



MMEA PERSPECTIVE ON MARITIME DOMAIN AWARENESS



PRESENTED BY:

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C3I DEPARTMENT
MMEA HQ
PUTRAJAYA
MALAYSIA**

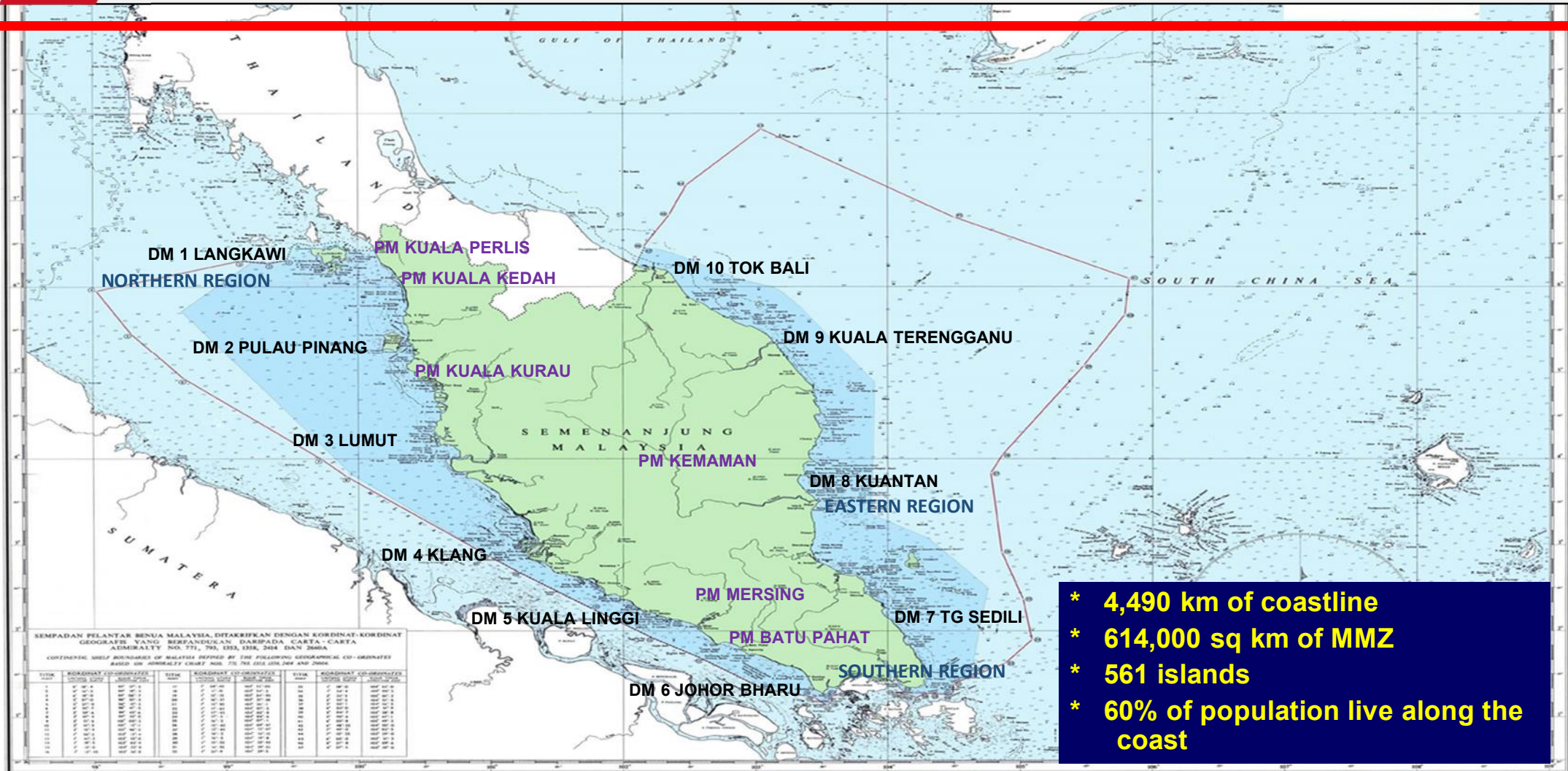


SCOPE OF PRESENTATION

- ➔ MALAYSIAN MARITIME ZONE
 - ➔ MALAYSIAN MARITIME SEARCH AND RESCUE AREA
 - ➔ BACKGROUND – MARITIME ENVIRONMENT
 - ➔ MAIN SEA LANES OF COMMERCE
 - ➔ FUNCTION OF MMEA
 - ➔ MMEA STRATEGY
 - ➔ MARITIME THREAT TO SECURITY
 - ➔ HOW MMEA DO IT
 - ➔ MALAYSIA & SABAH SEA SURVEILLANCE SYSTEM
 - ➔ MOBILE SURVEILLANCE UNIT (MSU)
 - ➔ TERRESTERIAL AIS COVERAGE
 - ➔ MMEA VESSEL & AIRCRAFT
 - ➔ C4ISR SYSTEM & SYSTEM ARCHITECTURE
 - ➔ FUTURE PROJECT
 - ➔ HF SURFACE WAVE RADAR
 - ➔ SUCCESS STORY ON PIRACY & IUU FISHING



