

H-11240

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. OPR-0331-KR

Registry No. H-11240

LOCALITY

State ALASKA

General Locality Kasaan Bay

Sublocality Polk Inlet

2003

CHIEF OF PARTY
Christopher D. Kemp

LIBRARY & ARCHIVES

DATE

HYDROGRAPHIC TITLE SHEET

H-11240

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.

State AlaskaGeneral Locality Kasaan BaySublocality Polk InletScale 1:10,000Date of Survey July 31-August 20, 2003Instructions Dated 3/1/2003Project No. OPR-O331-KR-03Vessel Luna Sea, DucerChief of Party Christopher D. KempSurveyed by Terra Surveys, LLC personnelSoundings taken by echo sounder, hand lead, pole Reson 8101Graphic record scaled by N/AGraphic record checked by N/AEvaluation by B Taylor Automated plot by HP Design Jet 1055cm+Verification by G NelsonSoundings in Fathoms and tenths at MLLWREMARKS: Time in UTC. (Contract No: 50-DGNC-0-90003)**Revisions and annotations appearing as endnotes were generated during office****processing. All separates are filed with the project data. As a result, page numbering****may be interrupted or non-sequential.****Terra Surveys** **John Oswald & Associates****1930 Whiting Circle** **12001 Audubon Drive****Palmer, AK 99645** **Anchorage, AK 99516**

Descriptive Report to Accompany Hydrographic Survey H-11240

Sheet I

Scale 1:10,000

July 31-August 20, 2003

Terra Surveys, LLC

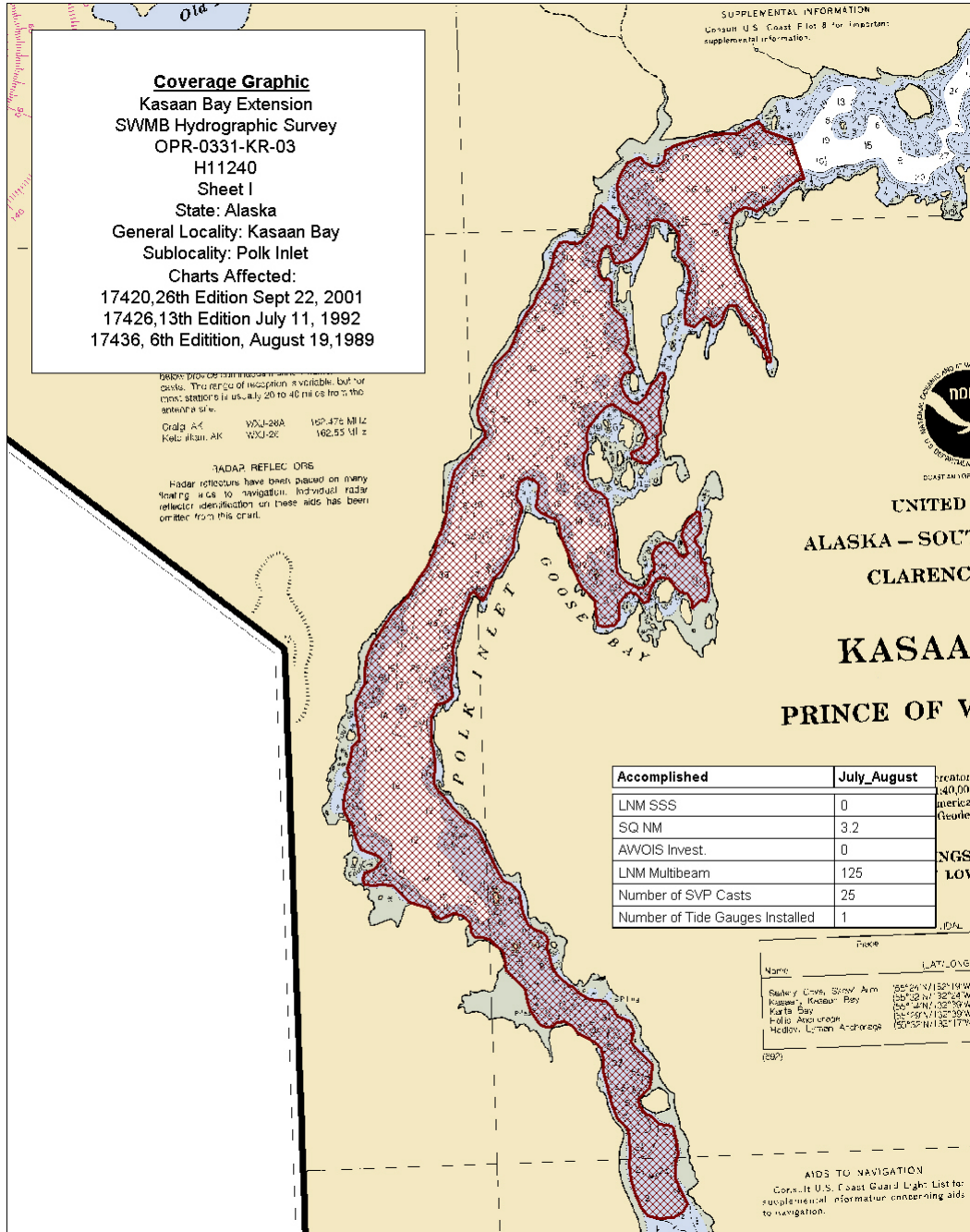
Lead Hydrographer: Christopher Kemp

A. AREA SURVEYED

This navigable area survey was conducted in accordance with Hydrographic Project Instructions OPR-O331-KR-03, Kasaan Bay, Alaska dated March 1, 2003. ¹ The purpose of this contract was to provide NOAA with modern, accurate hydrographic survey data with which to update the nautical charts of this area. A shallow-water multibeam sonar system was used to locate and determine the least depth over obstructions, wrecks and shoals as well as to determine the least depths over the entire project area.

The project area is located in Kasaan Bay, Alaska. The survey limits encompass an area of approximately 2.8 square nautical miles in Polk Inlet. The bathymetry varies significantly throughout the sheet from rocky and irregular to relatively flat. The shoreline is mostly rocky with areas of gravel beaches around creek mouths. Soundings as shoal as 1.2 fathom² and as deep as 46 fathoms were collected during the survey.³

Kasaan Bay is used by both commercial and recreational traffic. The Inter-Island Ferry Authority's ferry, *Prince of Wales*, transports passengers twice a day from Ketchikan to Hollis and return. Commercial vessels in the timber, fishing and tourism industries are often in the area. Common destinations for sport and charter fishing vessels coming from lodges in Kasaan Bay or nearby Ketchikan include Twenty Fathom Bank, Grindall Island and other locations throughout the bay. The US Forest Service has a camp located at the south end of Polk Inlet with two docks.



Section B Data Acquisition and Processing

B.1 Equipment

Luna Sea

All soundings for this survey were acquired from the motor vessel *Luna Sea*. The *Luna Sea* is a 38-foot aluminum hull boat with a 12.1-foot beam and a 2.25-foot draft. Major systems used on the *Luna Sea* are listed in the following table.

VESSEL <i>Luna Sea</i> LOA: 38 FT, BEAM 12.1 FT, DRAFT: 2.25 FT	
Equipment	Manufacturer & Model
Multibeam sonar	Reson SeaBat 8101
Positioning	Seatex Seapath 200 RTK
Sound velocity	Applied Microsystems 3317 4425 3259
Vessel attitude	Seatex MRU-5

Equipment performance details are provided in the Project-Wide Report,⁴ Sections A, Equipment and B, Quality Control.

B2. Quality Control

The internal consistency and integrity of the survey data was found to be good. All of the soundings that appear on the smooth sheet meet or exceed the accuracy requirements in the specifications.⁵

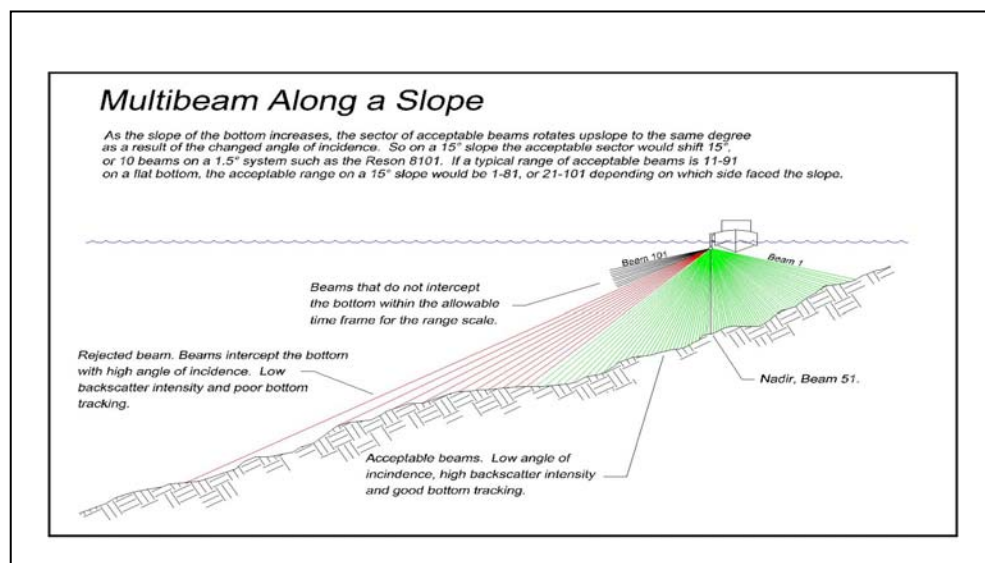
Crosslines

Survey H-11240 had 87.7 nautical miles of main scheme lines and 6.0 nautical miles of crosslines. This equates to 6.9% of the mainscheme lines and exceeds the requirement of 5% set forth in the Specifications and Deliverables, Sec. 5.5.3. There were 17 crosslines and 122 mainscheme lines. This resulted in 190 crossings, of which, a total of 25 were analyzed. The crossings varied spatially and temporally. A location plot is included in “Separate V Crossline Comparisons.”⁶

The crosslines were analyzed with a program developed in-house in accordance with Specifications and Deliverables 2003, Section 5.5.3. A comprehensive explanation of the program is in the Data Acquisition and Processing Report. The reports generated from the crossline analysis are in “Separate V Crossline Comparisons.” Crossline comparison results were excellent. The seafloor was relatively flat in a significant portion of Sheet I and provided numerous areas to collect good crosslines.

An estimated 95% confidence level generated from crossline analysis was used as a guide in determining data acceptability. In practice, the subjective nature of multibeam data cleaning resulted in a slight variance of final smooth sheet soundings from the estimated 95% confidence level. Conditions warranting accepting data from outer beams occurred along steep terrain where the outermost beams had a better angle of incidence on the up-hill side. This was often the case, due to the steep slopes encountered through most of the survey. This effect is shown in figure 1.

Figure 1



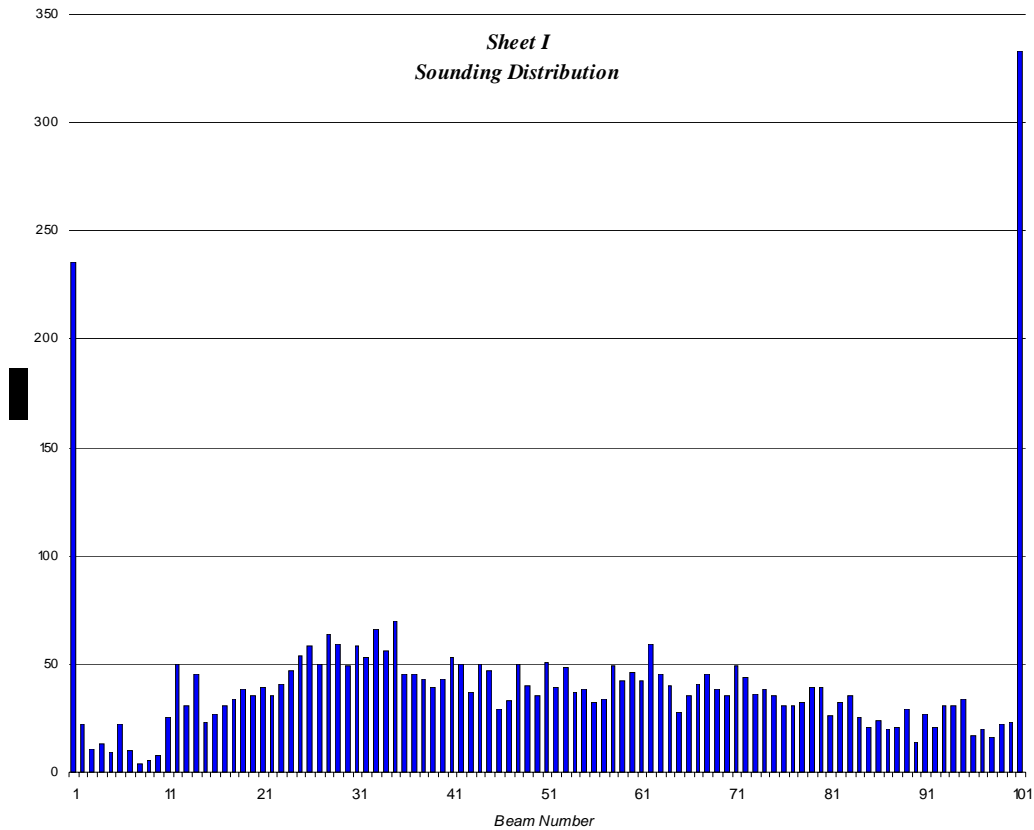
Smooth Sheet Soundings

Final smooth sheet soundings were compiled into a histogram depicting the number of soundings per beam on the smooth sheet. Tabular results are presented in Table 1. The Reson 8101 multi-beam echo sounder has 101 beams and is numbered from port to starboard, 1-101 with beam 51 representing the nadir beam.

Table 1.

Beam 1		Beam 101	
<i>Bin</i>	<i>Frequency</i>	<i>Bin</i>	<i>Frequency</i>
< 0	9	< 0	22
0 -5	145	0 -5	206
5 - 10	49	5 - 10	67
10 - 15	27	10 - 15	31
> 15	6	> 15	7
Total	236	Total	333

Figure 2. Smoothsheet Sounding Distribution



The histogram brings to attention the large number of soundings from beam 1 and beam 101. Typically, soundings from outer beams were filtered out during line cleaning. On shallow, near shore lines this filter was not applied to aid in the attainment of soundings at the 4 meter curve. As a result, depending on which side of the sonar was oriented towards the shore, soundings from beam 1 or 101 were the outermost, and on an upwardly sloping bottom, shoalest soundings of a shore buffer line. This manifested itself as a rim of soundings from beams 1 and 101 along the shoreline in the shoal biased smoothsheet. The tables below show the distribution of soundings by depth for beams 1 and 101.

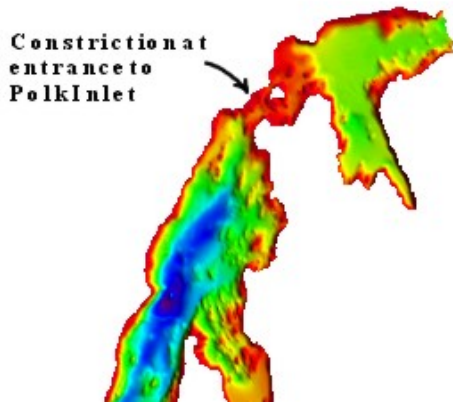
Table 2.

