

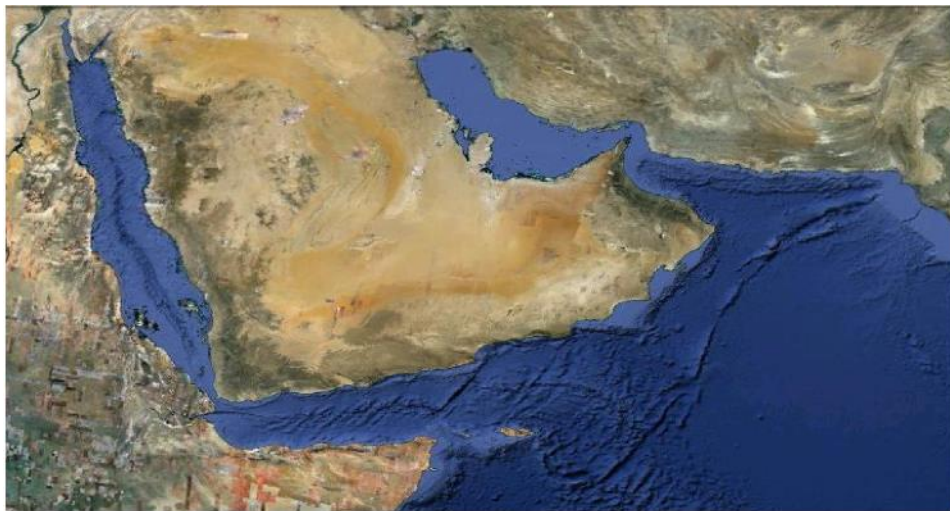


PAKISTAN

NATIONAL REPORT

6th MEETING

ROPME SEA AREA HYDROGRAPHIC COMMISSION (RSAHC)



Abu Dhabi, UAE

09-11 February 2015

PAKISTAN NAVY HYDROGRAPHIC DEPARTMENT

HYDROGRAPHIC DEPARTMENT OF PAKISTAN **(NATIONAL REPORT)**

1. Pakistan Navy Hydrographic Department (PNHD) was established in 1949 and became member of IHO in 1957. As a National Hydrographic Organization, the department is primarily responsible for conducting hydrographic surveys of coastal and offshore waters of Pakistan and publishing nautical charts and relevant publications to fulfill national and international requirements. The department is well equipped to undertake surveys as per IHO standards and has already published a series of International / National charts for the entire coast of Pakistan. PNHD comprises Charting Centre, Chart Depot, ENC Division, HQ NAVAREA IX, Survey Vessel/boats and Hydrographic School. Since 1976, Pakistan is also shouldering the responsibility of NAVAREA IX coordinator for promulgation of Maritime Safety Information.

HYDROGRAPHIC SURVEYS

2. Pakistan's coast is approximately 990 Kms long and by the virtue of its unique characteristics, is divided into 02 parts; Makran coast & Sindh coast. The later lies from east of Karachi till Pakistan India border at Sir Creek and is mainly comprised of deltaic regions because of outfall creeks of Indus river. Whereas, Makran coast lies from west of Karachi to Gawatar Bay bordering with Iran, consisting of sandy shores and sedimentary cliffs.

3. PN Hydrographic Department is responsible for undertaking hydrographic survey activities in Pakistani waters. Hydrographic cum oceanographic survey vessel BEHR PAIMA conducts survey of coastal as well as deep waters. Continuous efforts have been made to survey critical areas for safe navigation within Pakistani waters. The department is presently involved in fresh surveys of important areas, which includes deep sea bathymetric surveys of international shipping routes. Detailed information in this regard is as under.

- a. **Coverage of New Surveys.** Survey activities from coast to 200m offshore is being undertaken to improve the coverage in A1 category area and about 90% coverage is complete. Nautical charts of deep sea area that falls under A2 category are relatively old. Work to complete deep sea (> 200m) area

using new survey equipment and techniques is in progress at a moderate pace due to survey commitments in high priority areas. However, a considerable portion of deep sea area has been recently surveyed offshore Indus delta. The same will be utilized to update small scale charts of major shipping routes.

b. **New Technologies / Equipment.** SV BEHR PAIMA is well equipped to undertake all kind of hydrographic and physical oceanographic surveys. State-of-the-art sensors like multi-beam echo sounder, deep sea echo sounder, multi frequency digital side scan sonar, RTK & Satellite based DGPS, SV Probe, CTD, Moving Ship Velocity Profiler, Current Meters and Automatic Tide Gauges etc equipment is part of the ship's inventory.

NEW CHARTS AND UPDATES

4. **ENCs.** ENC division was established in 2005 and since then considerable headway has been made in ENC production. Detail of the same is given below:

a. ENCs of all major ports i.e Karachi Harbour, Port Qasim and Gwadar Deep Water Port are available to mariners.

b. Coastal charts that can facilitate mariners and fall within the major shipping routes have been converted to ENCs. Additional ENCs are also being produced.

c. **ENC Distribution Method.** Pakistan being member of IC-ENC is utilizing its services for data validation and distribution of ENCs. Necessary quality checks of ENCs are conducted prior forwarding to IC-ENC for validation through different software which improves the quality of products.

d. **RNCs.** It may be highlighted that PNHD is neither producing nor has plans to produce RNCs.

