H11279

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-P183-KR-04

Registry No. H-11279

LOCALITY

State Alaska

General Locality Shumagin Islands & Vicinity

Sublocality Korovin Bay & Strait

2004

CHIEF OF PARTY

Dean Moyles

LIBRARY & ARCHIVES

DATE

NOAA FORM 77-28
(11-72)

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

REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-11279

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 **Alaska**

General Locality **Shumigan Islands & Vicinity**

Sublocality **Korovin Bay & Strait**

Scale **1:10,000** Date of Survey **5/18/04-7/19/04**

Instructions Dated **1/16/2003** Project No. **OPR-P183-KR-04**

Vessel **RV Quicksilver, RV Kvichak Surveyor 1 and skiff**

Chief of Party **Dean Moyles**

Surveyed by **Moyles, Reynolds, Orthman, Lydon, Mount, Roe,**
Kussat, Busey, Oliver, et al

Soundings taken by echo sounder, hand lead, pole **Reson 8101and Reson 8111**

Graphic record scaled by **Fugro Pelagos Inc. personnel**

Graphic record checked by **Fugro Pelagos Inc. personnel**

Evaluation by **B Taylor** Automated plot by **HP Design Jet 500**

Verification by **G Nelson**

Soundings in **Fathoms and tenths** at **MLLW**

REMARKS: **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.

Fugro Palagos Inc.	**LCMF**	**McLane Consulting Inc.**
3738 Ruffin Road	**139 E. 51st Ave**	**P.O. Box 468**
San Diego, CA 92123	**Anchorage, AK 99503**	**Soldatna, AK 99669**

A - Area Surveyed

H11279 (Sheet C), is bounded by the coordinate listing below, and encompasses Korovin Bay and Strait.

Hydrographic data collection began on May 18, 2004 and ended on July 19, 2004.[1]

Table 1 H11279 Survey Limits

Survey Limits[2] Task Order # 15 H11279 Sheet C Scale 1:10,000		
Point #	Positions on NAD83	
	Degrees Latitude (N)	Degrees Longitude (W)
1	55º25’26.50” N	160º19’25.01” W
2	55º25’26.50” N	160º12’15.96” W
3	55º18’28.84” N	160º12’19.79” W
4	55º18’29.07” N	160º19’25.06” W
5	55º25’26.50” N	160º19’25.01” W

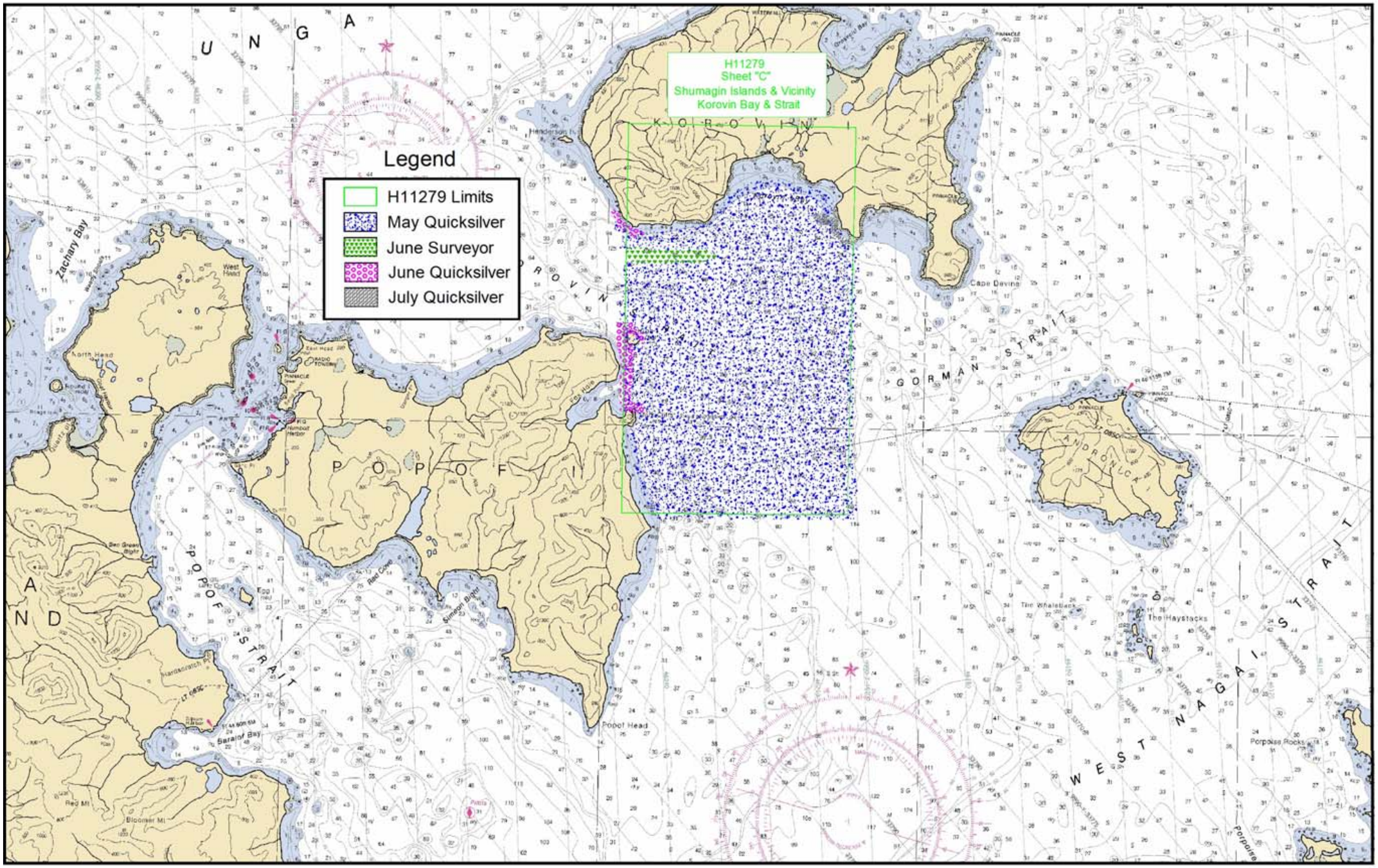


Figure 1 H11279 Survey Limits

B – Data Acquisition & Processing

Refer to the OPR-P183-KR-04 Data Acquisition and Processing Report[3] for a detailed description of all equipment, survey vessels, processing procedures and quality control features. Items specific to this survey and any deviations from the Data Acquisition and Processing Report are discussed in the following sections.

Equipment & Vessels

The R/Vs Quicksilver and Kvichak Surveyor 1 acquired all sounding data for H11279. The Quicksilver, which is 32 feet in length with a draft of 3 feet, was equipped with a Reson 8101 with option 033 (pseudo SideScan) for multibeam data acquisition. The vessel was also equipped with two AML sound velocity and pressure sensors for sound velocity profiles. Vessel attitude and position were measured using an Applanix Position and Orientation System for Marine Vessel (POS/MV) with XTF files logged in ISIS V 6.24.

The Kvichak Surveyor 1 is 67 feet in length, with a draft of 5.5 feet,[4] was equipped with a Reason 8111 with option 033 (pseudo SideScan) and two AML sound velocity and pressure sensors for sound velocity profiles. Vessel attitude and position were measured using an Applanix Position and Orientation System for Marine Vessel (POS/MV) with XTF files logged in ISIS V 6.24.

The DP skiff is 15 feet in length, with a draft of half a foot,[5] was used to perform the item investigations. The skiff, owned by Kvichak Marine, was piloted by Fugro Pelagos personnel. The DP skiff could generally safely navigate in any area where it could maintain 0.5 meters of under-keel clearance, except in locations of heavy swells near shore. The skiff was equipped with a CSI GBX-PRO DGPS receiver, WinFrog v3.4.0 data acquisition system (operated on a Panasonic laptop) and a Sony digital camera. In addition, the LIDAR Smooth Sheet data and NOAA charts were displayed as a layer in WINFROG for reference. The DP skiff was not outfitted with an echosounder. However, a leadline was used to take soundings on submerged features.

Refer to OPR-P183-KR-04 Data Acquisition & Processing Report for a complete listing of equipment and vessel descriptions.

Quality Control

Crosslines

Quality control tielines were planned to measure 5 percent of the main scheme line length. Total crossline length surveyed was 53.0 km (28.6 nautical miles) or 7.8 percent of the total main scheme kilometers. Tielines that were conducted were well distributed throughout the sheet to insure adequate crossline quality control. A total of 40 tie line crossings were examined using the CARIS HIPS Q/C report.

The majority of QC Reports fell well within the required accuracy specifications. However, beams that fall below the 95% confidence level in the QC Report are associated with specific areas and conditions illustrated below. It should be noted that data at these locations are in agreement with the surrounding offset lines and are considered well within the required specifications.

- The majority of beams that fell outside of the 95 percent confidence level were located in areas having extreme steep slopes and/or rocks. The figures below show a few examples of this.

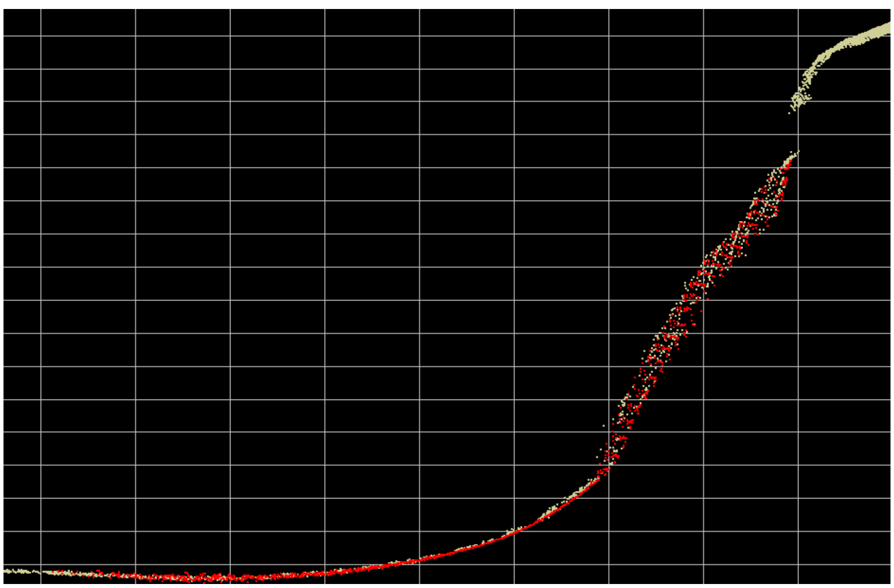


Figure 2: Profile of C01-QC001

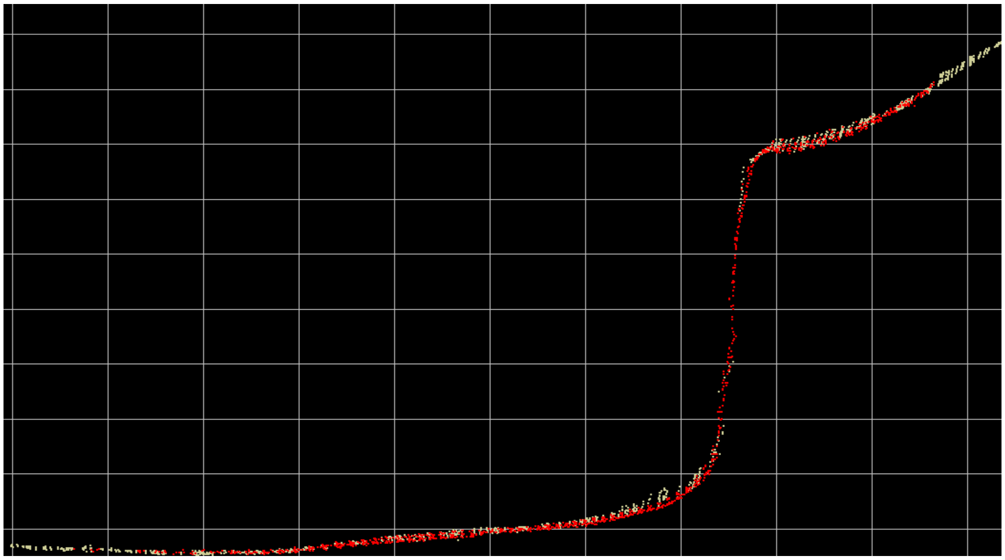


Figure 3: Profile of C04-QC002

Note: The QC reports were generated based on the given accuracy specification of:

$$\pm\sqrt{[a^2 + (b*d)^2}$$

where, a = 0.5, b = 0.013 and d = depth.

However, since a variance of a difference, rather than a variance from a mean is being used, the a and b values defined in the makehist.cla file within CARIS will use:

$$a = 0.5*\sqrt{2} = 0.707$$
$$b = 0.013*\sqrt{2} = 0.018$$

Data Quality

In general, the multibeam data quality for H11279 was excellent[6]; there were no unusual conditions encountered.

