



**COUNTRY REPORT OF THE HYDROGRAPHIC DEPARTMENT,
ROYAL THAI NAVY**

To

**9th NORTH INDIAN OCEAN HYDROGRAPHIC COMMISSION
MEETING**

REPUBLIC OF SEYCHELLES

25-26 FEBRUARY 2009

1. Hydrographic Office / Service

Established in 1921, Hydrographic Department, Royal Thai Navy or “HDRTN” is a national Hydrographic office whose mission is to carry out the function of organization covering hydrographic and oceanographic surveys, tidal prediction, marine environment, nautical chart-books publication, standard time keeping, marine meteorological forecasting and other activities for safety of navigation to support both public and military need in the Gulf of Thailand and the Andaman Sea. The present Director General is Vice Admiral Professor Nakorn Tanuwong, who has held this position since 1 October 2008.



Fig-1 The organizational structure of HDRTN



Fig-2 Director General of HDRTN

2. Surveys

2.1 Hydrographic Survey Activities

HDRTN conducted only 4 hydrographic surveys in 2008 as it also simultaneously performed significant role in survey of 2 boundary rivers for future demarcation among neighboring countries. The results of such hydrographic surveys were utilized for production of nautical charts and other charts required by Royal Thai Navy and maritime community.

Type of survey	2007	2008
Harbor survey	1	2
Coastal survey	-	1
Off-shore survey	-	-
Survey for update chart	5	1
Total	6	4

To meet IHO S-44 standard, HDRTN has been strengthening the hydrographic infrastructure construction, pushing forward the generalization and application of new technology and equipments, and improving the capability and quality of hydrography. Currently, HDRTN possesses a series of equipments such as multi-beam echosounder, side-scan sonar, high accuracy GPS, the new built multipurpose vessel for hydrographic surveying “HTMS Pharuehatsabodi”, 3 small survey boats namely Loma1, Loma2, and

Loma3 with modern survey equipment on board, etc., and make great progress in the function exploration and technical application of advanced equipments.

3. New Charts and Updates

The production of nautical charts and Electronic Navigation Charts (ENC) are progressing well with the improvement of modern software and hardware capabilities. The results of those mentioned surveys in 2008 were then implemented to produce Thai nautical charts and other related charts in Thai waters. Nautical charts produced in 2008 are shown as below:

Type of Production	2005	2006	2007	2008
New chart	-	2	1	5
New publication	4	4	1	13
New edition	5	5	3	16
New print	2	1	-	1
Total	11	12	5	35

3.1 Paper Charts

3.1.1 5 New Charts

- No.066, Laem Mae Ramphueng to Ko Kong, 1:500,000, Indian 1975
- No.067, Pak Phanang to Ko Thalu, 1:500,000, Indian 1975
- No.068, Kelantan to Laem Talumphuk, 1:500,000, Indian 1975
- No.112A, Pak Mae Nam Chao Phraya, 1:22,000, WGS84
- No.229A, Entrance to Songkhla Harbor, 1:12,000, WGS84

3.1.2 13 New Publication Charts

- No.113, Entrance to Mae Nam Bang Pakong, 1:22,000, WGS84
- No.159, Bang Phra to Bang Sai, 1:22,000, WGS84
- No.147, Ko Lan to Laem Phatthaya, 1:22,000, WGS84
- No.147A, Ao Phatthaya, 1:12,000, WGS84
- No.111, Krungthep Port Zone 2, 1:12,000, WGS84
- No.111A, Bangkok Port, 1:6,000, WGS84
- No.112, Entrance to Mae Nam Chao Phraya, 1:45,000, WGS84
- No.229, Songkhla Harbor, 1:45,000, WGS84
- No.333, Ao Phangnga, 1:45,000, WGS84
- No.334, Phuket Harbour and Approaches, 1:50,000, WGS84
- No.335, Phuket Harbour, 1:22,000, WGS84
- No.340, Entrance to Krabi, 1:45,000, WGS84
- No.353, Ban Thai Muang to Chong Pak Ko, 1:45,000, WGS84

3.1.3 16 New Edition Charts

- No.169, Entrance to Thai Petrochemical Industry Port, 1:22,000, WGS84
- No.246, Hua Hin, 1:40,000, Indian 1975
- No.118, Ko Saba to Ko Chik Nok, 1:60,000, Indian 1975
- No.226, Lang Saun and Approaches, 1:30,000, Indian 1975
- No.239, Ao Sawi and Approaches, 1:40,000, Indian 1975
- No.121, Ao Trat, 1:50,000, Indian 1975
- No.045, Krungthep to Singapore, 1:1,850,000, Indian 1975

- No.163, Map Ta Phut Industrial Harbour and Approaches, 1:25,000, Indian 1975
- No.228, Ao Nakhon Si Thammarat, 1:40,000 , Indian 1975
- No.244, Pak Phanang to Laem Kho Kwang, 1:80,000, Indian 1975
- No.308, Phuket to Kantang, 1:200,000, Indian 1975
- No.309, Ko Rawi to Satun, 1:200,000, Indian 1975
- No.362, Satun to Ranong, 1:700,000, Indian 1975
- No.151, Ko Chang to Ko Yo, 1:90,000 , Indian 1975
- No.157, Map Ta Phut Industrial Harbour, 1:12,000, WGS84
- No.261, Laem Khung Mo to Ko Samui, 1:70,000, Indian 1975

3.1.4 1 Reprinted Chart

- No.222, Entrance to Maenam Tha Chin, 1:25,000, Indian 1975

3.2 Electronic Navigation Chart (ENC)

HDRTN has 2 phased plan of ENC production in Thai waters.