5. **INT /National Paper Charts.** Pakistan Navy Hydrographic Department has published 41 charts of different scales covering entire coast and off shore waters of Pakistan. These are kept up to date. Out of these, 8 charts presently form part of INT Area "I & J".

NEW PUBLICATIONS & UPDATES

6. **New / Updated Publications.** Following publications are printed by the Hydrographic Department on annual, and weekly basis.

- a. Weekly Notices to Mariners (NTMs).
- b. Annual Summary of Pakistan NTMs
- c. Annual Pakistan Tide Table.
- d. Annual Sun & Moon Rise / Set Table.

7. In addition to the printed version of said documents, up-to-date information on navigational warnings and NTMs are also available on website www.paknavy.gov.pk/hydro). Moreover, issuance of a List of Lights of national waters is planned.

8. Pakistan being Coordinator is responsible for transmission of MSIs in NAVAREA IX. Under GMDSS, following two types of MSI are issued:

- a. NAVAREA IX warnings through International Safety Net.
- b. Coastal warnings through NAVTEX (Presently Non-ops) as alternate important coastal warnings are routed on Safety Net.

9. **NAVAREA IX Warnings.** NAVAREA IX broadcast is passed daily at 0300 and 1500 UTC through INMARSAT via LES Burum. Whereas, unscheduled broadcast for urgent navigational warnings is done at any time. A numerical list of all enforced NAVAREA IX warnings is broadcasted each Saturday. A reprint of all NAVAREA IX warnings issued during a week is also included in the weekly edition of Pakistan Notices to Mariners.

10. **Coastal Warnings.** Due to non-availability of NAVTEX services Coastal warnings are also being disseminated through Safety Net.

11. **Monitoring of MSI Broadcast.** In order to ensure the integrity of MSIs being received by mariners, Coordinator NAVAREA IX monitors its broadcasts by placing an INMARSAT C terminal at shore.

12. **Problems Encountered.** Navigational hazards occurring in the region are effectively communicated by relevant state, for further issuance of Nav warnings through Fax, email and telephone. The most effective mean has been through e-mail. However, few countries are not maintaining communication through e-mail and use other means such as fax and post, which at times causes delays. Details are covered in NAVAREA–IX brief.

HYDROGRAPHIC SURVEYING & NAUTICAL CHARTING WORLD WIDE (S-55)

13. PNHD regularly assesses status of hydrographic surveying & nautical charting of all navigable waters within the limits of national jurisdiction and the EEZ. Based on this assessment, S-55 i.e Hydrographic Surveying and Nautical Charting World Wide is kept updated. Composite contents of the same are reproduced at Annex A.

CAPACITY BUILDING

14. In order to maintain quality of hydrographic products as per recognized international standards, Pakistan Navy Hydrographic Department attaches special emphasis on capacity building aspect of officers and men. Accordingly, officers undergo Cat B course from countries including Japan, Australia and USA and Cat A from UK and masters in oceanography from USA as they progress in the hydrographic service. Officers are also trained in traditional and electronic cartography from renowned international institutes like UKHO. Sufficient training facilities are available to train the survey recorders within country also.

15. Pakistan Navy Hydrographic Department can offer assistance to regional countries in following areas:

- a. Hydrographic surveys.
- b. Geodetic and bathymetric data processing / production of charts.
- c. Basic Survey Recorder / Technician Course.
- d. Assistance in ENC production line procedures and quality management system.
- e. Handling of MSIs.
- f. Cat B Hydrographic Course.
- g. Setting up of Hydrographic school.

16. **Port and Shallow Water Bathymetry Course.** International Hydrographic Organization Capacity Building Committee (IHO/CBC) invited Pakistan to provide 02 hydrographic instructors for 5 days Port and Shallow Water Bathymetry course at Abu Dhabi, UAE from 22-26 Sep 14. During the 5th RSAHC meeting, it was decided to conduct the course at Abu Dhabi, UAE to facilitate maximum participation/benefits to developing countries in the region as the traveling/ accommodation funding requirement would not be a factor if the course was held in Gulf state. A total of 12 participants attended the course.

