W00149-W00154

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.

Registry No. W00149-W00154

LOCALITY

State California

General Locality Pacific Ocean

Sublocality San Clemente Island

2002

CHIEF OF PARTY

Maxim F. Van Norden

LIBRARY & ARCHIVES

DATE

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

W00149-W00154

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: California

General Locality: Pacific Ocean

Sublocality: San Clemente Island

Scale: 1:5,000 and 1:25,000 Date of Survey: 2002

Instructions Dated: N/A Project No.: N/A

Vessel: USNS John McDonnell T-AGS 51

Chief of Party: Maxim F. Van Norden

Surveyed by: U.S. Naval Hydrographic Office

Soundings taken by echo sounder, hand lead, pole: Simrad Em 1002 and Em 3000

Graphic record scaled by: Fleet Survey Team

Graphic record checked by: Fleet Survey Team

Evaluation by: T. Failkes, A Clos, T. Lukach Automated plo: HP Designjet1050c

Verification by: T. Failkes, A Clos, T. Lukach, Cartographers: B. Taylor, R Davies

Soundings in: meters at: MLLW

REMARKS: No endnotes were submitted by the compiler during office processing

Compiler comments are in the comment section of the SAR attached to this report.

All depths listed in this report are referenced to

mean lower low water unless otherwise noted.

WGS 84, UTM Zone 11

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE OFFICE OF COAST SURVEY
Pacific Hydrographic Branch Seattle, Washington
98115-6349
February 3, 2009

MEMORANDUM TO: Captain David Neander, NOAA
Chief, Pacific Hydrographic Branch

David Neander
2009.02.05 16:29:19
-08'00'

FROM: Tyanne Faulkes, Andrew Clos, Tony Lukach
Hydrographic Survey Interns

Digitally signed by Andrew Clos
DN: cn=Andrew Clos, o=NOAA, ou=NOS-PHB, email=andrew.clos@noaa.gov, c=US
Date: 2009.02.05 16:03:53 -08'00'

SUBJECT: Review of Outside Source Data Surveys W00149-W00154
U.S. Naval Oceanographic Office (NAVOCEANO)
San Clemente Island

Data from outside source hydrographic surveys W00149 to W00154 have been reviewed with regard to data integrity and completeness of the data submission package, survey field procedures, data processing and quality assurance methods, and overall data accuracy and data quality. Surveys W00149 to W00154 comply with specifications and requirements set forth in the NOS Hydrographic Surveys Specifications and Deliverables Manual, with the following exceptions:

- Data were supplied to PHB in .xyz and Fledermaus formats, and were reviewed in both Fledermaus and MapInfo. Full resolution data were not supplied.
- Tidal, sound velocity, metadata and vessel configuration files were not submitted.
- Final approved water levels were not applied to the data. Data were corrected using observed water levels. Zoning was not clearly documented.

Special attention should be given to the following:

- Refer to the Hydrographic Survey Outside Source Data Quality Assurance Checklist for specific charting recommendations.

Final Recommendations:

- The data should be used to chart soundings and depth curves representing general bathymetric trends, and new shoals and features that are not currently depicted on NOAA charts 18740, 18762, 18763, 18764, 18774.
- The data should not be used to supersede near shore features such as wrecks, rocks, obstructions, foul areas or reefs. Charted shoaler depths should not be superseded by W00149-W00154.
- The charted shoreline should be retained as charted.

Reviewed and approved: _____

Digitally signed by Kurt Brown
Date: 2009.02.05 16:01:17
-08'00'

PS Kurt Brown, NOAA
Acting Hydrographic Team Leader, PHB

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF COAST SURVEY
Pacific Hydrographic Branch
Seattle, Washington 98115-6349

June 29, 2009

MEMORANDUM TO: Captain John E. Lowell, NOAA
Chief, Marine Chart Division

THROUGH: Jeffrey Ferguson
Chief, Hydrographic Surveys Division

FROM: Captain David O. Neander, NOAA
Chief, Pacific Hydrographic Branch

Gary C. Nelson
for Capt. Neander
2009.06.29 14:38:45 -07'00'

SUBJECT: Approval Memorandum for W00149-W00154
San Clemente Island, California

The Pacific Hydrographic Branch has completed an evaluation and chart application of Outside Source Data from the Naval Oceanographic Office (W00149 – W00154). The primary objective of these surveys was to acquire hydrographic data to satisfy requirements of the Naval Undersea Warfare Center (NUWC). Both multibeam and side scan sonar imagery were acquired during survey operations; however side scan data was not submitted for evaluation.

I have reviewed the data, reports and compilation to the chart. Lack of full resolution data and incomplete documentation of survey methods, applied correctors, vessel configurations and data processing procedures does not allow for a comprehensive Quality Assurance Review. Thus, data has been used to chart soundings and depth curves representing general bathymetric trends and to update areas with new data if it was shoaler. Data from W00149 - W00154 were not used to supersede shoaler charted soundings and features in nearshore areas. However in deeper water, where the surveys revealed consistently deeper depths, the data were applied to the chart.

Within the 2008 NOAA Hydrographic Survey Priorities (NHSP), the area around San Clemente Island is listed as a “Priority 4” area. Except where noted in the Evaluation and Quality Assurance Memorandum and Chart Application Memorandum, surveys W00149 – W00154 provided adequate depth information to update NOAA charts of the encompassing area. However, given the lack of quality control and associated documentation, it cannot be stated definitely that object detection criteria were met and that accurate least depths on all new and charted features were obtained. Additional fieldwork including side-scan and/or multibeam surveys of AWOIS items, approaches to harbors and potential anchorage areas is recommended as resources allow in order to complete bottom search and object detection requirements. It is recommended that the area encompassing surveys W00149-W00154 remain classified as a “Priority 4” area.

As full bottom coverage and object detection requirements could not be verified, the survey area should be classified as Category of Zone of Confidence (CATZOC) “B” if used to update ENC survey area classification (Seafloor Coverage: Full seafloor coverage not achieved; uncharted features, hazardous to surface navigation are not expected but may exist. Typical Survey Characteristics: Controlled, systematic survey to standard accuracy.).

cc: Chief, HSD Operations Branch N/CS31

QUICK LOOK SUMMARY

HYDROGRAPHIC OPERATIONAL SPECIFICATIONS

Technical Specification No.	**TS-02-HYD-19**
Survey Vessel	**USNS McDONNELL**
Time Frame	**October, 2002 – December, 2002**

GENERAL

Requirements	**Comprehensive Hydrographic survey**
Locality	**San Clemente Island, CA**
Law of the Sea Notes	**All Ops within CONUS**

DATA COLLECTION

Navigation Positional Accuracy	**Coast Guard Beacon or WADGPS, IHO Order 1**
Bathymetry Coverage	**Multi Beam Sonar**
Calibrations	**Multi Beam Timing, Roll, and Pitch at the beginning and end of Operations**
Cross-checks	**Crosscheck lines @ 10X development line spacing.**
Over-The-Side Ops. (OTS)	**CTD and Side Scan Sonar**
Time Reference	**UTC - All data will be time reference to UTC.**

SURVEY OPERATIONS

Line Spacing	**25 to 2500 meters (depends on depth)**
Survey Areas	**Priority Area 1: 32.3 nm2** **Priority Area 2: 4.3 nm2** **Priority Area 3: 189.9 nm2** **Priority Area 4: 89.8 nm2** **Priority Area 5: 40.7 nm2**
Survey Depths	**5 to 1200 meters**
Survey Speed	**Avg. 6-10 Kts depending on operation areas**
Survey Time	**Estimated at 28 days**

SURVEY ADMINISTRATION

ARCHIVE Number	**02US33**
Data Classification	**UNCLASSIFIED Distribution Statement A**
Charts Affected:	**NOAA Chart # 18762, 18763, 18764** **NIMA Chart #18000, 18741, 18760, 18761, 19769, 18775**
Previous Specifications:	**NONE**
Previous Surveys	**NONE**

20 December 2002

From: Senior NAVOCEANO Representative, Paul Taylor,
NAVOCEANO DETACHMENT 124
To: Commanding Officer, Naval Oceanographic Office
Via: (1) Code 01O
(2) Code 01
(3) Code 0T

Subj: CRUISE REPORT, SURVOPS 5112-02, USNS JOHN MCDONNELL

Ref: (a) NAVOCEANO MSG 240551ZSEP02, CONOPS MOD FOR MILITARY 5112-02
(b) CINCPACFLT MSG 042323ZOCT02, CONOPS MOD APPROVAL

Encl: (1) Graphics, OPAREAS
(2) System Manager Report

SUMMARY OF OPERATIONS

In accordance with references (a) and (b), DETACHMENT 124 conducted survey operations near San Clemente Island. The primary objective was to collect environmental data to satisfy requirements of the Naval Undersea Warfare Center (NUWC) for the Southern California offshore range (SCORE) area and verify charted depth in the area. NAVOCEANO is to provide NUWC with a Digital Nautical Chart of the Area. The areas surveyed and their priorities are shown in enclosure (1). The ship left San Diego 26 November and returned to San Diego 20 December. The weather and range scheduling was not a factor our first week (Thanksgiving week). During this time, a great portion of the area was completed. After the first week, we had problems scheduling time on the SCORE RANGE as it was being heavily used by the fleet for different types of fleet exercises ranging from shore bombardment to ASW exercises. During the last week, scheduling the range was not a big problem but the weather was. We were able to complete 97 percent of our OPAREAs shown in enclosure (1) before returning to Port on 20 December for the Christmas Holidays. The remaining work is approximately three HSL days and 0.5 ship days.

STATISTICAL SUMMARY

1. OVERVIEW	
DAYS IN PORT:	0.0
DAYS IN TRANSIT	0.5
TRANSIT MILES (NM)	140.0
DAYS IN SURVEY	24.5
DAYS LOST DUE TO WEATHER AND OTHER	6.0
DAYS LOST DUE TO EQUIPMENT PROBLEMS	0.0
2. SURVEY ACCOMPLISHMENTS	SURVOP
A. SHIP OPS:	
EM1002 MULTIBEAM	264.0 NM
SINGLE BEAM	264.0 NM
SIDE SCAN SONAR (SSS)	N/A
CTD CASTS:	7.0
XBT LAUNCHES:	7.0
BBADCP: (HRS)	312.0
B. HSLS OPS (2):	
EM3000 MULTIBEAM (BATHY)	401.4 NM
SINGLE BEAM	401.4 NM
SIDE SCAN SONAR (SSS)	268.0 NM

SAFETY

DMS conducted weekly safety briefings in conjunction with the weekly boat and fire drills. NAVOCEANO personnel attended all training provided. HSL launch and retrieval safety instructions were given prior to the first HSL operation. A Departmental Safety Meeting was held on 19 December.

NAVOCEANO/CONTRACTOR RELATIONSHIP

The working relationship between NAVOCEANO and the DYN Marine crew was very good. The DYN crew and officers responded quickly, efficiently, and professionally to all requests.

