

F00579

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey MULTIBEAM

Field No S-M939-NRT6-09

Registry No. F00579

LOCALITY

State CALIFORNIA

General Locality HUMBOLDT BAY

Locality NORTH OF THE ENTRANCE CHANNEL

2009

CHIEF OF PARTY
ERIC M. MOORE

LIBRARY & ARCHIVES

DATE SEPTEMBER, 2009

HYDROGRAPHIC TITLE SHEET

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 _____

General Locality _____

Sub-Locality _____

Scale _____ **Date of Survey** _____

Instructions dated _____ **Project No.** _____

Vessel _____

Chief of party _____

Surveyed by _____

Soundings by echo sounder, hand lead, pole _____

Graphic record scaled by _____

Graphic record checked by _____ **Automated Plot** _____

Verification by _____

Soundings in fathoms feet at MLW MLLW _____

REMARKS: _____

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SURVEY F00579

PROJECT: S-M939-NRT6-09

Scale of Survey: 1:10000

Year of Survey: 2009

NOAA Navigation Response Team 6

Eric Moore, Laura Pagano and Ed Wernicke

A. AREA SURVEYED

This survey was conducted in accordance with Hydrographic Survey Letter Instructions for Survey F00579, Humboldt Bay, CA. The original instructions are dated September 21, 2009. Data acquisition was conducted from September 8 through September 10, 2009. *Concur.*

See table 1 and figures 1-3 below for acquisition totals, images of survey limits and data coverage.

Table 1: NOAA Survey Launch S3003 Acquisition Totals *Concur.*

Multibeam (mainscheme)	30 LNM
Side Scan Sonar 100% (mainscheme)	8 LNM
Side Scan Sonar 200% (mainscheme)	7 LNM
Crosslines	4 LNM
Holidays/Splits	15 LNM
Square Nautical Miles	0.5 SNM

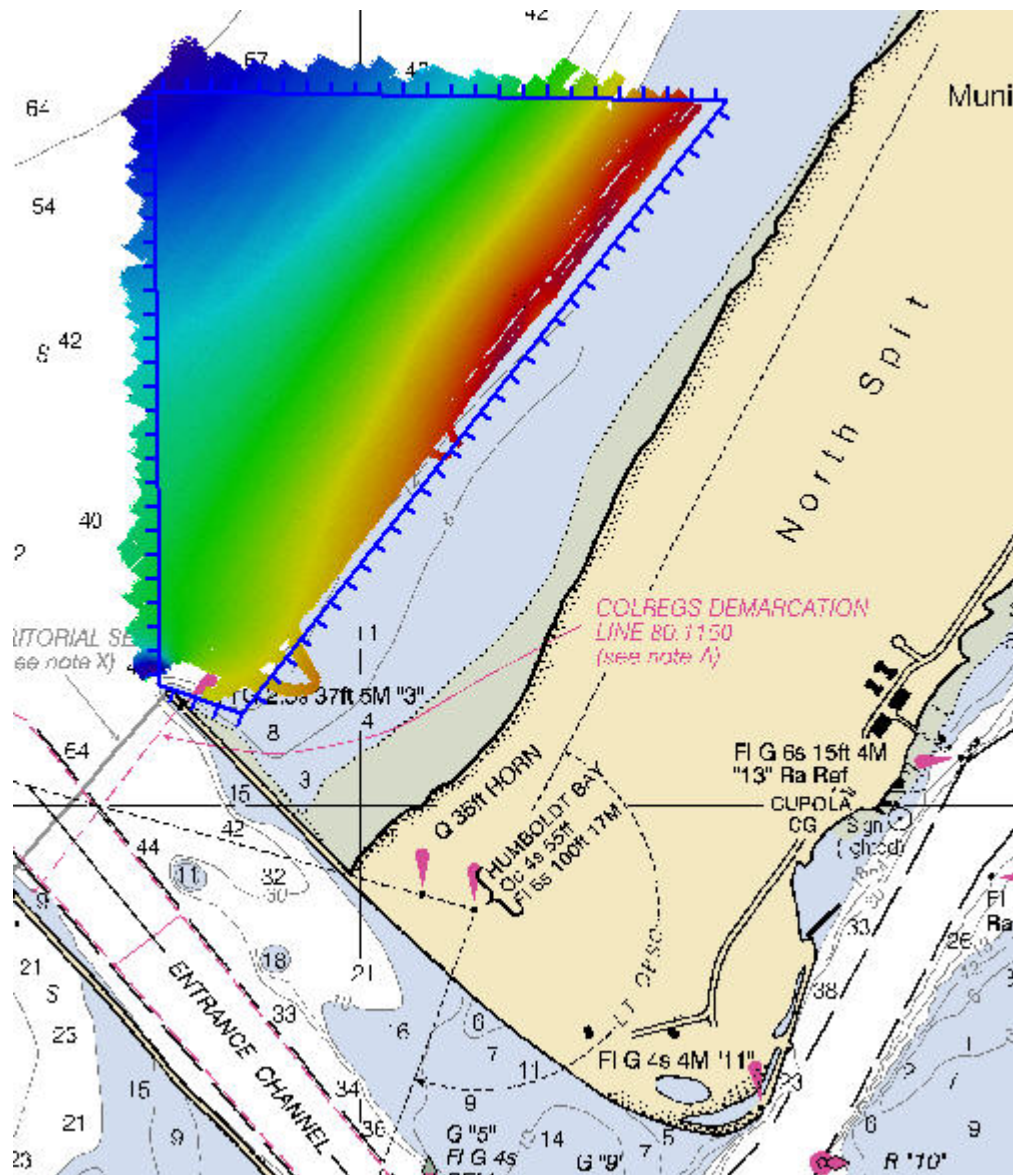


Figure 1: Humboldt Bay, Sheet A, multibeam sonar data coverage.

