

# 16<sup>th</sup> Meeting of the South West Pacific Hydrographic Commission

## National Report by Indonesia



International Hydrographic Organization  
*Organisation Hydrographique Internationale*

South West Pacific Hydrographic Commission





# Main achievements during the year of 2018

The main achievements during the year of 2018, Pushidrosal had conducted

- a. Hydrographic re-survey for  $\pm 54,000$  km<sup>2</sup>
- b. Update 86 numbers of Nautical Charts
- c. Update 520 cells of ENC
- d. Publish Notice to Mariners
- e. Publish Navigational Warning
- f. Participated on SAR and natural disaster relief and mitigation
  - Toba Lake ferry accident;
  - Palu Bay and Sunda Strait, earthquake and Tsunami;
  - Lion Air - JT610 in North of Tanjung Karawang (Java Sea))





# Progress on surveys and charting

## SURVEY ACTIVITIES

### ❖ Conduct Hydrographic Survey

- ± 53 survey areas
- covering ± 54.000 km<sup>2</sup>,
- less then 1% of all Indonesian waters

### ❖ Priorities Area :

- Channel;
- Ports;
- Archipelagic Sea Lanes;
- Busiest water; and
- Straits;

### ❖ CATZOC C - D area

### ❖ Identification of Under water Pipeline and Cable





# Progress on surveys and charting



## Charting Activities

### PRODUCTION

- 20 Cartographers on Paper Chart
- 150 Numbers of Paper Charts (Reprints and New Editions)
- 8 Cartographers on ENC
- 50 Cells annually (New Cells and New Editions)

### SOFTWARE

- CARIS GIS 4.4
- SevenCs ENC Tools
- D'Kart Inspector
- CARIS HOM and S57 Composer (HPD ongoing)
- ECS Orca Master
- ECDIS MARIS

## Progress On Charting 2018

- ENC Coverage 520 Cells
- Paper Chart in 2018 Update 86 numbers from the total 580 numbers of paper chart, consist of:
  - ❖ 47 Numbers of Chart - Port & Channel
  - ❖ 15 Numbers of Chart - Archipelagic Sea Lanes
  - ❖ 24 Numbers of Chart - Busies water







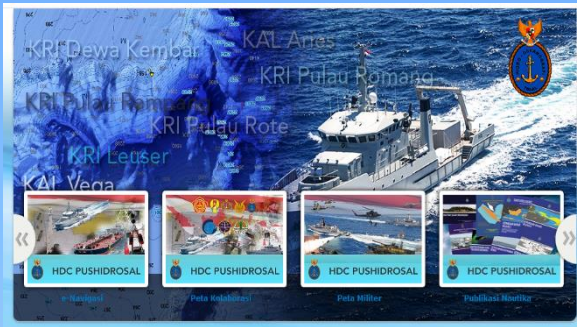
# Progress on surveys and charting

## MARINE SAFETY INFORMATION

- Directorate General of Sea Transportation (DGST) is responsible for MSI in Indonesia water.
- Navtex Station under DGST are 4 Stations (Jakarta; Makassar; Ambon and Jayapura)
- Pushidrosal (HO) support the information from hydrographic Notes on providing navigational warning.
- Hydrographic Data Center (IMAGIC) as MSDI provide also navigational warning (E - Navigational Dashboard)
- Pushidrosal published NtMs weekly (52) ;
- Navigational Warning & Hydro-Indonesia published due to urgent information of ships collision; natural disaster; SAR; under water cable & pipes installation etc TO all mariners by Coastal Radio Station.



# DEVELOPMENT INDONESIAN MARINE GEOSPATIAL INFORMATION CENTER (IMAGIC) AS IMPLEMENTATION OF MSDI



<http://hdc.pushidrosal.id>

- PUSHIDROSAL INDONESIA HAD DEVELOPED THE HYDROGRAPHIC DATA CENTRE AS IMPLEMENTATION OF MARINE SPATIAL DATA INFRASTRUCTURE IN INDONESIA (IMAGIC).
- THIS DATA ARE OPENED AS WELL AS SAFETY OF NAVIGATION, MARINE ENVIRONMENT PROTECTION, INTEGRATED COASTAL ZONE MANAGEMENT, MARINE RESEARCH, EXPLOITATION AND EXPLORATION OF MARINE RESOURCES.
- HYDROGRAPHIC DATA CENTRE PORTAL CONNECT TO OTHER PORTAL IN INDONESIA AND COULD USE BY ONLINE.
- INDONESIA GOVERNMENT BUILD NATIONAL MARITIME PORTAL “**NATIONAL OCEAN DATA CENTER**” WHICH INTEGRATE MARITIME PORTAL FROM ALL NATIONAL MARITIME AGENCY