SUMMARY AND CONCLUSIONS

SURVOP 5112-02 was successful but not without its problems. The equipment ran without too many problems but there were software problems. (See enclosure (2) for discussion of these problems). Most of these problems were solved except for the SIMRAD problem where the root directory kept filling up. Mr. Sheldon Powe was the system manager before the ship came into the yard and this problem did not exist at that time. During the yard,

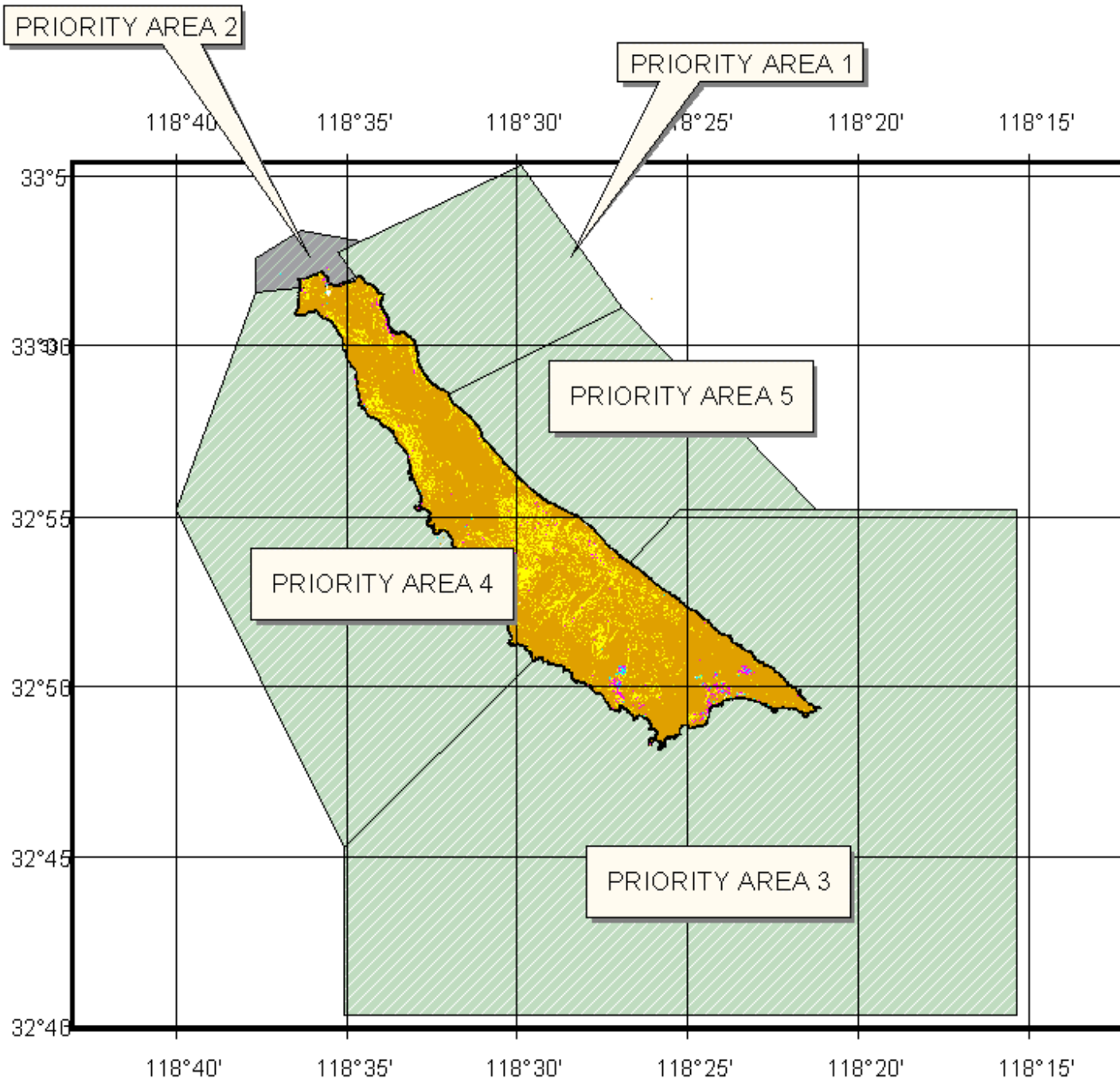
SIMRAD installed new software. We e-mailed Simrad to ask for help but they claim the new software should not do this. The way we have gotten around the problem was shutting down the system and reloading the software. The System Manager filed a problem report. This problem should be resolved before the ship departs for our next survey area.

Respectfully Submitted,

Paul H. Taylor
SNR, NAVODET 124

Copy to:
Master (w/o Encls)
File

Enclosure (1)



APPENDIX B: SURVEY AREA GRAPHIC

Enclosure (2)

From: Sheldon Powe, System Manager
To: Paul Taylor, SNR, USNS JOHN McDONNELL, NAVOCEANO DET 124

SUBJ: SYSTEM MANAGER REPORT FOR SURVOP 511202, CONDUCTED 26 November - 20 December 2002

0.0 THE CREW

0.0.1 Survey Crew: Paul Taylor, Sheldon Powe, Maggie Jackson, James Strahan, Vernon Mitchel, Katie Riser, Stephanie Shiels, Melissa Koch, Bernell Martenson

0.0.2 Electronics Technicians: LET Alvin Turner, Wade Fitts

1.0 OVERVIEW

GENERAL

TASKED DATA COLLECTION

The purpose of this unclassified SURVOP was to conduct a hydrographic survey in 5 priority areas (see Appendix B) surrounding San Clemente Island California. The ship survey systems employed during this survey operation includes: ODEC single-beam sonar (3.5Khz), Simrad EA600 single-beam (12, 38 and 200 kHz) sonar system, and Simrad EM1002 multibeam sonar system. The HSL survey systems utilized were the Datasonics side-scan sonar system, Simrad EM3000 multibeam sonar system, and Simrad EA502 single-beam sonar system. Additional data such as ADCP data, CTD (with optics package) and XBT data were also collected. In areas close to the shoreline, kelp stopped the HSL’s from collecting side scan sonar.

SURVEY PLANNING

Survey plans were generated for the 5 priority areas surrounding San Clemente Island. The developmental lines was oriented parallel to the coastline. A coverage grid was created for the respected priority areas. One hundred percent multibeam coverage was required in all areas. The survey lines were set to 50-meter spacing. Additional lines were run to fill holidays observed on the area's cov-

erage monitor. In priority areas 1, 5 and 4, the coverage monitors from a previous survops (511202) was used to obtain the amount data coverage collected on previous survop 511102.

2.0 HARDWARE PERFORMANCE

2.1 CC1 (Central Computer #1)

During the last yard CC1 was scrubbed and reloaded. The system is fully unclassified. There are extra removable drives (unclassified) for CC1 to be used as a spare or for classified data. Every two days cc1_sd4 would indicate that it was 95% full. The survey data was writing to the root directory and not the SCSI 9 18gig hard drive. By instruction from Navo the directory /cc1_sd4 and the filesystem /cc1_sd4 was remove. The SCSI 9 hard drive was initialized and a new filesystem (/cc1_sd4) was added. This solved the space problem.

No addition software or upgrade software was loaded to the system. No hardware problems to report.

2.2 CC2 (Central Computer #2)

During the last yard CC2 was scrubbed and reloaded. The system is fully unclassified. There are extra removable drives (unclassified) for CC2. These drives are to be used as spares or for classified data. No addition software or upgrade software was loaded to the system. Every two days cc2_sd4 would indicate that it was 95% full. The survey data was writing to the root directory and not the SCSI 9 18gig hard drive. By instruction from Navo the directory /cc1_sd4 and the file system /cc2_sd4 was remove. The SCSI 9 hard drive was initialized and a new file system (/cc2_sd4) was added. This solved the space problem. No hardware problems to report.

2.3 INS (Integrated Navigation Subsystem)

Operated normally.

2.31 Trimble TASMAN GPS:

Batteries were changed in Tasman2 and the Tasman on HSL13. No other problems to report.

2.32 WADGPS Beacon Receiver:

System operated normally, no significant problems.

2.34 Doppler Speed Log:
Not working.

2.35 POS/MV:
On a two instances the system locked up. The System was powered off and after 10 minutes was powered back on. This seemed to clear the problem. No other no problems to report.

2.36 AutoPilot:
No problems to report.

2.37 Bridge Xterm:
No problems to report.

2.4 RTES (Real-Time Environmental Subsystem)
No problems at this time.

2.41 SIMRAD EA600 SONAR:
CD writer was installed during the yard. The writer doesn't operate. The Software can't write to the CD writer. EA600 now has 2 removable hard drives one being used and one exact copy in the safe as a backup. No other hardware problems.

2.42 ODEC 3.5kHz Sub-bottom Profiler
The laptop used to interface with the Odec was wiped clean during the yard. The software Bathy 2000 which is used to interface with the Odec could not be located. The system is used as a single beam echosounder and not a sub bottom profiler. The software used to back the data up to tape (Colorada Backup software.) was not found so it was not reloaded.

2.43 WEATHERPAK:
No problems to report, operated normally.

2.44 Omega Sea Surface Temperature:
No problems to report.

2.45 SIMRAD Sea Surface SOUND Velocimeter:
No problems to report.

2.5 TDS (Time Distribution System)
The system is no longer installed.

2.6 TADS (Test and Development Subsystem)

The system was removed during the yard period.

2.7 BBADCP

A removable hard drive and a Sony CD burner was installed during the yard. No problem to report at this time.

2.8 Panasonic Ruggedized Laptop

Not used.

2.9 WS1

System is 4 removable hard drive which are 1 classified Linux 1 unclassified Linux, 1 classified Window 95 and 1 unclassified Windows 95 drive. No problems at this time.

2.10 WS7

System has two removable hard drives one Linux and one Windows. Both are configured for the unclassified network. It was used in both configurations and performed well. No problems at this time

2.11 WS8

WS8 raid drive were removed. No problems to report

2.12 WS12

A CD writer was installed during the yard. WS12 one removable drive. The system is configured for unclassified surveys. No problems to report

2.13 SIMRAD EM1002

The internal hard drive was removed and replaced by two external Gylph drives. The data storage capacity of the em1002 was increased greatly.

2.14 HSL 913 Computers

No problems to report

2.15 HSL 914 Computers

One UPS for the HSS computer was installed. No other problem

2.16 Personal Commander Boxes

2.17 INS/RTES/TADS:

Tads computer removed during yard period. No problems to report.

2.18 DATASONICS

The DSSS was used briefly on HSL13, but no problems to report.

2.20NAS1

The system has two hard drives have red light and three hard drive have yellow lights. The Admin.html software used to evaluate the Raidzone Administrator is not working properly. This makes evaluation of the raid impossible. NAS1 after operating for 3 hour will indicate 100% CPU usage on the front panel. The front LCD also indicates a health status of reduced. When CPU usage is at 100% the system appear sluggish. This is an outstanding problem report on NAS 1. See problem report at end of cruise report.

2.21 NAS2

In the survey lab on 27 NOV 02, it was noticed that 4 drives on NAS2 had red lights and 3 drives had yellow lights. As instructed, netscape navigator was launched and the path /nas2/admin.html was typed in to run the program Raidzone administrator. This software is used to evaluated NAS2 raid. Raidzone admin software indicated that all the drives were healthy and that the status of the system is healthy. The front panel on NAS2 shows reduced as the health status. The system also seems to be selectively mirroring NAS1. The ship files at nas1/home/common/datasets/511202 was updated. The hsl files located at nas1/home/common/datasets/511202_hsl was not updated. See Problem Reports at end of cruise report.

2.22 Other

SOC Computer

A new computer Dell computer used by the SOC was installed. The computer is completely controlled from NAVO. The computer is used to download data to Navo near real-time. The SOC computer must be powered on at all times during the survey

Tacline equipment

A Tacline KG175 used to connect the Navo secure network and download secure communications. When downloading secure emails, the secure laptop must but power on first and then the Tacline.

3.0 SYSTEM SOFTWARE

REAL-TIME SYSTEMS
31. ISS-60

- **Central Computers (CC1):**
  No problems to report.

- **Central Computer2 (CC2):**
  No problems to report.

- **HSL 913**:
  The IHSS computer on HSL 13 was trying to call WS6 on the Heezen. The tags and root files located at /var/spool/cron/crontab was deleted. This stopped system from calling out. After reloading backup tape the IHSS computer couldn't see NAS1 and started trying to call WS6 on the Heezen again. No other problems to report.

- **HSL 914**:

No problems to report

3.1.2 INS

- **INS Computer:**

No problems to report

- **TASMAN 1 GPS**:
  No problems to report.

- **TASMAN 2 GPS**:
  No problems to report.

- **WADGPS**
  No problems to report.

- **Doppler Speed Log**:
  Non-operational.

- **POS/MV**:
  A few morning the system would have to be rebooted. POSMV's speed would be showing 60 knots and all the GPS light would be red and the system light would be amber. After resetting the system, it would take approximately 30 minutes for the Posmv to come back to normal opera-

tional status. No other problems to report

- **AutoPilot**: No problem to report.

3.1.3 RTES

- **RTES Computer**
  No problems to report.

