THAILAND

NATIONAL REPORT

20th MEETING OF THE NORTH INDIAN OCEAN HYDROGRAPHIC COMMISSION (NIOHC20)

REMOTE VIRTUAL MEETING

13th – 15th JULY 2021

CONTENTS

1. Hydrographic Office / Service

Established in 1921, Hydrographic Department, Royal Thai Navy or "HDRTN" is 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, nautical charts and publications, coastal engineering, standard time keeping, marine meteorological forecasting and other activities for safety of navigation to support both public and Royal Thai Navy need in Thai Waters (the Gulf of Thailand and the Andaman Sea). The present Director General is Vice Admiral Chakkrit Malikhao, who has held this position since 1st October 2020 up until now.

Figure.1 The Organizational Structure of HDRTN

2. Surveys

2.1 Hydrographic Survey Activities

HDRTN conducted 6 hydrographic surveys since 2019. 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 2019-2020
Harbor Survey	3
Approach Survey	2
Coastal Survey	1
General Survey	-
Total	**6**

To meet IHO S- 44 standard, HDRTN has been strengthening the hydrographic infrastructure construction, pushing forward the generalization and application of new technology and equipment, and improving the capability and quality of hydrography. Currently, HDRTN possesses a series of modern equipment, such as multi-beam echo-sounders, side-scan sonar, high accuracy GNSS, UAV, 1 offshore hydrographic survey vessel "HTMS. Chantara", 1 multipurpose vessel for hydrographic surveying "HTMS. Pharuehatsabodi", 3 coastal 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 equipment.

3. New Charts and Updates

The production of nautical charts and Electronic Navigational Charts (ENCs) are progressing well with the improvement of modern software and hardware capabilities. The results of those mentioned surveys in 2019-2020 were then implemented to produce Thai nautical charts and other related charts in Thai Waters.