# Capacity Building Activities

## PARTICIPATING IN INTERNATIONAL COURSE

- ❖ Oceanography Course in India
- ❖ Hydrographic Course Cat – B Japan
- ❖ Long Hydrography Course in India
- ❖ 10<sup>th</sup> Course in Marine Cartography and Data Assessment – MCDA (FIG-IHO-ICA-Cat B) in UK – 2 persons in 2018
- ❖ Hydrographic Course in Australia (**2019**) – one candidate (just finished Advance English Course in DITC – Laverton Victoria Australia - Dec 2018)
- ❖ International Hydrography Management and Engineering Program in Mississippi US - **2019** (19 February – 22 August 2019) – one candidate

## REGIONAL CB ON EAHC TRAINING IN 2018

- ❖ Jakarta – GNSS for tide correction (18 participants)
- ❖ Shanghai – Carto Production Database System Development

## INTERNATIONAL WORKSHOP AND SEMINAR

- ❖ Workshop International Delimiting Maritime Boundaries Challenges and Outlook 2018 in Paris
- ❖ Workshop Satellite Derived Bathymetry (Remote Sensing Technology in Bathymetry) - 2018 University of Ottawa Canada

## Hydrographic Survey Cat B & A

- ❖ Cat B Hydrographic Survey Course (IDN Navy Hydrographic School)
- ❖ Cat A Hydrographic Survey Course (Institute of Technology Bandung)





# Participate in IHO WG, RHC, and others

NO.	MEETING	MEMBER/ASOCIATE	REMARKS
1.	Hydrographic Service and Standards Committee (HSSC)	M	
2.	Nautical Cartography Working Group (NCWG)	M	
3.	Data Quality Working Group (DQWG)	M	
4.	Marine Spatial Data Infrastructures Working Group (MSDIWG)	M	
5.	S-100 Working Group (S100WG)	M	
6.	Nautical Information Provision Working Group (NIPWG)	M	
7.	Tides, Water Level And Currents Working Group (TWCWG)	M	
8.	ENC Standards Maintenance Working Group (ENCWG)	M	
9.	Hydrographic Dictionary Working Group (HDWG)	M	
10.	East Asia Hydrographic Commission (EAHC)	M	Vice Chair
11.	North Indian Ocean Hydrographic Commission (NIOHC)	M	
12.	South West Pacific Hydrographic Commission (SWPHC)	A	
13.	FIG/IHO/ICA – International Board on Standards of Competence for Hydrographic Surveyor and Nautical Cartographers		
14.	GEBCO Sub Committee on Undersea Feature Names (SCUFN)		
15.	IHO Council	M	
16.	Malacca and Singapore Straits (MSS) ENC	M	Coordinator