Sheet I
Number of Smoothsheet Soundings by Beam

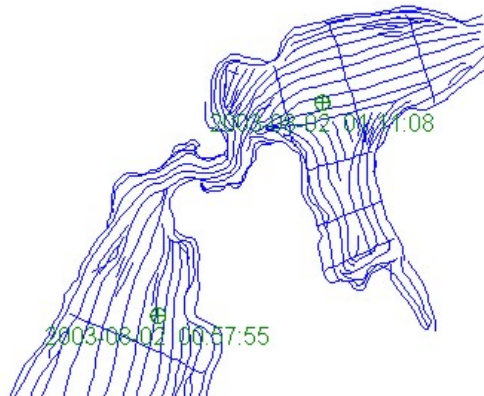
Beam	Count	% of Total	Beam	Count	% of Total
1	236	5.70	52	39	0.94
2	22	0.53	53	48	1.16
3	11	0.27	54	37	0.89
4	13	0.31	55	38	0.92
5	9	0.22	56	32	0.77
6	22	0.53	57	34	0.82
7	10	0.24	58	49	1.18
8	4	0.10	59	42	1.02
9	5	0.12	60	46	1.11
10	8	0.19	61	42	1.02
11	25	0.60	62	59	1.43
12	50	1.21	63	45	1.09
13	31	0.75	64	40	0.97
14	45	1.09	65	28	0.68
15	23	0.56	66	35	0.85
16	27	0.65	67	41	0.99
17	31	0.75	68	45	1.09
18	34	0.82	69	38	0.92
19	38	0.92	70	35	0.85
20	35	0.85	71	49	1.18
21	39	0.94	72	44	1.06
22	35	0.85	73	36	0.87
23	41	0.99	74	38	0.92
24	47	1.14	75	35	0.85
25	54	1.31	76	31	0.75
26	58	1.40	77	31	0.75
27	50	1.21	78	32	0.77
28	64	1.55	79	39	0.94
29	59	1.43	80	39	0.94
30	49	1.18	81	26	0.63
31	58	1.40	82	32	0.77
32	53	1.28	83	35	0.85
33	66	1.60	84	25	0.60
34	56	1.35	85	21	0.51
35	70	1.69	86	24	0.58
36	45	1.09	87	20	0.48
37	45	1.09	88	21	0.51
38	43	1.04	89	29	0.70
39	39	0.94	90	14	0.34
40	43	1.04	91	27	0.65
41	53	1.28	92	21	0.51
42	50	1.21	93	31	0.75
43	37	0.89	94	31	0.75
44	50	1.21	95	34	0.82
45	47	1.14	96	17	0.41
46	29	0.70	97	20	0.48
47	33	0.80	98	16	0.39
48	50	1.21	99	22	0.53
49	40	0.97	100	23	0.56
50	35	0.85	101	333	8.05
51	51	1.23	Total	4137	

Unique Conditions

The entrance into Polk Inlet from Skowl Arm is a shallow and constricted passage. There seems to very little communication between the two bodies of water as evidenced by near simultaneous sound velocity casts on both sides of the constriction. The hydraulics are such that at maximum ebbs and floods, a significant current (3-5 kts) develops in the passage, but the mixing due to this exchange of water appears minimal. The stark difference between the two water columns was noticed on the second day of collection in Sheet I and appropriate steps were taken to minimize the effects this would have on the data. Sound velocity casts were taken with greater frequency and survey lines constrained to either the north or south side of the constriction. The figures below illustrate this condition. The final data set was not adversely affected by this condition, and it's⁷ quality is consistent with the rest of the project's data.⁸

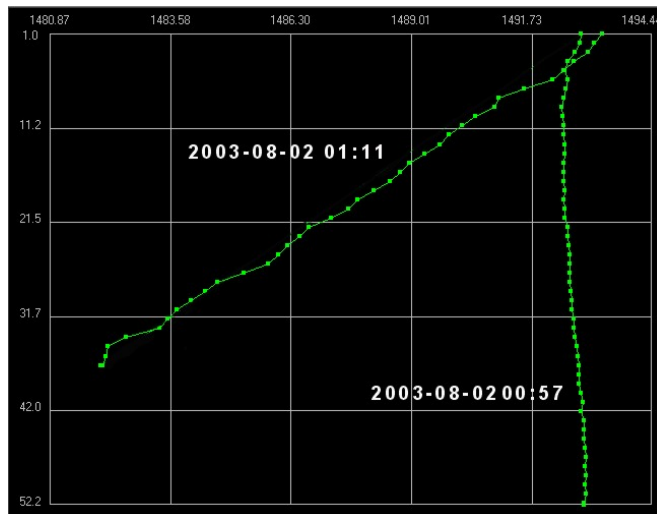


The max depth at the entrance is only 14 meters at its shallowest.



Location of test sound velocity casts north and south of the constricted entrance into Polk Inlet.

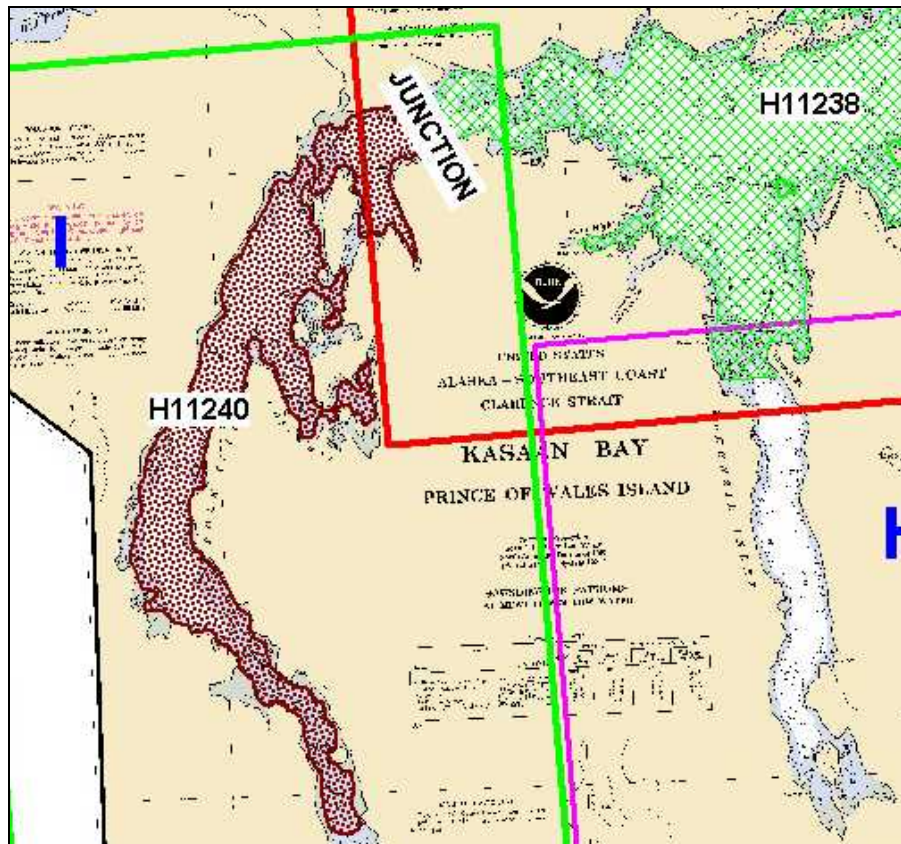
Sound velocity profiles from the two casts. The cast inside Polk Inlet varies by less than 1 m/s in 50 meters of water. Ten minutes later and less than a mile away in Skowl Arm the sound velocity changes 10 m/s in 40 meters of water.



Contemporary Survey Junctions

The northern limits of this survey junctions the westerly limits of H11238 (2003, Scale 1:10,000). Both of the smooth sheets for H11240 and H11238 were plotted at the same scale and the soundings for both surveys agreed well.⁹ There are no recommendations and no adjustments were made.

Figure 3.



The junction locations of H11240 and H11238

Quality Control Checks

Nadir Beam versus Lead line checks were done daily during the survey. The results of the quality control checks are contained in “Separate I Acquisition and Processing Logs”¹⁰ of this report. There were no unique problems that pertain to this survey. Line acquisition logs are also included in “Separate I Acquisition and Processing Logs” that details all required aspects of quality control for each line.

B3. Corrections To Echo Soundings

Hydrographic Survey H11240 was performed with four other surveys in Project OPR-O331-KR-03. Changes to the corrections to echo soundings affect all five surveys in the area and is¹¹ described in the project wide Data Acquisition and Processing Report.

The hydrographic survey began on DN 212. The tide station at Saltery Cove (945-0495) began collecting data on DN 198, prior to data collection. The hydrographic survey data collected was reduced using Saltery Cove (945-0495).¹²

C. Vertical and Horizontal Control

NOAA tide station Ketchikan (945-0460); tertiary station Saltery Cove (945-0581) and short-period stations Hollis Anchorage (945-0544), Polk Inlet (945-0467), and McKenzie Inlet (945-0466) provided initial and final tide processing for this project. Ketchikan preliminary water level data was downloaded from the NOAA web site (<http://www.co-ops.nos.noaa.gov>) daily. Verified tide data and final zoning from these stations was processed by John Oswald and Associates (JOA). The stations were installed by Terra Surveys, LLC. Soundings for this survey were tide adjusted using verified data from tertiary station Saltery Cove (945-0581). The final zoning methodology is described in further detail in the project wide Vertical and Horizontal Control Report.¹³

The horizontal control datum for this survey is North American Datum of 1983 (NAD 83). The projection used during collection was UTM, Zone 8. United States Coast Guard Station (USCG) *Annette Island* was used to send correctors to the survey vessels. A 24-hour observation on NGS station *CAN 2* was used as a fixed point DGPS performance check on *Annette Island*. The observation survey showed the position on *CAN 2* met the required accuracy standards. The 24-hour observation survey is detailed in the project wide Vertical and Horizontal Control Report. A summary of the daily DGPS confidence checks can be found in Separate I Acquisition and Processing Logs included with this report.

D1. Chart Comparison ¹⁴

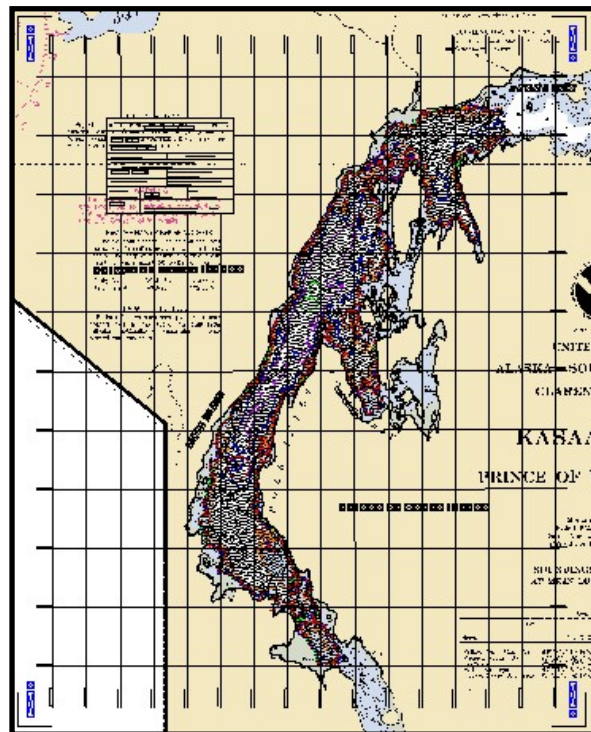
There was no Local Notice to Mariners that affected the survey area. Notice number 39 (Weekly Edition-August 2003) was the last notice reviewed for this project. There were no Dangers to Navigation Reports submitted for this survey.¹⁵

This survey was compared in MicroStation to the following charts:

Chart	Scale	Edition	Date
17420	1:229,376	26 th	Sept. 22,2001
17426	1:40,000 & 1:10,000	13th	July 11,1992
17436	1:40,000	6th	Aug. 19,1989

Charts 17426 and 17436

This survey agreed well with the charts.¹⁶ Minor disagreements with the curves or soundings were noted. Charted and remote sensing features that differed significantly are discussed on the following pages.¹⁷ Refer to “Section D2 Additional Results” for shoreline investigation results affecting this chart.



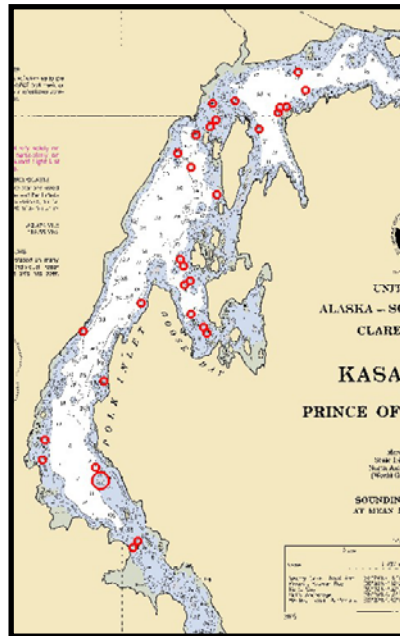
Smooth sheet H-11240 overlaid on Chart 17426 for comparison

New Rocks

There are seven¹⁸ new rocks identified in this survey from bathymetry.¹⁹ The following is a list of their positions and depths.

Latitude	Longitude	Depth fathoms
55° 21' 43.74"	132° 30' 24.31"	4.6 ²⁰
55° 21' 44.16"	132° 30' 15.14"	3.3 ²¹
55° 21' 44.99"	132° 30' 17.99"	1.4 ²²
55° 21' 47.28"	132° 30' 17.75"	2.3 ²³
55° 23' 07.81"	132° 28' 44.22"	3.7 ²⁴
55° 23' 30.03"	132° 29' 01.14"	5.3 ²⁵
55° 23' 32.54"	132° 28' 56.54"	2.3 ²⁶
55° 23' 40.49"	132° 29' 01.5"	4.4 ²⁷
55° 23' 44.21"	132° 29' 04.54"	4.8 ²⁸
55° 23' 04.79"	132° 28' 40.86"	2.1 ²⁹
55° 24' 18.39"	132° 28' 30.44"	2.2 ³⁰
55° 23' 20.37"	132° 29' 41.55"	4.9
55° 24' 33.17"	132° 28' 54.52"	9.6 ³¹
55° 24' 40.9"	132° 29' 07.18"	5.0
55° 24' 50.9"	132° 28' 49.95"	2.5 ³²
55° 24' 53.28"	132° 27' 51.02"	8.5
55° 25' 02.75"	132° 27' 32.97"	3.5 ³³
55° 25' 06.76"	132° 28' 34.24"	0.8 ³⁴
55° 25' 08.57"	132° 28' 13.62"	3.7
55° 25' 24.41"	132° 27' 13.59"	7.6

New Rocks found from bathymetry (circled red) in Chart

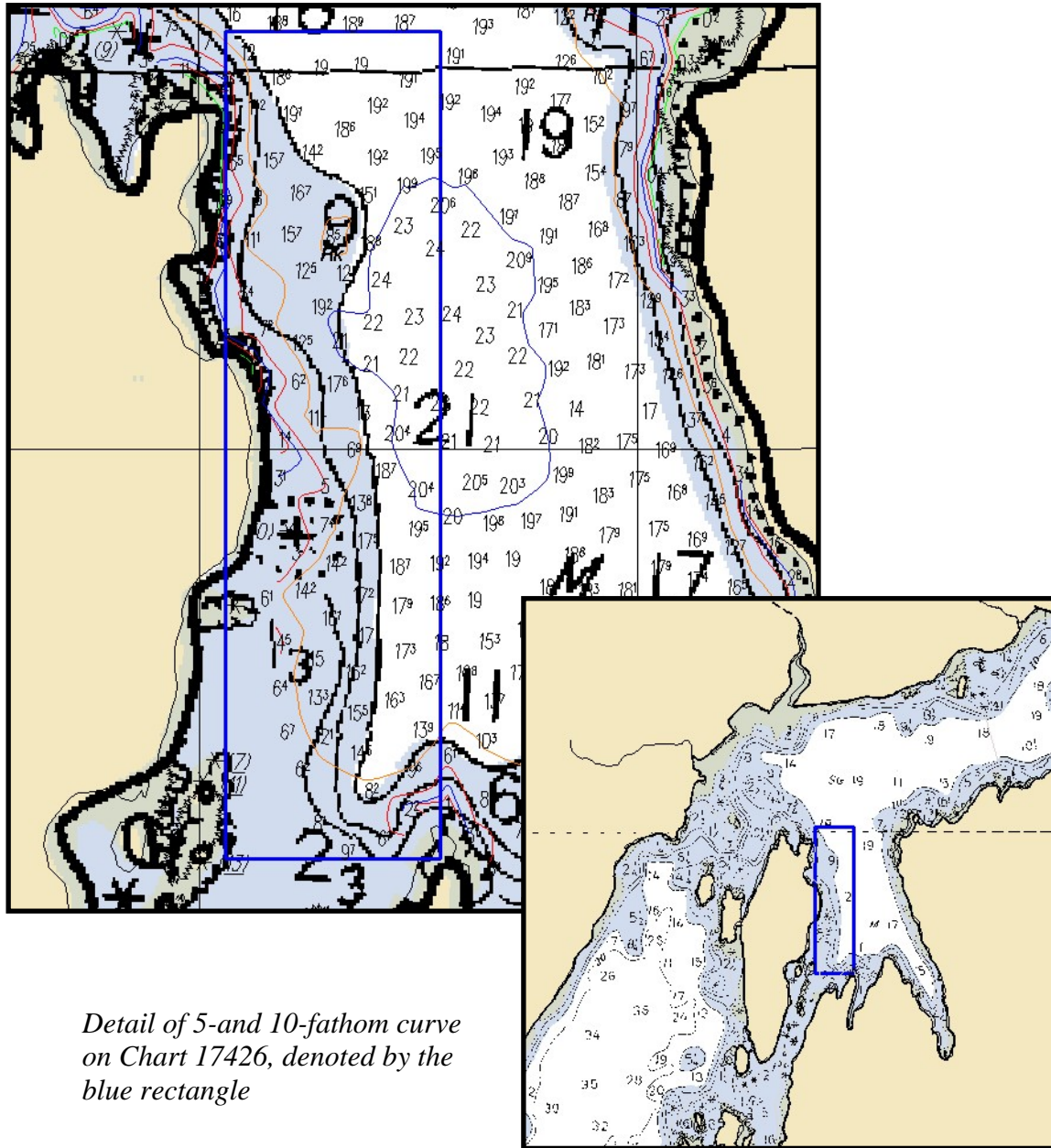


Recommendations

Based on the results of survey H-11240, the Hydrographer recommends updating the next editions with the rocks listed.³⁵

Trends

A review of the soundings and chart shows that the 2003 5- and 10-fathom curves in the vicinity below is³⁶ significantly different then the charted curve.



