



**PAKISTAN
NATIONAL REPORT**

20th MEETING

NORTH INDIAN OCEAN HYDROGRAPHIC COMMISSION (NIOHC)

13 – 15 JULY 2021

BY

PAKISTAN NAVY HYDROGRAPHIC DEPARTMENT

HYDROGRAPHIC DEPARTMENT OF PAKISTAN

1. Pakistan Navy Hydrographic Department (PNHD) was established in 1949 and Pakistan became member of IHO in 1957. The department is primarily responsible for conducting hydrographic surveys of coastal and offshore waters of Pakistan, 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 published a series of International / National charts for the entire coast of Pakistan. PNHD comprises Cartographic Division, Chart Depot, ENC Division, HQ NAVAREA-IX, Survey Vessels and Navigation & Hydrography School. Pakistan is shouldering responsibility of NAVAREA-IX coordinator on behalf of Govt of Pakistan for promulgation of Maritime Safety Information since 1976.

HYDROGRAPHIC SURVEYS

2. Pakistan's coast is 1001 Kms long and by virtue of its unique characteristics, is divided into 02 categories; Makran coast & Indus Delta (creek area). The later lies from east of Karachi till Sir Creek and is mainly comprised of deltaic region due to out fall of Indus River. Whereas, Makran Coast lies west of Karachi till Gwatar Bay bordering with Iran, consisting of sandy shores and sedimentary cliffs. Hydrographic cum oceanographic survey vessels BEHR PAIMA & BEHR MASA conduct 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 areas of interest. Detailed information in this regard is as under:

a. **Coverage of New Survey** Survey activities from coast to 200m offshore is being undertaken to improve the coverage in A1 category area and about 95% 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 surveyed offshore Indus delta. The same is being utilized to update small scale charts of major shipping routes.

b. **New Ship** In view of the increasing requirements, Pakistan has inducted a new survey vessel (PNS BEHR MASA) on 04 Nov 2019. This has enhanced hydrography, oceanography and marine sciences capabilities. The ship is equipped with state of the art hydrographic, oceanographic and geophysical equipment e.g. MBES, Sub bottom profiler, Synthetic Aperture Sonar and ADCP e.t.c. PNHD utilizing this ship for shallow and deep sea surveys.

c. **Problems Encountered** No problems were encountered w.r.t conduct of hydrographic surveys.

NEW CHARTS AND UPDATES

3. **ENCs** ENC Division was established in 2005 and since then it is progressing ENC production. Detail of the same is given below:

- a. ENC's of all major ports and approaches i.e. Karachi, Port Qasim and Gwadar Deep Water Port are available to mariners. Production of remaining all ENC's including local series will be completed by Mid 2022.
- b. Small scale ENC cells of INT-751 (Bombay to Masqat) and INT 7019 (Karachi to Ras Al-Hadd), covering shipping route through Arabian Sea, have been produced. However, there is an issue pertaining to overlapping between ENC's of INT 751 and corresponding Indian national cell.
- c. New ENC's of Karachi Deep Water Port and Approaches to Churna (approach Nav band) have been developed.
- d. **ENC Distribution Method** Pakistan being member of IC-ENC is utilizing its services for data validation and distribution of ENC's. Necessary quality checks of ENC's are conducted prior forwarding to IC-ENC for validation through different software's which improves the quality of products.
- g. **RNCs** PNHD is neither producing nor has plans to produce RNCs.
- h. **INT / National Paper Charts** PNHD have published 42 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" of S-11.
- j. **Other Charts** PNHD is not producing any other type of charts e.g. pleasure crafts charts etc.
- k. **Problems Encountered** No problems were encountered w.r.t production of Charts/ ENC's.

NEW PUBLICATIONS & UPDATES

- 4. **New / Updated Publications** Following publications are printed by PN Hydrographic Department on weekly and annual basis.
 - a. Weekly Notices to Mariners (NTMs).
 - b. Annual Summary of NTMs.
 - c. Annual Pakistan Tide Table.
 - d. Annual Sun & Moon Rise / Set Table.