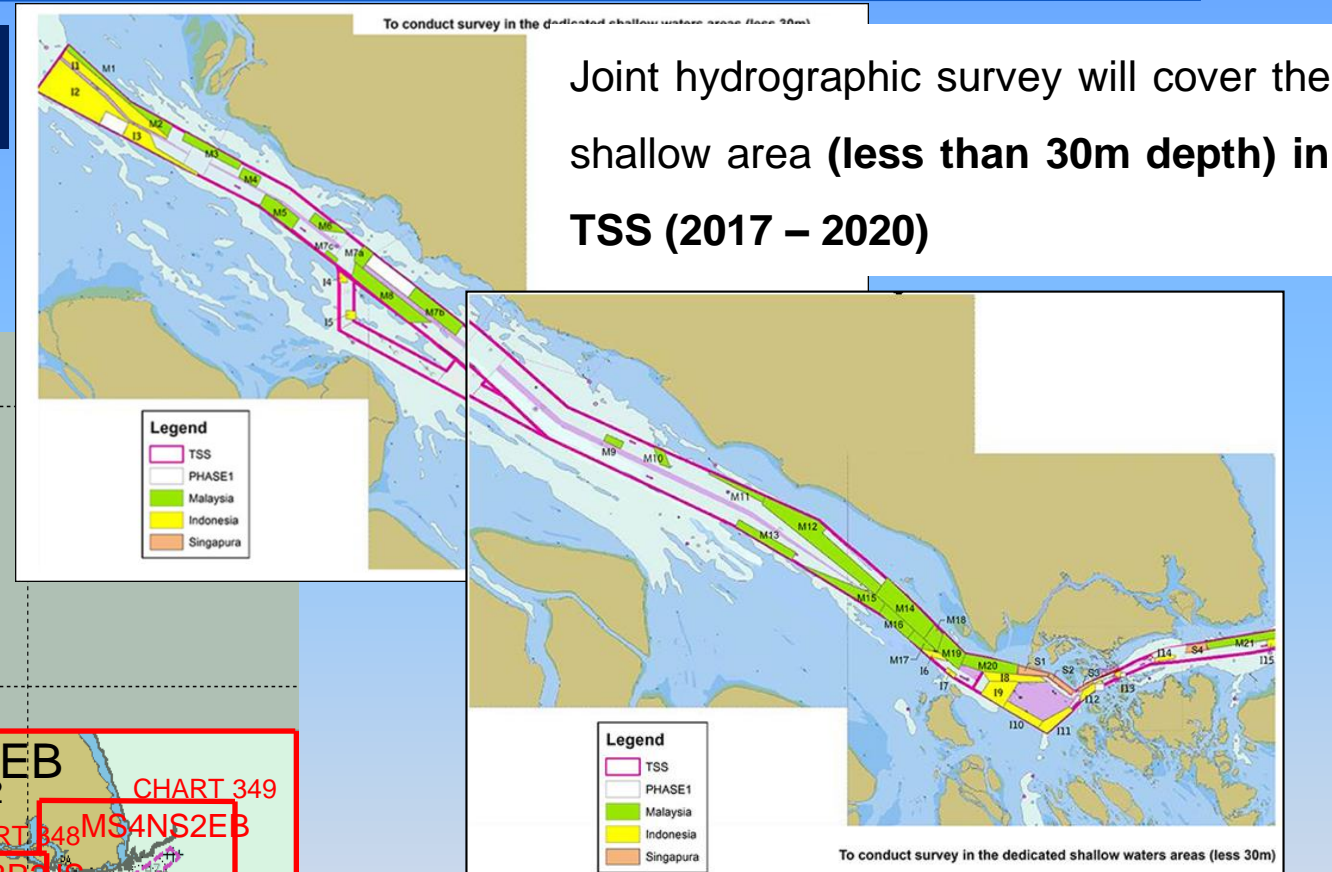
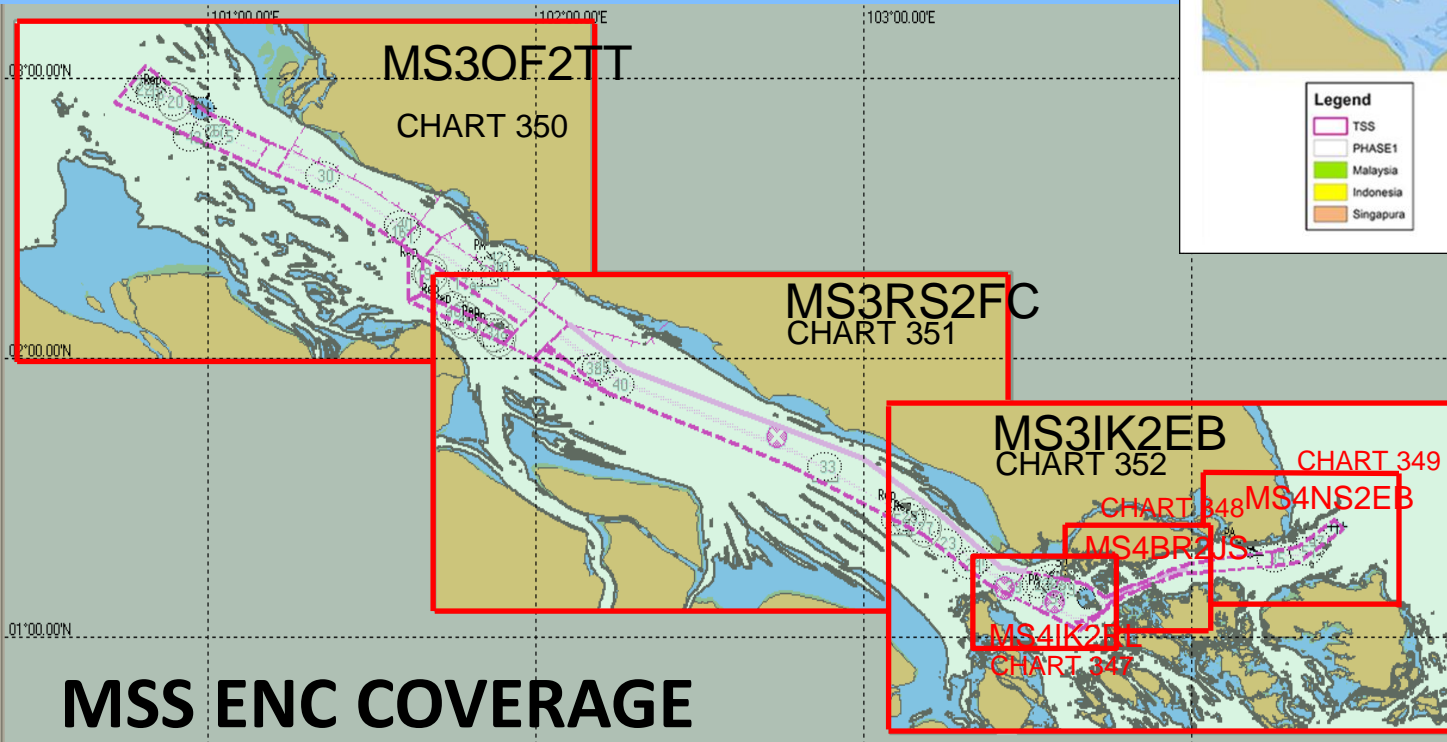






