

NOS Hydrographic Survey Bottom Sample Recovery

Daniel Neumann

National Oceanic and Atmospheric Administration

1315 East-West Highway, Station 6715

Silver Spring, Maryland 20910 USA

dan.neumann@noaa.gov 301-713-2698 Ext. 123

NGDC Map Service

<http://www.ngdc.noaa.gov/mgg/bathymetry/hydro.html>

The Plan

- Complete geographic position, display and bottom sample counts for the verified HSMDB
- Retain prioritized bottom sample sources
 - S-57 in CARIS HOB File
 - “M” Log Sheets
 - Descriptive Report bottom sample tables
 - Charted seabed types

Hydrographic Survey Meta Data Base (HSMDB)

- The HS MDB is oracle based data base of hydrographic survey meta data which can queried and displayed
- Only verified HS MDB surveys audited
 - H surveys H08000 to present
 - F surveys F00200 to present
 - All D and W surveys
- HS MDB Rap Sheets supported the audit

Sample S57 Text File

```
US 0008241246 00001,SBDARE,Point,32-49-11.73288N,079-54-23.33700W,  
NATSUR=4,  
SORDAT=20070200,SORIND=US,US,graph,chart 11524,  
NATQUA=UNKNOWN,NINFOM=Retain as charted
```

```
The geographic position 32 degrees 49 minutes 11.73288 seconds latitude  
79 degrees 54 minutes 23.3337 seconds longitude
```

```
NATSUR=4 Nature of Surface is "broken"  
(Allowed values for attribute NATSUR are 1-fine 2-medium 3-coarse 4-broken  
5-sticky 6-soft 7-stiff 8-volcanic 9-calcareous 10-hard
```

```
Survey identifier not given in example but can be extracted
```

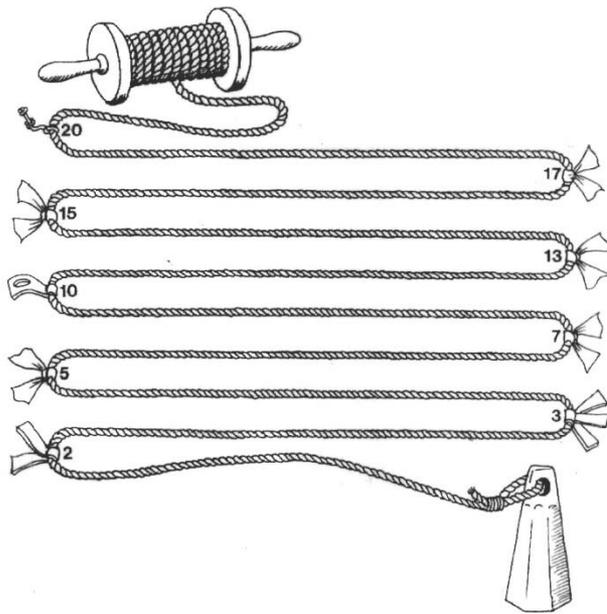
Sample "M" Log

NOAA FORM 75-44 (11-72)		OCEANOGRAPHIC LOG SHEET - M BOTTOM SEDIMENT DATA							U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION		
VESSEL		PROJ. NO.		YEAR				CHECKED BY	DATE CHECKED		
PEIRCE S-283		S-E404-PE-84		84	PE-20-2-84			BM	6-19-84		
Fix no. XXXXXX	DATE	SAMPLE POSITION		DEPTH Ft XXXXX	WEIGHT OF SAM- PLER	AP- PROX. PENE- TRA- TION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
		LATITUDE	LONGITUDE								
		38°	76°								
6817	15 Jun 1984	16/22	16/03	40.6	50lbs.	---	---	gy	M, fine S		
6818	"	16/08	17/09	40.1	"	---	---	gy	M		
6819	"	15/55	18/23	39.3	"	---	---	gy	M, fine S		
6820	"	15/38	19/33	40.1	"	---	---	gy	M		
6821	"	13/55	17/53	56.7	"	---	---	gy	M		

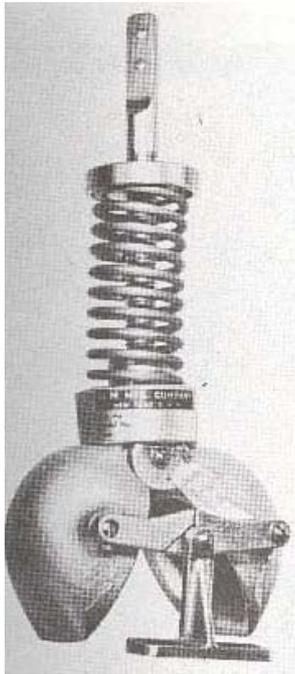
Sample DR Bottom Sample Table

CHART POSITION		DELETE CHARTED BOTTOM TYPE	CHART BOTTOM TYPE
LATITUDE	LONGITUDE		
17° 57' 48" N	066° 38' 01" W	h	M
17° 57' 38" N	066° 38' 21" W	rky ¹	M ²
17° 57' 07" N	066° 38' 17" W	h	M
17° 57' 06" N	066° 38' 30" W	rky	Sh, G
17° 58' 41" N	066° 38' 17" W	h	M
17° 58' 18" N	066° 38' 13" W	h	M

