H11190

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-10-18-02**

Registry No. **H-11190**

LOCALITY

State **Washington**

General Locality **Puget Sound**

Sublocality **Point Jefferson to Kingston**

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

H-11190

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 10-18-02

State **Washington**

General Locality **Puget Sound**

Sublocality **Point Jefferson to Kingston**

Scale **1:10,000** Date of Survey **11/05/2002-11/22/2002**

Instructions Date **3/5/2002** Project No. **OPR-N326-RA-02**

Change #1 10/03/2002, Change #2 11/01/2002

Vessel **RAINIER (2120), RA-1(2121), RA-2 (2122,) RA-4 (2124) RA-5(2125)**

Chief of Party **CAPT James C. Gardner, NOAA**

Surveyed by **Ship personnel and physical scientists from Pacific & Atlantic Hydrographic Branches**

Soundings taken by echo sounder, hand lead, pole **Seabeam/Elac 1050DMK, Knudson 320 M**

Graphic record scaled by **RAINIER PERSONNEL**

Graphic record checked by **RAINIER PERSONNEL**

Evaluation by **R. Shipley** Automated plot by **HP Design Jet 1050C**

Verification by **E. Domingo, R. Shipley**

Soundings in **Fathoms** at **MLLW**

REMARKS: **All times are UTC.**

Revisions and annotations appearing as endnotes were generated during office processing.

All depths listed in this report are referenced to mean lower low water unless otherwise noted.

UTM Projection (zone 10).

Descriptive Report to Accompany Hydrographic Survey H11190

Project OPR-N326-RA-02
RA-10-18-02
Point Jefferson to Richmond Beach[1]
Puget Sound
Washington
Scale 1:10,000
November 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-02, dated March 21, 2002, Change 1: Amendment to Instructions dated October 3, 2002, and Change 2: Amendment to Instructions dated November 1, 2002. and the Draft Standing Project Instructions as updated for 2002. The survey area is located northeast of Port Madison in Puget Sound from Point Jefferson to Richmond Beach. This survey corresponds to sheet "K" 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 20 meters to define the four-meter curve and to aid in the planning of SWMB data acquisition.[2]

Data acquisition was conducted from November 5 to November 22, 2002 (DN 309 to 326).

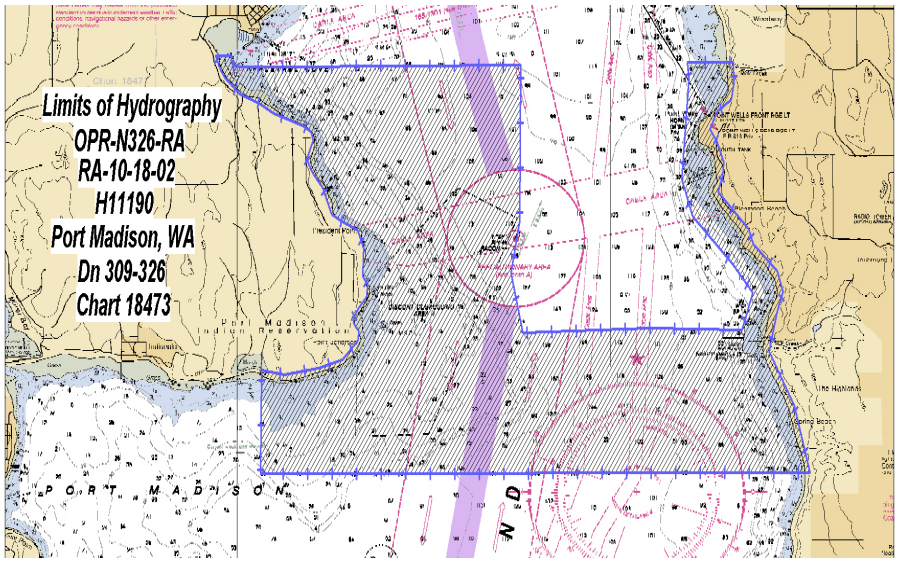

Figure 1. H11190 Survey Limits.

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-N326-RA-02 Data Acquisition and Processing Report,*[3] 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 and her survey launches (vessel numbers 2120, 2121, 2122, 2124, 2125). Vessels 2120, 2124, 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) for shoreline verification. No unusual vessel configurations or problems were encountered during this survey.[4]

B2. Quality Control

Crosslines

Vertical Beam Echo Sounder (VBES) crosslines totaled 4.10 nautical miles, comprising 10.9% of mainscheme hydrography. Crosslines generally agreed within 1 meter of mainscheme hydrography.

Shallow-Water Multibeam (SWMB) crosslines totaled 18.62 nautical miles, comprising 7.84% of SWMB hydrography. The Quality Control Reports (CARIS HIPS) were run for vessels 2120, 2124, and 2125. The Quality Control Report checkline files for 2120, 2124, and 2125 averaged 97.15%, 100%, and 99.78%, respectively. Each report was compared at a depth tolerance factor of 0.023. All reports conform to International Hydrographic Organization Order 2[5] specifications detailed in Special Publication S-44, Edition 4, as well as NOS Hydrographic Surveys Specifications and Deliverables Manual. See Appendix V for the detailed report.[6]

Junctions

Survey H11190 junctions with H11018. Depth comparisons are unavailable.[7]

Registry #	Scale	Date	Junction side
H11018	1:10,000[8]	2001	Northeast

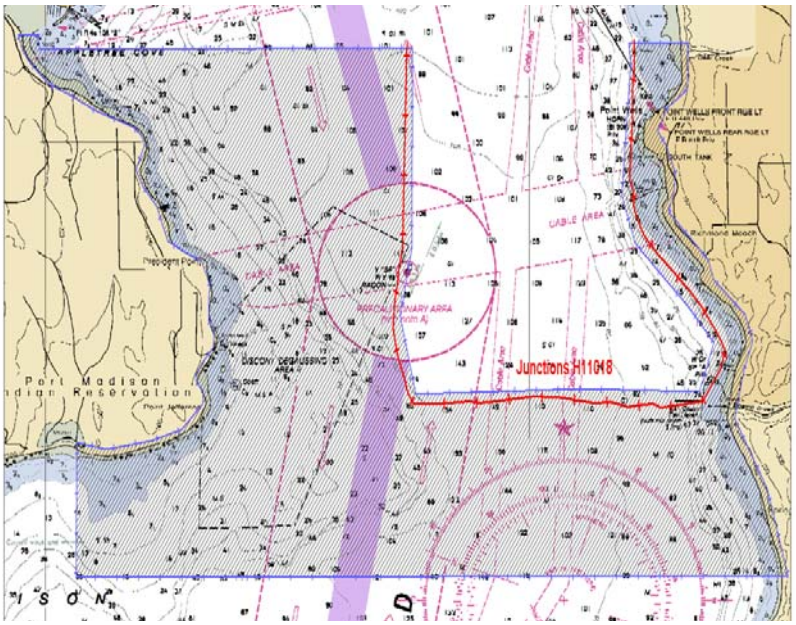

Figure 2: Junctions with Survey H11018

Data Quality Factors

In several areas near shore 10 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 Swath Edit, 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 "H11190_ShorelineNotes" table of the Detached Position and Bottom Sample Plot.