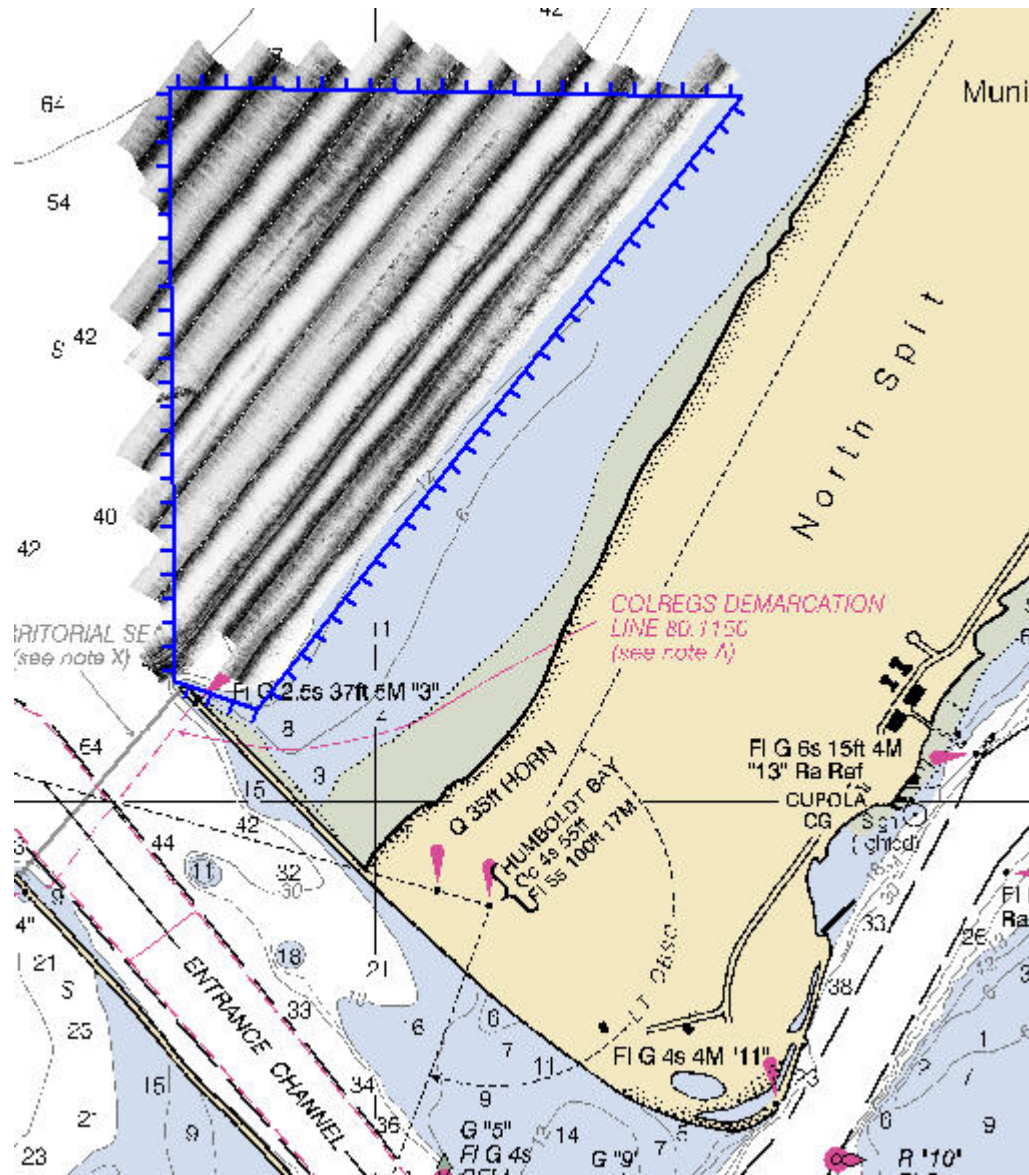


Figure 2: Humboldt Bay, Sheet A, 100% side scan sonar data coverage.

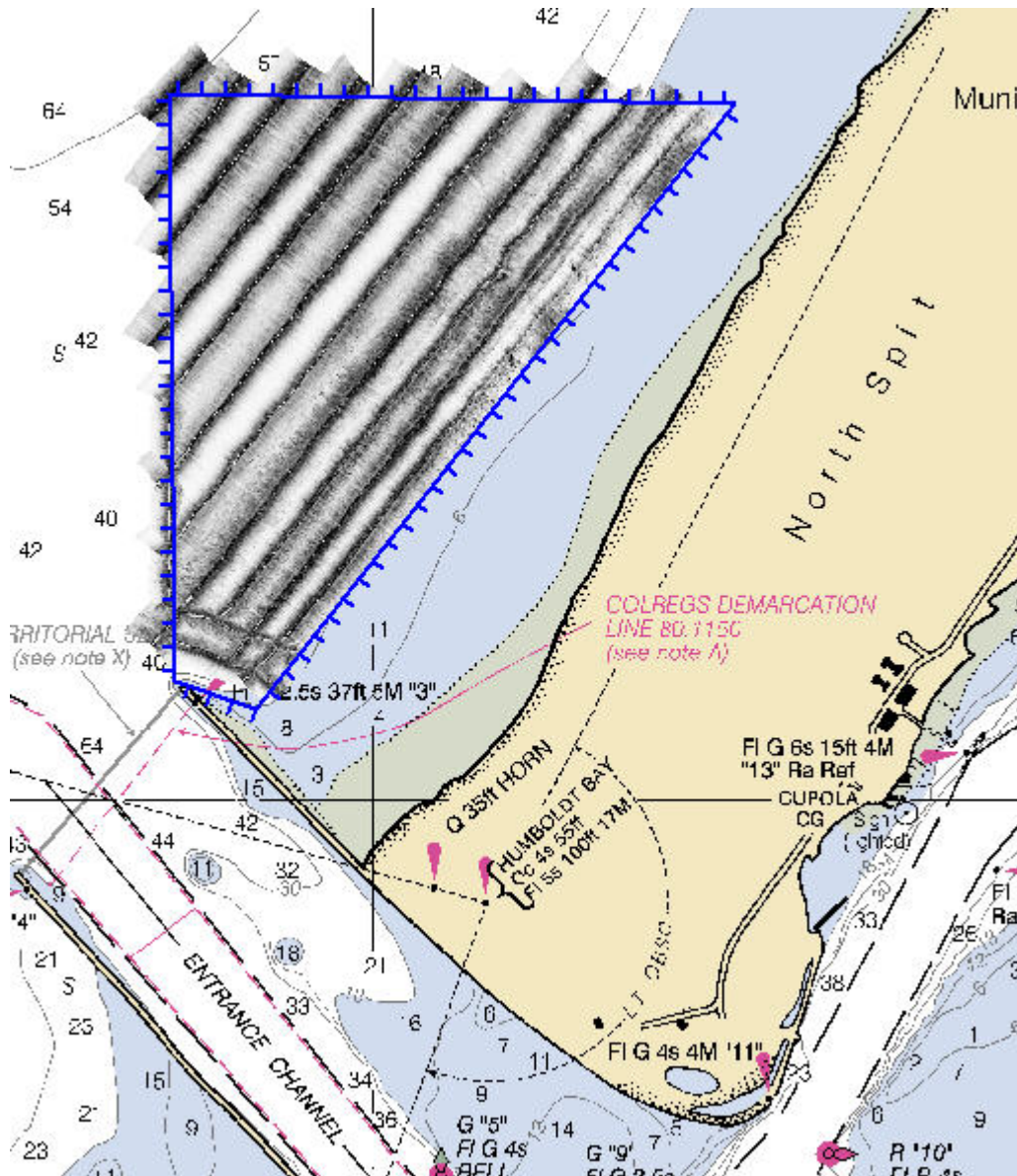


Figure 3: Humboldt Bay, Sheet A, 200% side scan sonar data coverage.

B. DATA ACQUISITION AND PROCESSING

B.1 EQUIPMENT

Data were acquired by NOAA Survey boat S3003, which is a 10-meter hydrographic survey vessel with a transducer draft of 0.54 meters.

NOAA Survey boat S3003 acquired soundings, imagery, and sound velocity profiles. Soundings and imagery were acquired by SIMRAD EM3000 multibeam echosounder. Imagery was acquired by KLEIN 3000 side scan sonar. Water column sound velocity data was acquired with a Sea-Bird SBE 19+ CTD.

NOAA Survey boat S3003 positioning and attitude data were determined with an Applanix POS/MV 320 Version 4 GPS-aided inertial navigation system.

