

H11268

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-10-12-03**

*Registry No.* ..... **H-11268**

### LOCALITY

*State* ..... **Washington**

*General Locality* ..... **Rosario Strait, Puget Sound**

*Sublocality* ..... **Guemes Channel**

.....  
**2003**  
.....

### CHIEF OF PARTY

..... **Commander John W. Humphrey, NOAA**

### LIBRARY & ARCHIVES

**DATE** .....

**HYDROGRAPHIC TITLE SHEET****H-11268**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 10-12-03**State WashingtonGeneral Locality Rosario Strait, Puget SoundSublocality Guemes ChannelScale 1:10,000Date of Survey 10/15/2003 - 11/05/2003Instructions Date 10/7/2003Project No. OPR-N161-RA-03Vessel RA1 (1101), RA2 (1103), RA3 (1021), RA4 (1016), RA5 (1006)Chief of Party Commander John W. Humphrey, NOAASurveyed by Ship personnel and physical scientists from Pacific & Atlantic  
Hydrographic BranchesSoundings taken by echo sounder, hand lead, pole Knudson 320 M, Reson SeaBat 8101Graphic record scaled by RAINIER PERSONNELGraphic record checked by RAINIER PERSONNELEvaluation by R. Shipley Automated plot by HP Design Jet 1050CVerification by E. Domingo, R. ShipleySoundings in Fathoms at MLLWREMARKS: 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 H11268**

Project OPR-N161-RA  
Approaches to Anacortes and Bellingham, Washington  
Scale 1:10,000  
October-November 2003  
**NOAA Ship RAINIER**  
Chief of Party: Commander John W. Humphrey, NOAA

## **A. AREA SURVEYED**

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-N161-RA-03, dated October 7, 2003, Draft Standing Project Instructions dated March 21, 2001, and NOS Hydrographic Specifications and Deliverables dated March 2003. The survey area is Guemes Channel, Washington. This survey corresponds to sheet "A" 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 4-8 meters of water 100% SWMB coverage was obtained as much as possible and to acquire least depths over significant features or shoals, as appropriate for this survey. 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.

Data acquisition was conducted from October 15 to November 5, 2003 (DN 288 to 309).

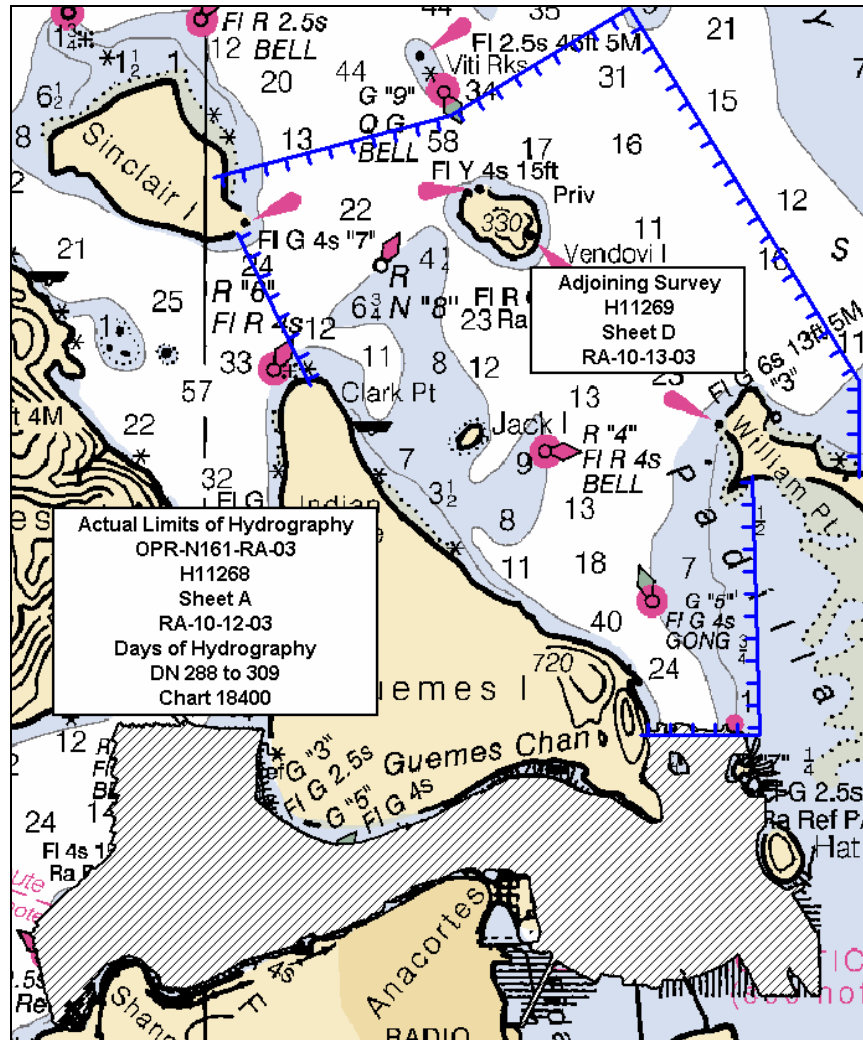


Figure 1. H11268 Survey Limits and Junctions

## 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-N161-RA-03 Data Acquisition and Processing Report (DAPR)*,<sup>1</sup> 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 the RAINIER survey launches RA1, RA2, RA3, RA4 and RA5. Vessels RA3, RA4, & RA5 were used to acquire SWMB soundings and sound velocity profiles. Vessels RA1 and RA2 were used to acquire VBES and detached positions (DPs) for shoreline verification and AWOIS investigations. Vessels RA1 & RA2 were also used to collect bottom samples.

No unusual vessel configurations were used for data acquisition.<sup>2</sup>

## **B2. Quality Control**

### **Crosslines**

Vertical Beam Echo Sounder (VBES) crosslines including buffer lines totaled 17.38 nautical miles, comprising 25.92% of main scheme hydrography. Crosslines generally agreed within 1 meter of mainscheme hydrography.

Shallow-Water Multibeam (SWMB) crosslines totaled 29.77 nautical miles, comprising 7.37% of SWMB hydrography. The mainscheme bathymetry was manually compared to the crossline nadir beams in CARIS subset mode and agreed well with differences averaging approximately 0.5 meter.

A statistical Quality Control Report has been conducted on data representative of data collected with each system used on this survey and is included in the *OPR-N161-RA-03 DAPR*.