B3. Data Reduction

Data reduction procedures for survey H11190 conform to those detailed in the *OPR-N326-RA-02 Data Acquisition and Processing Report.*

C. VERTICAL AND HORIZONTAL CONTROL

A complete description of vertical and horizontal control for survey H11190 can be found in the *OPR-N326-RA-02 Horizontal and Vertical Control Report*,[9] 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 (302 kHz) were utilized during this survey. Launch-to-launch DGPS performance checks using Robinson Point (323 kHz) and Canadian beacon Amphitrite (315 kHz) as check stations 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 Seattle, WA (944-7130) served as control for datum determination and as the primary source for water level reducers for survey H11190.

All data were reduced to MLLW using unverified observed tides from station Seattle (944-7130), WA using the tide file 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. A request for delivery of final approved (smooth) tides for survey H11190 was forwarded to N/OPS1 on November 26, 2002 in accordance with FPM 4.8. A copy of the request is included in Appendix IV.[10]

D. RESULTS AND RECOMMENDATIONS

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

A total of nine (9) AWOIS items were located within the limits of H11190 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. Printouts of the AWOIS Database forms are included in Appendix VI[11] of this report.

D.2 Chart Comparison

Survey H11190 was compared with chart the following charts:

18440 (25th Ed.; September 2, 2000, 1:150,000)
18441 (42nd Ed.; May 25, 2002, 1:80,000)
18473 (10th Ed.; July 10, 1993, 1:40,000)
18446 (15th Ed.; April 18, 1998, 1:25,000)

All Depths for survey H11190 were identical in comparison with depths on chart 18440.

Depths from survey H11190 were generally one to two fathoms deeper than depths on chart 18441. Exceptions occur near the “SF” buoy. Depths 2-10 fathoms shoaler were found in the northbound traffic lanes south of the “SF” buoy; and depths 10-12 fathoms shoaler were found just outside the southbound traffic lanes west of the “SF” buoy. This can be attributed to increased bottom coverage using SWMB methods.[12]

Depths from survey H11190 were generally one-half to two fathoms deeper than depths on charts 18473. In many instances, this survey found shoaler soundings between charted soundings even though agreement at the position of the charted depths was good. The northbound traffic lane at the southern end of the hydrographic limits are variable. Surveyed depths are both shoaler and deeper than charted depths. This can be attributed to increased bottom coverage using SWMB methods.[13]

Depths from survey H11190 were generally 0-10 feet shoaler than charted depths; and depths abeam of President Point are within 20 feet of charted depths on chart 18446. In many instances, this survey found shoaler soundings between charted soundings even though agreement at the position of the charted depths were good. This can be attributed to using SWMB methods.[14]

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.

Final chart comparisons will be made at the Pacific Hydrographic Branch after the application of smooth tides.[15]

D.3 Shoreline

Shoreline Source

A complete source shoreline for this survey was not provided. In the absence of any source shoreline, RAINIER personnel digitized chart 18743 in MapInfo and displayed it in HYPACK for field verification. Mistakenly, chart 18473 (1:40,000) was digitized and not the largest scale chart 18446 (1:25,000). A 20-50m southern shift occurred in all digitized features and shoreline when comparing chart 18473 to chart 18446. Two inshore rocks occurred on chart 18446 that were not addressed when using chart 18473 for shoreline verification and should be retained as charted as described in the recommendation section below.

Shoreline Verification

Limited shoreline verification of digitized chart 18473 shoreline was conducted near predicted low water in accordance with the Standing Project Instructions and FPM sections 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 were compared to digitized shoreline from chart 18446 in post-processing, indicating revisions to features found and not found on the verified shoreline. 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.*[16]

A detailed Detached Position Plot[17], in both paper copy and MapInfo format, is provided showing all detached positions with notes relating to each feature. The updated shoreline and features are also depicted on the final sounding plot. New MHW features and changes to the charted MHW shoreline are displayed in red on the "H11190_Shoreline_Update" MapInfo

table. Charted 18446 shoreline is used for reference purposes in the MapInfo table "H11190_Charted_Shoreline" and displayed in brown.

Charted Features

All shoreline was initially verified at MLLW. Additional VBES were used at high water to conduct disprovals.

Charted (18446) rock was disproved with DP#1309316, 47°47'06.40"N , 122°29'30.18"W (538072.6E , 5292541.9N), visually during shoreline verification by conducting a three minute high water VBES search with 2m visibility and calm seas. A new rock was located at DP#1309566, 47°47'06.13"N , 122°29'32.97"W (538014.6E , 5292533.2N). This rock is 53.8 meters inshore of the charted rock above. The Hydrographer believes the new rock to be the same as the charted (18446) rock. The Hydrographer recommends removal of charted (18446) rock and charting of new rock as depicted on DPBS plot.[18]

Charted (18446) wreck was disproved with DP#23101146, 47 °45'48.71"N ,122 °23'14.81"W (545901.9E , 5290199.8), visually during shoreline verification by Hydrographer. A 75m square grid pattern 5 minute VBES search was conducted in calm seas with bottom visibility up to 4m at a 1.67m tide. Hydrographer recommends removal of charted (18446) wreck.[19]

Charted (18446) wreck was disproved with DP#23101268, 47 °46'29.12"N, 122 °23'51.63"W (545125.8E , 52914471.4N[20]), was disproved visually during shoreline verification by Hydrographer. A 75m square grid pattern 5 minute VBES search was conducted in calm seas with bottom visibility up to 4m at a 2.72 tide. Hydrographer recommends removal of charted (18446) wreck.[21]

Charted (18446) pile at position 47°45'23.56"N, 122 017628'10.34"W (539755.8E, 5289377.9N) was disproved visually by divers with DP#3260104. A flat insignificant pile was found lying on the bottom. Hydrographer recommends removal of charted (18446) pile.[22]

Chart (18473) rock was disproved with DP# 1309901, 47°44'36.02"N, 122°29'16.79"W (538382.1E, 5287901.1N), visually during shoreline verification by conducting a three minute high water VBES search with 2m visibility and calm seas.[23]

Charted (18446) features in "Table 1. Charted Features Disprovals" were disproved at high water in calm seas using VBES. Bottom was visible in the area of all disproved features. The Hydrographer recommends removal of all items.[24]

A new wreck was found during SWMB acquisition, DP#3260101, 47° 44' 24.42"N, 122° 29' 41.24"W (537875.3E, 5287539.4N). It was visually verified by divers in 8m visibility to be a sailboat lying on its starboard side. Hydrographer recommends charting a wreck with a least depth of 4.4 fathoms[25] as depicted on the DPBS plot.[26]