MALAYSIAN MARITIME ZONE

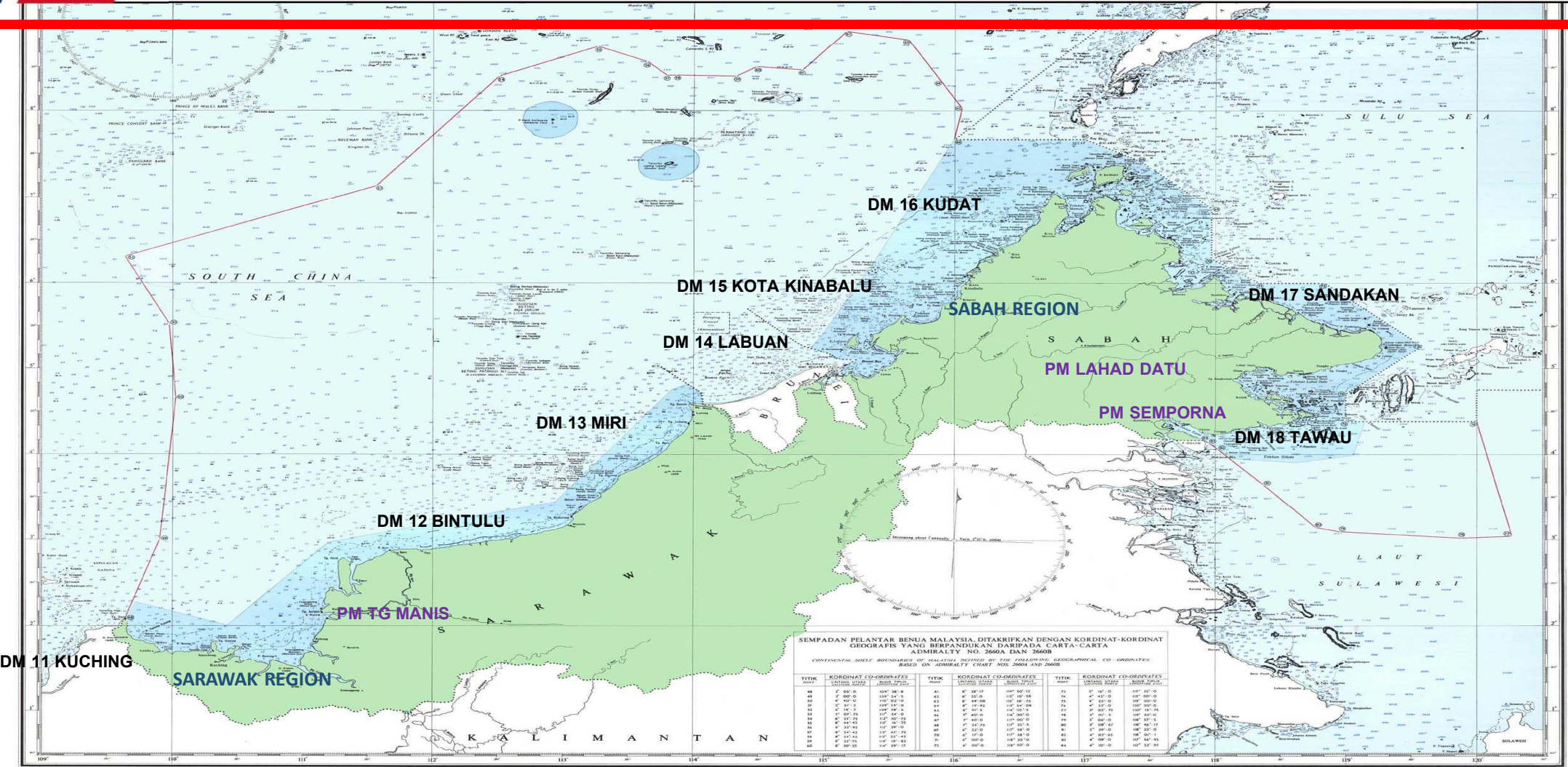


SEMPADAN PELANTAR BENUA MALAYSIA, DITAKRIFKAN DENGAN KORDINAT-KORDINAT GEOGRAFIK YANG BERFANDESIAN DARIPADA CARTA-CARTA ADMIRALTY NO. 771, 793, 1333, 1338, 2414 DAN 2600A. CONTINENTAL SHELF BOUNDARIES OF MALAYSIA DEPICTED BY THE FOLLOWING GEOGRAPHICAL CO-ORDINATES BASED ON ADMIRALTY CHARTS NOS. 771, 793, 1333, 1338 AND 2600A.

| TIKOK | KORDINAT COORDINATES | TIKOK | KORDINAT COORDINATES | TIKOK | KORDINAT COORDINATES |
|-------|----------------------|-------|----------------------|-------|----------------------|
| POINT | LONGITUDE | POINT | LONGITUDE | POINT | LONGITUDE |
| 1 | 101° 00' 00" E | 11 | 101° 00' 00" E | 21 | 101° 00' 00" E |
| 2 | 101° 00' 00" E | 12 | 101° 00' 00" E | 22 | 101° 00' 00" E |
| 3 | 101° 00' 00" E | 13 | 101° 00' 00" E | 23 | 101° 00' 00" E |
| 4 | 101° 00' 00" E | 14 | 101° 00' 00" E | 24 | 101° 00' 00" E |
| 5 | 101° 00' 00" E | 15 | 101° 00' 00" E | 25 | 101° 00' 00" E |
| 6 | 101° 00' 00" E | 16 | 101° 00' 00" E | 26 | 101° 00' 00" E |
| 7 | 101° 00' 00" E | 17 | 101° 00' 00" E | 27 | 101° 00' 00" E |
| 8 | 101° 00' 00" E | 18 | 101° 00' 00" E | 28 | 101° 00' 00" E |
| 9 | 101° 00' 00" E | 19 | 101° 00' 00" E | 29 | 101° 00' 00" E |
| 10 | 101° 00' 00" E | 20 | 101° 00' 00" E | 30 | 101° 00' 00" E |



MALAYSIAN MARITIME ZONE



SEMPADAN PELANTAR BENUA MALAYSIA, DITAKRIFKAN DENGAN KORDINAT-KORDINAT GEOGRAFIK YANG BERPANDUKAN DARIPADA CARTA-CARTA ADMIRALTY NO. 2660A DAN 2660B.
 CONTINENTAL SHELF BOUNDARIES OF MALAYSIA, DERIVED BY THE FOLLOWING GEOGRAPHICAL CO-ORDINATES, BASED ON ADMIRALTY CHART NOS. 2660A AND 2660B.