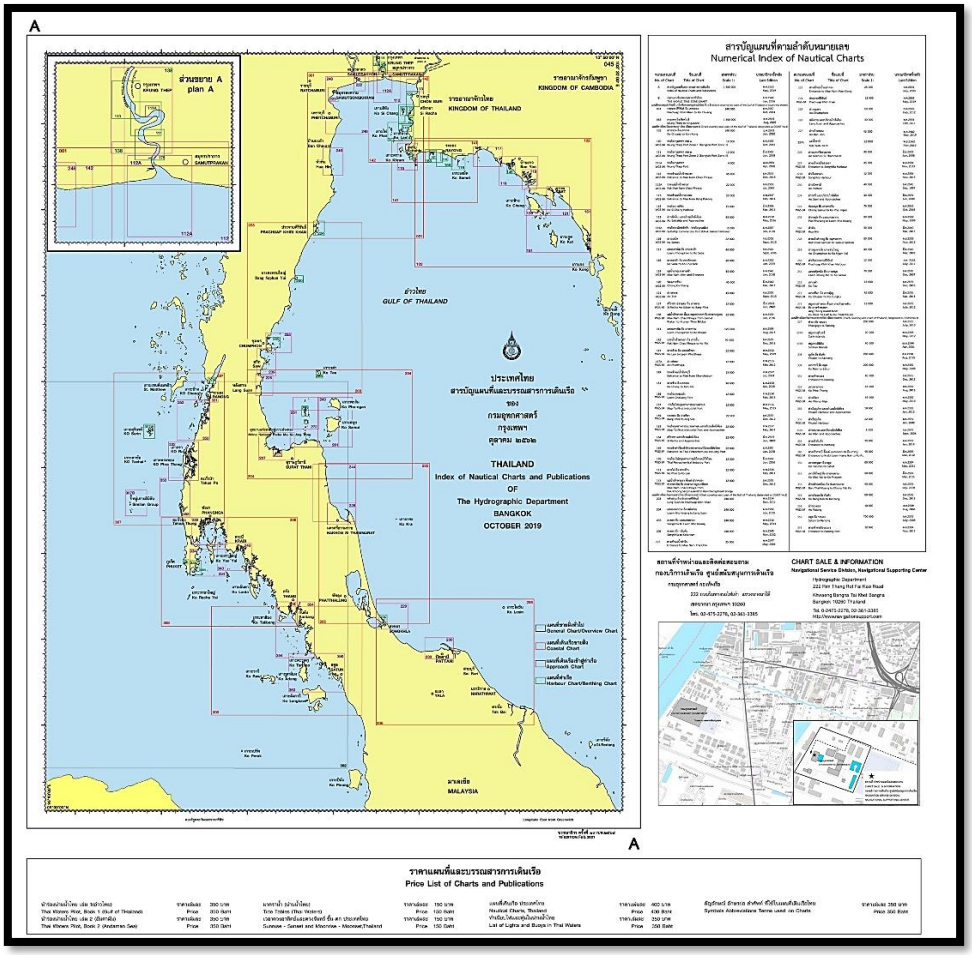
3.1 Paper Charts

HDRTN has totally produced 81 paper charts (large, medium, small scales) covering Thai Waters.

- Offshore passage/Small scale: 2 paper charts (out of 4 planned charts) = 50% Updated chart in 2019 – 2020 : 1 paper charts as follow 045

- Coastal passage/Medium scale: 20 paper charts (out of 20 planned charts) = 100% Updated chart in 2019 – 2020 : 1 paper charts as follow 102

- Approaches & Ports/Large Scale: 59 paper charts (out of 59 planned charts) = 100% Updated chart in 2019 – 2020 : 5 paper charts as follow 224, 227, 137, 164, 151 and New chart in 2019 – 2020 : 1 paper charts as follow 227A