Through manual examination of the data and statistical analysis of data the hydrographer believes that accuracy standards for this survey have been met.<sup>3</sup>

### **Junctions**

The following contemporary survey junctions with H11268 (see Figure 1):

<b>Registry #</b>	<b>Scale</b>	<b>Date</b>	<b>Junction side</b>
H11269	1:10,000	2003	North

At the time of this report, data processing for survey H11269 was not completed. Comparisons of the junction with this survey will be discussed in the Descriptive Report for H11269.<sup>4</sup>

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

### **Data Quality Factors**

In several areas near shore 10 meters and shoaler; thick eelgrass often obscured the detection of the bottom. On the VBES fathograms, acoustic returns from eelgrass usually appeared as a faint trace clearly separated from the bottom that had a darker, more definitive trace. In these cases, the VBES digital data were edited as necessary to reflect the true 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 "H11268\_ShorelineNotes" table of the Detached Position and Bottom Sample Plot.

During acquisition, the digibar on RA4 would give false readings, which would cause the data to curve on either side causing a "frown" to appear in the data for a few pings. These, when found, were edited in Caris HIPS & SIPS line or subset mode.

### **B3. Data Reduction**

Data reduction procedures for survey H11268 conform to those detailed in the *OPR-N161-RA-03 DAPR*.

## **C. VERTICAL AND HORIZONTAL CONTROL**

A complete description of vertical and horizontal control for survey H11268 can be found in the *OPR-N161-RA-03 Horizontal and Vertical Control Report*,<sup>5</sup> 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 U.S. Coast Guard beacon at Robinson Point (232 kHz) as the check station were performed in accordance with Section 3.2 of the FPM. Copies of the performance checks are included in the *OPR-N161-RA-03 Horizontal and Vertical Control Report*.

### **Vertical Control**

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) primary tide station at Friday Harbor, WA (944-9880) served as control for datum determination and as the primary source for water level reducers for survey H11268.

No tertiary gauges were required.

All data were reduced to MLLW using unverified observed tides from station Friday Harbor, WA using the tide file 9449880.tid and time and height correctors using the zone corrector file N161RA2003CORP.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 H11268 was forwarded to N/OPS1 on November 10, 2003. A copy of the request is included with this report.<sup>6</sup>

## **D. RESULTS AND RECOMMENDATIONS**

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

A total of six (6)<sup>7</sup> AWOIS items located within the limits of H11268 were assigned and investigated during this survey. Investigation methods, results, and charting recommendations have been entered into Pydro and are submitted with the digital data. A printout of the AWOIS Report, H11268.AWOIS.Report.pdf is included with this report.<sup>8</sup>

### **D.2 Chart Comparison <sup>9</sup>**

Survey H11268 was compared with chart 18427 (21<sup>st</sup> Ed.; June 22, 2002, 1:25,000).

#### **Chart 18427**

Depths from survey H11268 agreed extremely well with chart 18427 within one fathom with occasional differences up to three fathoms. In many instances, this survey found shoaler soundings between charted soundings even though agreement at the position of the charted depths was good. This can be attributed to increased bottom coverage using SWMB methods.<sup>10</sup>

Data accuracy standards and bottom coverage requirements have been met and survey data are adequate to supersede charted data in their common areas, with no exceptions.

Final chart comparisons will be made at the Pacific Hydrographic Branch after the application of smooth tides.<sup>11</sup>

### **D.3 Shoreline**

#### **Shoreline Source**

NOAA ENC digital vector database files in native format and MapInfo tables of S-57 objects were supplied on the project CD for reference purposes only, as shoreline verification was not required inshore of the 4-meter contour.

#### **Shoreline Verification**

Verification of shoreline was not required for this sheet. Detached positions (DPs) were taken of aids to navigation, AWOIS items, the large dolphins located at the ferry terminals, and two new features (pile and dolphin) that were not above MLLW. Detached positions (DPs) were recorded in HYPACK, on DP forms, and processed in Pydro. 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 MapInfo format, is provided showing all detached positions and bottom samples with notes relating to each feature.<sup>12</sup> The

features are also depicted on the final sounding plot.<sup>13</sup> ENC digital vector shoreline is in the MapInfo table H11268\_Shoreline and is shown in black.

### New Features

An obstruction was found at 48°30'24.68"N, 122°34'38.89"W; (531,208.83E, 5,372,723.41N) at the western private oil refinery pier. The Hydrographer recommends charting the least depth of 1.4 fathoms as found with 100% SWMB.<sup>14</sup>

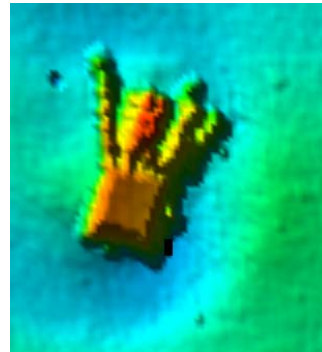
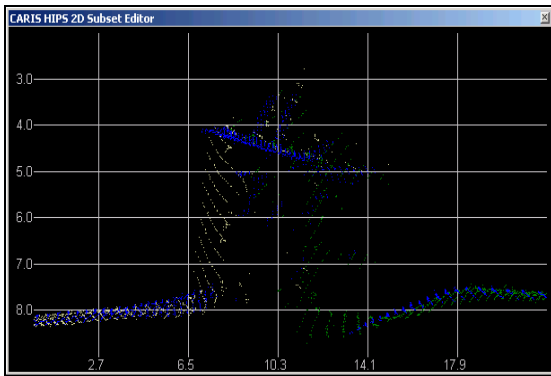


Figure 2. New obstruction

### D.4 Dangers to Navigation

There were no dangers to navigation found within the survey limits of this sheet.<sup>15</sup>

### D.5 Aids to Navigation

Survey H11268 included twenty-one aids to navigation (ATONs). Detached positions were taken on all ATONs, for check purposes only, except for two which were located on the western private oil refinery pier at 48°30'35.24"N, 122°34'54.49"W; (530,887E, 5,373,048N) and 48°30'32.87"N, 122°34'38.36" W; (531,218.29E, 5,372,976.69N).<sup>16</sup>

Each ATON was found to serve its intended purpose; however, discrepancies between the charted and surveyed positions were found for the following ATON:

A verified new position for the red triangle light #2 (USCG Light List #19075) is 48°30'31.491"N, 122°33'17.768"W (532872.04E, 5372943.54N) as depicted in the MapInfo table "H11268\_PSSFEATURES" and documented in "H11268 Shoreline Report". The detached position (DP#22901569) taken for the red triangle light #2 was found to be 270 meters away from the charted (18427) position and approximately 190m away from the coordinates listed in "Light List Volume VI - Pacific Coast and Pacific Islands" 2004 edition.<sup>17</sup>

### D.6 Miscellaneous



Bottom samples were collected and are depicted on the Detached Position and Bottom Sample Plot.<sup>18</sup> In general, the bottom samples agree with the charted bottom samples.