As per the Statement of Work (SOW), we were required to survey to the 15m contour or to junction with the LIDAR data, whichever was shoalest. In areas where LIDAR data were not present, it was agreed upon by NOAA and Fugro Pelagos, Inc. to survey to the 4m contour. In saying this, during the H11279 survey, the area around High Island was deemed unsafe for navigation, due to the steep and over hanging cliffs; therefore data collection to the 4m contour was not achieved.

Survey Junctions

H11279 (Sheet C) junctions with:

Registry #	Scale	Date	Junction Side
H11278	1:10,000	2004	East[7]
H11280	1:10,000	2004	North[8]

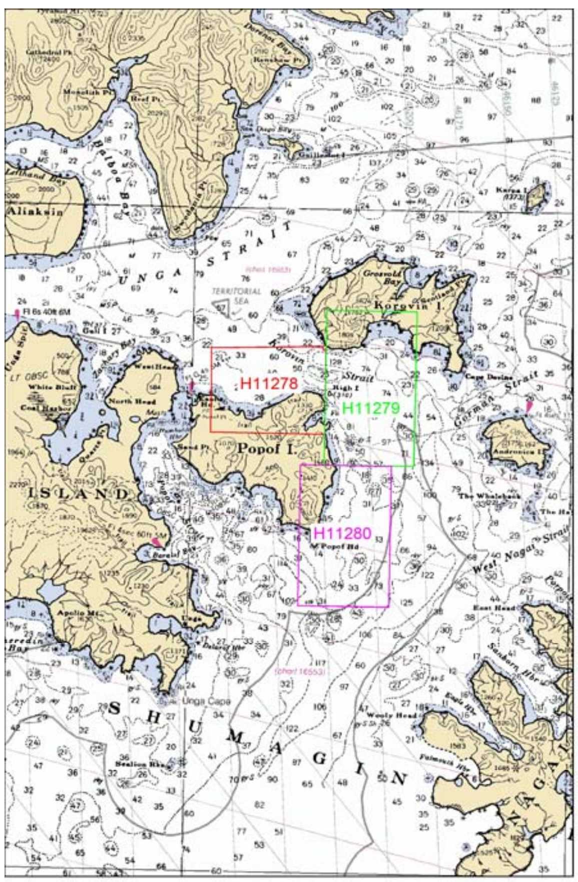


Figure 4 H11279 Survey Junctions

The surveys are in agreement along their common borders.[9] The agreement was noted in the field using the 2 and 5 meter DTM's created for coverage verification. The conformity is also apparent in their preliminary smooth sheets.

Smooth Sheet Histograms

Figure 5 Histogram is for the Reson 8101 data collected from May 18, 2004 to July 19, 2004 on the Quicksilver. The histogram shows an increase of selected soundings from the outer beams. This is the result of surveying near the shoreline where the outer beams are mapping the shallowest areas. Also the majority of adjacent lines were run[10], port beams overlapped with port beams and starboard beams overlapped with starboard beams. This makes it possible to have higher density data per square meter on the outer edges, leading to a higher chance of sounding selection on the smooth sheet.

The decrease or lack of selected soundings on the outer beams is the result of deterioration of data quality on the outer beams. In most cases set filters were used to flag the outer beams as rejected, but in other cases additional cleaning or filters were used on a line by line basis resulting in fewer selected soundings.

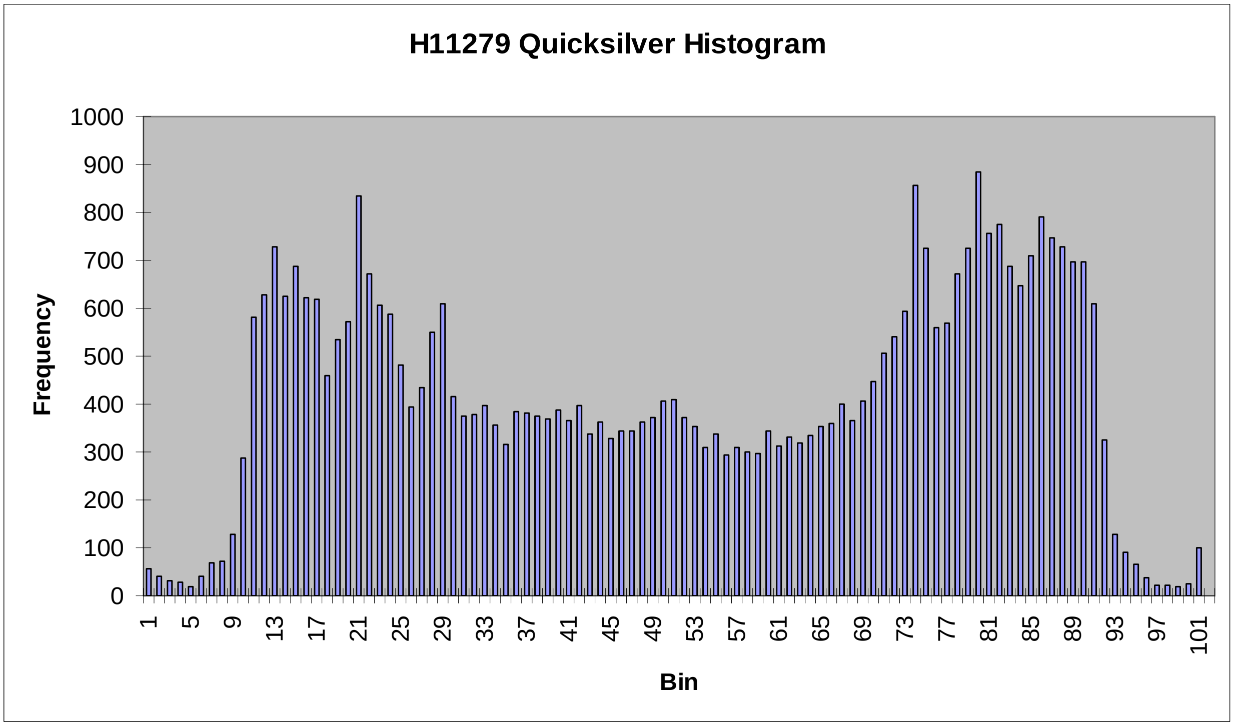


Figure 5 Histogram for 8101 (Quicksilver)

Figure 6 Histogram is for the Reson 8111 data, collected on June 2, 2004 on the Kvichak Surveyor 1. The Surveyor 1 was utilized to conduct the deep water portion of the sheet which consisted of one line, hence the low number of selected soundings on the smooth sheet. The histogram is somewhat evenly distributed, but due to the lack of sounding[11] no trends can be identified.

The decrease or lack of selected soundings on the outer beams is the result of deterioration of data quality on the outer beams, especially in deep water. In most cases set filters were used to flag the outer beams as rejected, but in other cases additional cleaning or filters were used on a line by line basis resulting in fewer selected soundings.

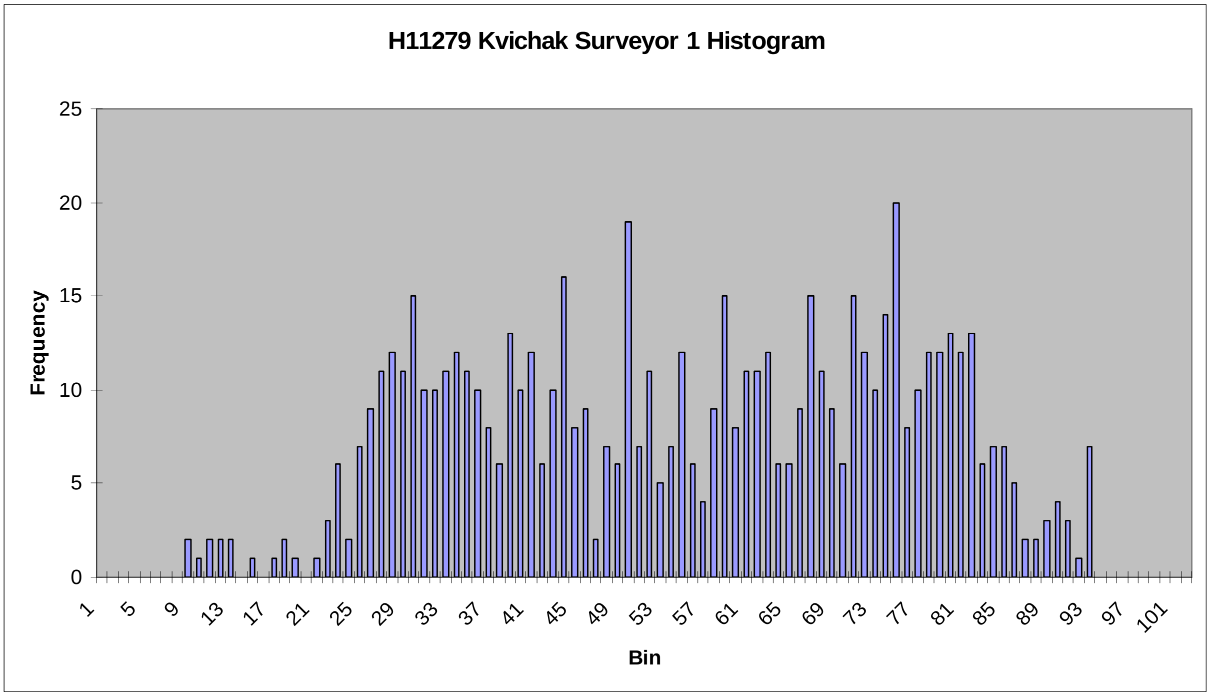


Figure 6 Histogram for 8111 (Kvichak Surveyor 1)

Quality Control Checks

During the hydrographic survey OPR-P183-KR-04 the R/Vs Quicksilver and Kvichak Surveyor 1 conducted a number of confidence checks. This usually consisted of the vessels running two lines in the opposite direction[12] over a reference surface (normally the patch test site). The data sets collected with Reson 8101 and 8111 systems that were installed on the Quicksilver and Kvichak Surveyor 1 respectively, compared to within 2 to 5 centimeters.

Positioning system confidence checks where[13] conducted on a daily basis using the POS/MV controller software. The controller software has numerous real time displays that were monitored throughout the survey to ensure the positional accuracies specified in the NOS Hydrographic Surveys Specifications and Deliverables (version March 2003) were achieved. These include, but are not limited to the following: GPS Status, Position accuracy, Receiver Status (which included HDOP) and Satellite Status. During periods of high HDOP and/or low number of available satellites survey operations were stopped.

Corrections to Echo Soundings

Refer to the OPR-P183-KR-04 Data Acquisition and Processing Report for a detailed description of all corrections to echo soundings and lead line measurements. No deviations from the report occurred.

C – Horizontal & Vertical Control

Refer to the OPR-P183-KR-04 Horizontal and Vertical Control Report[14] for a detailed description of the horizontal and vertical control used on this Survey. A summary of the projects[15] horizontal and vertical control follows. No deviations from the report occurred.

Horizontal Control

The horizontal control datum for this survey was the North American Datum of 1983 (NAD83), UTM (Central Meridian 159º00’00”). All raw positions were originally collected in WGS84 and transformed to NAD83 during the post-processed kinematic GPS (KGPS) routine.

It was necessary to acquire dual frequency GPS data at a known location/s on the ground so that a KGPS solution could be used for final positioning. LCMF established two local control points: one at the Anchor Inn (Fugro Pelagos processing center) and the other at Hodges Bed and Breakfast (Crew House) for this purpose. Refer to the Appendix B[16] for Horizontal Control results and procedures.

Additionally, it was critical to know the elevations of the control point/s in both the processed ellipsoidal datum and the final charting datum, in this case NAD83 and MLLW respectively. The offset between these two datums was applied during post-processing to depict data in the final charting datum. It should be noted that at no time was the final data set corrected with KGPS altitude data; only horizontal position. Altitude data were evaluated for accuracy against traditional tide zone and tide gauge methodology. The evaluation of vertical data was for experimental purposes only.

Vessel position was determined in real time using a NovAtel GPS-502 L1/L2 antenna, which was connected to a NovAtel Millennium GPS card residing in the POS/MV. The POS/MV was setup via the Diff Port to accept USCG differential corrections, which were output from a CSI MBX-3S Coast Guard beacon receiver. Note, since the pseudorange corrections received by the POS/MV are based on the NAD 83 position of the reference station antenna position, all final positions, are in all practical sense NAD 83. However, final positions were determined using a post-processed KGPS solution using the POSPac 4.1 processing software (Refer to the "2004-NOAAProcessingProcedures" document for KGPS processing procedure). Noted: On certain days, logging errors occurred at the base station/s, KGPS was not available, and conventional DGPS was used; such cases were noted on the log sheet.

Vertical Control

All sounding data were reduced to MLLW initially using unverified tidal data from the NOAA tide station, located in Sand Point, AK. A sub-contractor, LCMF, also installed and operated a secondary or backup gauge (delineated in red italics below), located in the same vicinity as the NOAA gauge. The tidal data from the backup gauge was e-mailed to the Sand Point, AK office at the end of every Julian day, but was used for QC purposes only.