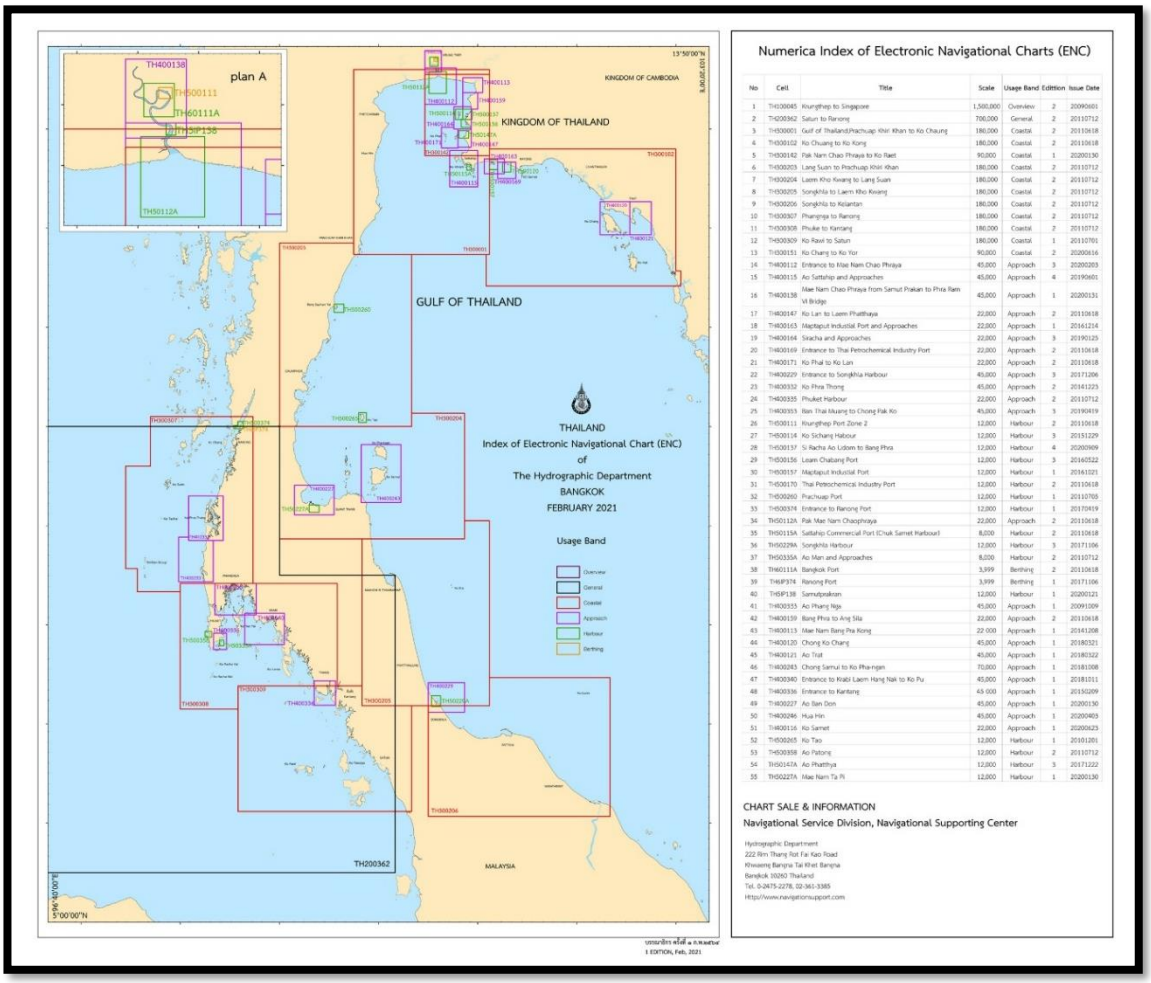


3.2 Electronic Navigation Chart (ENC)

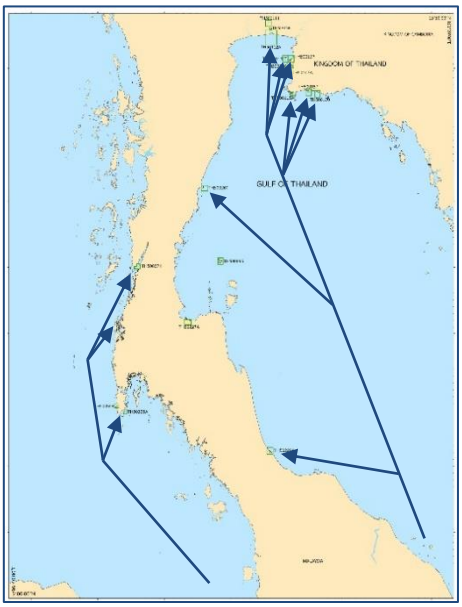
HDRTN has plan to produced ENC only 45 cells covering 11 Thailand main shipping routes starting from 2006 as the first priority in order to support IMO ECDIS carriage mandatory by 2012. Such main shipping routes have currently covered by 40 cells in different bands (approx.88%) and the remaining 5 cells, mostly small and medium 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 be fully covered by ENCs in the year 2022. Coverage currently comprises 1 Overview,1 General, 11 Coastal, 12 Approach, 13 Harbour and 2 Berthing cells. HDRTN had been produced ENC outer routes 15 cells to service in Thai's water (11 Approach and 4 Harbour).

- New Edition in 2019 – 2020: 7 cells as follow TH100045, TH300151, TH400112, TH400115, TH400164, TH400353 and TH500137

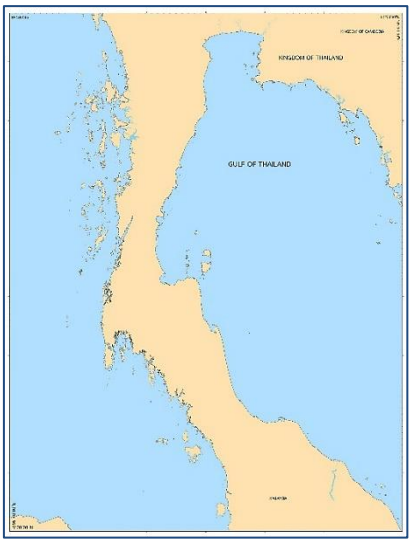
- New cell in 2019 – 2020: 7 cells as follow TH300142, TH400138, TH5IP138, TH400227, TH400246, TH400116 and TH500227A.