| TITIK | KORDINAT CO-ORDINATES | TITIK | KORDINAT CO-ORDINATES | TITIK | KORDINAT CO-ORDINATES |
|-------|---------------------------|-------|---------------------------|-------|---------------------------|
| POINT | UTTERS SIZE - 2000 METERS | POINT | UTTERS SIZE - 2000 METERS | POINT | UTTERS SIZE - 2000 METERS |
| 48 | 0° 00' 0" 104° 34' 0" E | 61 | 0° 38' 17" 104° 50' 12" E | 71 | 5° 14' 0" 107° 35' 0" E |
| 49 | 0° 00' 0" 104° 34' 0" E | 62 | 0° 18' 0" 104° 50' 12" E | 72 | 4° 42' 0" 107° 35' 0" E |
| 50 | 0° 40' 0" 104° 34' 0" E | 63 | 0° 19' 0" 104° 50' 12" E | 73 | 4° 33' 0" 107° 35' 0" E |
| 51 | 0° 20' 0" 104° 34' 0" E | 64 | 0° 19' 0" 104° 50' 12" E | 74 | 4° 33' 0" 107° 35' 0" E |
| 52 | 0° 00' 0" 104° 34' 0" E | 65 | 0° 00' 0" 104° 50' 12" E | 75 | 4° 33' 0" 107° 35' 0" E |
| 53 | 0° 00' 0" 104° 34' 0" E | 66 | 0° 00' 0" 104° 50' 12" E | 76 | 4° 33' 0" 107° 35' 0" E |
| 54 | 0° 00' 0" 104° 34' 0" E | 67 | 0° 00' 0" 104° 50' 12" E | 77 | 4° 33' 0" 107° 35' 0" E |
| 55 | 0° 00' 0" 104° 34' 0" E | 68 | 0° 00' 0" 104° 50' 12" E | 78 | 4° 33' 0" 107° 35' 0" E |
| 56 | 0° 00' 0" 104° 34' 0" E | 69 | 0° 00' 0" 104° 50' 12" E | 79 | 4° 33' 0" 107° 35' 0" E |
| 57 | 0° 00' 0" 104° 34' 0" E | 70 | 0° 00' 0" 104° 50' 12" E | 80 | 4° 33' 0" 107° 35' 0" E |
| 58 | 0° 00' 0" 104° 34' 0" E | 71 | 0° 00' 0" 104° 50' 12" E | 81 | 4° 33' 0" 107° 35' 0" E |
| 59 | 0° 00' 0" 104° 34' 0" E | 72 | 0° 00' 0" 104° 50' 12" E | 82 | 4° 33' 0" 107° 35' 0" E |
| 60 | 0° 00' 0" 104° 34' 0" E | 73 | 0° 00' 0" 104° 50' 12" E | 83 | 4° 33' 0" 107° 35' 0" E |
| 61 | 0° 00' 0" 104° 34' 0" E | 74 | 0° 00' 0" 104° 50' 12" E | 84 | 4° 33' 0" 107° 35' 0" E |

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MALAYSIAN MARITIME SEARCH & RESCUE AREA





BACKGROUND - MARITIME ENVIRONMENT



PETROLEUM AND GAS

- * 600,000 barrels crude oil per day
- * 2.1 billion cubic feet of gas per day
- * Petroleum & gas export value USD20 billion per year mainly from offshore



BACKGROUND - MARITIME ENVIRONMENT



FISHERIES

- 70% of fish consumptions caught at sea
- Fish production 2 million tons per year
- 80,000 fishermen