Table 2 - Tide Gauges

Gauge	Model	Gauge Type	Location	Latitude	Longitude	Operational
9459450	AquaTrak	Acoustic	Sand Point, AK	55°19'54"N	160°30'16" W	N/A
9459450	*H350/355*	*Digital Bubbler*	*Sand Point, AK*	*55°20'12"N*[17]	*160°30'06" W*[18]	*4/25/04 to 7/28/04*

Table 3 - Final Tide Zones

Zone	Primary				*Secondary*			
	Site	Number	Time	Range Ratio	*Site*	*Number*	*Time*	*Range Ratio*
SWA193A	Sand Point	9459450	0	1.02	*Sand Point*	*9459450*	*0*	*1.02*
SWA204A	Sand Point	9459450	0	1.00	*Sand Point*	*9459450*	*0*	*1.00*
SWA205	Sand Point	9459450	6	0.94	*Sand Point*	*9459450*	*6*	*0.94*

On August 14, 2004, LCMF issued verified tidal data from the NOAA tide gauge for OPR-P183-KR-04. On August 14, 2004 all sounding data were re-merged using CARIS HIPS and SIPS tide routine. Verified tidal data were used for the Preliminary Smooth Sheet. Refer to the Vertical and Horizontal Control Report for additional tidal information and station descriptions.[19]

D – Results and Recommendations

Chart Comparison[20]

H11279 survey was compared with charts:

500	1:3,500,000	8th	June 1, 2003
503	1:4,860,700	30th	Mar 23, 2002
16006	1:1,534,076	33rd	Dec 23, 2000
16011	1:1,023,188	35th	Dec 2, 2000
16540	1:300,000	11th	Mar 4, 1989
16551	1:80,000	8th	Dec 15, 1990
16553	1:80,000/20,000	3rd	Sept 2, 1989

Comparison of Soundings

The soundings and contours, in general, compare well with the existing charts. During the comparison of soundings with Chart 16540 it was noticed that the chart seemed to be incorrectly projected, resulting in an approximate shift of 500 m to the northeast.[21] Therefore the soundings were primarily compared with chart 16553. Soundings from chart 16553 coincide with the soundings from H11279 to within 1 to 3 fathoms; areas that do vary to any degree are noted separately and are as follows:

- The 50 fathom shoal on chart 16553 located at 55°18’53.808” N, 160º 16’47.168” W[22] (418779.937 E, 6130585.223 N) as[23] migrated 230 meters to the east[24] and now reveals a least depth of 33 fathoms.[25] This area was surveyed with 100% multibeam coverage.

Other soundings that differed from the chart, were documented in a Danger to Navigation report and are listed in Appendix A Danger to Navigations[26].

Figure 7 illustrates that the contours from H11279 take on the same general shape, but in certain areas do deviate slightly from the existing contours on chart 16553. It should be noted that since the contours on H11279 are derived from a very dense shoal biased multibeam data set and the existing charts are based on sparse single beam or lead line data sets; one would expect deviations from the existing chart or charts.[27]

Areas of differences to note are:
- The contours surrounding the 8 fathom shoal located southeast of Dark Cliffs have migrated to the southwest approximately 250 m.[28]
- Also the 100-fathom contour which is not currently present on chart 16553 because it is not a charted contour interval is now present on H11279, since it is a specified contour interval for the smooth sheet.[29]

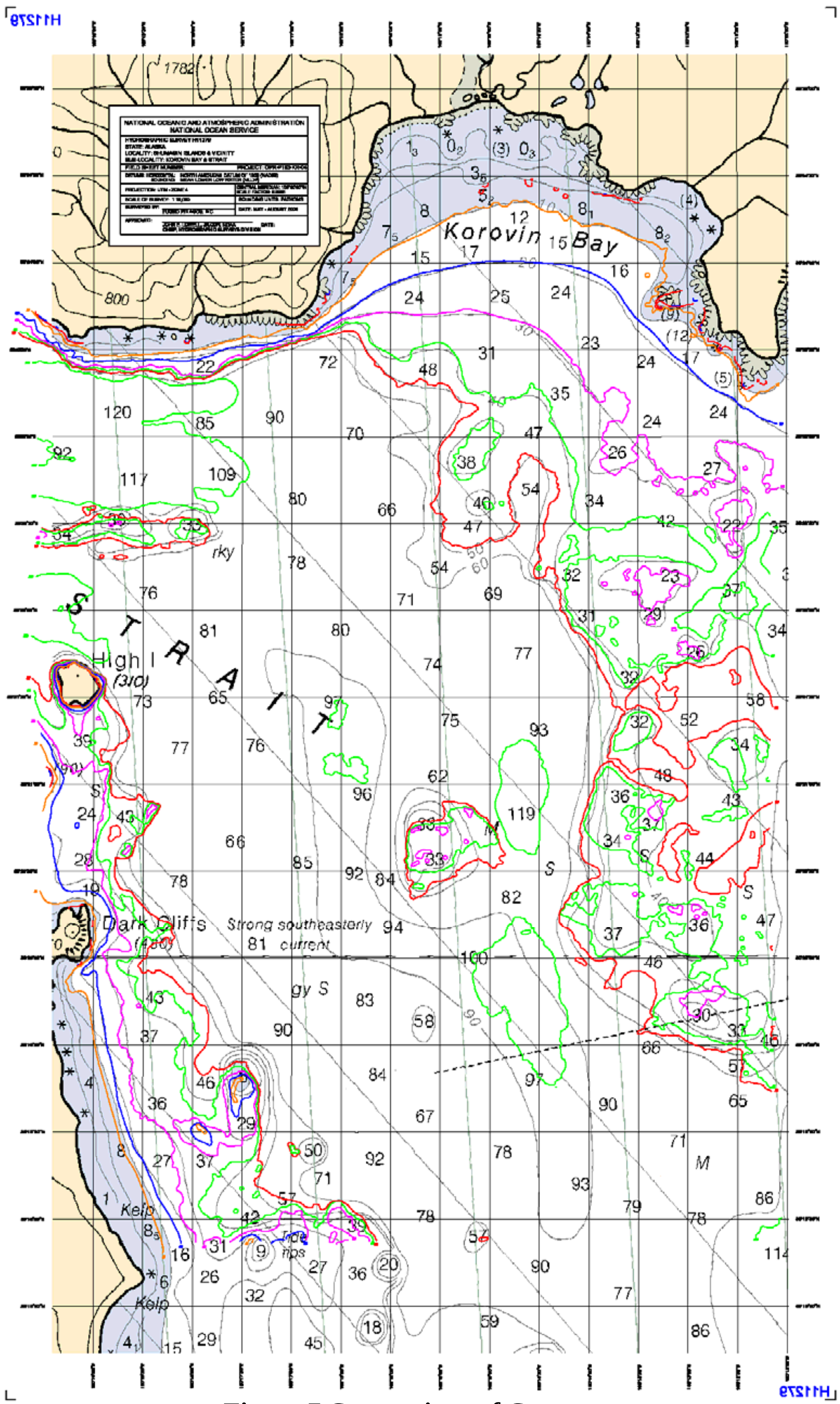


Figure 7 Comparison of Contours

Automated Wreck and Observation Information System

There were no AWOIS items assigned to H11279.[30]

Charted Features

There were no charted features labeled PA, ED, PD, or Rep within the limits of H11279.[31]

Dangers to Navigation

Two dangers to navigation were located during the hydrographic survey of H11279 and were submitted on June 16, 2004[32]. Refer to Appendix A for Submitted Report. [33]

Additional Results

Addition Item Investigations

Additional item investigations were conducted on objects that required further action to be proven or disproved. A 15 ft skiff, referred to as DP Skiff, was used to perform the item investigations. The skiff, owned by Kvichak Marine, was piloted by Fugro Pelagos, Inc. personnel. The DP skiff could generally safely navigate in any area where it could maintain 0.5 meters of under-keel clearance, except in locations of heavy swells near shore. The skiff was equipped with a CSI GBX-PRO DGPS receiver, WinFrog v3.4.0 data acquisition system (operated on a Panasonic laptop) and a Sony digital camera. In addition, the LIDAR Smooth Sheet data and NOAA charts were displayed as a layer in WINFROG for reference. The DP skiff was not outfitted with an echosounder. However, a lead line was used to take soundings on submerged features.

Table 4, is the list of additional items for H11279 that was supplied by NOAA to investigate. This list contained a position, sounding, description and the requested action; in addition there were items that had one position assigned but had additional soundings to be investigated in the near vicinity.

Operations were planned to take advantage of the period either side of low tide and during the best possible weather conditions. The hydrographers would approach an item to be investigated and once the item was located, would maneuver to the actual target. Whenever possible, a pike pole was used to hold on target until a sounding was recorded. A fix was taken within one minute using the differentially corrected antenna extended on a pole over the actual target observed. Data logged included time, uncorrected height or depth observed to the water line, position, video/pictures of the object and a description of the target. If no target was located, a search pattern was conducted that extended to the surrounding soundings on the displayed LIDAR smooth sheet to confirm there were no actual targets in the vicinity.

DPs and their corresponding hydrographer's remarks were digitally recorded in WINFROG and digital photographs were taken of features when feasible (Refer to Appendix F for field notes).

Table 4 – H11279 Additional Investigation List[34]

Item	Chart	LIDAR	Lat	Long	Object	Action
6		2.7	55 23 44.62 N	160 13 16.16 W	Complex rky area	Investigate, delineate foul area
7		1.8	55 20 09.94 N	160 19 00.79 W	Rk	Confirm
10		1.4	55 18 57.45 N	160 19 01.30 W	Rk	Confirm
		1.6	50m north		Rk	Confirm
14		1.8	55 18 04.49 N	160 18 29.88 W	Rk	Confirm
15		10.3	55 18 24.23 N	160 16 53.15 W	Rk	SWMB
		11.1	150m west		Rk	SWMB
16		8.7	55 19 01.97 N	160 17 55.99 W	Rk	SWMB
16		9.1	55m SE		Rk	SWMB
17	8	7	55 19 16.59 N	160 17 34.09 W	Chtd Rk	SWMB
		8.4	70m NE		Rk	SWMB
		9.2	150m south		Rk	SWMB
18	9		55 18 18.83 N	160 17 19.89 W	Chtd Rk	SWMB

Results and recommendations

Item investigations that result in a recommendation that contradicts the LIDAR data set appear on the H11279 preliminary smooth sheet. For example, a previously charted rock that was not observed by LIDAR but was found during item investigations will appear on the H11279 preliminary smooth sheet, as do rocks with heights that differ significantly from the LIDAR smooth sheet.

Investigations that result in a confirmation of the LIDAR smooth sheet do not appear on the H11279 preliminary smooth sheet. For example, a rock on the LIDAR smooth sheet whose position and height were confirmed during investigations would not appear on the H11279 smooth sheet, but does appear on the H11147C LIDAR smooth sheet.

Each result and recommendation below refers to a Detached Position (DP) form. The DP form, created in ArcMap as described in the Shoreline Correlator Sheet section of this report, contains most of the information used in forming the recommendation including digital field notes, zoned verified tide at time of observance, and photos (if available). The DP forms can be found in Appendix F[35].

Item 6:

2.7 fm LIDAR Rk positioned at 55 23 44.62 N 160 13 16.16 W was located. Full multibeam coverage was obtained and a least depth of 2.1 fms was returned. Recommend charting the Multibeam least depth and Rk as it appears on the H11279 smooth sheet at 55 23 44.313 N 160 13 15.943 W. DP form JD166_C6.[36]

Foul area delineated on Julian day 205 by R/V Quicksilver. Recommend charting foul area as shown on smooth sheet. DP form JD205_C6(3).[37]

Item 7:

1.8 fm LIDAR Rk at 55 20 09.94 N 160 19 00.79 W was not found. The skiff investigated and conducted two lead line measurements in this area on Julian day 166 and could not locate the LIDAR rock. In addition, multibeam coverage extended partially over the area and did not indicate a feature. Recommend do not chart 1.8 fm LIDAR Rk. DP form JD166_C7.[38]

Item 10:

1.4 fm LIDAR Rk at 55 18 57.45 N 160 19 01.30 W was found. On Julian day 166 the skiff investigated the area, noted the bottom type to be rocky, and returned a lead line depth of 1.8 fms at the LIDAR Rk position. Recommend charting LIDAR 1.4 fm Rk, and recommend charting “rky” in area. DP form JD166_C10.[39]

1.6 fm LIDAR Rk located approximately 50 meters north of the 1.4 fathom sounding above was found. Skiff confirmed depth and position. Recommend charting LIDAR 1.6 fm Rk. DP form JD166_C10a.[40]

Item 14: *See sheet ‘D’ (H11280) Descriptive Report.**

Item 15: *See sheet ‘D’ (H11280) Descriptive Report.**

Item 16:

Full multibeam coverage over the 8.7 fm LIDAR Rk positioned at 55 19 01.97 N 160 17 55.99 W confirmed the LIDAR Rk, but found a shoaler least depth of 8.2 fms, approximately 16m northwest. Recommend chart Rk at 8.2 fm Multibeam (MB) position 55 19 02.523 N 160 17 56.503 W as it appears on the H11279 smooth sheet. DP form JD166_C16.[41]