# Lesson learned to share

## MALACCA SINGAPORE STRAIT ELECTRONIC NAVIGATIONAL CHART (MSS ENC)



Joint hydrographic survey will cover the shallow area (less than 30m depth) in TSS (2017 – 2020)

The hydrographic data acquired will be processed and high density electronic navigational charts (ENCs) will be produced for the safety of navigation.

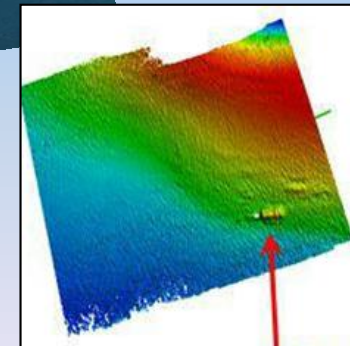




# Lesson learned to share

## PARTICIPATE ON DISASTER RELIEF AND MITIGATION

- ❖ SAR on MV Sinar Bangun sinking in Toba Lake
- ❖ Participate on Palu – Donggala Earthquake and Tsunami
- ❖ SAR JT610 (Lion Air Crash) in North of Tanjung Karawang – Java Sea.
- ❖ Participate on Sunda Strait Tsunami effect – Disaster Relief, Search and Rescue





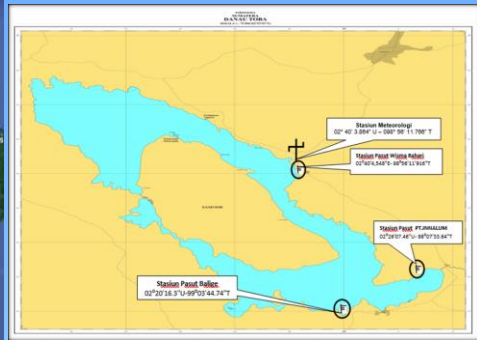
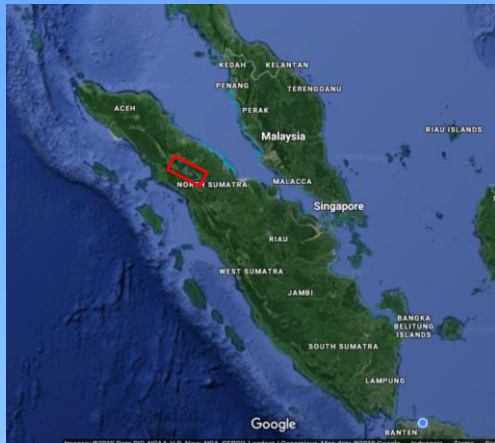






