MESOAMERICAN AND CARIBBEAN SEA HYDROGRAPHIC COMMISSION
10th Meeting, Bridgetown, Barbados , 03-06 November 2009

NATIONAL REPORT – BRAZIL

1. Hydrographic Office / Service:	Directorate of Hydrography and Navigation (DHN)
2. Surveys:	Coverage of new surveys: during the last year, the Brazilian Navy Hydroceanographic Ship Garnier Sampaio conducted surveys at the North Entrance of Amazon river.
3. New charts & updates:	3.1) There were no new paper charts edited. 3.2) ENC cells produced: BR4 00201 Barra Norte do Rio Amazonas BR4 00202 Da Ilha Bailique à Ponta do Capinal BR4 00203 Da Ponta do Capinal às Ilhas Pedreira BR4 00204 Das Ilhas Pedreira à Ilha de Santana BR4 00302 De Salinópolis ao Canal do Espadarte (NE) BR4 00303 Do Cabo Maguari à Ilha Coroa Grande BR4 00304 De Mosqueiro a Abaetuba BR4 00314 Do Baixo do Espadarte à Boca do Vigia BR4 00315 Da Boca do Vigia a Mosqueiro BR5 00206 Porto de Santana BR5 00320 Porto de Belém BR5 00321 Porto de Vila do Conde 3.3) Arrangements are being made with SHOM to Coordinate coverage and compilation scale of necessary ENC cells at the border between Brazil and French Guiana. 3.4) ENC Cell BR321100 and paper chart INT 2104 currently in production.
4. New publications & updates:	4.1) New Publication - DHN/2009, "List of Nautical Charts and Publications - DH20". 4.2) Updated publications: - List of Lights DH2 31rd Reedition 2009; - Compass Book – 5th Reedition 2009; New Editions: - Catalog of Nautical Charts and Publications DH7 (by DEZ09); - List of Radio Signals DH8 (by DEZ09); e - List of Lights DH2 (by DEZ09). 4.3) Means of delivery: paper by mail and digital format accessible at DHN INTERNET site.
5. MSI	5.1) Brazilian Navy Hydrographic Centre (CHM) is responsible for receiving, processing and promulgating MSI for NAVAREA V area, on behalf of Directorate of Hydrography and Navigation (DHN), in accordance with GMDSS Master Plan. 5.2) SafetyNET service: navigational warnings are broadcasted at scheduled time (0030 and 1230 UTC). Meteorological information is broadcasted at scheduled

	times (0730 and 1930 UTC). 5.3) VHF/HF radio band: MSI is broadcast by Rio de Janeiro Navy Radio station at least three times a day. 5.4) Local navigational warnings are broadcasted by VHF/HF radio band only.

SERVICE	Yes	No	Partial	NOTES
LOCAL WARNINGS	X			
COASTAL WARNINGS	X			
NAVAREA WARNINGS	X			
INFORMATION ON PORTS AND HARBOURS	X			

GMDSS IMPLEMENTATION (IMO Publication 970 - GMDSS Handbook)

SERVICE	Yes	No	Partial	NOTES
Master Plan	X			
A1 Area		X		
A2 Area		X		
A3 Area	X			
NAVTEX		X		
SafetyNET	X			

6. S-55

1. HYDROGRAPHIC SURVEYING

1.1 Status of hydrographic survey of all navigable waters, including internal waters, out to the limits of the EEZ:
Survey coverage, where:
A = percentage which is adequately surveyed.
B = percentage which requires re-survey at larger scale or to modern standards.
C = percentage which has never been systematically surveyed

	A	**B**	**C**
Depths < 200m	25	72	3
Depths > 200m	0	100	0

Amplifying information: The concept of EEZ is not applicable

2. NAUTICAL CHARTING

If you do have a nautical charting capability, complete the details below:

2.1 Status of nautical charting within the limits of the EEZ
Coverage of charts published by your organisation, where:
A = percentage covered by INT series, or a paper chart series meeting the standards in M-4.
B = percentage covered by Raster Navigational Charts (RNCs) meeting the standards in S-61.

C = percentage covered by ENCs meeting the standards in S-57.