Feature	DP#	Latitude (N)	Longitude (W)	Easting (E)	Northing (N)	Search (min)	Visibility (m)
snag	1309529	47°47’28.56”	122°30’04.43”	537357.2	5293218.2	3	2
ruin	1309360	47°46’29.31”	122°28’56.16”	538788.1	5291401.6	3	2
rock	1309716	47°46’10.33”	122°28’38.65”	539156.6	5290817.8	3	2
rock	1309866	47°44’52.87”	122°28’21.76”	539524.5	5288429.0	3	2
rock	1309870	47°44’51.17”	122°28’23.58”	539487.0	5288376.1	3	2
rock	1309872	47°44’49.21”	122°28’26.01”	539436.6	5288315.3	3	2
rock	1309876	47°44’43.92”	122°28’37.89”	539190.4	5288150.4	3	2
3 rocks	1309902	47°44’37.15”	122°29’09.19”	538540.1	5287937.0	3	2
rock	1309903	47°44’39.18”	122°28’55.15”	538832.6	5288001.5	3	2
rock	1309885	47°44’41.53”	122°28’46.71”	539007.4	5288075.2	3	2
rock	1309883	47°44’42.15”	122°28’44.23”	539058.7	5288094.9	3	2
dolphin	1309880	47°44’40.73”	122°28’40.34”	539140.0	528805152 [27]	3	2
rock	2309442	47°44’49.34	122°22’57.73”	546272.1	5288369.9	5	4
rock	2309421	47°44’57.53	122°22’58.78”	546248.3	5288622.6	5	4

Table 1. Charted Features Disprovals

Recommendations

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 charts as noted. [28] In addition, field notes made by the Hydrographer, including verification of charted features are submitted in the digital MapInfo file “H11190_Shoreline_Notes.”

D.4 Dangers to Navigation

No dangers to navigation were found.[29]

D.5 Aids to Navigation

Four (4) aids to navigation (ATONs) are located within the limits of H11190. “SF” buoy (LLN 16745) was DP’d. Point Wells Front Range Light (LLN 16680), Point Wells Rear Range Light (LLN 16685) were visually verified using chart 18473. The private mooring buoy marking the fish haven was not located on most recent MCD Map Tech. charts 18446 and 18473, however visual comparison with current paper charts 18446 and 18473 corrected thru NTM 15/03 indicate an accurate position. The Hydrographer recommends charting the private mooring buoy marking the fish haven at position 47° 45’ 07.66” N 122° 23’ 09.38” W as previously charted.[30]

D.6 Miscellaneous

Due to time constraints no bottom samples were collected.[31]

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 2002.

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 H11190 is complete and adequate to supersede charted soundings[32] in their common areas. No additional work is required for this survey.[33]

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

Title	Date Sent	Office
Data Acquisition and Processing Report for OPR-N326-RA-02	21 March, 2003	N/CS34
Horizontal and Vertical Control Report for OPR-N326-RA-02	24 May, 2003	N/CS34
Coast Pilot Report for OPR-N326-RA-02	TBD[34]	N/CS26

Approved and Forwarded: James C Gardner 6-25-03

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: Amanda M. Bittinger Nicole M. Rouse

Amanda M. Bittinger and Nicole M. Rouse
Ensigns, NOAA

Field Operations Officer:

Richard A. Fletcher
Lieutenant Commander, NOAA

Revisions Compiled During Office Processing and Certification

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[1] PHB Revision--Strikethrough ~~Richmond Beach~~ and insert “Kingston”.
[2] Concur.
[3] Filed with Hydrographic Records.
[4] Concur.
[5] Do not concur, after office review this survey conforms to IHO order 1 specifications.
[6] Filed with Hydrographic Records.
[7] Concur with clarification. The junction with H11018 was compared during office verification. There was good agreement in the junction.
[8] PHB Revision--Strikethrough ~~10,000~~ and insert “20,000”.
[9] Filed with Project Records.
[10] Approved Tide Note dated December 23, 2002 is attached.
[11] Copies attached to this report.
[12] Concur.
[13] Concur.
[14] Concur.
[15] During office processing, survey H11190 was compared to charts 18446 (17th Ed., Sep. 24, 2005) with very good agreement.
[16] Filed with Hydrographic Records.
[17] Filed with Hydrographic Records.
[18] Concur. Chart using survey information.
[19] Concur.
[20] PHB Revision--Strikethrough ~~52914471.4~~ and add “5291441.4”
[21] Concur.
[22] Concur.
[23] Concur.
[24] Concur.
[25] 26.4 feet
[26] Concur. Chart using survey information.
[27] PHB Revision--Strikethrough ~~528805152~~ and add “5288051.5”
[28] Concur with clarification. Use latest available RSD shoreline information.
[29] Concur.
[30] Do not concur. Latest chart raster available does not show a buoy at this position.
[31] Concur. Some charted bottom samples were retained on the Hdrawing.
[32] and features
[33] Concur with hydrographer’s statements.
[34] No record of submission available.

RECRD	53060	VESSLTERMS	OBSTRUCTION	CHART	18446	AREA	N
		CARTOCODE	067	SNDINGCODE		DEPTH	

LAT83	47/45/04.35	LONG83	122/23/10.5	NATIVDATUM	31
LATDEC:	47.751208333333	LONDEC:	122.38625	GPQUALITY	Med
				GPSOURCE	Scaled

PROJECT	OPR-N326-RA-ch2	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	750	INIT	DAS	ASSIGNED	10/30/2002
TECNIQ	DI, SWMB, HRSS, S2				
Techniqnote	Obtain least depth and delineate extents of fish haven.				

History

HISTORY
Charted fish haven and sewer outfall.
CL329/90--Defense Maping Agency construction permit for artificial reef issued July 5, 1988 with minimum depth of 30 ft.. Fish haven center drawn from construction diagram at at 47/45/05N, 122/23/6W NAD27 and converted to NAD83. The northeast corner is 319 yd. From Mouth of Boeing Creek at bearing N 60 W. The southeast corner is 377 yd. From Mouth of Boeing Creek, S 17 W. Project was prrox. 40% complete April 13, 1988.

Materials: Up to 10,000 cubic yards, 2,000-4,000 tons of large quarry rock and 2,000-4,000 tons of large pre-cast concrete pieces and/or fiberglass modules will be dumpled with barge and bulldozer. Permanent marker bouys installed under US ACOE permit 071-OYB-1-009286.
CL730/50-- Proposed sewer outfall charted from construction application sketch at the mouth of Boeing Creek. Proposed pipe to discharge effluent from sewage treatment plant. (ENT DAS 30 October 2002.)

Fieldnote

INVESTIGATION

DATE(S): 11/05/02 (DN:309)

HYDROGRAPHIC SURVEY NUMBER:H11190

INVESTIGATION METHODS USED: (100m VBES, 100% SWMB)

SURVEYED POSITION: LAT. 47° 45' 05" N LON. 122° 23' 06" W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: Fish haven marker buoy visually verified as charted. Chart fish haven and sewer outfall as charted and shown on DPBS plot. Chart depths as found on this survey.

CHARTING RECOMMENDATION (HYDROGRAPHER): Retain as charted.

EVALUATOR COMMENTS: Do not concur. Latest edition of chart raster does not display buoy. Chart using latest information.