11 Thailand Main Shipping Routes



Thai ENC Coverage
TH Overview Usage Band Coverage



- TH100045

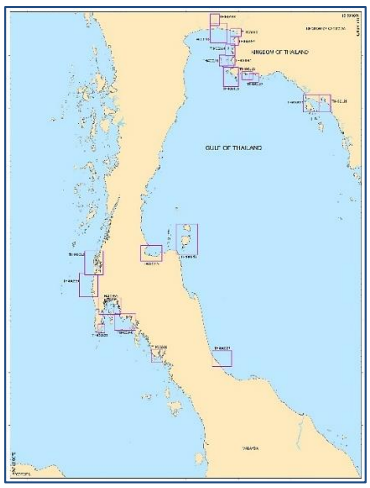
TH General Usage Band Coverage

- TH200362

TH Coastal Usage Band Coverage

- TH300001
- TH300102
- TH300203
- TH300204
- TH300205
- TH300206
- TH300307
- TH300308
- TH300309
- TH300142
- TH300151

TH Approach Usage Band Coverage

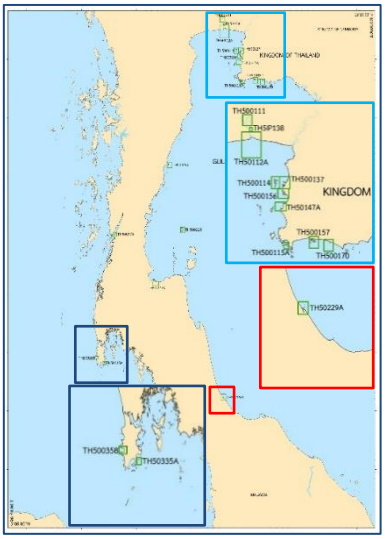


- TH400112
- TH400115
- TH400138
- TH400147
- TH400163
- TH400164
- TH400169
- TH400171
- TH400229
- TH400332
- TH400335
- TH400353

Outer route

- TH400333
- TH400159
- TH400113
- TH400120
- TH400121
- TH400243
- TH400340
- TH400336
- TH400227
- TH400246
- TH400116

TH Harbour Usage Band Coverage

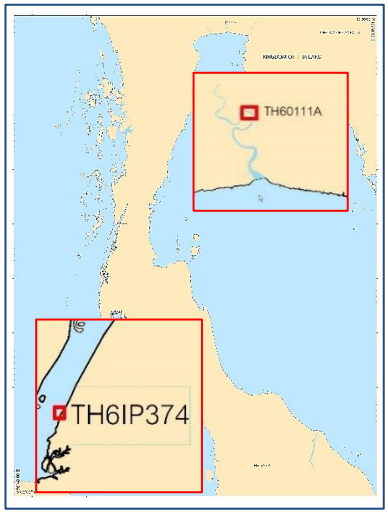


- TH500111
- TH500114
- TH500137
- TH500156
- TH500157
- TH500170
- TH500260
- TH5IP374
- TH50112A
- TH50115A
- TH50229A
- TH50335A
- TH5IP138

Outer route

- TH500265
- TH500358
- TH50147A
- TH50227A

TH Berthing Usage Band Coverage



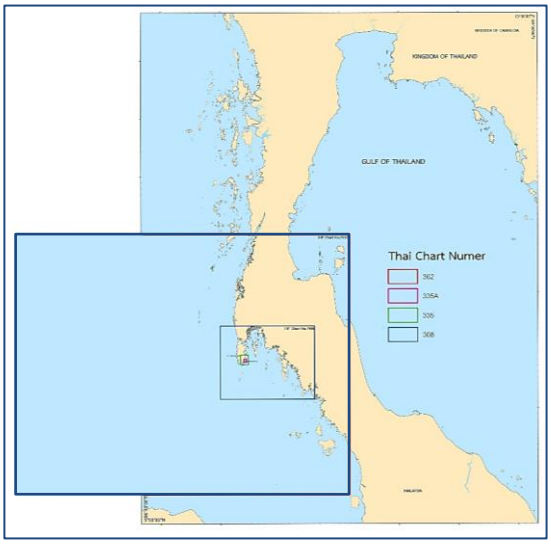
- TH60111A
- TH6IP374

3.3 INT Charts

Earlier, HDRTN has proposed 4 paper charts to be recognized as INT charts under the coordination of Area "J" Coordinator. On 26 Nov 2015, Coordinator J cancelled the 4 Thai INT charts, and informs coordinator "K" to consider for allocation of new INT numbers in area "K"

Item	Thai Chart No.	INT Chart No.	Chart Name
1.	308	7448	Phuket to Kantang
2.	335	7449	Phuket Harbour
3.	335A	7450	Ao Man and Approaches
4.	362	7033	Satun to Ranong