Purpose/Scale	A		B		C
	INT	National series	INT	National series	
Offshore passage/Small	30		13		0
Landfall and Coastal passage/Medium	70		62		7
Approaches and Ports/Large		100		96	100

7. Capacity Building

a) Training needed: XXX
b) Training and courses offered:

COURSE	DESCRIPTION	DURATION	REQUIREMENTS
C-Esp-HN	To qualify the student to be a technician in Hydrography and Navigation issues. Contents: Astronomy, Meteorology, Navigation, Cartography, Geodesy, Tides Hydrographic Surveys, Oceanography, Topography and Practical Hydrography	42 weeks	Elementary school
C-Ap-HN	To increase the capacity of the student to be a technician in Hydrography and Navigation. Contents: Astronomy, Meteorology, Navigation, Cartography, Geodesy, Tides, Hydrographic Surveys, Oceanography, Topography and Practical Hydrography	35 weeks	High School C-Esp-HN
CAHO (IHO Cat."A")	To provide the student with the capacity to plan, to conduct and to execute the activities related with the Hydrographic Service. Contents: Oceanography, Topography, Meteorology, Geodesy, Marine Geology, Aids to navigation, Cartography, Tides, Navigation, Submarine Acoustic, Remote Sensing and Photogrametry, Production of the Nautical Chart, Hydrography I and II, Error Theory, and Practical Hydrography.	50 weeks	To be graduated in Naval Sciences, Cartography, Physics, Mathematic, Statistics, Geology, Geophysics, Oceanography, Meteorology, Computer Science and correlated sciences
Hydro 1	To plan a hydrographic survey.	66 hours	Graduation in Naval

COURSE	DESCRIPTION	DURATION	REQUIREMENTS
			Sciences or Cartographic Engineering.
Hydro 2	To conduct and to execute a hydrographic survey using singlebeam ecosounders, multibeam ecosounders and side scan sonars.	98 hours	Graduation in Naval Sciences or Cartographic Engineering, Hydro 1
Tide	To introduce the tide theory learning how to predict and how to get a harmonic analyses to a hydrographic survey use.	83 hours	Graduation in Naval Sciences or Cartographic Engineering.
Cartography	To describe and to use cartographic projection systems commonly applied in hydrography.	45 hours	Graduation in Naval Sciences or Cartographic Engineering.
NC Production	To introduce the characteristics and the processes of the construction and updating of a Nautical Chart.	33 hours	Graduation in Naval Sciences or Cartographic Engineering, Cartography.
Training in singlebeam acquisition and processing	To promote a day by day follow up of the singlebeam acquisition and of the processing tasks onboard.	-	Graduation in Naval Sciences or Cartographic Engineering, Hydro 1, Hydro 2.
Training in multibeam acquisition and processing	To promote a day by day follow up of the multibeam acquisition and of the processing tasks onboard.	-	Graduation in Naval Sciences or Cartographic Engineering, Hydro 1, Hydro 2.
Training in Side Scan operation	To promote a day by day follow up of the side scan operation onboard.	-	Graduation in Naval Sciences or Cartographic Engineering, Hydro 1, Hydro 2.
Training in gauges operation	To promote a day by day follow up of the gauge operation onboard.	1 week	Graduation in Naval Sciences or Cartographic Engineering, Tide.
Training in GPS survey and post processing	To plan a GPS network, to carry out a classical survey, to post-process baselines and to adjust geodetic coordinate network stations.	1 week	Graduation in Naval Sciences or Cartographic Engineering, Hydro 1, Hydro 2.

c) Projects under development:
- Workshop on ENC Production – Oct 2009;
- Multibeam course – Nov 2009;and
- Workshop on geospatial data processing and management – 2011.

8. Oceanographic activities	8.1) General: deployment of XBTs by Navy Ships at international waters and the operation and annual maintenance of eight PIRATA moored buoys by Hydrographic Navy Ships. Oceanographic operations are increasing at the Amazon region. 8.2) GEBCO/IBC's activities: routine GEBCO soundings are performed by the Hydrographic Navy Ships employed at oceanographic commissions in the area and in annual maintenance of eight PIRATA moored buoys. 8.3) Tide gauge network: It was installed radars and encoders sensors in Santana Harbour, Vila do Conde Harbour and Belém Harbour. This is part of a plan for collecting updated tidal data to improve tides predictions and to migrate Brazilian chart datum to LAT. Besides it will improve the hydrodynamic model under implementation for that area.
9. Other activities	Participation in IHO Committees / Working Groups: IRCC, HSSC, SCUNF, HDWG, WWNWS, CBSC, GEBCO, TSCOM, TSMAD, SNPWG, CSPCWG, TWLWG, MSDIWG, and ABLOS.
10. Conclusions	DHN is committed to carrying forward hydrographic, cartographic and capacity building activities in cooperation with other Members of the Meso American and Caribbean Sea Hydrographic Commission.