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	**53061**	VESSLTERMS	UNKNOWN	CHART	18446	AREA	N
		CARTOCODE	100	SNDINGCODE		DEPTH	

LAT83	47/46/29.35	LONG83	122/23/52.48	NATIVDATUM	06
LATDEC:	47.774819444444	LONDEC:	122.39791111111	GPQUALITY	Low
				GPSOURCE	Direct

PROJECT	OPR-N326-RA-ch2	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	300	INIT	DAS	ASSIGNED	10/30/2002
TECNIQ	DI, SWMB, HRSS, S2				

Techniqnote

History

HISTORY
LNM46/84--A 40 ft. vessel has sunk in approx. position 47/46.5 N, 122/23.8 W about one half mile southe of Point Wells. The wreck is temporarily marked by an orange buoy showing a quick white light. (ENT DAS 30 October 2002)

Fieldnote

INVESTIGATION

DATE(S): 11/06/02 (DN:310)

HYDROGRAPHIC SURVEY NUMBER:H11190

INVESTIGATION METHODS USED: (VISUAL, ECHO SOUNDER)

SURVEYED POSITION: LAT. 47° 46' 29.12" N LON. 122° 23' 51.63" W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: Charted wreck was disproved visually during shoreline verification by Hydrographer. A 75m square grid pattern 5 min VBES search was conducted in calm seas with bottom visibility up to 4m at a 1.67 m tide. No SWMB was conducted in the area due to depth constraints. Shoal depths between 1.5m and 0.6m were detected.

CHARTING RECOMMENDATION (HYDROGRAPHER): Hydrographer recommends removal of charted (18473) wreck.

EVALUATOR COMMENTS: Concur.

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	53062	VESSLTERMS	UNKNOWN	CHART	18446	AREA	N
		CARTOCODE	098	SNDINGCODE		DEPTH	

LAT83	47/46/17.35	LONG83	122/28/34.48	NATIVDATUM	06
LATDEC:	47.771486111111	LONDEC:	122.47624444444	GPQUALITY	Med
				GPSOURCE	Direct

PROJECT	OPR-N326-RA-ch2	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	500	INIT	DAS	ASSIGNED	10/30/2002
TECNIQ	SD, VI, ES, DI, SWMB, HRSS, S2				

Techniqnote

History

HISTORY
H09743/78--There was no visible evidence of wreck in lat. 47/46.3N, lon. 122/28.5W from CL1541/74; a wire sweep of the area revealed nothing. Local residents had no knowledge of an visible or sunken wreck in the area.
LNM52/74--The National Ocean Survey advises that a derelict ship has been reported to exist in approx. 47/46/18N, 122/28/30W.
CL1541/74--USPS chart inspection, 7/9/1974. Derilict ship reported at 47/46/20N, 122/40/30W (ENT DAS 30 October 2002)
.

Fieldnote

INVESTIGATION

DATE(S): 11/05/02 (DN:309)

HYDROGRAPHIC SURVEY NUMBER:H11190

INVESTIGATION METHODS USED: (VISUAL, POLE)

SURVEYED POSITION: LAT. 47° 46' 19.98" N LON. 122° 28' 46.28" W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: Charted wreck was verified visually at low tide. At high tide the wreck is submerged 0.5m.

CHARTING RECOMMENDATION (HYDROGRAPHER): Retain as charted.

EVALUATOR COMMENTS: Concur with clarification. Surveyed position noted by the hydrographer was not taken on the wreckage. The wreckage was visually verified by the hydrographer and is charted correctly. The AWOIS position is incorrect. This position was covered with 100% multibeam and no wreck was found. Update AWOIS position to the charted position LAT 47/46/22.2 N, LONG 122/28/47.3 W.

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	53063	VESSLTERMS	OBSTRUCTION	CHART	18446	AREA	
		CARTOCODE	067	SNDINGCODE		DEPTH	

LAT83	47/47/01.35	LONG83	122/29/14.49	NATIVDATUM	06
LATDEC:	47.783708333333	LONDEC:	122.48735833333	GPQUALITY	High
				GPSOURCE	Direct

PROJECT	OPR-N326-RA-ch2	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	200	INIT	DAS	ASSIGNED	10/30/2002
TECNIQ	VI, DI, SWMB, HRSS, S2				

Techniqnote

History

HISTORY

H09743/78--The charted pier in ruins near the southern entrance to Appletree Cove were investigated by divers and found to be non-existent with the exceptoin of 3 visible piles at the following DP:
47/47/00.5 122/29/10.4
47/47/00.3 122/29/10.5
47/46/59.9 122/29/10.5

CL1049/69--USPS investigation, 18 Feb. 1967, located pier in ruins at lat. 47/47/01N, lon. 122/29/10. The outermost visible pile position was verified by the C&GS ship DAVIDSON on 7 May 1969 at lat. 47/47/02N, lon. 122/29/10W. There may be more submerged pilings not found by visiual inspection.

CL600/53--Captain Phillip Luther of the Puget Sound Pilots informs us that the warf on the south shore of Appletree Cove is gone. (ENT DAS 30 October 2002)

Fieldnote

INVESTIGATION

DATE(S): 11/05/02 (DN:309)

HYDROGRAPHIC SURVEY NUMBER:H11190

INVESTIGATION METHODS USED: (VISUAL)

SURVEYED POSITION: LAT. 47° 46' 59.57" N LON. 122° 29' 14.84" W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: No obstruction or ruins were found with the exception of 2 piles as charted.

CHARTING RECOMMENDATION (HYDROGRAPHER): Retain as charted.

EVALUATOR COMMENTS: Concur. Chart piles using SS information.

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	53064	VESSLTERMS	OBSTRUCTION	CHART	18446	AREA	N
		CARTOCODE	085	SNDINGCODE		DEPTH	

LAT83	47/47/02.75	LONG83	122/29/19.94	NATIVDATUM	06
LATDEC:	47.784097222222	LONDEC:	122.48887222222	GPQUALITY	High
				GPSOURCE	Direct

PROJECT	OPR-N326-RA-ch2	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	200	INIT	DAS	ASSIGNED	10/30/2002
TECNIQ	VI, DI, SWMB, HRSS, S2				

Techniqnote

History

HISTORY

H09743/78--A short pile was located just offshore of a charted obstruction at lat. 47/47/03.4N, 122/29/19.9W. PSR Item#12, an obstruction was located at lat. 47/47/03.4N, lon. 122/29/19.94W and bares 9 ft. at MLLW.

CL1049/69--USPS investigation, 18 Feb. 1967, located landmark at lat. 47/47/09N, lon. 122/29/33. Landmark consists of concrete foundation remains protruding 6 ft. above MHW and located 100 ft. out from shoreline. The landmark position was verified by the C&GS ship DAVIDSON on 7 May 1969 at lat. 47/47/04N, lon. 122/29/21W. The object appears to be a concrete foundation for the shoreward end of a pier, projecting about 10ft. above MLW. (ENT DAS 30 October 2002)

Fieldnote

INVESTIGATION

DATE(S): 11/05/02 (DN:309)

HYDROGRAPHIC SURVEY NUMBER:H11190

INVESTIGATION METHODS USED: (VISUAL, ECHOSOUNDER)

SURVEYED POSITION: LAT. 47° 47' 02" N LON. 122° 29' 25" W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: Three charted piles were visually verified at the following and DPs:
47/47/02.38 122/29/25.74
47/47/02.57 122/29/24.36
47/47/01.92 122/29/24.39 (charted pile is concrete foundation)

CHARTING RECOMMENDATION (HYDROGRAPHER): Retain as charted.

EVALUATOR COMMENTS: Concur. Chart using SS information.