Refer to the Data Acquisition and Processing Report (DAPR)* for detailed equipment and vessel configuration information. **Included in H-Cell deliverable.*

B.2 QUALITY CONTROL

B.2.1 Side Scan Sonar Quality Control

Daily confidence checks were made by observing the outer ranges of the side scan sonar images. A good check consisted of distinguishing contacts corresponding to charted features such as navigational Fixed Aids and other cultural features across the entire range of the side scan trace. *Concur with clarification. Survey area contained no charted features.*

Areas throughout the project area presented refraction problems while acquiring SSS data, sometimes limiting usable data to about half of the range scale. To mitigate coverage problems due to refraction, an additional 200% SSS coverage was acquired,

and was processed under the CARIS HVF “NRT6_S3003_Klein3000_Splits”.

B.2.2 Shallow Water Multibeam Quality Control

All calibrations and systems tests were conducted prior to the beginning of survey operations in Humboldt Bay. Refer to this project’s DAPR* and HSRR* for detailed discussion of SWMB system calibrations, data acquisition, and data processing.

**Included with H-Cell deliverable.*

Weather conditions created challenging conditions during data collection. Swell averaged 6-8 feet during the first and last days of survey, and affected the beam pattern upon the seafloor. A repeating pattern of compaction and “spreading out” of SWMB pings along-track may be seen when examining pings in the subset editor. While this did not affect sounding quality, it may be to blame for some artifacts in the CUBE surface.

Data collected on day 253 were filtered to reject everything beyond 45° from nadir. A sound velocity cast file was corrupted at the beginning of the day, and a second cast was not taken until the end of the day. This filter was run to reduce any sound velocity issues that may have arisen from insufficient SVP casts.

An artifact visible in the CUBE surface is an .approximately .08m difference in depth between day numbers 251 and 253. It is uncertain whether this may be a tidal artifact, or a sediment shift, but it is seen only on the western edge of the survey area.

Concur. Discrepancy is observed in 40+ ft depths.

B.2.3 BASE Surfaces

One CARIS HIPS BASE (*Bathymetry Associated with Statistical Error*) surface, which incorporates each sounding’s total propagated error (TPE), was created. The finalized BASE surface contains eight layers: depth, uncertainty, density, mean, standard deviation, hypothesis strength, hypothesis count and user nominated. Refer to this project’s DAPR* for detailed discussion of BASE surface generation and processing. One Bathymetric Attributed Grid (BAG) was created from the finalized BASE surface. *Concur. BASE surface recreated at AHB using 2009 CUBE*

*parameters. *Included with H-Cell deliverable.*

The following Field sheet was generated as part of this survey:

Table 2: Fieldsheets, BASE Surfaces and BAG (Bathymetric Attributed Grid) surfaces created.

<u>Fieldsheet</u>	<u>#BASE Surfaces</u>	<u>Resolution</u>	<u>Purpose</u>
F00579	1	1m	Coverage & Finalized
F00579_1m	1	1m	BAG Generation

B.2.4 Crosslines

A total of 30 lnm of mainscheme lines were planned and approximately 4 lnm of crosslines were conducted, totaling more than 5% of the planned survey lines. BASE surfaces were examined and no systematic errors in the SWMB system were found.

B.3 CORRECTIONS TO ECHO SOUNDING

All methods or instruments used are detailed in the project DAPR*. A table of all sound velocity casts is located in Separate II. **Included with H-Cell deliverable.*

C. VERTICAL AND HORIZONTAL CONTROL

C.1 VERTICAL CONTROL

The tidal datum for this project is Mean Lower Low Water (MLLW). The operating National Water Level Observation Network (NWLON) station at North Spit, CA (941-8767) was the sole water level station for this project. See Figure 4 for station location and tide zone boundaries. The tide zoning file “F00579CORF.zdf” was applied during processing. *Concur.*

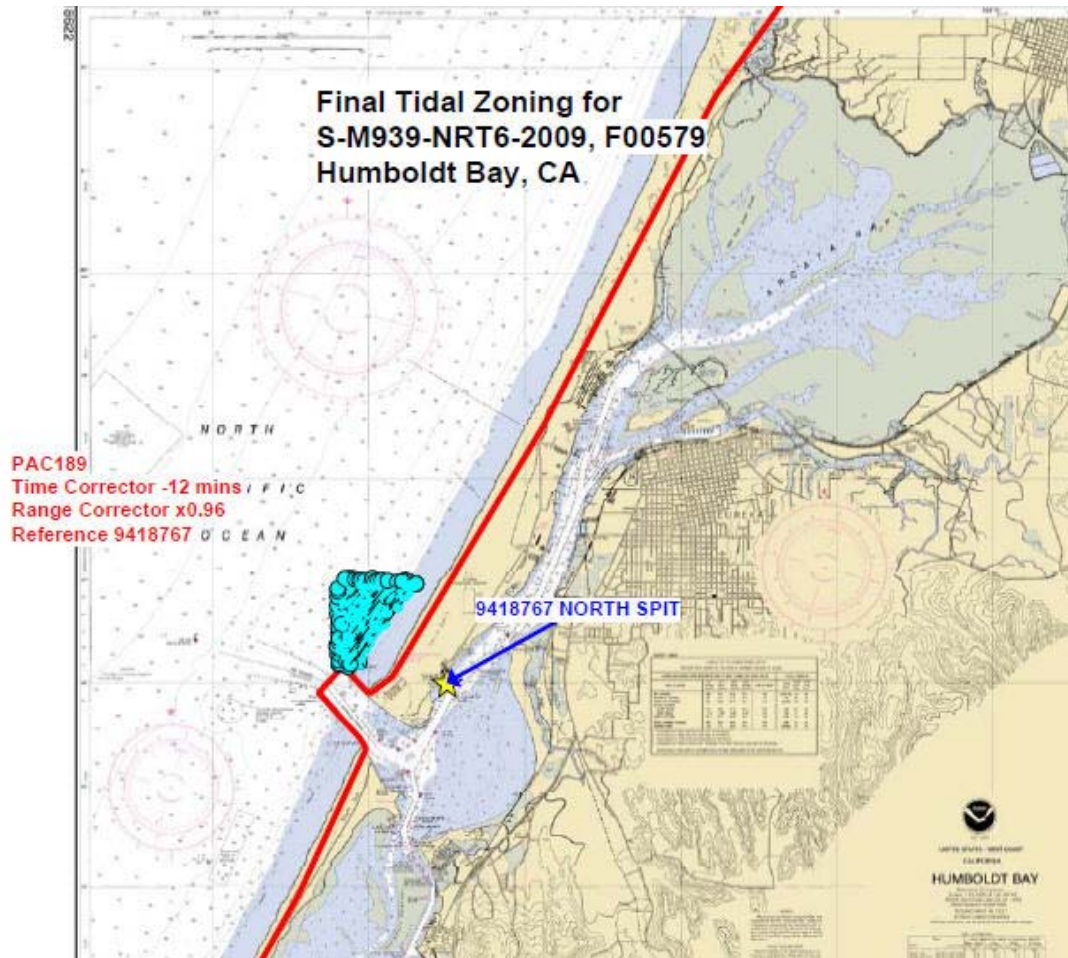


Figure 4: Final Tide Zoning

The final zones and correctors used for this survey are as follows:

Table 1: Preliminary Tide Zones & Correctors

<u>Zone Name</u>	<u>Time Correctors (mins)</u>	<u>Range Ratio</u>	<u>Predicted Reference</u>
PAC189	-12	X0.96	941-8767

A Request for Smooth Tides was sent to N/OPS1 on September 16, 2009 and is included in Appendix IV* Tides & Water Levels. Observed water levels from the N/OPS1 CO-OPS website were downloaded and applied to all sounding data with preliminary tide zoning. Refer to the 2009 DAPR* for a summary of the methods used to determine, evaluate, and apply tide corrections to sounding data. **Included with H-Cell deliverables.*

C.2 HORIZONTAL CONTROL

The horizontal datum used for this survey is the North American Datum of 1983 (NAD 83), projected using UTM zone 10.