During the course of the survey, eelgrass was observed along most of the shoreline. The areas where it was seen are depicted on the Detached Position Bottom Sample Plot in the "H11268\_ShorelineNotes" layer.

A small ferry makes multiple passes back and forth from Guemes to Anacortes daily. It crosses Guemes Channel from the charted (18427) ferry terminals at 48°31'09.77"N, 122°37'25.9"W; (527,775.54 E, 5,374,098.08 N) to 48°31'39.92"N, 122°37'28.68"W; (527,713.96 E, 5,375,028.84 N).<sup>19</sup>

**E. APPROVAL**

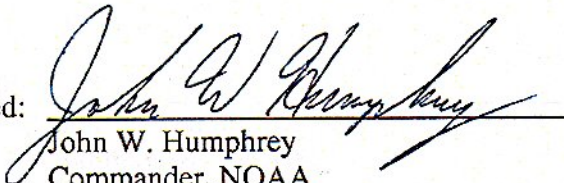
As Chief of Party, I have ensured that standard field surveying and processing procedures were followed in producing this survey in accordance with the Hydrographic Manual, Fourth Edition, Hydrographic Survey Guidelines, Field Procedures Manual and the NOS Hydrographic Surveys Specifications and Deliverables, as updated for 2003.

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.

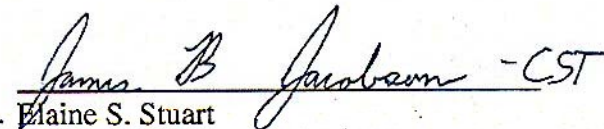
Survey H11268 is complete and adequate to supersede charted soundings in their common areas. No additional work is required for this survey.<sup>20</sup>


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 OPR-N161-RA-03	4/30/04	N/CS34
Horizontal and Vertical Control Report for OPR-N161-RA-03	6/11/04	N/CS34

Approved and Forwarded:   
 John W. Humphrey  
 Commander, NOAA  
 Commanding Officer

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

Survey Sheet Manager:  -CST  
 Maine S. Stuart  
 Senior Survey Technician, NOAA

Field Operations Officer:   
 Stephanie A. Koes  
 Lieutenant (junior grade), NOAA

## Revisions Compiled During Office Processing and Certification

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<sup>1</sup> Filed with Project Records.

<sup>2</sup> Concur.

<sup>3</sup> Concur.

<sup>4</sup> Concur with clarification. Junction comparison were made with H-11269 during office processing. Soundings and depth curves are in good agreement and "Joins" notes have been added to the smooth sheet.

<sup>5</sup> Filed with the project records.

<sup>6</sup> Approved Tide Note dated August 17, 2004 is attached.

<sup>7</sup> PHB Revision--Strikethrough ~~six (6)~~ and replace with seven (7).

<sup>8</sup> Concur.

<sup>9</sup> The evaluator recommends that MCD convert Chart 18427 to fathoms and feet from fathoms and fractions based on critical depths to navigation in the area. The more precise depths are critical to safe navigation for deep draft tankers that transit the area.

<sup>10</sup> Concur with hydrographer's statements.

<sup>11</sup> During office processing, survey H11268 was compared to chart 18427 (22nd Ed., Feb 28, 2004) with very good agreement.

<sup>12</sup> Plots filed with the hydrographic data.

<sup>13</sup> Plots filed with the hydrographic data.

<sup>14</sup> Concur. Chart as shown on the smooth sheet.

<sup>15</sup> Do not concur. There was one danger to navigation reported and is attached to this report.

<sup>16</sup> The evaluator recommends that MCD use the latest ATONIS information to chart the aid to navigation.

<sup>17</sup> The evaluator recommends that MCD use the latest ATONIS information to chart the aid to navigation.

<sup>18</sup> Concur. Chart bottom samples as shown on the smooth sheet. Some charted bottom samples were retained on the Hdrawing

<sup>19</sup> Concur with hydrographer's statements.

<sup>20</sup> Concur.

# H11268 DToN Report

**Registry Number:** H11268  
**State:** WA  
**Locality:** Rosario Strait, Puget Sound  
**Sub-locality:** Guemes Channel  
**Project Number:** OPR-N161-RA-03  
**Survey Date:** 10/20/2003

## Charts Affected

Number	Version	Date	Scale
18427	22nd Ed.	02/01/04	1:25000
18421	46th Ed.	10/01/03	1:80000
18423	34th Ed.	12/01/03	1:80000
18400	44th Ed.	08/01/03	1:200000
18003	19th Ed.	03/01/03	1:736560
18007	31st Ed.	03/31/01	1:1200000
501	12th Ed.	11/01/02	1:3500000
530	30th Ed.	03/23/02	1:4860700
50	6th Ed.	06/01/03	1:10000000

## Features

Feature Type	Survey Depth	Survey Latitude	Survey Longitude
Pile	1.03 m	048° 32' 06.089" N	122° 34' 33.016" W

## 1.1) Profile/Beam - 391/8 from h11268 / r3re\_2003 / 2003-293 / 428\_2134

### DANGER TO NAVIGATION

#### Survey Summary

**Survey Position:** 048° 32' 06.089" N, 122° 34' 33.016" W  
**Least Depth:** 1.03 m  
**Timestamp:** 2003-293.21:36:08.249 (10/20/2003)  
**Survey Line:** h11268 / r3re\_2003 / 2003-293 / 428\_2134  
**Profile/Beam:** 391/8  
**Charts Affected:** 18427\_1, 18421\_1, 18423\_1, 18400\_1, 18003\_1, 18007\_1, 501\_1, 530\_1, 50\_1

#### Remarks:

New submerged pile

Coverage is not sufficient to consider fully investigated, but least depth is no deeper than reported here