- **ODEC 3.5kHz Sub-bottom Profiler**:
  The laptop used to interface with the Odec was wiped clean during the yard. The software Bathy 2000 which is used to interface with the Odec could not be located. The system is used as a single beam echosounder and not a sub bottom profiler. The software used to back the data up to tape (Colorada Backup software.) was not found so it was not reloaded.

- **WEATHERPAK**:
  No problems to report.

- **Omega Sea Surface Temperature**:
  No problems to report.

- **SIMRAD Surface Sound Velocimeter:**
  No problems to report.

- **Simrad EA600**:
  No other problems to report.

3.1.4 TADS

The computer was removed in the yard

3.1.5 SIMRAD EM1002

The system had to be reloaded on 08 DEC 2002 and 16 DEC 2002 the systems root drive was 100% full. The system would only allow users to log in as root. A problem report was written and emailed to the CMO. See Problem Reports at end of report. New software (Uniconvert) was installed. This software is used to convert the EM1002's backscatter into unisips files. No other problems to report.

3.1.6 ADCP

No problems to report.

3.1.8 SONDE (XBT, CTD)

Software versions currently being used: MK12 for Windows v. 1.1.2 (16 Feb 99)
Seasoft v4.246D (ship) Seasoft v4.246D (HSLs) SVPG v2.9.0. No problems to report

3.2 POST TIME SYSTEMS

3.2.1 WS1

No software problems to report

3.2.2 WS7

No software problems to report

3.2.3 WS8

Linux secure/classified network configuration: The both the classified and unclassified configuration was used this survop. WS8 was used in a unclassified configurations. The raid was off and the hard drive were removed from the raid.

3.2.4 WS12

No problems to report.

3.2.5 Post processing software problems

No problems to report.

4.0 DATA PROCESSING

The following section describes procedures how data was collected and archived.

4.0.1 Data collection, transfers

Ship data was logged to both /cc1_sd4 and /cc2_sd4 simultaneously. Ship data was archived daily to 511202 on NAS1. A em1002pp directory was created for all processed ship em1002 multibeam data. A em1002_raw_all directory was created to archive the *raw.all files obtained from the em1002 sun computer. The HSL data was archived on NAS1 511202_hsl. An em3000_pp directory was created to archive all processed em3000 data. Em3000_014_raw and em3000_013_raw directories were created to archive the *raw.all files obtained from the HSL 14 and HSL 13. NAS1 raid system for all post-processing.

4.0.2 Post-processing

The ship and HSL data was loaded into a PFM file for each of the priority areas. Data from SURVOP 511102 was also loaded into the PFM files. SURVOP 511102 was loaded to as-

sure 100% coverage of the area. The area files used to load the PFM are as follows: Area_1.are, Area_2.are, Area_3.are, Area_4.are and Area_5.are. The PFM files were edited and unloaded. Random spot checks with gsf_geoswath were done to verify that edits were being flagged as invalid points in the GSF (.d0*) files.

All ship and HSL data was stored on NAS1 for post-processing. WS7 (in Linux mode) WS1 (in Linux mode),WS8 and WS12 were used to process data.

CTD drops were done on a daily basis (when surveying) from all platforms. XBT drops
were done as needed from the ship. Sound velocity profiles for Simrad were created for each CTD/XBT drop. Predicted tide correctors were applied to multibeam and singlebeam data during data collection using RT Tides.

Datasonics side scan sonar data were converted and processed using the UNISIPS software. No significant target was found in the datasonics data.

5.0 DATA BACKUPS

5.1 Data Storage

- COTS Software. All OS/2 installation disks, Windows installation disks, CARIS, ERDAS, ESRI, Intergraph installation disks, and other COTS software are located in the shelves above the computers in Survey Control, cabinets, safe or in System Manager’s file cabinet in Survey Control. Master copies of some of the COTS are located in the SNR filing cabinet. The 10.20 HP-UX CDROMS are located in the SNR filing cabinet and a second copy is located in the System Manager’s file cabinet.
- System backups, software and documentation. HP system backup tapes are stored in the safe in the survey control lab. A backup copy of the NAVO CDROM is stored in the safe in Survey Control. Backup copies of INS, RTES, TADS and HSL disks are located in the safe in Survey Control.
- Data backups. All monthly data backup tapes (i.e. shipboard archive tapes) are stored in the Survey Control safe.

5.2 Data Backups

All ISS-60, processed multibeam, raw multibeam, and Datasonics SSS data archives were done using ULTRIUM tapes. CTD and XBT file were backup up to the cotsdata directory

and also archived on Compact Disk (CD)

The following monthly data backups were performed and retained on board. (The monthly backups also serve as the shipboard archives):

- NAS1 --ULTRIUM TAR tape of home/common/datasets/511202/ (includes ISS60 files, processed and raw multibeam files, CTD files, XBT files, Singlebeam files, Raw.ALL Simrad files and ADCP data. and surveys)
- Daily Ship and HSL logs
- Compact Disk containing ship and HSL CTDs and XBTs.
- One 3.5 disk contain ROS and SM cruise report
- One 3.5 disk containing Ultrium tape listing

The following **UNCLASSIFIED** NAVOCEANO archive media were forwarded to N523:

Label: 51U02105
Survop: 511202
Date created: 20 December 2002
Archive No: 02US33
Contents: ISS60 files Ship/HSL Raw/Processed, CTD, XBT,ADCP
Type: UTRIUM Tar Tape

Label: 51U02106
Survop: 511202
Date created: 20 DECEMBER 2002
Archive No: 02US33
Contents: Ship/HSL CTD/XBT data JD 330 (26 NOV 02) – JD 354 (20 DEC 02)
Type: Compact Disk (CD)

Label: 51U02107
Survop: 511202
Date created: 20 December 02
Archive No: 02US33
Contents: Tape listings for media # 51U02105
Type: 3.5” floppy disk

Label: 51U02108
Survop: 511202
Date created: 20 December 02
Archive No: 02US17
Contents: ROS and S.M. cruise report

Type: 3.5″ floppy disk

Additional data sent to NAVOCEANO Code N523 (Data Ingest):

6.0 SYSTEM BACKUPS

During the yard system backup were made of all system such as CC1, CC2, ADCP,EM1002, WS1,WS7, WS12, WS8, and EA600. These tape are stored in Survey Control Lab safe. In the top drawer. All replacement hard drive are located in Survey Control Lab safe in the bottom two drawers.

7.0 OTHER

7.1 Calibrations

A ship roll, and outerbeam calibration was done during the end of the yard period. HSL calibration was done at the end of the yard. The Parameters are as follows:

EM1002 MULTIBEAM SYSTEM CALIBRATION REPORT

Platform: USNS JOHN MCDONNELL (TAGS-51)

Calibration dates: 23 November 2002, (JD327)

Location: San Diego, CA

Max. Port Angle = 65
Max. Starboard Angle = 65

Calibration Depth Range = 40 – 80 meters

Sensor Location:
Transducer
Forward (x) = 0.75
Starboard (y) = 2.38
Downward (z) = 5.26
Waterline = 0.69

Installation Angle
Transducer Values:

Roll (deg) = −0.37
Pitch (deg) = 0.00
Heading (deg) = 0.00

EM1002 Results:
Motion Sensor Before Calibration After Calibration
Roll (deg) = −0.08 −0.09
Pitch (deg) = 0.00 0.00
Heading (deg) = 0.00 0.00
Time (ms) = 0.00 0.00
Outer Beam Calibration (deg) = +0.63 +0.27

SUMMARY:
The Timing and Pitch lines were run and then evaluated. It was found that no adjustments were required for these parameters on this system. A slight adjustment was necessary for the Roll setting. However, it was determined that an adjustment of -0.36 was needed for the Outer Beam Angle Offset. During the yard a new set of draft marks labeled “PROJ” was made for draft reading from the transducer face. These readings should be used to calculate waterline.

EM3000 MULTIBEAM SYSTEM CALIBRATION REPORTS

Platform: USNS JOHN MCDONNELL - HSL013

Calibration dates: 22 November 2002 (JD326)

Location: San Diego Harbor, CA

Max. Port Angle = 65
Max. Starboard Angle = −65

Calibration Depth Range = 5 - 15 meters

Sensor Location:
Transducer
Forward (x) = −2.14
Starboard (y) = 1.08
Downward (z) = −1.18
Waterline = −0.82

Installation Angle
Transducer Values:
Roll (deg) = 0.00
Pitch (deg) = 2.53
Heading (deg) = 0.00

EM3000 Results: Before Calibration After Calibration
Motion Sensor
Roll (deg) = 0.47 0.47
Pitch (deg) = 0.30 0.30
Heading (deg) = 0.00 0.00
Time (ms) = 0.00 0.00

SUMMARY:

The calibration lines were run in order to perform the Timing and Pitch analysis. It was found that no additional corrections were needed for these two parameters. Next, the Roll Bias lines were run and no correction was needed.

Platform: USNS JOHN MCDONNELL - HSL014

Calibration dates: 22November 2002 (JD326)

Location: San Diego Harbor, CA

Max. Port Angle = 65
Max. Starboard Angle = −65

Calibration Depth Range = 5 – 15 meters

Sensor Location:
Transducer
Forward (x) = −2.14
Starboard (y) = 1.13
Downward (z) = −1.17
Waterline = −0.79

Installation Angle
Transducer Values:
Roll (deg) = 0.00
Pitch (deg) = 2.53
Heading (deg) = 0.00

EM3000 Results:		Before Calibration	After Calibration
Motion Sensor			
Roll (deg)	=	0.17	0.17
Pitch (deg)	=	0.00	0.00
Heading (deg)	=	0.00	0.00
Time (ms)	=	0.00	0.00

SUMMARY:

The calibration lines were run in order to perform the Timing and Pitch analysis. It was found that no additional corrections were needed for these two parameters. Next, the Roll Bias lines were run and no correction was needed.

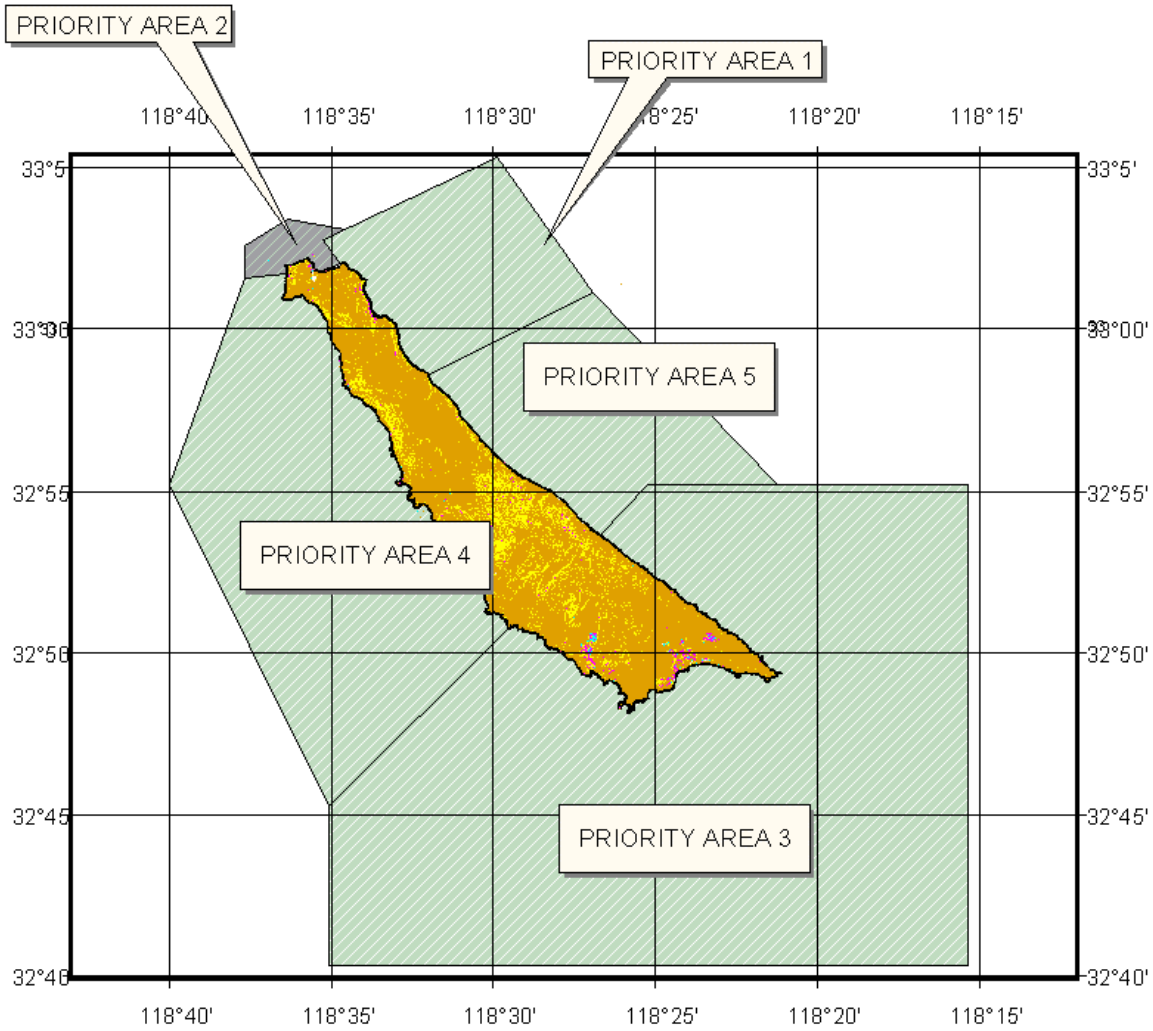
7.2 Ship Rider's documentation

8.0 NETWORK PROBLEMS

No problem at this time.