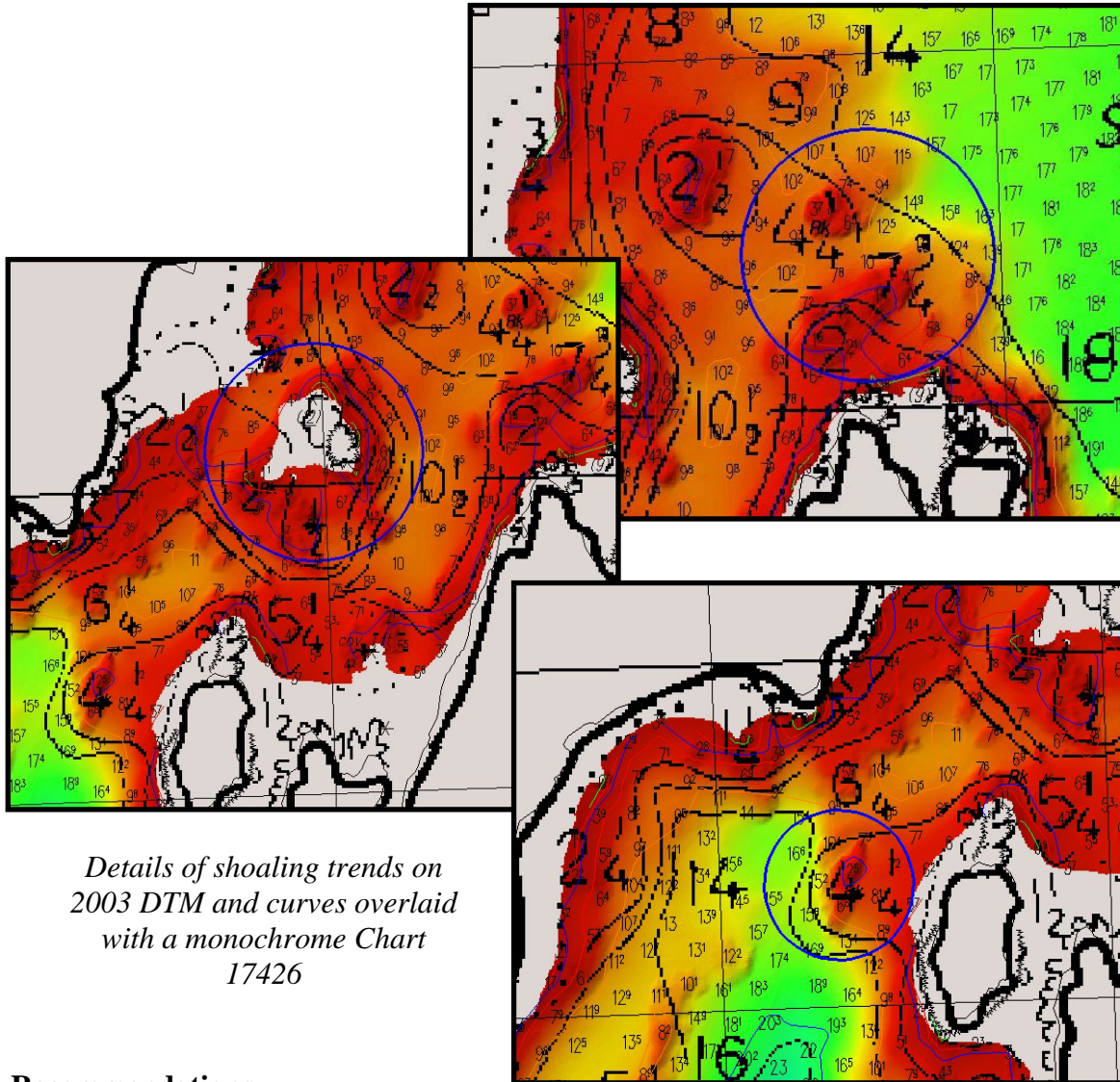
Detail of 5-and 10-fathom curve on Chart 17426, denoted by the blue rectangle

Location of 5-and 10-fathom curves on Chart 17426

Recommendations

Based on the results of survey H-11240, the Hydrographer recommends updating the next editions using the 2003 soundings to adjust the 5- and 10-fathom curves in the location above.³⁷

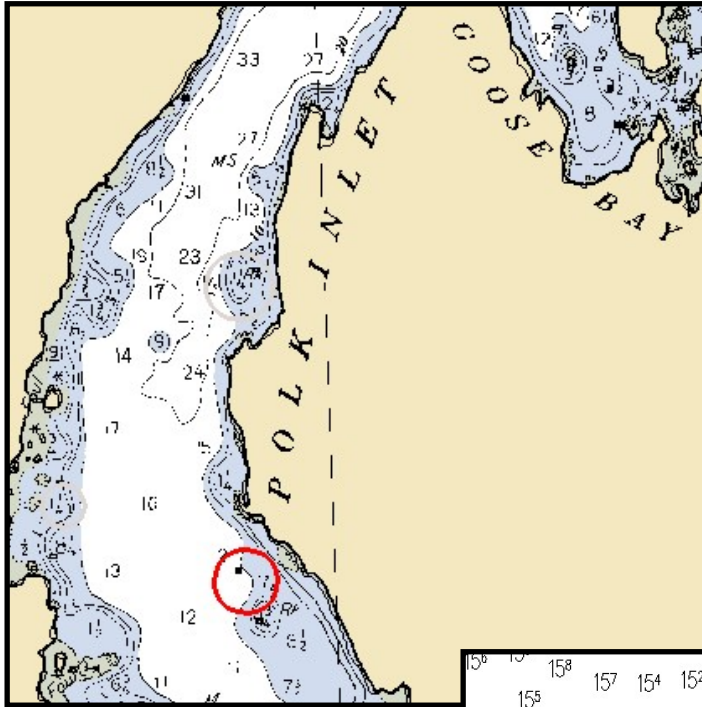
A review of the soundings and chart shows shoaling areas at the entrance to Polk Inlet. The change ranges from 1.5 to 3-fathoms shoaler than charted. A danger to navigation report has been submitted.³⁸



Recommendations

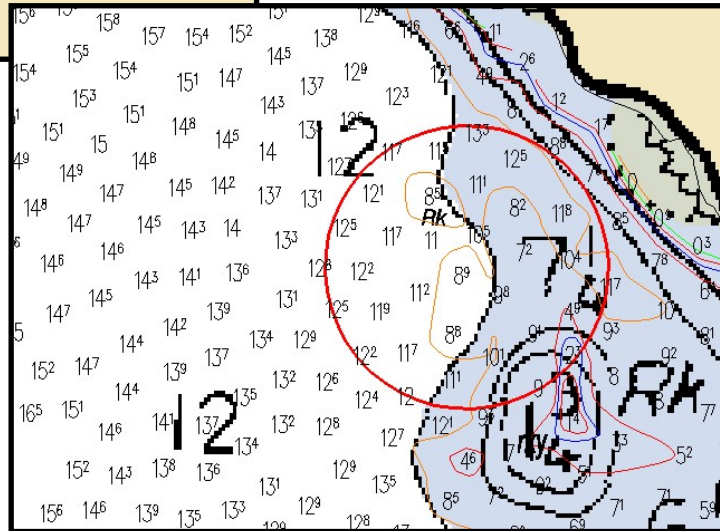
Based on the results of survey H-11240, the Hydrographer recommends updating the next editions using the 2003 soundings to adjust the 2,³⁹ 3 and 5-fathom curves in the above area.⁴⁰ The areas are located at approximately 55° 25' 07"N and 132° 28' 11"W , 55° 24' 51"N and 132° 28' 50"W and 55° 20' 13"N and 132° 22' 01"W.⁴¹

A review of the soundings and chart shows a shoaling trend in the area circled in red below.



Location of charted 10-fathom curve on Chart 17426

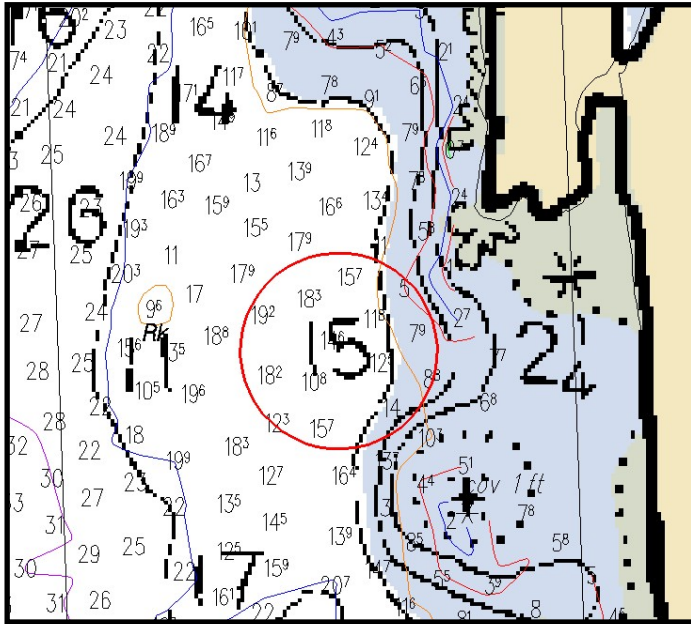
Detail of shoaling surveyed area outside the 10-fathom charted contour



Recommendations

Based on the results of survey H-11240, the Hydrographer recommends updating the next editions using the 2003 soundings to adjust the 10-fathom curves in the above area.⁴²

A review of the soundings and chart shows a 2003 10.8 fathom sounding on the charted 15-fathom depth.



Details of surveyed depths versus charted 15-fathom depth

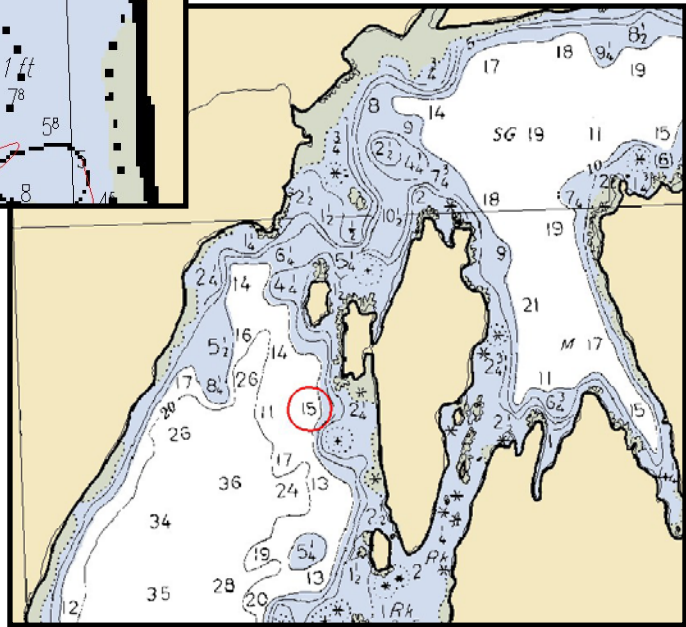


Chart 17426, Location of 10.8- fathom depth

Recommendations

Based on the results of survey H-11240, the Hydrographer recommends replacing the 15-fathom sounding at 55° 24' 31"N and 132° 28' 46 "W with a 10-fathom sounding.⁴³

A review of the soundings and chart shows a 2003 4.6 fathom sounding on the charted 5¼-fathom depth.

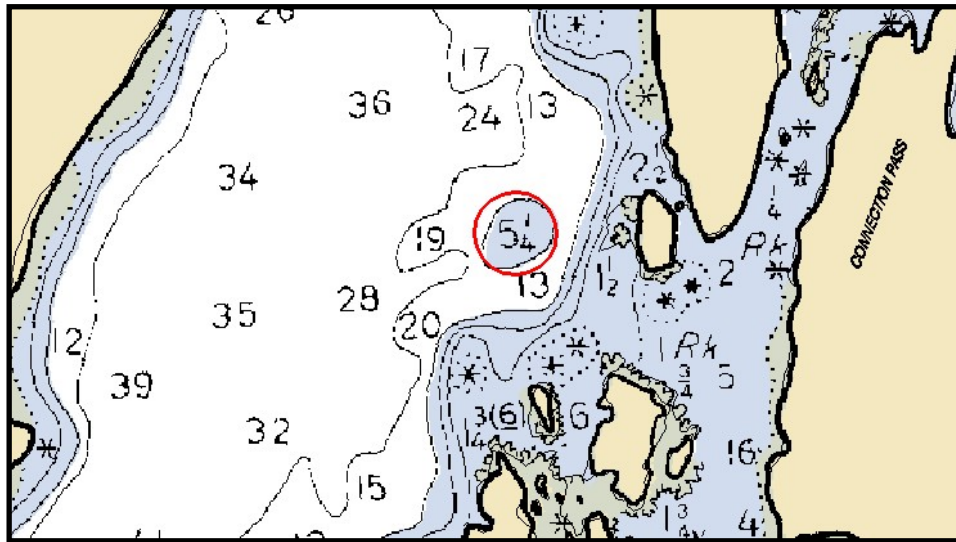
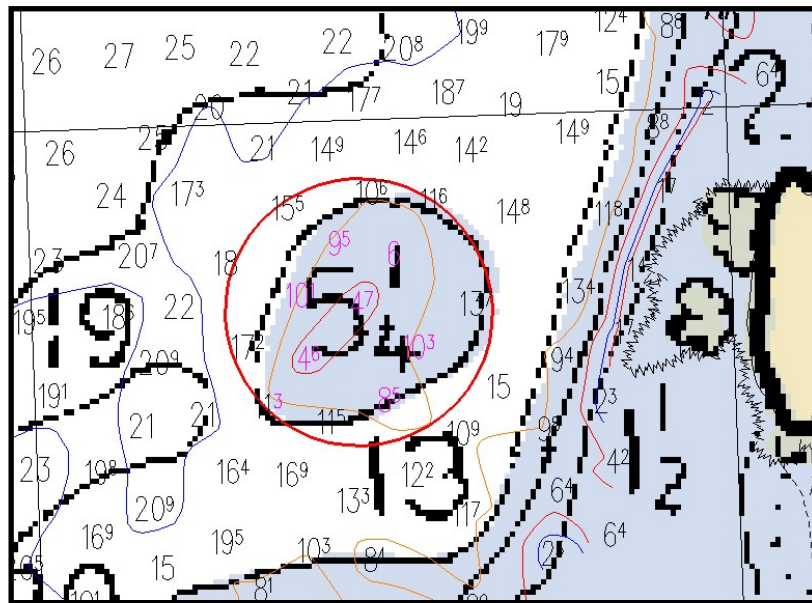


Chart 17426, Location of 5 ¼-fathom depth

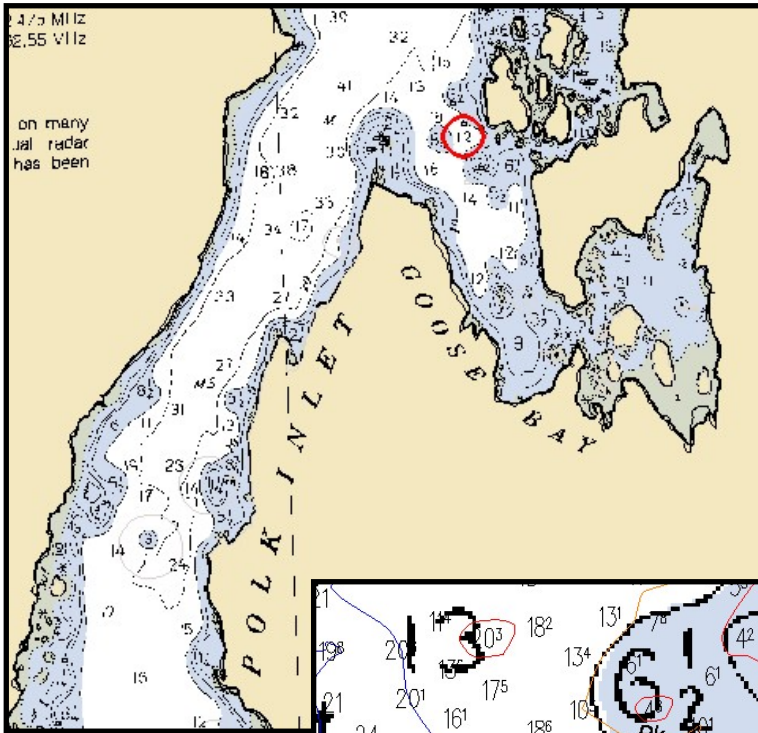


Details of surveyed depths verses charted 5 ¼-fathom depth

Recommendations

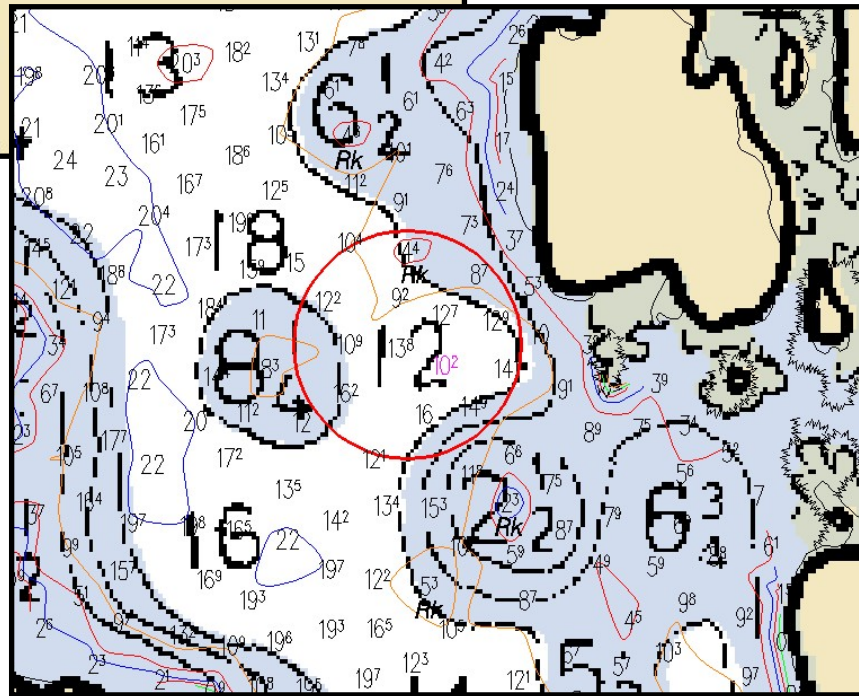
Based on the results of survey H-11240, the Hydrographer recommends replacing the 5 ¼-fathom sounding at 55° 24' 09"N and 132° 28' 48 "W with a 4½-fathom sounding.⁴⁴

A review of the soundings and chart shows a 10.2 fathom sounding on the charted 12-fathom depth.