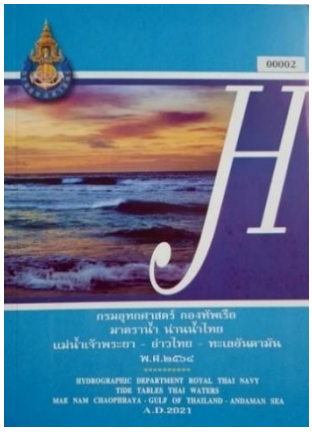
INT Charts

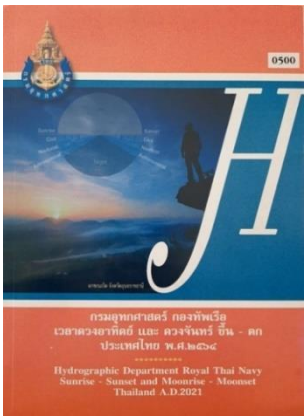


4. New Publications and Updates

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

- INT1 Symbols, Abbreviations, Terms and S-57 Objects used on Thai Nautical and Electronic Navigational Charts 6th Edition 2021
- Hydrographic Spatial Data Infrastructure ; Hydro SDI A.D.2020
- Tide table in Thai Water A.D.2020, 2021
- Sunrise-Sunset and Moonrise-Moonset Thailand A.D.2020, 2021





5. Maritime Safety Information (MSI)

In 2020, HDRTN issued 34 NTMs and 55 Navigational Warnings 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 NT (Public) Co. Ltd. Notices to

Mariners and marine weather forecast were issued by such two organizations but the latter one provides 4 coastal 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 (See Annex A.)

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	70	30	0
Depth > 200 m	40	60	0

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 ENCs meeting the standards in S-57.

	A (%PaperCharts)	B (%RNC)	C (%ENC)
Offshore passage/Small scale	100	-	100
Landfall and Coastal passage/Medium scale	100	-	81
Approaches & Ports/Large Scale	100	-	100

6.3 Status of Maritime Safety Information

6.3.1 Navigational Information

SERVICE	Yes	No	Partial	Notes
Local warnings	/			Issued by HDRTN Coordinated with NT Co,Ltd.
Coastal warnings	/			
Navarea warning NAVAREA	/			By NAVAREA XI
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	/			NT Co.Ltd.
Safety NET	/			

7.<u>Capacity Building Program</u>

- Oct – Nov 2019 - 1 officer to attend IHO Nippon Foundation in Singapore.
- Feb 2019 - 1 officer to attend Training Course on NDC Capacity Building : Access and Analysis of Waveform IMS Data and IDC Products in Austria.
- Apr – May2019 - 2 officers to attend workshop on ENC and AML Production in Canada.

- June – Dec2019 - 1 officer to attend Hydrographic For Charting and Disaster Management (Internationally Accredited Category B) in Japan


- Jul 2019 - 1 officer to attend Training for Trainers Programme in Basic Hydrography in Korea.
- Aug – Dec2019 - 1 officer to attend Marine Cartography and Data Assessment in UK


- Jun2019– Jan2020 - 1 officer to attend Basic Hydrography Course (CAT B) in India


LEARN THROUGH EACH OTHER training programme via zoom platform held by Sri Lanka Navy Hydrographic Service.

- 3 officers to attend Crowsourced Bathymetry training programme.
- 7 officers to attend MSDI Challenges and way forward training programme.
- 2 officers to attend Seabed 2030 Initiative training programme.
- 2 officer to attend Use of Satellite Derived Bathymetry in Nautical Charts training programme.
- 7 office to attend ENC production training programme.

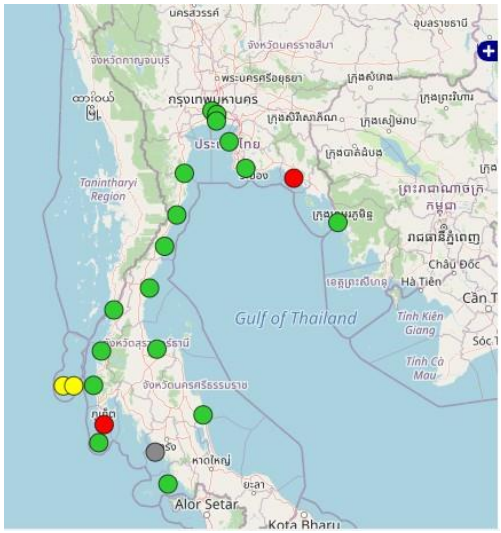
Training programme via zoom platform held by UKHO.

- Understanding ENCs Short Course
- Introduction to S-57 Short Course

8. <u>Oceanographic Activities</u>

8.1 Tide Prediction

The HDRTN Sea Level Monitoring Array currently consists of 21 permanent gauges monitoring sea level around the Thai Coastline, including the Chao-Phraya River. The locations of the gauges are shown in Figure. Near real time data are published and can be located on the website at: http://www.hydro.navy.mi.th/index1.php



8.2 Sea Level determination

Supporting sea level data to Permanent Service for Mean Sea Level (PSMSL), University of Hawaii Sea Level Center (UHSLC), and The National Oceanic and Atmospheric Administration (NOAA).

8.3 Tide gauge programme

The HDRTN provides tide table on 29 sites around the Thai waters. Using harmonic constants derived from one year's observations of tide gauges from HDRTN, Port Authority of Thailand, and Marine Department for the tide prediction. The tide prediction stations are shown in Figure 2 (below). The predictions are published and can be located on the website at: http://www.hydro.navy.mi.th/servicestide.htm

9. Other Activities

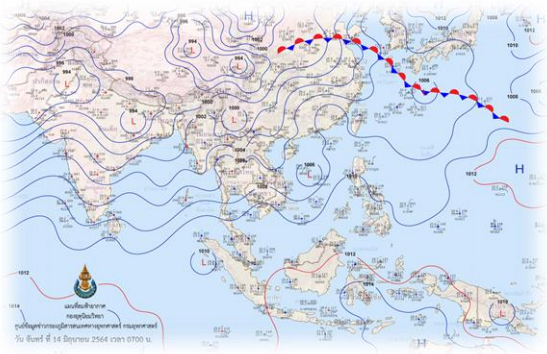
9.1 Aids to Navigation Activities

9.1.1 Maintenance of Aids to Navigation along The Gulf of Thailand and Andaman sea including 9 lighthouses, 79 beacons, 6 leading lights, 77 buoys.

9.1.2 Installation of Automatic Identification System (AIS) into Aids to Navigation along the Gulf of Thailand and Andaman sea including 8 Base Stations, and 39 A to N station.

9.2 Marine Meteorological Activities

HDRTN do all marine meteorological processes, weather observation, weather chart, marine time weather prediction and marine severe weather warning in responsibility areas for establish information and serve directly to the Royal Thai Navy and mariners parallel with Thai meteorological Department.



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

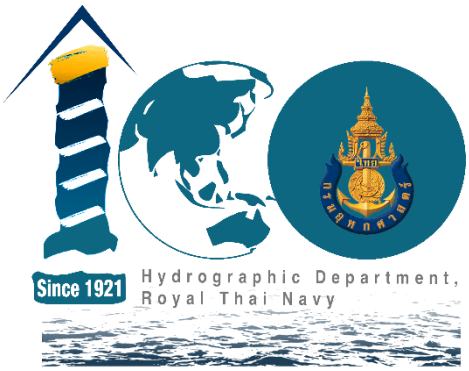
HDRTN participated in the international activities as follows:

FEB 2020 : Attended 11th EAHC TRDC – BOD and 7th EAHC – SC, Japan.
NOV 2020 : Attended IHO A-2 and IHO Council conference.

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 has 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.



Input to the IHO Publication P-5 (*Yearbook*)

Country: *THAILAND*.
Organization: *HYDROGRAPHIC DEPARTMENT, ROYAL THAI NAVY.*

(Please provide the information in English)

Contact information/ Informations de contact / Información de contacto	
-National Hydrographer or equivalent -Directeur du service hydrographique ou équivalent -Director del Servicio Hidrográfico o equivalente	Post: Director General Name: VAdm Chakkrit Malikhao Postal address: Hydrographic Department, 222 Rimtangrodfaikao Road, Bangna Tai, Bangkok, 10260, Thailand Tel: +6624757001/+6624752251 Fax: +6624752181 Email: hydrotechhdrtn@gmail.com
-Head of the Hydrographic Office (if different from the person indicated above) -Directeur du Service Hydrographique (si différent de la personne indiquée ci-dessus) -Director del Servicio Hidrográfico (si diferente de la persona indicada anteriormente)	Post: Name: Postal address: Tel: Fax: Email:
-Other point(s) of contact -Autre(s) point(s) de contact -Otros punto(s) de contacto	hydrotech@navy.mi.th
-Web site -site web -sitio web	http://www.hydro.navy.mi.th
Country information / Informations sur le pays/ Información sobre el país	
-Declared National Tonnage -Tonnage national déclaré -Tonelaje Nacional Declarado	Tonnage: Tonnage: 3846758 tons (ACL 08/2019) Date:
-National day -Fête nationale -Fiesta nacional	5 December
-Date of establishment and Relevant National Legislation -Date de mise en place et	

législation nationale pertinente -Fecha de constitución y legislación nacional pertinente	
-Date first joined IHO -Date d'adhésion à l'OHI -Fecha de adhesión a la OHI	
-Date ratificationConvention -Date de ratification de la Convention -Fecha de ratificación de la Convención	13/03/1972
-Remarks on membership -Remarques sur l'adhésion -Comentarios sobre la adhesión	
Agency information/ Information sur l'agence/ Información sobre la agencia	
-Top level parent organisation -Organisme mère -Organización asocieda de nivel superior	The Royal Thai Navy
-Principal functions of the organisation or the department -Attribution principales de l'organisme ou du département -Principales funciones de la Organización o departamento	To collect, evaluate, compile, produce and distribute hydrographic and oceanographic information including nautical, aero-nautical chart, sailing directions, and aids to navigation.
-Annual operating budget -Budget annuel -presupuesto anual	
-Total number of staff employed -Effectifs totaux -Número total de personal empleado	App 500
-Number of INT charts published -Nombres de cartes INT publiées -Número de cartas INT publicadas	4 charts

-Total number of paper charts published-Nombre total de cartes papier publiées-Número total de cartas de papel publicadas	81			
-Number of ENC cells published -Nombres de cellules ENC publiées -Número de células ENC publicadas	55			
-Number of Other charts -Nombre d'Autres cartes -Número de Otras cartas				
-Type of publications produced -Type d'ouvrages produits -Tipo de publicaciones producidas	- Tide Table in Thai Waters (annually). - List of Lights and Buoys in Thai Waters. - Sun & Moon rise-set table.			
-Detail of surveying vessels/ aircraft -Détail des bâtiments hydrographiques / aéronefs -Detalle de los buques hidrográficos / aeronaves	-Name -Nom -Nombre	-Displacement -Déplacement -Desplazamiento	-Date Launched -Date de mise en service -Fecha de botado	-Number of crew -Nombre de l'équipage -Tripulación
	HTMS. SURIYA	960 (ABU)	1979	
	HTMS. CHANTHARA	966 T/69.85 M/AGOR	30 May 1961	
	HTMS. SUK	1526 T/62.90 M/AGOR	3 Mar 1982	
	HTMS . PHARUEHATSABODI	1636 T/66.33 M/AGOR		
	Hydrographic Vessel III	86 T/22.25 M/AGSC		
-Other information of interest -Autres informations utiles -Otra información de interés				

Input to the IHO Publication C-55 (*Status of Hydrographic Surveying and Charting Worldwide*)

Country: ___THAILAND___.
(Please provide the information in English)

C-55 Summary for:				**Comments on Charts:**
Country:	THAILAND			
Country Iso Code:	TH			
Country SubCode:				
INT Region:	K			
Country/Depend:	C			
Last updated:	1/3/2021			
Provided by:	HDRTN.			
Chart coverage	**Passage (%)**	**Coastal (%)**	**Port (%)**	
INT	100	100	100	**Comments on Surveys:**
RNC	-	-	-	
ENC	100	100	100	
Status of Paper Charts				
Paper charts with depths in meters (%)			100	
Paper charts referenced to a satellite datum (%)			56	
Status of surveys	**Adequate (%)**	**Resurvey (%)**	**No survey (%)**	
0-200m	70	30	0	
> 200m	40	60	0	