9.0 COMMENTS AND RECOMMENDATIONS

Appendix B
Priority Area Graphic



APPENDIX B: SURVEY AREA GRAPHIC

PMI Problem Report 1 (PR-03-0025)

Problem Title: Nas1 raid CPU USAGE (DET 124, 01DEC02)

System/Area: Datastorage

Name: Sheldon Powe

Code: N432

Phone: EXT 85071

E-mail Address: powes@navo.navy.mil

Priority (1 highest): 3
1: Mission Critical, No Workaround
2: Adversely affects mission, No Workaround
3: Adversely affects mission, Workaround
4: Inconvenience
5: Other (enhancements, etc.)

Problem Description (include location, date of problem):

(USNS John Mcdonnell, 01 DEC 02, Survey Lab)

Nas1's CPU usage on the front panel goes to 100% after two hours of use. The Command "top" was ran to find out what was loading the CPU and a job named "rsync' was being started every hour. This will load the system down after 2 hours. The temporary solution is to kill the "rsync" jobs or reboot the system. This returns the CPU usage back to between 1 to 5%.

Impact:

System gets very show and data processing with ABE slows because the data and PFM files are located on NAS1.

PMI Problem Report 2 (PR-03-026)

Problem Title: CC1_sd4 CC2_sd4 Storage Space (DET 124, 03DEC02)

System/Area: Datastorage

Name: Sheldon Powe

Code: N432

Phone: EXT 85071

E-mail Address: powes@navo.navy.mil

Priority (1 highest): 3
1: Mission Critical, No Workaround
2: Adversely affects mission, No Workaround
3: Adversely affects mission, Workaround
4: Inconvenience
5: Other (enhancements, etc.)

Problem Description (include location, date of problem):

(USNS John Mcdonnell, 03DEC02, Survey Lab)

CC1 and CC2 is writing survey data to root. They are writing to cc2/cc1_sd4 and cc2/cc2_sd4. CC1 and CC2 should be mounting and writing to dev/dsk/c0t9d0,
but this is not the case. CC1 and CC2 indicates cc1_sd4 and/or cc2_sd4 is
95% full. When bdf is executed to give systems usage it indicates that root is 95% full. CC1_sd4 and cc2_sd4 can only hold 3 days of survey data.

Impact: The data has to be archived to NAS1 every two days and removed from cc1_sd4 or cc2_sd4

Solution
A solution was find after this report was summitted. This is not a problem anymore. I have Report the solution to CMO

PMI Problem Report 3 (PR-03-0027)

Problem Title: Nas1 drives problem (DET 124 27NOV02)

System/Area: Data storage

Name: Sheldon Powe

Code: N432

Phone: EXT 85071

E-mail Address: powes@navo.navy.mil

Priority (1 highest): 4
1: Mission Critical, No Workaround
2: Adversely affects mission, No Workaround
3: Adversely affects mission, Workaround
4: Inconvenience
5: Other (enhancements, etc.)

Problem Description (include location, date of problem):

(USNS John Mcdonnell, 27 NOV 02, Survey Lab)

In the survey lab on 27 NOV 02. It was noticed that Two drives on NAS1
had red lights and 2 drives has yellow light. The admin.html, which is ran from either WS12 or WS8, doesn't run properly. The front panel health status is indicates reduced.

Impact: The NAS1 raid drives cannot be properly evaluated without the use of this software.

PMI Problem Report 4 (PR-03-0028)

Problem Title: Nas 2 mirroring problem

System/Area: Datastorage

Name: Sheldon Powe

Code: N432

Phone: EXT 85071

E-mail Address: powes@navo.navy.mil

Priority (1 highest): 3
1: Mission Critical, No Workaround
2: Adversely affects mission, No Workaround
3: Adversely affects mission, Workaround
4: Inconvenience
5: Other (enhancements, etc.)

Problem Description (include location, date of problem):

(USNS John Mcdonnell, 12 DEC 02, Survey Lab)

NAS2 seems to be selectively mirroring NAS1. The Ships data archived on NAS1/home/common/datasets/511202 is being mirrored by NAS2 however the HSL data archive on NAS1/home/common/datasets/511202_hsl is not being mirrored by NAS2.

Impact: No survey operation impact. The HSL data has to copied to NAS2/home/common/datasets/511202_hsl

PMI Problem Report 5 (PR-03-0027)

Problem Title: NAS2 drives problem (DET 124 27NOV02)

System/Area: Data storage

Name: Sheldon Powe

Code: N432

Phone: EXT 85071

E-mail Address: powes@navo.navy.mil

Priority (1 highest): 2
1: Mission Critical, No Workaround
2: Adversely affects mission, No Workaround
3: Adversely affects mission, Workaround

4: Inconvenience
5: Other (enhancements, etc.)

Problem Description (include location, date of problem):

(USNS John Mcdonnell, 26 NOV 02, Survey Lab)

In the survey lab on 27 NOV 02. It was noticed that 4 drives on NAS2 had red lights and 3 drives had yellow lights. As instructed, Netscape navigator was launched and the path /nas2/admin.html was typed in to run a program(Raidzone) used to evaluated NAS2 raid. Raid-zone admin software indicated that all the drives were healthy. The front panel on NAS2 had "reduced" as the health status.

Impact: No impact was noticed during survey operations.

PMI Problem Report 6 (PR-03-0029)

Problem Title: 3.5khz missing software (DET 124 26NOV02)

System/Area: Data storage

Name: Sheldon Powe

Code: N432

Phone: EXT 85071

E-mail Address: powes@navo.navy.mil

Priority (1 highest): 2
1: Mission Critical, No Workaround
2: Adversely affects mission, No Workaround
3: Adversely affects mission, Workaround
4: Inconvenience
5: Other (enhancements, etc.)

Problem Description (include location, date of problem):

(USNS John Mcdonnell, 26 NOV 02, Survey Lab)

During the yard the 3.5Khz laptop's hard drive was scrubbed. The software (Bathy 2000) used to communicate with the 3.5Khz subbottom profiler ODEC could not be found. So was not re-loaded. The Software(Colorado backup) used to back the data up to DDS3 tape also could not be located. The system is being used as another singlebeam.
Impact:

No 3.5Khz sub-bottom data use collected the system was used as another singlebeam.

PMI Problem Report 7 (PR-03-0030)

Problem Title: EM1002 Computer 100% full (DET 124 08DEC02)

System/Area: Data storage

Name: Sheldon Powe

Code: N432

Phone: EXT 85071

E-mail Address: powes@navo.navy.mil

Priority (1 highest): 3
1: Mission Critical, No Workaround
2: Adversely affects mission, No Workaround
3: Adversely affects mission, Workaround
4: Inconvenience
5: Other (enhancements, etc.)

Problem Description (include location, date of problem):

(USNS John Mcdonnell, 08 DEC 02, Survey Lab)

On Dec 8 2002, Em1002 computer's root partition became 100% full. The system locked up and wouldn't allow any files to be removed. The system wouldn't all root to log out. The system had to be shutdown hard. Data1 and Data2 was not full.

Impact: The system had to be reloaded from the system backups.

MI Problem Report 8 (PR-03-0031)

Problem Title: HSL 13 Dialing Heezen (DET 124 08DEC02)

System/Area: HSL 13 IHSS Computer

Name: Sheldon Powe

Code: N432

Phone: EXT 85071

E-mail Address: powes@navo.navy.mil

Priority (1 highest): 3

1: Mission Critical, No Workaround
2: Adversely affects mission, No Workaround
3: Adversely affects mission, Workaround
4: Inconvenience
5: Other (enhancements, etc.)

Problem Description (include location, date of problem):

(USNS John Mcdonnell, 08 DEC 02, Survey Lab)

Problem

The IHSS computer on HSl 13 was dialing WS6 on the USNS Heezen. The host table on the HSL is one from a tags 60 ship. Some of the addresses were addresses for the Heezen (128.160.100.***). Changing these addresses didn't stop system from dialing.

Solution

By instruction of Jan Depner, the tags and root files were removed from /var/spool/cron/crontab. This stopped HSL 13 from calling out.

Impact:
HSL 13 was continuously trying to dial out.

Doc. TS-02-HYD-19
NAVAL OCEANOGRAPHIC OFFICE
1002 Balch Blvd.
Stennis Space Ctr. MS 39522-5001

NAVAL OCEANOGRAPHIC OFFICE

12 November, 2002

TECHNICAL SPECIFICATION 02-HYD-19

San Clemente, CA Survey

ARCHIVE NO. 02US33

Survey Planner

Stephen M. Clark

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OPERATIONAL INTEGRATION BRANCH N411

Note: This document is UNCLASSIFIED

GENERAL

1. The Naval Oceanographic Office (NAVOCEANO) will conduct survey operations in the vicinity of San Clemente Island, CA from the USNS JOHN McDONNELL. The primary objective of the survey operation is to collect environmental data to satisfy requirements of the Naval Undersea Warfare Center (NUWC) for this area and verify the charted depth. The extents of the survey operation are given in ***Appendix A.*** Area graphics are given in ***Appendix B.***

2. NAVOCEANO will provide guidance to the SNR during the survey, which will adhere to the accuracy standards of the IHO Standards for Hydrographic Surveys, Special Publication No. 44, Fourth Edition, 1998. The SNR is authorized to make changes due to unforeseen field conditions when necessary to expedite operations; however, major deviations from these specifications must be approved by the Commanding Officer, NAVOCEANO, or his designee. Data to be collected during these survey operations is given in Table 1.

3. The Priority Areas given in ***Appendix A*** are to be fully surveyed, with 100% sonar coverage to the operational limits of the multibeam sonar. The least depths are to be found over all shoals, wrecks, wells and obstructions unless otherwise stated in ***Appendix C***. Care should be taken to ensure all located wrecks and obstructions identified in ***Appendix C*** are surveyed and documented in accordance with HP 6.4.3 (Oct 1988).

4. There will be high resolution sonar coverage where depths permit. Mosaics need not be compiled, however, all digital 'snapshot' images of contacts deemed significant by the surveyor in charge are to be included in the Report of Survey (ROS). These same contacts are to be fully investigated, least depths confirmed, and the results forwarded under cover of the ROS. Seabed samples should be obtained and recorded; none need be retained.

5. You will keep NAVOCEANO informed of the progress of this survey and any further intentions. You are to act at all times in accordance with the references at Annex 11, General Survey Specifications for Hydrographic Surveyors and such other Survey Specifications as may be in force. You should lose no opportunity for the improvement of NIMA Charts and their associated publications.

6. The Functional Customer is the Naval Undersea Warfare Center (NUWC) and is to be provided with a DNC as the final product. NAVOCEANO will generate the validated and appraised data set from the survey records to meet final deliverables for the NUWC.