#### Feature Correlation

Address	Feature	Range	Azimuth	Status
h11268/r3re_2003/2003-293/428_2134	391/8	0.00	000.0	Primary

#### Hydrographer Recommendations

Chart new pile

#### Cartographically-Rounded Depth (Affected Charts):

0 ½fm (18427\_1, 18421\_1, 18400\_1, 18003\_1, 18007\_1, 530\_1)

0fm 3ft (18423\_1)

1.0m (501\_1, 50\_1)

#### S-57 Data

**Geo object 1:** Pile (PILPNT)

**Attributes:** INFORM - New submerged pile Coverage is not sufficient to consider fully investigated, but least depth is no deeper than reported here

# H11268 AWOIS Report

**Registry Number:** H11268  
**State:** WA  
**Locality:** Rosario Strait, Puget Sound  
**Sub-locality:** Guemes Channel  
**Project Number:** OPR-N161-RA-03  
**Survey Date:**

## Charts Affected

Number	Version	Date	Scale
18427	22nd Ed.	02/01/04	1:25000
18429	9th Ed.	12/01/02	1:25000
18430	8th Ed.	10/01/03	1:25000
18421	46th Ed.	10/01/03	1:80000
18423	34th Ed.	12/01/03	1:80000
18400	44th Ed.	08/01/03	1:200000
18003	19th Ed.	03/01/03	1:736560
18007	31st Ed.	03/31/01	1:1200000
501	12th Ed.	11/01/02	1:3500000
530	30th Ed.	03/23/02	1:4860700
50	6th Ed.	06/01/03	1:10000000

## Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	AWOIS	[no data]	[no data]	[no data]	---
1.2	AWOIS	[no data]	[no data]	[no data]	---
1.3	AWOIS	[no data]	[no data]	[no data]	---
1.4	AWOIS	[no data]	[no data]	[no data]	---
1.5	AWOIS	[no data]	[no data]	[no data]	---
1.6	AWOIS	[no data]	[no data]	[no data]	---

## 1.1) AWOIS #52040 - SEWER OUTFALL

**Search Position:** 048° 30' 50.370" N, 122° 38' 04.620" W  
**Historical Depth:** [None]  
**Search Radius:** 300  
**Search Technique:** SSS, MB  
**Technique Notes:** Review SWMB and/or SSS data for location and extent of charted Sewer PA

### History Notes:

HISTORY CL1468/79--USCG AUX TO NOS; REPORT OF AN OUTFALL, PIPE REPORTED TO BE 1 FT. IN DIAM. AND BURIED 2 FT. THE OUTER END IS REPORTED TO BE AT A DEPTH OF 30 FT. (MLW). (ENTERED 1/28/94 MBH) H10534/94--OPR-N264-PHP-94; ITEM NOT INVESTIGATED AND NO EVIDENCE OF THE ITEM WAS NOTED DURING MAINSCHEME HYDRO. (UPDATED 10/94 MBH)

## Survey Summary

**Charts Affected:** 18427\_1, 18421\_1, 18423\_1, 18400\_1, 18003\_1, 18007\_1, 501\_1, 530\_1, 50\_1

### Remarks:

Sewer Pipe Outfall, AWOIS 52040

INVESTIGATION SUMMARY: The partially submerged remains of a sewer pipe outfall were found at Detached Position 1306192. No submerged remains were found with either a twelve minute echosounder search (RA1, DN# 306, LN# 000\_2223) or with 100% SWMB to the limit of safe navigation.

## Feature Correlation

Address	Feature	Range	Azimuth	Status
H11268_AWOIS	AWOIS # 52040	0.00	000.0	Primary

## Hydrographer Recommendations

Remove pipe symbol and sewer notation from chart

## Office Notes

Do not concur. Evaluator recommends MCD investigate additional resources before chart removal.

## 1.2) AWOIS #53084 - OBSTRUCTION

**Search Position:** 048° 31' 16.770" N, 122° 36' 01.900" W  
**Historical Depth:** [None]  
**Search Radius:** 100  
**Search Technique:** VS, DI, ES, S2  
**Technique Notes:** [None]

### History Notes:

HISTORY Charted submerged dolphins. Source for change of status to submerged unknown.  
 H08331/1955--Three dolphins observed in close proximity during survey: NAD27 NAD83 48/31/17.4,  
 122/35/58.05 48/31/16.77, 122/36/1.9 48/31/17.1, 122/35/57.6 48/31/16.47, 122/36/2.2 48/31/16.8, 122/35/58.05  
 48/31/16.17, 122/36/2.66 (ENT DAS 10/10/03)

### Survey Summary

**Charts Affected:** 18423\_3, 18427\_1, 18421\_1, 18423\_1, 18400\_1, 18003\_1, 18007\_1, 501\_1, 530\_1, 50\_1

### Remarks:

Charted Dolphins, AWOIS# 53084

INVESTIGATION SUMMARY: Two dolphins were found (detached positions 2309131 2309132) that were on either side of a private wooden dock. Another two piles were found (detached position 2309130) that were part of another private wooden dock approximately sixty meters to the west. There was no sign of submerged dolphins within the search radius. A fifteen minute visual search was conducted and 100% SWMB was run to the limit of safe navigation. A visual search was limited by the aforementioned private docks.

### Feature Correlation

Address	Feature	Range	Azimuth	Status
H11268_AWOIS	AWOIS # 53084	0.00	000.0	Primary

### Hydrographer Recommendations

Retain charted dolphins, remove subm dol notation.

### Office Notes

Concur.



### 1.3) AWOIS #53083 - OBSTRUCTION

**Search Position:** 048° 32' 10.230" N, 122° 35' 35.810" W  
**Historical Depth:** [None]  
**Search Radius:** 100  
**Search Technique:** VS, DI, ES, S2  
**Technique Notes:** [None]

#### History Notes:

HISTORY H08331/1955--Two sets of piles observed during survey: Eastern pair are 15 meters apart with center located at 48/32/11.5N, 122/35/28.5W (NAD27), western pair are centered at 48/32/10.95N, 122/35/31.2W (NAD27). CL1468/79-- USCG Aux. investigation, Piles indicated on chart are gone. (ENT DAS 10/10/03)

### Survey Summary

**Charts Affected:** 18427\_1, 18421\_1, 18423\_1, 18400\_1, 18003\_1, 18007\_1, 501\_1, 530\_1, 50\_1

#### Remarks:

Submerged Piles Disproval, AWOIS# 53083

INVESTIGATION SUMMARY: A fourteen minute visual and echosounder disproval search (RA2, LN# 000\_1652, DN 309) was conducted within the search radius to the limit of safe navigation. Mainscheme VBES were also conducted in the area run at 100 meter spacing (RA1, LN#'s 232\_1742 233\_1742, DN# 288).