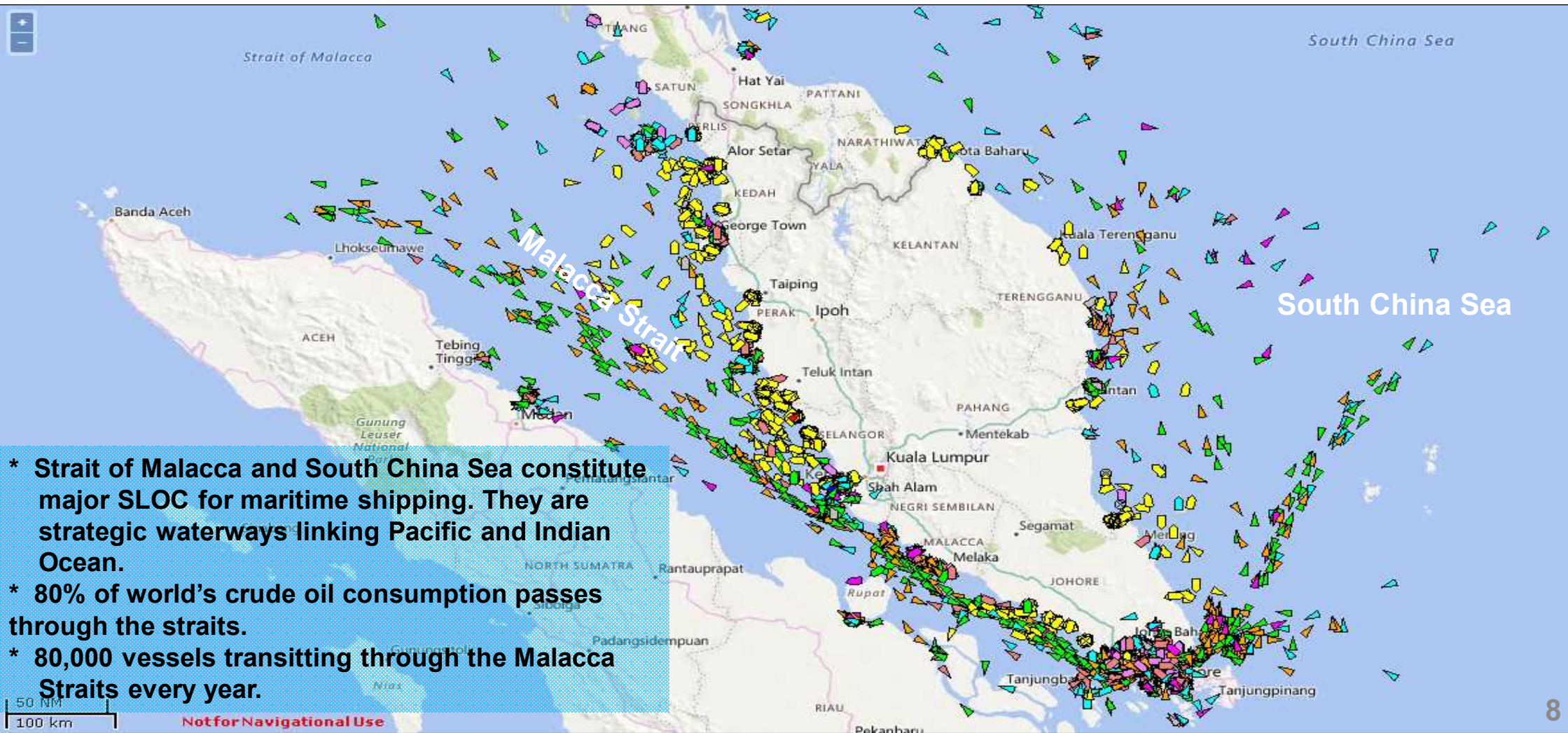
ISLAND & COASTAL TOURISM

- USD 4.4 billion per year





MAIN SEA LANES OF COMMERCE



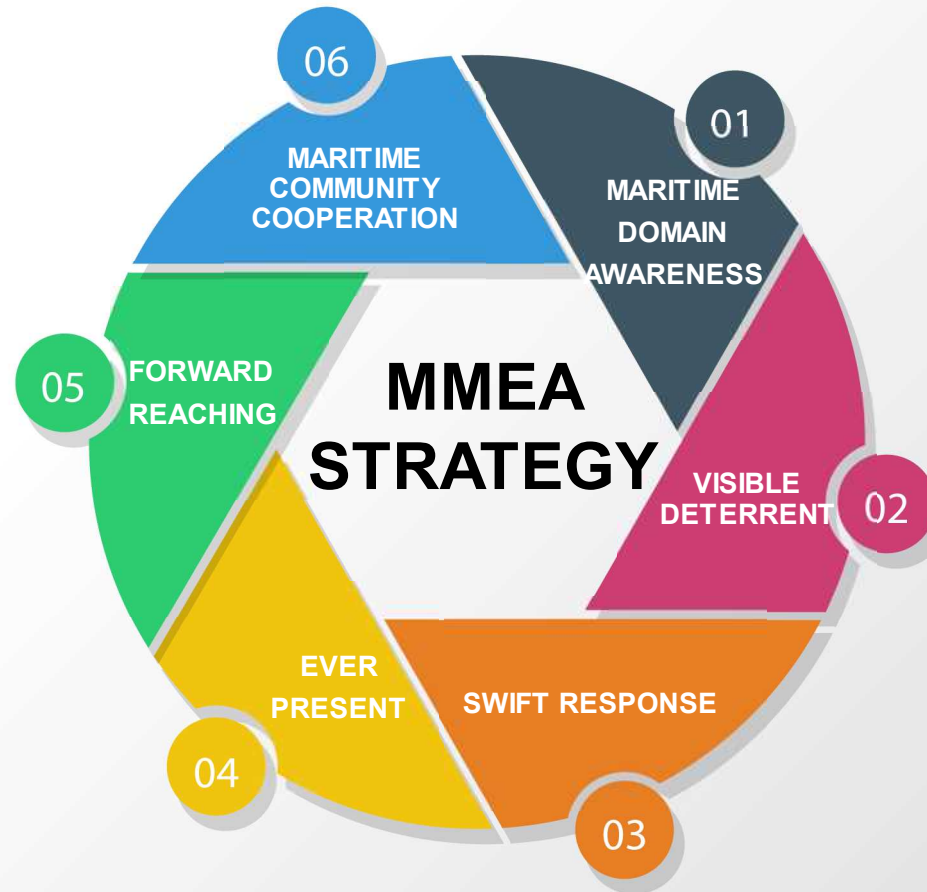


FUNCTION OF MMEA

- To enforce law and order under any federal law;
- To perform maritime Search And Rescue (SAR);
- To prevent and suppress the commission of an offence;
- To lend assistance in any criminal matters on a request by a foreign State as provided under the Mutual Assistance in Criminal Matters Act 2002 (Act 621);
- To carry out air and coastal surveillance;
- To establish and manage maritime institutions for training;
- To ensure maritime security and safety;
- On the high seas:
 - * Maritime search and rescue;
 - * Controlling and preventing maritime pollution;
 - * Preventing and suppressing piracy;
 - * Preventing & suppressing illicit traffic in narcotic drugs & dangerous illegal consignment items according to the Strategic Trade Act;