DATA COLLECTIBLES				
Type	Yes	No	Other	Remarks
Acoustics		X		
ADCP*	X			
Bathy Swath Sonar Depths*	X			Simrad EM1002, Simrad EM3000
Bathy Swath Sonar Imagery*		X		
Cores		X		
CTD*	X			Sea-Bird 19
Current Meters		X		
Bathy Single Beam Sonar (12,38,200kHz – ship)(50,200kHz – HSL)*	X			Simrad EA600 (Ship) Simrad EA502 (HSLs)
Geodetic Survey			X	Unless needed for additional stations
GPS – BEACON*	X			Primary mode for Order 1 surveys, if available
WADGPS*	X			Secondary mode for Order 1 surveys
Grab Samples*	X			
Gravity		X		
Aids to Navigation*	X			
Hazards to Navigation*	X			
Shipping Activity	X			
Photography*	X			
Side Scan Sonar*	X			Datasonics
Sound Velocimeter SSSV*	X			
Sound Velocimeter Deployable		X		
Sub-Bottom 3.5 kHz*	X			ODEC
Sea Surface Temp	X			
Seismic		X		
Tides*	X			
UTC time*	X			
Water Clarity	X			
Bioluminescence	X			
Water Color	X			
Pollution	X			
Marine Flora and Fauna	X			
Surf Conditions	X			
Beach Characterisation	X			
Water Samples		X		
Weather Data	X			
XBTs (SXBT)	X			MK 12
XCTDs		X		
XSVs		X		
**** Represents mission critical***				CASREP C3 or C4 Condition

Table 1

Annex 1: SECURITY CLASSIFICATION

The survey is UNCLASSIFIED. All data sent to NAVOCEANO must contain the following distribution statement:

APPROVED FOR PUBLIC RELEASE. DISTRIBUTION IS UNLIMITED.

Annex 2: TIDAL DATA

1. Purpose. All tide requirements identified in these specifications are in support of hydrographic survey operations and for use in updating tide predictions in the area. The SNR shall identify the gages used and shall provide complete descriptions of the tidal stations in the Report of Survey submitted at the end of the project.

Tide information can be found in Appendix D: Tide Planning Document.

2. Data Reduction. All soundings will be reduced using predicted tide corrections. Observed tide corrections will be applied during final office processing.

3. Datum. The sounding datum for this survey will be Mean Lower Low Water (MLLW), commensurate with the existing chart data. The relationship between MLLW and WGS-84 shall be reduced from the information supplied by the tide gages used.

Annex 3: WRECKS AND OBSTRUCTIONS

1. The list of Wrecks and Obstructions, derived from the area charts, given in ***Appendix C*** are to be thoroughly investigated.

2. All areas dangerous to navigation, including shoals and wrecks, whether discovered during the survey or appearing on existing charts, are to be fully investigated in accordance with Hydrographic Procedures (HP) 6.4.3 "Investigation of Shoals, Seabed Features, and Submerged Hazards," October 1988. The position of the least depth of all encountered shoals, obstructions and wrecks will be reported to NAVOCEANO and NIMA by message. Deviations in navigation charts and publications will be reported via message to NIMA NAVSAFETY BETHESDA MD. NAVOCEANO messages 300501Z -300502Z MAR 98, Marine Information Reports, B.4 (CY98 Pass Down Message 1-98),and HP 2.7.8 "Utilization of Publication 606 (Pub. 606), Guide To Marine Observing and Reporting," August 1990, and SNR CD provide guidelines for reporting to NIMA information on items of marine safety and navigation obtained during the course of survey operations. The positions and descriptions of all shoals, wrecks and obstructions are to be placed in the ROS.

Annex 4: AMENDMENTS TO U.S. COAST PILOTS

1. U.S. COAST PILOTS. Existing "U.S. Coast Pilots" of the project area are to be verified and/or corrected in accordance with NIMA Pub 606, 1983 Edition, "Guide to Marine Observing and Reporting," HP 2.7.8 "Utilization of Publication 606 (Pub. 606) Guide to Marine Observing and Reporting," October 1990. The contents of "U.S. Coast Pilots" are to be reviewed in the field and proposed amendments submitted. Recommended revisions and U.S. Coast Pilots direction updates are to be entered in the ROS.

2. Coastal Navigation Photography. Photographic views of the beach and features of navigational interest will be taken in accordance with HP 2.7.7 "Photography," August 1988. Night photos of harbor approaches, harbors and lights are required from the same position/heading as the daytime photos. Descriptive data are to be included with all mounted photographs. Descriptions will include camera position, azimuth of shot, time of day, lens focal length (focal length set on zoom lens) and description of feature being photographed. Photographs and descriptions will be forwarded to NAVOCEANO as an enclosure to the ROS. Whenever possible, digital imagery should be taken and sent back in its digital form. Position of camera and heading of camera view must be recorded and sent back with imagery.

Annex 5: SPECIFIC CHARTING INFORMATION REQUIRED BY NAVOCEANO

1. Topographic Features. All topographic features of use to the mariner which lie within or adjacent to the survey area are to be verified in the field, if possible. Photographs should be taken of the features. Discrepancies in navigation charts and publications will be reported via message to NIMA NAVSAFETY BETHESDA MD. NAVOCEANO messages 300501Z -300502Z MAR 98, Marine Information Reports, B.4 (CY98 Pass Down Message 1-98), and HP 2.7.8 Utilization of Publication 606, Guide to Marine Observing and Reporting, Pub. 606, August 1990, and SNR CD provide guidelines for reporting to NIMA information on items of marine safety and navigation obtained during the course of survey operations.

2. Shoreline and Charted Detail. All features within the project limits, particularly dangers to navigation, are to be verified and positioned in the field using GPS methods. Preferred methods, in order of preference are: (1) carrier phase (kinematic), (2) third order-class 1 point positioning, (3) DGPS and (4) PPS-GPS. Disproving searches are to be carried out where necessary and a positive disposition included in the hydrographic record. Gross discrepancies between charted shoreline and existing shoreline will be noted with recommendations for new shoreline compilation. Prominent features such as breakwaters, jutting piers, groins and chart identifiable points and features along the shoreline are to be positioned if existing charting proves doubtful.

3. Landmarks. All topographic landmarks, points and features important for navigation found within or immediately adjacent to the limits of the survey area, will be located and positioned such that the error will not exceed 20 m. Features are to be annotated on the field and smooth sheets.

4. Aids to Navigation. Locate and describe, in the Report of Survey (ROS), all floating and non-floating aids to navigation and verify the azimuths of all charted ranges. This is mission critical information. All non-floating aids to navigation (lights and day beacons) and features important to navigation (radio towers, water towers, spires, etc.) found within and adjacent to the limits of the survey area are to be checked and verified in the field. These aids and features are to be shown on the field sheet and the office produced smooth sheet. All floating and non-floating (fixed) navigational aids and navigationally important features shall be positioned such that the error will not exceed the following limits:

COASTAL AND OFF-SHORE

Floating Aids	10 m
Fixed Aids	2 m
Features	20 m

Aids to navigation and navigationally important features shall be positioned by whatever means required to meet accuracy requirements. It is recommended that all floating aids be positioned by DGPS methods and all fixed aids and features be positioned by GPS carrier phase or translocation methods. Floating aids are to be positioned during the ebb and flood tides and the mean position plotted on the smooth sheet. Their characteristics and descriptions in U.S. Coast Pilots, List Of Lights, charts and other supporting documentation are to be verified and recorded in the ROS. A list of the existing Aids to Navigation is provided in ***Appendix C***.

5. Geographic Names. All geographic names used on present charts will be checked in the field. Geographic names that are in doubt will be verified by liaison with local authorities.

Annex 6: PHYSICAL OCEANOGRAPHY

1. Conductivity, Temperature, Depth Measurements. Conductivity, Temperature, and Depth (CTD) sound speed measurements will be obtained directly from the Sea-Bird SBE-19 CTD probe, and will be taken early morning, noon, and early evening, to delineate diurnal extremes. However, additional CTD observations may be required each day of survey operations within the survey limits or as determined in the field. Additional drops will be made following significant weather events, water mass influx or changeover or when necessary to support singlebeam and multibeam sonar operations. The Sea-Bird SBE-19 CTD observations are, generally, required in the deepest depths of the survey area to ensure accurate profile information to the bottom. However, this does not preclude adequate spatial sampling. CTD observations are to be spatially well distributed throughout the survey area. Close attention is required to ensure a CTD observation is in the vicinity of that day's survey operations.

Note: If marked changes in temperature profiles (initial delta value shown in the ISS-60 environmental manager should not exceed 1 m/s) are noticed it would be useful to increase the number of CTD Sea-Bird SBE-19 probe drops in order to obtain cross-sections through any features/fronts observed. Similarly if concentrations of marine life are observed then the frequency of observations should be increased.

2. Soundings. Soundings will be recorded in meters. Soundings will be corrected for draft, sound velocity, vessel offsets, and tides during post processing. NAVOCEANO requires velocity of sound corrections based on actual speed. Sound speed is derived from temperature, salinity and depth from CTD observations collected in the survey area. All multibeam calibrations (i. e. Timing, Pitch, and Roll Bias) will be completed in accordance with manufacturer's specifications.

3. Water Clarity. Secchi disc and K-Meter measurements are to be taken daily. Measurements are to be spatially well distributed throughout the survey area. Measurements will be taken in accordance with HP 2.7.5 "Water Clarity - Secchi Disc Measurements," October 1988.

4. Bioluminescence. Any bioluminescent activity observed is to be recorded on the Marine Observation Log (NAVOCEANO form 3141/7, rev. 02-97) or its equivalent.

5. Water Color. All water color/discoloration is to be observed and recorded up to the shoreline. Discoloration may be due to shoals, plankton blooms, algae, shore runoff, pollution, etc. Water color is to be recorded in the Marine Observation Log (NAVOCEANO form 3141/7, rev. 02-97) or its equivalent.

6. Pollution. Observe and record the extent, type and source of all floating and shoreline deposited pollution observed. Pollution may consist of adrift and shore deposited plastic trash, oil slicks, tar balls, dead marine fauna/flora, persistent floating and beach deposited foam, garbage, chemical, etc. Observe extent and location of sewage and industrial discharge and outflows. Record occurrences on the Marine Observation Log (NAVOCEANO form 3141/7, rev. 02-97) or its equivalent.

7. Marine Flora and Fauna. Observe and record the occurrence and extent of marine life activity. Marine life includes type and extent of bottom vegetation, hazardous bottom dwelling fauna such as urchins, thorny starfish, coral, etc., hazardous free swimming fauna such as sharks, sea snakes, barracuda, whales, porpoises, etc. Record occurrences on the Marine Observation Log (NAVOCEANO form 3141/7, rev. 02-97) or its equivalent.

8. Surf Conditions. Observe and record surf conditions. Of interest are: breaker type (spilling, plunging, surging), average height, distance from shore, number of lines, period, angle to beach, width of surf zone, rip currents, long shore currents, offshore bar, weather, sea conditions and seasonal effects. Record on the Marine Observation Log (NAVOCEANO form 3141/7, rev. 02-97), or its equivalent.

9. Beach Characterization. While not strictly oceanographic, opportunity should be taken to report beach characteristics whenever possible. There is an increasing need for this type of information to support future Beach Intelligence Survey Databases and Rapid Environmental Assessments.

Annex 7: SIDE SCAN SONAR OPERATIONS AND BOTTOM CHARACTERIZATION

1. Side Scan Sonar. Datasonics digital dual frequency side scan sonar (SSS) system will be used to identify and investigate any wreck, obstruction, rock pinnacle, coral head, or isolated shoal in depths less than 40 meters. The sweep coverage will be greater than 150 percent in harbors, approaches to harbors and in anchorage areas in accordance with HP 6.4.3. The least depth will be obtained by multibeam sonar where possible. Full bottom ensonification is required to meet Order I criteria. The systems will be maintained and tuned according to the manufacturer's technical manuals and optimized in the field under the direction of the surveyor in charge.