### Feature Correlation

Address	Feature	Range	Azimuth	Status
H11268_AWOIS	AWOIS # 53083	0.00	000.0	Primary

### Hydrographer Recommendations

Retain Subm piles notation on chart due to lack of 100% SWMB

### Office Notes

Concur.

## 1.4) AWOIS #52041 - SEWER OUTFALL

**Search Position:** 048° 31' 22.370" N, 122° 36' 37.610" W  
**Historical Depth:** [None]  
**Search Radius:** 300  
**Search Technique:** SSS, MB  
**Technique Notes:** Review SWMB and/or SSS data for location and extent of charted Sewer PA

### History Notes:

HISTORY CL666/73--PMC CHART CORRECTION LETTER PMC-7315 (ITEM H); REPORT OF AN OUTFALL CONSTRUCTED AND COMPLETED AS PER C OF E INSP. REPORT. 20" FIBERGLASS PIPE BURIED TO 10 FT. AVG. DEPTH. (ENTERED 1/28/94 MBH) H10534/94--OPR-N264-PHP-94; ITEM NOT INVESTIGATED AND NO EVIDENCE OF THE ITEM WAS NOTED DURING MAINSCHEME HYDRO. (UPDATED 10/94 MBH)

## Survey Summary

**Charts Affected:** 18423\_3, 18427\_1, 18421\_1, 18423\_1, 18400\_1, 18003\_1, 18007\_1, 501\_1, 530\_1, 50\_1

### Remarks:

Sewer Outfall Disproval, AWOIS 52041

INVESTIGATION SUMMARY: A ten minute visual search was conducted within the search radius and found that a cement pier had been built over part of the sewer. 100% SWMB was also conducted up to the face of the pier and the inshore limit of safe navigation. No evidence of the sewer outfall was found inside the radius where 100% SWMB coverage could be obtained.

## Feature Correlation

Address	Feature	Range	Azimuth	Status
H11268_AWOIS	AWOIS # 52041	0.00	000.0	Primary

## Hydrographer Recommendations

Remove sewere pipe and Sewer PA notation from chart

## Office Notes

Do not concur. Evaluator rcommends MCD investigate additional resources before chart removal.

## 1.4) Profile/Beam - 10/1 from h11268 / r1ne\_2003 / 2003-306 / dp1306

### Primary Feature for AWOIS Item #52035

**Search Position:** 48.51175000° N, 122.64702778° W  
**Historical Depth:** [None]  
**Search Radius:** 100  
**Search Technique:** S2, ES, DI, VS, SD  
**Technique Notes:** [None]

#### History Notes:

HISTORY CL1734/71--USPS; NOTED A WRECK, STATUS OR IDENTITY NOT PROVIDED.  
 CL1041/76--NOS; WK ORIGINATING WITH CL1734/71 SHOWN ON A CHART SECTION NOTED AS AN AID PROOF IN THE CHART HISTORY. (ENTERED 1/28/94 MBH) H10534/94--OPR-N264-PHP-94; A WOOD HULL APPROX. 150' LONG AND 35' BEAM WAS LOCATED IN LAT. 48/30/42.3, LONG. 122/38/49.3. THE HULL IS ABOVE MHW AND IS PART OF THE BREAKWATER. RECOMMENDED DELETION OF THE WRECK FROM THE CHART. (UPDATED 10/94 MBH)

### Survey Summary

**Survey Position:** 48.51150893° N, 122.64721316° W  
**Least Depth:** -10.48 m  
**Timestamp:** 2003-306.21:57:16.000 (11/02/2003)  
**DP Dataset:** h11268 / r1ne\_2003 / 2003-306 / dp1306  
**Profile/Beam:** 10/1  
**Charts Affected:** 18427\_1, 18421\_1, 18423\_1, 18400\_1, 18003\_1, 18007\_1, 501\_1, 530\_1, 50\_1

#### Remarks:

Wreck, AWOIS# 52035

INVESTIGATION SUMMARY: A wreck was found at Detached Position 130629. It was found as described in History from Project OPR-N264-PHP-94. The wreck is above MHW and is not navigationally significant.

Not assigned to project

### Feature Correlation

Address	Feature	Range	Azimuth	Status
h11268/r1ne_2003/2003-306/dp1306	10/1	0.00	000.0	Primary
H11268_AWOIS	AWOIS # 52035	30.06	206.8	Secondary

## **Hydrographer Recommendations**

Wreck is not navigationally significant; do not chart wreck.

## **Office Notes**

Do not concur. Chart visible wreck.

## 1.5) AWOIS #52036 - UNKNOWN

**Search Position:** 048° 30' 46.000" N, 122° 38' 40.000" W  
**Historical Depth:** [None]  
**Search Radius:** 100  
**Search Technique:** SD, VS, ES, DI, S2  
**Technique Notes:** [None]

### History Notes:

HISTORY CL1734/71--USPS; NOTED A WRECK, STATUS OR IDENTITY NOT PROVIDED.  
 CL1041/76--NOS; WK ORIGINATING WITH CL1734/71 SHOWN ON A CHART SECTION NOTED AS AN AID PROOF IN THE CHART HISTORY. (ENTERED 1/28/94 MBH) H10534/94--OPR-N264-PHP-94; SURVEY FOUND THAT A PIER WAS BUILT OVER THE ITEM LOCATION. ALSO NOTED AN OLD STEEL SHIP APPROX. 200' LONG AND 40' WIDE MOORED TO THE PIER AND SITTING ON THE BOTTOM. THIS SHIP IS 27 METERS FROM THE AWOIS POSITION. RECOMMENNDED DELETIONOF THE WRECK FROM THE CHART. (UPDATED 10/94 MBH)

## Survey Summary

**Charts Affected:** 18427\_1, 18421\_1, 18423\_1, 18400\_1, 18003\_1, 18007\_1, 501\_1, 530\_1, 50\_1

### Remarks:

Wreck, AWOIS# 52036

INVESTIGATION SUMMARY: A fifteen minute visual investigation confirmed the pier built over item location as stated in the History from project OPR-N264-PHP-94. However no 200' long and 40' wide steel ship was found in the vicinity. The wreck found in DP 130630 is just outside the AWOIS radius, but does not meet the description of the wreck given in the AWOIS information.

## Feature Correlation

Address	Feature	Range	Azimuth	Status
H11268_AWOIS	AWOIS # 52036	0.00	000.0	Primary

## Hydrographer Recommendations

Move wreck symbol from present location to the location of DP 130630

## Office Notes

Concur with clarification. Chart at DP 130630, position 526255.9, 5373254.3098 (48/30/42.667 N, 122/38/40.171 W).

## 1.6) AWOIS #52625 - WRECK

**Search Position:** 048° 31' 48.270" N, 122° 40' 12.000" W  
**Historical Depth:** 7.68 m  
**Search Radius:** 300  
**Search Technique:** MB, DI, S2  
**Technique Notes:** [None]

### History Notes:

HISTORY H10792/98-99--OPR-N368-PHP; AN APPARENT WRECK WAS FOUND BY ECHO SOUNDER DEVELOPMENT AND CONFIRMED BY DIVE INVESTIGATION. A WOODEN FISHING VESSEL WITH NO IDENTIFYING MARKINGS AND WITH INDICATIONS OF SCUTTLING WAS FOUND IN LAT. 48/31/48.27N, LONG. 122/40/12.00W (NAD83). THE WRECK WAS ESTIMATED TO BE 130 FEET IN LENGTH WITH A BEAM OF 20 FEET. A LEAST DEPTH, RECORDED AT THE TOP OF THE MAST, OF 4.2 FATHOMS (MLLW) WAS OBTAINED. (ENTERED 9/00 BY MBH)

## Survey Summary

**Charts Affected:** 18427\_1, 18429\_1, 18430\_1, 18421\_1, 18423\_1, 18400\_1, 18003\_1, 18007\_1, 501\_1, 530\_1, 50\_1

### Remarks:

7.6 Fathom (14 meters) Wreck, AWOIS# 52625

INVESTIGATION SUMMARY: A wreck was verified with 100% SWMB. The least depth obtained with tide correctors applied was 7.6 fathoms (14 meters). A dive investigation could not verify the least depth of 4.2 fathoms because of strong currents in the area.

## Feature Correlation

Address	Feature	Range	Azimuth	Status
H11268_AWOIS	AWOIS # 52625	0.00	000.0	Primary

## Hydrographer Recommendations

Retain as currently charted

## Office Notes

Concur.



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: August 17, 2004


HYDROGRAPHIC BRANCH: Pacific  
HYDROGRAPHIC PROJECT: OPR-N161-RA-2003  
HYDROGRAPHIC SHEET: H11268

LOCALITY: Guemes Channel, Puget Sound, WA  
TIME PERIOD: October 15 - November 5, 2003

TIDE STATION USED: 944-9880 Friday Harbor, WA  
Lat. 48° 32.8'N Lon. 123° 00.6'W  
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters  
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.167 meters

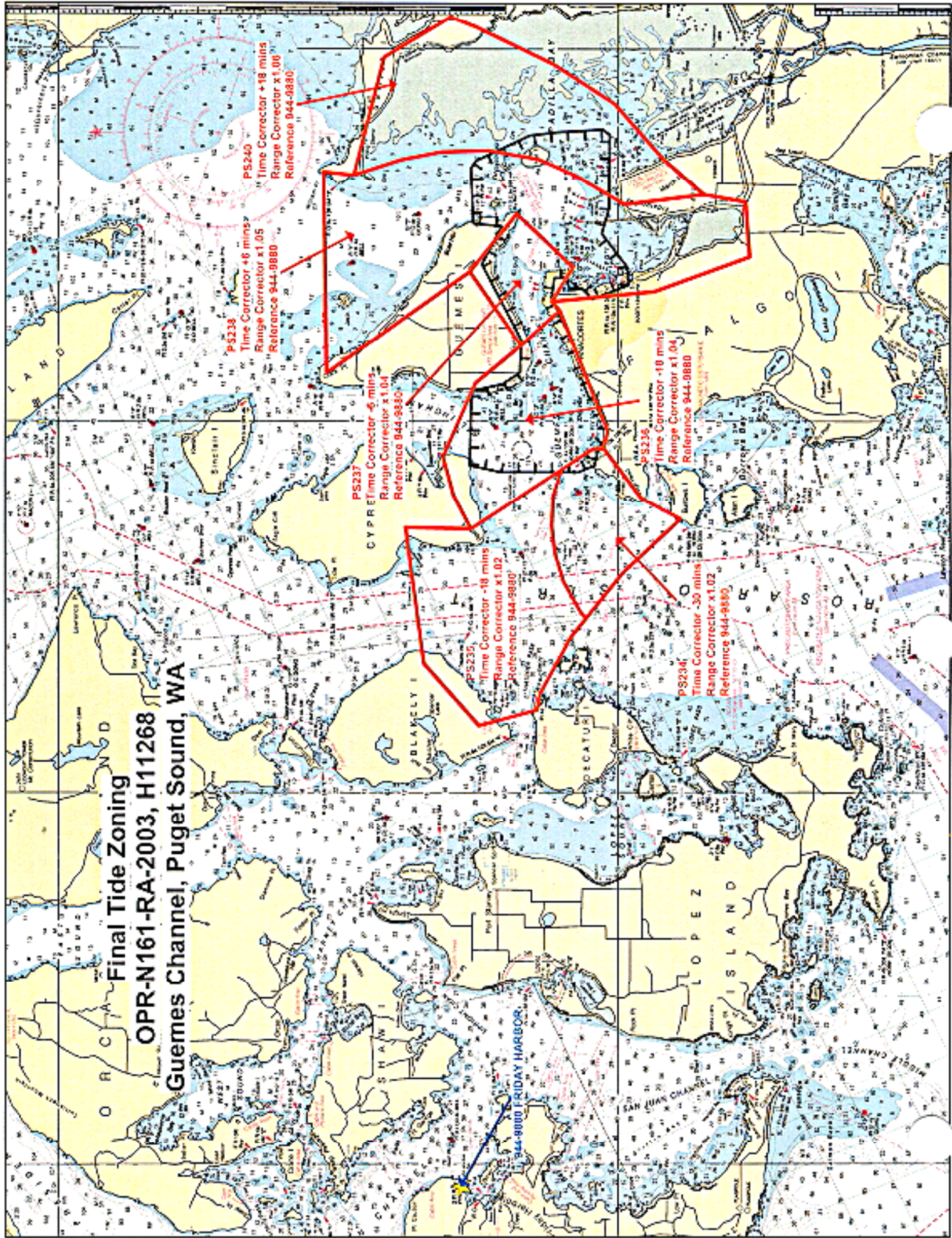
REMARKS: RECOMMENDED ZONING  
Use zone(s) identified as: PS234, PS235, PS236, PS237, PS238 &  
PS240

Refer to attachments for zoning information.