Location of charted 12-fathom depth on Chart 17426

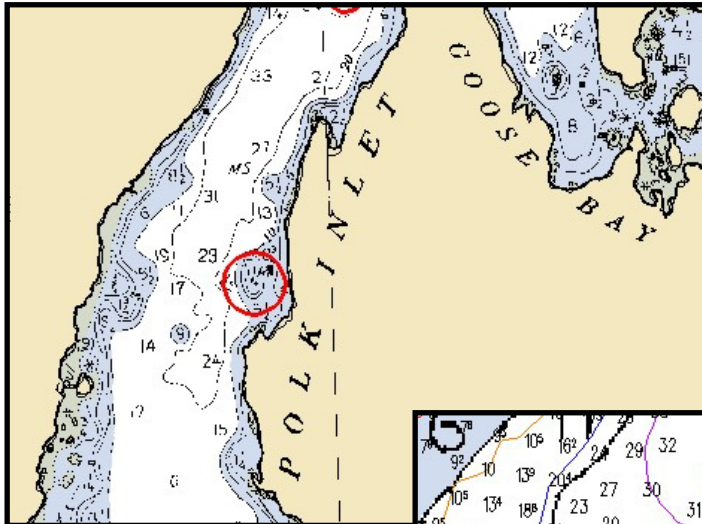
Detail of 10.2-fathom surveyed depth near charted 12-fathom depth



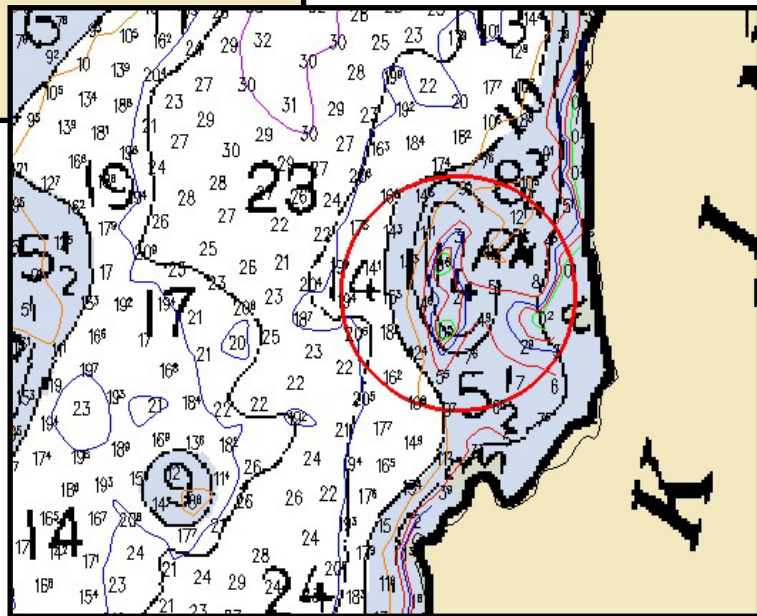
Recommendations

Based on the results of survey H-11240, the Hydrographer recommends replacing the 12-fathom sounding at 55° 23' 37"N and 132° 29' 00 "W with a 10-fathom sounding.⁴⁵

A review of the soundings and chart shows a 2003 0.5 fathom sounding on the charted 1 ¼-fathom depth.



Location of charted 1¼-fathom depth on Chart 17426

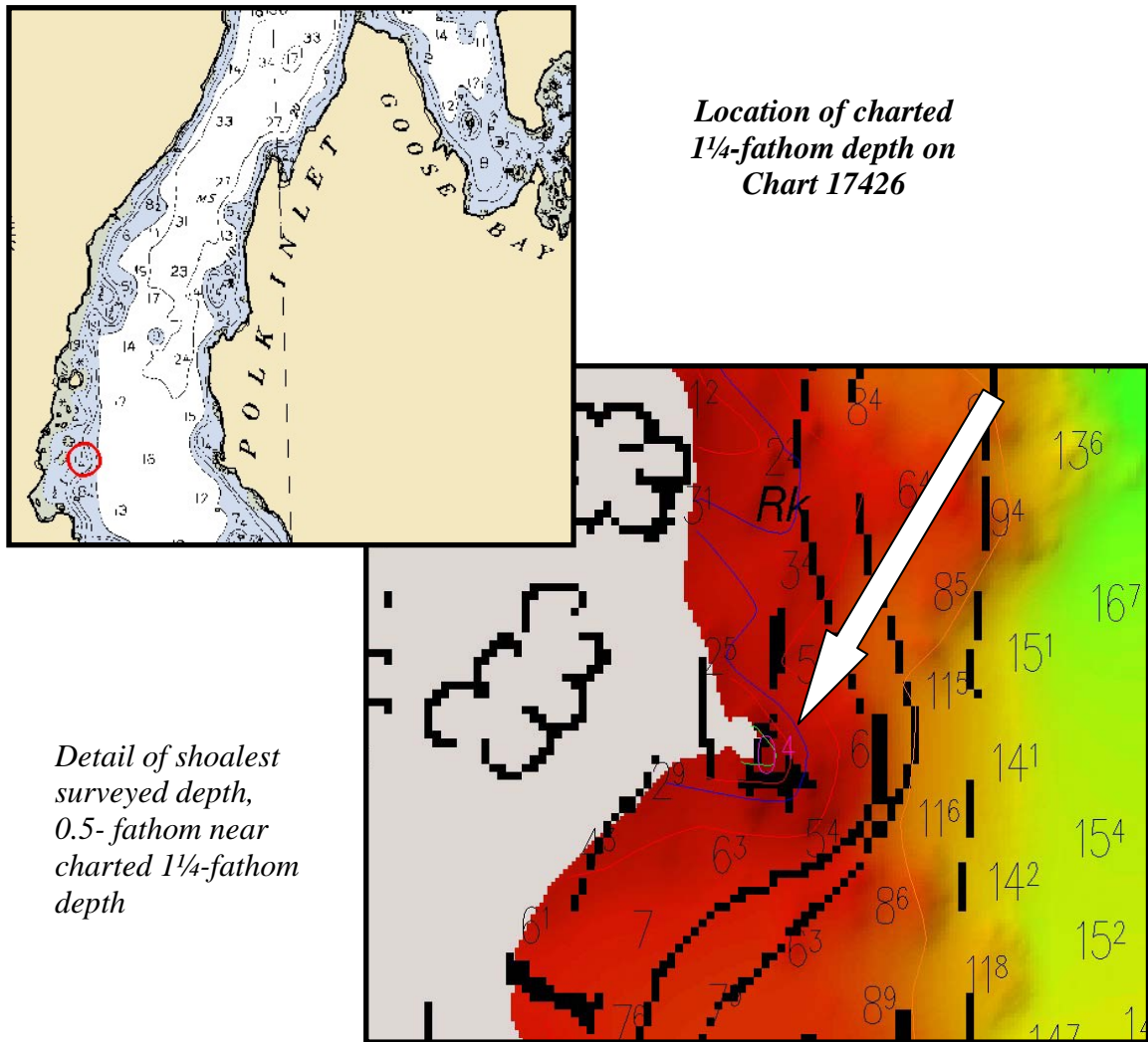


Detail of shoalest surveyed depth, 0.5-fathom near charted 1¼-fathom depth

Recommendations

Based on the results of survey H-11240, the Hydrographer recommends adjusting contours and replacing the 1¼- fathom sounding at 55° 22' 34"N and 132° 30' 24 "W with a 0½-fathom sounding.⁴⁶

A review of the soundings and chart shows a 2003 0.4-fathom sounding on the charted 1¼-fathom depth.



Recommendations

Based on the results of survey H-11240, the Hydrographer recommends replacing the 1¼- fathom sounding at 55° 22' 03"N and 132° 31' 13 "W with a 0¼-fathom sounding.⁴⁷

Chart 17420

This survey generally agreed well with the chart. There are no soundings to compare to the 2003 survey. A comparison of the chart and remote sensing data does reveal a general discrepancy in the form of a shift in the shoreline. The charted shoreline is shifted overall to the north of the remote sensing data. The remote sensing data was verified through traditional and limited methods during this survey and was found to be accurate.

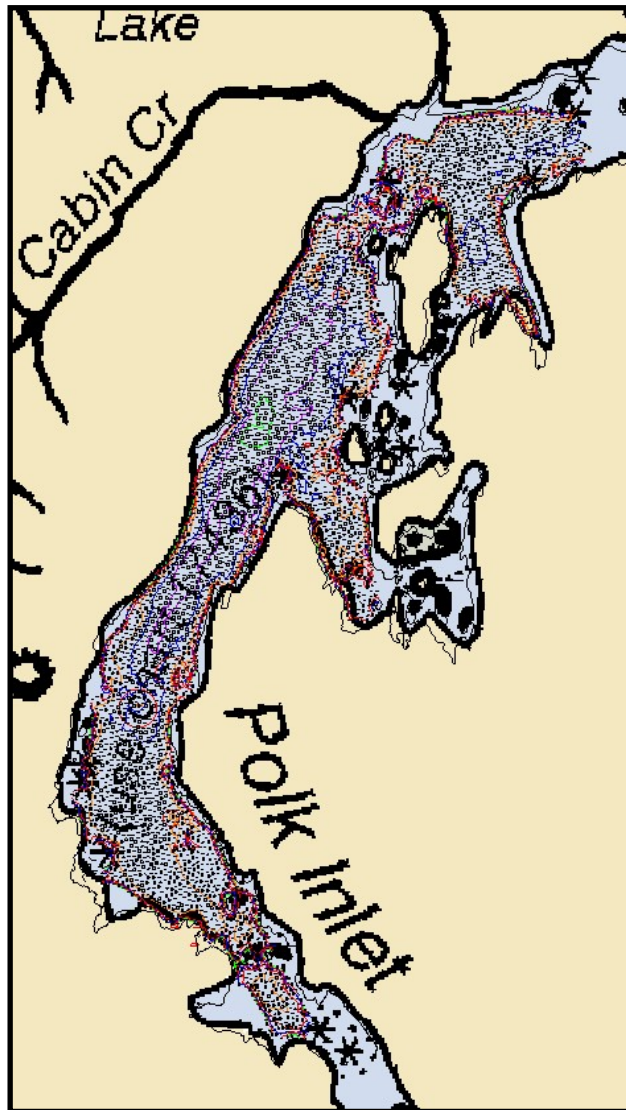


Chart 17420 showing the charted versus RSD shoreline discrepancy

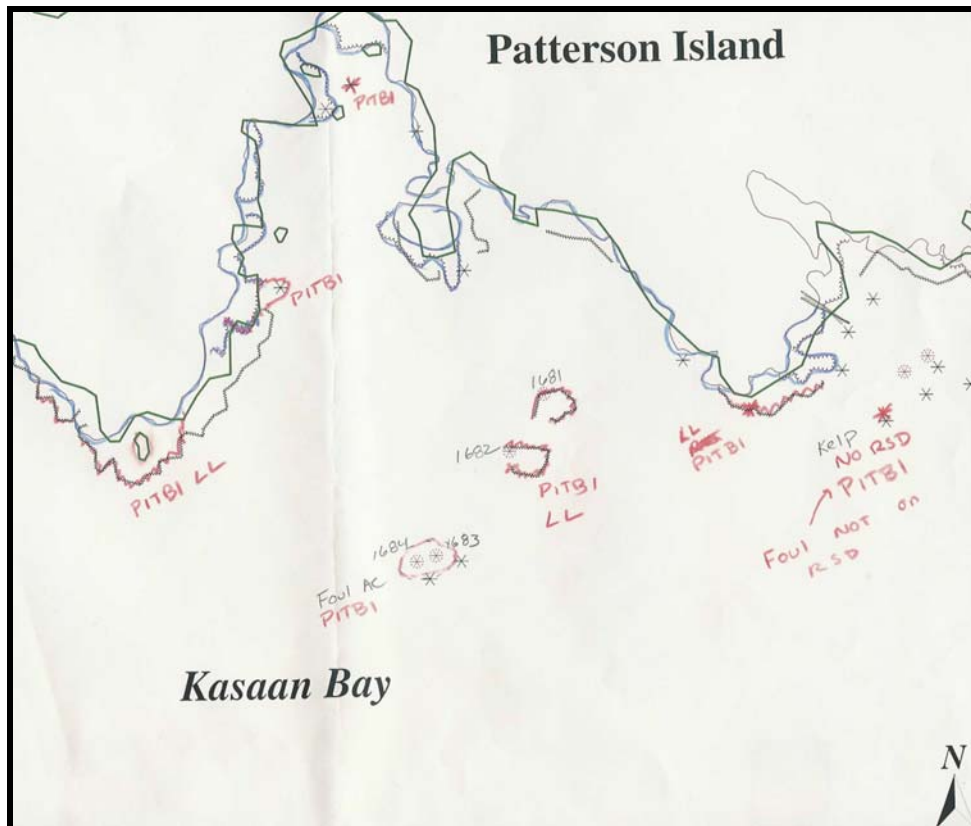
Recommendations

The newest edition of Chart 17420 should be adjusted to the 2003 RSD shoreline data.⁴⁸

D2. Additional Results

Shoreline Investigation Summary

Shoreline and near-shore investigation were required for this contract. The ground truth observations agreed well with the remote sensing data (RSD). The field crews worked with shoreline maps showing RSD and charted shoreline, ledge line, islets and rocks. The crews noted agreements, disagreements and sketched any ground-truth changes onto these maps.⁴⁹ Navigation was achieved through HYPACK software showing the position of the boat in its relationship to both sets of data simultaneously. If a feature was not represented in the RSD or disagreed with the RSD position by more than 20 meters, it was noted as a “Potential Item To Be Investigated” (PITBI) in accordance with SOW 3.4.2.1. The survey also found features that were charted, but not represented on the RSD. Those features were noted as PITBI if they were navigationally significant.⁵⁰ The field maps with notes were scanned into jpeg format. The scanned maps were then uploaded via file transfer protocol to the COTR for review.



Typical Field Notes from Shoreline Investigation

This survey identified foul areas and ledge lines that were not represented on the RSD. Refer to the following pages for location maps of these areas.

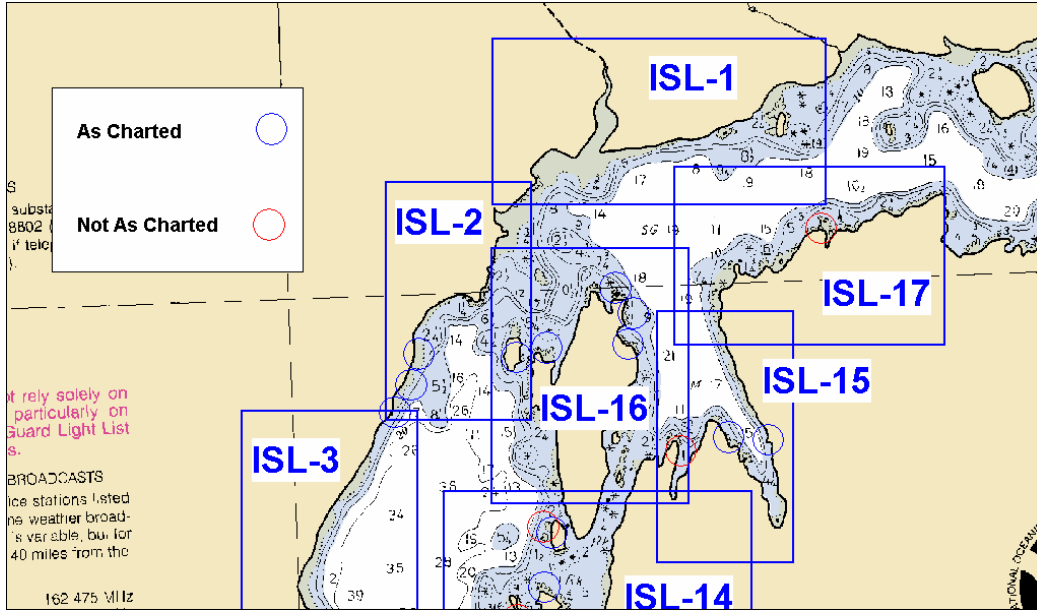


Chart 17426 with charted areas (circled blue) and not charted (circled red) areas not represented by the RSD