2. Operation. The side scan sonar towfish will not be towed at speeds in excess of 6 knots. The towfish height, whenever possible, will be maintained above the seabed at 10 to 20 percent of the range scale in use. Side scan sonar lines are to be commensurate with the main development lines, which have been optimized to maximize efficient operation of the multibeam sonar, but serve also to run within 20 degrees of the direction of the typical current or tidal streams in the area. This requirement is designed to reduce uncertainty in towfish position. A detailed log of wire out information shall be maintained and **adjacent** Side Scan Sonar lines are to be run in **opposite directions** to aid in the resolution of along track and cross track target offsets. The surveyors will achieve the best compromise between maximum data collection and data quality.

3. Records and Processing. Sonar records are to be annotated with time, fix marks and length of tow cable as outlined in HP 6.6.6 "Field Processing of Side Scan Sonar Data," October 1990. A sonar operation log is to be maintained while sweeping and will contain ancillary information such as sea state, course and speed, recorder settings, and all other information pertinent to the SSS operation.

4. Contacts. Side scan sonar contact records are to be reviewed daily. These contacts are to be recorded as ‘snapshots’ and plotted digitally on a side scan sonar overlay in accordance with HP 6.6.6 "Field Processing of Side Scan Sonar Data," October 1990 and HP 6.6.9 "Side Scan Sonar Contact and Towfish Location," October 1990. Each contact is to be given a unique serial number and recorded in an investigation log. The Side Scan Sonar Operations Log is also to be used for recording all data pertaining to system operation (line out, gain and range settings, speed, heading, line number, course changes). An onboard side scan processing log is to be kept. All daily processing results are to be logged, even when no targets are found, including results from any subsequent investigation and should be comprehensive enough to allow the work to be reconstructed. Contact investigation work must be kept up to date as the survey progresses. All investigation records are to be forwarded to NAVOCEANO on completion of the survey as an integral part of the ROS.

5. Bottom Characterization. The nature of the seabed and seabed character shall be determined and delineated by sampling and inference from side scan sonar imagery (back- scatter, reflectivity) of the bottom. Sediment and bottom characteristics shall be annotated on a bottom sample collection form in order to assist in sediment bed definition and delineation. At the conclusion of survey operations or the completion of a survey area or sheet area these overlays shall be forwarded to NAVOCEANO.

6. Bottom Samples. Bottom samples are to be taken at intervals outlined in the IHO Standards for Hydrographic Surveys Special Publication 44, Fourth Edition, 1997. Samples are to be spaced according to seabed geology. In anchorage areas the density shall be increased should the nature of the bottom indicate that considerable variation is likely to be experienced. Sampling in hazardous areas is not required. The classification of bottom samples will be done in accordance with HP 6.5.1, "Bottom Sampling," January 1990. Bottom samples will be visibly classified and correlated to the Oceanographic Log Sheet M and field sheets by number of the sample, field descriptions, and geographic position.

Annex 8: GEODETIC DATA

1. The survey is to be referred to WGS 84 Datum, WGS 84 Spheroid and is to be plotted using Mercator projection.

2. Positioning will be by Beacon GPS or WADGPS. Should they be required, any new geodetic stations established during the course of this survey are to be co-ordinated to an accuracy of +/-0.1 meter (95%). Sufficient observations should be taken to ensure redundancy. Control established by GPS satellite surveying techniques will be in accordance with geometric (three-dimensional) geodetic survey standards set by the Federal Geodetic Control Committee in "Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques, 1 August 1989. Secondary stations for local positioning which will not be used for extending the control should be located such that the error does not exceed 1 part in 10,000 for ground survey techniques or 50 cm using geodetic satellite positioning. Tidal benchmark elevations will be determined by differential leveling from the tide staff (staff zero) to the local vertical datum and WGS-84 datum. If no control point exists, one will need to be established by means of DGPS. If charted elevations are determined within usable distance of a NAVOCEANO established tide gauge, elevation heights will be referenced to Mean Sea Level (MSL) as established for the local gauge.

3. Station descriptions and reports for each benchmark used are to be rendered in accordance with HP 2.7.7 "Photography, and HP 3.1.5 "Horizontal Control Geodetic Station Description and Recovery. All station descriptions are to be fully and accurately completed prior to departure from the site.

Annex 9: DATA HANDLING

1. Data Reduction. Data will be processed and validated in the field in accordance with standard hydrographic processing procedures. This processing will allow generation of the Field Sheets for the survey and will ensure that data is sufficiently validated and purged of systematic, gross and procedural errors for use in generating the official data sets by NAVOCEANO.

2. Field Processing and Data Verification. All survey data collected will be field processed, verified and validated concurrent with survey operations. Verification methods will include comparison of collected data to existing charts and prior surveys. The surveyor in charge shall verify that work conducted by different platforms and/or during different SURVOPS merges seamlessly with adjacent data sets. The weekly Situation Report (SITREP) will include information as to data quality, items of discrepancy, and impact of weather conditions on the survey effort. Discrepancies discovered in field processing and verification will be resolved immediately. Discrepancies requiring significant additional operational time and effort to resolve will be brought to the attention of the Commanding Officer, NAVOCEANO, for decision.

3. Survey Records. All survey records will be annotated as described in HP 7.1.1, "Archive and Index Numbers," HP 7.2.4, "Position Printouts," and HP 7.2.9, "Day Folders."

4. Reduction of Soundings. Tide, draft and sound speed corrections will be in meters and decimeters. Tide, draft, vessel offsets, and sound speed corrections will be applied to all soundings as part of the data processing procedure.

5. In addition to the above any information which can be gleaned from standard operating procedures and compared to documented information would be most useful.

Annex 10: RECORDS AND REPORTS

RECORDS

1. Indexing Records. All records will be indexed in accordance with NAVOCEANO HP 7.1.1, "Archives and Index Numbers," May 1990.

2. Archive Number. The assigned NAVOCEANO Archive Number for all data collected during this survey is **02US33**.

3. Forwarding of Records. All original and reproduced records are to be forwarded to Commanding Officer, Naval Oceanographic Office, 1002 Balch Boulevard, Stennis Space Center, MS 39522-5001, ATTN: N523. Guidelines for forwarding records are contained in HP 7.8.2 "Transmittal and Transfer of Records." All data sent to NAVOCEANO must contain the distribution statement given in Annex 1.

The following are all to be detailed in the ROS as ancillary observations:

4. Shipping Activity. Observe and record the extent of commercial and military shipping activity. Coordinate with the ship's Master and report difficulties operating within the area and/or entering and exiting ports.

5. Fishing Activity. Observe and report the extent, location and type of fishing activity; trawling, long lining, bottom fishing, fish traps, etc.

6. Recreational Boating Activity. Observe and record the extent and type of recreational boating activity; sailing, wind surfing, jet skis, diving, etc.

REPORTS

7. Progress Reports. Reports are to be forwarded in accordance with NAVOCEANOINST 3140.5C.

8. Report of Survey. The Senior NAVOCEANO Representative will submit a survey report, as outlined in H P 9.2.9, "Report of Survey." The ROS is to be a stand-alone record of the survey and unique for each Archive Number. Other report requirements will be forwarded via message traffic.

Annex 11: REFERENCES

1. The following references are listed to provide guidance in the conduct of this survey and are considered to be authoritative in all technical matters affecting survey operational decisions. Major deviations from the provisions of these references are to be referred to the Commanding Officer, NAVOCEANO. These project specifications, however, are to be considered authoritative in all technical areas that are specifically addressed.

a. U.S. Federal Geodetic Control Committee. "Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques, Version 5.0 (Preliminary)," National Oceanic and Atmospheric Administration, Rockville, MD, National Geodetic Survey, May 1988. (Reprinted and corrected August 1989).

b. Naval Oceanographic Office. "Hydrographic Procedures." Bay St. Louis, Stennis Space Center, MS, 1990.

c. United States. Oceanographer of the Navy. "Guide to Marine Observing and Reporting," N.O. Publication 606, Washington, D.C., Defense Mapping Agency Hydrographic/Topographic Center, 1983.

d. Naval Oceanographic Office. "Guide to Common Shipboard Expendable Bathythermograph (SXBT) Recording Malfunctions," by Barry P. Blumenthal and Stephen M. Kroner, Bay St. Louis, Stennis Space Center, MS, August 1978 (Revised February 1981).

e. U.S. Department of Commerce. National Oceanic and Atmospheric Administration, National Ocean Survey "Side Scan Sonar Manual," by LCDR D. H. Peterson, NOAA and LCDR A. A. Armstrong III, NOAA, Charting and Geodetic Services, 1988.

f. IHO Standards for Hydrographic Surveys Special Publication No. 44, Fourth Edition, Monaco, 1998.

g. General Instructions for Hydrographic Surveyors (GIHS), Edition 17 (to Ch. 2), dated 1996.

Appendix A: SURVEY AREA LIMITS San Clemente, CA

The limits of the survey area for this operation are contained within the following points:

Priority Area 1:

1. N 33:02:42, W 118:35:10 = N 33.0450 W 118.5861
2. N 33:05:18, W 118:29:42 = N 33.0883 W 118.4950
3. N 33:01:02, W 118:26:42 = N 33.0172 W 118.4450
4. N 32:58:21, W 118:32:06 = N 32.9725 W 118.5350

Thence to point 1

Priority Area 2:

1. N 33:03:00, W 118:34:30 = N 33.0501 W 118.5750
2. N 33:03:20, W 118:36:18 = N 33.0555 W 118.6050
3. N 33:02:30, W 118:37:36 = N 33.0417 W 118.6267
4. N 33:01:30, W 118:37:36 = N 33.0250 W 118.6267
5. N 33:01:39, W 118:36:21 = N 33.0275 W 118.6058

Thence east along shoreline to:

6. N 33:01:57, W 118:34:36 = N 33.0325 W 118.5767
7. N 33:02:42, W 118:35:10 = N 33.0450 W 118.5861

Thence to point 1

Appendix A: SURVEY AREA LIMITS

Priority Area 3:

1. N 32:53:30, W 118:26:30 = N 32.8917 W 118.4417
2. N 32:55:00, W 118:25:00 = N 32.9167 W 118.4167
3. N 32:55:00, W 118:15:00 = N 32.9167 W 118.2500
4. N 32:40:00, W 118:15:00 = N 32.6667 W 118.2500
5. N 32:40:00, W 118:35:00 = N 32.6667 W 118.5833
6. N 32:45:00, W 118:35:00 = N 32.7500 W 118.5833
7. N 32:50:39, W 118:29:18 = N 32.8442 W 118.4883

Thence southeast, east, and northwest along shoreline to point 1

Priority Area 4:

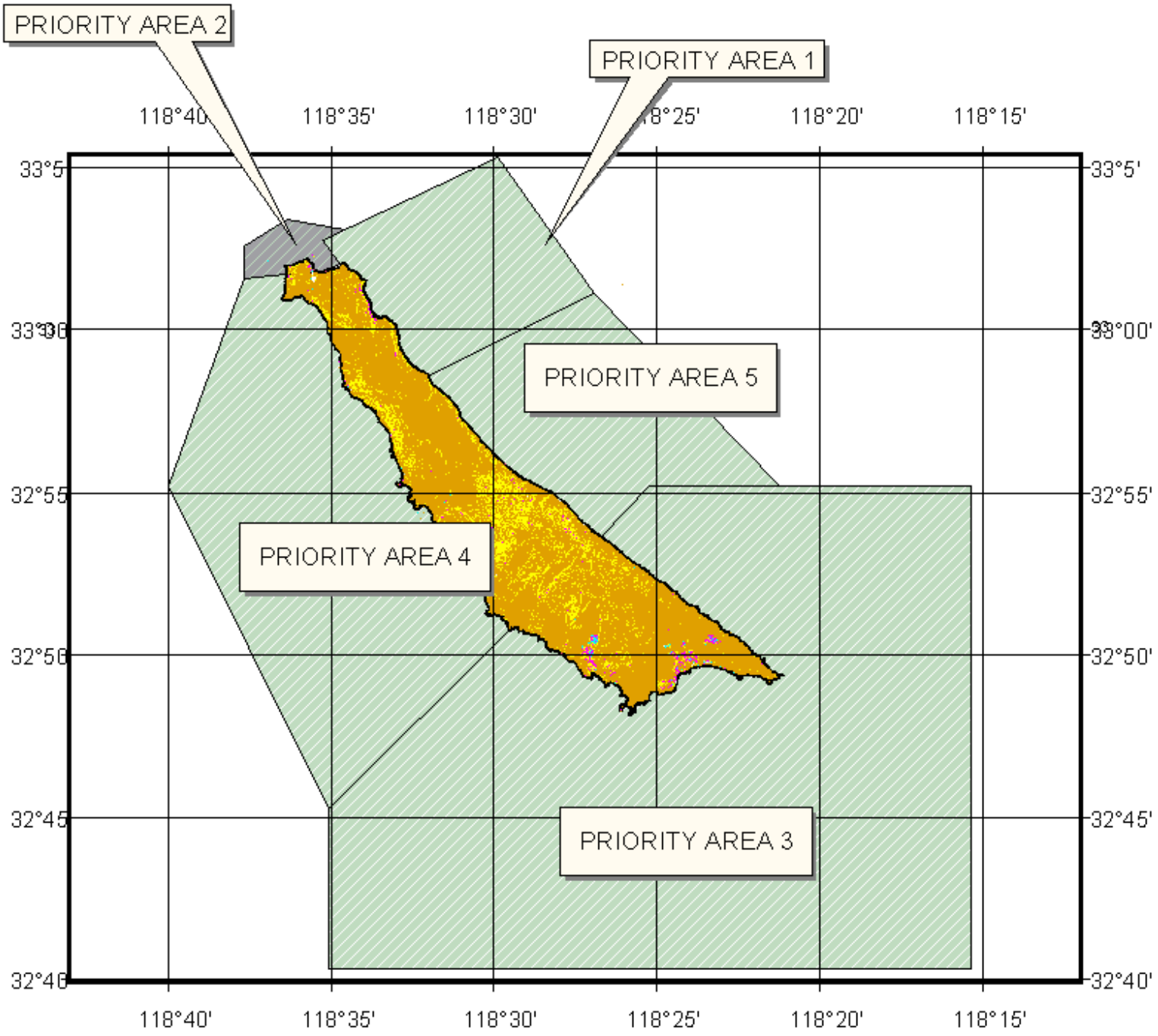
1. N 33:01:39, W 118:36:21 = N 33.0275 W 118.6058
2. N 33:01:30, W 118:37:36 = N 33.0250 W 118.6267
3. N 32:55:00, W 118:40:00 = N 32.9167 W 118.6667
4. N 32:45:00, W 118:35:00 = N 32.7500 W 118.5833
5. N 32:50:39, W 118:29:18 = N 32.8442 W 118.4883

Thence northwest along shoreline to point 1

Priority Area 5:

1. N 32:58:21, W 118:32:06 = N 32.9725 W 118.5350
2. N 33:01:02, W 118:26:42 = N 33.0172 W 118.4450
3. N 32:55:00, W 118:20:58 = N 32.9167 W 118.3494
4. N 32:55:00, W 118:25:00 = N 32.9167 W 118.4167
5. N 32:53:30, W 118:26:30 = N 32.8917 W 118.4417

Thence northwest along shoreline to point 1



APPENDIX B: SURVEY AREA GRAPHIC

Appendix C: WRECKS, OBSTRUCTIONS, AND NAVIGATION AIDS

Priority Area 1:

1. Wreck	N 33:02:04, W 118:34:32
2. AERO Beacon	N 33:01:39, W 118:34:17
3. Fixed Sector Light Fl 6s 60ft 7M PA	N 33:01:26, W 118:33:50
4. Unlighted Buoy	N 33:01:37, W 118:33:47
5. Unlighted Mooring Buoy	N 33:00:37, W 118:33:25
6. Submerged Buoy	N 33:01:17, W 118:33:45
7. Fixed Sector Light F R 40ft	N 33:00:17, W 118:33:28
8. Fixed Light F R 27ft HORN	N 33:00:23, W 118:33:25
9. Fixed Light Fl 4s 125ft 9M	N 33:00:14, W 118:33:10
10. Unlighted Mooring Buoy	N 33:00:36, W 118:32:52
11. Obstruction (8fms rep)	N 32:59:58, W 118:31:23
12. Fixed Sector Light Fl 2.5s 140ft 6M PA	N 32:58:32, W 118:31:55
13. Unlighted Navy Buoy	N 32:59:27, W 118:30:07
14. Numerous uncharted buoys –Navy maintained	N 32:59:45, W 118:31:35
15. Numerous uncharted buoys –Navy maintained	N 33:01:18, W 118:32:53
16. Landmark Tower	N 33:00:35, W 118:34:00
17. Landmark R Mast OC R Lt	N 32:59:07, W 118:33:16
18. Landmark STA NO 1	N 32:58:48, W 118:32:22
19. Landmark STA NO 2	N 32:58:37, W 118:32:05
20. Landmark RA DOME	N 32:53:03, W 118:27:04

Appendix C: WRECKS, OBSTRUCTIONS, AND NAVIGATION AIDS

Priority Area 1:

Note: Exercise caution in all Priority Areas. The entire coastline is rocky with numerous rocks, submerged and awash, and areas of kelp.

Note: Cautions for marked areas of dangerous chemical and radiation hazards.

Note: SECURITY ZONE AREA AND RESTRICTED AREAS. Coordinate with local authorities.

Priority Area 2:

1. Fixed Sector Light Fl 4s 202ft 9M PA	N 33:01:50, W 118:35:45
2. Rocks awash at chart datum	N 33:02:15, W 118:36:37
3. Unlighted Mooring Buoy	N 33:01:57, W 118:35:16
4. Submerged Obstruction (rep 1974)	N 33:01:50, W 118:35:13
5. Unlighted Mooring Buoy "CG-2"	N 33:02:14, W 118:34:59
6. Wreck	N 33:02:11, W 118:34:58

Note: DANGER AREA and local magnetic disturbance.

Appendix C: WRECKS, OBSTRUCTIONS, AND NAVIGATION AIDS

Priority Area 3:

1. Obstruction 5ft (rep 1974)	N 32:50:30, W 118:22:08
2. Fixed Sector Light Fl 6s 226ft 9M PA	N 32:49:12, W 118:21:13
3. Landmark Balanced RK	N 32:48:58, W 118:21:18
4. Fixed Sector Light Fl R 4s 886ft	N 32:50:00, W 118:23:00
5. Unlighted Mooring Buoy	N 32:49:03, W 118:21:55
7. Fixed Sector Light Fl 2.5s 112ft 8M PA	N 32:48:14, W 118:25:33

Note: DANGER AREAS and local magnetic disturbance.

Priority Area 4:

1. Landmark Tower	N 33:01:20, W 118:35:05
2. North Range Marker	N 33:00:21, W 118:33:53
3. North Range Marker	N 33:00:13, W 118:34:10
4. South Range Marker	N 32:59:26, W 118:33:20
5. South Range Marker	N 32:59:16, W 118:33:40
6. Wreck	N 32:55:13, W 118:32:45
7. Unlighted SP Buoy	N 32:55:12, W 118:33:34
8. Anchorage Area	N 32:54:08, W 118:32:00
9. Wreck	N 32:52:45, W 118:30:35

Note: DANGER AREA AND RESTRICTED AREA. Coordinate with local authorities.

Appendix C: WRECKS, OBSTRUCTIONS, AND NAVIGATION AIDS

Priority Area 5:

1. Unlighted Mooring Buoy	N 32:57:23, W 118:30:03
2. Unlighted Mooring Buoy	N 32:56:56, W 118:29:39
3. Landmark RA DOME	N 32:53:04, W 118:27:04
4. Numerous navy buoys	N 32:58:42, W 118:31:00

Note local magnetic disturbance.

SAN CLEMENTE HYDROGRAPHIC SURVEY
TIDE PLANNING DOCUMENT
APPENDIX D: TS02HYD19

CODE : N431
NAVAL OCEANOGRAPHIC OFFICE
STENNIS SPACE CENTER, MS

8 OCTOBER 2002

Primary Station: Wilson Cove, N33 00, W118 33

A. Predicted tides to be used while collecting tide data:

Predicted tides can be collected in real time on the ISS-60 by setting up the following zones:

Zone 1 - N32 50, W118 40 to
N32 50, W118 20 to
N33 10, W118 20 to
N33 10, W118 40 to
N32 50, W118 40

Zoo = 0.81 m (MSL above chart datum)

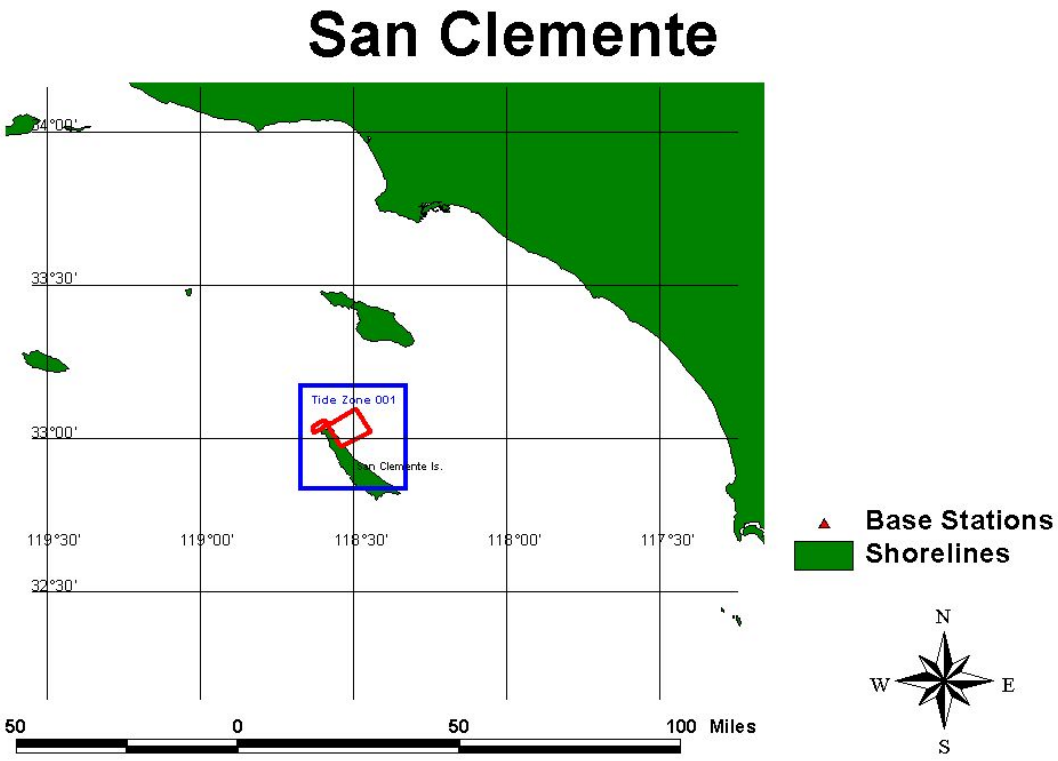
	H (m)	g (GMT)
M2	0.477	145.9
S2	0.185	138.3
K1	0.328	206.2
O1	0.218	191.5
N2	0.115	129.5
P1	0.109	206.3
NU2	0.022	131.7
2N2	0.015	113.1
OO1	0.009	220.9
LDA2	0.003	142.3
M1	0.016	199.0
J1	0.017	213.6
RHO1	0.008	185.3
Q1	0.042	184.3
T2	0.011	138.3
2Q1	0.006	176.8
L2	0.013	162.3
K2	0.050	138.3

Note- The seasonal correction was negligible.