Horizontal position was determined using the Global Positioning System (GPS) corrected by U.S. Coast Guard differential GPS (DGPS) beacon station at Cape Mendocino, CA (292 kHz). No horizontal control stations were established for this survey.

Horizontal dilution of precision (HDOP) was monitored daily. The observed HDOP values did not exceed 4.00.

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON

Data accuracy standards and bottom coverage requirements have been met and survey data for survey F00579 are adequate to supersede charted data in their common areas.

Concur.

There are two raster charts affected by this survey: *Concur.*

There is one ENC cell covering the survey area. *Concur with clarification. ENC US5CA94M also covers the survey area. Last Updated 12/11/2009. Issue Date 05/10/2010. 9th edition.*

Table 3: Affected Charts

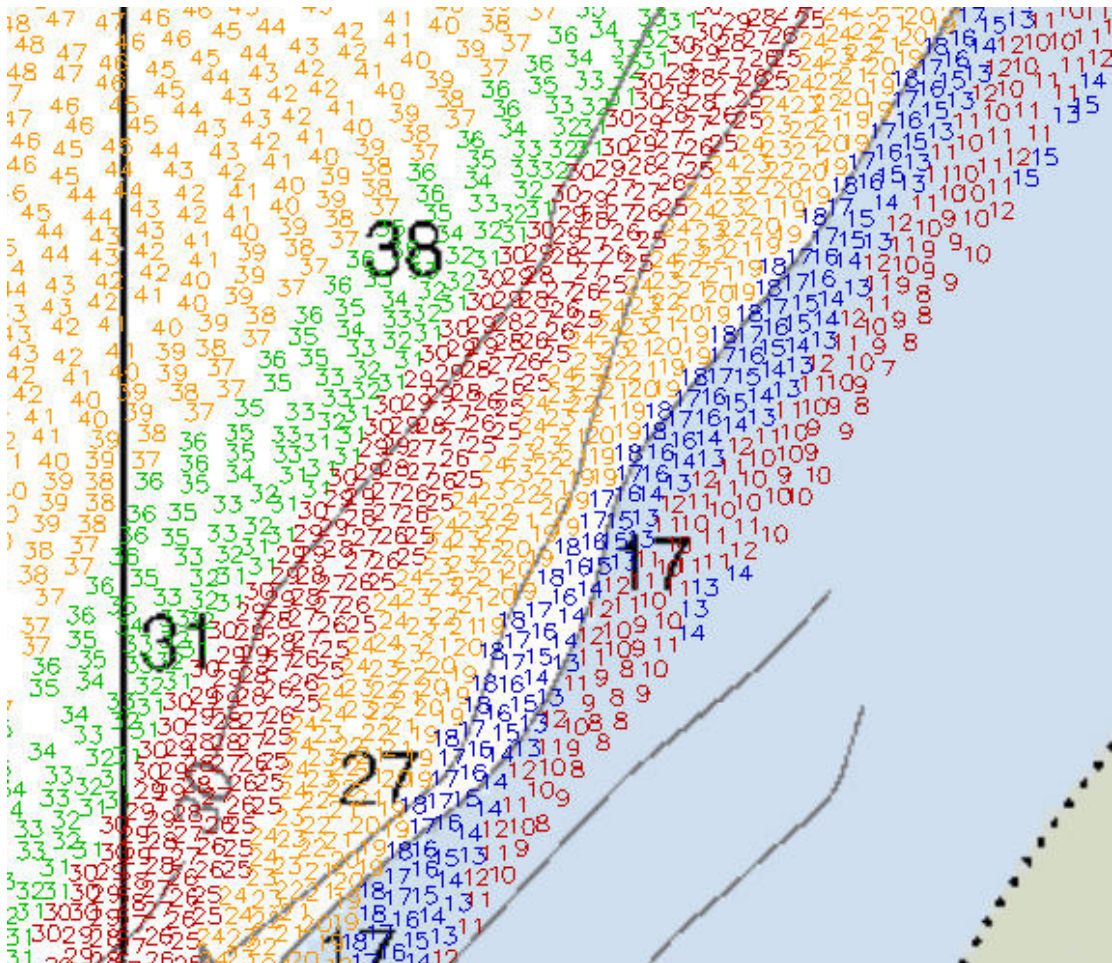
<u>Chart Number</u>	<u>Edition</u>	<u>Edition Date</u>		
18622	54 th	April 2006		
18620	23 rd	June 2002		
<u>ENC Cell</u>	<u>Last Updated</u>	<u>Issue Date</u>	<u>Edition</u>	
US3CA15M	03/30/2009	05/19/2009	9 th	

D.1.1 General Agreement with Charted Soundings

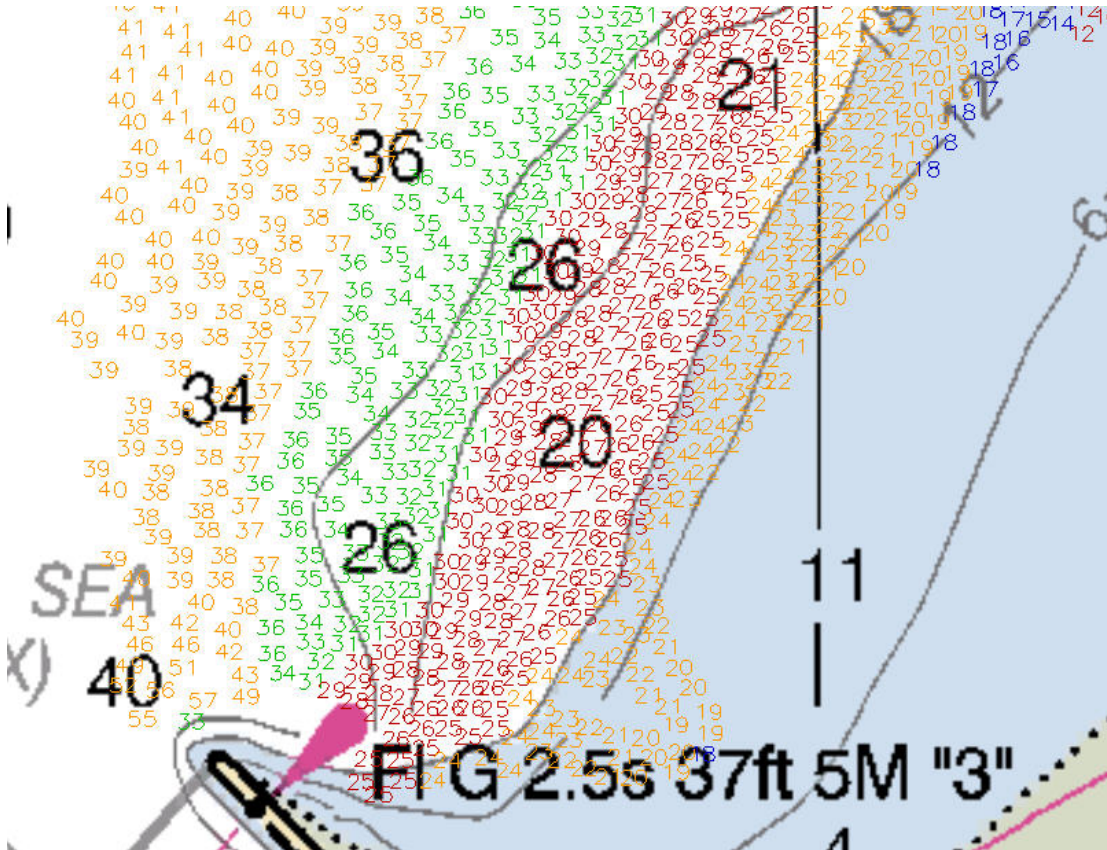
Depths from survey F00579 generally agreed with depths on chart 18622, with exception that the contour lines need to be repositioned to reflect new survey data.