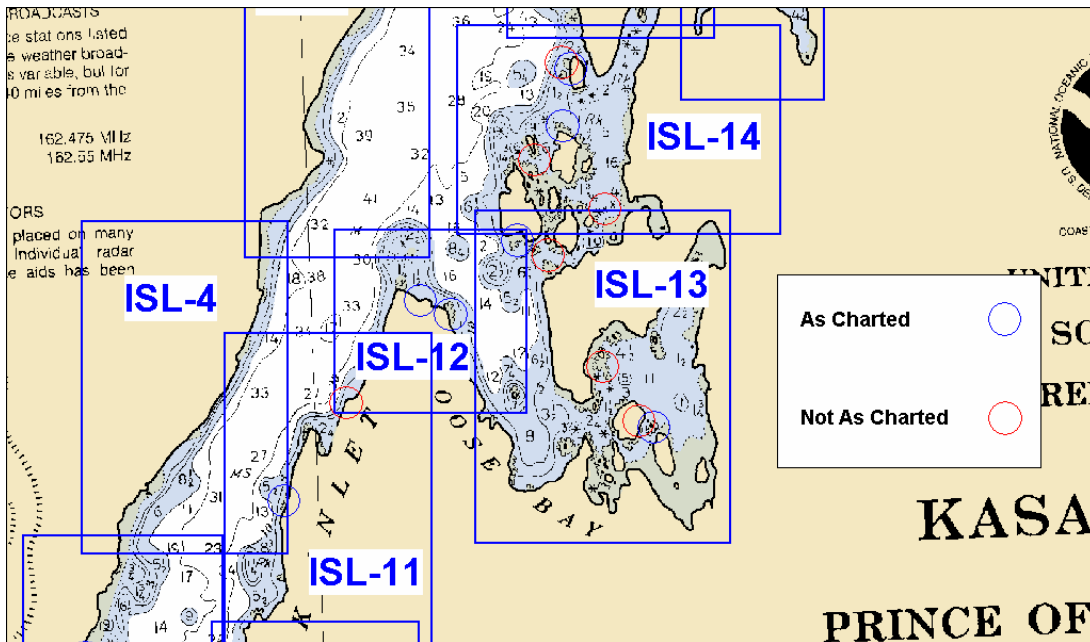


Chart 17426 with charted areas (circled blue) and not charted (circled red) areas not represented by the RSD

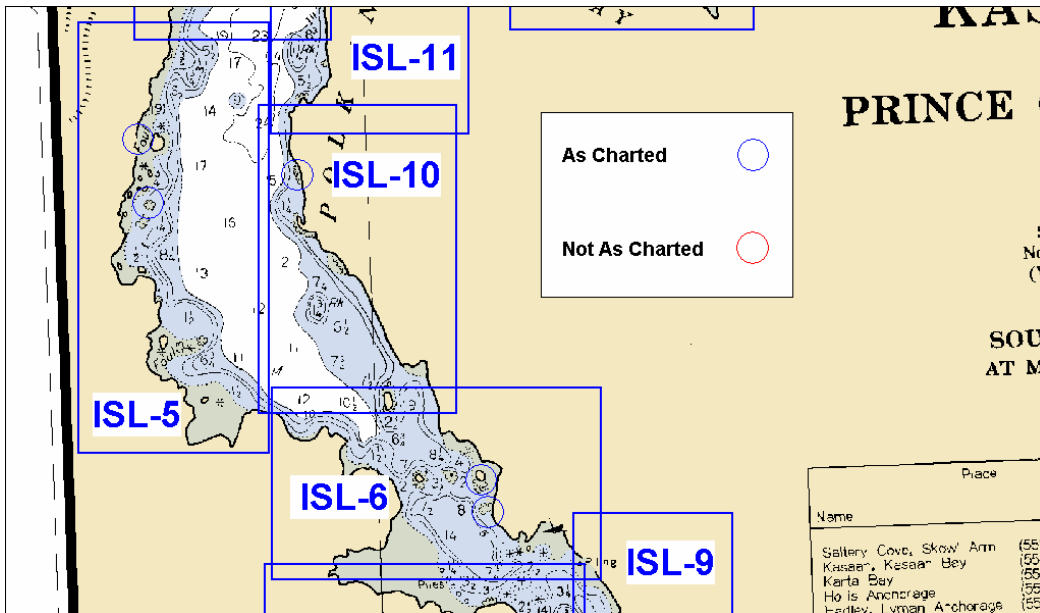


Chart 17426 with charted areas (circled blue) and not charted (circled red) areas not represented by the RSD

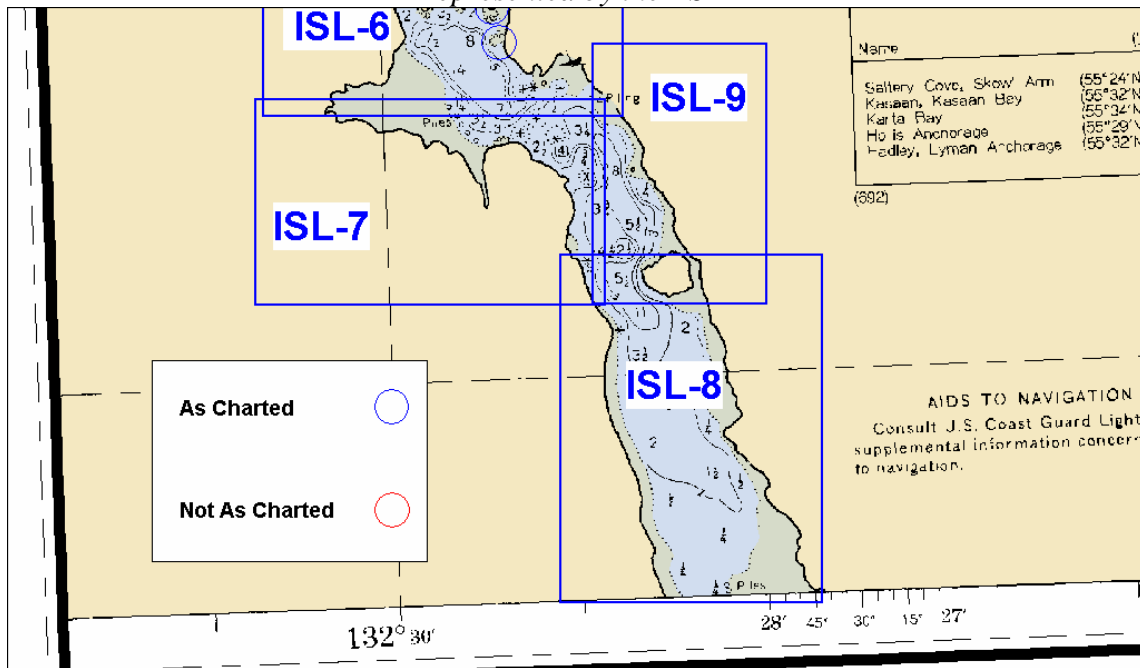


Chart 17426 with charted areas (circled blue) and not charted (circled red) areas not represented by the RSD

Recommendations

Based on the results of survey H-11240, the Hydrographer recommends retaining charted foul and ledge lines not represented by the RSD.⁵¹ The hydrographer also recommends further investigation into the areas not charted that were discovered through shoreline verification.⁵²

Traditional Verification Offshore of 4-meter Curve

Offshore features separated by navigable water from the mean high water line were verified by detached position per SOW 3.4.3. A detached position log of the item follows.⁵³ Heights and depths are in meters.

Target Number	Time UTC	Height(-) /Depth(+) Ref Water Surface	Calendar Dates	Height(-) Depth(+) Ref MLLW	On RSD	On Chart
1755	15:45:52	0	8/2/2003	-1.412	Y	Y
1757	16:22:03	-1	8/2/2003	Ledgeline ⁵⁴	Y	Y
1758	16:31:37	0	8/2/2003	Dock	N	N ⁵⁵
1760	16:40:24	0	8/2/2003	Dock	N	N ⁵⁶
1761	16:47:06	0	8/2/2003	Island	Y	Y
1768	18:35:09	-1	8/2/2003	-0.562	Y	Y
1769	18:38:53	-1.5	8/2/2003	-1.091	Y	Y
1770	18:48:30	-5	8/2/2003	Ledgeline	Y	Y
1771	18:55:08	0	8/2/2003	Island	Y	Y
1776 ⁵⁷	18:12:44	-2.5	8/4/2003	-3.450	Y	Y
1777	18:33:00	0	8/4/2003	Island	Y	Y
1778	19:03:02	-2.5	8/4/2003	-2.911	Y	Y
1779	19:13:16	-3.5	8/4/2003	-3.845	Y	Y
1829	14:00:55	-3	8/11/2003	-2.578	Y	Y
1830	14:09:44	-0.5	8/11/2003	0.088	N	Y
1831 ⁵⁸	14:15:40	-2.5	8/11/2003	-1.855	Y	Y
1832 ⁵⁹	14:17:45	-4	8/11/2003	-3.373	Y	Y
1833 ⁶⁰	14:19:38	-4.5	8/11/2003	-3.790	Y	Y
1834 ⁶¹	14:23:42	-1.5	8/11/2003	-0.821	Y	Y
1835 ⁶²	14:26:00	-4	8/11/2003	-3.256	Y	Y
1836	14:28:46	-6	8/11/2003	-5.269	Y	Y
1837 ⁶³	14:30:51	-3	8/11/2003	-2.282	Y	Y
1838	14:46:18	-3	8/11/2003	-2.175	Y	Y
1839	14:48:20	-8	8/11/2003	-7.182	Y	Y
1840 ⁶⁴	14:50:03	-3	8/11/2003	-2.153	Y	Y
1841	14:56:31	-0.3	8/11/2003	0.556	N	N
1842	14:57:56	-0.6	8/11/2003	0.254	N	N
1843	15:04:39	-3	8/11/2003	-2.142	Y	Y
1844	15:08:14	-0.5	8/11/2003	0.354	N	Y
1845 ⁶⁵	15:11:28	-1.5	8/11/2003	-0.643	Y	N
1846	15:16:32	0	8/11/2003	Island	Y	Y
1847	15:21:10	0	8/11/2003	Island	Y	Y
1848	15:24:52	-3.5	8/11/2003	-2.660	Y	Y
1849	15:27:36	-0.3	8/11/2003	0.508	N	Y
1851	15:47:07	-0.3	8/11/2003	0.421	N	Y
1852	15:55:49	-8	8/11/2003	Island	Y	Y
1854	16:06:04	1.5	8/11/2003	2.081	N	N
1855 ⁶⁶	16:16:38	-4	8/11/2003	-3.568	Y	Y

Target Number	Time UTC	Height(-) /Depth(+)		Calendar Dates	Height(-) Depth(+)		On RSD	On Chart
		Ref Water Surface	Ref		Ref MLLW			
1856	16:27:38	-3		8/11/2003	-2.731		Y	Y
1857	16:29:36	0		8/11/2003	0.296		N	Y
1858	17:12:55	0.5		8/11/2003	0.154		N	Y
1991	17:40:17	0		8/15/2003	Dock		N	N ⁶⁷
1992	17:41:39	0		8/15/2003	Dock		N	N ⁶⁸
1993	18:07:04	0		8/15/2003	0.064		N	N
1994	18:13:15	0		8/15/2003	0.021		N	Y
1860	13:58:58	0		8/12/2003	Ledgeline		Y	Y
1861	14:09:31	-1		8/12/2003	-0.910		N	N
1862	14:14:08	-4		8/12/2003	-3.794		Y	Y
1863	14:39:38	0		8/12/2003	Ledgeline		Y	Y
1864	14:51:44	0		8/12/2003	Ledgeline		Y	Y
1866	15:00:23	-2.5		8/12/2003	-1.798		Y	Y
1867	15:12:33	-3		8/12/2003	-2.196		Y	Y
1868	15:22:36	-1		8/12/2003	-0.112		N	Y
1869	15:26:48	0		8/12/2003	Island		Y	Y
1870 ⁶⁹	15:35:45	-4		8/12/2003	-3.071		Y	Y
1871	15:52:14	-1.3		8/12/2003	-0.356		N	Y
1872	15:54:08	0		8/12/2003	Ledgeline		Y	Y
1873	16:08:37	-0.6		8/12/2003	0.285		N	N
1874	16:12:23	0		8/12/2003	Island		Y	Y
1875	16:25:29	-1		8/12/2003	-0.236		N	N
1876	16:26:49	-1		8/12/2003	-0.229		N	Y
1877 ⁷⁰	16:36:10	-1.6		8/12/2003	-0.844		N	N

The above item has⁷¹ been fully investigated and is⁷² represented on the smoothsheet.

Aids to Navigation:

There are no aids to navigation to report in survey H11240.⁷³

New Docks

This survey identified three docks not represented in the RSD. They were positioned and included in the detached position log. They are also shown on the smooth sheet.⁷⁴

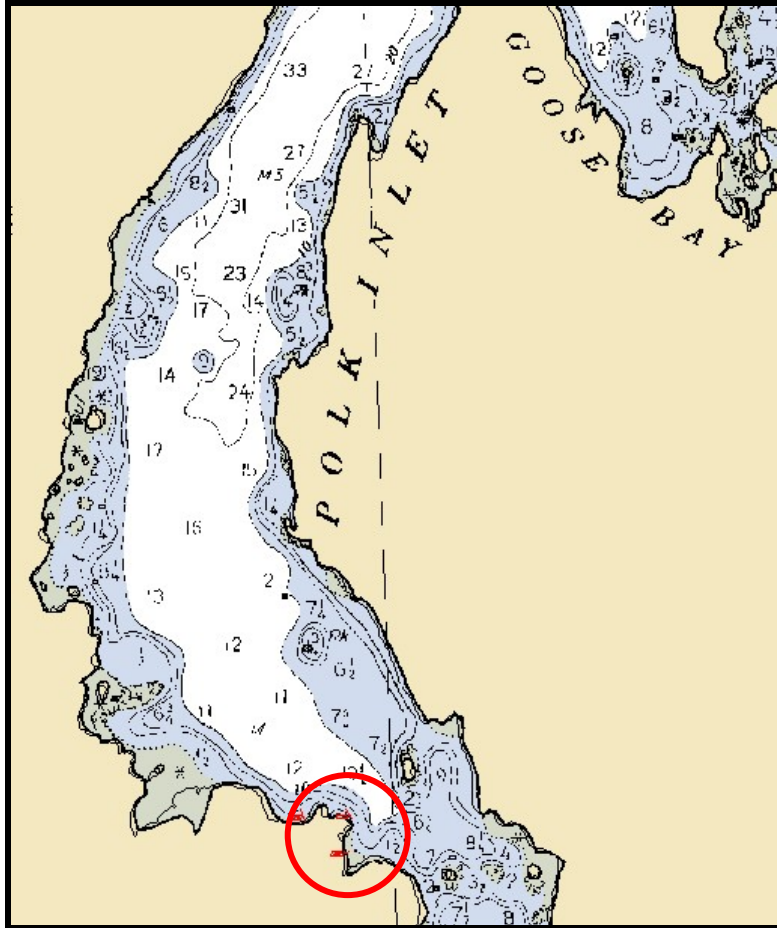
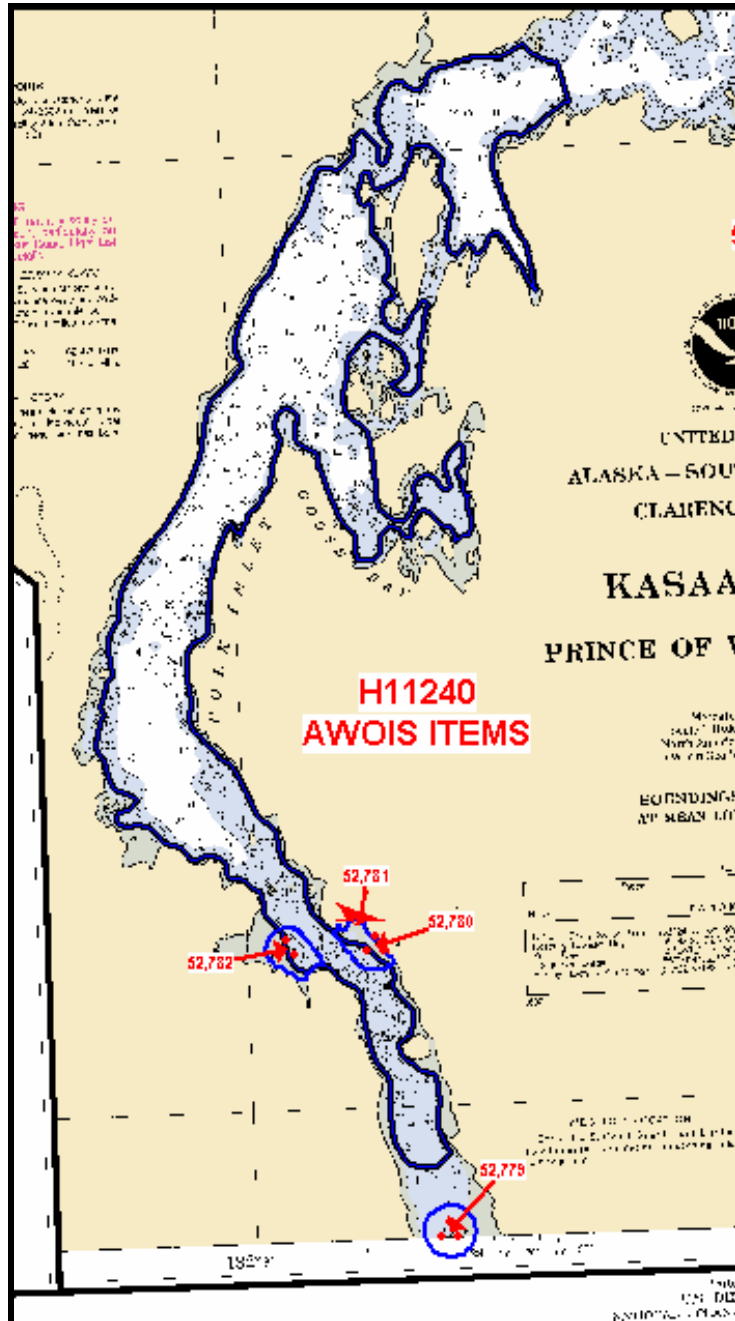