B. Tide Information for Survey Area.

1. Chart datum for this survey is Mean Lower Low Water (MLLW).
2. Tide characteristics: mixed, prevailing semi-diurnal.

(see graphic below)



Registry No: W00149-W00154

State: California

General Locality: San Clemente Island

Sub Locality: Little Harbor, Little Approaches, Crand Approach, Debby Island Investigation,

Dates of Survey: 11/1/2002-12/20/2002

OSD Supplier: Naval Oceanographic Office

OSD Project No: 02US33

Reviewer: Andrew Clos, Tyanne Faulkes, Tony **Review Date:** December, 2008

I. DATA INVENTORY

A. Reports

Report Type	Format	Document Title	Date
Descriptive Report or equivalent	.doc	ROS Outline Cleaned.4_99.doc	1/26/2000
Data Acquisition and Processing Report or equivalent	.doc	TS02HYD19. doc--> "Technical Specifications 02-HYD-19	4/19/2004
Horizontal and Vertical Control Report or equivalent			
System Certification Report or Equivalent			
Other	.doc	San Clemente Post Survey Review Report.doc	10/26/2004

B. Data

Data Type	Format	Description (Raw, Processed)
Smooth Sheet Sounding Plots	.pdf	san01.pdf, san01a.pdf, san02.pdf, san03.pdf, san04.pdf, san05.pdf,
XYZ ASCII Files	.yxz,	00601.yxz, 00602.yxz, 00603.yxz, 00604.yxz, 00605.yxz
Multibeam	.pfm	area1_em1002.pfm, area1_em3000.pfm, area2_em1002.pfm, area2_em3000.pfm, area3_em1002.pfm, area3_em3000.pfm,
Side Scan Sonar	n/a	
LIDAR	n/a	
Single Beam	n/a	Unknown

Data Type	Format	Description (Raw, Processed)
Detached Position Point Feature	n/a	
Kinematic / Static GPS	n/a	
Sound Velocity	n/a	Data not provided
Water Levels	n/a	Data not provided
AWOIS	n/a	
DtoN	n/a	
Shoreline	n/a	
Bottom Sample		

Yes All data open correctly and without error (MBES lines, SSS lines, VBES, Crosslines, Fieldsheets, Smooth Sheets, Sessions, DTM's, BASE grids, Mosaics, and DP's).

C. Sensors

List all sensor(s) that were used to acquire data.

Sensor	Manufacturer	System	Model	Vessel / Platform
Multibeam	Simrad		EM1002	USNS McDonnell
Multibeam	Simrad		EM3000	USNS McDonnel

_____ Are all sensors listed above capable of meeting NOAA HSSDM accuracy and object detection requirements? Provide information in the comments section.

II. DATA ACQUISITION AND PROCESSING

A. System Calibrations and/or Certifications

Yes A sensor offset and alignment survey was conducted to NOAA HSSDM requirements

Yes Offset values provided

N/A Patch tests were conducted for shallow-water multibeam systems

No Alignment bias and latency values provided

Yes Draft measurements were conducted

☐ Static Draft ✔ Dynamic Draft ☐ Loading

____ Draft values were provided

Unknown Sensors were calibrated in accordance with manufacturer requirements and NOAA specifications

Yes Calibration reports were provided.

B. Sound Velocity Corrections

See Comme Sound velocity sampling regimen is in accordance with NOAA HSSDM requirements

No Sound velocity profiles were supplied

N/A All profiles appear valid

C. Water Levels

See Comme Water level measuring equipment and methods are consistent with NOAA equipment and methods and are capable of meeting specifications

Equipment / method used: Unknown

No Tide corrector files were supplied

N/A All tide correctors appear valid

Yes Water level correctors applied to sounding data

☐ Verified ✔ Observed ☐ Predicted ☐ NOAA Zoning ☐ Other zoning

Unknown Water level error estimate provided by CO-OPS

Water level / zoning error estimate: Unknown

E. Survey Methodology

Yes The surveyor has conducted adequate quality control of horizontal positioning data

N/A DTM, BASE surface, and/or mosaics indicate that seafloor coverage requirements (per NOAA HSSDM) were met and no significant coverage holidays exist.

See Comme All least depths over shoals, wrecks, rocks, obstructions, and other features have been determined

Yes The Hydrographer has conducted the required quantity of cross lines, or acquired sufficient redundant data, in accordance with the HSSDM, to assess internal data consistency.

F. Data Processing and Quality Control

N/A An adequate description of data processing and quality control methods is provided in documentation.

Processing software used: _____

N/A Data processing methodology is robust enough and adequate to provide a dataset suitable for charting.

N/A Data have been reviewed and are cleaned appropriately with no noise, fliers, or systematic errors noted.

No Crossline agreement or redundant data overlap has been visually inspected by the hydrographer

No Disagreements have been noted

Yes A Chart comparison was conducted by the hydrographer

Yes Disagreements have been noted.

Please See Comment 4.

III. DATA QUALITY AND RESULTS

A. Internal Data Consistency

No — Full resolution data was provided in order to gauge the adequacy of cleaning and/or processing of the data.

Unknown — A review of the data reveals no positioning errors exceeding NOAA specifications

N/A — Crossline agreement or redundant data overlap shows no disagreements exceeding NOAA HSSDM tolerances.

N/A — **A**nomalous data (fliers, noise, etc) were apparent in the BASE surface, DTM, and/or selected sounding set.

N/A — Are there any tide errors exceeding NOAA HSSDM requirements observable in the data

N/A — Are there any observable SV errors exceeding NOAA HSSDM accuracy standards.

N/A — All shoals are valid (no fliers) and the proper least depth has been retained.

N/A — Where multiple systems, platforms, and/or sensors were used, junctioning or overlapping data agree within NOAA HSSDM tolerance between platforms.

N/A — Any statistical assessment of the data (e.g. BASE standard deviation, QC reports, etc) indicate that data agree within NOAA HSSDM tolerances.

B. Error Budget Analysis

Yes — An error budget analysis was provided by the surveyor

Comme — The error budget analysis indicates that data are capable of meeting NOAA HSSDM standards

Yes — The evaluator concurs with the provided error budget analysis

No — The evaluator has conducted an error budget analysis

N/A — The error budget analysis indicates that data are capable of meeting NOAA HSSDM standards

D. Automated Wreck and Obstruction Information System (AWOIS) Items

N/A — AWOIS Items are located within the limits of the survey.

N/A — AWOIS Items can be sufficiently confirmed or disproved using data from this survey (Attach AWOIS pages to the certification memorandum.).

E. Dangers to Navigation

N/A Dangers to Navigation (DTONs) were selected and submitted by the surveyor / data provider

N/A DTONs have been verified by the office evaluator.

N/A Additional DTONs were noted during office evaluation and submitted

F. Aids to Navigation

No Aids to Navigation (ATONs) were positioned during this survey

N/A New ATONS were positioned during this survey

N/A Survey positions match charted positions

N/A The surveyor / data provider issued DTONs or notified the USCG for any ATON discrepancies

N/A ATON discrepancies were noted during office evaluation and submitted as DTONs.

G. Shoreline and Bottom Samples

No The shoreline (MHW and/or MLLW lines) were included as part of this survey

N/A Surveyed shoreline matches charted shoreline

N/A Surveyed shoreline compares with NGS/RSD source data

N/A Surveyed shoreline should be used to revise nautical charts

No Shoreline features were positioned during this survey

N/A Surveyed features match charted shoreline

N/A Surveyed features compares with NGS/RSD source data

N/A Surveyed features should be used to revise nautical charts

No Bottom samples were acquired during this survey

N/A Bottom sample spacing was in accordance with NOAA HSSDM requirements

N/A Bottom samples should be used to update NOAA charts

IV. COMMENTS

Comment 1: Documentation states that sound velocity profiles were performed and attributed to the data. The data is not present and the documentation does not state the frequency of SV profiles.

Comment 2: In the Report of Survey it appears that a tide station was installed. The report does not go into detail about the methods or equipment used.

Comment 3: Least depths over shoal areas and bathymetric features during the survey could not be verified due to the lack of raw data.

Comment 4: Chart comparisons were conducted by the Reviewers for Surveys W00149 through W00154. The following charts were compared with the survey smooth sheet soundings: 18740, 18762, 18763, 18764, 18774. In general, smooth sheet depths agreed with charted soundings within 5 fathoms, with the exception of chart 18740 in which soundings were found to be up to 40 fathoms deeper than charted. Reviewers recommend that soundings supersede previous charts with the exceptions of soundings near shore features such as wrecks, rocks, obstructions, foul areas or reefs and where depths charted are shoaler than surveyed.

Comment 5: The San Clemente Post Survey Report included an Error Budget analysis in section 6.0. The report shows final values for horizontal and vertical error that meet IHO Order 1 specs and takes into account all required sources of error. However as no details of how the error analysis was conducted the reviewer could not verify the results.

DXF files were created for the survey:
= W00149_Depths.dxf
= W00150_Soundings.dxf
= W00151_Soundings.dxf
= W00152_Soundings2.dxf
= W00153_Soundings.dxf
= W00154_Soundings.dxf

COMPILERS NOTES:

Due to the lack of documentation, no shoal soundings in near-shore areas were superseded. In deeper areas where the data showed the area to be consistently deeper than charted, the charted data were superseded.

Do to scales, the smooth sheets were referenced by area and occasionally shifted during compilation for the best fit.

On chart 18763 there is a circled area of shoaling at approximately 33/01/00N, 118/31/30W. Ninety-five percent of the circle showing shoaling was covered with 100% multibeam. There was no evidence of shoaling. PHB recommends removing the note "Shoaling to 71 fm (Rep 1986)" and the associated dashed circle.

APPROVAL SHEET
W00149 – W00154

Evaluated by:

Digitally signed by Kurt Brown
Date: 2009.06.29 14:34:28 -07'00'

Kurt Brown
Hydrographic Team Leader
Pacific Hydrographic Branch

Review by:

Digitally signed by Kurt Brown
Date: 2009.06.29 14:34:53 -07'00'

Kurt Brown
Hydrographic Team Leader
Pacific Hydrographic Branch

Cartography

The evaluated survey has been inspected with regard to delineation of the depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data

Compiled by:

Gary C. Nelson
For Beth Taylor
2009.06.29 14:40:05 -07'00'

Beth Taylor
Cartographer
Pacific Hydrographic Branch

Reviewed by:

Gary C. Nelson
For Russ Davies
2009.06.29 14:40:37 -07'00'

Russ Davies
Cartographer
Pacific Hydrographic Branch

Approval

I have reviewed the data, and reports. Data are suitable for nautical charting except where specifically recommended in this report.

Gary C. Nelson
for Capt. Neander
2009.06.29 14:41:16 -07'00'

David O. Neander
Captain, NOAA
Chief, Pacific Hydrographic Branch

Digitally signed by David Scharff
DN: cn=David Scharff, o=OCS, ou=NOAA, email=david.scharff@noaa.gov, c=US
Reason: AWOIS and Surf Check complete
Date: 2009.07.21 08:45:58 -04'00'

NOAA FORM 75-96
(10-83)

U.S. DEPARTMENT OF COMMERC
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATI

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. W00149 - W00154

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
18762	5/18/09	B. TAYLOR	~~Full~~ (Part) ~~Before After Marine Center Approval Signed~~ Via PARTIAL
		R. DAVIES	~~Drawing No.~~ APPLICATION OF SOUNDINGS, FEATURES,
18763			+ CURVES FROM SMOOTH SHEETS
(INSET)	5/18/09	B. TAYLOR	~~Full~~ (Part) ~~Before After Marine Center Approval Signed~~ Via
			~~Drawing No.~~ APPLICATION OF SOUNDINGS, FEATURES,
			+ CURVES FROM SMOOTH SHEETS
18763	5/18/09	B. TAYLOR	~~Full~~ (Part) ~~Before After Marine Center Approval Signed~~ Via
		R. DAVIES	~~Drawing No.~~ APPLICATION OF SOUNDINGS, FEATURES,
			+ CURVES FROM SMOOTH SHEETS
18764	5/18/09	B. TAYLOR	~~Full~~ (Part) ~~Before After Marine Center Approval Signed~~ Via
		R. DAVIES	~~Drawing No.~~ APPLICATION OF SOUNDINGS, FEATURES,
			+ CURVES FROM SMOOTH SHEETS
18740	5/18/09	R. DAVIES	~~Full~~ (Part) ~~Before After Marine Center Approval Signed~~ Via
			~~Drawing No.~~ APPLICATION OF SOUNDINGS, FEATURES,
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SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED