

H-11237

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-11237

LOCALITY

State ALASKA

General Locality Twelve Mile Arm

Sublocality Harris River Bay to Twelvemile Creek

2003

CHIEF OF PARTY

..... Christopher D. Kemp

LIBRARY & ARCHIVES

DATE

HYDROGRAPHIC TITLE SHEET

H-11237

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 Twelve Mile ArmSublocality Harris River Bay to Twelvemile CreekScale 1:10,000Date of Survey August 14 - 19, 2003Instructions Dated 3/1/2003Project No. OPR-O331-KR-03Vessel Luna Sea and skiffChief 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.**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****1930 Whiting Circle****Palmer, AK 99645**

Descriptive Report to Accompany Hydrographic Survey H-11237

Sheet F

Scale 1:10,000

August 14- August 19, 2003

Terra Surveys, LLC

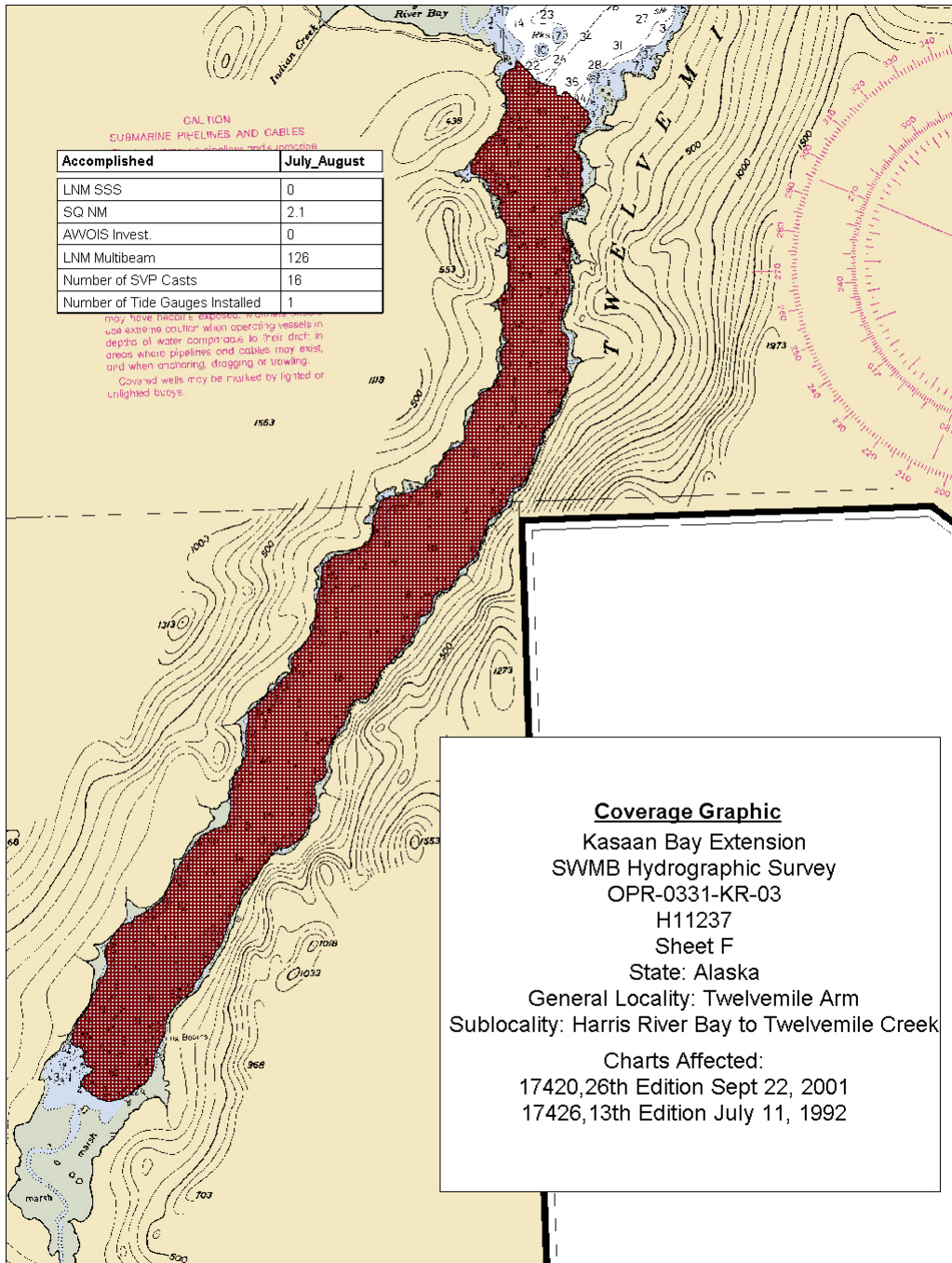
Lead Hydrographer: Christopher Kemp

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 2.1 square nautical miles at the southwest end of Twelve Mile Arm. The area consists of gradually sloping bathymetry from the deeper northeast end to the alluvial terminus at the southwest. The shoreline is rocky and the bottom types are mostly soft. Soundings as shoal as 0.9 fathom above datum and as deep as 37 fathoms were collected during the survey.²

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.



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,³ Sections A, Equipment and B, Quality Control.

B2. Quality Control

The internal consistency and integrity of the survey data was found to be good.⁴ All of the soundings that appear on the smooth sheet meet or exceed the accuracy requirements in the specifications.

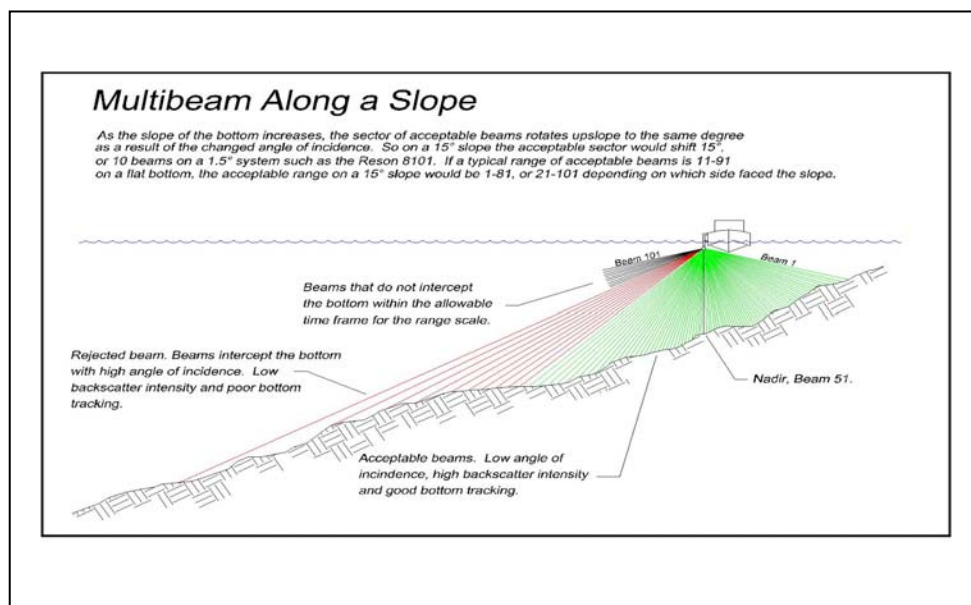
Crosslines

Survey H-11237 had 95.5 nautical miles of main scheme lines and 5.9 nautical miles of crosslines. This equates to 6.2% 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 97 mainscheme lines. This resulted in 269 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.”⁵

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.⁶ The reports generated from the crossline analysis are in “Separate V Crossline Comparisons.”

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. This is represented by the overlay in the Smoothsheet Sounding Distribution graph that follows. 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

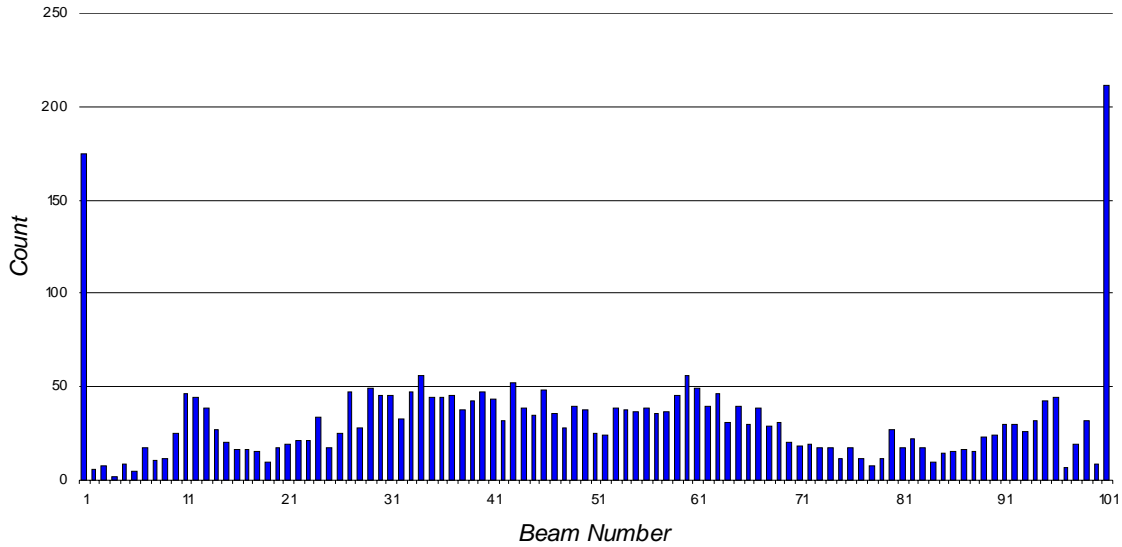


Crossline comparison results were excellent. Sheet F was comprised almost completely of a flat smooth bottom sloping up gently from 60 meters at the northern limit to 4 meters at the head of the inlet. This allowed for crosslines to be run under ideal conditions through a range of depths. The only degraded results occurred at the northern part of the sheet in 40-60 meters of water. A soft, muddy bottom produced very weak backscatter intensity at shallow grazing angles. As a result the port side beams 1-8, also exposed to higher levels of hull and engine noise, were unable to track the bottom reliably.⁷

Smooth Sheet Soundings

Final smooth sheet soundings were compiled into a spreadsheet and plotted. Figure 2 shows 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.

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 1.

Beam 1		Beam 101	
<i>Depth</i>	<i>Count</i>	<i>Depth</i>	<i>Count</i>
< 0	8	< 0	15
0 -5	120	0 -5	144
5 - 10	37	5 - 10	40
10 - 15	7	10 - 15	5
> 15	3	> 15	7
Total	175	Total	211

Table 2.

Sheet F
Number of Smoothsheet Soundings by Beam

Beam	Count	% of Total
1	175	5.46
2	6	0.19
3	8	0.25
4	2	0.06
5	9	0.28
6	5	0.16
7	17	0.53
8	11	0.34
9	12	0.37
10	25	0.78
11	46	1.44
12	44	1.37
13	39	1.22
14	27	0.84
15	20	0.62
16	16	0.50
17	16	0.50
18	15	0.47
19	10	0.31
20	17	0.53
21	19	0.59
22	21	0.66
23	21	0.66
24	34	1.06
25	17	0.53
26	25	0.78
27	47	1.47
28	28	0.87
29	49	1.53
30	45	1.40
31	45	1.40
32	33	1.03
33	47	1.47
34	56	1.75
35	44	1.37
36	44	1.37
37	45	1.40
38	38	1.19
39	42	1.31
40	47	1.47
41	43	1.34
42	32	1.00
43	52	1.62
44	39	1.22
45	35	1.09
46	48	1.50
47	36	1.12
48	28	0.87
49	40	1.25
50	38	1.19
51	25	0.78

Beam	Count	% of Total
52	24	0.75
53	39	1.22
54	38	1.19
55	37	1.16
56	39	1.22
57	36	1.12
58	37	1.16
59	45	1.40
60	56	1.75
61	49	1.53
62	40	1.25
63	46	1.44
64	31	0.97
65	40	1.25
66	30	0.94
67	39	1.22
68	29	0.91
69	31	0.97
70	20	0.62
71	18	0.56
72	19	0.59
73	17	0.53
74	17	0.53
75	12	0.37
76	17	0.53
77	12	0.37
78	8	0.25
79	12	0.37
80	27	0.84
81	17	0.53
82	22	0.69
83	17	0.53
84	10	0.31
85	14	0.44
86	15	0.47
87	16	0.50
88	15	0.47
89	23	0.72
90	24	0.75
91	30	0.94
92	30	0.94
93	26	0.81
94	32	1.00
95	42	1.31
96	44	1.37
97	7	0.22
98	19	0.59
99	32	1.00
100	9	0.28
101	211	6.59
Total	3203	

Contemporary Survey Junctions

There are no contemporary junctions for this survey at this time.⁸

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”⁹ 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 H11237 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 is¹⁰ described in the project wide Data Acquisition and Processing Report.