Chart 17426 and new docks

AWOIS Investigations



AWOIS Items Summary

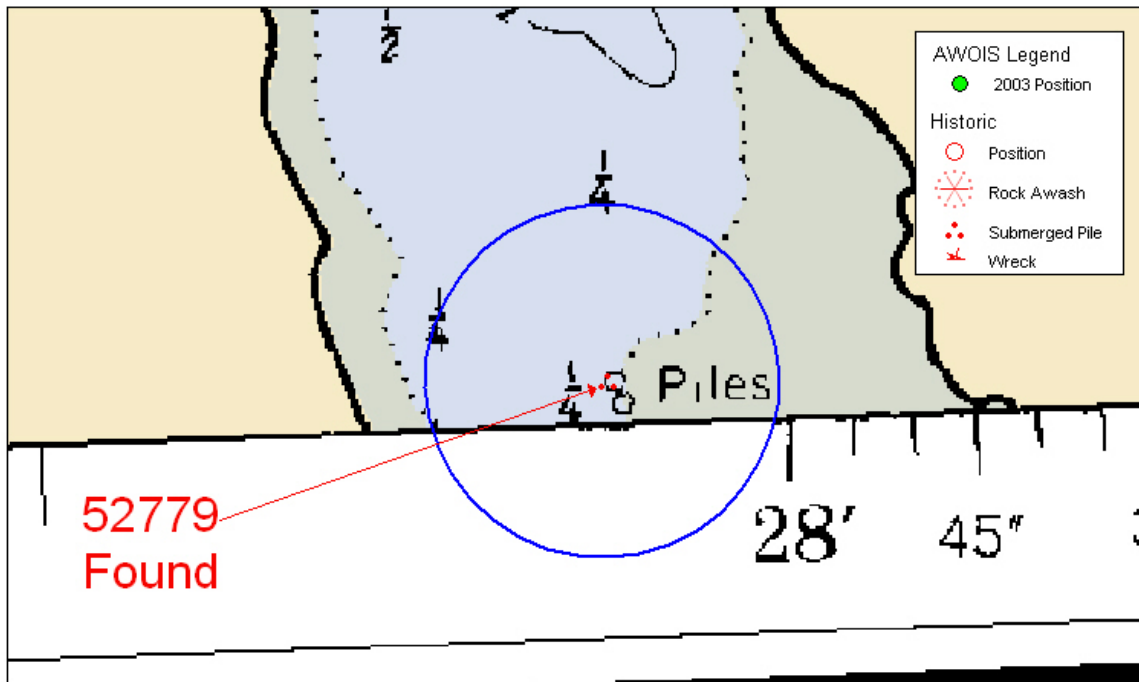
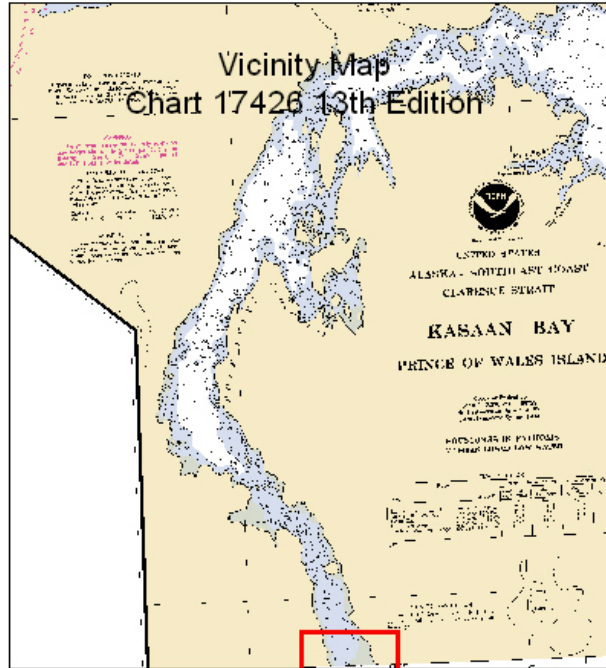
This contract requires full investigation of four AWOIS items. The table below is a summary of the items and their results. The following pages show location maps, followed by individual reports.

Record	Description	Comment
52779	Pilings	Full investigation with shoreline verification, found .
52780	Piling	Full investigation with shoreline verification, not found .
52781	Wreck	Full investigation with shoreline verification, not found .
52782	Pilings	Full investigation with shoreline verification and SWMB, not found .

Historical and 2003
AWOIS Positions

H-11240

52779



Item Investigation Report

Description (as charted): Pilings
Source: AWOIS record number 52779
Charted Position: Lat 55°19'20.35"N Long 132°28'14.23"W
Charts Affected: 17426 13th edition, July 11, 1992

Investigation

Date(s)/Day Number(s): 08/02/2003 / DN214
Survey Vessel Name: Ducer
Position Numbers/Time: 1,767/18:11:44
Investigation Method: Shoreline Verification
Surveyed Position (NAD83): Search position: Lat 55°19'34.27"N Long 132°28'19.47"W
Position Determined By: Differential GPS
Investigation Summary: The charted position of this item fell outside the limits of hydrography. The AWOIS radius was fully investigated by a combination of 200% SWMB coverage and visual shoreline investigation. Three pilings were located on a shoal 1500 meters⁷⁵ to the south.⁷⁶

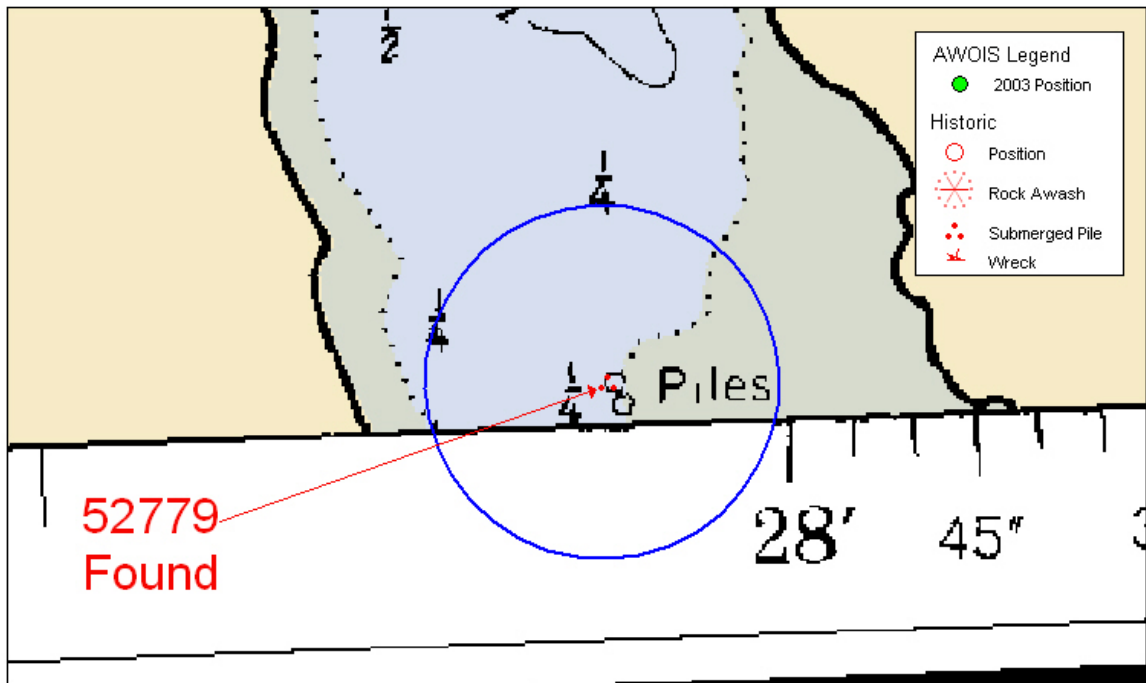
Charting Recommendation

Based on the results of survey H-11240, the hydrographer recommends the piles symbol be retained as charted and left in the database.⁷⁷

Recommended Least Depth: N/A



AWOIS item 52779, looking N



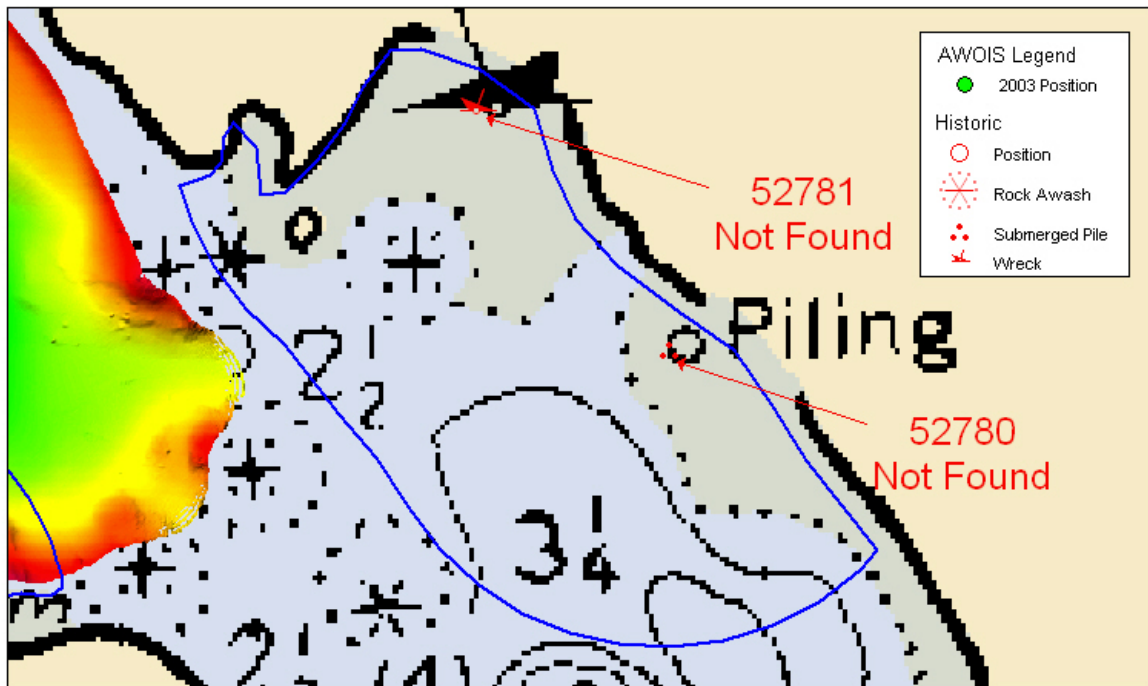
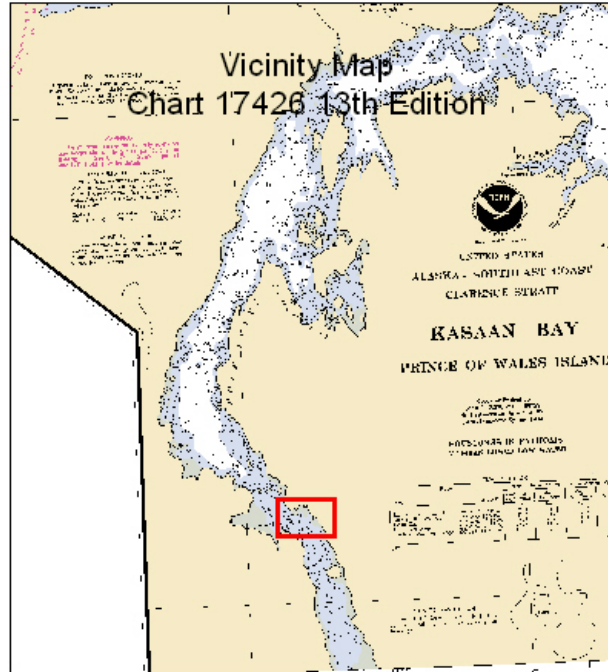
AWOIS item 52779, radius, Chart 17426

Historical and 2003
AWOIS Positions

H-11240

52780

52781



Item Investigation Report

Description (as charted): Piling
Source: AWOIS record number 52780
Charted Position: Lat 55°20'51.12"N Long 132°28'49.77"W
Charts Affected: 17426 13th edition July 11, 1992

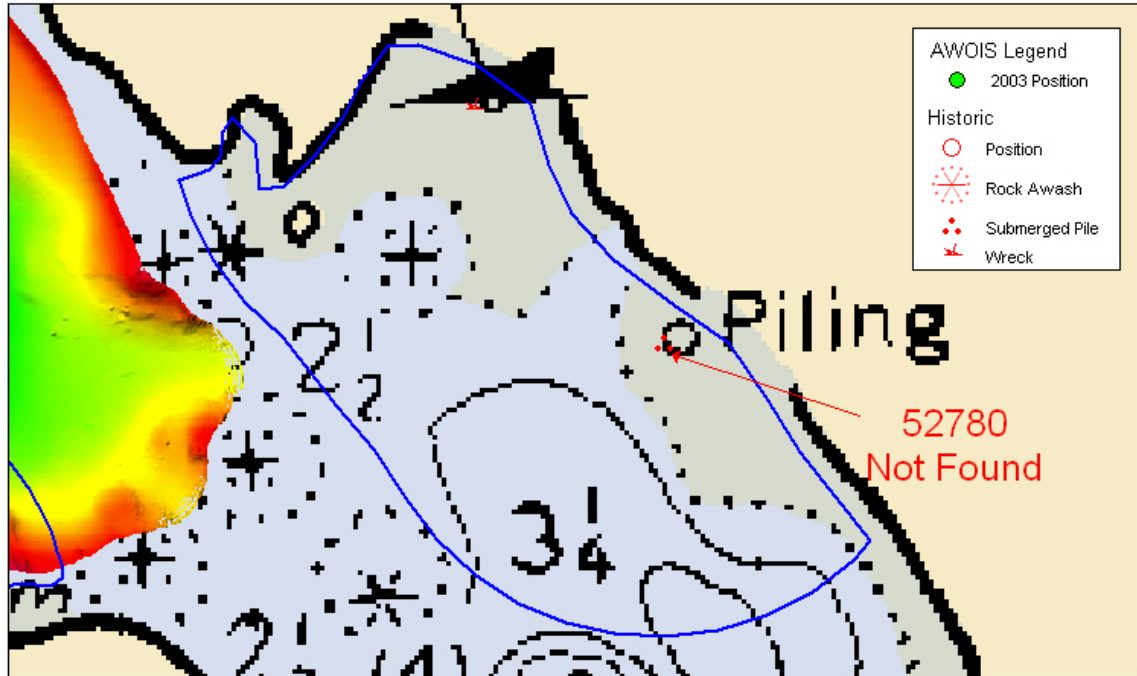
Investigation

Date(s)/Day Number(s): 08/02/2003 / DN 214
Survey Vessel Name: Ducer
Position Numbers/Time: 1766/17:54:21
Investigation Method: Shoreline Verification and 200%SWMB⁷⁸
Surveyed Position (NAD83): Search Position Lat 55°20'46.21N Lat 132°28'47.68"W
Position Determined By: Differential GPS
Investigation Summary: The charted position of this item fell outside the limits of hydrography. The AWOIS radius was fully investigated by a combination of 200% SWMB coverage⁷⁹ and visual shoreline investigation. A review of the digital terrain model detected no topographic relief.

Charting Recommendation

Based on the results of survey H-11240, the hydrographer recommends the piling symbol be removed from the chart and database.⁸⁰

Recommended Least Depth: N/A



AWOIS item 52780, radius, 2003 bathymetry, Chart 17426

Item Investigation Report

Description (as charted): Wreck
Source: AWOIS record number 52781
Charted Position: Lat 55°20'57.78"N Long 132°28'58.54"W
Charts Affected: 17426 13th edition July 11, 1992

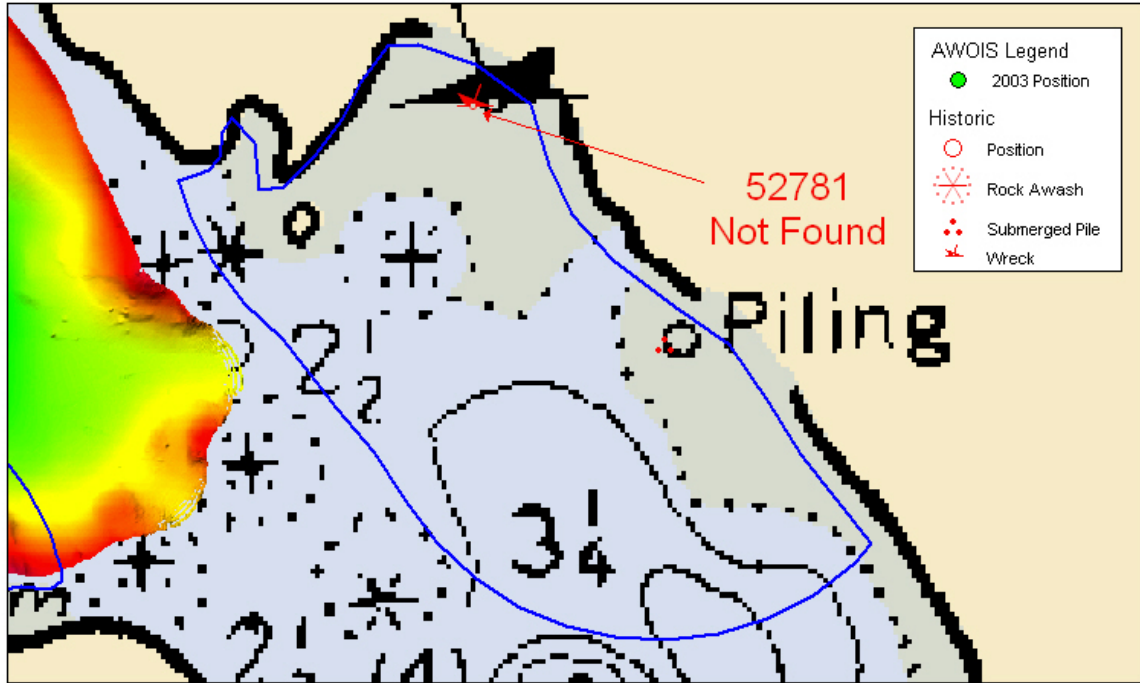
Investigation

Date(s)/Day Number(s): 08/02/2003 / DN 214
Survey Vessel Name: Ducer
Position Numbers/Time: 1766/17:54:21
Investigation Method: Shallow Water Multi-beam Sonar⁸¹/Shoreline Verification
Surveyed Position (NAD83): Search Position Lat 55°20'46.21N Long 132°28'47.68"W
Position Determined By: Differential GPS
Investigation Summary: The charted position of this item fell outside the limits of hydrography. The AWOIS radius was fully investigated by a combination of 200% SWMB coverage⁸² and visual shoreline investigation. A review of the digital terrain model detected no topographic relief.