Full multibeam coverage over 9.1 fm LIDAR Rk located approximately 55 meters southeast of the 8.7 fathom sounding above, confirmed LIDAR Rk but found a shoaler least depth of 7.7 fms, approximately 20m northeast. Recommend chart Rk at 7.7 fm MB position 55 19 01.221 N 160 17 53.617 W as it appears on the H11279 smooth sheet. DP form JD166_C16a.[42]

Item 17:

Full multibeam coverage over 7 fm LIDAR Rk positioned at 55 19 16.59 N 160 17 34.09 W, confirmed LIDAR Rk but found a shoaler depth on the feature of 6.9 fms. Recommend chart MB 6.9 fm Rk at 55 19 16.597 N 160 17 34.107 W as it appears on the H11279 smooth sheet. DP form JD166_C17.[43]

Full multibeam coverage over 8.4 fm LIDAR Rk located approximately 70 meters northeast of the 7 fathom sounding above, confirmed LIDAR Rk but found a shoaler depth on the feature of 8.3 fms. Recommend chart MB 8.3 fm Rk at 55 19 18.029 N 160 17 31.098 W as it appears on the H11279 smooth sheet. DP form JD166_C17.[44]

Full multibeam coverage over 9.2 fm LIDAR Rk located approximately 150 meters south of the 7 fathom sounding above, confirmed LIDAR Rk but found a shoaler depth on the feature of 9 fathoms. Recommend chart MB 9 fm Rk at 55 19 11.929 N 160 17 34.896 W as it appears on the H11279 smooth sheet. DP form JD166_C17b.[45]

Item 18: *See sheet 'D' (H11280) Descriptive Report*.*

* Items 14, 15, and 18 are located near the border of sheets C and D (H11279 and H11280). As the survey blocks were laid out for the two sheets, these items landed in sheet D and appear in the descriptive report for that survey.[46]

Additional Notes:

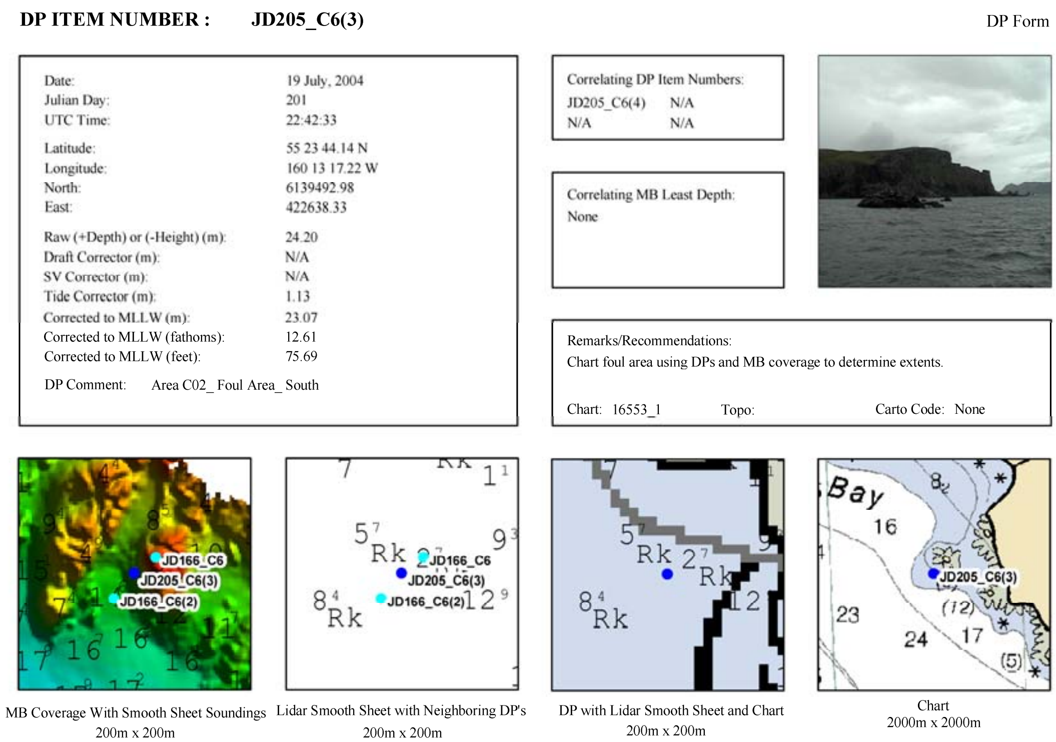
- The Tenix MHW line received for H11279 had a section in the northwest corner that was a solid red line; this section was change to a red dashed line. The change is noted in blue text on level 63 of the digital drawing.[47]
- On the southeast side of Dark Cliffs, the Tenix MHW intersected the hydro data; therefore this section was revised based on the hydro data. The change is noted in blue text on level 63 of the digital drawing.[48]
- The source of the MHW line on the smooth sheet for H11279 is from the TENIX LADS Inc. H11147C survey of 2003.[49]
- Any cartographic information on the H11279 Smooth Sheet is from the item investigations conducted by Fugro Pelagos, Inc.
- No lead line soundings are present on the smooth sheet for H11279.

Tidal Range

LCMF established the tidal range for OPR-P183-KR-04 to be 1.988 meters (6.522 feet or 1.087 fathoms). This value was used in determining height above MHW. Refer to the OPR-P183-KR-04 Horizontal and Vertical Control Report for any additional tidal information.

Shoreline Correlator Sheet

ArcMap v9.0 with the Shoreline Correlator add-on, written by the Fugro Pelagos Inc. GIS department, aided in the processing of the investigation results. The correlator utilized the Winfrog Log files to create an individual DP form for all acquired DP's. The correlator was mapped to the Log, Tide, Photos, NOAA Chart (largest scale available), LIDAR Data, Smooth Sheet Soundings and Multibeam Coverage files to calculate and display the desired information for each DP. Figure 8 shows an example of a DP form produced from the Correlator. The DP forms and the raw field notes can be found in Appendix F.[50]



DP ITEM NUMBER : JD205_C6(3) DP Form

Date:	19 July, 2004
Julian Day:	201
UTC Time:	22:42:33
Latitude:	55 23 44.14 N
Longitude:	160 13 17.22 W
North:	6139492.98
East:	422638.33
Raw (+Depth) or (-Height) (m):	24.20
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	1.13
Corrected to MLLW (m):	23.07
Corrected to MLLW (fathoms):	12.61
Corrected to MLLW (feet):	75.69

DP Comment: Area C02_ Foul Area_ South

Correlating DP Item Numbers:
JD205_C6(4) N/A
N/A N/A

Correlating MB Least Depth:
None

Remarks/Recommendations:
Chart foul area using DPs and MB coverage to determine extents.

Chart: 16553_1 Topo: Carto Code: None

MB Coverage With Smooth Sheet Soundings 200m x 200m
Lidar Smooth Sheet with Neighboring DP's 200m x 200m
DP with Lidar Smooth Sheet and Chart 200m x 200m
Chart 2000m x 2000m

Figure 8 DP Correlator Sheet

Bottom Samples

Bottom Samples were not required under this contract.[51]

Aids to Navigation

There were no charted aids to navigation in the survey area. No uncharted aids to navigation were found in the survey area.[52]

E – Approval Sheet

Approval Sheet

For

H11279

Standard field surveying and processing procedures were followed in producing this survey in accordance with the following documents:

> OPR-P183-KR-04 statement of work and hydrographic manual;
> Fugro Pelagos, Inc. Acquisition Procedures (2004-NOAAAcquisitionProcedures);
> Fugro Pelagos, Inc. Processing Procedures (2004-NOAAProcessingProcedures);
> Technical Report for Tides, Sand Point Backup Tide Station Report.

The data were reviewed daily during acquisition and processing.

This report has been reviewed and approved. All records are forwarded for final review and processing to the Chief, Pacific Hydrographic Branch.

Approved and forwarded,

Dean Moyles

Dean Moyles, Fugro Pelagos, Inc.
Lead Hydrographer
Fugro Pelagos, Inc. Survey Party

Appendix A - Danger to Navigation

Two dangers to navigation were located during the hydrographic survey of H11279 and were submitted on June 16, 2004.

Danger to Navigation Report

Hydrographic Survey Registry Number: **H11279**

Survey Title: State: Alaska Locality: Shumagin Islands & Vicinity Sub-locality: Korovin Bay & Strait

Project Number: OPR-P183-KR-04

Survey Dates: May - June 2004

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

CHARTS AFFECTED:

Chart	Scale	Edition	Date
16553	1:80,000	3rd	09/02/89

DANGERS:

Feature	Depth(ft or fms)	Latitude (N)	Longitude (W)
Sounding	6 fms 5 ft	55^{o} 19' 16.6"	160^{o} 17' 34.1"
Sounding	7 fms	55^{o} 19' 01.2"	160^{o} 17' 53.6"

COMMENTS:

Questions concerning this report should be directed to the Chief, Pacific Hydrographic Branch at *(206) 526-6840.*

Appendix B - List of Geographic Names

No new geographic names in the survey were discovered.[53]

Appendix D - Tides and Water Levels

Abstract of Times of Hydrography for Smooth Tides
Project Number: OPR-P183-KR-04 Registry Number: H11279
Contractor Name: Fugro Pelagos Inc. Date: December 20, 2004
Sheet Letter: C
Inclusive Dates: May 18, 2004 to July 19, 2004
Fieldwork is complete and verified tides were applied for the production of the smooth sheet.
Refer to LCMF's final verified tides report for additional information.

Table 5 Abstract of Times of Hydrography for R/V Quicksilver

YEAR	DAY	START TIME (UTC)	END TIME (UTC)	COMMENTS
2004	139	19:06:11	23:57:42	Also worked in SHT D
2004	140	00:01:55	01:56:57	
2004	140	16:52:09	23:55:59	
2004	141	00:10:58	02:01:31	
2004	141	17:10:59	22:56:34	Vessel Comparison
2004	142	16:16:20	23:46:07	
2004	143	00:00:09	02:01:20	Down on Weather
2004	144	16:27:12	23:59:58	
2004	145	00:01:55	01:59:52	
2004	145	16:20:04	23:52:44	
2004	146	00:04:18	00:11:31	Worked in SHT B due to Weather
2004	146	17:54:49	23:55:59	
2004	147	00:08:26	13:20:35	
2004	147	21:15:22	23:39:46	Also worked in SHT D
2004	148	00:00:41	07:54:38	Also worked in SHT K
2004	160	17:44:47	20:07:22	Also worked in SHT B
2004	173	17:08:25	21:15:29	Also worked in SHT H

Table 6 Abstract of Times of Hydrography for R/V Kvichak Surveyor 1

YEAR	DAY	START TIME (UTC)	END TIME (UTC)	COMMENTS
2004	154	21:49:58	22:08:05	

Appendix E - AWOIS

No AWOIS items were assigned for H11279.[54]

Appendix F – DP forms

DP ITEM NUMBER : JD166_C6

DP Form

Date:	14 June, 2004
Julian Day:	166
UTC Time:	23:36:29
Latitude:	55 23 44.60 N
Longitude:	160 13 16.17 W
North:	6139506.81
East:	422657.05
Raw (+Depth) or (-Height) (m):	6.80
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	1.38
Corrected to MLLW (m):	5.42
Corrected to MLLW (fathoms):	2.96
Corrected to MLLW (feet):	17.78

DP Comment: C6 shoalest depth obs 6.8m

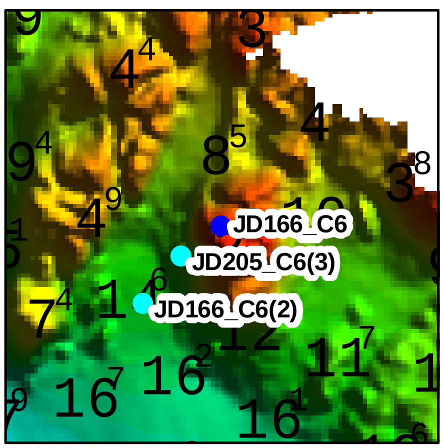
Correlating DP Item Numbers:
JD166_C6(2) N/A
N/A N/A

Correlating MB Least Depth:
2.1 fathom

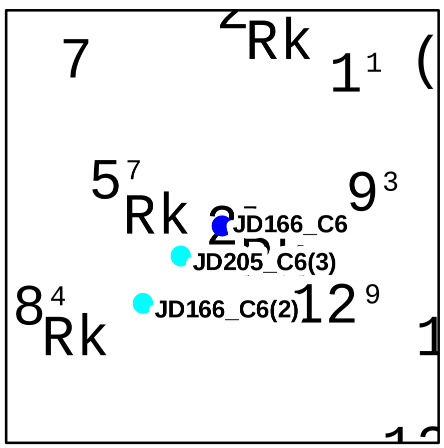
No photo available

Remarks/Recommendations:
Rk located; full MB coverage depth of 2.1 fms. Recommend chart Rk at MB posi tion using MB depth.