The hydrographic survey began on DN 226. The tide station at Hollis Anchorage (945-0544) began collecting data on DN 224, prior to data collection. The hydrographic survey data collected was reduced using Hollis Anchorage (945-0544).

C. Vertical and Horizontal Control

Soundings for this survey were tide adjusted using data from NOAA tide stations Saltery Cove (945-0495). They were installed by Terra Surveys, LLC and processed by John Oswald Consulting (JOC) 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 gauges were processed by JOC. The final zoning methodology is described in further detail in the project wide Vertical and Horizontal Control report.¹¹

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 Stations (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 the project wide Vertical and Horizontal Control report as well.

D1. Chart Comparison¹²

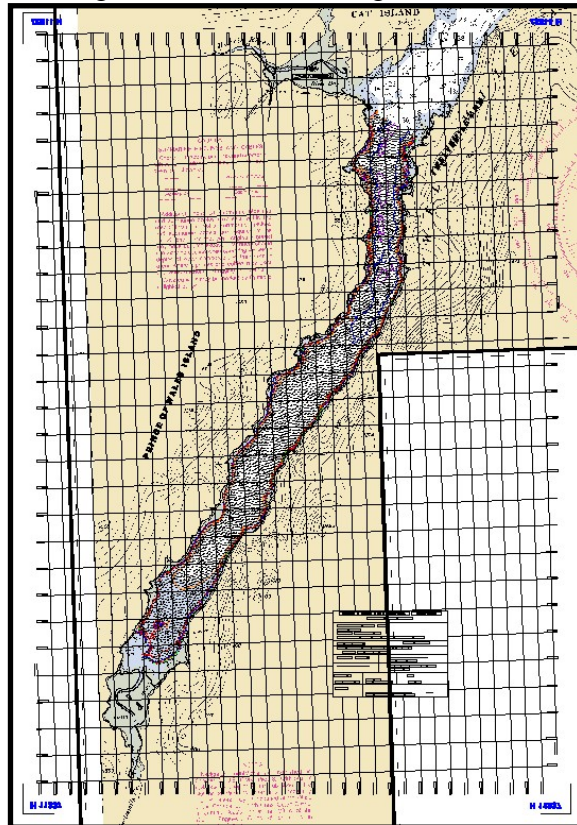
There was no Local Notice to Mariners that affected the survey area. Notice number 39 (Weekly Edition-August 2003) was the last notice reviewed for this project. There were no Dangers to Navigation Reports submitted for this survey.¹³

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

Charts 17426

This survey generally agreed well with the chart. Occasionally, minor disagreements with the curves or soundings were noted. Charted and remote sensing features that differed significantly are discussed on the following pages.¹⁴ Refer to “Section D2 Additional Results” for shoreline investigation results affecting this chart.



Smooth sheet H-11237 overlaid on Chart 17426 for comparison

New Rocks

There are no new rocks identified in this survey from bathymetry¹⁵

Trends

A review of the soundings and chart shows a deepening area in the¹⁶ 20-fathom curve below. A charted depth of 19-fathoms falls outside the 2003 20-fathom curve.

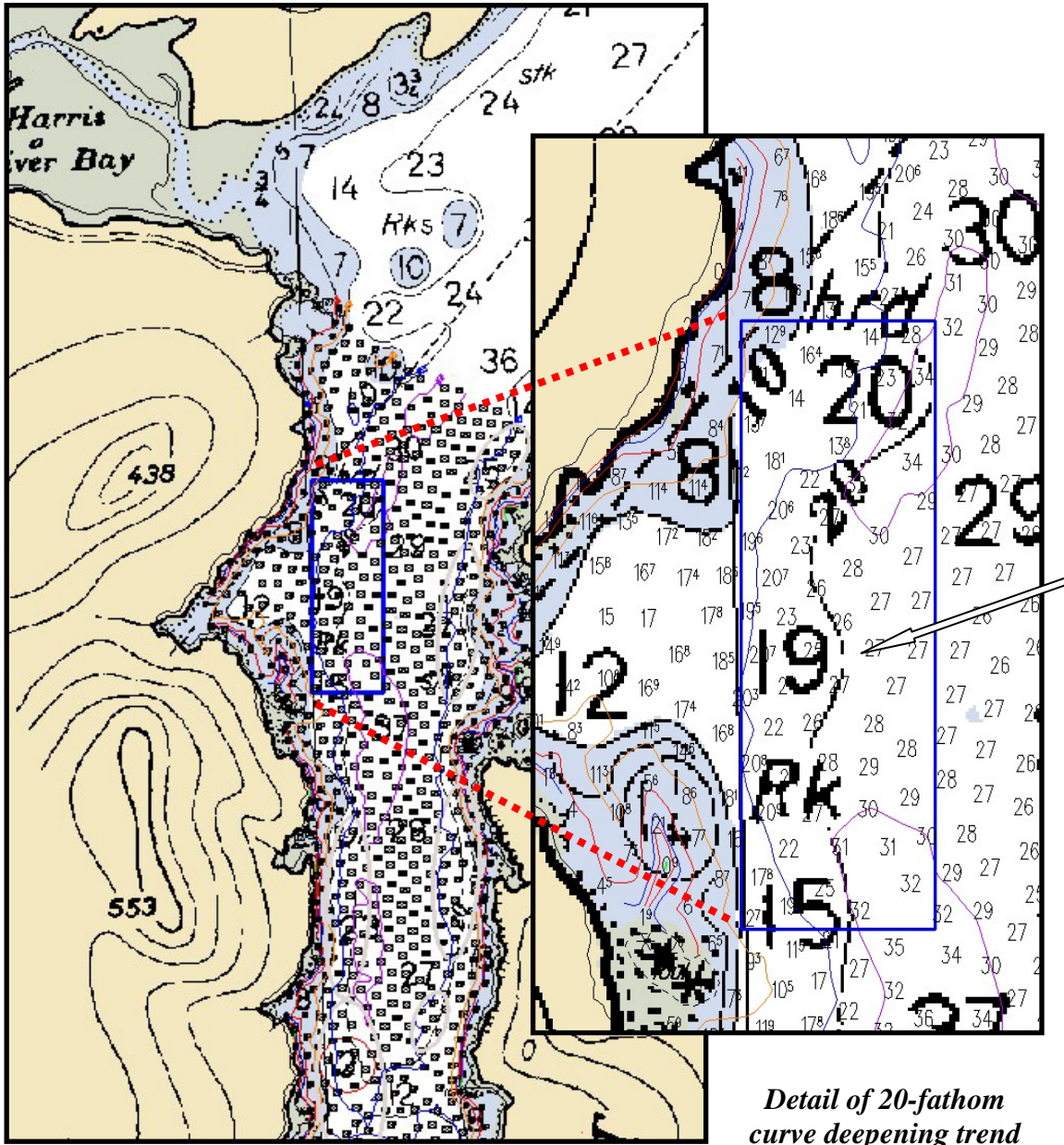


Chart 17426, Location of 20- fathom curve deepening trend

Recommendations

Based on the results of survey H-11237, the Hydrographer recommends updating the next editions using the 2003 soundings to adjust the 20-fathom curve at the above location.

A review of the soundings and chart shows a shoal area in the¹⁷ 20-fathom curve located at the northeasterly end of the survey limits.

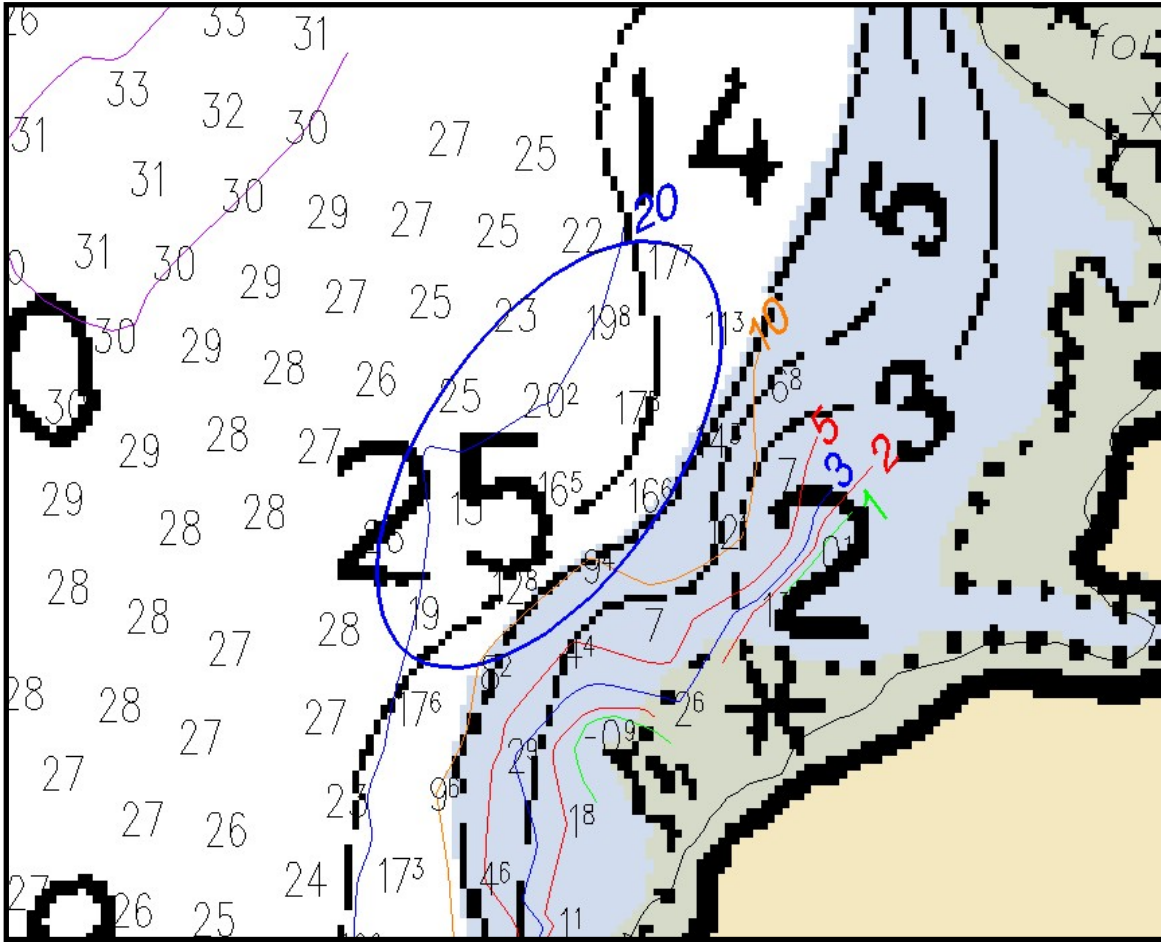


Chart 17426, Location of 20- fathom curve shoaling trend

Recommendations

Based on the results of survey H-11237, the Hydrographer recommends updating the next editions using the 2003 soundings to adjust the 20-fathom curve at the above location.

A review of the soundings and chart shows a shoal area in the¹⁸ 20-fathom¹⁹ below. Also noted is a charted 9-fathom depth inside the charted 5-fathom curve.