MARITIME SAFETY INFORMATION

- 5. Pakistan being NAVAREA-IX Coordinator is responsible for transmission of MSIs. Under GMDSS, following two types of MSI are issued:
 - a. NAVAREA IX warnings through International Safety Net.

b. Coastal warnings.

c. **NAVAREA IX Warnings** NAVAREA IX broadcast is passed daily at 0300 and 1500 UTC through INMARSAT and IRIDIUM Satellites. Whereas, unscheduled broadcast for urgent navigational warnings is made as and when required. All NAVAREA IX warnings are also made available as website (www.pak.gov.pk/hydro). Numerical list of all enforced NAVAREA IX warnings is broadcasted each Saturday. Reprint of all NAVAREA IX warnings, issued during a week, is also included in the weekly edition of Pakistan Notices to Mariners.

d. **Coastal Warnings.** Coastal warnings are broadcasted as and when required. Weather messages are transmitted at 0800 and 1800 UTC daily. NAVTEX setup is being upgraded and warnings are issued using alternate available options.

e. **Monitoring of MSI Broadcast.** In order to ensure integrity of MSIs being received by mariners, Coordinator NAVAREA IX monitors its broadcast through INMARSAT C terminal.

f. **Delayed Reception of Navigational Information**
Navigational hazards are communicated by relevant state through fax, email and telephone, for further issuance of Navigational warnings by NAVAREA-IX HQ. The most effective mean has been through email. However, at time such communication is made through fax and post, which causes delays.

(C-55)

6. Status of C-55 is as under:

Depth	A	B	C
<200m	95	5	0
>200m	47	53	0

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

CAPACITY BUILDING

7. 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 Australia/USA and Cat A from UK as they progress in the hydrographic service. Officers are also trained in traditional and electronic cartography from renowned international institutes. Sufficient training facilities are available to train the survey recorders within country also. In 2020/21, 02 officers of PNHD have

undergone/ undergoing Cat B hydrography from Indonesia. Whereas, 01 officer is presently undergoing MS Physical Oceanography in US. 01 x officer is doing MS leading to PHD in satellite derived Bathymetry from Australia. In addition, 05 Pakistani officers have undergone Cat B Hydrography course in 2020 from Navigation and HydroSchool Pakistan. Pakistan Navy Hydrographic Department can offer assistance to regional countries in following areas:

- a. Hydrographic surveys.
- b. Basic Survey Recorder / Technician Course (6 months).
- c. Assistance in ENC production line procedures and quality management system.
- d. Handling of MSIs.
- e. Cat B Hydrographic Course.

OCEANOGRAPHIC ACTIVITIES

8. General Oceanographic activities in Pakistan are carried-out by PNHD in collaboration with Pakistan National Institute of Oceanography (NIO). 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 services of survey vessels to NIO on request basis for oceanographic cruises.

- a. Tide Gauge Network four in number automated tide gauges i.e. at Karachi, Ormara, Gwadar and Keti Bandar have been installed with the assistance of IOC. The tidal data besides supporting Tsunami warning analysis, is also being used for sea level measurements and tidal analysis for subsequent tide predictions.
- b. Equipment under procurement The new survey vessel is equipped with Wave meter, ADCP and Rosette Water Sampler. Induction of this equipment would further enhance oceanographic capability of PNHD.

OTHER ACTIVITIES

9. PNHD actively participates in following hydrographic related activities
- a. Support various maritime and research activities in our waters.
 - b. Maintenance of National Hydrographic Data Bank (NHDB).

c. Awareness campaign regarding MSDI and its benefits among various stakeholders. In this regard, PNHD presented a paper at the forum of National Institute of Maritime Affairs on World Hydrography Day 2021.

CONCLUSION

10. 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**INPUT TO IHO PUBLICATION P-5 (YEARBOOK)**

Following changes have been incorporated in IHO Publication P – 5 (Yearbook):

National Hydrographer or equivalent	Hydrographer of Pakistan Navy Captain Muhammad Wasim PN Postal address: Naval Headquarters, 11 Liaquat Barracks, KARACHI, 75530, Pakistan Tel: +92 21 485 06151 Fax: +92 21 9920 1623 E-mail: hydropk@paknavy.gov.pk
Other point(s) of contact	Director of Hydrography, Captain HarisSarwarRana PN Deputy Hydrographer , CdrMudassirRiaz PN Area Coordinating Off and OI/C Chart Depot, Lt CdrManzoor Ahmed PN Staff Officer Hydrography, Lt CdrAdil Shan PN Computer/System Manager), Lt Cdr Muhammad Salman Shakir PN Manager ENC, Lt Waqas Muhammad PN
Total number of paper charts published	42 (Large and small scale)
PNS BEHR MASA H	Commissioning Date Nov 2019 Crew-PersonalApprox.130

Input to IHO publication C-55

Updated status of C-55 is as under:

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