Hand Lead Lines



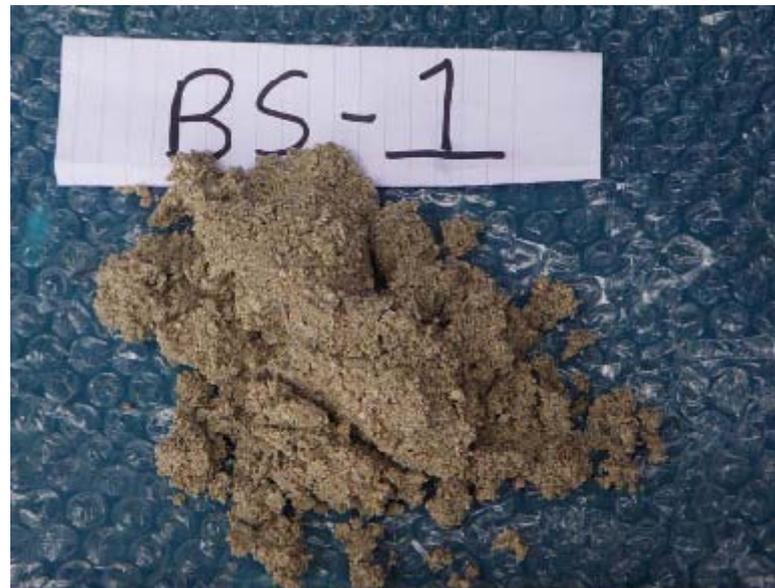
Mud Sampler



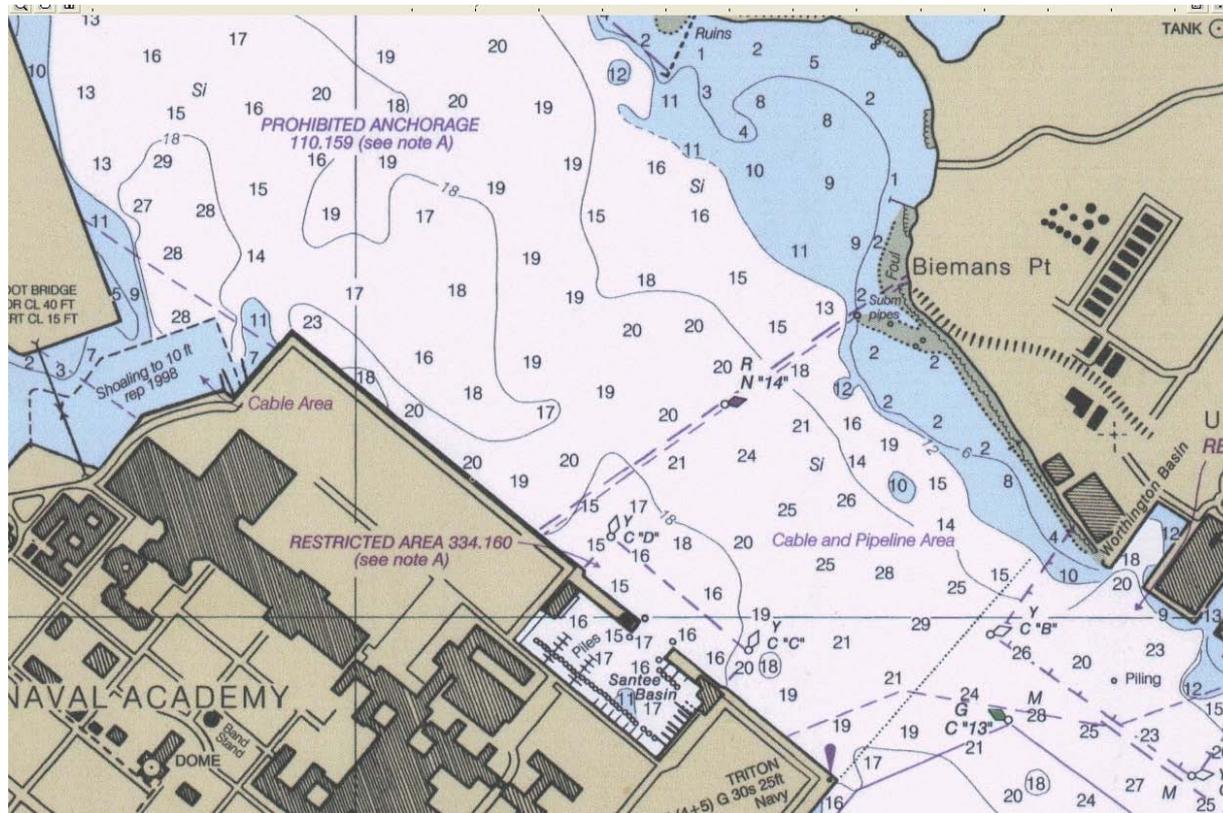
Grab Sampler



OSI Bottom Sample Designation	Latitude (NAD83)	Longitude (NAD83)	Depth (meters)	Description
BS-1	26.0536514	80.07783911	57.3	Fine sand, light grey