Charting Recommendation

Based on the results of survey H-11240, the hydrographer recommends that the wreck symbol be removed from the chart and database.⁸³

Recommended Least Depth: N/A

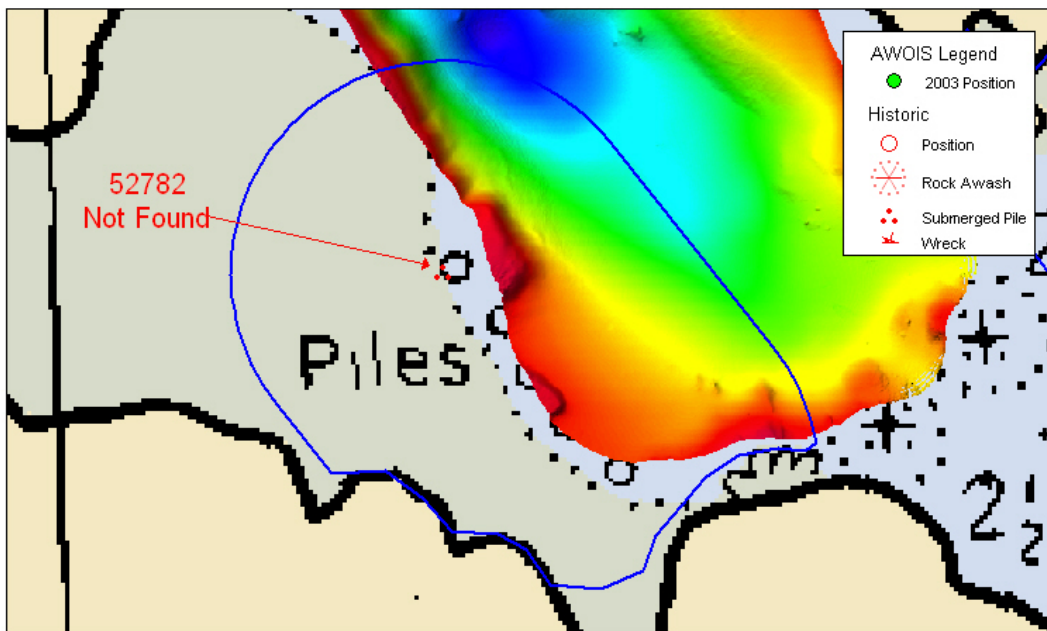
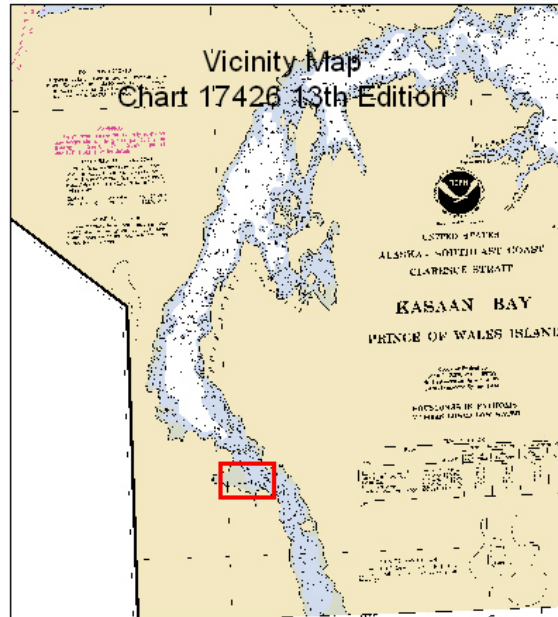


AWOIS item 52781, radius, 2003 bathymetry, Chart 17426

Historical and 2003
AWOIS Positions

H-11240

52782



Item Investigation Report

Description (as charted): Pilings
Source: AWOIS record number 52782
Charted Position: Lat 55°20'50.90"N Long 132°29'38.83"W
Charts Affected: 17426 13th edition, July 11, 1992

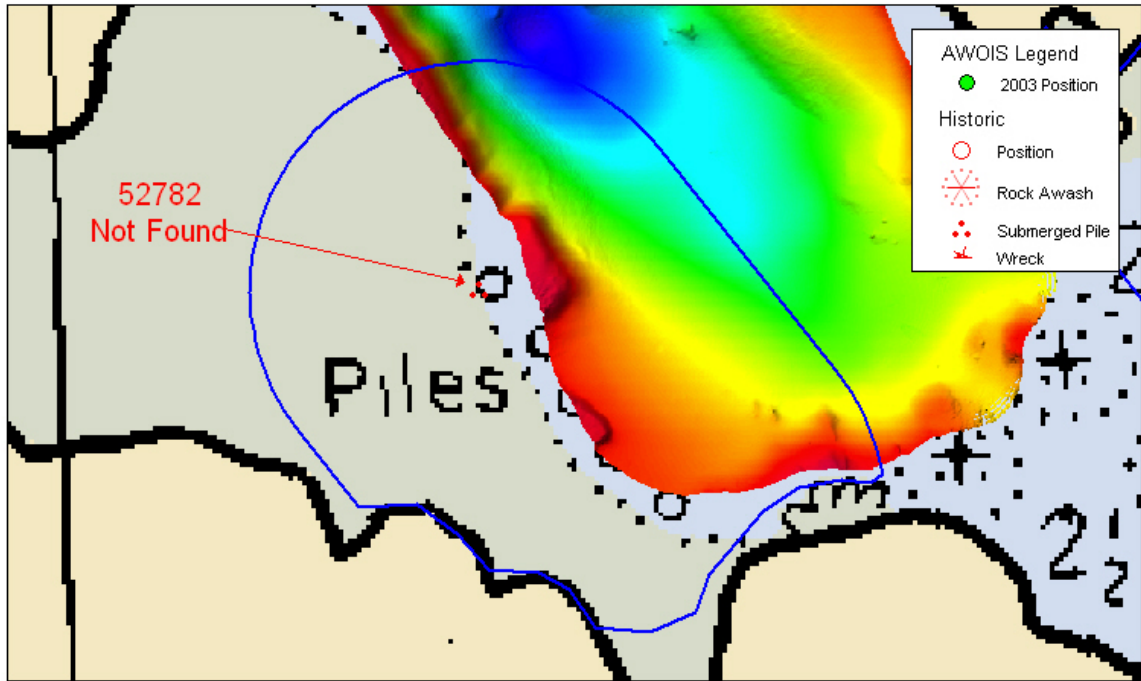
Investigation

Date(s)/Day Number(s): 08/02/2003 / DN214
Survey Vessel Name: Ducer
Position Numbers/Time: 1762/17:16:50
Investigation Method: Shoreline Verification
Surveyed Position (NAD83): Search Position Lat 55°20' 48.71"N, Long 32°29' 27.21"W
Position Determined By: Differential GPS
Investigation Summary: The charted position of this item fell outside the limits of hydrography. The AWOIS radius was fully investigated by a combination of 200% SWMB coverage and visual shoreline investigation. A review of the digital terrain model detected no topographic relief.

Charting Recommendation

Based on the results of survey H-11240, the hydrographer recommends the piles symbol be removed from the chart and database.⁸⁴

Recommended Least Depth: N/A



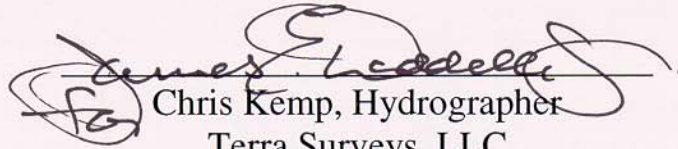
AWOIS item 52782, radius, 2003 bathymetry, Chart 17426

LETTER OF APPROVAL REGISTRY NO. H11240

This Report and the accompanying smooth sheet are respectfully submitted.

Field operations contributing to the accomplishment of survey H11240 were conducted under my direct supervision with frequent personal checks of progress and adequacy. This report, smooth sheet, digital data, and accompanying records have been closely reviewed and are considered complete and adequate as per the Statement of Work. Other reports submitted with this survey include Data Acquisition and Processing Report, Vertical and Horizontal Report, and the Shoreline Verification Field Notes.

I believe this survey is complete and adequate for its intended purpose.


Chris Kemp, Hydrographer
Terra Surveys, LLC

Date 1/20/04

Danger to Navigation Report

APPENDIX I

Dangers to Navigation

Danger to Navigation Report

Hydrographic Survey Registry Number: H11240

Survey Title: State: Alaska Locality: Kasaan Bay Sub-locality: Polk Inlet

Project Number: OPR-O331-KR-03

Survey Dates: July - August 2003

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>
17420	1:229,376	26 th	09/22/01
17426	1:40,000	13 ^h	07/11/92
17436	1:40,000	6 th	08/19/89

DANGERS:⁸⁵

<u>Feature</u>	<u>Depth(ft or fms)</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
Sounding	1 fms 2 ft	55° 25' 04.8"	132° 28' 09.3"
Sounding	2 fms 3 ft	55° 24' 50.9"	132° 28' 50.0" ⁸⁶
Rock	9 fms 3 ft	55° 24' 33.2"	132° 28' 54.5"
Sounding	4 fms 3 ft	55° 24' 09.3"	132° 28' 48.4"
Sounding	3 ft	55° 22' 33.9"	132° 30' 24.1"

COMMENTS:

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch at (206) 526-6835

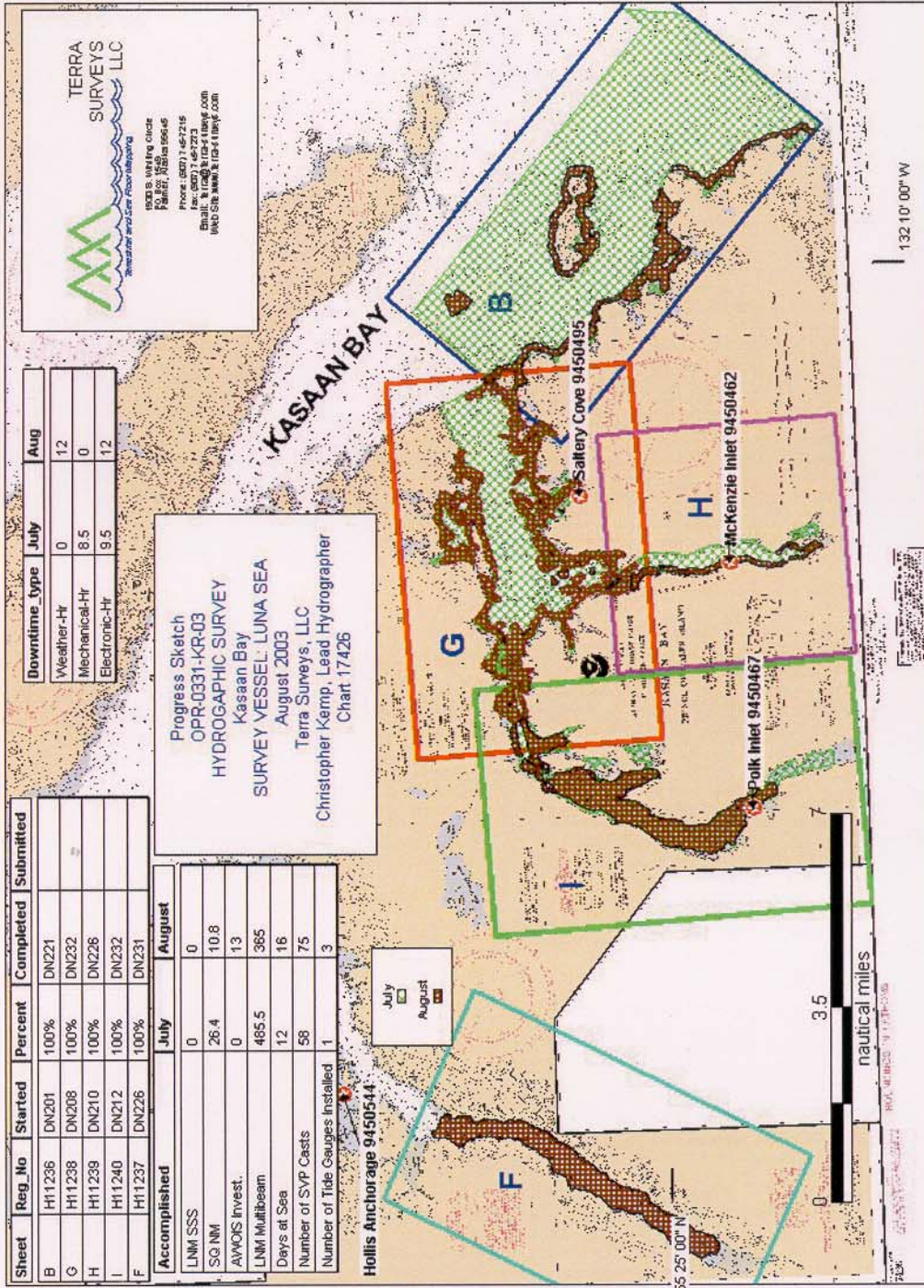
APPENDIX II

List of Geographic Names

There were no corrections or new geographic names to report on within the limits of the survey area.⁸⁷

APPENDIX III

Progress Sketch



APPENDIX IV

Tides and Water Levels

2003 FIELD and FINAL TIDE NOTE

Hydrographic Sheet: H11240

Sheet I

Polk Inlet

Kasaan Bay, Alaska

NOAA Project No:	OPR-0331-KR-2003 Kasaan Bay, Alaska				
NOAA Contract No:	50-DGNC-0-90003				
The NOS Ketchikan, AK tide station (945-0460) served as control for the subordinate stations on this project. Datum determinations were made for the tertiary subordinate stations: Saltery Cove (945-0495) and Hollis Anchorage (945-0544). The NTDE 1983-2001 was utilized.					
Location and Time Meridian	Name:	Lat (NAD83)	Long(NAD83)	Time Meridian:	
	Saltery Cove	55° 24' 07"	132° 19' 53"	0° (UTC)	
	Hollis Anchorage	55° 28' 45"	132° 38' 30"	0° (UTC)	
Time Period and Datum Reference	Name:	Established:	Removed:	MLLW	MHW
	Saltery Cove	7/17/2003	9/3/2003	0.000 m	4.472 m
	Hollis Anchorage	8/12/2003	9/1/2003	0.000 m	4.584 m
Tide Observer	Terra Surveys, LLC 1930 South Whiting Circle Palmer, Alaska 99645 (907) 745-7215				
Gauges	Design Analysis Ass. H350XL/355 bubbler systems.				
Install Type	Each gauge was secured inside a waterproof case, and fastened vertically inside of an enclosed Rubbermaid garden toolshed. Refer to the tide station package for additional site specific details of installation.				
Tide Staff	No tide staff was installed. Levelling was performed from a tidal bench mark to the water surface. The water height was read using a metric rod with a stilling well attached to remove interference from waves.				
Bench Marks	The following bench marks were installed at these sites: Saltery Cove: none Hollis Anchorage: none The following bench marks were recovered at these sites: Saltery Cove: BM 2 1921, BM 3 1921, BM 4 1958, BM 5 1958, BM 6 1959 Hollis Anchorage: BM 1 1924, BM 2 1924, BM 3 1924, BM 4 1953, BM 5 1960				
Levels	Bench marks were levelled at the installation and removal of the tidal stations. The bench marks and station datums were connected through frequent water level measurements. The level runs closed within NOS tolerance.				
Final Tidal Zoning	This sheet is covered by zone SA100 and SA38.				
Reduction of Hydrographic Data	Six minute tide data reduced to MLLW and smoothed with a 5th order 5 hour polynomial curve fit and was provided to Terra Surveys, LLC (prime contractor) by John Oswald and Associates (JOA) throughout the field season. In October of 2003, JOA finalized datums and forwarded all data necessary to reduce hydrographic soundings to the prime contractor.				