17. PN Hydrographic School is contributing to train regional countries survey officers and technician in various cadres from time to time. Following courses were conducted in the last 7 years:

Country	No. of Candidates	Year	Course Name
Nigeria	01	2008	Basic Cartographic Officers Course
Azerbaijan	01	2009	Basic Hydrography Officers Course
Sir Lanka	01	2009	Basic Hydrography Course
UAE	01	2009	Basic Hydrography Course
Sir Lanka	02	2009	Basic Cartographic Officers Course
Bangladesh	01	2009	Advance Professional Course
Sudan	01	2010	Advance Professional Course
Sudan	01	2010	Basic Hydrography Officers Course
Sri Lanka	01	2010	Basic Hydrography Officers Course
Nigeria	01	2010	Basic Hydrography Officers Course
Bangladesh	01	2010	Basic Hydrography Officers Course
Azerbaijan	01	2011	Basic Hydrography Officers Course
Sir Lanka	02	2012	Basic Cartographic Officers Course
Sudan	02	2012	Basic Cartographic Officers Course
Sudan	01	2012	Basic Hydrography Course
Bangladesh Sir Lanka Sudan	01 Each	2013	Basic Hydrography Officers Course

OCEANOGRAPHIC ACTIVITIES

18. **General.** Oceanographic activities in Pakistan are carried out in collaboration with National Institute of Oceanography (NIO) and marine universities. Oceanographic cruises are arranged in which scientists from both the organizations participate actively for various oceanographic observations and data collection. The processing of data is carried out at NIO, which is adequately equipped for undertaking such tasks. PN Hydrographic Department provides facilities of SV BEHR PAIMA for oceanographic cruises.

19. **Tide Gauge Network.** Pakistan is working on the installation of national network of precise, satellite aided, fully automated tide gauges along the coast. At present, three tide gauges i.e. at Karachi, Ormara and Gwadar are working and data is being transmitted. The data received from tide gauge network is being used for sea level measurements, tidal analysis for subsequent tide predictions and tsunami early warning etc. One more tide gauge is planned to be installed at Keti Bandar and data will be available on internet in near future.

20. **Acquisition of New Survey Ship.** In view of the increasing requirement of oceanography and marine sciences, efforts are in hand to acquire an additional hydrographic cum oceanographic vessel.

OTHER ACTIVITIES

21. **Participation in IHO Working Groups.** Pakistan actively participates in IHO working groups.

- a. Working Group on Special Publication (S-23).
- b. Chart Standardization and paper chart working group (CSPCWG).

22. **Participation in Hydrographic Activities.** Pakistan Navy has successfully accomplished joint international surveys with various countries and organizations in support of regional capacity building. Salient are as under:

- a. Joint survey of Sir Creek with India in 2007.
- b. Joint survey of RSNF harbour at Jeddah, Saudi Arabia in 2007.

- c. Joint survey of Port Salalah approaches, Oman in 2007.
- d. Joint international Hydrographic survey around Bird and Denis Islands in Seychelles Waters from 19 Jan to 03 Feb 09.

23. **Meteorological data Collection.** Meteorological data from various sources including automatic weather station installed at the coast is acquired and maintained at met data bank of Pakistan coast and North Arabian Sea. Moreover, close liaison is maintained with Pakistan Met Department to monitor the weather changes.

24. **Dredging Activities.** PNHD is also involved in dredging activities in order to address PN requirements. In this regard a Trailing Suction Hopper Dredger (TSHD) of 2,500 Ton capacity was acquired in 2008. The platform is being run effectively.

CONCLUSION

25. PN Hydrographic Department is carrying out surveys of waters under national jurisdiction as per IHO standards. In addition, PNHD is actively participating in all national, regional and international maritime activities / forums. PNHD has completed the surveys of entire coast of Pakistan and has published relevant charts. At present, resurveys of critical areas and new surveys including deep sea surveys are being undertaken. As a coordinator of NAVAREA IX, responsibility for promulgation of navigational warnings is being effectively fulfilled. In addition, ENC cells concerning major ports and small scale ENCs adequately covering shipping route of Arabian Sea have been made available to commercial shipping.

**ANNEX A TO NATIONAL
REPORT-PAKISTAN**

IHO S-55:	PAKISTAN	UPDATED	20 JANUARY 2015	INT Region	I
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Status of Hydrographic Surveys

A1	A2	B1	B2	C1	C2	A1/A2 = % adequately surveyed 0-200m / >200m
90	30	10	70 ₁	0	70 ₁	B1/B2 = % requiring re-survey at larger scale or to modern standards 0-200m / >200m
						C1/C2 = % which has never been systematically surveyed 0-200m />200m

Comments:

1. Data for 70 % area with depths > 200 m is based on miscellaneous lines of soundings. This needs to be systematically surveyed on modern standards, which is being undertaken gradually.

Status of Nautical Charting

A = % covered by INT Charts B = % covered by RNC C= % covered by ENC

Offshore passage/Small			Landfall Coastal passage / Medium			Approaches Ports/Large		
A	B	C	A	B	C	A	B	C
100	0	66	100	0	25	100	0	100

Comments:

1. Small scale ENC cells of INT-751 and INT 7019, adequately covering shipping route through Arabian Sea, are available to mariners.
2. Coastal charts that can facilitate mariners and fall within the major shipping routes have been converted to ENCs. Adjacent cells to these ENC cells are also under production and will be available to mariners shortly.

Status of Maritime Safety Information

Local Warning	Coastal Warning		Port Information		NAVAREA Warning	
No	Yes		Yes		Yes	
Master Plan	Area A1	Area A2	Area A3	Area A4	NAVTEX	SafetyNET
	YES	YES	YES	YES	YES	YES

Comment:

1. All local information necessary for safety of navigation are promulgated through coastal warning.