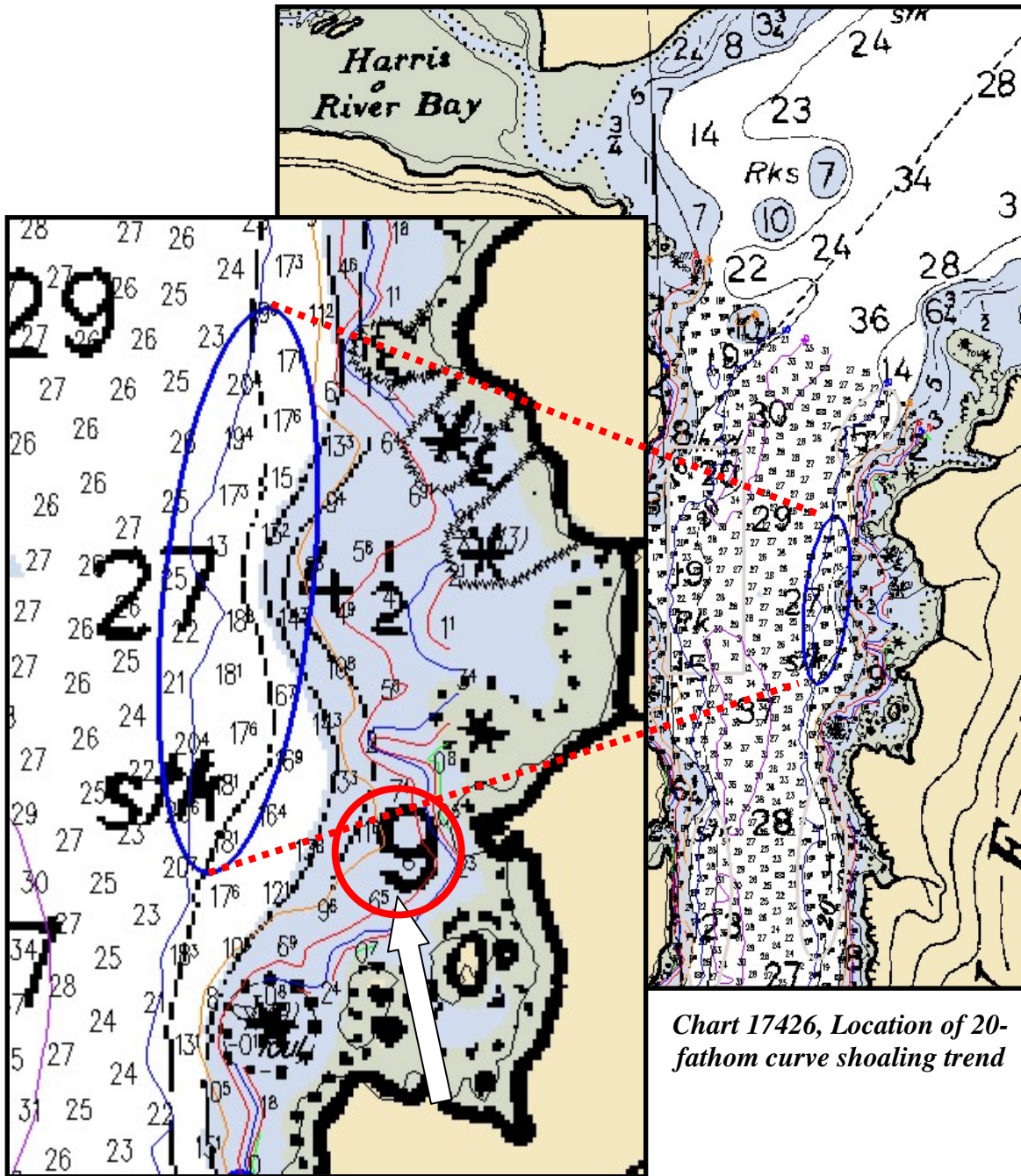


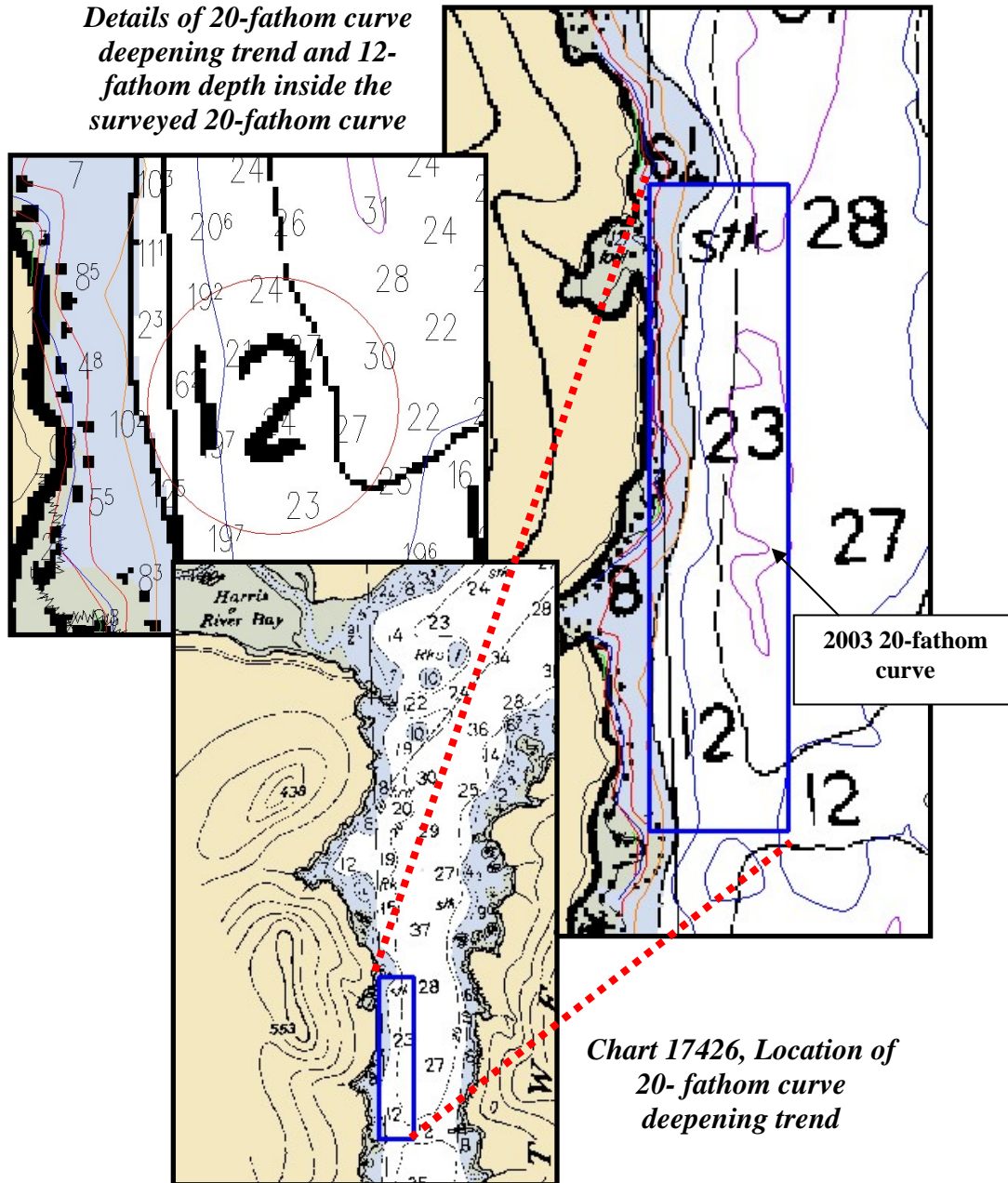
Chart 17426, Location of 20-fathom curve shoaling trend

Detail of 9-fathom charted depth inside the 5- and 10-fathom curve and 20-fathom curve shoaling trend

Recommendations

Based on the results of survey H-11237, the Hydrographer recommends updating the next editions using the 2003 soundings to adjust the 5 ,10 and 20-fathom curves at the location above.

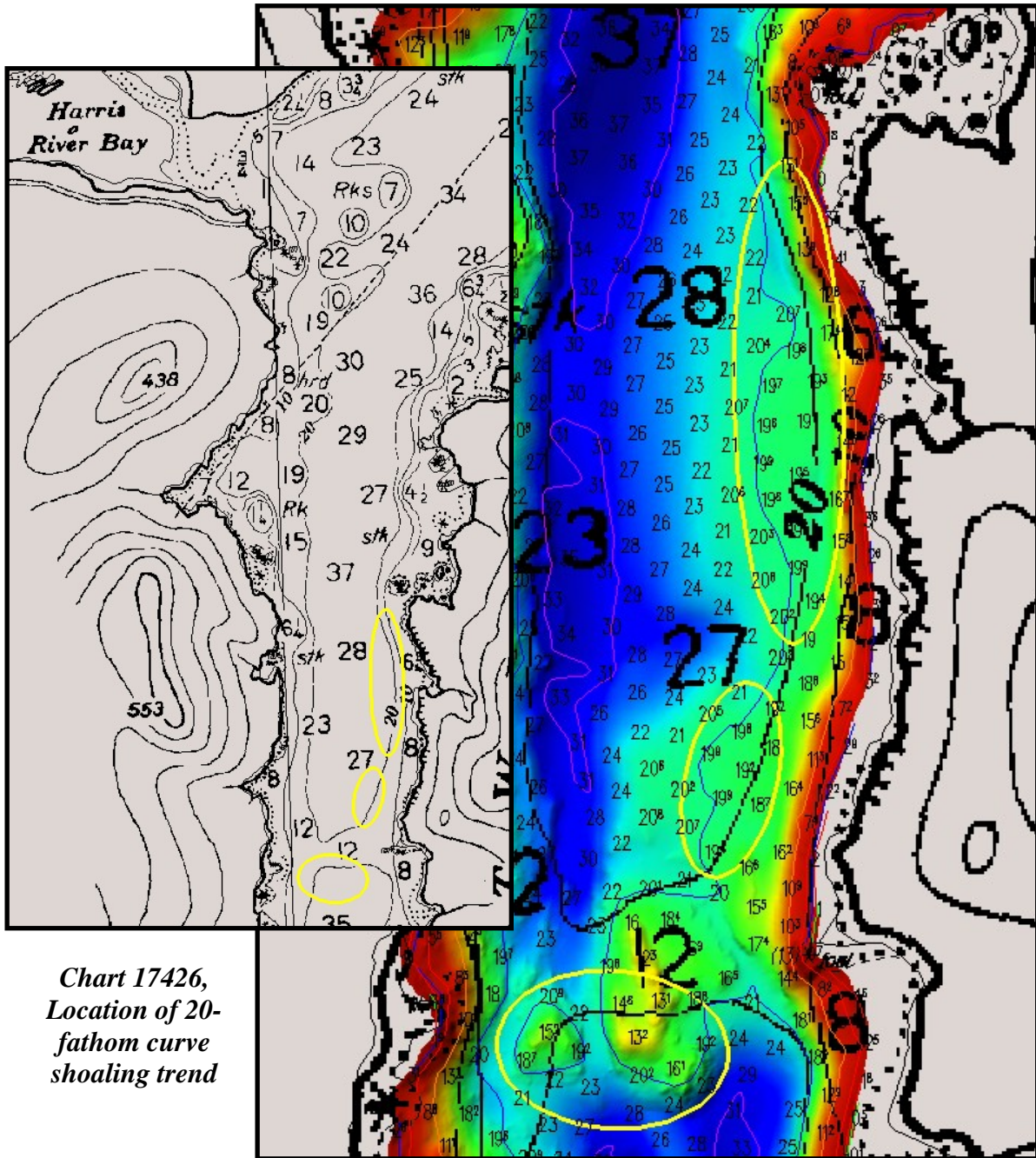
A review of the soundings and chart shows a deepening area in the²⁰ 20-fathom curve below. A charted depth of 12-fathoms falls outside the current 20-fathom curve.²¹



Recommendations

Based on the results of survey H-11237, the Hydrographer recommends updating the next editions using the 2003 soundings to adjust the 20-fathom curve, as well as updating the charted 12-fathom sounding with a 16 fathom sounding at the location above.

A review of the soundings and chart shows a shoaling trend of the 20-fathom curve in the area below.



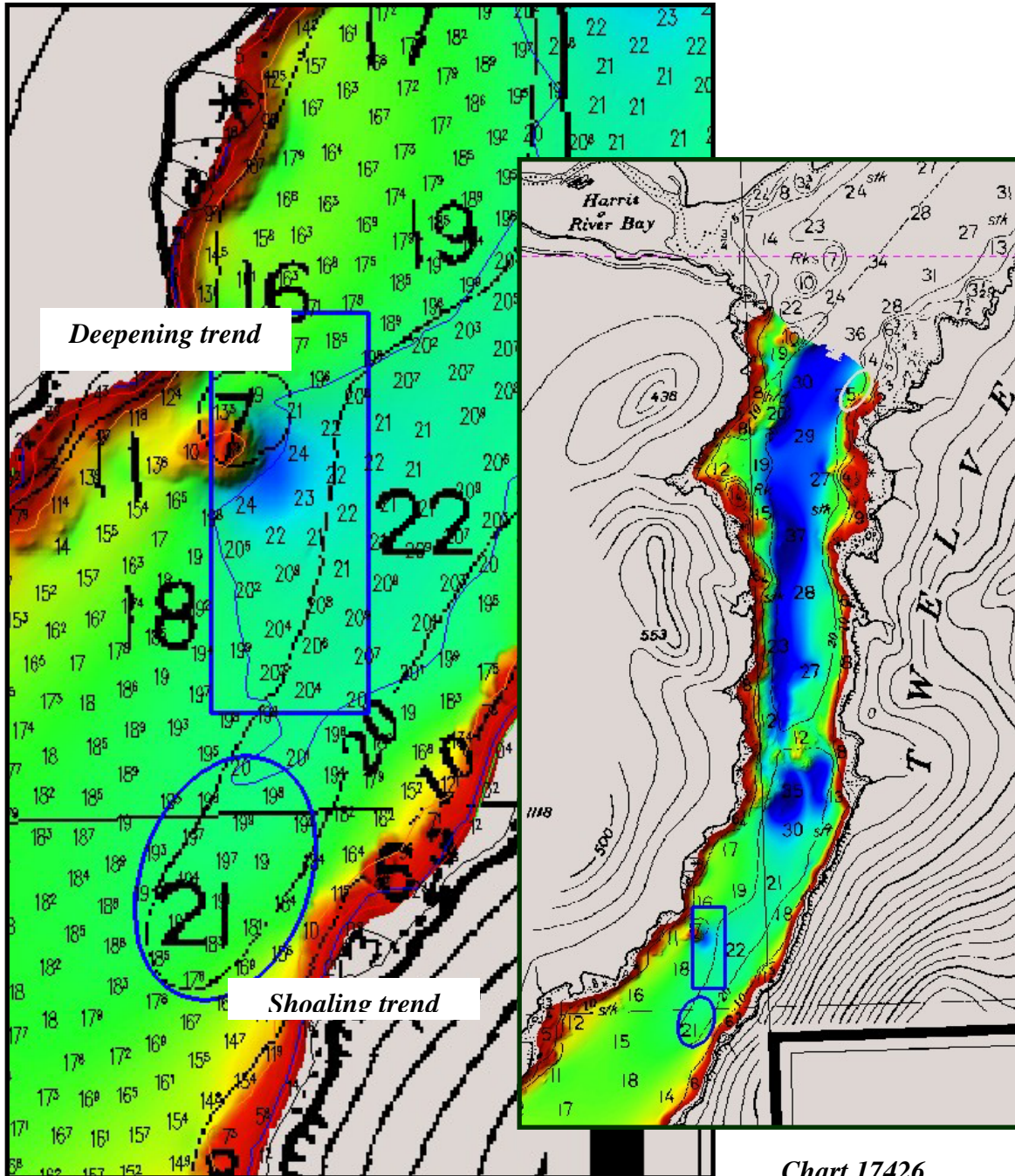
*Chart 17426,
Location of 20-
fathom curve
shoaling trend*

Detail of 20-fathom curve shoaling trend

Recommendations

Based on the results of survey H-11237, the Hydrographer recommends updating the next editions using the 2003 soundings to adjust the 20-fathom curves at the location above.