APPENDIX V

Supplemental Survey Records and Correspondence

There are no supplemental survey records or correspondence to report on this survey.⁸⁸

APPENDIX VI

AWOIS

RECRD **VESLTERMS** **CHART** **AREA**
CARTOCODE **SNDINGCODE** **DEPTH**

NATIVLAT	<input type="text" value="55/19/20.35"/>	NATIVLON	<input type="text" value="132/28/14.23"/>	NATIVDATUM	<input type="text" value="31"/>
LAT83	<input type="text" value="55/19/20.35"/>	LONG83	<input type="text" value="132/28/14.23"/>	GPQUALITY	<input type="text" value="High"/>
LATDEC	<input type="text" value="55"/> <input type="text" value="19"/> <input type="text" value="20.35"/>	LONDEC	<input type="text" value="132"/> <input type="text" value="28"/> <input type="text" value="14.23"/>	GPSOURCE	<input type="text" value="Scaled"/>

PROJECT **ITEMSTATUS** **SEARCHTYPE**
RADIUS **INIT** **ASSIGNED**
TECNIQ

Techniqnote

History

Fieldnote
Position Determined By: Differential GPS
Investigation Summary: The charted position of this item fell outside the limits of hydrography. The AWOIS radius was fully investigated by a combination of 200% SWMB coverage and visual shoreline investigation. Three pilings were located.
Charting Recommendation
Based on the results of survey H-11240, the hydrographer recommends the piles symbol be retained as charted and left in the database.
Recommended Least Depth:N/A"/>

Proprietary

YEARSUNK **NIMANUM** **SYSTEMNUM** **Print Record**

RECRD
VESLTERMS
CHART
AREA

CARTOCODE
SNDINGCODE
DEPTH

NATIVLAT	<input type="text" value="55/20/51.12"/>	NATIVLON	<input type="text" value="132/28/49.77"/>	NATIVDATUM	<input type="text" value="31"/>
LAT83	<input type="text" value="55/20/51.12"/>	LONG83	<input type="text" value="132/28/49.77"/>	GPQUALITY	<input type="text" value="High"/>
LATDEC	<input type="text" value="55"/> <input type="text" value="20"/> <input type="text" value="51.12"/>	LONDEC	<input type="text" value="132"/> <input type="text" value="28"/> <input type="text" value="49.77"/>	GPSOURCE	<input type="text" value="Scaled"/>

PROJECT
ITEMSTATUS
SEARCHTYPE

RADIUS
INIT
ASSIGNED

TECNIQ

Techniqnote

History

Fieldnote

Description (as charted):Piling
 Source:AWOIS record number 52780
 Charted Position: Lat 55/20/51.12N Long 132/28/49.77W
 Charts Affected: 1742613th edition July 11, 1992

Investigation
 Date(s)/Day Number(s):08/02/2003 / DN 214
 Survey Vessel Name: Ducer
 Position Numbers/Time: 1766/17:54:21

Investigation Method: Shoreline Verification
 Surveyed Position (NAD83): Search Position Lat 55°20'46.21"N Lat 132°28'47.68"W
 Position Determined By:Differential GPS
 Investigation Summary:The charted position of this item fell outside the limits of hydrography. The AWOIS radius was fully investigated by visual shoreline investigation. A review of the digital terrain model detected no topographic relief.

Charting Recommendation
 Based on the results of survey H-11240, the hydrographer recommends the piling symbol be removed from the chart and database.
 Recommended Least Depth: N/A

Proprietary

YEARSUNK
NIMANUM
SYSTEMNUM

RECRD
VESLTERMS
CHART
AREA

CARTOCODE
SNDINGCODE
DEPTH

NATIVLAT
NATIVLON
NATIVDATUM

LAT83
LONG83
GPQUALITY

LATDEC
LONDEC
GPSOURCE

PROJECT
ITEMSTATUS
SEARCHTYPE

RADIUS
INIT
ASSIGNED

TECNIQ

Techniqnote

History

Fieldnote
 Position Determined By:Differential GPS
 Investigation Summary:The charted position of this item fell outside the limits of hydrography. The AWOIS radius was fully investigated by visual shoreline investigation. A review of the digital terrain model detected no topographic relief.
 Charting Recommendation
 Based on the results of survey H-11240, the hydrographer recommends that the wreck symbol be removed from the chart and database.
 Recommended Least Depth:N/A"/>

Proprietary

YEARSUNK
NIMANUM
SYSTEMNUM
Print Record

RECRD
VESLTERMS
CHART
AREA

CARTOCODE
SNDINGCODE
DEPTH

NATIVLAT
NATIVLON
NATIVDATUM

LAT83
LONG83
GPQUALITY

LATDEC
LONDEC
GPSOURCE

[Convert](#)

PROJECT
ITEMSTATUS
SEARCHTYPE

RADIUS
INIT
ASSIGNED

TECNIQ

Techniqnote

History

THE AWOIS POSITION IS ON THE SEAWARD-MOST PILE.
 H08466 (1959)-- THIS HYDROGRAPHIC SURVEY FOUND THIS LOG STORAGE STRUCTURE CONSISTING OF 5 PILES
 EXTENDING FROM:
 LAT. 55/20/44.48N, LONG. 132/29/30.42W (NAD83) TO LAT. 55/20/50.90N, LONG. 132/29/38.83W (NAD83)
 (ENTERED 6/01 BY MBH)

Fieldnote

Description (as charted): Piling
 Source: AWOIS record number 52782
 Charted Position: Lat 55/20/50.90N Long 132/29/38.83W
 Charts Affected: 17426 13th edition, July 11, 1992
 Investigation
 Date(s)/Day Number(s): 08/02/2003 / DN214
 Survey Vessel Name: Ducer
 Position Numbers/Time: 1762/17:16:50
 Investigation Method: Shoreline Verification
 Surveyed Position (NAD83): Search Position Lat55°20' 48.71"N Long 132°29' 27.21"W
 Position Determined By: Differential GPS

Investigation Summary: The charted position of this item fell outside the limits of hydrography. The AWOIS radius was fully investigated by a combination of 200% SWMB coverage and visual shoreline investigation. A review of the digital terrain model detected no topographic relief.

Charting Recommendation
 Based on the results of survey H-11240, the hydrographer recommends the piles symbol be removed from the chart and database.

Recommended Least Depth: N/A

Proprietary

Evaluator comment: Concur with clarification. Remove pile symbol and notation from affected charts.

YEARSUNK
NIMANUM
SYSTEMNUM

Revisions Compiled During Office Processing and Certification

¹ Concur.

² Insert “above datum”.

³ Concur.

⁴ Data Acquisition and Processing Report, filed with the project reports.

⁵ Concur. The data is adequate to supersede all prior surveys and miscellaneous charted data except as specifically mentioned in this report or the Hdrawing.

⁶ Filed with the project reports.

⁷ Strikethrough ~~it's~~, replace with “its”.

⁸ Concur.

⁹ Concur.

¹⁰ Filed with the project reports.

¹¹ Strikethrough ~~is~~, replace with “are”.

¹² For additional information, see Final Tide Note attached to this report.

¹³ Filed with the project reports.

¹⁴ Office comparison was also made to Chart 17426, 14th Edition and Chart 17436, 8th Edition, continuous maintenance rasters.

¹⁵ Do not concur. Five Dangers to Navigation were submitted after PHB review and are discussed in Appendix I, Dangers to Navigation, attached to this report.

¹⁶ Concur.

¹⁷ The evaluator concurs with the hydrographer’s chart comparisons below except as noted.

¹⁸ Strikethrough ~~seven~~, replace with “twenty”.

¹⁹ Chart all features according to the smooth sheet and Hdrawing except as noted.

²⁰ Concur with clarification. The sounding is displayed on the smooth sheet and Hdwg in an area with a *rky* notation. Chart *rky* as shown on the smooth sheet and Hdrawing.

²¹ Concur with clarification. The sounding is displayed on the smooth sheet and Hdwg in an area with a *rky* notation. Chart *rky* as shown on the smooth sheet and Hdrawing.

²² Concur with clarification. Chart 1 fm 2 ft *Rk* at smooth sheet position.

²³ Concur with clarification. The sounding is displayed on the smooth sheet and Hdwg in an area with a *rky* notation. Chart *rky* as shown on the smooth sheet and Hdrawing.

²⁴ Due to a shoaler nearby rock, the rock is not shown on the Hdrawing. Chart 2 fm *Rk* at smooth sheet location.

²⁵ Concur with clarification. Chart 5 fm 2 ft sounding with *rky* notation as depicted on the Hdrawing.

²⁶ Concur with clarification. The rock was previously charted on 17426, 14th edition, continuous maintenance raster, as a 2½ fm sounding, and on 17436, 8th Edition, continuous maintenance raster, as a 2 fm 3 ft sounding. Chart 2 fm 2 ft *Rk* at smooth sheet position.

²⁷ Concur with clarification. Chart 4 fm 2 ft sounding with *rky* notation as depicted on the Hdrawing.

²⁸ Concur with clarification. Chart 4 fm 5 ft sounding with *rky* notation as depicted on the Hdrawing.

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- ²⁹ Concur with clarification. Chart 2 fm *Rk* at smooth sheet position.
- ³⁰ Concur with clarification. Chart 2 fm 1 ft sounding at smooth sheet location.
- ³¹ Concur with clarification. The rock was submitted as a Danger to Navigation. See Appendix 1, Danger to Navigation Report, attached to this report, for further information.
- ³² Concur with clarification. The rock was submitted as a Danger to Navigation. See Appendix 1, Danger to Navigation Report, attached to this report, for further information.
- ³³ Concur with clarification. Chart 3 fm 3 ft sounding with *rky* notation as depicted on the Hdrawing.
- ³⁴ Concur with clarification. Chart 0 fm 5 ft *Rk* at smooth sheet position.
- ³⁵ Concur with clarification. Chart new rocks according to the smooth sheet and Hdrawing.
- ³⁶ Strikethrough *is*, replace with “are”.
- ³⁷ Concur.
- ³⁸ Concur with clarification. After PHB review, a 1 fm 2 ft sounding at Lat 55° 25' 04.8"N, Lon 132° 28' 09.3"W and 2 fm 3 ft sounding at Lat 55° 24' 50.9"N, Lon 132° 28' 50.0"W, were submitted as Dangers to Navigation. See Appendix I, Danger to Navigation Report, attached to this report.
- ³⁹ Strikethrough *2*, replace with “1”.
- ⁴⁰ Concur with clarification. Due to scale, the 1 fathom curve has not been depicted on the Hdrawing. Chart according to the Hdrawing.
- ⁴¹ The third position is incorrect. Strikethrough ~~55° 20' 13"N and 132° 22' 01"W~~, replace with 55° 25' 06.76" and 132° 28' 34.24".
- ⁴² Concur. Chart according to the smooth sheet.
- ⁴³ Concur with clarification. Chart 10 fm 5 ft at smooth sheet position.
- ⁴⁴ Concur with clarification. This sounding was submitted as a Danger to Navigation. See Appendix I, Danger to Navigation Report, attached to this report. Chart 4 fm 3 ft at smooth sheet position.
- ⁴⁵ Concur with clarification. Chart 10 fm 1 ft at smooth sheet position.
- ⁴⁶ Concur with clarification. A depth of 0.6 fm was found near the position of the charted 1¼ fm *Rk*, Lat 55/22/37N, Lon 132/30/24W. The 0.5 fm sounding discussed is farther south at the position given. Both soundings are in an area denoted as *rky* on the smooth sheet. Chart the vicinity according to the smooth sheet and Hdrawing.
- ⁴⁷ Concur with clarification. Chart 0 fm 2ft at smooth sheet position.
- ⁴⁸ Concur with clarification. Update shoreline with most recent verified RSD.
- ⁴⁹ Concur with clarification. Not all charted features were annotated on shoreline maps. Generally, where charted features were not annotated as disproved, they were retained on the Hdrawing. Chart retained features as depicted on the Hdrawing.
- ⁵⁰ Charted features not shown on the RSD that were noted as PITBI's were retained in green on the Hdrawing. In some cases charted ledges or shoreline not on the RSD were verified by the hydrographer, but have been superseded on later editions of the chart. These ledges and shoreline areas have been noted on the Hdrawing with their approximate extents. Chart these areas according to 17426, 13th Edition, July 11, 1992 as noted on the Hdrawing.
- ⁵¹ Concur. Chart retained features as depicted on the Hdrawing.
- ⁵² Conduct further investigation as national survey priorities and budges allow.

⁵³ The evaluator concurs with the hydrographers findings as listed below, except as noted. Chart all features according to the smooth sheet except as noted. Refer to vellum overlay of detached positions, filed with the project reports, for further information.

⁵⁴ Concur with clarification. The feature is depicted on the smooth sheet as the extents of a foul area. Retain charted rocks within foul area as depicted on the Hdrawing.

⁵⁵ Concur with clarification. The dock is depicted on Chart 17426, 14th Edition, continuous maintenance raster.

⁵⁶ Concur with clarification. The dock is depicted on Chart 17426, 14th Edition, continuous maintenance raster.

⁵⁷ Concur with clarification. Due to scale, the rock has been incorporated into the adjacent reef on the Hdrawing. Chart according to the Hdrawing.

⁵⁸ Concur with clarification. Due to scale, the rock has been incorporated into the adjacent reef on the Hdrawing. Chart according to the Hdrawing.

⁵⁹ Concur with clarification. Due to scale, the rock has been incorporated into the adjacent reef on the Hdrawing. Chart according to the Hdrawing.

⁶⁰ Concur with clarification. Due to scale, the rock has been incorporated into the adjacent reef on the Hdrawing. Chart according to the Hdrawing.

⁶¹ Concur with clarification. Due to scale, the rock has been incorporated into the adjacent reef on the Hdrawing. Chart according to the Hdrawing.

⁶² Concur with clarification. Due to scale, the rock has been incorporated into the adjacent reef on the Hdrawing. Chart according to the Hdrawing.

⁶³ Concur with clarification. Due to scale, the rock has been incorporated into the adjacent reef on the Hdrawing. Chart according to the Hdrawing.

⁶⁴ Concur with clarification. Due to scale, the rock has been incorporated into the adjacent reef on the Hdrawing. Chart according to the Hdrawing.

⁶⁵ Concur with clarification. The rock is depicted on the smooth sheet as ledgeline. Chart according to the smooth sheet.

⁶⁶ Concur with clarification. The feature is depicted on the smooth sheet as a reef. Chart according to the smooth sheet.

⁶⁷ Concur with clarification. The dock is depicted on Chart 17426, 14th Edition, continuous maintenance raster. Chart at smooth sheet position.

⁶⁸ Concur with clarification. The dock is depicted on Chart 17426, 14th Edition, continuous maintenance raster. Chart at smooth sheet position.

⁶⁹ Concur with clarification. The detached position (target) locates the extent of a ledgeline. Retain charted ledgeline as noted on Shoreline Verification Map ISL-13, as depicted on the Hdrawing.

⁷⁰ Concur with clarification. Due to scale, the rock has been incorporated into the ledgeline on the Hdrawing. Chart according to the Hdrawing.

⁷¹ Strikethrough ~~item has~~, replace with “items have”.

⁷² Strikethrough ~~is~~, replace with “are”.

⁷³ Concur.

⁷⁴ Concur with clarification. The docks are charted on 17426, 14th Edition, continuous maintenance raster. Retain as charted the two docks at the following approximate positions:

✚ Lat 55/21/20.6N and Lon 132/30/23.4W

✚ Lat 55/21/14.6N and Lon 132/30/7.9W

Chart dock at approximate position Lat 55/21/20.1N and Lon 132/20/11.3W using smooth sheet position.

⁷⁵ The shoreline verification log estimated the search vessel's position as 550 meters from the piles, not 1500 meters. Retain piles at charted position.

⁷⁶ Concur with clarification. This item is outside the survey limits and does not appear on the smooth sheet. See AWOIS report 52779, attached to this report.

⁷⁷ Concur with clarification. See AWOIS report 52779, attached to this report.

⁷⁸ Do not concur. The search radius as depicted in the graphic lies beyond the limits of multibeam coverage.

⁷⁹ Do not concur. The search radius as depicted in the graphic lies beyond the limits of multibeam coverage.

⁸⁰ Concur with clarification. See AWOIS form 52780, attached to this report.

⁸¹ Do not concur. The search radius as depicted in the graphic lies beyond the limits of multibeam coverage.

⁸² Do not concur. The search radius as depicted in the graphic lies beyond the limits of multibeam coverage.

⁸³ Concur. See AWOIS report 52781, attached to this report.

⁸⁴ Concur with clarification. See AWOIS report 52782, attached to this report.

⁸⁵ Chart Dangers to Navigation as depicted on the smooth sheet.

⁸⁶ Concur with clarification. The sounding is identified on the smooth sheet as a rock.

Chart 2 fm 3 ft *Rk* at smooth sheet position.

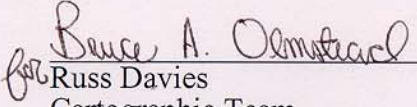
⁸⁷ Concur.

⁸⁸ Concur.


APPROVAL SHEET
H11240

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.


Date: 6/19/2006
Russ Davies
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.


Date: 10 JULY 2006
Donald W. Haines, CDR/NOAA
CDR, NOAA
Chief, Pacific Hydrographic Branch