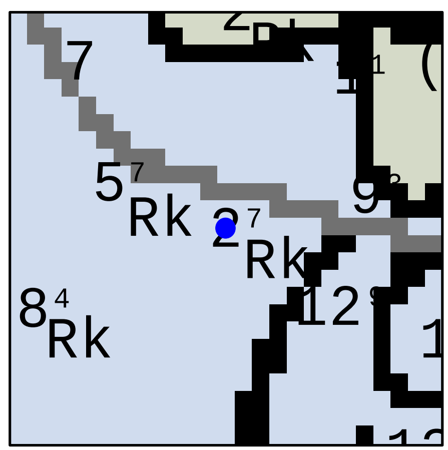
Chart: 16553_1 Topo: Carto Code: None



MB Coverage With Smooth Sheet Soundings
200m x 200m



Lidar Smooth Sheet with Neighboring DP's
200m x 200m


DP with Lidar Smooth Sheet and Chart
200m x 200m

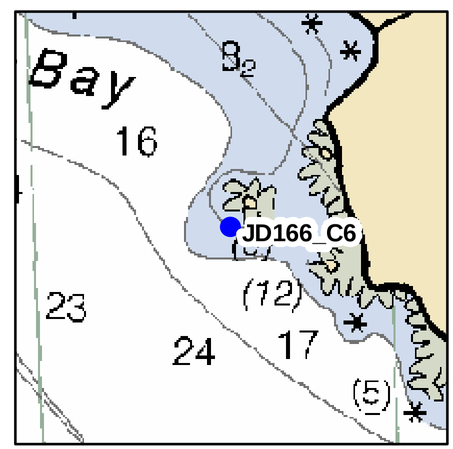


Chart
2000m x 2000m

DP ITEM NUMBER : JD166_C6(2)

Date:	14 June, 2004
Julian Day:	166
UTC Time:	23:41:09
Latitude:	55 23 43.42 N
Longitude:	160 13 18.19 W
North:	6139471.08
East:	422620.84
Raw (+Depth) or (-Height) (m):	N/A
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	1.36
Corrected to MLLW (m):	-1.36
Corrected to MLLW (fathoms):	-0.74
Corrected to MLLW (feet):	-4.46

DP Comment: video at C6

Correlating DP Item Numbers:

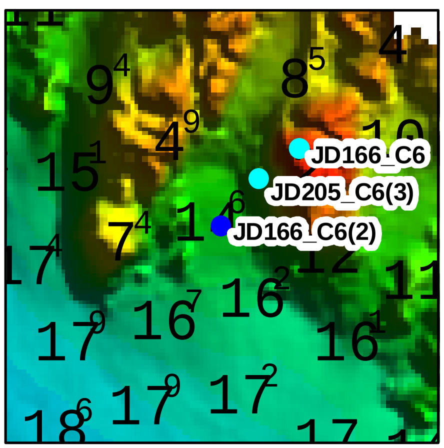
JD166_C6	N/A
N/A	N/A

Correlating MB Least Depth:
None

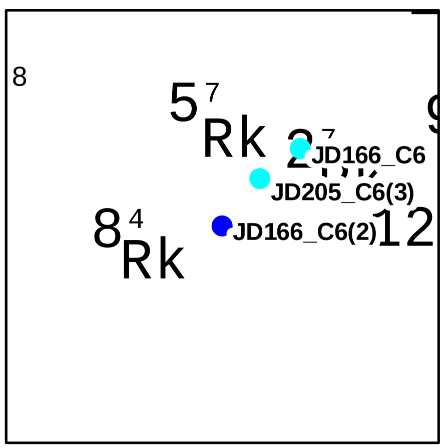
No photo available

Remarks/Recommendations:
See JD166_C6

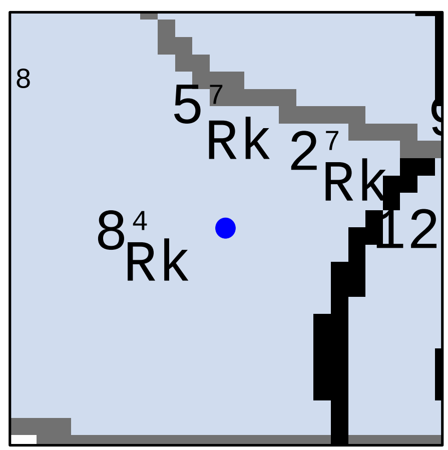
Chart: 16553_1 Topo: Carto Code: None



MB Coverage With Smooth Sheet Soundings
200m x 200m



Lidar Smooth Sheet with Neighboring DP's
200m x 200m



DP with Lidar Smooth Sheet and Chart
200m x 200m

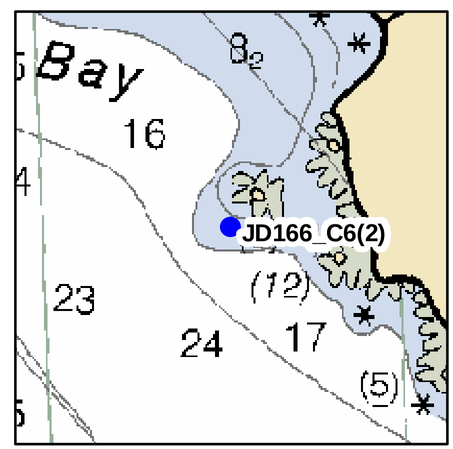


Chart
2000m x 2000m

DP ITEM NUMBER : JD205_C6(3)

Date:	19 July, 2004
Julian Day:	201
UTC Time:	22:42:33
Latitude:	55 23 44.14 N
Longitude:	160 13 17.22 W
North:	6139492.98
East:	422638.33
Raw (+Depth) or (-Height) (m):	24.20
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	1.13
Corrected to MLLW (m):	23.07
Corrected to MLLW (fathoms):	12.61
Corrected to MLLW (feet):	75.69
DP Comment:	Area C02_ Foul Area_ South

Correlating DP Item Numbers:

JD205_C6(4) N/A
N/A N/A

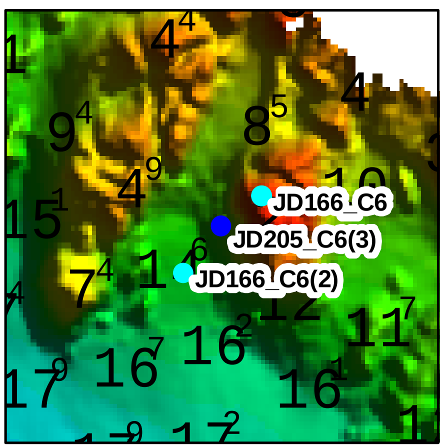
Correlating MB Least Depth:

None

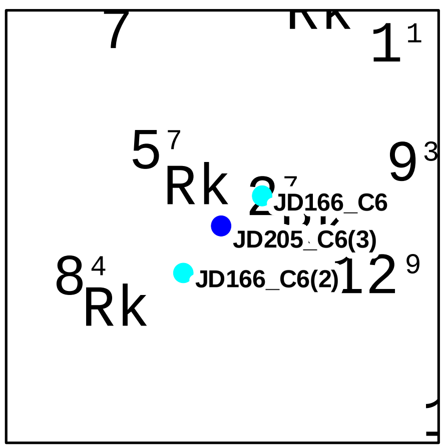
Remarks/Recommendations:

Chart foul area using DPs and MB coverage to determine extents.

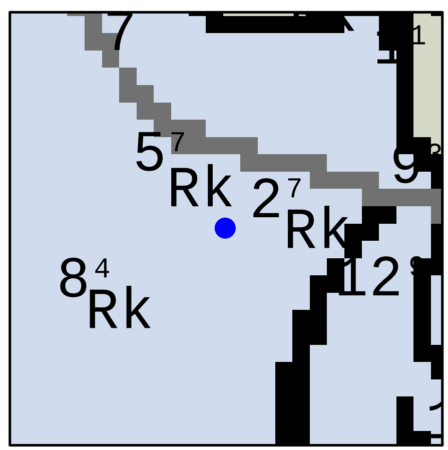
Chart: 16553_1 Topo: Carto Code: None



MB Coverage With Smooth Sheet Soundings
200m x 200m



Lidar Smooth Sheet with Neighboring DP's
200m x 200m



DP with Lidar Smooth Sheet and Chart
200m x 200m

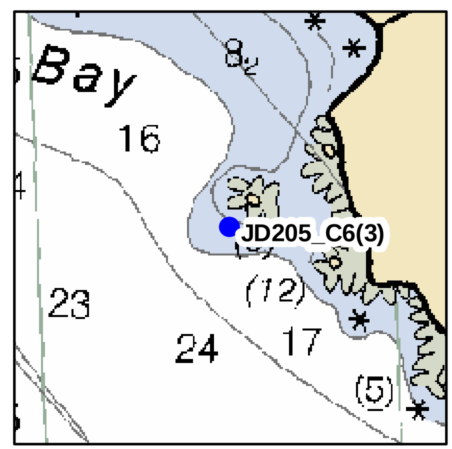


Chart
2000m x 2000m

DP Form

DP ITEM NUMBER : **JD205_C6(4)**

Date:	19 July, 2004
Julian Day:	201
UTC Time:	22:44:23
Latitude:	55 23 50.49 N
Longitude:	160 13 17.18 W
North:	6139689.25
East:	422642.48
Raw (+Depth) or (-Height) (m):	0.10
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	1.14
Corrected to MLLW (m):	-1.04
Corrected to MLLW (fathoms):	-0.57
Corrected to MLLW (feet):	-3.41

DP Comment: Area C02_ Foul Area_ West

Correlating DP Item Numbers:

JD205_C6(3) N/A

N/A N/A

Correlating MB Least Depth:

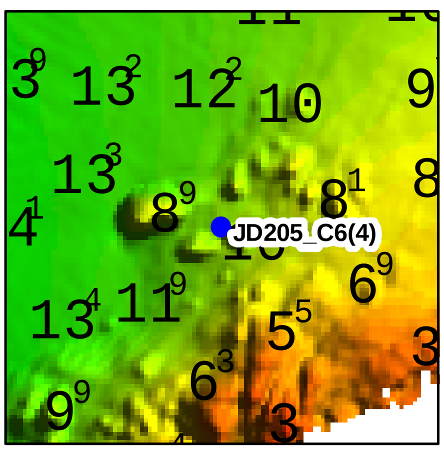
None

No photo available

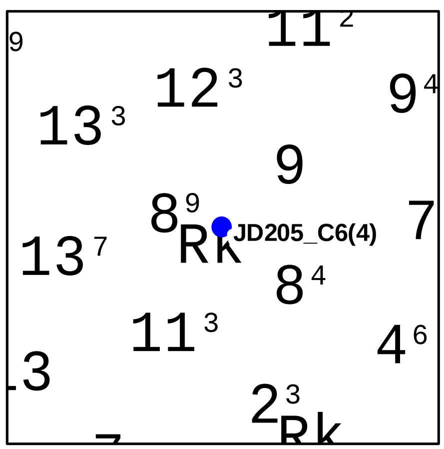
Remarks/Recommendations:

See JD205_C6(3)

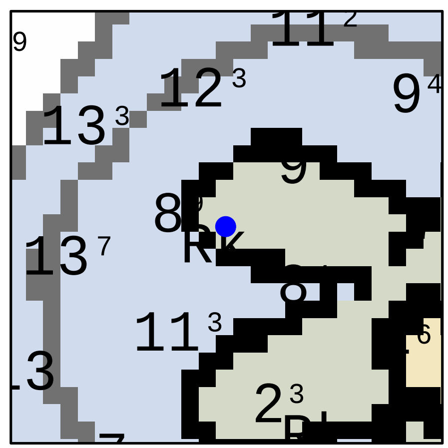
Chart: 16553_1 Topo: Carto Code: None



MB Coverage With Smooth Sheet Soundings
200m x 200m



Lidar Smooth Sheet with Neighboring DP's
200m x 200m



DP with Lidar Smooth Sheet and Chart
200m x 200m

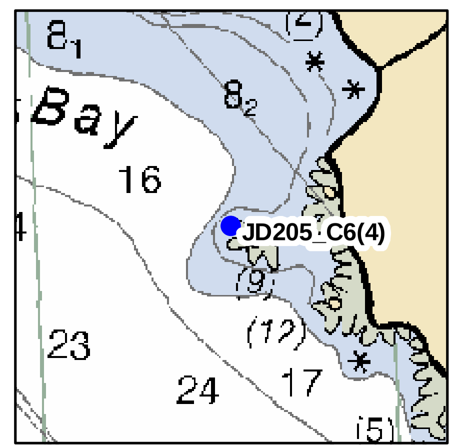


Chart
2000m x 2000m

DP ITEM NUMBER : JD166_C7

DP Form

Date:	14 June, 2004
Julian Day:	166
UTC Time:	17:31:24
Latitude:	55 20 09.97 N
Longitude:	160 19 00.79 W
North:	6132983.30
East:	416469.02
Raw (+Depth) or (-Height) (m):	10.50
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	0.28
Corrected to MLLW (m):	10.22
Corrected to MLLW (fathoms):	5.59
Corrected to MLLW (feet):	33.53

DP Comment: C7 10.5m

Correlating DP Item Numbers:

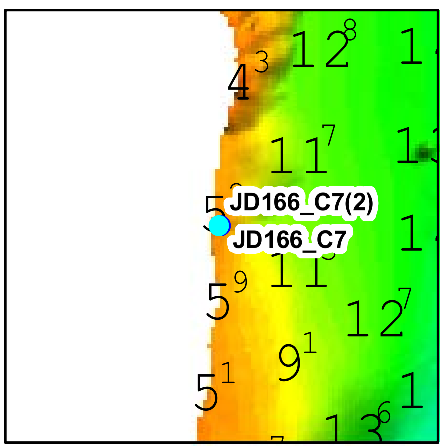
JD166_C7(2) N/A
N/A N/A

Correlating MB Least Depth:
5.2 fathoms

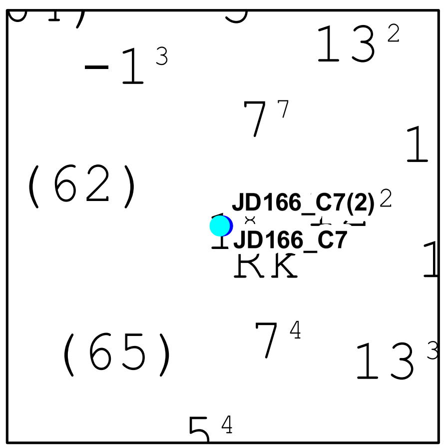
No photo available

Remarks/Recommendations:
Lidar Rk not found. Recommend do not chart lidar 1.8 fm Rk.