A review of the soundings and chart shows both a shoaling and deepening trend of the 20-fathom curve in the area below.



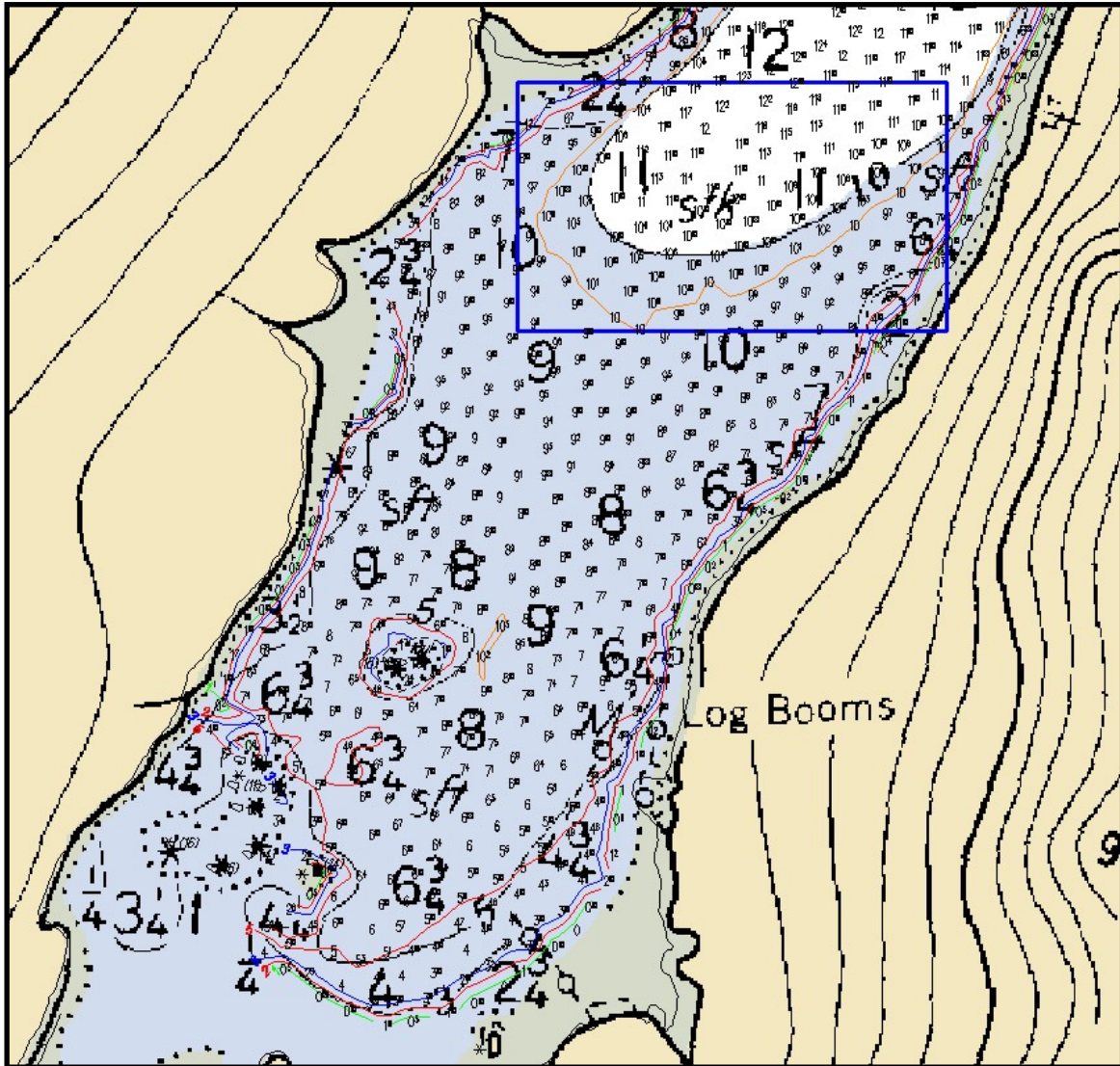
Detail of 20-fathom curve shoaling trend

*Chart 17426,
Location of 20-
fathom curve
shoaling trend*

Recommendations

Based on the results of survey H-11237, the Hydrographer recommends updating the next editions using the 2003 soundings to adjust the 20-fathom curves at the above location.

A review of the soundings and chart shows a deepening trend of the 10-fathom curve at the south end of the survey area shown below.



Recommendations

Based on the results of survey H-11237, the Hydrographer recommends updating the next editions using the 2003 soundings to adjust the 10-fathom curve in the above area.

A review of the soundings and chart shows several charted values that differ from the soundings. These locations are circled in the detail below and described on the following pages.²²

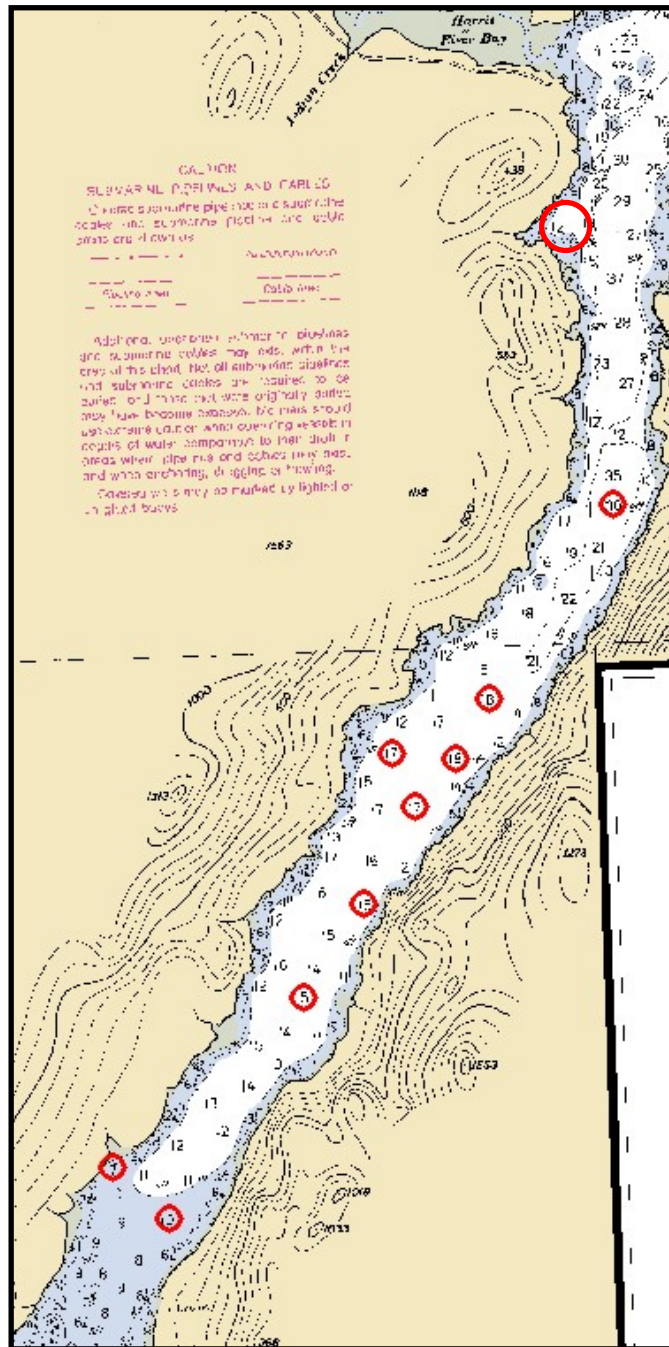
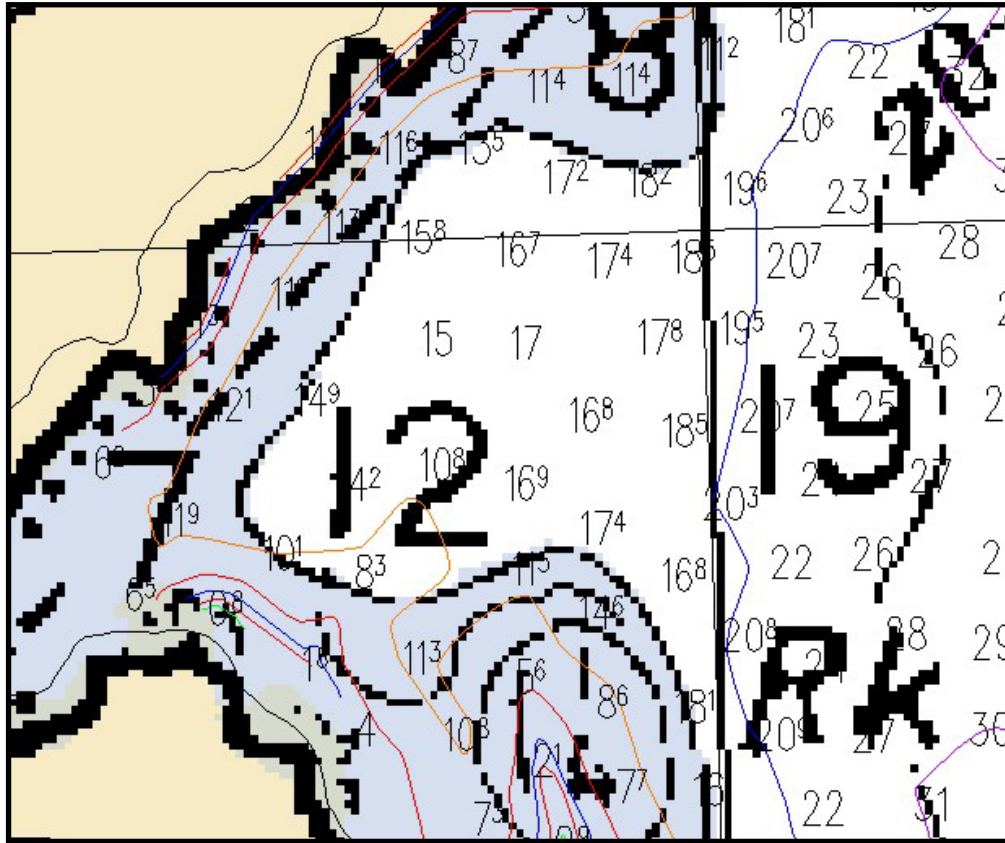