For -----  
CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION



**Final Tide Zoning**  
**OPR-N161-RA-2003, H11268**  
**Guemesi Channel, Puget Sound, WA**





**Final tide zone node point locations for OPR-N161-RA-2003, H11268**

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 PS234	944-9880	-30	1.02
-122.710336 48.48135			
-122.734546 48.498362			
-122.755126 48.509331			
-122.75184 48.51116			
-122.738657 48.51598			
-122.725474 48.51861			
-122.71361 48.519486			
-122.699769 48.519048			
-122.688096 48.516556			
-122.679153 48.507487			
-122.67863 48.504124			
-122.70096 48.492981			
-122.710336 48.48135			
Zone PS235	944-9880	-18	1.02
-122.755126 48.509331			
-122.763488 48.513785			
-122.788254 48.522764			
-122.796154 48.523947			
-122.803057 48.54122			
-122.775261 48.557684			
-122.714173 48.563109			
-122.714804 48.543637			
-122.688096 48.516556			
-122.699769 48.519048			
-122.71361 48.519486			
-122.725474 48.51861			
-122.738657 48.51598			
-122.75184 48.51116			
-122.755126 48.509331			
Zone PS236	944-9880	-18	1.04
-122.688096 48.516556			
-122.714804 48.543637			

-122.699677 48.548828  
-122.682459 48.551959  
-122.649363 48.542167  
-122.632649 48.528674  
-122.616918 48.517136  
-122.670959 48.502849  
-122.67863 48.504124  
-122.679153 48.507487  
-122.688096 48.516556

Zone PS237

944-9880

-6

1.04

-122.632649 48.528674  
-122.599545 48.544005  
-122.573672 48.529979  
-122.597585 48.513217  
-122.612881 48.519548  
-122.616918 48.517136  
-122.632649 48.528674

Zone PS238

944-9880

+6

1.05

-122.597585 48.513217  
-122.612881 48.519548  
-122.608381 48.489141  
-122.592856 48.460948  
-122.568255 48.462175  
-122.564952 48.474462  
-122.569427 48.497866  
-122.556587 48.512324  
-122.549097 48.523666  
-122.54517 48.538467  
-122.54583 48.552393  
-122.549438 48.564575  
-122.556259 48.578596  
-122.554886 48.587542  
-122.645035 48.586641  
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-122.597585 48.513217

