



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

**to**

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

**NEW DELHI, INDIA**

**1-2 MARCH 2011**

## 1. Hydrographic Office / Service

Established in 1921, Hydrographic Department, Royal Thai Navy or “HDRTN” is a Thailand national hydrographic office whose mission is to carry out the function of organization covering hydrographic and oceanographic surveys, tidal prediction, aids to navigation maintenance, marine environment, nautical charts and publications, 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 Prayuth Netrprapa, who has held this position since 1<sup>st</sup>. October 2011 up until now.



**Fig-1 The Organizational Structure of HDRTN**

## 2. Surveys

### 2.1 *Hydrographic Survey Activities*

HDRTN conducted 6 hydrographic surveys in 2010 up until now (February 2011). It also simultaneously performed significant role in survey of boundary river 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	FY 2010
Harbor Survey	4
Approach Survey	0
Coastal Survey	2
<b>Total</b>	<b>6</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 modern equipments such as multi-beam echosounders, side-scan sonar, high accuracy GPS/DGPS, the new built multipurpose vessel for hydrographic surveying “HTMS Pharuehatsabodi”, 3 small survey boats namely Loma1, Loma2, and Loma3 equipped with modern survey instruments on board 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 (ENCs) are progressing well with the improvement of modern software and hardware capabilities. The results of those mentioned surveys in 2010 were then implemented to produce Thai nautical charts and other related charts in Thai waters. Nautical charts produced in 2010 are shown as below:

<b>Type of Production</b>	<b>FY 2010</b>
New Chart	0
New Publication	2
New Edition	2
Re-Print	5
<b>Total</b>	<b>9</b>

**3.1 Paper Charts** - HDRTN has produced totally 76 paper charts (large, medium, small scales) covering Thai waters. The followings are the charts produced in the year 2010

**3.1.1 Produced 2 New Edition Charts**

- No.246, Hua Hin, scale 1:40,000, Indian 1975 datum
- No.307, Phangnga to Ranong, scale 1:200,000, Indian 1975 datum

**3.1.2 Produced 2 New Publication Charts**

- No.333, Ao Phang-Nga, scale 1:45,000, WGS84 datum
- No.112A, Pak Mae Nam Chao Phraya, scale 1:22,000, WGS84 datum

**3.1.3 Produced 5 Reprinted Chart**

- No.358, Ao Patong, scale 1:10,000, WGS 84 datum
- No.115, Ao Sattahip and Approches, scale 1:40,000, Indian 1975 datum
- No.001, Prachaub Khiri Khan to Ko Chaung, scale 1:240,000, Indian 1975 datum
- No.141, Laem Thoraphim to Ko Khram, scale 1:120,000, Indian 1975 datum
- No.114, Ko Sichang Harbour, scale 1:15,000, WGS84 datum

### **3.2 Electronic Navigation Chart (ENC)**

HDRTN has produced 76 paper charts (large, medium, small scales) covering Thai waters. For ENCs, it has plan to produced only 44 cells covering 11 Thailand main shipping routes starting from 2006 to 2012 as the first priority in order to support IMO ECDIS carriage mandation by 2012. Such main shipping routes have currently covered by 30 cells in different bands (approx.70%) and the remaining 14 cells, mostly large scales, needed to re-survey due to out of date data and non WGS 84 framework. However, as mentioned earlier, all Thailand main shipping routes to major ports are expected to fully covered by ENCs in the 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 Navigational Publications and Updating**

HDRTN has been producing and updating a number of publications, including

- Tide Prediction Table book year 2010
- Table of Moon Rise/Set book year 2010, Sun Rise/Set book year 2010
- Notice to Mariners Reports in Thai and English 2010, etc.

#### **5. Mariners Safety Information**

HDRTN issued 183 notices to mariners (NtMs) in 2010 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) Co.Ltd. Notices to Mariners and marine weather forecast were issued by such two organizations but the latter one provides 4 coast stations to additionally service telecommunication between ship to shore and among ships via VHF, MF and HF bands. Such information is mostly concerned with nautical charts update, safety of navigation, maritime distress monitoring, natural disaster warning and other information necessary to mariners.