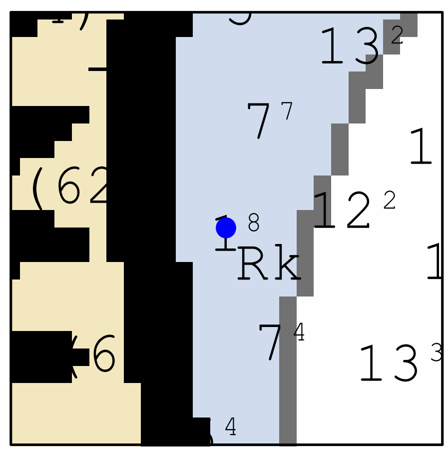
Chart: 16553_1 Topo: Carto Code: None



MB Coverage With Smooth Sheet Soundings
200m x 200m



Lidar Smooth Sheet with Neighboring DP's
200m x 200m



DP with Lidar Smooth Sheet and Chart
200m x 200m

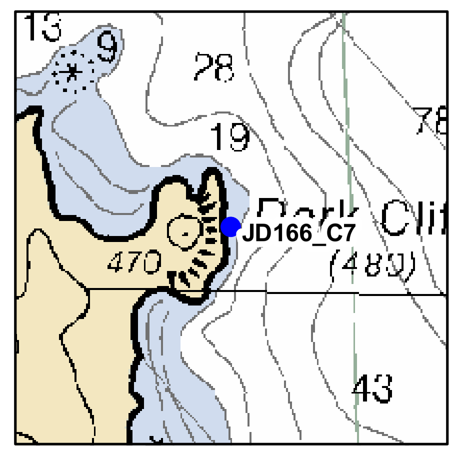


Chart
2000m x 2000m

DP ITEM NUMBER : JD166_C7(2)

Date:	14 June, 2004
Julian Day:	166
UTC Time:	17:34:45
Latitude:	55 20 09.97 N
Longitude:	160 19 00.84 W
North:	6132983.32
East:	416468.07
Raw (+Depth) or (-Height) (m):	11.20
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	0.28
Corrected to MLLW (m):	10.92
Corrected to MLLW (fathoms):	5.97
Corrected to MLLW (feet):	35.83

DP Comment: C7 11.2m

Correlating DP Item Numbers:

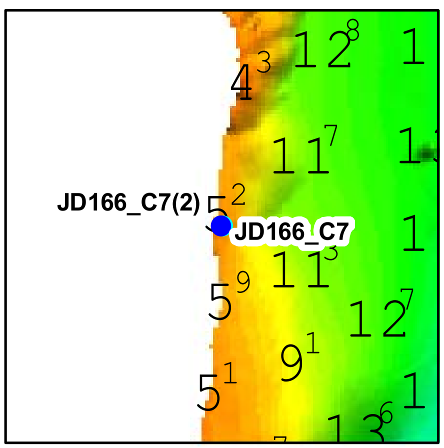
JD166_C7	N/A
N/A	N/A

Correlating MB Least Depth:
None

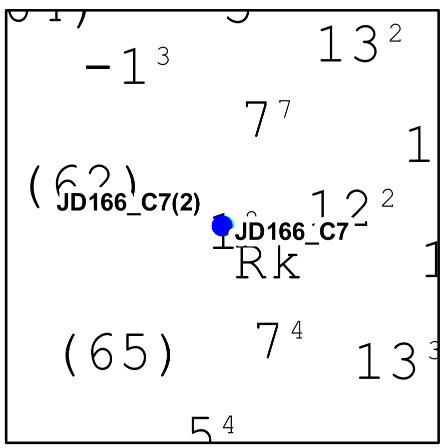
No photo available

Remarks/Recommendations:
See JD166_C7

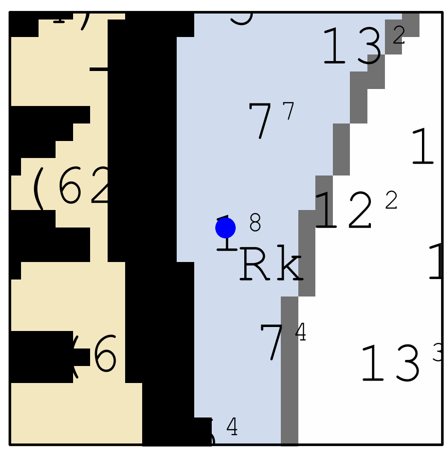
Chart: 16553_1 Topo: Carto Code: None



MB Coverage With Smooth Sheet Soundings
200m x 200m



Lidar Smooth Sheet with Neighboring DP's
200m x 200m



DP with Lidar Smooth Sheet and Chart
200m x 200m

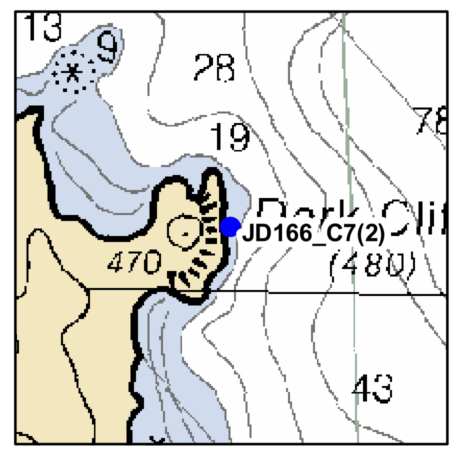


Chart
2000m x 2000m

DP ITEM NUMBER : JD166_C10

DP Form

Date:	14 June, 2004
Julian Day:	166
UTC Time:	18:03:34
Latitude:	55 18 57.42 N
Longitude:	160 19 01.29 W
North:	6130740.92
East:	416417.74
Raw (+Depth) or (-Height) (m):	3.70
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	0.44
Corrected to MLLW (m):	3.26
Corrected to MLLW (fathoms):	1.78
Corrected to MLLW (feet):	10.70

DP Comment: 3.7m rocky

Correlating DP Item Numbers:

N/A N/A
N/A N/A

Correlating MB Least Depth:

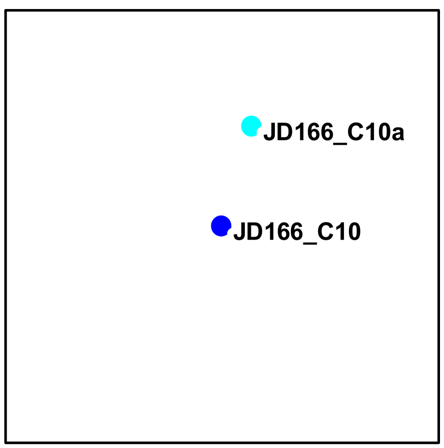
None

No photo available

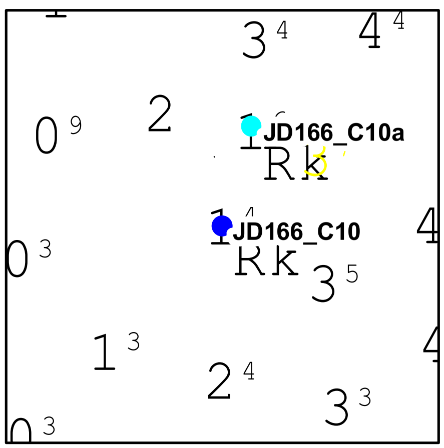
Remarks/Recommendations:

Recommend charting lidar 1.4 fm Rk and charting "rky".

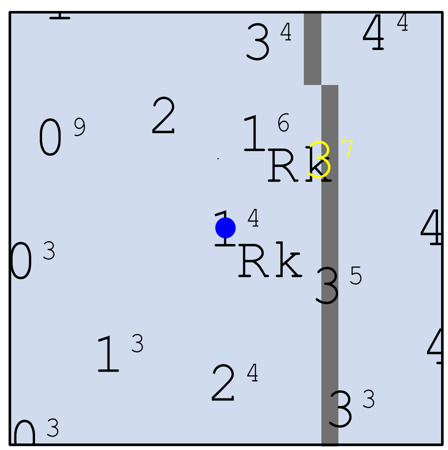
Chart: 16553_1 Topo: Carto Code: None



MB Coverage With Smooth Sheet Soundings
200m x 200m



Lidar Smooth Sheet with Neighboring DP's
200m x 200m



DP with Lidar Smooth Sheet and Chart
200m x 200m

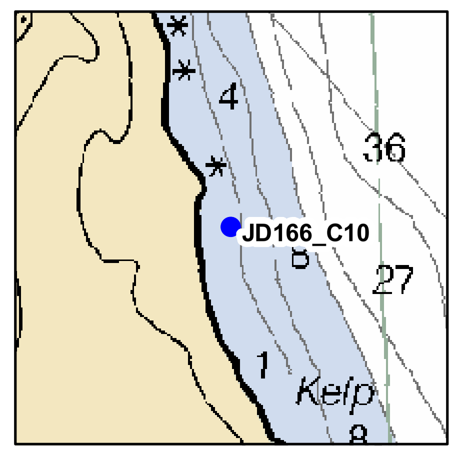


Chart
2000m x 2000m

DP ITEM NUMBER : JD166_C10a

Date:	14 June, 2004
Julian Day:	166
UTC Time:	17:58:32
Latitude:	55 18 58.92 N
Longitude:	160 19 00.55 W
North:	6130787.03
East:	416431.63
Raw (+Depth) or (-Height) (m):	3.50
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	0.44
Corrected to MLLW (m):	3.06
Corrected to MLLW (fathoms):	1.67
Corrected to MLLW (feet):	10.04

DP Comment: 3.5m rock

Correlating DP Item Numbers:

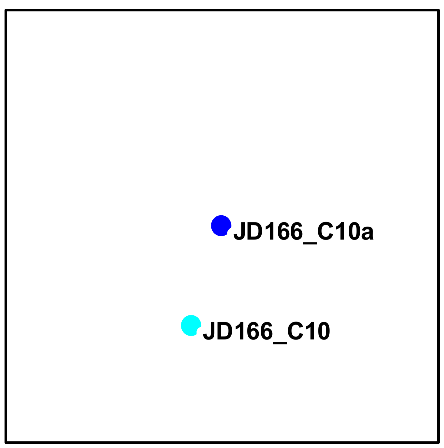
N/A N/A
N/A N/A

Correlating MB Least Depth:
None

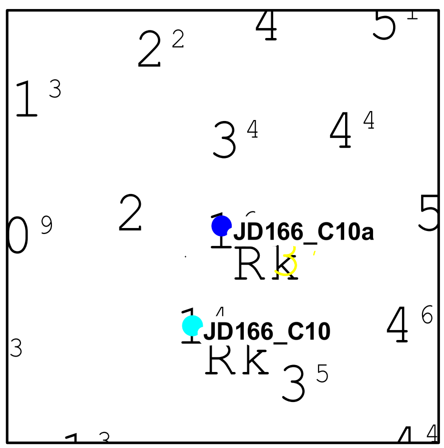
No photo available

Remarks/Recommendations:
Lidar Rk depth and position confirmed. Chart lidar 1.6 fm Rk.