MSI	**Y/N**	**Comments on MSI:**
Local warning	YES	Issued by Marine Department and Coordinated with NT Co. Ltd.
Coastal warning	YES	Issued by HDRTN and Coordinated with NT Co. Ltd.
Nav warning	YES	Issued by HDRTN and Coordinated with NT Co. Ltd.
Port warning	YES	By Port Authority of Thailand and Marine Department.
GMDSS	**Y/N**	**Comments on GMDSS:**
Master Plan	YES	Under proceeding by Marine Department
Area A1	PARTAL	Under proceeding by Marine Department
Area A2	NO	
Area A3	NO	
NAVTEX	YES	NT Co. Ltd.
SafetyNet	YES	NT Co. Ltd.

National MSI Self-Assessment

Country: *THAILAND* .
Organization: *HYDROGRAPHIC DEPARTMENT ,ROYAL THAI NAVY.*

(Please provide the information in English)

1. Maritime area

Thailand has long coastlines with the Andaman Sea and Strait of Malacca to the west and the Gulf of Thailand to the east, although all of its EEZ is limited by maritime boundaries with neighbouring countries.
Thailand's western sea territory stretches from the west coast of southern Thailand in the Andaman Sea and the Strait of Malacca. It shares treaty-defined maritime boundaries with Myanmar, the Andaman and Nicobar Islands of India, Indonesia and Malaysia.

2. Operational Points of Contact for the National Coordinator

INSTITUTION	TELEPHONE	FACSIMILE	EMAIL
Office of the Search and Rescue Commission, Ministry of Transport 71 Ngarm-Duplee, Rama IV Road, Tung Mahamek, Sathorn District, Bangkok 10120, Thailand (Mr. Phitak Rerngphitak)	+66 22855-450	+66 22873186	bkkrcc@yahoo.com bkkrcc@mot.go.th
Vessel Traffic Control and Maritime Security Office, Marine Department, Sriracha, Chonburi 20230. Thailand (Mr.Thanatip Jantarapakde)	+66 38495161-2 +66 908926336	+66 38495163	srirachavts@hotmail.com srirachavts@gmail.com thanatipj@hotmail.com
Air Navigation Services Standards, Civil Aviation Authority of Thailand (Ms.Chalinthra Thanakankorn)	+66 25688825	-	chalinthra.t@caat.or.th

3. GMDSS Master Plan

GMDSS Master Plan Up to date in IMO GISIS Database in June 2021

Equipment Type for Ports and Local Area	**Software Version**		**Date of Up-date**

[Detail the number of warnings identified as immediate priority (requiring transmission within 30 minutes) and the average elapsed time for passing to NAVAREA coordinator, as reported to the last RHC meeting]:

Year Y-2		**Year Y-1**		**Year Y**	
Total	Average elapsed time	Total	Average elapsed time	Total	Average elapsed time
xx	xx.x Mins	xx	xx.x Mins	xx	xx.x Mins

4. NAVTEX Coverage:

Area	*NAVTEX Coast Station*	*Position of Antenna*	*Range (NM)*	*B1 Character*	*Transmission Time (UTC)*	*Language*	*Status of Implementation*
11	*Bangkok Radio*	*13 01 .47 N. 100 01.20 E*	*400*	*F*	*0050 0450 0850 1250 1650 2050*	*English*	*Operational*
11	*Bangkok Radio*	*09 18 54.8 N. 099 42 15.7 E.*	*400*	*G*	*0100 0500 0900 1300 1700 2100*	*English*	*Planning in October 2021*

5. Operational Issues:

[New infrastructure in accordance with GMDSS Master Plan; Problems encountered?]

6. Contingency Planning

We have the Emergency response plan Such as Search and Rescue Plan , Oil Spill Response Plan , Other Emergency situation (Collision , Grounding , Fire on Board)

7. Capacity Building

   Require : Exchange experience and best practice, training program with neighboring country e.g. Malaysia Singapore, Vietnam, Indonesia, or other country.

8. National Maritime Website
   - www.md.go.th
   - www.navy.go.th
   - www.cattelecom.com

9. Recommendations

   Set up a sharing experience on the MSI implementation with neighboring country.

10. Summary

[Please provide a short summary of this paper which will be included in the final report of the meeting.]