# Success stories to share

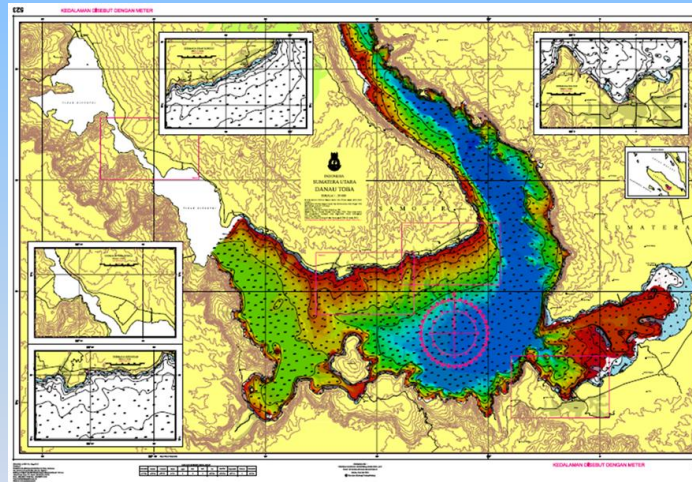
## Hydrographic Survey & Charting in Toba Lake



H = 903 m from MSL

IHO Publication : S-4, specifies regulations of the IHO for international (INT) charts and chart specifications of IHO,

- B-350.4 : Navigable rivers, lakes and canals should be shown as completely as possible on the larger scales;
- B-353 : land drainage: rivers, lakes, glaciers



- Safety Navigation Purposes provide inland waterways chart in Toba Lake
- 9 local port for local transport
- Hydrographic Survey
- Full Cover MBES - 60% Area
- Max Depth : 504 m
- Continue on 2019 program