#### **6. C-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	43	0
Depth > 200 m	15	89	85

##### ***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	40	-	40
Landfall and Coastal passage/Medium scale	100	-	73
Approaches & Ports/Large Scale	93	-	71

**Note: -Paper Charts-** HDRTN has already produced 76 paper charts (out of 83 planned charts)

- Offshore passage/Small scale : 2 paper charts (out of 5 planned charts) = 40%
- Coastal passage/Medium scale:20 paper charts (out of 20 planned charts) = 100%
- Approaches&Ports/Large Scale:54 paper charts (out of 58 planned charts)= 93%

**ENCs** - HDRTN has already produced 30 ENCs (out of 44 planned ENCs)

- Offshore passage/Small scale : 2 ENCs (out of 5 planned ENCs) = 40%
- Coastal passage/Medium scale: 8 ENCs (out of 11 planned ENCs) = 73%
- Approaches & Ports/Large Scale: 20 ENCs (out of 28 planned ENCs) = 71%

### 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 Co.,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 Co.Ltd.
Safety NET	/			

### 7. Capacity Building

- 2 officers, sponsored by RTN, are studying aboard for MS. in Earth Science (Ocean Mapping) and for post graduate course, University of New Hampshire, USA.
- 2 officers, sponsored by RTN, are studying for MS. in Information Technology and GIS, Bangkok, Thailand.

## **8. Oceanographic Activities**

### ***8.1 Oceanographic Survey***

- Conducting Oceanographic surveys in the western area of the Gulf of Thailand and in the western Coast of Thailand (Andaman Sea).
- Ambient sea noise survey at Naval Bases 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 28 tidal Stations.(8 out of 28 are digital tide gauges for tsunami warning system on Andaman coast).
- Prediction of tidal in Thai Waters for FY2010.
- 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 lighted 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.

### ***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 transfers can be traced back to international time standard provided by Bureau International des Poids et Mesures (BIPM).

### ***9.4 International Activities***

During October 2009 to September 2010, HDRTN participated in the international activities as follows:

- |               |   |
|---------------|---|
| October, 2009 | - attended 10 <sup>th</sup> .East Asia Hydrographic Commission (EAHC) Meeting, Singapore    |
|               | - attended 3 <sup>rd</sup> . ECDIS Conerence, Singapore                                     |
|               | -attended 1 <sup>st</sup> . Hydrographic Services and Standard Commiittee(HSSC1), Singapore |

- attended 24<sup>th</sup>. International Cartographic Conference, Chile
- hosted 3<sup>rd</sup>.EAHC ENC Task Group AND 4<sup>th</sup>. EAHC Coordinating Meeting, Thailand
- February 2010 - attended 10<sup>th</sup>. North Indian Ocean Hydrographic Commission, Bangladesh
- March, 2010 - attended 4<sup>th</sup>. EAHC ENC Task Group, Hongkong
- attended 17<sup>th</sup>.International Association of Marine Aids to Navigation & Lighthouse Authorities (IALA) Conference
- June, 2010 - attended 8<sup>th</sup>. IHO Capacity Building Sub-Committee (CBSC) and 2<sup>nd</sup>. IHO Inter Regional Coordination Committee (IRCC), USA.
- July 2010 – hosted 5<sup>th</sup>. EAHC ENC Task Group, Thailand
- September 2010 – visited Indonesian Hydrographic Offices (DISHIDROS) for Indonesia-Thailand ENC Harmonization Meeting, Indonesia

## **10. Conclusion**

Since established in 1921, HDRTN has been engaged in carrying out hydrographic/ 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 MSs, get difficult in budget constraints, HDRTN still will do its best to maintain its mission and responsibility and to meet the future challenge of the changing world.

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