Bottom Samples From Sample Nautical Chart



Recap Sample Bottom Sample Sources

<u>Source</u>	<u>Priority</u>
S57	1
“M” Log	2
Descriptive Report table	3
Charted bottom samples	4

HSMDB Rap Sheet Two Tiered Bottom Sample Display

HYDROGRAPHIC SURVEY H09429 RAP SHEET

HYDROGRAPHIC SURVEY H09429 RAP SHEET								
PROJECT INFORMATION								
PROJECT DATE	APPROVAL DATE	FIELD NUMBER	SHEET	PROJECT NUMBER(SURVEY)	FIELD UNIT	Chief of Party	Scale	
19740208	19750415	WH-40-2-74	None	-- No Information --	USC&GS Ship WHITING (S329)			
LOCATION AND DATUMS								
SUBLOCALITY	PROJECT NAME	VERTICAL DATUM	HORIZONTAL DATUM	VERTICAL UNITS	VERTICAL RESOLUTION	PROJECTION		
-- No Information --	East of Sapelo Island, Georgia	MLW	North American Datum 1927	Feet	1	Unknown		
REFERENCES								
Junction Surveys	Prior Surveys	Electronic Navigation Charts	SURVEY PURPOSE	NOAA Program				
			Update Nautical Chart(s)					
STATISTICS								
TOTAL LINEAR NM	TOTAL SQUARE NM	TOTAL SOUNDINGS	SELECTED SOUNDINGS	LINEAR NM BOTTOM DRAG	SQUARE NM BOTTOM DRAG	LINEAR NM CHAIN DRAG	Bottom Samples	
-- No Information --	-- No Information --	-- No Information --	-- No Information --	-- No Information --	-- No Information --	-- No Information --	5 (Smithsonian)	
LINEAR NM MAINSCHEME VERTICAL BEAM	MAXIMUM PERCENT VERTICAL BEAM COVERAGE	LINEAR NM MAINSCHEME MULTIBEAM	MAXIMUM PERCENT MULTIBEAM COVERAGE	LINEAR NM MAINSCHEME SIDESCAN	MAXIMUM PERCENT SIDESCAN COVERAGE	MAXIMUM PERCENT LIDAR COVERAGE		
-- No Information --	-- No Information --	-- No Information --	-- No Information --	-- No Information --	-- No Information --	-- No Information --		
OPERATION, NAVIGATION, AND TIDES								
Navigation	USCG DGPS Correctors	Sound Velocity Profiles	Tide Station	Tide Note	Tide Zoning	CO-OPS Tide Station Map		
ACQUISITION, AND ARCHIVE								
NATIONAL ARCHIVES AND RECORDS ADMINISTRATION				NGDC ARCHIVE DATES				
DR ARCHIVE	SURVEY ARCHIVE	DR ARCHIVE	MRSID ARCHIVE	TIFF ARCHIVE	RAW DATA	PROCESSED DATA	TOTAL DATA SIZE	
-- No Information --	-- No Information --	-- No Information --	-- No Information --	-- No Information --	-- No Information --	-- No Information --	-- No Information --	

Survey	Sample	Latitude	Longitude	Description	Source	orig. datum
H09429	SD00008039.01	31.38667	-81.07333	SAND FINE BROWN,SHELL BROKEN	NMNH	unkn
H09429	SD00008040.01	31.475	-80.905	SAND FINE GRAY,SHELLS BROKEN	NMNH	unkn
H09429	SD00008041.01	31.57667	-80.98333	SAND FINE GRAY,SHELLS BROKEN	NMNH	unkn
H09429	SD00008042.01	31.58667	-80.79333	SAND FINE GRAY,SHELLS	NMNH	unkn
H09429	SD00009754.01	31.38667	-80.79	SAND COARSE BROWN,SHELLS	NMNH	unkn

More of the Plan

- Develop methodology and tools to de-conflict bottom sample source count and NGDC display
- When no bottom samples have been collected, the user is referred to charted bottom samples

Summary

- Complete bottom sample audit on verified portion of HSMDB
- Develop de-conflict methodology and tools
- Verify that each HSMDB survey has bottom sample information from best source
- Go farther back after verified portion of HSMDB is completed