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	53065	VESSLTERMS	OBSTRUCTION	CHART	18446	AREA	N
		CARTOCODE	067	SNDINGCODE		DEPTH	

LAT83	47/45/07.35	LONG83	122/28/03.48	NATIVDATUM	06
LATDEC:	47.752041666667	LONDEC:	122.46763333333	GPQUALITY	High
				GPSOURCE	Direct

PROJECT	OPR-N326-RA-ch2	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	500	INIT	DAS	ASSIGNED	10/30/2002
TECNIQ	DI, SWMB, HRSS, S2				

Techniqnote

History

HISTORY
CL1673/80--NOAA Ship SURVEYOR, An uncharted obstruction was found in existence at lat. 47/45/08N, lon. 122/27/59W. A sextant fix was taken at the east end of the obstruction and a least depth of 17 feet was determined by lead line on the west end of the obstruction. The obstruction was verified by diver inspection and was found to be a large wooden structure consisting of pilings (8-10 in. diam.) topped with beams (1 ft. sq.). Due to excessive currents, a tape could not be used to measure the obstruction, however, a conservative estimate of size would be 150-175 ft. in length by 20-25 ft. in width with a height varying from 2-20 ft. The submerged structure lies in a 240/060 degree magnetic direction in waters ranging from 35-70 ft. The obstruction was found to have several abandoned gill nets caught on it in an open fishing position. There were several dogfish as well as other smaller fish caught in the nets being fed upon by crabs in the area. (ENT DAS 30 October 2002)

Fieldnote

INVESTIGATION

DATE(S): 11/06/02, 11/20/02 (DN:310, 324)

HYDROGRAPHIC SURVEY NUMBER: H11190

INVESTIGATION METHODS USED: (100% SWMB to 5m curve, 100m VBES spacing to 20m curve)

SURVEYED POSITION: LAT. 47° 45' 07.35" N LON. 122° 28' 03.48" W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: No significant features were detected in the DTM. No depths less than 16.54m were detected within the10 fathom curve at the 2 fathom 5 foot depth charted (18473) in the area.

CHARTING RECOMMENDATION (HYDROGRAPHER): Hydrographer recommends removal of charted obstruction.

EVALUATOR COMMENTS: Concur.

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	53066	VESSLTERMS	UNKNOWN	CHART	18446	AREA	N
		CARTOCODE	102	SNDINGCODE		DEPTH	

LAT83	47/45/48.99	LONG83	122/23/15.21	NATIVDATUM	06
LATDEC:	47.763608333333	LONDEC:	122.38755833333	GPQUALITY	High
				GPSOURCE	Direct

PROJECT	OPR-N326-RA-ch2	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	100	INIT	DAS	ASSIGNED	10/30/2002
TECNIQ	SD, VI, DI, SWMB, HRSS, S2				

Techniqnote

History

HISTORY
H09743/78-- PSR Item #18, Charted sunken wreck from H05709 was visible in part from the launch. It is located in very shallow water iwith a least depth of 0.3 ft. MLLW at lat. 47/45/49.642N, lon. 122/23/10.743W and consists of low wreckage heavily covered with vegitation and nearly indistinguisable from the natural bottom.
H05709/34-35--Verification report remarks: A submerged wreck was shown on the boat sheet but not on the smooth sheet and no mention was made in the record. It was plotted by the verifier at lat. 47/45.8N, lon. 122/23.2W. (ENT DAS 30 October 2002)

Fieldnote

INVESTIGATION

DATE(S): 11/6/02 (DN: 310)

HYDROGRAPHIC SURVEY NUMBER: H11190

INVESTIGATION METHODS USED: (VISUAL, ECHOSOUNDER, SWMB)

SURVEYED POSITION: LAT. 47° 45' 48.71" N LON. 122° 23' 14.81" W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: Charted wreck was disproved visually during shoreline verification by Hydrographer. A 75m square grid pattern 5 min VBES search was conducted in calm seas with bottom visibility up to 4m at a 2.72 m tide.

CHARTING RECOMMENDATION (HYDROGRAPHER): Hydrographer recommends removal of charted (18473) wreck.

EVALUATOR COMMENTS: Concur.

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	53067	VESSLTERMS	UNKNOWN	CHART	18446	AREA	N
		CARTOCODE	100	SNDINGCODE		DEPTH	

LAT83	47/45/24.5	LONG83	122/28/9.78	NATIVDATUM	06
LATDEC:	47.756805555556	LONDEC:	122.46938333333	GPQUALITY	High
				GPSOURCE	Direct

PROJECT	OPR-N326-RA-ch2	ITEMSTATUS	Assigned	SEARCHTYPE	Full
RADIUS	250	INIT	DAS	ASSIGNED	10/30/2002
TECNIQ	DI, SWMB, HRSS, S2				

Techniqnote

History

HISTORY

H09743/78--PSR Item #1 was found by divers to be a dangerous sunken wreck, as charted. Least depths were determined by diver-held lines, with the leas depth located at the southeast end. The wreck lies at an angle of approx. 345T and appears to be approx. 120 ft. long. Local residents confirmed the wreck to be a mine sweeper which sunk at the end of the Navel degaussing station pier.

LNM50/75--The Point Jefferson lighted wreck buoy has been discontinued. The wreck has moved inshore and is now located in lat. 47/45/28N, 122/28/06W in 34 feet of water.

CL331/71--A sunken charted wreck at 47/45/27N, 122/28/03W was investigated on 25 Sept. 1970 by the USC&GS FAIRWEATHER launch FA-3 to verify its location and determine the least depth. The wreck was located and a fix taken at the shoalest depth, 1.1 fathoms by hand lead, The top of the rest of the wreck was submerged about 2 fathoms. The centerline of the wreck lies approx. N-S. Inquiry of Mr. Al Wolfe at the US Navy Degaussing Station on the point, indicated that he believed the wreck was a 140 ft. mine sweeper. Originally, parts of the wreck were exposed at minus tides, but he reported that it had not been visible recently. Mr. Wolfe also reported that the pier charted insshore of the buoy near the wreck had been removed entirely, including stub pilong, etc.; an investigation confirmed this.

NM12/70--A sunken wreck exists in 47/25/27N, 122/28/03W. Point Jefferson lighted wreck buoy established 10 yd. , 090 degrees.

Fieldnote

INVESTIGATION

DATE(S): 11/06/02, 11/22/02 (DN:310,326)

HYDROGRAPHIC SURVEY NUMBER:H11190

INVESTIGATION METHODS USED: (VISUAL, ECHO SOUNDER, DIVE)

SURVEYED POSITION: LAT. 47° 45' 25.32" N LON. 122° 28' 09.61" W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: Charted wreck was visually verified by divers at 5m visibility on a sloping bottom with a debris field 90' long and 25' wide. The least depth is 6.76 m determined by placingdiver least depth gauge at highest point on wreck.

CHARTING RECOMMENDATION (HYDROGRAPHER): Chart wreck with least depth of 6.76m.

EVALUATOR COMMENTS: Concur with clarification. Chart Wk 14 feet.

Proprietary

YEARSUNK NIMANUM

Print Record

RECRD	53068	VESSLTERMS	OBSTRUCTION	CHART	18446	AREA	N
		CARTOCODE	067	SNDINGCODE		DEPTH	

LAT83	47/45/12.35	LONG83	122/22/53.47	NATIVDATUM	06
LATDEC:	47.753430555556	LONDEC:	122.38151944444	GPQUALITY	Low
				GPSOURCE	Scaled

PROJECT	OPR-N326-RA-ch2	ITEMSTATUS	Assigned	SEARCHTYPE	Limited
RADIUS	200	INIT	DAS	ASSIGNED	10/30/2002
TECNIQ	DI, SWMB, HRSS, S2				

Techniqnote

History

HISTORY
CL1619/75--Proposed submarine outfall. Approx. location scaled from USGS quad base vicinity map in construction application by Ronald Sewer District, Sept. 1970. Construction completed 4 May 1971. (ENT DAS 30 October 2002)

Fieldnote

INVESTIGATION

DATE(S): 11/05/02 (DN:309)

HYDROGRAPHIC SURVEY NUMBER:H11190

INVESTIGATION METHODS USED: (VISUAL)

SURVEYED POSITION: LAT. 47° 45' 12.35" N LON. 122° 22' 53.47" W

POSITION DETERMINED BY: DIFFERENTIAL GPS

INVESTIGATION SUMMARY: Sewer visually verified at low tide.

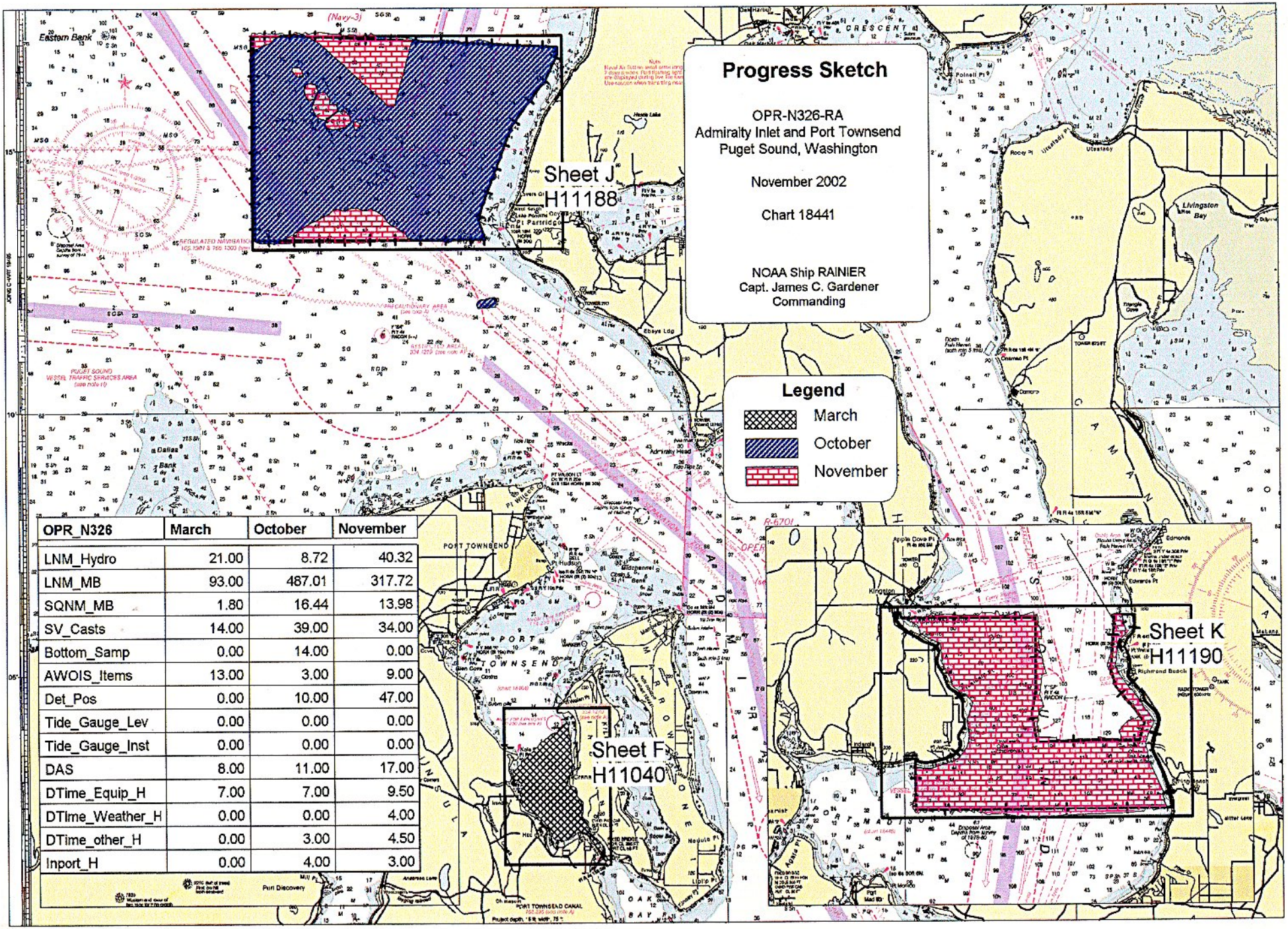
CHARTING RECOMMENDATION (HYDROGRAPHER): Retain as charted.

EVALUATOR COMMENTS: Concur.

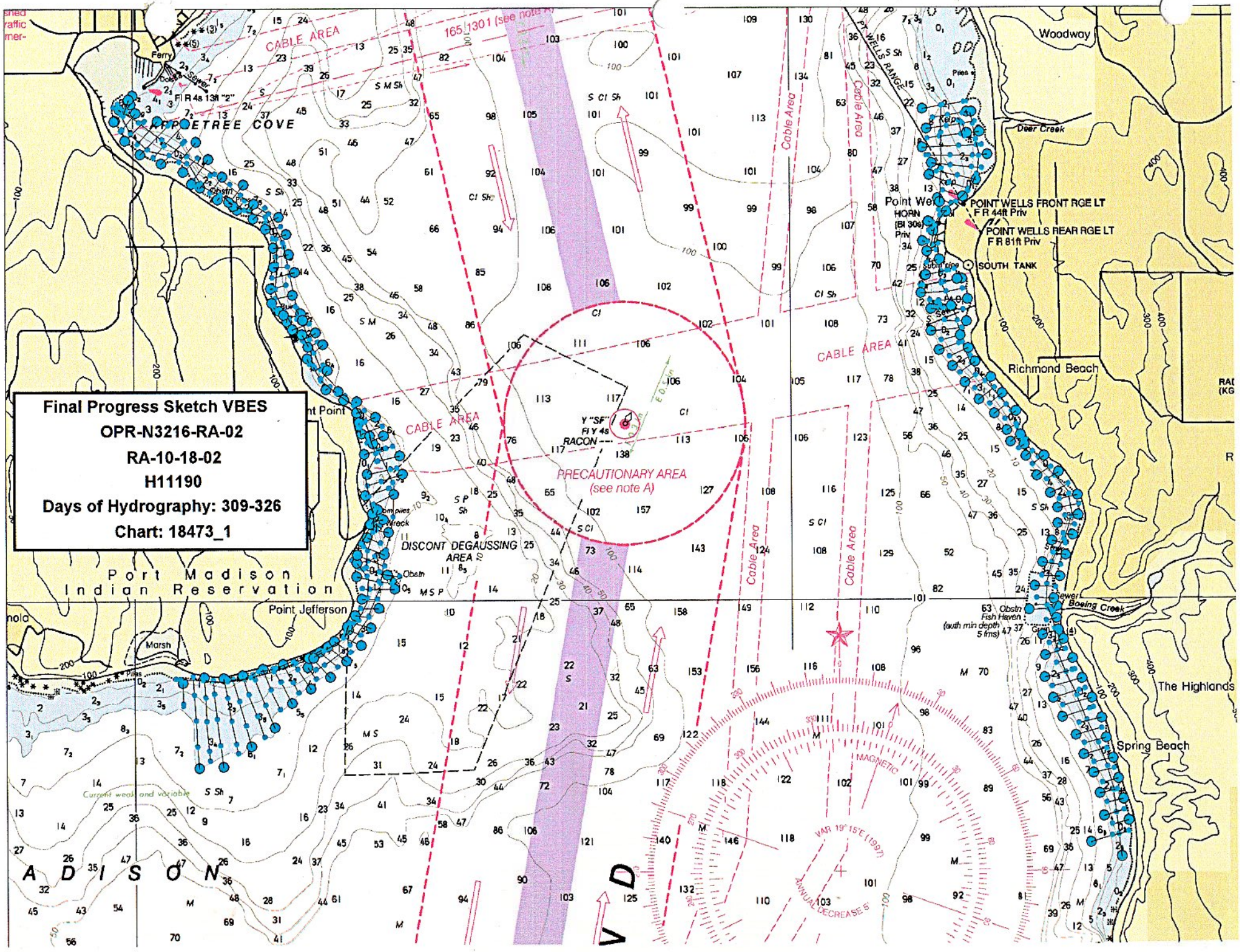
Proprietary

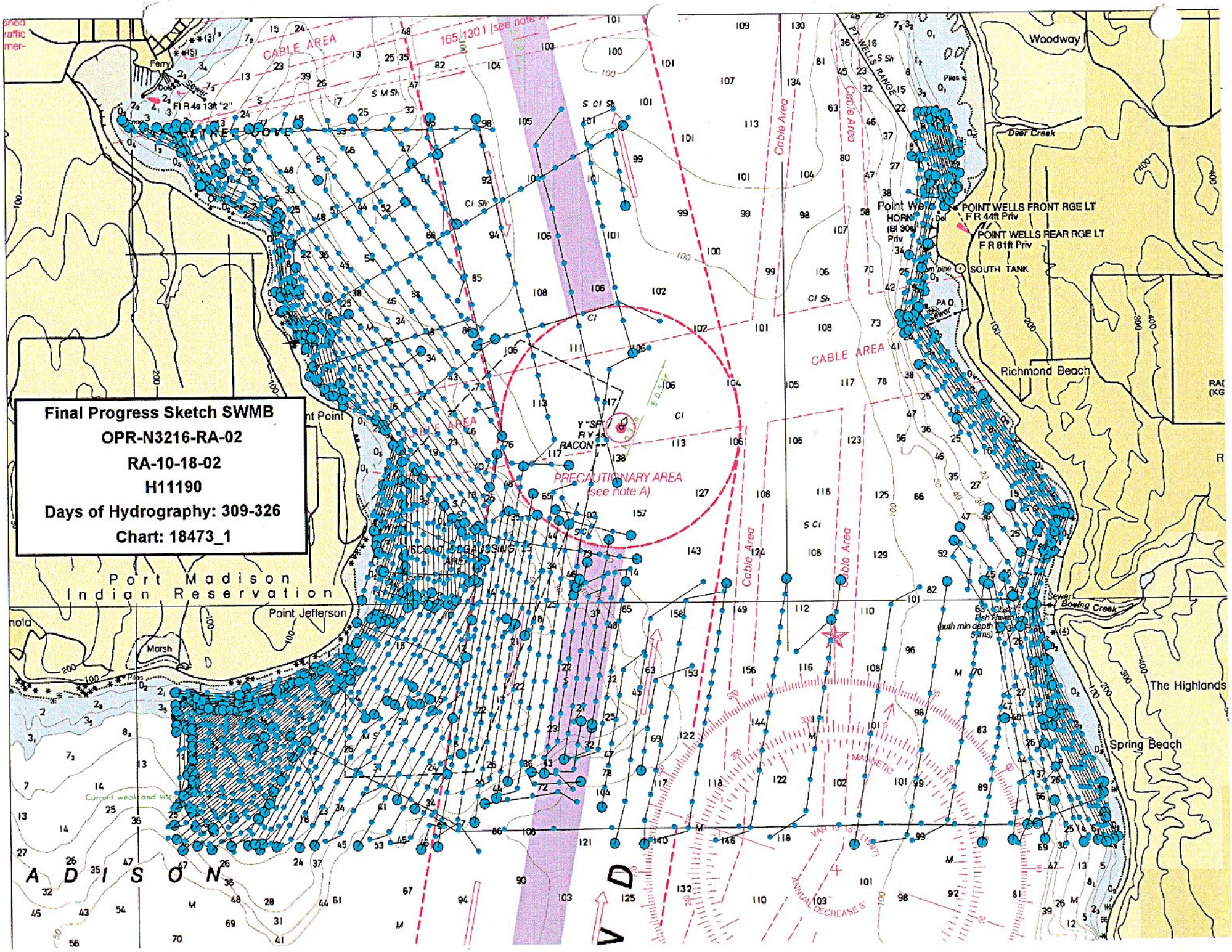
YEARSUNK NIMANUM

Print Record



OPR_N326	March	October	November
LNM_Hydro	21.00	8.72	40.32
LNM_MB	93.00	487.01	317.72
SQNM_MB	1.80	16.44	13.98
SV_Casts	14.00	39.00	34.00
Bottom_Samp	0.00	14.00	0.00
AWOIS_Items	13.00	3.00	9.00
Det_Pos	0.00	10.00	47.00
Tide_Gauge_Lev	0.00	0.00	0.00
Tide_Gauge_Inst	0.00	0.00	0.00
DAS	8.00	11.00	17.00
DTime_Equip_H	7.00	7.00	9.50
DTIme_Weather_H	0.00	0.00	4.00
DTime_other_H	0.00	3.00	4.50
Inport_H	0.00	4.00	3.00


Final Progress Sketch VBES
OPR-N3216-RA-02
RA-10-18-02
H11190
Days of Hydrography: 309-326
Chart: 18473_1
CABLE AREA
165 1301 (see note A)
PRECAUTIONARY AREA
(see note A)
DISCONT DEGAUSSING
AREA
Port Madison
Indian Reservation
Point Jefferson
Marsh
Ferry
Dock
Sewer
Fl R 4s 13ft "2"
Y "SF"
Fl Y 4s
RACON
Cable Area
PT WELLS RANGE
Woodway
Deer Creek
Point Wells
HORN
(Bl 30s)
Priv
POINT WELLS FRONT RGE LT
F R 44ft Priv
POINT WELLS REAR RGE LT
F R 81ft Priv
SOUTH TANK
Richmond Beach
Boeing Creek
Fish Haven
(auth min depth
5 fms)
The Highlands
Spring Beach
Current weak and variable
MAGNETIC
VAR 19° 15'E (1997)
ANNUAL DECREASE 5'
A D I S O N
V D


Final Progress Sketch SWMB
OPR-N3216-RA-02
RA-10-18-02
H11190
Days of Hydrography: 309-326
Chart: 18473_1
CABLE AREA
Cable Area
PRECAUTIONARY AREA
(see note A)
Port Madison
Indian Reservation
Point Jefferson
Marsh
Woodway
Deer Creek
Point Wells
POINT WELLS FRONT RGE LT
F R 44ft Priv
POINT WELLS REAR RGE LT
F R 81ft Priv
SOUTH TANK
Richmond Beach
Boeing Creek
The Highlands
Spring Beach
MAGNETIC
ANNUAL DECREASE 5'

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: H11190

LOCALITY: Port Madison, WA
TIME PERIOD: November 5-22, 2002

TIDE STATION USED: 944-7130 Seattle, WA
Lat. 47° 36.1'N Lon. 122° 20.4'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.198 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: PS139, PS160 & PS161.

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 L. Mero 1/2/03

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

Printed on Recycled Paper

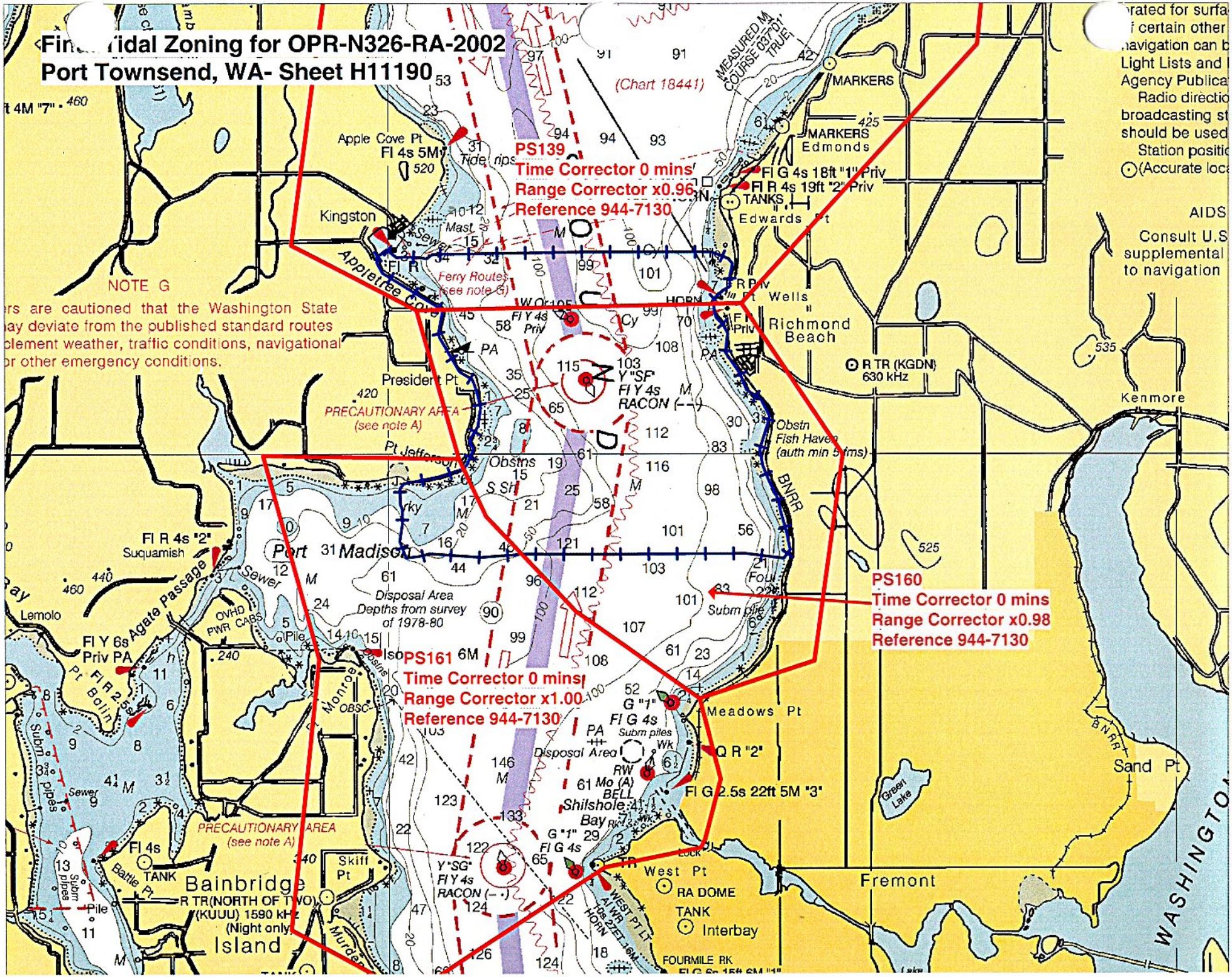
Final tide zone node point locations for OPR-N326-RA-2002, Sheet H11190.

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 PS139	944-7130	0	0.96
-122.362642 47.938777			
-122.413491 47.914355			
-122.517175 47.862733			
-122.530739 47.794358			
-122.490915 47.780536			
-122.387874 47.781985			
-122.313065 47.837249			
-122.302 47.913522			
-122.362642 47.938777			
Zone PS160	944-7130	0	0.98
-122.490915 47.780536			
-122.4775 47.748685			
-122.468913 47.736374			
-122.44047 47.716091			
-122.401293 47.697613			
-122.364762 47.705511			
-122.355744 47.749621			
-122.387874 47.781985			
-122.490915 47.780536			
Zone PS161	944-7130	0	1.00
-122.4775 47.748685			
-122.539751 47.749408			
-122.522043 47.705945			
-122.531028 47.648028			
-122.493204 47.634317			
-122.43138 47.661495			
-122.400999 47.665697			
-122.399705 47.667448			
-122.394633 47.680395			
-122.401293 47.697613			
-122.44047 47.716091			

-122.468913 47.736374
-122.4775 47.748685

Final Tidal Zoning for OPR-N326-RA-2002
Port Townsend, WA- Sheet H11190



APPROVAL SHEET
H11190

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 C. Nelson Date: 2 Sept 2006

Gary Nelson
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.

, CDR/NOAA Date: 19 SEPT. 2006

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

Kyle R. Ward

Digitally signed by Kyle R. Ward
DN: cn=Kyle R. Ward, c=US, ou=HSD, email=Kyle.Ward@NOAA.GOV
Reason: AWOIS and Surf Check Completed
Date: 2006.09.28 09:00:31 -04'00'

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-11190

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
18446	08/09/06	R. Shipley	Full ~~Part Before~~ After Marine Center Approval Signed Via FULL APPLICATION
			Drawing No. OF SOUNDINGS, CURVES AND features
			from the smooth sheet.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
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			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.