Concur.

The most apparent and dramatic sounding shifts that have taken place are shown in the images below. **Concur.**



Shoaling as a general trend is most visible in the northeastern portion of the survey area where sediment is drifting and migrating seaward. **Concur.**



In the southern portion of the survey, it appears the jetty is blocking sediment accumulation from its typical northward drift; therefore this area around the jetty is deeper than previously charted. **Concur.**

D.1.2 Dangers to Navigation (DtN's)

There are no DTONs located in survey F00579. **Concur.**

D.1.3 AWOIS Items

No AWOIS items were assigned for F00579. **Concur.**

D.2 ADDITIONAL RESULTS

D.2.1 Prior Surveys

Data from project OPR-M914-NRT6-09, H11919 were compared with data from this

survey, and found to be within the 1m acceptable variance requirement given in section 4.5.2 of the field procedures manual. *Concur.*

D.2.2 Aids to Navigation and Other Detached Positions

No fixed or floating aids to navigation were positioned during this project. *Concur.*

D.2.3 Bridges and Overhead Cables

There are no bridges or overhead cables in the survey area. *Concur.*

D.2.4 Ferry Routes

There are no ferry routes in the survey area. *Concur.*

D.2.5 Submarine Cables and Pipelines

No submarine cables or pipelines were located in the survey area. *Concur.*

D.2.6 Bottom Samples

No bottom samples were acquired in the survey area. *Concur.*

E. APPROVAL SHEET

S-M939-NRT6-09
Humboldt Bay, California
Survey Registry No. F00579

Field operations for this basic hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy. All bathymetry models, this Descriptive Report, and all accompanying records and data are approved.

This survey is adequate to supersede all prior surveys in common areas and for application to the relevant NOS nautical charts.

Also submitted in association with this descriptive report has been a series of reports and data:

- SEPARATES TO ACCOMPANY PROJECT S-M939-NRT6-09
- S-M939-NRT6-09 HORIZONTAL AND VERTICAL CONTROL REPORT
- SEPTEMBER 2009 DATA ACQUISITION AND PROCESSING REPORT

Respectfully Submitted:

Approved and Forwarded:

**eric m
moore**

Digitally signed by eric m moore
DN: cn=eric m moore, email=eric.
m.moore@noaa.gov, o=NOAA S/V
BAY HYDROGRAPHER, ou=NOAA/
NOS/OCS/HSD/OPS, c=US
Date: 2009.10.15 14:39:45 -07'00'

Eric Moore, NOAA
Physical Science Technician

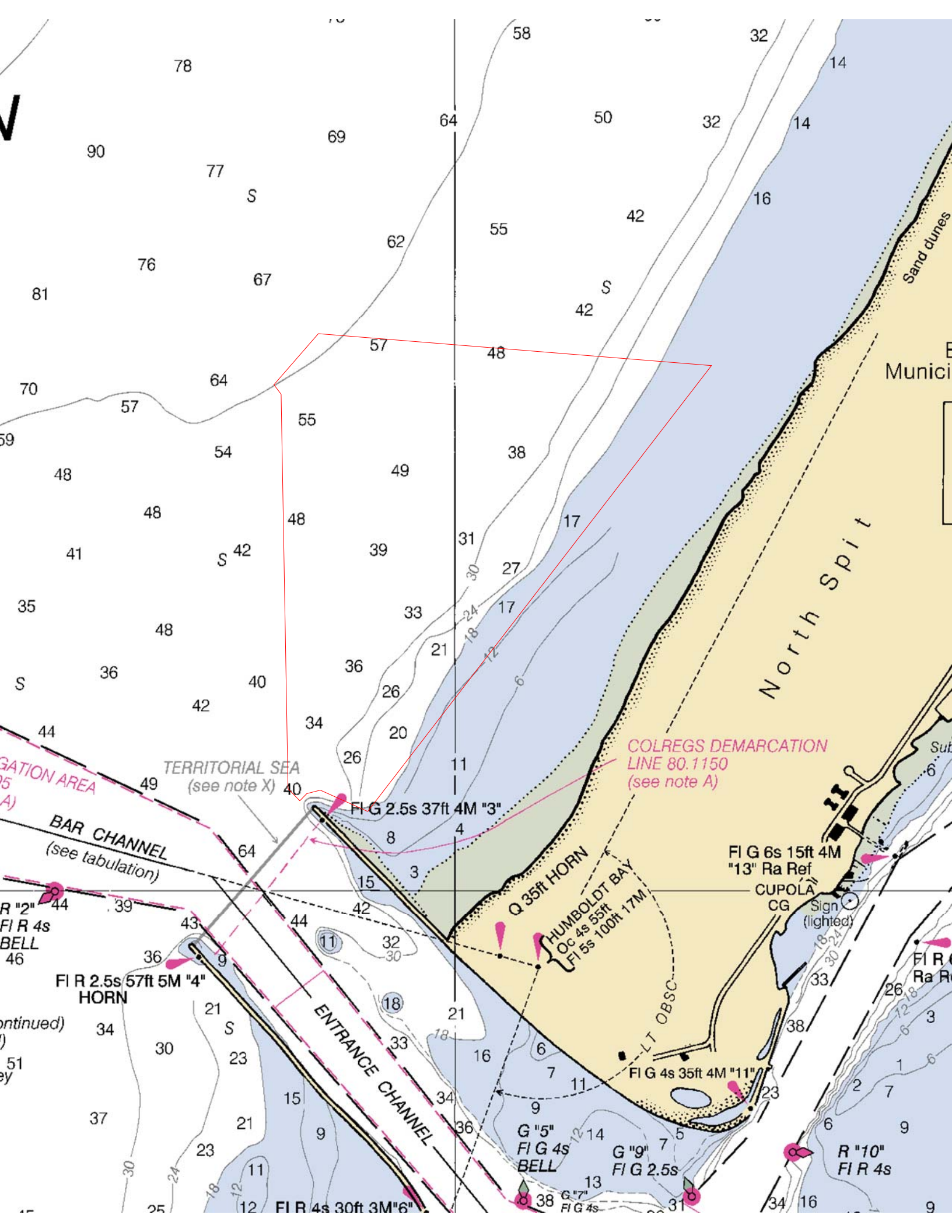
Appendix I: Danger to Navigation Report

There are no DtoNs in survey F00579

Appendix II: Survey Feature Report

There are no features in survey F00579

Appendix III: Final Progress Sketch and Survey Outline



Appendix IV: Tides and Water Levels



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NOAA NRT-6 (N/CS53x6)
1340 Marina Way South, NOAA Office Trailer
Richmond, CA 94804

