



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

**To**

**10<sup>th</sup> NORTH INDIAN OCEAN HYDROGRAPHIC COMMISSION  
MEETING**

**DHAKA BANGLADESH**

**23 FEBRUARY 2010**

## 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 up until now.



**Fig-1 The Organizational Structure 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	2008	2009
Harbor survey	2	2
Coastal survey	1	2
Off-shore survey	-	-
Survey for update chart	1	1
<b>Total</b>	<b>4</b>	<b>5</b>

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 echosounders, 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 2009 were then implemented to produce Thai nautical charts and other related charts in Thai waters. Nautical charts produced in 2009 are shown as below:

<b>Type of Production</b>	<b>FY 2009</b>
New chart	<b>1</b>
New publication	<b>2</b>
New edition	<b>4</b>
Re- print	<b>3</b>
<b>Total</b>	<b>10</b>

#### ***3.1 Paper Charts***

##### ***3.1.1 Produced 1 New Charts***

- No.229A, Entrance to Songkla Harbour, 1:12,000, WGS 84

##### ***3.1.2 Produced 2 New Publication Charts***

- No.112, Entrance to Mae Nam Chao Phraya, 1:45,000, WGS84
- No.147, Ko Lan to Laem Phatthaya, 1:25,000, WGS84

##### ***3.1.3 Produced 4 New Edition Charts***

- No.118, Ko Saba to Ko Chik Nok, 1:60,000, Indian 1975
- No.121, Ao Trat, 1:50,000, 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

##### ***3.1.4 Produced 3 Reprinted Chart***

- No.222, Entrance to Maenam Tha Chin, 1:25,000, Indian 1975
- No.045, Bangkok to Singapore, 1:1,850,000, Indian 1975
- No.170, Petrochemical Industrial Port, 20,000, 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 2009 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 90 % 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 earlier, all Thailand main shipping routes to major ports are, as the first priority, expected to fully cover by ENC's by year 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, as INT Chart Coordinator region J, 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 expected to assign by INT Chart Coordinator region J (India)

## 4. New Publication and Updating

HDRTN has been producing and updating a number of publications, including "Tide Table 2009", "Table of Moon - Sun Rise/Set 2009", "Notice to Mariners Reports in Thai and English 2009", etc.

## 5. Mariners Safety Information

HDRTN issued 172 notices to mariners (NtMs) in 2009 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		/		CAT Telecom Company,Ltd.
NAVTEX	/			
Safety NET	/			

## 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.

- A number of officers were sent to study and gain experience aboard in many courses such as Workshop on Multibeam Data Processing (India), ENC Quality Assurance (Philippines), etc.

## **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 western Coast of Thailand (Andaman Sea) 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 gauges 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 3 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 14 lighthouses, 78 beacons, 6 leading lights, 77 light and unlight 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 FY 2008, the 6 AIS remote site stations, and 2 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 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 2008 to September 2009, HDRTN participated in the international activities:

- February, 2009 - attended 9<sup>th</sup>.East Asia Hydrographic Commission (EAHC) Meeting, China  
- attended 9<sup>th</sup> North Indian Ocean Hydrographic Commission, Republic of Seychelles
- June, 2009 - attended 4<sup>th</sup>. Extraordinary IHO, Monaco
- June, 2009 - technical visit to Vietnam and Brunei
- September, 2009 - attended Workshop on Sea and Human Security, Japan



**Fig- 5 The 9<sup>th</sup> NIOHC Meeting, Seychelles**

#### **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 governments 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 [Chakkrit Malikao](#) RTN  
Director Oceanographic Division, Hydrographic Department  
Royal Thai Navy, Bangna, Bangkok, Thailand 10260  
Tel. [66-2-4757018](#), Mobile. [66-89-9669517](#)  
Fax. [66-2-4757024](#)  
Email: [mchakkrit@yahoo.com](mailto:mchakkrit@yahoo.com) : NATTAVUT85@YAHOO.COM