Zone PS240

944-9880

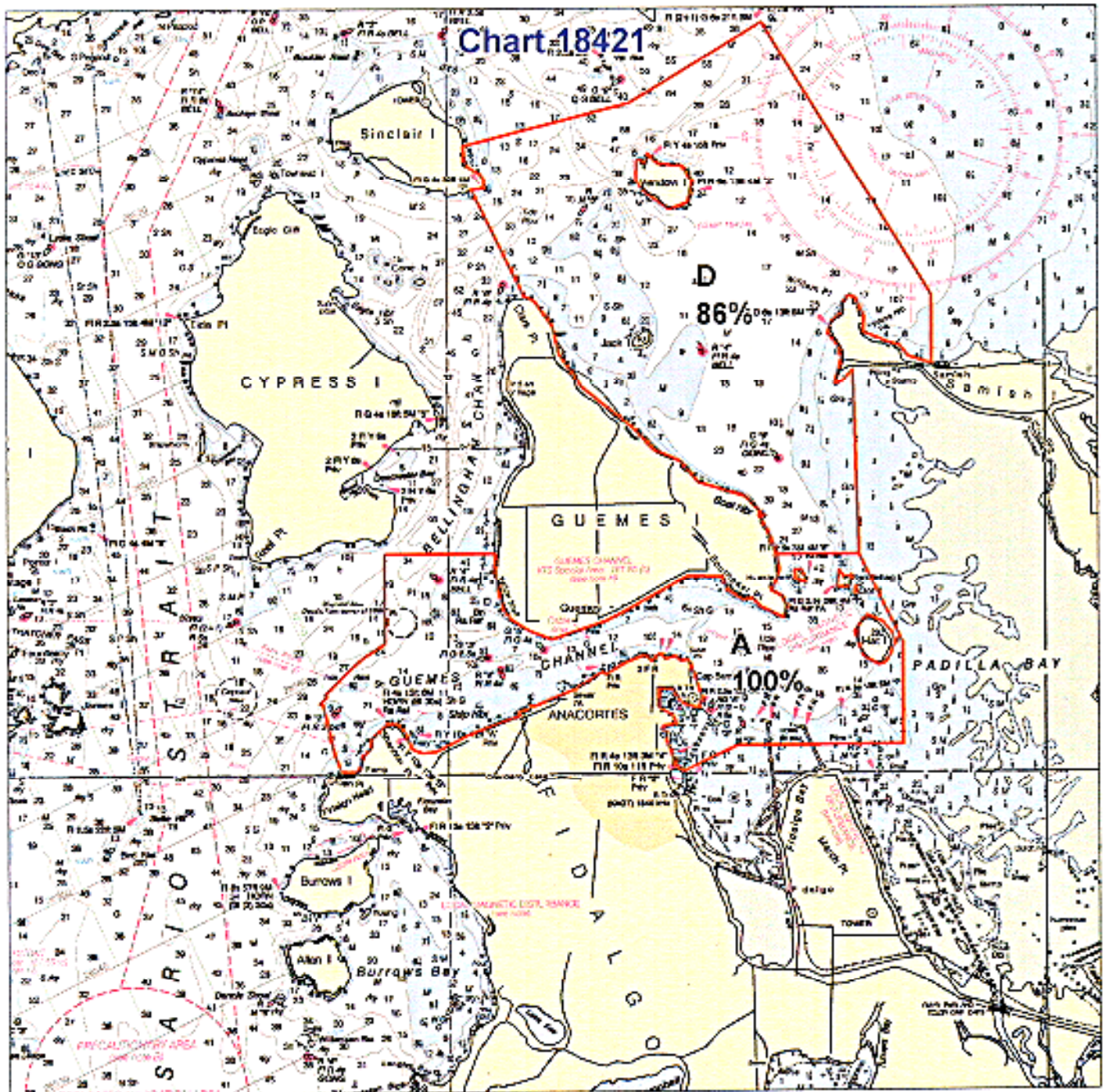
+18

1.06

-122.556259 48.578596  
-122.503656 48.569645  
-122.485565 48.549867  
-122.490001 48.542255  
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-122.524515 48.500804  
-122.549412 48.486211  
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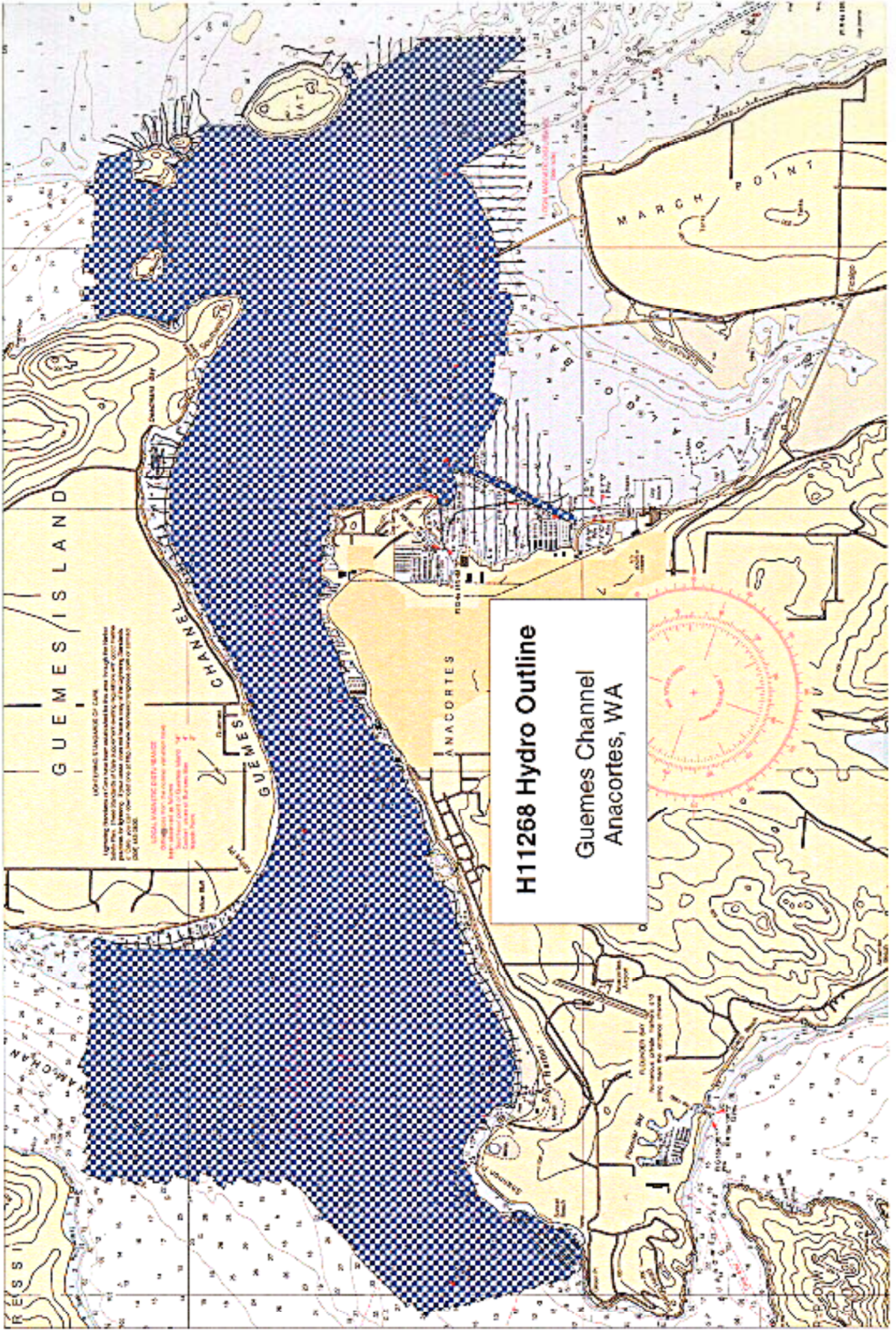
-122.569427 48.497866  
-122.556587 48.512324  
-122.549097 48.523666  
-122.54517 48.538467  
-122.54583 48.552393  
-122.549438 48.564575  
-122.556259 48.578596

**Progress Sketch**  
**OPR-N161-RA-03**  
**Approaches to Anacortes and Bellingham, Washington**  
**October, 2003**



Project	Sheet Letter	H_num	HQ_Est_SNM	CumIPercCompPrev	CumIPercCompCur	SNM_CompCurI	CumSNMcol
N161	A	H11268	9.28	90	100	0.93	9.28
N161	D	H11269	18.84	50	86	5.99	14.31

Projec	Month	LNM_Hydr	LNM_MB	SV_Cast	Bottom	AWOIS	Tide_Gu	DAS	DTime_eql	DTime_Weathe	D_Time_othel	Inport_H
N161	October	815.11	877.12	61	0	7	0	16	14.50	72.00	0.00	72.00



G U E M E S I S L A N D

**NOTES**  
Agencies responsible for this chart have been substituted for the original author. These changes are for information only and do not constitute an official update. The original author's name and edition number are shown in the margin of this chart.

**LOCAL NAVIGATIONAL AID**  
Lighted buoy in the channel. See note on page 1000 for details.

G U E M E S E C H A N N E L

A N A C O R T E S

M A R C H P O I N T

**H11268 Hydro Outline**  
**Guemes Channel**  
**Anacortes, WA**





APPROVAL SHEET  
H11268

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.

Gary C. Nelson

Date: 15 May 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.

Donald W. Haines, CDR/NOAA

Date: 24 MAY 2006

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