September 16, 2009

MEMORANDUM FOR: Chief, Requirements and Development Division, N/OPS1

FROM: Eric Moore, NOAA NRT-6 (N/CS53x6)

SUBJECT: Request for Approved Tides/Water Levels

Please provide the following data:

1. Tide Note
2. Final zoning in MapInfo and .MIX format
3. Six Minute Water Level data (Co-ops web site)

Transmit data to the following:

NOAA/NOS/Atlantic Hydrographic Branch
N/CS33, Building #2
439 West York Street
Norfolk, VA 23510
ATTN: Chief AHB

Eric M Moore
NOAA/NOS/NRT-6
N/CS53x6
1340 Marina Way South
Richmond, CA 94804

These data are required for the processing of the following hydrographic survey:

Project No.: S-M939-NRT6-09
Registry No.: F00579
State: California
Locality: Humboldt Bay
Sublocality: Approach to Humboldt Bay

Attachments containing:

- 1) an Abstract of Times of Hydrography,
- 2) digital MID MIF files of the track lines from Pydro

cc: N/CS33
N/CS53x6



Year_DOY	Min Time	Max Time
2009_251	17:34:34	20:25:29
2009_252	20:49:34	23:53:23
2009_253	18:54:53	22:19:39



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : October 2, 2009

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: S-M939-NRT6-2009
HYDROGRAPHIC SHEET: F00579

LOCALITY: Approach to Humboldt Bay, Humboldt Bay, CA
TIME PERIOD: September 8 - 10, 2009

TIDE STATION USED: 941-8767 North Spit
Lat. 40° 46.0'N Long. 124° 13.0' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.873 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: PAC189

Refer to attachments for zoning information.

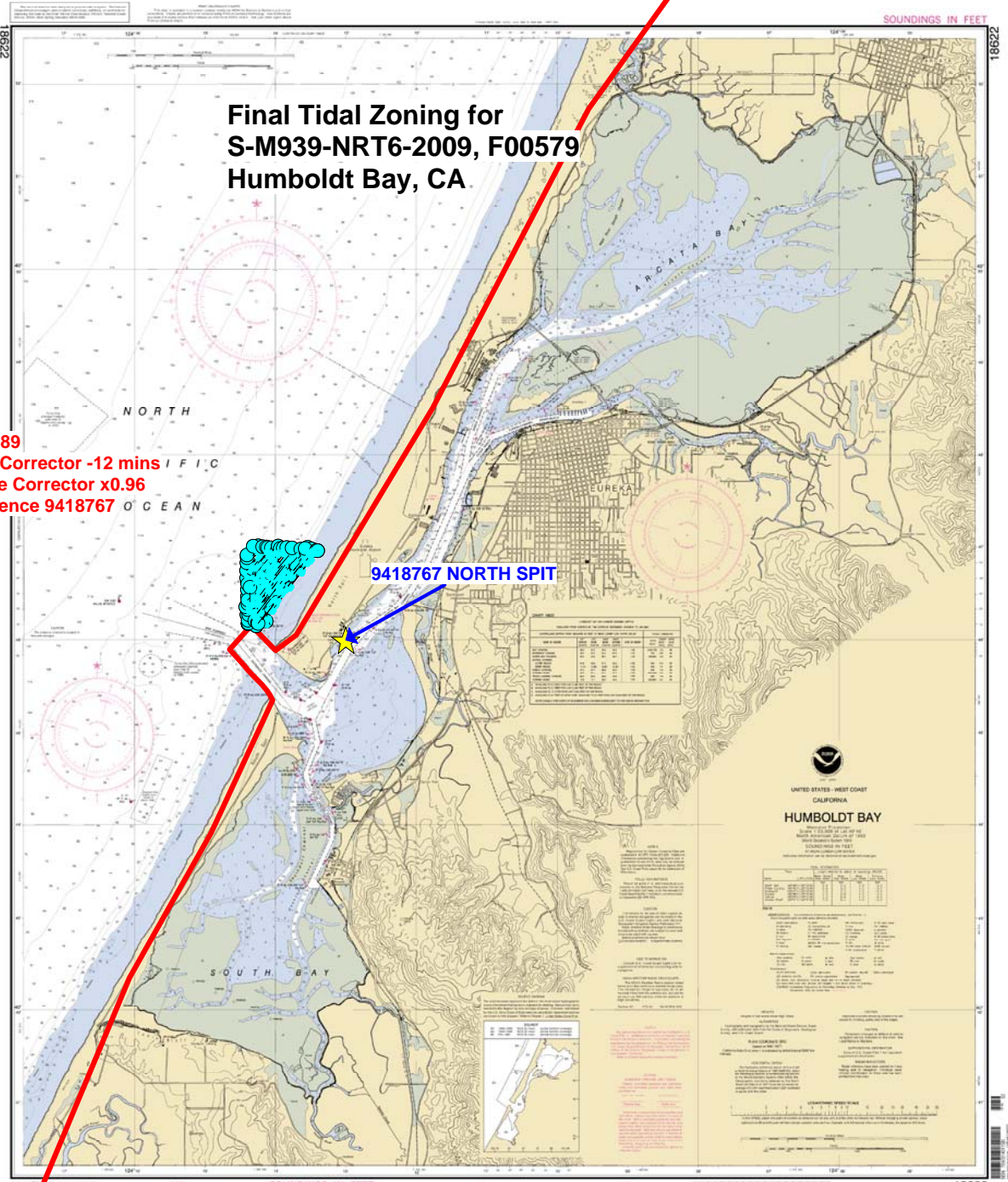
Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the 1983-2001 National Tidal Datum Epoch (NTDE).

Peter J. Stone

Digitally signed by Peter J. Stone
DN: cn=Peter J. Stone, o=CO-OPS, ou=NOAA/
NOS, email=peter.stone@noaa.gov, c=US
Date: 2009.10.07 17:21:25 -04'00'

CHIEF, OCEANOGRAPHIC DIVISION





**Final Tidal Zoning for
S-M939-NRT6-2009, F00579
Humboldt Bay, CA**

PAC189
Time Corrector -12 mins
Range Corrector x0.96
Reference 9418767

9418767 NORTH SPIT

UNITED STATES - WEST COAST
CALIFORNIA
HUMBOLDT BAY

Depth	Mean High Water	Mean Low Water	Lowest Low Water
100	100	100	100
50	50	50	50
0	0	0	0
-10	-10	-10	-10
-20	-20	-20	-20
-30	-30	-30	-30
-40	-40	-40	-40
-50	-50	-50	-50
-60	-60	-60	-60
-70	-70	-70	-70
-80	-80	-80	-80
-90	-90	-90	-90
-100	-100	-100	-100

SOUNDINGS IN FEET

SOUNDINGS IN FEET

18622

Appendix V: Supplemental Survey Records and Correspondence

F00579 Updated HVF Email 120209.txt

Subject:
Re: H11747 NRT6 Survey Review and Acceptance
From:
Eric M. Moore@noaa.gov
Date:
Wed, 02 Dec 2009 15:12:50 -0800
To:
"Castle E. Parker" <Castle.E.Parker@noaa.gov>
CC:
Nicole Trenholm <Nicole.Trenholm@noaa.gov>

Hi Gene,

Here's the updated HVFs, and a report detailing the TPU values for the multibeam HVF. A couple notes: -The new Simrad EM3000 HVF contains updated TPU values, and an updated settlement and squat table.