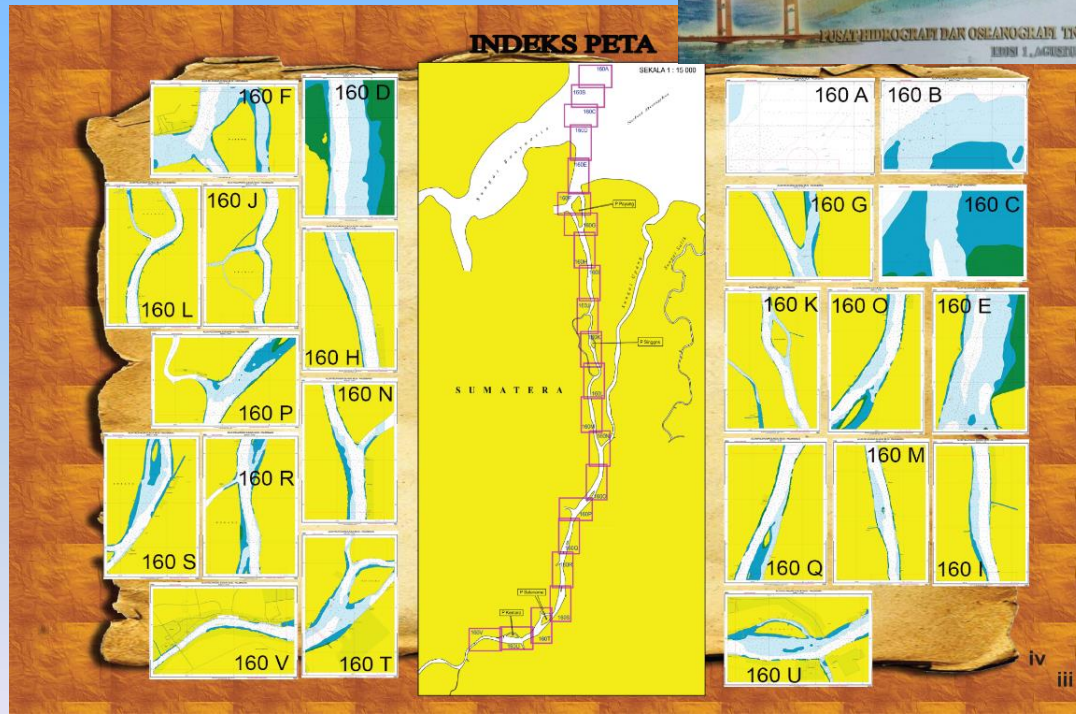
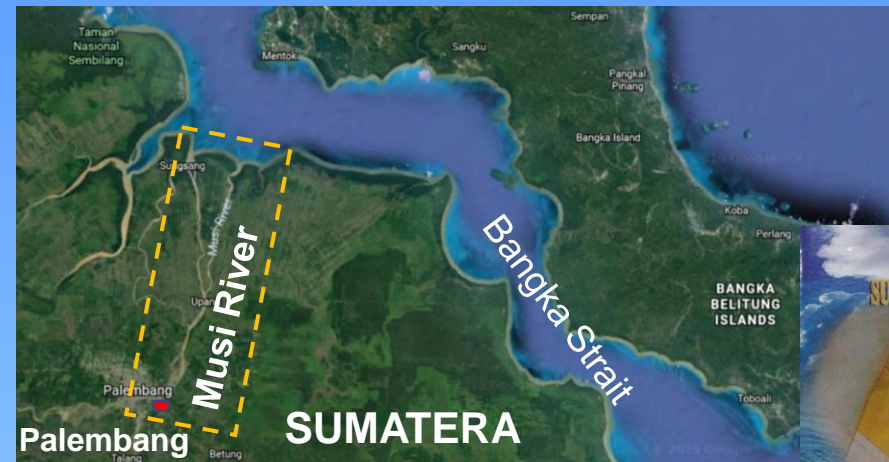


# Success stories to share



## PORT ENC PALEMBANG AND INLAND WATERWAYS CHARTS, MUSI RIVER

- ❖ Launching in 2017
- ❖ Musi River in South Sumatera (hydrographic survey 2013 – 2015) – depth average 3 – 10 m.
- ❖ The distance from the estuary to the harbor is 100 km. And river width between 270 m to 2.5 km,
- ❖ Book Chart of Musi River has 22 paper chart (Scale 1 : 10.000)
- ❖ ENC 22 cell
- ❖ Next project of Book Chart (ongoing process) is the channel of Muara Pegah – Palaran Samarinda East Kalimantan (Mahakam river)





