, Admiralty Inlet, WA
Lat. 48° 06.1'N Lon. 122° 45.5'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.387 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: PS107, PS108, PS109, PS110 & PS120.

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.

Thomas N. Yess 1/2/03

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION



Final tide zone node point locations for OPR-N326-RA-2002, Sheet H11040.

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 PS107	944-4900	+6	1.02
-122.722556 48.095097			
-122.724443 48.093897			
-122.733822 48.090445			
-122.735407 48.088144			
-122.736199 48.085046			
-122.735803 48.081328			
-122.736414 48.062154			
-122.774412 48.055459			
-122.806905 48.074539			
-122.801472 48.100223			
-122.779814 48.107002			
-122.777472 48.104515			
-122.750272 48.099214			
-122.722556 48.095097			
Zone PS108	944-4900	+12	1.05
-122.736414 48.062154			
-122.735316 48.03833			
-122.738401 48.033465			
-122.741735 48.032067			
-122.745987 48.030725			
-122.751072 48.030781			
-122.772494 48.041963			
-122.774412 48.055459			
-122.736414 48.062154			
Zone PS109	944-4900	+18	1.07
-122.751072 48.030781			
-122.748256 48.026801			
-122.733648 48.03106			
-122.729563 48.03257			
-122.735316 48.03833			
-122.738401 48.033465			

-122.741735 48.032067
-122.745987 48.030725
-122.751072 48.030781

Zone PS110

944-4900

+24

1.09

-122.733648 48.03106
-122.728439 48.026518
-122.726072 48.027243
-122.727425 48.030328
-122.729563 48.03257
-122.733648 48.03106

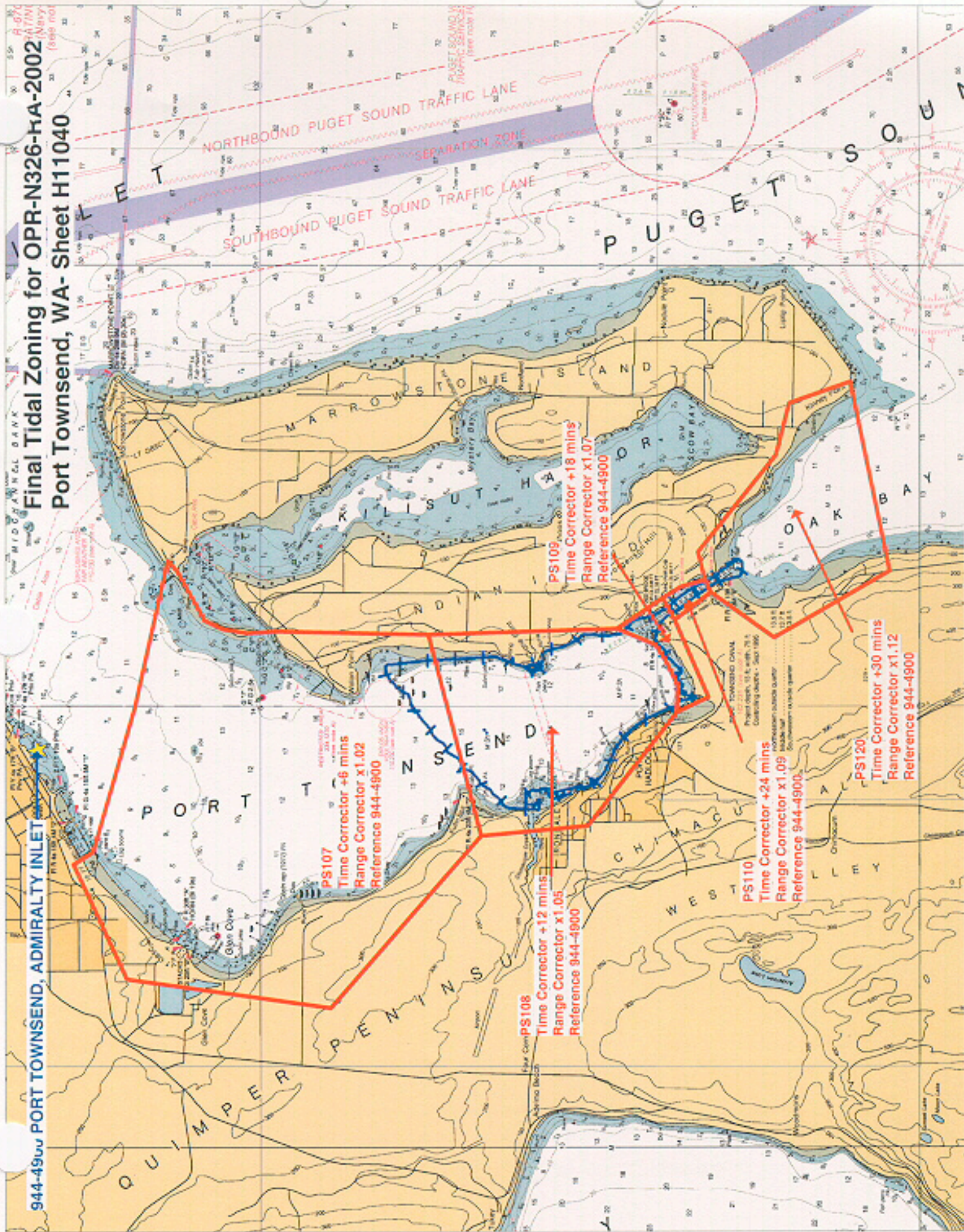
Zone PS120

944-4900

+30

1.12

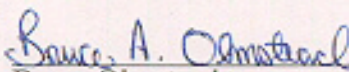
-122.728439 48.026518
-122.736983 48.018528
-122.72438 48.003854
-122.688677 48.008845
-122.69269 48.016595
-122.702464 48.018278
-122.720835 48.028123
-122.726072 48.027243
-122.728439 48.026518



APPROVAL SHEET
H11040


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 disproof 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.


Bruce Olmstead
Cartographic Team
Pacific Hydrographic Branch

Date: 10/19/2005

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.


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

Date: 25 Oct. 2005

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-11040

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

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

[illegible]