- For F00579, we had a weird problem where the multibeam jumped ahead exactly one second in time. I created a separate HVF, NRT6_S3003_EM3000_one_second_offset.hvf, for the one day with that problem. It's identical to the main MB HVF, but just has a 1 second offset in the Swath sensor for a day. Not sure if that's AHB's preference, but it helps me keep my main HVF more organized (so I can just copy it and stick it in other projects.)

- I've sent the SSS HVFs, they all have the most recent waterline value that agrees with the 2009 HSRR. Also, I've sent an extra SSS HVF we used for F00579, NRT6_S3003_Klein3000_Splits. We had an issue with refraction that affected much of our SSS data for this survey, so we recorded splits between the 100% and 200% to make sure we didn't miss anything. It was a small survey, so it didn't add much time.

Let me know if you guys need anything else, thanks for letting me send these in!

Eric

----- Original Message -----

From: "Castle E. Parker" <Castle.E.Parker@noaa.gov>
Date: Wednesday, December 2, 2009 4:21 am
Subject: Re: H11747 NRT6 Survey Review and Acceptance
To: Eric M. Moore@noaa.gov
Cc: Nicole Trenholm <Nicole.Trenholm@noaa.gov>

> > Good Day Eric,
> > Thanks for your understanding with the SAR comments. The review for
> > F00579 has not been started and so I would accept your offer to
> > revise
> > the HVF. Just reply to this email and attach the HVF and I will copy
> > to
> > the proper directory. At least on the SAR you won't find the same
> > comments as with H11747.
> >
> > Ya gotta understand that AHB is being very thorough with the review
> > and
> > some might perceive us as being too picky. Yes and No... everyone
> > has
> > the same list and the review follows the same steps for all surveys
> > submitted to AHB. AHB does appreciate your understanding with
> > regards
> > to the comments and review process. Granted, since AHB's review is
> > very
> > detailed, H11747 is basically a good survey of which we'll have no

F00579 Updated HVF Email 120209.txt

> > problems applying to the chart. Every survey is filled with *a lot
> > of
> > details! *

> >
> > Thanks for your support!
> > Gene

> >
> > Eric.M.Moore@noaa.gov wrote:
> > > Hi Gene,
> > >
> > > Thanks for passing along the ESAR, it has highlighted some areas
> > that we need to address before submitting the next survey. For the
> > HVF, I've reviewed all of the TPU values, and have ensured that they
> > are all derived from the guidelines in HSTD 2007-10 or from tests and
> > measurements that our team has performed. If you'd like, I can send
> > the new and updated HVF, so it can be used for F00579, which I think
> > is still being reviewed at AHB.

> > >
> > > As far as the other issues, they mostly looked like oversights,
> > and they'll be corrected in the next survey we submit.

> > >
> > > Also, we have a couple of hard drives at AHB, could you please send
> > those back to us when you get a chance?

> > >
> > > Thanks,
> > >
> > > Eric
> > >
> > >
> > > ----- Original Message -----
> > > From: "Castle E. Parker" <Castle.E.Parker@noaa.gov>
> > > Date: Tuesday, December 1, 2009 9:49 am
> > > Subject: H11747 NRT6 Survey Review and Acceptance
> > > To: "Eric M. Moore" <Eric.M.Moore@noaa.gov>, Olivia Hauser
> > > <Olivia.Hauser@noaa.gov>, Marilyn L Schluter
> > > <Marilyn.L.Schluter@noaa.gov>, Sarah Eggleston <Sarah.Eggleston@noaa.gov>
> > > > Cc: Richard T Brennan <Richard.T.Brennan@noaa.gov>, Lawrence T
> > > > Krepp <Lawrence.T.Krepp@noaa.gov>, Jeffrey Ferguson
> > > > <Jeffrey.Ferguson@noaa.gov>, Edward J Van Den Ameel e
> > > > <Edward.J.Vandenameel@noaa.gov>, Kelly Kriener <Kelly.Kriener@noaa.gov>
> > > >
> > > >
> > > >
> > >> Good Day,
> > >> Please note that I have accepted survey H11747 for AHB and LCDR
> > Rick
> > >>
> > >> Brennan. The attached SAR document describes the details derived
> > >> from
> > >> the quality assurance checks. Please respond with any comments or
> > >> inquiries.
> > >>
> > >> The survey is now ready for compilation.
> > >>
> > >> Sarah: The final grid is located at the following AHB network path:
> > >> T:\SAR\H11747_L430_NRT6\AHB_H11747\E-SAR Final
> > >> Products\GRIDS\H11747_AHB_CUBE_1m_Final.hns
> > >>
> > >> The final feature file is located at the following AHB network path:
> > >> T:\SAR\H11747_L430_NRT6\AHB_H11747\E-SAR Final
Products\MDB\H11747_Final.mdb