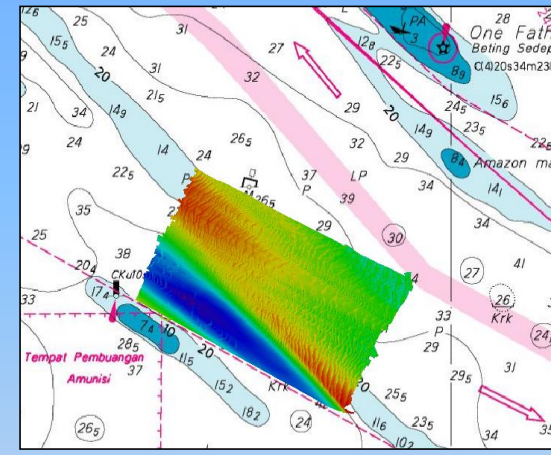
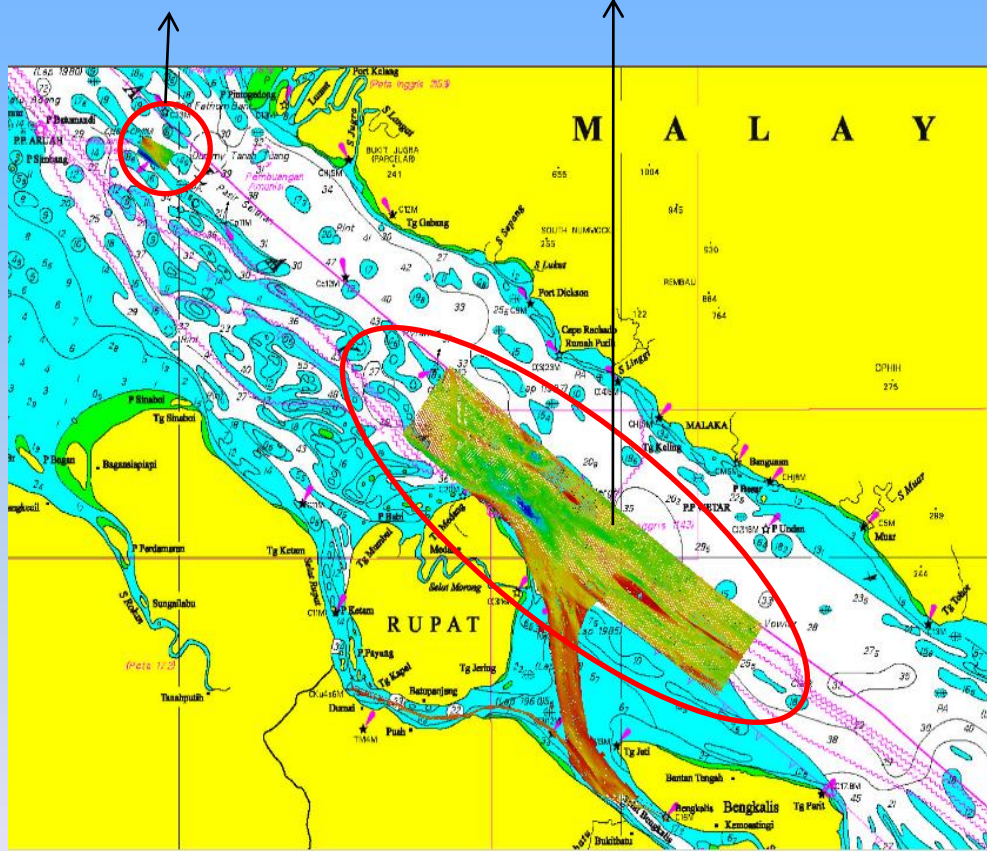


# Lesson learned to share

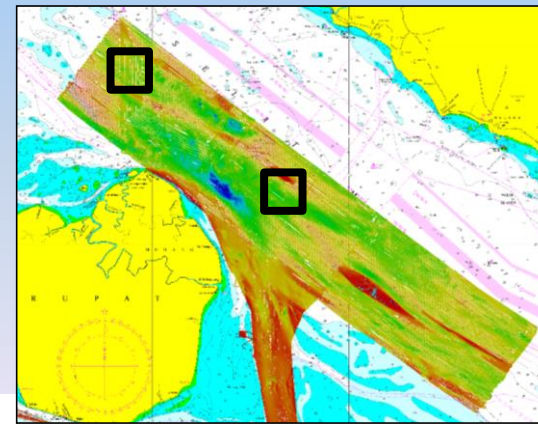
## Sandwaves in the Strait of Malacca

One-Fathom Bank

North of Rupert TSS (DW)



- One-Fathom Bank
- Surveyed 2016
- KRI Rigel



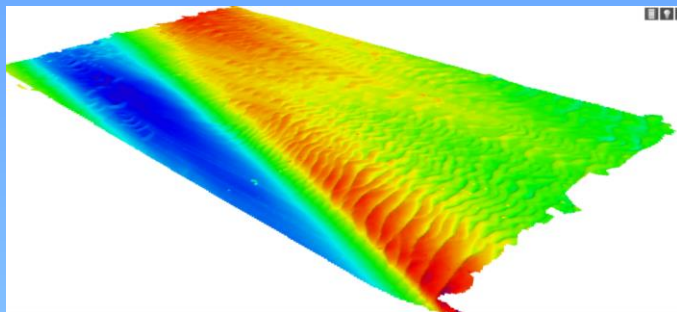
- North of Rupert TSS (DW)
- Surveyed 2017
- KRI Spica