MMEA STRATEGY





MARITIME THREAT TO SECURITY

01

FREEDOM OF NAVIGATION

02

**PROTECTION OF MINERAL
RESOURCES**

03

TERRORIST ATTACK

04

PIRACY & ARMED ROBBERY

05

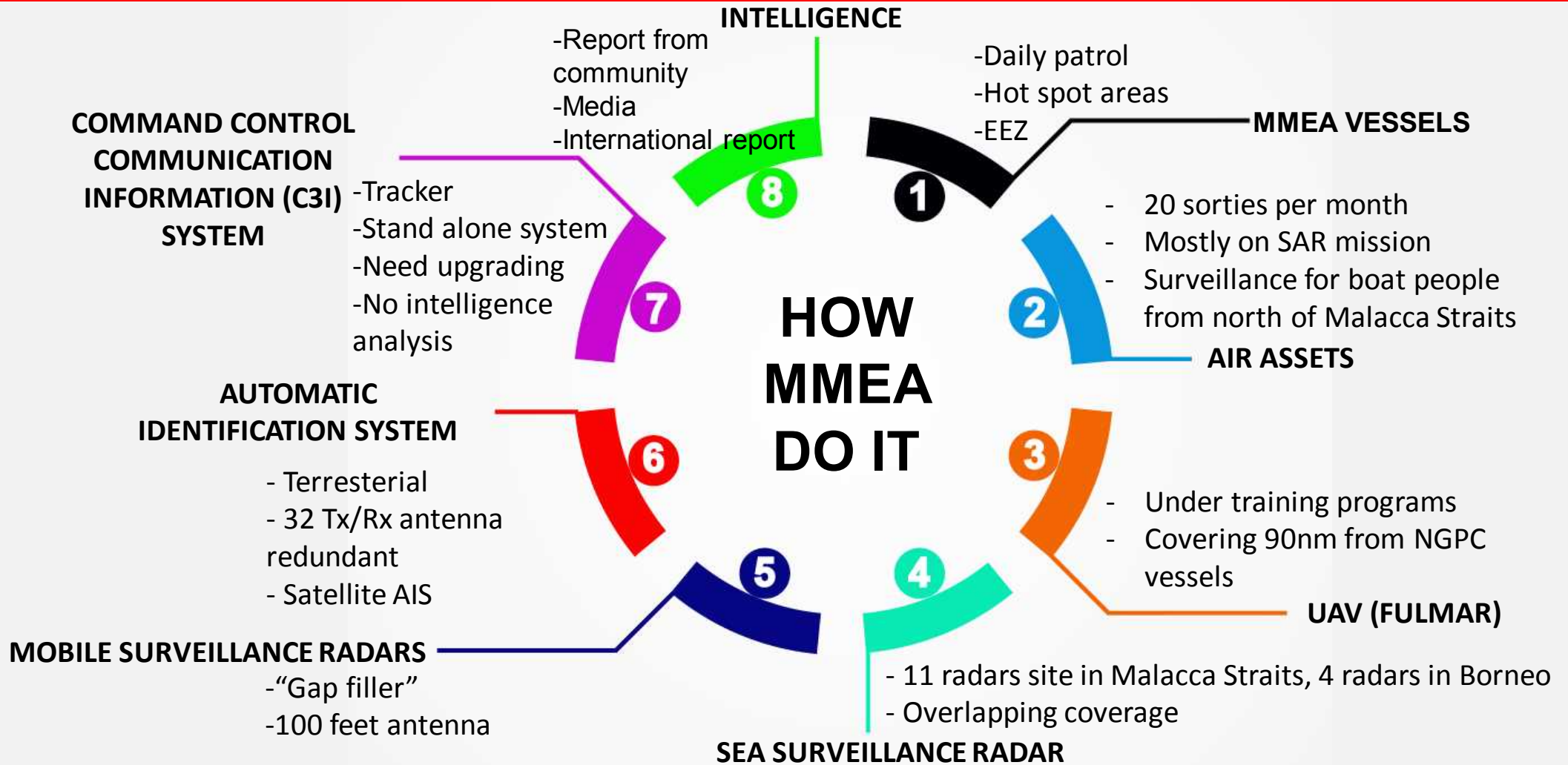
**ILLEGAL UNREPORTED
UNREGULATED (IUU) FISHING**

06

ILLEGAL IMMIGRANT

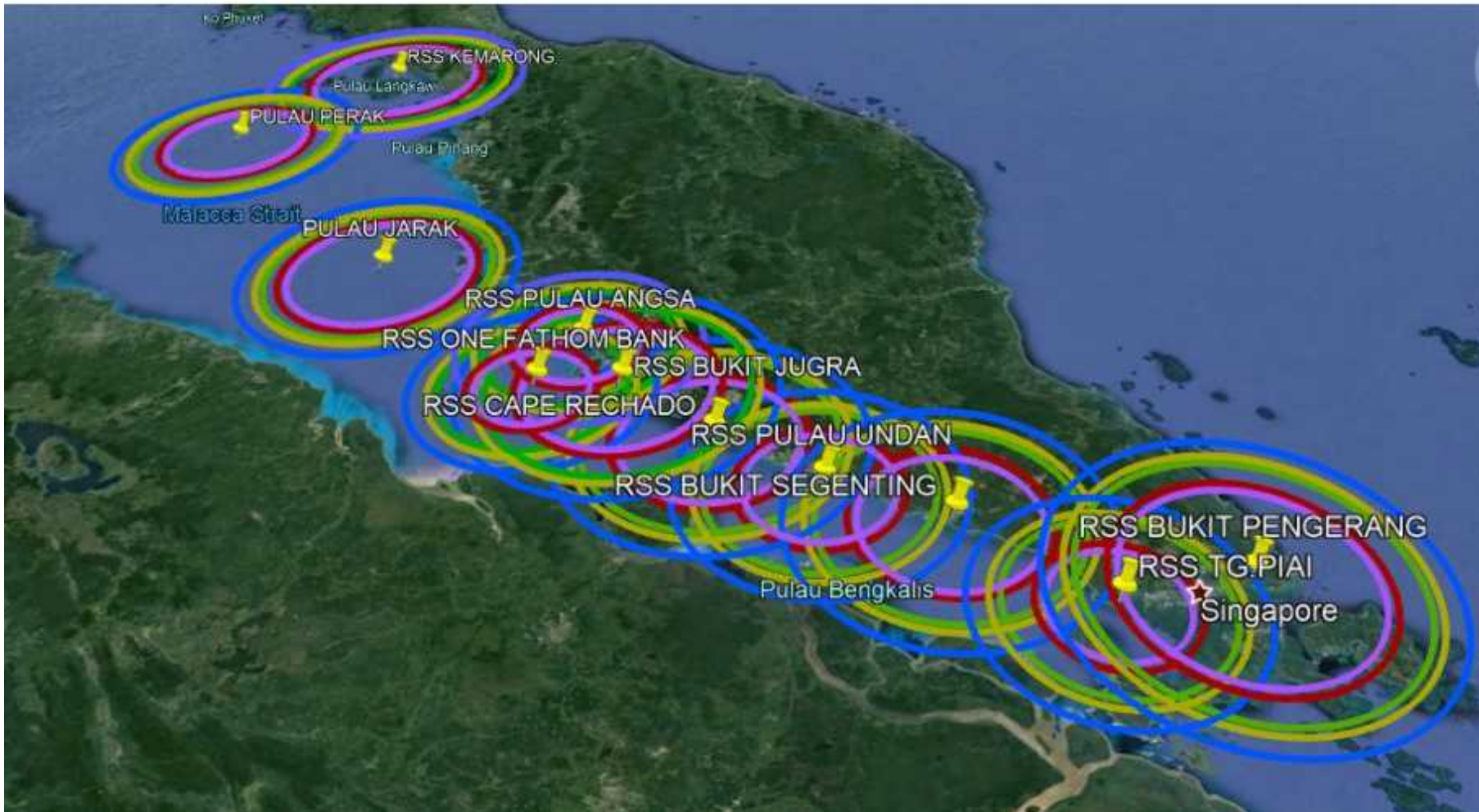
07

**SMUGGLING OF DRUGS,
WEAPONS & CONTRABAND**





MALAYSIAN SEA SURVEILLANCE SYSTEM PENINSULAR MALAYSIA



RSS:

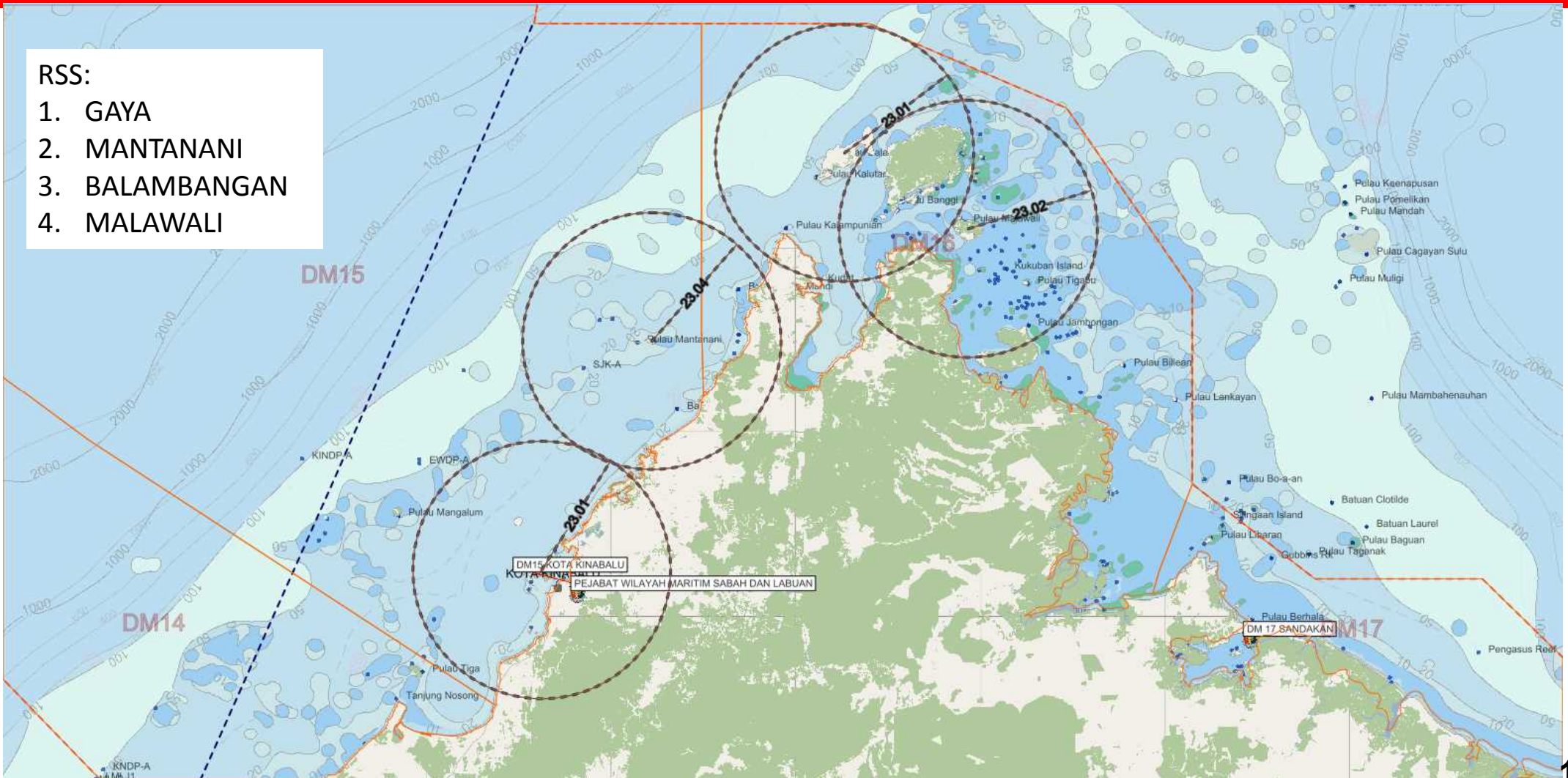
1. TG PIAI
2. Pengerang
3. SEGENTING
4. UNDAN
5. CAPE RACHADO
6. JUGRA
7. ONE FATHOM BANK
8. ANGSA
9. JARAK
10. PERAK
11. KEMARONG



SABAH SEA SURVEILLANCE SYSTEM

RSS:

1. GAYA
2. MANTANANI
3. BALAMBANGAN
4. MALAWALI





MOBILE SURVEILLANCE UNIT (MSU)

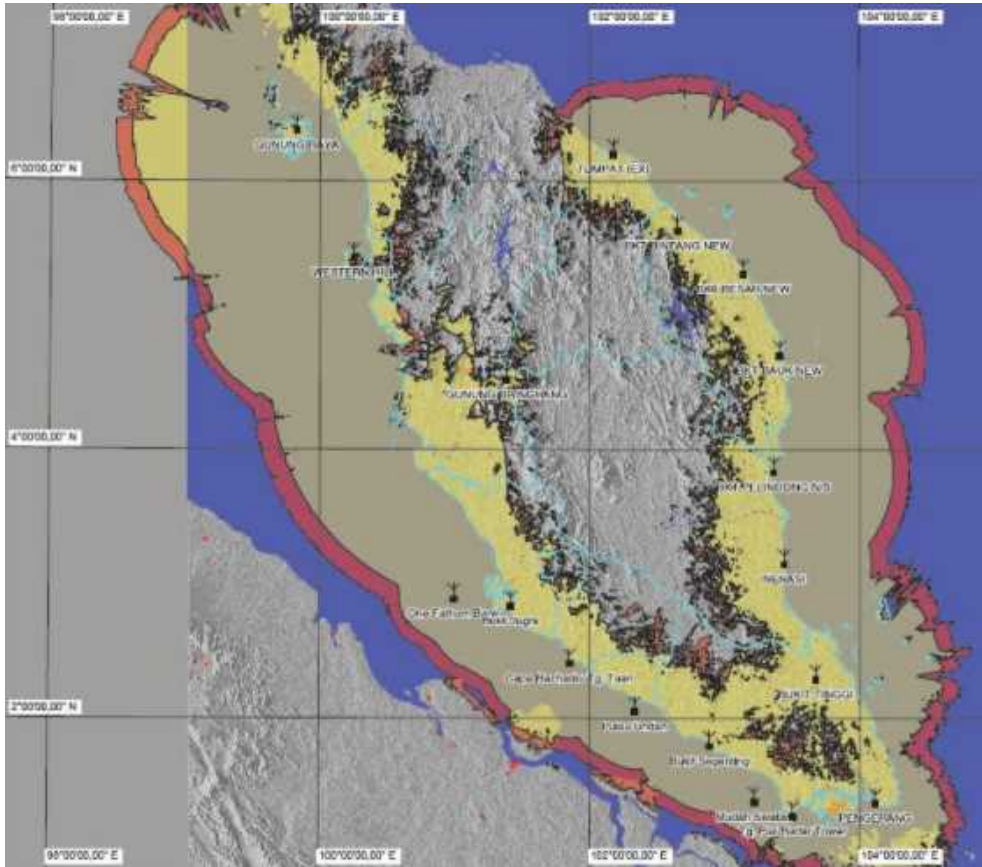


MOBILE SURVEILLANCE UNIT CONSISTS OF:

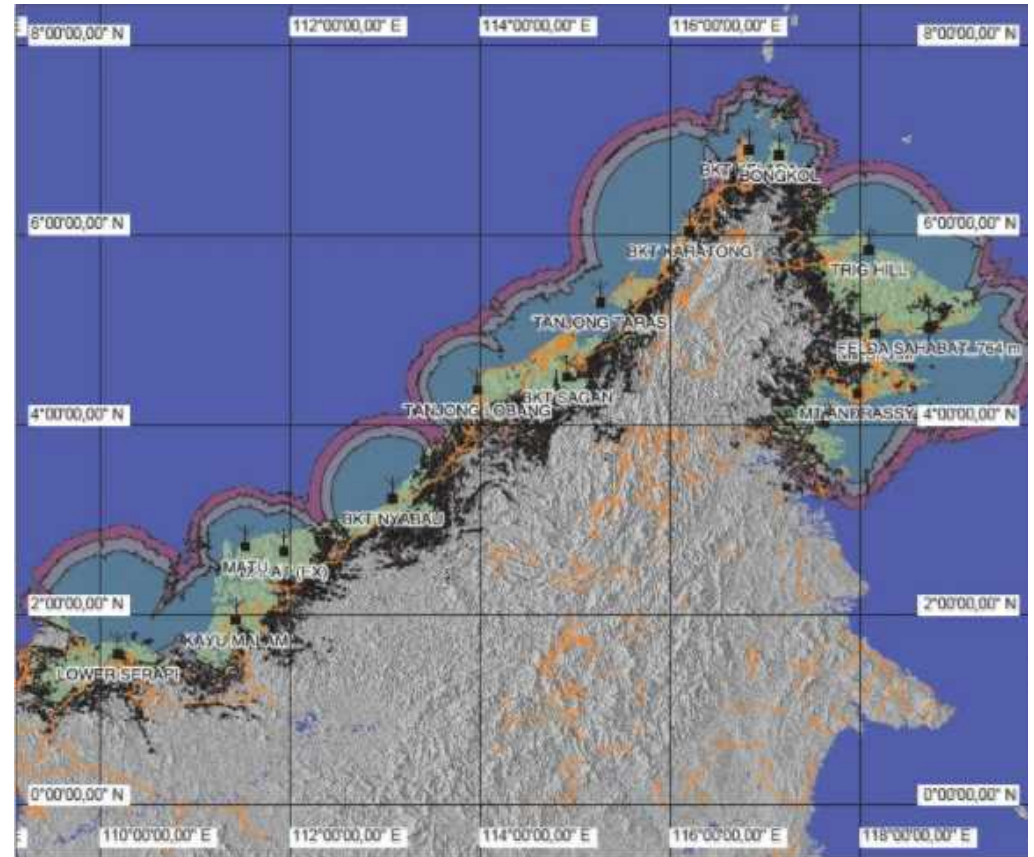
- MARINE RADAR
- SATELLITE COMMUNICATION
- 100 FEET TELESCOPIC ANTENNA
- CONTROLLER CABIN
- GENERATOR
- SUPORT FACILITIES



AUTOMATIC IDENTIFICATION SYSTEM (TERRESTRIAL AIS COVERAGE)