Chart 17426

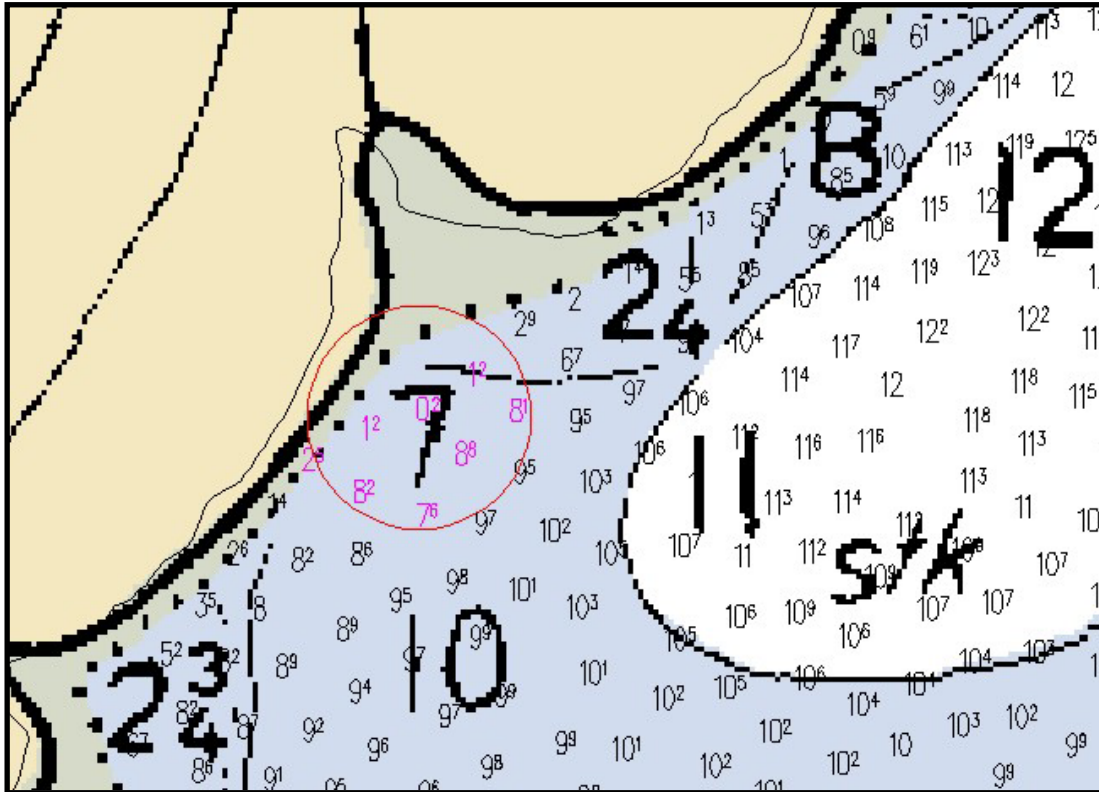
A review of the soundings and chart shows a 2003 10.8-fathom near a charted 12-fathom sounding.



Recommendations

Based on the results of survey H-11237, the Hydrographer recommends replacing the 12-fathom sounding at 55° 26' 41"N and 132° 40' 09 "W with a 10-fathom 5-foot sounding.

A review of the soundings and chart shows a 2003 0.2-fathom near a charted 7-fathom sounding.

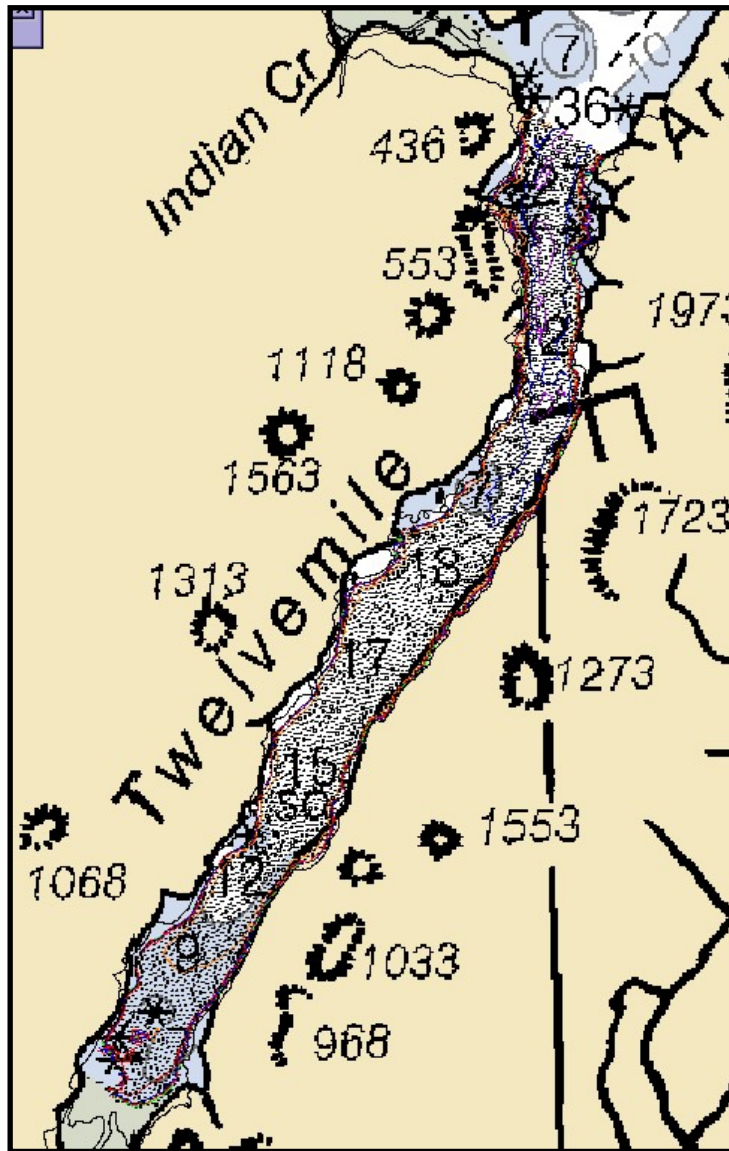


Recommendations

Based on the results of survey H-11237, the Hydrographer recommends replacing the 7-fathom sounding at 55° 22' 57"N and 132° 43' 32 "W with a 0 ¼ fathom sounding.

Chart 17420

This survey generally agreed well with the chart. There were no outstanding disagreements with the depth curves or soundings. 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.



A portion of Chart 17420 showing the charted versus RSD shoreline discrepancy

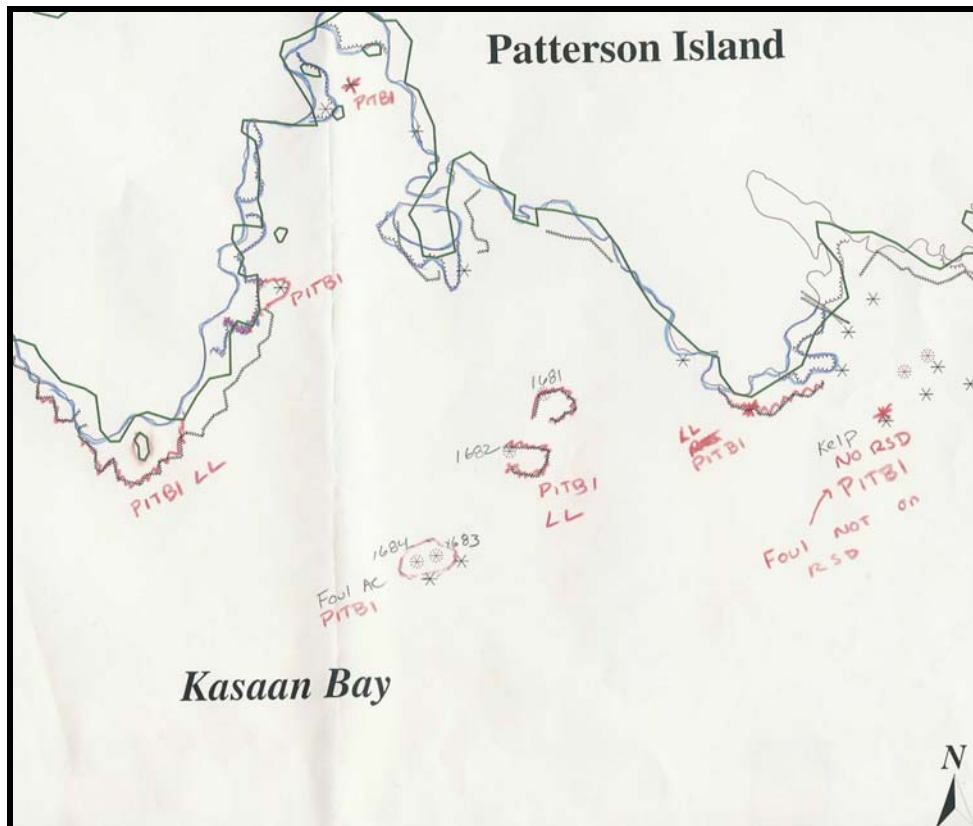
Recommendations

Based on the results of survey H-11237, the Hydrographer recommends updating the next editions should be adjusted to²⁴ the 2003 RSD shoreline data.²⁵

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).²⁶ 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. 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.²⁷ 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 areas²⁸ and ledge lines that were not represented on the RSD. Refer to the following pages for location maps of these areas.

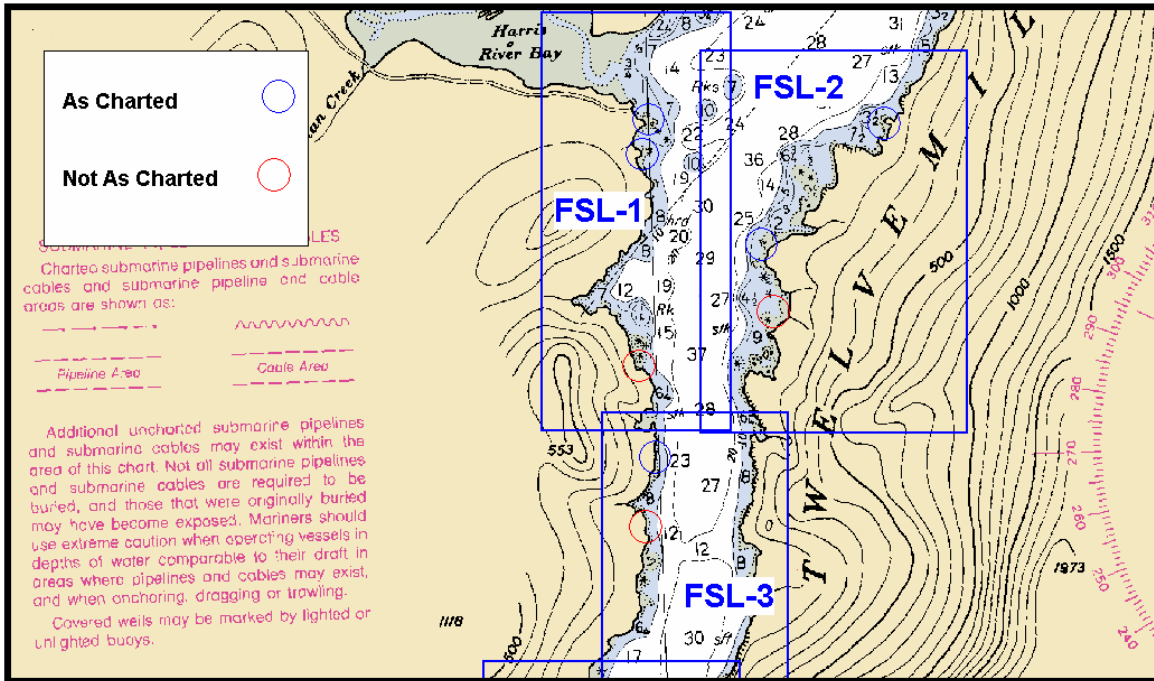


Chart 17426 with charted areas (circled blue) and not charted (circled red) areas not represented by the RSD

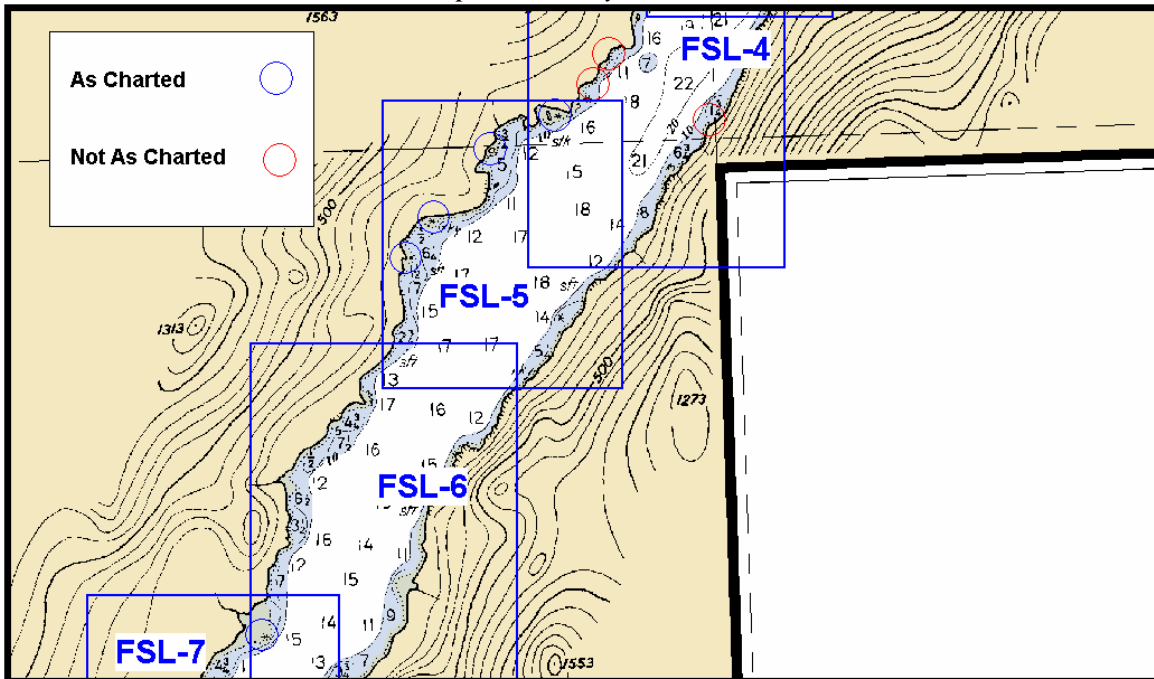


Chart 17426 with charted areas (circled blue) and not charted (circled red) areas not represented by the RSD