The first phase is to produced 42 ENC cells covering Thailand 10 main shipping routes starting from 2006 to 2008 as the first priority in order to support IMO mandation of ECDIS carriage for High Speed Craft (HSC). As the first priority, such main routes have currently 85 % covered (35 cells in different bands) but there are still 7 cells on such routes, mostly large scales, needed to re-survey due to out of date data and non WGS 84 framework, hopefully done by the next few years.

The second phase is to produce 36 ENC cells starting from 2009 afterward for the remaining sea, not in the main route, to fulfill the whole sea areas. This could take some time to finish as they would be collectively resurveyed 4-5 cells a year due to limited budget and time constraint.

However, as mentioned ealier, all Thai main shipping routes to major ports are, as the first priority, expected to completely covers by ENC's by 2012.

3.3 INT Charts Activities

For INT Chart in Area J, HDRTN proposed to produce 4 INT Charts on the Andaman Coast which were referred to the National Hydrographic Office of India for allocation of INT Chart Numbers as below. Once such numbers were assigned, the production stage would be commenced.

INT No.	Producer	National No.	Scale 1:
***	TH	362 (Satun to Ranong)	700,000
***	TH	308 (Phuket to Kantang)	200,000
***	TH	335 (Phuket Harbour)	22,000
***	TH	335A (Ao Man and Approaches)	8,000

Note *** = INT Chart number will be assigned by NIOHC (India)

4. New Publication and Updating

HDRTN has been producing and updating a number of publications, including “Tide Table 2008”, “Table of Moon - Sun Rise/Set 2008”, “Notice to Mariners Reports in Thai and English 2008”, etc.

5. Mariners Safety Information

HDRTN issued 177 notices to mariners (NtMs) in 2008 both in Thai and English Languages. They were distributed through the Navy Radio stations run by Royal Thai Navy and Bangkok Radio coast stations run by CAT Telecom Public Company Ltd. Notices to Mariners and marine weather forecast were issued by such 2 organizations but the latter one provides 4 coast stations to additionally service tele-communication between ship to shore and among ships via VHF, MF and HF bands. Such information is mostly concerned with maintaining nautical charts update, safety of navigation, maritime distress monitoring, natural disaster warning and other information beneficial to mariners.

6. S-55

6.1 Status of Hydrographic survey of all navigable waters, including internal waters, out of 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
Depth < 200 m	100	67 *	-
Depth > 200 m	15	100	85

Note: * = Digital data gathering in WGS 84 framework and additional data for supporting ENC Production

6.2 Status of Nautical Charting Information

Coverage of charts published by HDRTN, 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 ENC's meeting the standards in S-57.

	A (INT Charts)	B (RNC)	C (ENC)
Offshore passage/Small scale	100	-	100
Landfall and Coastal passage/Medium scale	100	-	45
Approaches & Ports/Large Scale	100	-	40

Note: - HDRTN already produced 78 paper charts and plans to produce ENC's covering main shipping routes (42 cells FY2006-2008) as the first priority, then the rest 36 cells in FY 2009 afterward.

- Offshore passage/Small scale : 5 paper charts : 5 finished ENC's

- Coastal passage/Medium scale: 18 paper charts : 8 finished ENC's

- Approaches & Ports/Large Scale: 55 paper charts 22 finished ENC's

6.3 Status of Maritime Safety Information

6.3.1 Navigational Information

SERVICE	Yes	No	Partial	Notes
Local warnings	/			Issued by HDTRN Coordinated with CAT Telecom Company,Ltd.
Coastal warnings	/			
Navarea warning NAVAREA	/			
Information on ports and harbours	/			By Port Authority and Marine Department

6.3.2 GMDSS Implementation

SERVICE	Yes	No	Partial	NOTES (run by)
Master Plan	/			Under proceeding by Marine Department
A1 Area1			/	
A2 Area2		/		
A3 Area3		/		
NAVTEX	/			CAT Telecom Company,Ltd.
SafetyNET	/			

7. Capacity Building

- 2 officers, sponsored by RTN, are studying aboard for MS. in Hydrographic science and Cartography, USA and UK respectively.
- 2 officers, sponsored by RTN, are studying for MS. in Information Technology, Bangkok, Thailand.
- New three survey boats, namely **Loma 1,2,3** were provided for the survey project of future boundary demarcation between Thailand and neighboring countries.