F00579 Updated HVF Email 120209.txt

```
> > >>
> > >> The SSS mosaics are located at the following AHB network path:
> > >> T: \SAR\H11747_L430_NRT6\AHB_H11747\E-SAR Final Products\SS
> > >> Mosai c\H11747_SS100_MOS1m_res. ti f
> > >>
> > >>
> > >>
> > >> .. \H11747_SS200_MOS1m_res. tfw
> > >>
> > >>
> > >> .. \H11747_SS200_MOS1m_res. ti f
> > >>
> > >>
> > >> .. \H11747_SS200_MOS1m_res. tfw
> > >>
> > >> Marilyn, the survey is ready for compilation and requires SAR archival.
> > >> Rick and Ed, H1747 is ready for compilation assignment.
> > >>
> > >> Regards,
> > >> Gene
> > >>
```

```
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      <Comment value="RP to SWMB XDCR"/>
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      <TransducerEntries>
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          <Manufacturer value="Si mad"/>
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        </Transducer>
      </TransducerEntries>
    </TimeStamp>
  </DepthSensor>
</HIPSVesselConfig>
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This Document is for Office Process use only and is intended to supplement, not supersede or replace, information/recommendations in the Descriptive or Evaluation Reports

AHB COMPILATION LOG

General Survey Information	
REGISTRY No.	F00579
PROJECT No.	S-M939-NRT6-09
FIELD UNIT	NRT6
DATE OF SURVEY	09-21-2009
LARGEST SCALE CHART	18622_1, edition 54, April 2006, 1:25000
SOUNDING UNITS	feet
COMPILER	Kyle Bates

Source Grids	File Name
	H:\Compilation\F00579_M939_NRT6\AHB_F00579\SAR Final Products\GRIDS
	F00579_AHB_1m_Final.csar
Surfaces	File Name
	H:\Compilation\F00579_M939_NRT6\AHB_F00579\COMPILE\Working
<i>Interpolated TIN</i>	\Interpolated TIN\F00579_1m_InterpTIN.csar
<i>Shifted Interpolated TIN</i>	\Shifted Surface\F00579_1m_InterpTIN_Shifted.hns
Final HOBs	File Name
	H:\Compilation\F00579_M939_NRT6\AHB_F00579\COMPILE\Final_Hobs\
<i>Survey Scale Soundings</i>	F00579_SS_Soundings.hob
<i>Chart Scale Soundings</i>	F00579_CS_Soundings.hob
<i>Contour Layer</i>	F00579_Contours.hob
<i>Meta-Objects Layer</i>	F00579_MetaObjects.hob

Meta-Objects Attribution	
Acronym	Value
M_COVR	
CATCOV	Coverage Available
SORDAT	20090921
SORIND	US,US,graph,F00579
M_QUAL	
CATZOC	Zone of Confidence U(Date not Assessed)
INFORM	NOAA Ship NRT6
POSACC	10 m
SORDAT	20090921
SORIND	US,US,graph,F00579
SUREND	20090921
SURSTA	20090910
DEPARE	
DRVALV 1	7.966 ft
DRVALV2	57.776
SORDAT	20090921
SORIND	US,US,graph,F00579

SPECIFICATIONS:

- I. COMBINED SURFACE:
 - a. Number of ESAR Final Grids: 1
 - b. Resolution of Combined (m): 1m

This Document is for Office Process use only and is intended to supplement, not supersede or replace, information/recommendations in the Descriptive or Evaluation Reports

- II. SURVEY SCALE SOUNDINGS (SS):
 - a. Radius
 - b. Shoal biased
 - c. Use Single-Defined Radius (mm at Map Scale): ; Radius Value = 1 at 25000
 - d. Queried Depth of All Soundings
 - i. Minimum: 7.966 ft
 - ii. Maximum: 57.776 ft

- III. INTERPOLATED TIN SURFACE:
 - a. Resolution (m): 1m
 - b. Natural Neighbor
 - c. Shifted value: -0.229 ft

- IV. CONTOURS:
 - a. Use a Depth List: F00579_depth_curves_list.txt
 - b. Line Object: DEPCNT
 - c. Value Attribute: VALDCO

- V. FEATURES:
 - a. Total Number of Features: 0

- VI. CHART SURVEY SOUNDINGS (CS):
 - a. Number of ENC CS Soundings: 16
 - b. Radius
 - c. Shoal biased
 - d. Use Single-Defined Radius: m on the ground
 - i. Radius Value (m): 300
 - e. Filter: Interpolated != 1
 - f. Number Survey CS Soundings: 21

**ATLANTIC HYDROGRAPHIC BRANCH
H-CELL REPORT to ACCOMPANY
SURVEY F00579 (2009)**

This H-Cell Report has been written to supplement and/or clarify the original Descriptive Report. Sections in this report refer to the corresponding sections of the Descriptive Report.

B. DATA ACQUISITION AND PROCESSING

B.1 DATA PROCESSING

The following software was used to process data at the Atlantic Hydrographic Branch:

CARIS Base Manager version 2.3 SP1 HF 1-16
CARIS S-57 Composer version 2.1 HF 1-4
DKART INSPECTOR, version 5.0 Build 732 SP1
CARIS HOM version 3.3 SP3 HF 8

B.2. QUALITY CONTROL

B.2.1. H-Cell

The AHB source depth grid for the survey's nautical chart update product entailed the field's original MBES 1m grid. The survey scale soundings were created from the source grid at 1mm radius at 1:25,000. The chart scale selected soundings are a subset of the survey scale selected soundings. The surface model was referenced when selecting the chart scale soundings, to ensure that the selected soundings portrayed the bathymetry within the common area.

A TIN (Triangulated Irregular Network) surface was created from the survey scale soundings from which an interpolated surface was generated for the purpose of generating depth curves. Depth curves were minimally manually edited and forwarded to MCD for reference only. The curves were utilized during chart scale sounding selection and quality assurance efforts at AHB. The depth curves are incorporated into the SS H-Cell product as per 2009 H-Cell Specifications.

The pre-compilation products or components (Stand Alone HOB files (SAHOB)) are detailed in the Compile Log attached before this H-Cell Report. The SAHOB files included depth areas (DEPARE), depth contours (DEPCNT), sounding selections (SOUNDG), and Meta objects (M_COVR, M_QUAL).

All of the components with the exception of the sounding selection and depth contours were inserted into one feature layer. The SAHOB H-Cell layer was exported to

S-57 format for H-Cell deliverable. F00579 H-Cell chart scale soundings were selected based upon the scale of the applicable chart. The H-Cell's SS deliverable includes survey scale soundings selected and depth contours.

Both S-57 files were converted in CARIS HOM for output of H-Cell in chart units (feet). The final deliverables are two S-57 files; one that contains the chart scale soundings and meta objects (F00579_CS.000), and one that contains the sounding selections and depth contours (F00579_SS.000). Quality assurance checks were made utilizing CARIS S-57 Composer version 2.1 validation checks and dKart Inspector, version 5.0, tests.

Chart compilation was performed by Atlantic Hydrographic Branch personnel in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, Silver Spring, Maryland.

F00579 CARIS H-Cell final deliverables include the following products:

F00579_CS.000	1:25,000 Scale	F00579 H-Cell (Chart scale)
F00579_SS.000	1:25,000 Scale	F00579 Selected Soundings (Survey Scale)

C. VERTICAL AND HORIZONTAL CONTROL

Final vertical correction processing was completed by the field unit with no additional correction required by Atlantic Hydrographic Branch. The field unit applied verified water levels in conjunction with the preliminary tidal zoning which was accepted and approved by N/OPSI CO-OPS as the final zoning for F00579. Sounding datum is Mean Lower Low Water (MLLW). Vertical datum is Mean High Water (MHW).

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83), UTM projection zone 10N.

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON

18622 (54th Edition, Apr./06)

Corrected through NM 05/22/2010
 Corrected through LNM 05/11/2010
 Scale 1:25,000

ENC Comparison

US5CA94M

Humboldt Bay
 Edition 9
 Application Date 2009-12-11
 Issue Date 2010-05-10
 Chart 18622

D.1.1 Hydrography

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in section “D” and Appendix I & II of the Descriptive Report.

D.3. MISCELLANEOUS

Chart compilation was done by Atlantic Hydrographic Branch personnel, in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, Silver Spring, Maryland. See Section D.1. of this report for a list of the Raster Charts and Electronic Navigation Charts (ENC) used for compiling the present survey:

D.4. ADEQUACY OF SURVEY

The present survey is adequate to supersede the charted bathymetry within the common area. Any features not specifically addressed either in the H-Cell BASE Cell File or the Blue Notes should be retained as charted. Refer to the Descriptive Report for further recommendations by the hydrographer.

APPROVAL SHEET
F00579

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth contours, disposition of critical depths, cartographic symbolization, and verification or disproval of charted data. All revisions and additions made to the H-Cell files during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with National Ocean Service and Office of Coast Survey requirements except where noted in the Descriptive Report and the H-Cell Report.

All final products have undergone a comprehensive reviews per the Hydrographic surveys Division Office Processing Manual and are verified to be accurate and complete except where noted.

Kyle Bates
Hydrographic Intern
Atlantic Hydrographic Branch

Katrina Wyllie
Hydrographic Intern
Atlantic Hydrographic Branch

I have reviewed the H-Cell files, accompanying data, and reports. This survey and accompanying Marine Chart Division deliverables meet National Ocean Service requirements and standards for products in support of nautical charting except where noted.

Approved: _____
Richard T. Brennan
Lieutenant Commander, NOAA
Chief, Atlantic Hydrographic Branch