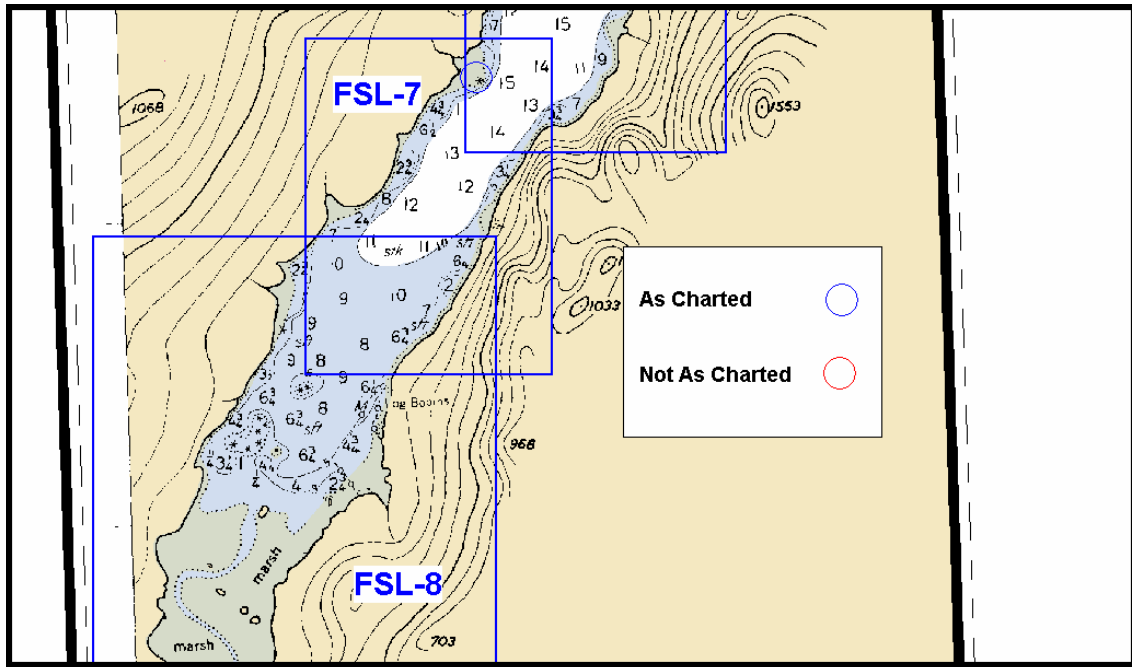


Chart 17426 with charted areas (circled blue) and not charted (circled red) areas not represented by the RSD

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 items follows.²⁹ Heights and depths are in meters.

Target Number	Time UTC	Height(-) /Depth(+) Ref Water Surface	Calendar Date	Height(-) Depth(+) Ref MLLW	On RSD	On Chart
2006	06:00:01	-2	08/26/2003	-5.62	yes	yes
2010	06:32:31	-4	08/26/2003	-8.21	no	no
2029	07:27:49	-1.6	08/26/2003	-6.38	no	yes
2043	06:58:24	0	08/27/2003	-3.99	no	yes
2044	07:00:03	0	08/27/2003	-3.96	no	yes
2048	07:12:15	-3	08/27/2003	-7.15	yes	yes
2050	07:23:23	0.3	08/27/2003	-4.05	no	no
2052	07:42:33	0.3	08/27/2003	-4.28	no	no
2053	07:49:17	-0.6	08/27/2003	-5.37	no	yes
2054	07:57:37	0	08/27/2003	-4.82	no	no
2055	07:58:22	0	08/27/2003	-4.81	no	no
2056	08:05:47	0.6	08/27/2003	-4.25	no	no
2060	08:16:25	-0.6	08/28/2003	-5.19	no	yes
2061	08:17:57	-0.3	08/28/2003	-4.87	no	yes
2062	08:21:43	-4	08/28/2003	-8.68	yes	yes
2063	08:24:03	-1	08/28/2003	-5.64	no	yes
2064	08:25:50	-1.3	08/28/2003	-6.09	no	yes
2065 ³⁰	08:28:04	-0.6	08/28/2003	-5.35	no	yes
2067	08:30:55	-1.3	08/28/2003	-6.03	no	yes
2068 ³¹	08:32:33	-3	08/28/2003	-7.85	yes	no
2069 ³²	08:34:06	-2	08/28/2003	-6.83	no	yes
2070 ³³	08:36:12	-1.3	08/28/2003	-6.10	no	yes
2075	09:54:28	0	08/28/2003	-5.27	no	no
2076	09:55:47	0	08/28/2003	-5.24	no	no
2077	09:57:06	0	08/28/2003	-5.24	no	no
2078	09:59:10	0	08/28/2003	-5.25	no	no

The above items have been fully investigated and are represented on the smoothsheet.³⁴

Aids to Navigation:

There are no aids to navigation to report in survey H11237.³⁵

Logging Activity

This survey identified a logging site not currently on the chart. A log boom, three mooring bouys, and a log dump site were all positioned and included in the detached position log. They are also shown on the smoothsheet.³⁶

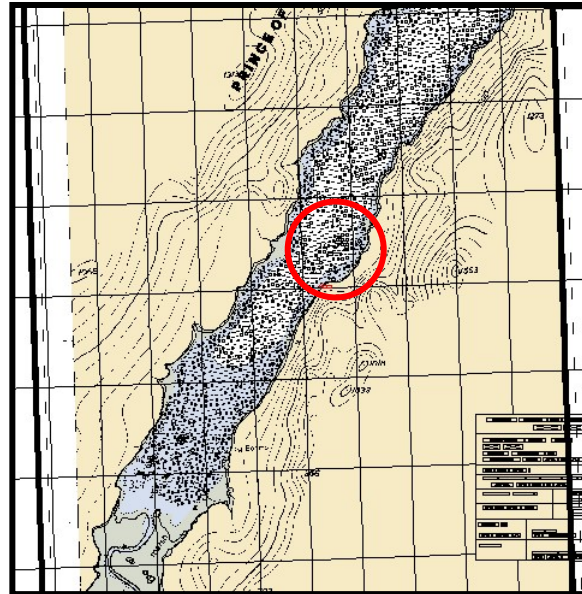
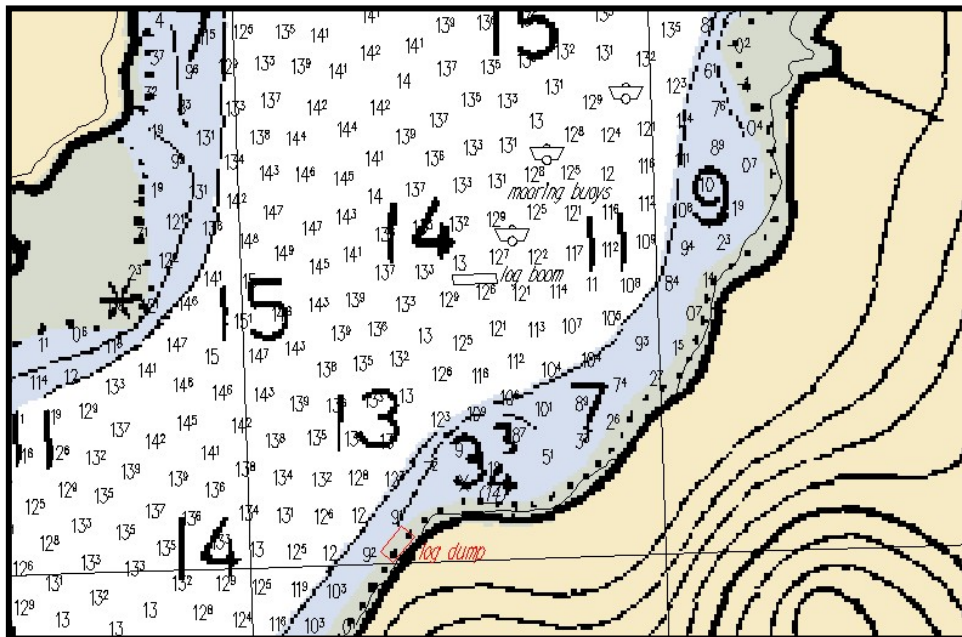


Chart 17426 with logging activity area circled



Detail of Chart 17426 with logging activity area circled

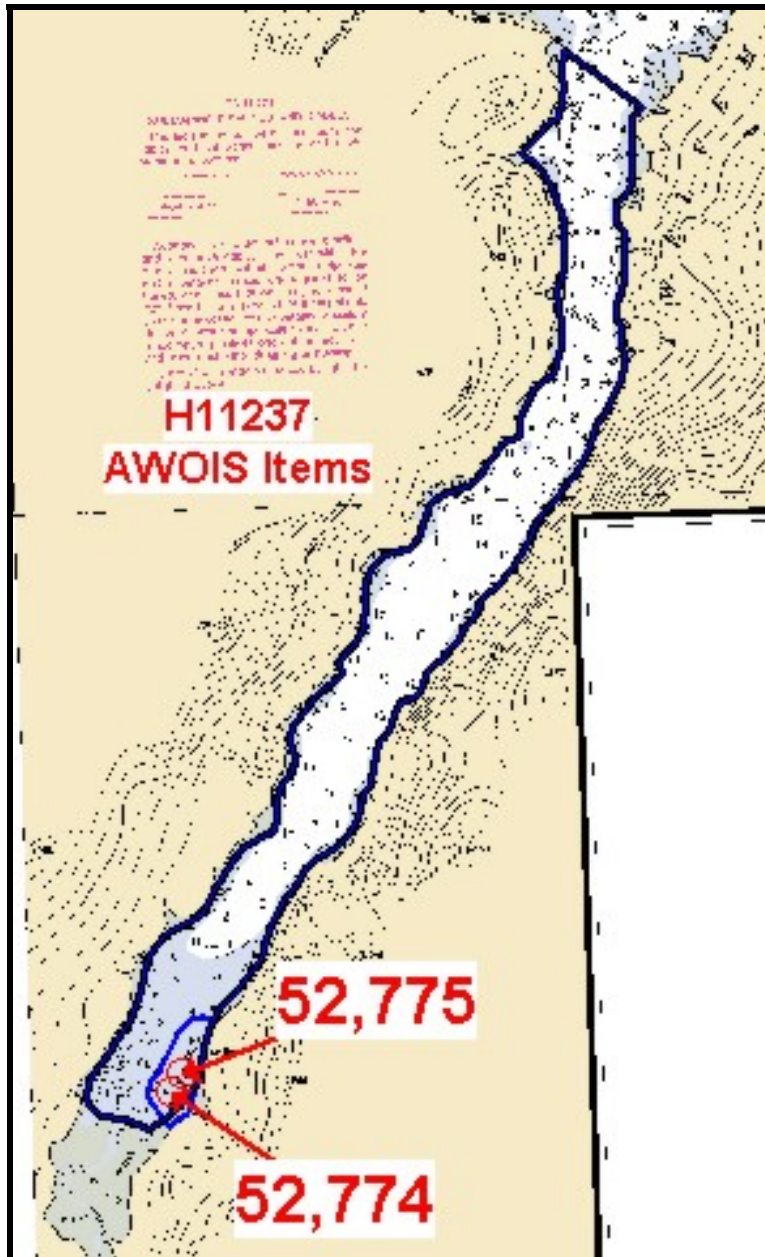


Mooring bouys and log boom



Log dump site

AWOIS Investigations



AWOIS Items Summary

This contract requires full investigation of four³⁷ AWOIS items. The table below is a summary of the items and their results. The following pages show location maps, followed by individual reports.