Fig-3 HTMS. Phareahatsabodi



Fig-4 The small survey boats

- The new vessel for hydrographic and oceanographic surveys, **HTMS. Phareahatsabodi**, was commissioned on August, 2008. For her capabilities, she can operate in a specific area of the Gulf of Thailand and Andaman Sea continuously without additional supply for at least 15

days. The ship will be able to operate under sea state 5. She can operate at the maximum continuous speed of at least 12 knots, at trial draught and 100% MCR (Maximum Continuous Rating of the electric propulsion motors). She is also equipped with modern surveying technology such as multibeam echo sounder, single beam echo sounder, side scan sonar and etc. In the case of operating at low speed, HTMS. Pharuehatsabodi will be able to operate at speed between 0-6 knots without creating interference signature to survey equipment.

- A number of officers were sent to study and gain experience aboard in many courses such as 45th Ocean Mapping Group Multibeam Echosounder Course in Australia, GIS Inundation Mapping Course in Germany and ENC workshop in Indonesia.

8. Oceanographic Activities

8.1 Oceanographic Survey

- Conducting Oceanographic surveys in the western area of the Gulf of Thailand by HTMS. Suk and in the eastern area of the Gulf of Thailand by HTMS. Praruehatsabodi.
- Hydrographic data survey at Ban Thon Beach, Naratiwas province, southern part of Thailand for supporting naval operations.
- Ambient sea noise survey at Naval Base to support anti-submarine warfare and mine detection.

8.2 Tidal Recording and Prediction

- Checking the level of Bench Marks and collecting tidal data/maintenance of 27 tidal Stations.(8 out of 27 are digital tide gauge for tsunami warning on Andaman coast).
- Publishing the tidal prediction book in Thai Waters for FY2009.
- Providing Permanent Service for Mean Sea Level (PMSL), University of Hawaii Sea Level Center (UHSLC) and Japan Coast Guard with tidal data of Thai Waters.

8.3 Coastal Engineering Activities

- Beach profile monitoring at Naval Bases for erosion study.

9. Other Activities

9.1 Aids to Navigation Activities

9.1.1 Maintenance of Aids to Navigation in Thai Water including 9 lighthouses, 58 beacons, 8 leading lights, 34 lit and unlit buoys.

9.1.2 Establishment of more Aids to Navigation

- Installation of a new lighthouse.

9.1.3 The Project on Controlling and Monitoring of Aids to Navigation Information in Thai Waters using the Automatic Identification System, started since 2006, is commencing Phase III in FY2009 and will be continued until cover all AtoN areas. The objective of the project is to monitor the condition of aids to navigation in Thai Waters for safety of navigation. In FY2008, the 6 AIS remote site stations, and 1 repeated signal station were updated.

9.2 Marine Meteorological Activities

In cooperation with meteorological authorities, HDRTN has established a couple of automatic weather stations along Thailand coast for the observation of air temperature, relative humidity, air pressure, wind, precipitation rainfall, and visibility. The action maximally realized the integration of resources and sharing of information, and serve directly to the mariners.

9.3 Standard Time Keeping Activity

One of the the task of HDRTN is standard time keeping for the nation with cesium clocks including national standard time, international time telling service and time transfer. All time transfer can be traced back to international time standard provided by Bureau International des Poids et Mesures (BIPM).

9.4 International Activities

From October 2007 to September 2008, HDRTN participated in the international activities:

- October, 2007 -HDRTN hosted Kick-off Meeting for “Improving Emergency Response to Ocean-Bases Events through Coastal Mapping Capacity Building in the Indian (COAST-MAP-IO)”.
- December, 2007 -attended The Supporting of Tsunami Disaster Prevent Management Seminar, Columbo, Srilanka.
- January, 2008 -hosted The 2nd East Asia Hydrographic Commission (EAHC) Coordinate Meeting, Cheingmai, Thailand.
- April, 2008 -attended The North Indian Ocean Hydrographic Commission (NIOHC) Meeting, Gua, India.
- May, 2008 -attended The UNESCO/IOC Advance Leadership Development Workshop, Hyderabad, India.
- July, 2008 -co-hosted with JHA the Workshop on ENC Production & Distribution, Bangkok, Thailand
- attended he Electronic Navigational Chart (ENC) Task Group Meeting, Zebu, Philippines.



Fig- 5 Workshop on ENC Production & Distribution 7-11 July 2008 Bangkok, Thailand

10. Conclusion

Since established in 1921, HDRTN has been engaged in carrying out hydrographic and oceanographic surveys and observations. The outcome of these surveys and observations have been made beneficially available to mariners, military, private sectors and government to make both safer navigation and sustainable country development.

In recent years, HDRTN has contributed such a great effort to increase the safety of navigation, to prevent marine disasters and to protect marine environment through its activities and making full use of the forefront technology. It has an intention to promote cooperation with other hydrographic officers not only on a regional basis but also on a global level. Even though it sometimes, like the most member state get difficult in tight budget, HDRTN still tries its best to maintain its mission and responsibility as much as it would be able to do so.

For any further information or clarification, please contact:

Captain Nattavut Prateepaphalin

Deputy director

Cartographic Division, Hydrographic Department

Royal Thai Navy, Bangna, Bangkok, Thailand 10260

Tel. 66-2-4757034-6, Mobile. 66-81-8752424

Fax. 66-2-4757036

Email: NATTAVUT85@YAHOO.COM