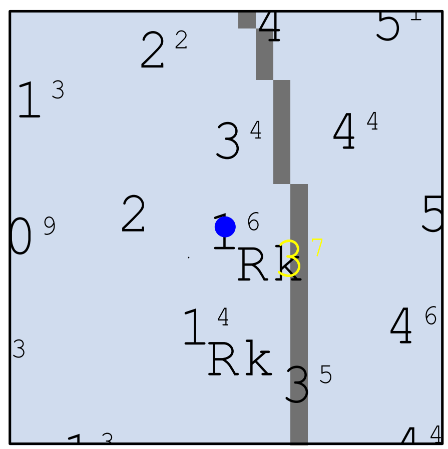
Chart: 16553_1 Topo: Carto Code: None



MB Coverage With Smooth Sheet Soundings
200m x 200m



Lidar Smooth Sheet with Neighboring DP's
200m x 200m



DP with Lidar Smooth Sheet and Chart
200m x 200m

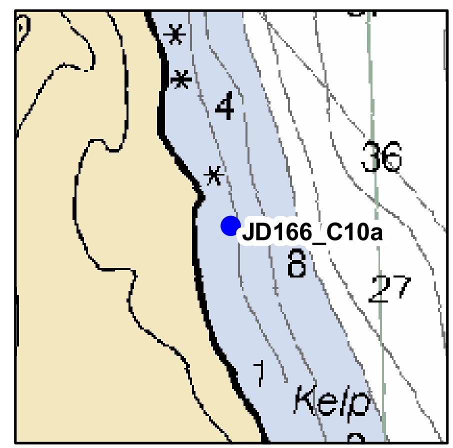


Chart
2000m x 2000m

DP ITEM NUMBER : JD166_C16

DP Form

Date:	14 June, 2004
Julian Day:	166
UTC Time:	23:41:09
Latitude:	55 19 01.97 N
Longitude:	160 17 55.99 W
North:	6130859.88
East:	417571.40
Raw (+Depth) or (-Height) (m):	N/A
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	1.36
Corrected to MLLW (m):	-1.36
Corrected to MLLW (fathoms):	-0.74
Corrected to MLLW (feet):	-4.46

DP Comment: Multibeam coverage

Correlating DP Item Numbers:

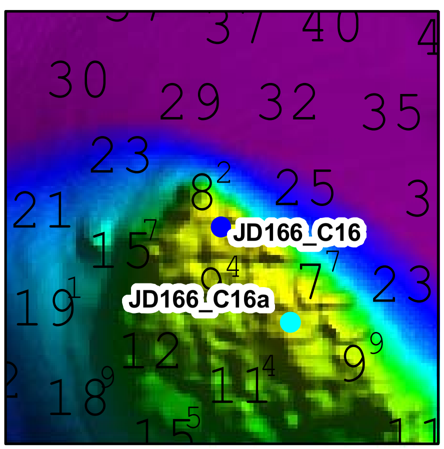
N/A	N/A
N/A	N/A

Correlating MB Least Depth:
8.2 fathoms

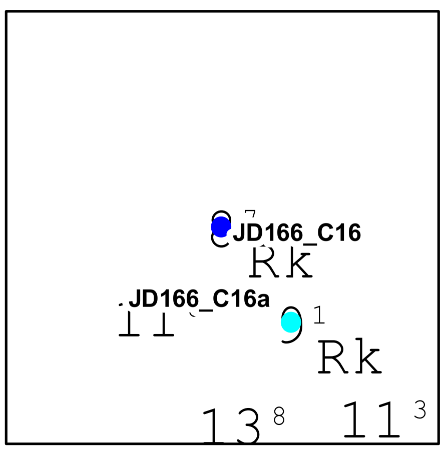
No photo available

Remarks/Recommendations:
Recommend chart Rk at 8.2 fm MB sounding northwest of this position.

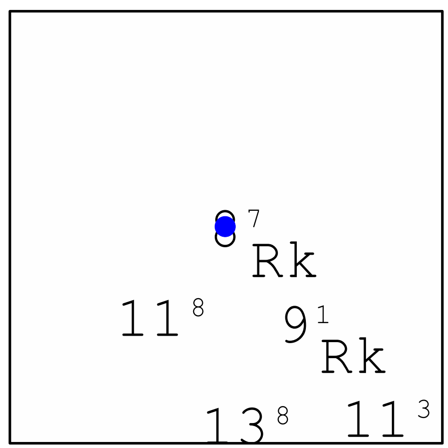
Chart: 16553_1 Topo: Carto Code: None



MB Coverage With Smooth Sheet Soundings
200m x 200m



Lidar Smooth Sheet with Neighboring DP's
200m x 200m



DP with Lidar Smooth Sheet and Chart
200m x 200m

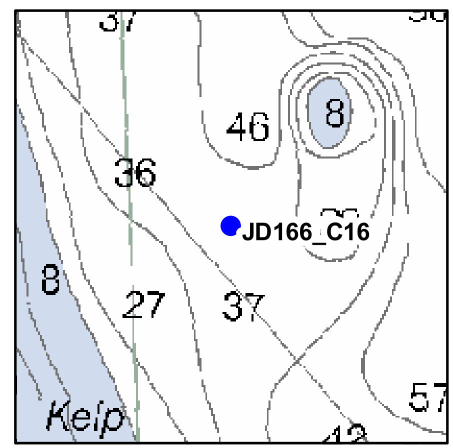


Chart
2000m x 2000m

DP Form

DP ITEM NUMBER : JD166_C16a

Date:	14 June, 2004
Julian Day:	166
UTC Time:	23:41:09
Latitude:	55 19 00.56 N
Longitude:	160 17 54.13 W
North:	6130815.69
East:	417603.48
Raw (+Depth) or (-Height) (m):	N/A
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	1.36
Corrected to MLLW (m):	-1.36
Corrected to MLLW (fathoms):	-0.74
Corrected to MLLW (feet):	-4.46

DP Comment: Multibeam coverage

Correlating DP Item Numbers:

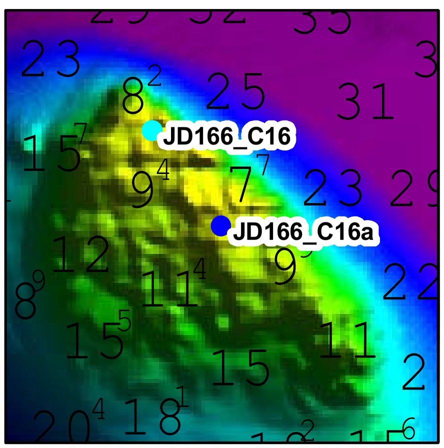
N/A	N/A
N/A	N/A

Correlating MB Least Depth:
7.7 fathoms

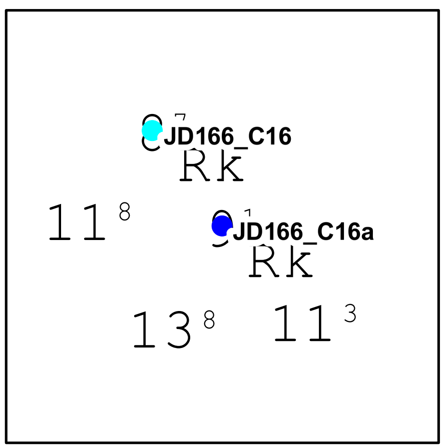
No photo available

Remarks/Recommendations:
Recommend chart Rk at 7.7 fm MB sounding northeast of this position.

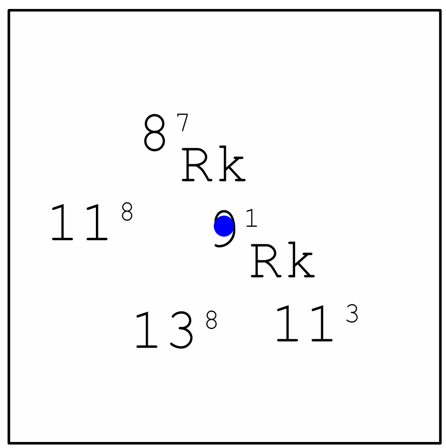
Chart: 16553_1 Topo: Carto Code: None



MB Coverage With Smooth Sheet Soundings
200m x 200m



Lidar Smooth Sheet with Neighboring DP's
200m x 200m



DP with Lidar Smooth Sheet and Chart
200m x 200m

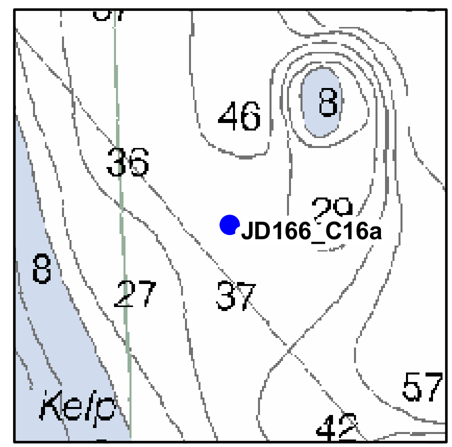


Chart
2000m x 2000m

DP ITEM NUMBER : JD166_C17

Date:	14 June, 2004
Julian Day:	166
UTC Time:	23:41:09
Latitude:	55 19 16.59 N
Longitude:	160 17 34.09 W
North:	6131304.66
East:	417965.82
Raw (+Depth) or (-Height) (m):	N/A
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	1.36
Corrected to MLLW (m):	-1.36
Corrected to MLLW (fathoms):	-0.74
Corrected to MLLW (feet):	-4.46

DP Comment: Multibeam coverage

Correlating DP Item Numbers:

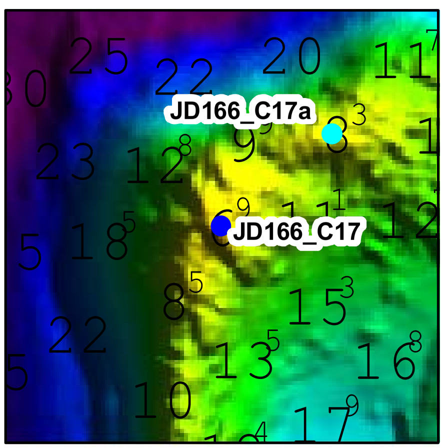
N/A	N/A
N/A	N/A

Correlating MB Least Depth:
6.9 fathoms

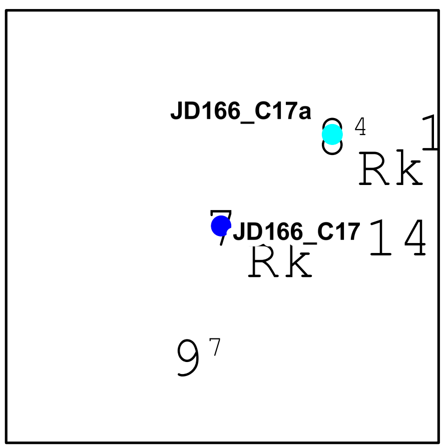
No photo available

Remarks/Recommendations:
Full MB coverage. 7 fm lidar Rk confirmed but with least depth of 6.9 fms -- cha rt MB Rk.

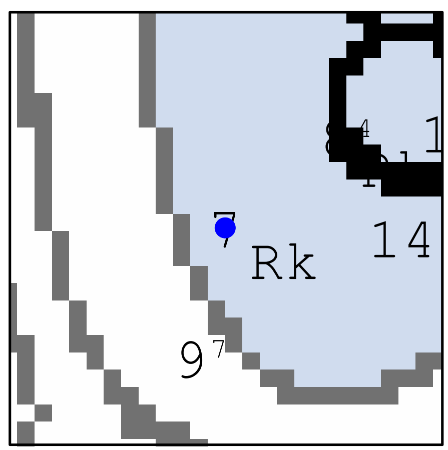
Chart: 16553_1 Topo: Carto Code: None



MB Coverage With Smooth Sheet Soundings
200m x 200m



Lidar Smooth Sheet with Neighboring DP's
200m x 200m



DP with Lidar Smooth Sheet and Chart
200m x 200m

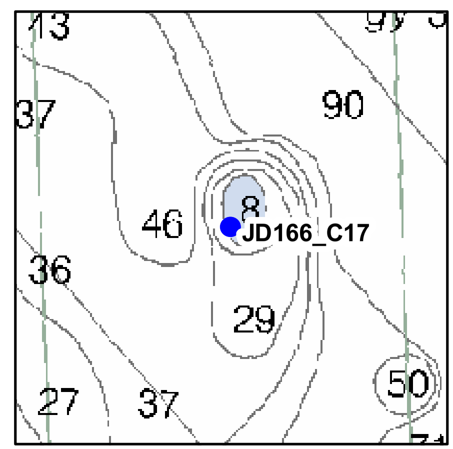


Chart
2000m x 2000m

DP ITEM NUMBER : JD166_C17a DP Form

Date:	14 June, 2004
Julian Day:	166
UTC Time:	23:41:09
Latitude:	55 19 17.99 N
Longitude:	160 17 31.24 W
North:	6131347.13
East:	418016.96
Raw (+Depth) or (-Height) (m):	N/A
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	1.36
Corrected to MLLW (m):	-1.36
Corrected to MLLW (fathoms):	-0.74
Corrected to MLLW (feet):	-4.46

DP Comment: Multibeam coverage

Correlating DP Item Numbers:

N/A N/A
N/A N/A

Correlating MB Least Depth:

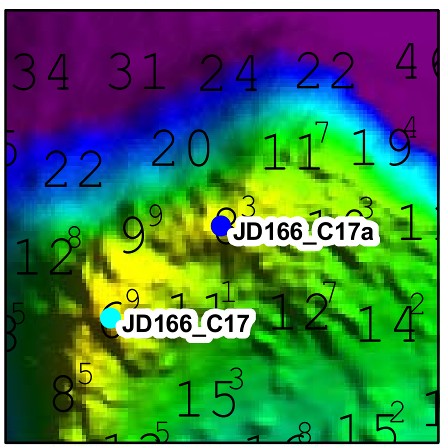
8.3 fathoms

No photo available

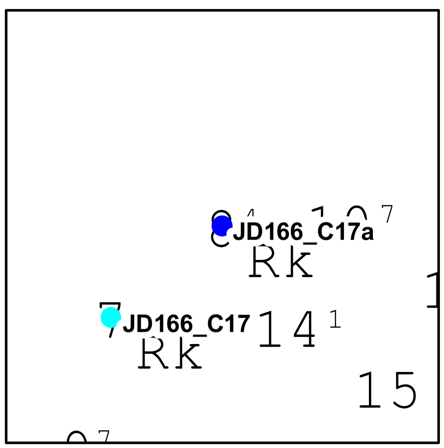
Remarks/Recommendations:

Full MB coverage. 8.4 fm lidar Rk confirmed but with least depth of 8.3 fms -- c hart MB Rk.