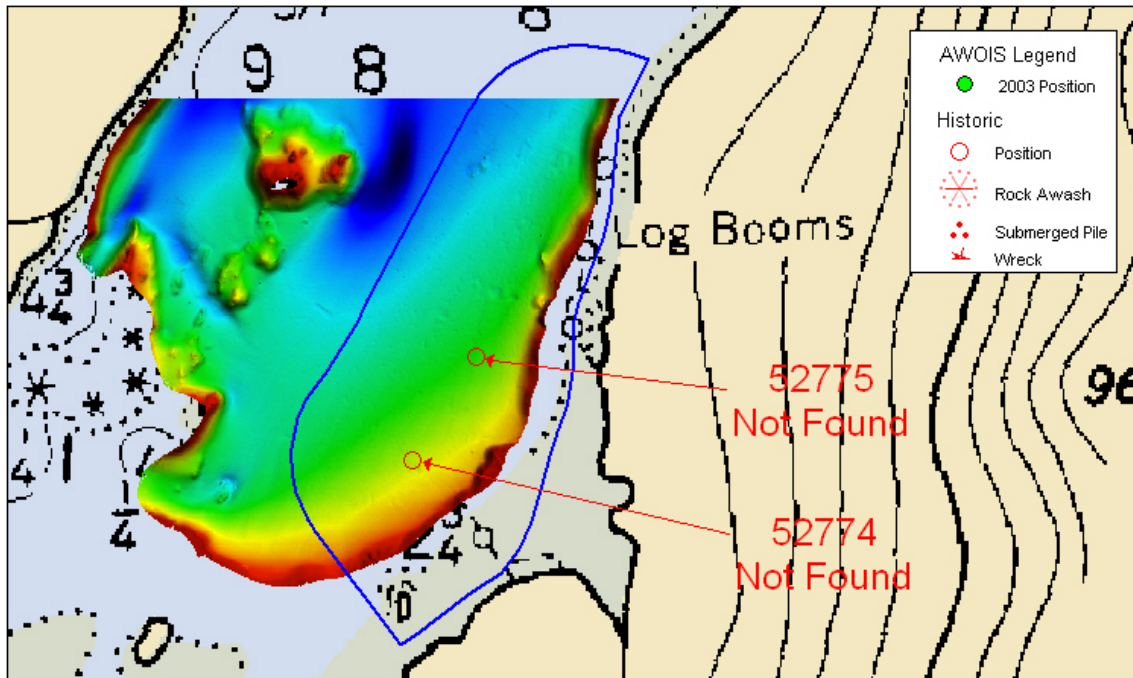
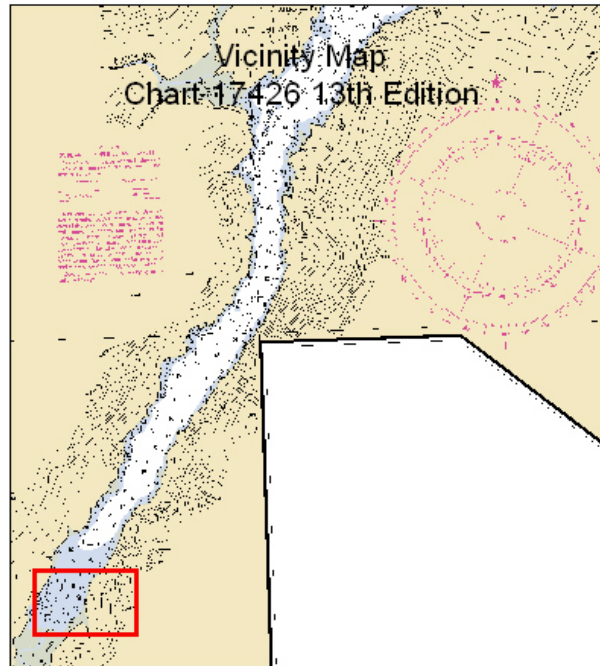
Record	Description	Comment
52774	Log boom	Full investigation with shoreline verification and SWMB, not found.
52775	Log boom	Full investigation with shoreline verification and SWMB, not found.

Historical and 2003
AWOIS Positions

H-11237

52774

52775



Item Investigation Report

Description (as charted): Log boom
Source: AWOIS record number 52774
Charted Position: Lat 55°22'11.10"N Long 132°43'34.42"W
Charts Affected: 17426 13th edition, July 11, 1992

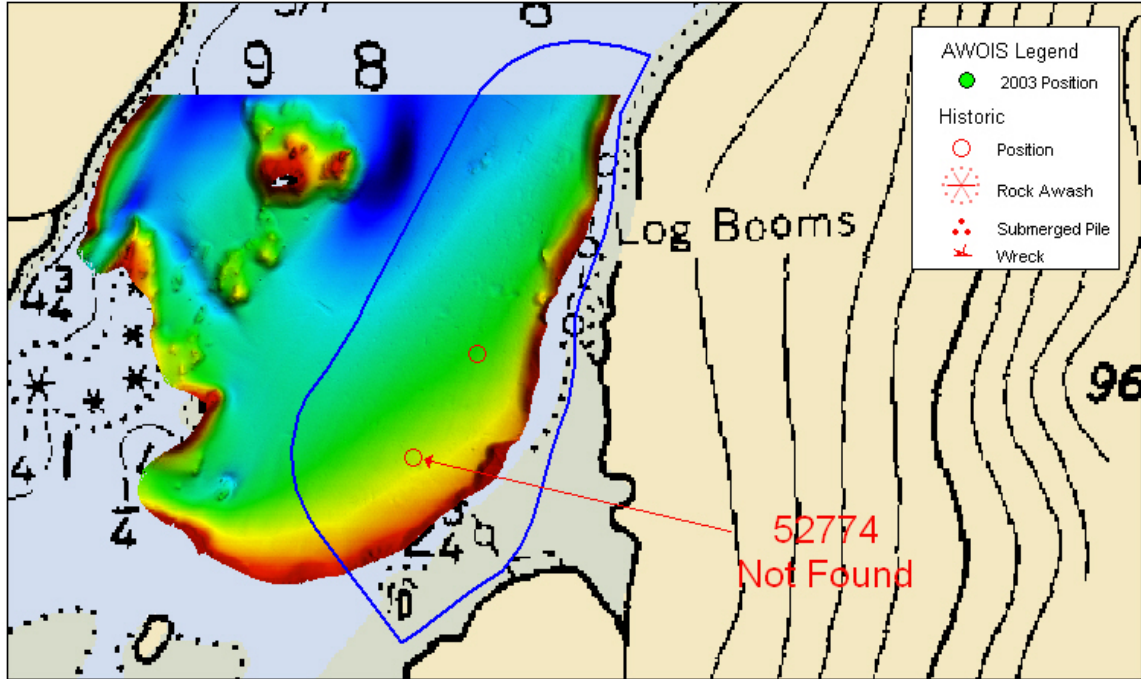
Investigation

Date(s)/Day Number(s): 08/28/2003 / DN240
Survey Vessel Name: Skiff
Position Numbers/Time: 2071/09:17:52
Investigation Method: Shoreline Verification
Surveyed Position (NAD83): Lat 55° 22' 13.08"N Long 132° 43' 35.49"W
Position Determined By: Differential GPS
Investigation Summary: The charted position of this item fell outside the limits of hydrography.³⁸ 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. Remains of the log dump were found on the shore east of the AWOIS position.

Charting Recommendation

Based on the results of survey H-11237, the hydrographer recommends the log boom symbol and notation be removed from the chart and database.³⁹

Recommended Least Depth: N/A



AWOIS item 52774, radius, 2003 bathymetry, Chart 17426

Item Investigation Report

Description (as charted): Log boom
Source: AWOIS record number 52775
Charted Position: Lat 55°22'16.36"N Long 132°43'28.22"W
Charts Affected: 17426 13th edition July 11, 1992

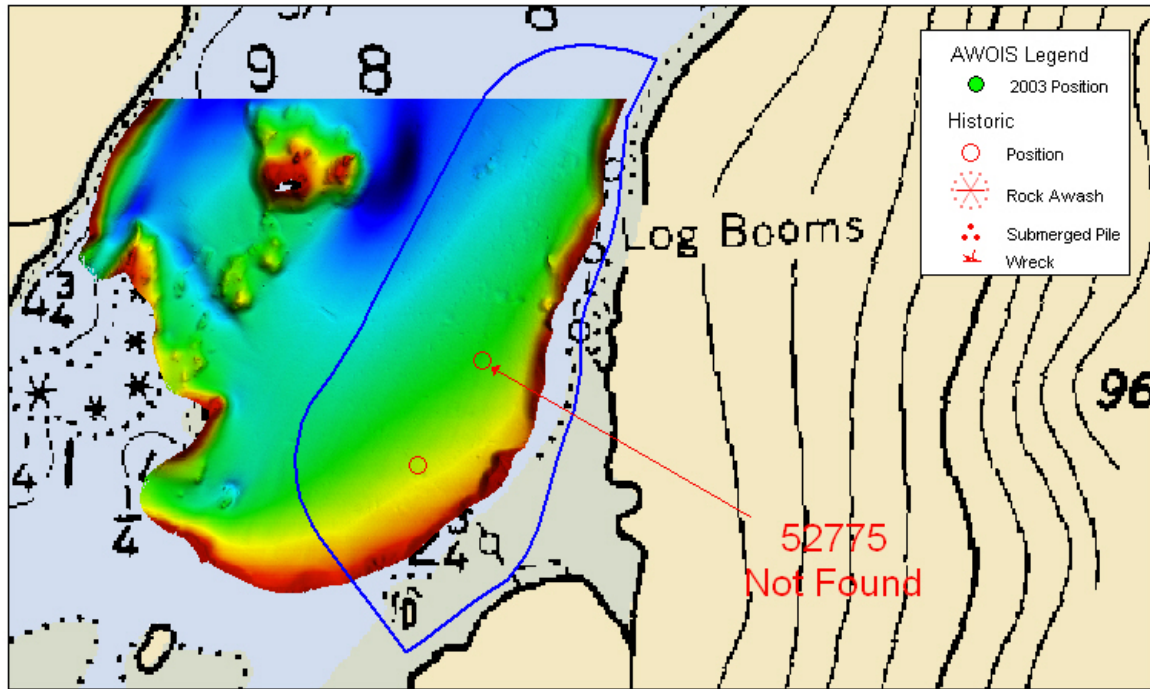
Investigation

Date(s)/Day Number(s): 08/28/2003 / DN 240
Survey Vessel Name: Skiff
Position Numbers/Time: 2072/09:22:02
Investigation Method: Shoreline Verification and 200% SWMB coverage
Surveyed Position (NAD83): Lat 55° 22' 19.76"N Long 132° 43' 28.74"W
Position Determined By: Differential GPS
Investigation Summary: The charted position of this item fell outside the limits of hydrography.⁴⁰ The AWOIS radius was fully investigated by a combination of 200% SWMB coverage and visual shoreline investigation. Remains of the log dump were found on the shore east of the AWOIS position.

Charting Recommendation

Based on the results of survey H-11237, the hydrographer recommends the log boom symbol and notation be removed from the chart and database.⁴¹

Recommended Least Depth: N/A



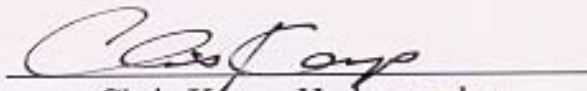
AWOIS item 52775, radius, 2003 bathymetry, Chart 17426

LETTER OF APPROVAL
REGISTRY NO. H11237

This Report and the accompanying smooth sheet are respectfully submitted.