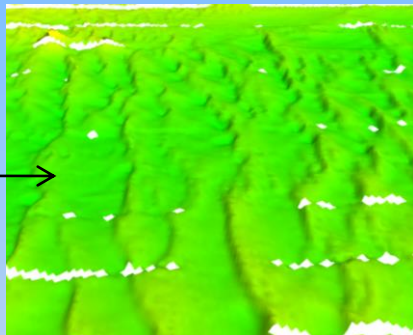
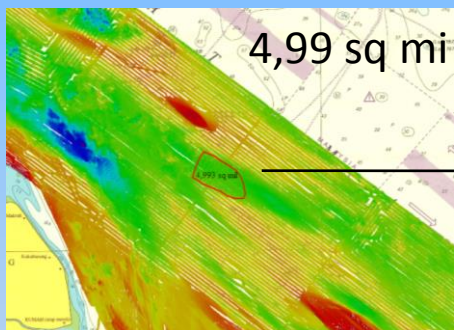


# Lesson learned to share

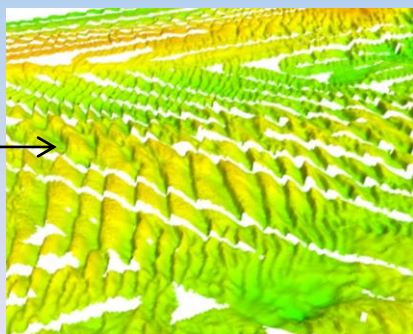
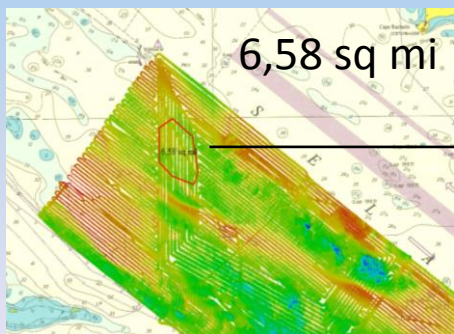
## SANDWAVES IN THE STRAIT OF MALACCA



**One-Fathom Bank**  
Water depth 20 – 40m  
Amplitude 1-5m  
Spacing 100-200 m



**Rupert island vicinity**  
Depth 50-70 m  
Amplitude 1-6 m  
Spacing 100-200m



**Rupert island vicinity**  
Depth 40-60 m  
Amplitude 3-9 m  
Spacing 100-300m  
DW south-bound

### SUMMARY AND RECOMMENDATION :

- ❖ Sandwaves were detected to be in/near TSS
- ❖ Sandwave is fluid hence periodic survey may be needed.
- ❖ Research on Sandwave



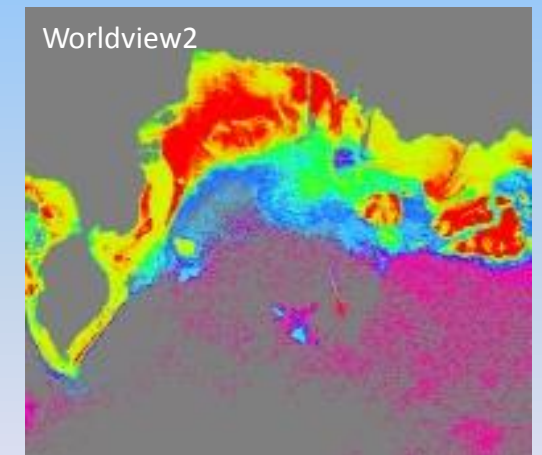




# Lesson learned to share

## Satellite Derived Bathymetry (SDB) Program

1. Joint research with the National Institute of Aeronautics and Space (LAPAN)
2. Joint Research areas:
  - a. Sabang Island 2016
  - b. Halong Bay 2016
  - c. Bawean Islands 2017
  - d. Gili Mantra 2018
  - e. Setokok 2018
3. Methods:
  - a. Semi Parametric w/ Independent Depth Variable (TNP) by Kanno et al (2011)
  - b. Random Forest (RF) by Manessa et al (2016)
4. Imageries:
  - a. Worldview2
  - b. SPOT-6/7





# Plans that affect the region

- IHO CB – EAHC TRDC-BoD Program 2019 (on *Marine Safety Information*)
- **Indonesia Golden Jubilee 2020 – International Hydrographic Seminar 2020**

## IHO CB – EAHC TRDC program 2018 – GNSS for Tide Correction



## International Hydrographic Seminar 2018







# TERIMA KASIH

# Thank You

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