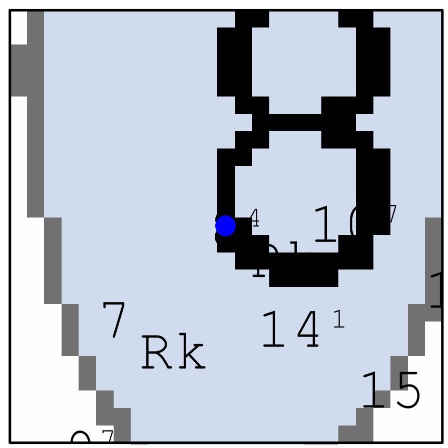
Chart: 16553_1 Topo: Carto Code: None



MB Coverage With Smooth Sheet Soundings
200m x 200m



Lidar Smooth Sheet with Neighboring DP's
200m x 200m



DP with Lidar Smooth Sheet and Chart
200m x 200m

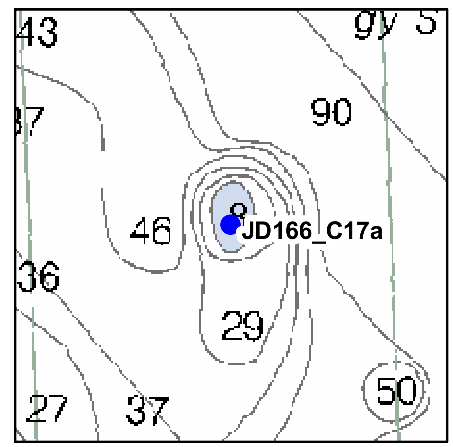


Chart
2000m x 2000m

DP ITEM NUMBER : JD166_C17b

DP Form

Date:	14 June, 2004
Julian Day:	166
UTC Time:	23:41:09
Latitude:	55 19 11.93 N
Longitude:	160 17 34.99 W
North:	6131160.86
East:	417947.28
Raw (+Depth) or (-Height) (m):	N/A
Draft Corrector (m):	N/A
SV Corrector (m):	N/A
Tide Corrector (m):	1.36
Corrected to MLLW (m):	-1.36
Corrected to MLLW (fathoms):	-0.74
Corrected to MLLW (feet):	-4.46

DP Comment: Multibeam coverage

Correlating DP Item Numbers:

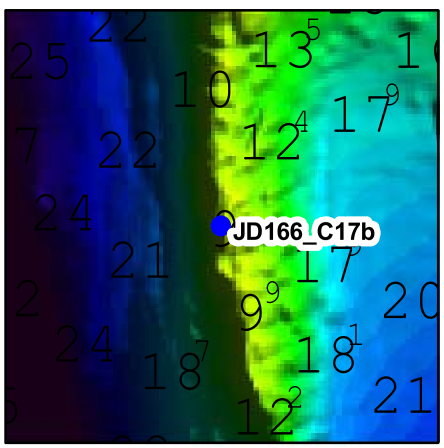
N/A N/A
N/A N/A

Correlating MB Least Depth:
9 fathoms

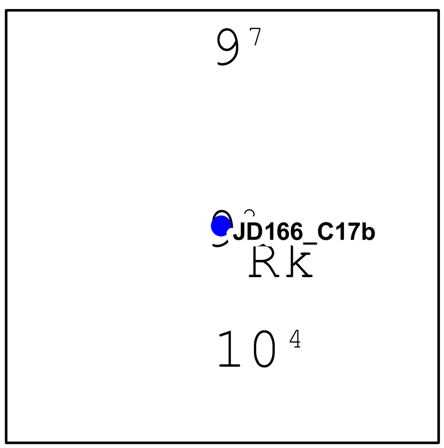
No photo available

Remarks/Recommendations:
Full MB coverage. 9.2 fm lidar Rk confirmed but with least depth of 9 fms -- chart MB Rk.

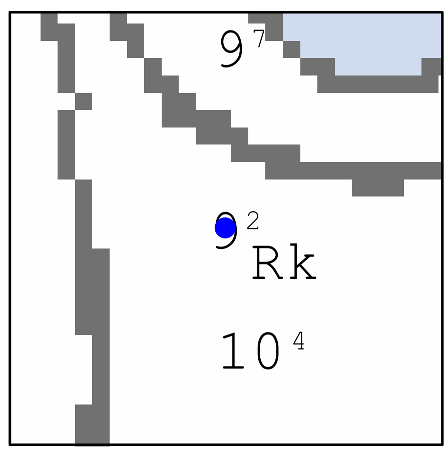
Chart: 16553_1 Topo: Carto Code: None



MB Coverage With Smooth Sheet Soundings
200m x 200m



Lidar Smooth Sheet with Neighboring DP's
200m x 200m



DP with Lidar Smooth Sheet and Chart
200m x 200m

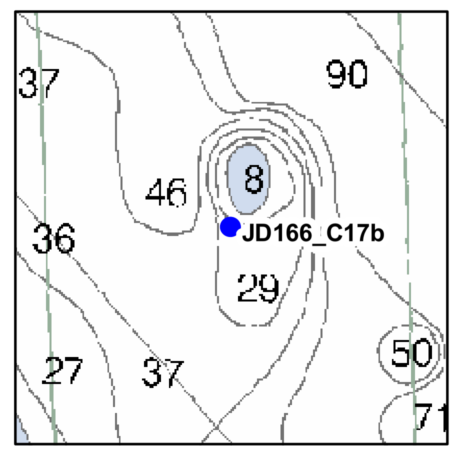


Chart
2000m x 2000m

Revisions Compiled During Office Processing and Certification

[1] Concur.

[2] The approximate limits of hydrography are:

- Lat 55/23/53 N and Lon 160/19/49 W
- Lat 55/24/32 N and Lon 160/14/47 W
- Lat 55/23/21 N and Lon 160/12/00 W
- Lat 55/18/22 N and Lon 160/12/00 W
- Lat 55/18/15 N and Lon 160/18/21 W
- Lat 55/21/34 N and Lon 160/19/44 W

[3] Filed with the project reports.

[4] Insert "and".

[5] Insert "and".

[6] Concur. H11279 is adequate to supersede all prior surveys and charted miscellaneous source data in the common areas except as noted in this report.

[7] H11279 junctions with H11278 on the West side.

[8] H11279 junctions with H11280 on the South side.

[9] Concur with clarification. Both adjoining surveys generally agree with H11279 to within 1 fathom or less. Although H11279 appears shoaler at the northwest junction with H11278, this is most likely due to the extremely steep slope in the area.

In office processing, H11279 was also compared with adjoining LIDAR surveys H11147c, which junctions with H11279 to the north and southwest, and H11435, which junctions with H11279 to the northeast. Both surveys showed good depth correlation, generally to within 0 to 2 fathoms.

All survey data has been considered in compiling the Hdrawing.

[10] Strikethrough ~~the majority of lines were run~~, replace with "in the majority of lines run".

[11] Strikethrough ~~lack of sounding~~, replace with "small number of soundings".

[12] Strikethrough ~~the opposite direction~~, replace with "opposite directions".

[13] Strikethrough ~~where~~, replace with "were".

[14] Filed with the project reports.

[15] Strikethrough ~~projects~~, replace with "project's".

[16] Filed with the project reports.

[17] Strikethrough ~~*55º20'12"N*~~, replace with "55º19'54"N".

[18] Strikethrough ~~*160º30'06" W*~~, replace with "160º30'16"N".

[19] Tidal range used for determination of smooth sheet elevations was 1.988m. See Project Wide Horizontal and Vertical Control Report for further information.

[20] In PHB processing, H11279 was also compared with the continuous maintenance raster for Chart 16553, 5th Edition, September 2005, and continuous maintenance raster for Chart 16540, 12th Edition, January 2005.

[21] Concur with clarification. The shoreline on Chart 16540, 12th Edition, aligns adequately with the smooth sheet shoreline. Charted soundings appear to fall generally north to northeast of the positions charted on 16553, 5th Edition.

[22] Charted postion.

[23] Strikethrough ~~as~~, replace with "has".

[24] Strikethrough ~~east~~, replace with "west".

[25] Concur. Chart according to the smooth sheet.
[26] Strikethrough ~~Danger to Navigations~~, replace with "Dangers to Navigation". Attached to this report.
[27] Concur.
[28] Concur with clarification. The current survey's least depth for the shoal of 6 fathoms 5 feet was submitted as a Danger to Navigation. See DtoN Report, attached to this report. Chart according to the smooth sheet.
[29] Concur with clarification. The evaluator recommends compilation of the 100 fathom curve on this chart. It has been compiled on the Hdrawing.
[30] Concur.
[31] Concur.
[32] Concur.
[33] Attached to this report.
[34] The following list was submitted by NOAA to the contractor as items to be investigated. Results of item investigations are discussed below under section Results and Recommendations.
[35] Attached to this report.
[36] Concur. Chart according to the smooth sheet.
[37] DP Correlator forms for JD205-C6(3) and JD205_C6(4), attached to this report, identify the targets as extents of foul area. Therefore, the foul line depicted on the smooth sheet has been extended on the Hdrawing to include the DPs. Chart according to the Hdrawing.
[38] Concur. Chart according to the smooth sheet and Hdrawing.
[39] Do not concur. Due to scale, chart seaward rock discussed below, as depicted on the Hdrawing.
[40] Concur with clarification. Chart 1 fathom 3 foot rock.
[41] Do not concur. Due to scale, chart shoal rock as discussed below, as depicted on the Hdrawing.
[42] Concur with clarification. The verified rock was submitted as a DtoN, 7 fathom sounding. See attached report. Chart 7 fathom, 4 foot rock at smooth sheet position.
[43] Concur with clarification. The rock was submitted as a DtoN, 6.9 fathom sounding. Chart 6 fathom 5 ft rock at smooth sheet position.
[44] Strikethrough ~~JD166_C17~~ and replace with correct DP, "JD166_C17a". Concur with hydrographer's recommendation. Chart area according to the Hdrawing.
[45] Concur with clarification. Chart area according to the Hdrawing.
[46] Concur.
[47] Concur.
[48] Concur with clarification. The MHW revision reported by the hydrographer is shown as a dashed red line on Level 1 of the Hdrawing.
[49] Concur with clarification. In three areas, LIDAR survey h11147c MHWL differed significantly from charted MHWL. Their approximate locations are:

- Lat 55/23/36N and Lon 160/18/01W
- Lat 55/24/54N and Lon 160/15/01W
- Lat 55/21/28N and Lon 160/19/09W

These MHWL changes are shown as dashed red lines on Level 8 of the Hdrawing. Chart MHWL using most recent RSD source data.
[50] PDF forms are attached to this report. Raw notes are filed with the hydrographic data.

[51] Concur with clarification. Bottom samples have been retained on the Hdrawing from Chart 16553. Chart bottom samples as portrayed on the Hdrawing.
[52] Concur.
[53] Strikethrough ~~in the survey were discovered~~, replace with “were discovered in the survey area”.
[54] Concur.

APPROVAL SHEET
H11279

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   Date: 1/5/2007
Bruce A. Olmstead
Cartographic Team
Pacific Hydrographic Branch

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Descriptive Report.

, CDR/NOAA   Date: 5 JAN 2007
Donald W. Haines
CDR, NOAA
Chief, Pacific Hydrographic Branch

David Scharff
AWOIS and SURF check
DACB Hydrographic Surveys Division
2007.01.19 10:55:55 -05'00'

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-11279

INSTRUCTIONS

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

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

CHART	DATE	CARTOGRAPHER	REMARKS
16553	10/27/06	B. Taylor	Full ~~Part Before After Marine Center Approval Signed Via~~ Application
			~~Drawing No.~~ of Soundings & Features from
			Smooth Sheet
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.