Field operations contributing to the accomplishment of survey H11237 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 1/20/2004

APPENDIX I

Dangers to Navigation

No Dangers to Navigation were found during this survey.⁴²

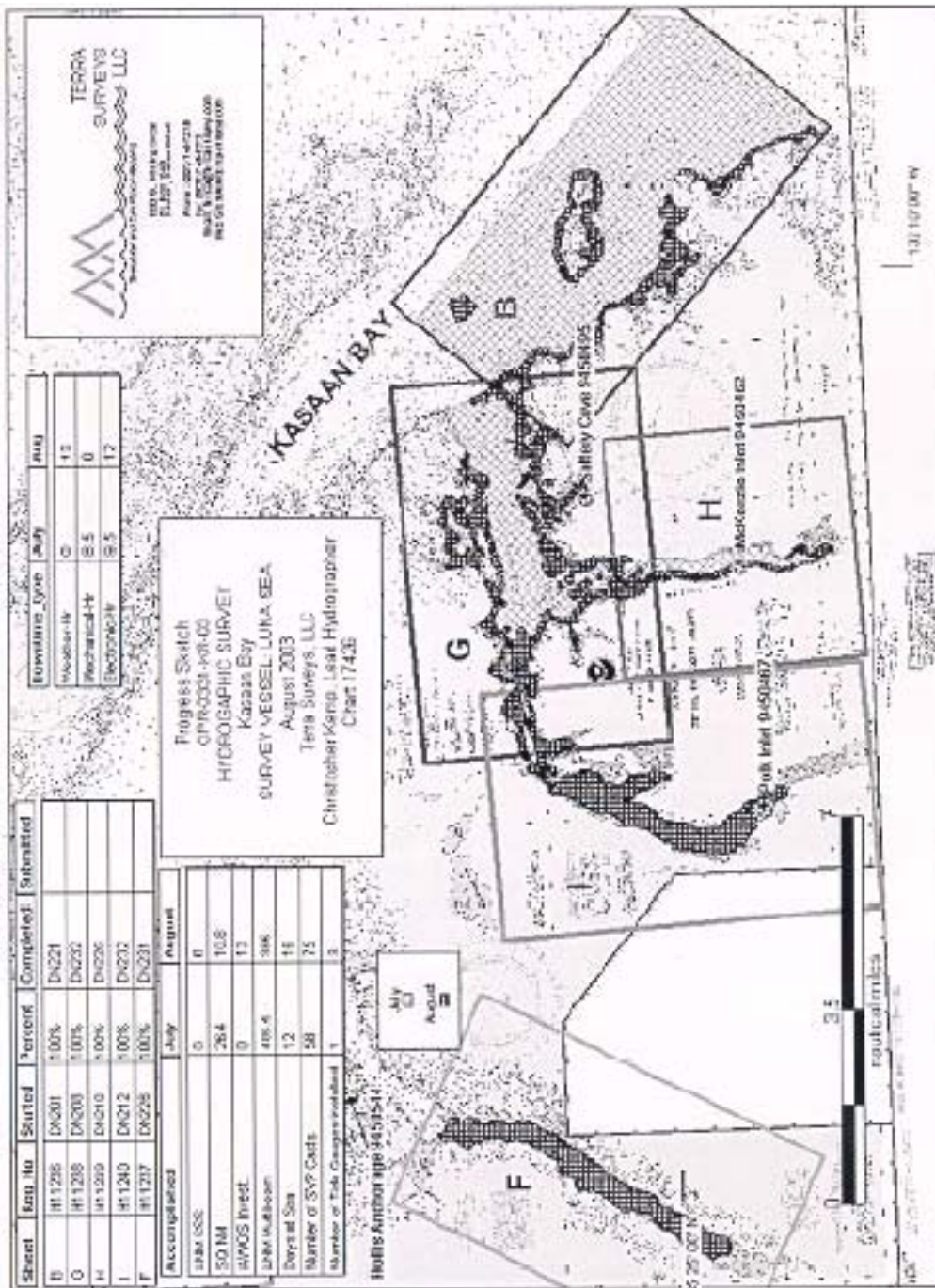
APPENDIX II

List of Geographic Names

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

APPENDIX III

Progress Sketch



APPENDIX IV

Tides and Water Levels

2003 FIELD and FINAL TIDE NOTE
Hydrographic Sheet: H11237
Sheet F
Harris River Bay to Twelvemile Creek
Kasaan Bay, Alaska

NOAA Project No:	0PR-0331-KR-2003 Kasaan Bay, Alaska				
NOAA Contract No:	90-DONC-D-91003				
The NGS 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 (945-0496) 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° (JTC)	
	Hollis Anchorage	55° 29' 45"	132° 38' 50"	0° (JTC)	
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 1030 South Whiting Circle Palmer, Alaska 99645 (907) 745-7215				
Gauges	Design Analysis Ass. H3502L/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. Leveling was performed from a tidal bench mark to the water surface. The water height was read using a metric rod with a stiling veil 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 1968, BM 5 1958, BM 6 1959 Hollis Anchorage: BM 1 1924, BM 2 1924, BM 3 1928, BM 4 1953, BM 5 1980				
Levels	Bench marks were leveled 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 SA08.				
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

AWOIS

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

NATIVLAT	<input type="text" value="55/22/11.10"/>	NATIVLON	<input type="text" value="132/43/34.42"/>	NATVDATUM	<input type="text" value="31"/>
LAT83	<input type="text" value="55/22/11.10"/>	LONG83	<input type="text" value="132/43/34.42"/>	GPQUALITY	<input type="text" value="Med"/>
LATDEC	<input type="text" value="55"/> <input type="text" value="22"/> <input type="text" value="11.1"/>	LONDEC	<input type="text" value="132"/> <input type="text" value="43"/> <input type="text" value="34.42"/>	GPSOURCE	<input type="text" value="Scaled"/>

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

TECNIQ
Techniqnote

History
 THE AWOIS POSITION IS THE OFFSHORE END OF THE STRUCTURE.
 CL1186/60--USACE PERMIT TO THE KETCHIKAN PULP COMPANY; PERMITTING THE CHANGE OF LOCATION AND TYPE OF LOG DUMP AND STANDING BOOMS IN UPPER TWELVEMILE ARM AS SHOWN ON A SKETCH. THE STRUCTURE EXTENDS FROM:
 LAT. 55/22/05.20N, LONG. 132/43/26.76W (NAD83) TO LAT. 55/22/11.10N, LONG. 132/43/34.42W (NAD83) (ENTERED 6/01 BY MBH)

Fieldnote
 Investigation
 Date(s)/Day Number(s): 08/28/2003 / DN240
 Survey Vessel Name: Skiff
 Position Numbers/Time: 2071/09:17:52
 Investigation Method: Shoreline Verification
 Surveyed Position (NAD83): Lat 55° 22' 13.08"N Long 132° 43' 35.49"W
 Position Determined By: Differential GPS
 Investigation Summary: 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. Remains of the log dump were found on the shore east of the AWOIS position.
 Charting Recommendation
 Based on the results of survey H-11237, the hydrographer recommends the log boom symbol and notation be removed from the chart and database.

Proprietary
 Evaluator comment: Remove log boom symbol and notation from affected charts and chart the area according to the smooth sheet.
YEARSUNK **NIMANUM** **SYSTEMNUM** **Print Record**

RECRD
VESLTERMS
CHART
AREA

CARTOCODE
SNDINGCODE
DEPTH

NATIVLAT	<input type="text" value="55/22/16.36"/>	NATIVLON	<input type="text" value="132/43/28.22"/>	NATIVDATUM	<input type="text" value="31"/>
LAT83	<input type="text" value="55/22/16.36"/>	LONG83	<input type="text" value="132/43/28.22"/>	GPQUALITY	<input type="text" value="Med"/>
LATDEC	<input type="text" value="55"/> <input type="text" value="22"/> <input type="text" value="16.36"/>	LONDEC	<input type="text" value="132"/> <input type="text" value="43"/> <input type="text" value="28.22"/>	GPSOURCE	<input type="text" value="Scaled"/>

PROJECT
ITEMSTATUS
SEARCHTYPE

RADIUS
INIT
ASSIGNED

TECNIQ

Techniqnote

History

Fieldnote

Investigation Summary: The AWOIS radius was fully investigated by a combination of 200% SWMB coverage and visual shoreline investigation. Remains of the log dump were found on the shore east of the AWOIS position.

Charting Recommendation
 Based on the results of survey Ht-11237, the hydrographer recommends the log boom symbol and notation be removed from the chart and database.

Proprietary

YEARSUNK
NIMANUM
SYSTEMNUM
Print Record

Revisions Compiled During Office Processing and Certification

¹ Concur.

² Concur with clarification. The shoalest multibeam sounding depicted on the smooth sheet is -1 fathom.

³ Filed with the project reports.

⁴ Concur. The data is adequate to supersede all prior surveys and miscellaneous charted data except as specifically mentioned in this report or the Hdrawing.

⁵ Filed with the project reports.

⁶ Filed with the project reports.

⁷ Final data is acceptable for charting.

⁸ In PHB processing, H11237 was compared with H11099, OPR-0331-KR-02, in the common area. The junction showed excellent correlation of soundings and contours. Shoreline areas south of approximately Lat 55/27/3.1N and Lon 132/38/56.6W on the east side showed discrepancies between the two surveys of up to approximately 60 meters, with H11099 shoreline digressing from charted RSD on 17426, 14th Edition, continuous maintenance raster. On the west side south of approximately Lat 55/27/15N and Lon 132/40/1.9W, H11237 re-defined ledges and identified an islet in the area. In both instances, supersede H11099 as depicted on the Hdrawing.

All data sets have been considered in compiling soundings and contours to the Hdrawing.

⁹ Filed with the project reports.

¹⁰ Strikethrough ~~is~~, replace with “are”.

¹¹ Filed with the project reports. For further information, see Final Tide Note attached to this report.

¹² Office comparison was also made to Chart 17426, 14th Edition, and Chart 17420, 27th Edition, continuous maintenance rasters.

¹³ Concur.

¹⁴ The evaluator concurs with the hydrographer’s findings from chart comparison except as noted below. Note that the hydrographer’s recommendations for charting are generalized, advisory statements, and should not be used as guides for sounding selection or charting. Chart all areas with soundings and contours as shown on the smooth sheet and Hdrawing.

¹⁵ Concur with clarification. No new rocks were found in comparison with RSD data provided to the hydrographer. Some RSD rocks have not been charted on 17426, 14th edition, continuous maintenance raster. In addition, some previously charted rocks were found by the hydrographer to be islets, and some charted islets were found to be rocks. Chart features as portrayed on the smooth sheet and the Hdrawing.

¹⁶ Strikethrough ~~in the~~, replace with “shoreward of the charted”.

¹⁷ Strikethrough ~~in the~~, replace with “seaward of the charted”.

¹⁸ Strikethrough ~~in the~~, replace with “seaward of the charted”.

¹⁹ Insert “curve”.

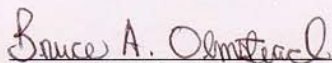
²⁰ Strikethrough ~~in the~~, replace with “shoreward of the charted”.

-
- ²¹ In the caption immediately below, ~~12 fathom depth inside the surveyed 20 fathom curve~~, replace with “12-fathom depth outside the surveyed 20-fathom curve”.
- ²² Use smooth sheet positions, not general positions used in the discussion below.
- ²³ The latitude is incorrect. ~~Strikethrough 55° 22' 34"N~~, replace with 55° 22' 44"N.
- ²⁴ ~~Strikethrough should be adjusted to~~, replace with “with”.
- ²⁵ Concur.
- ²⁶ Concur. Chart MHWL according to the smooth sheet.
- ²⁷ Chart all areas as portrayed on the smooth sheet and compiled to the Hdrawing except as noted.
- ²⁸ Foul areas identified by the hydrographer have been represented on the Hdrawing where scale permits.
- ²⁹ The evaluator concurs with the hydrographer’s findings as listed below, except as endnoted. Chart the smooth sheet positions for all features except as noted.
- ³⁰ Target (Detached Position) 2065 at approximately Lat 55/22/16N, Lon 132/44/08W, is incorrectly depicted as a rock on the smooth sheet. Its height is 2.88 feet above MHW. Chart islet 3 feet above MHW (3) at smooth sheet position.
- ³¹ Due to scale, the islet at target (DP) 2068 at approximately Lat 55/22/20N, Lon 132/44/2W has been depicted on the Hdrawing with islets at targets (DP’s) 2069 and 2070 as a single islet.
- ³² Due to scale, the islet at target (DP) 2069 at approximately Lat 55/22/21N, Lon 132/44/1W has been depicted on the Hdrawing with islets at targets (DP’s) 2068 and 2070 as a single islet.
- ³³ Due to scale, the islet at target (DP) 2070 at approximately Lat 55/22/20N, Lon 132/43/59W has been depicted on the Hdrawing with islets at targets (DP’s) 2068 and 2069 as a single islet.
- ³⁴ A number of charted features were either verified or not disproved during shoreline investigation, but were not depicted on the smooth sheet. For further information, see Shoreline Verification Aids FSL1 – FSL8 and Shoreline Verification Field Notes, filed with the project reports. Verified or not-disproved features are retained in green on the Hdrawing from Chart 17426, 14th Edition, continuous maintenance raster. Chart according to the Hdrawing.
- ³⁵ Concur.
- ³⁶ Concur. Chart according to the smooth sheet.
- ³⁷ Do not concur. Two AWOIS item investigations were required, as discussed below.
- ³⁸ Do not concur. The charted position stated in the AWOIS report, Lat 55/22/11.10N, Lon 132/43/34.42W, falls within the limits of hydrography.
- ³⁹ Concur. See AWOIS form attached this report for further information.
- ⁴⁰ Do not concur. . The charted position stated in the AWOIS report, Lat 55/22/16.36N, Lon 132/43/28.22W, falls within the limits of hydrography.
- ⁴¹ Concur. See AWOIS form attached this report for further information.
- ⁴² Concur.

APPROVAL SHEET
H11237


Initial Approvals:

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


Bruce A. Olmstead
Cartographic Team
Pacific Hydrographic Branch

Date: 5/25/2006

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
CDR, NOAA
Chief, Pacific Hydrographic Branch

Date: 30 MAY 2006