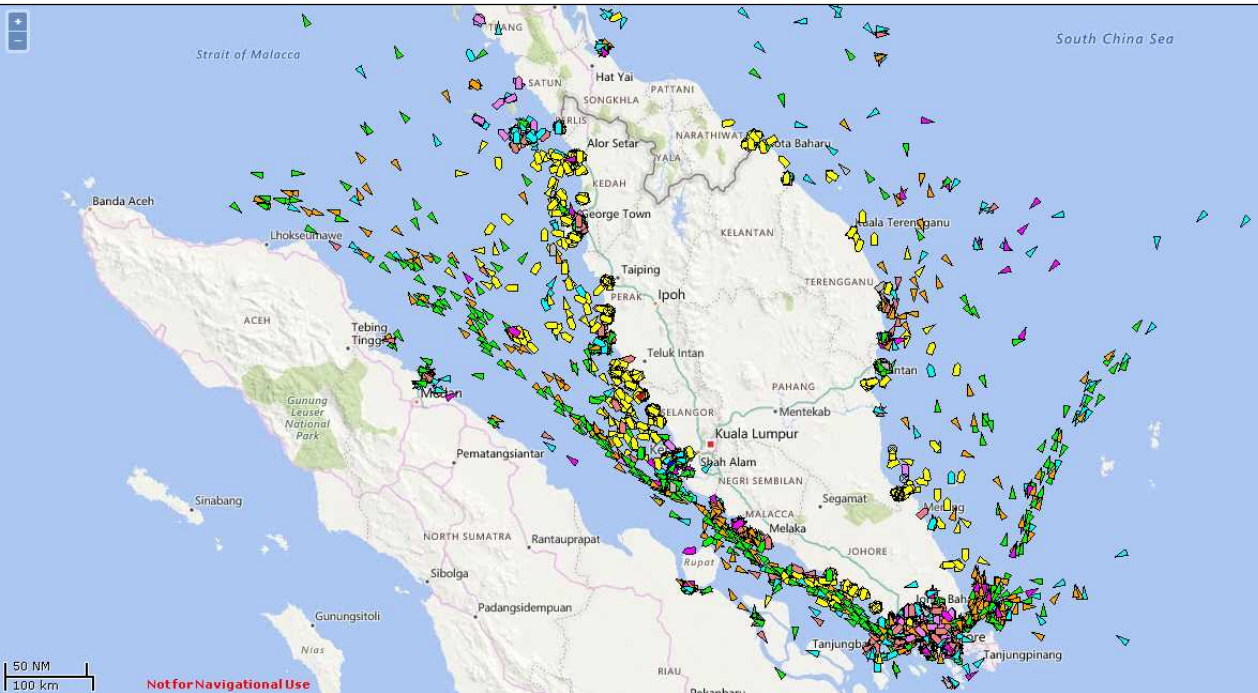
- 18 BASE RX/TX
PENINSULAR MALAYSIA



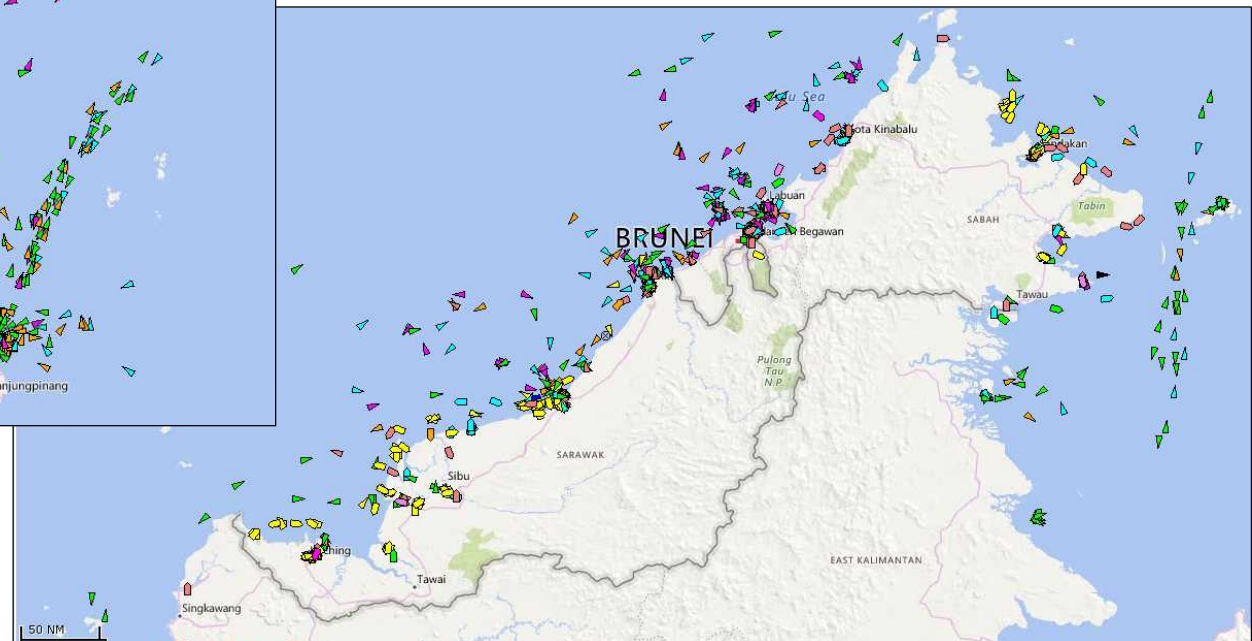
- 14 BASE RX/TX REDUNDANT
SABAH & SARAWAK



AUTOMATIC IDENTIFICATION SYSTEM (TERRESTRIAL & SATELLITE AIS)



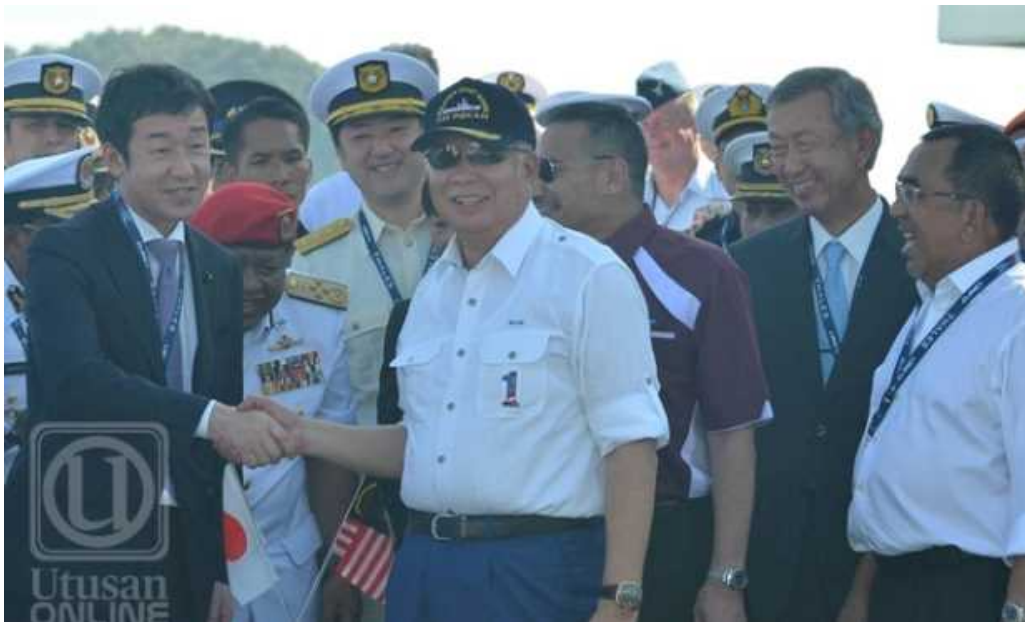
PENINSULAR MALAYSIA



SABAH & SARAWAK

MMEA VESSEL

- 73 VESSEL, 186 BOATS
- DAILY PATROL ROUTINE
- FOCUS ON HOT SPOT AREA
- BASED ON INTELLIGENCE REPORT & ASSESSMENT
- ABLE TO TRACK VESSEL POSITION FROM OPSROOM HQ



KM PEKAN HANDING OVER CEREMONY TO MMEA



KM PEKAN (EX JCG ERIMO)

- DAILY PATROL ROUTINE – NORTHERN REGION – 2 VESSEL/4 BOATS
- SOUTHERN REGION – 2 SHIPS/5 BOATS
- EASTERN REGION – 2 SHIPS/3 BOATS
- SARAWAK REGION - 3 SHIPS/2 BOATS
- SABAH REGION – 5 SHIPS/17 BOATS



MMEA AIRCRAFT

- 8 AIRCRAFTS
- 2 FIXED WINGS - CL 415 BOMBARDIER
- 6 ROTARY WINGS – 3 LIGHT WEIGHT HELICOPTER AS365 N3 DAUPHIN
- 3 MEDIUM WEIGHT HELICOPTER AW 139
AGUSTA WESTLAND
- 20 SORTIES PER MONTH
- TASK – SAR, COASTAL PATROL, SNIPER ROLE, LAW ENFORCEMENT DUTIES,
WATER BOMBING



CL 415 BOMBARDIER



AW 139 AGUSTA WESTLAND



AS 365 N3 DAUPHIN



C4ISR SYSTEM

OBJECTIVES

To provide MMEA with Maritime Domain Awareness (MDA)

To improve MMEA operational efficiencies

To build intelligent capabilities to support MMEA decision making process

C4ISR SYSTEM

Coast Guard Maritime Domain Awareness (CGMDA)

Vessel Tracking Management System (VTMS)

CG Intelligent Information System (CGIIS)

- Multi sensor Data fusion and consolidation of information into single window viewing

- MMEA asset tracking and readiness info in response to enforcement and SAR activities

- Integration to various internal and external systems
- Consolidated database
- Big Data Analytics for decision making and planning purposes



C4ISR SYSTEM ARCHITECTURE



AUTOMATIC IDENTIFICATION SYSTEM (AIS)
- MARDEP, FISHCOMM

Merchant ships and fishing boats location information



VESSEL TRACKING SYSTEM, TRACKER AND COMMUNICATION DEVICE

Mobile assets location information



MALAYSIA SEA SURVEILLANCE SYSTEM (MSS)

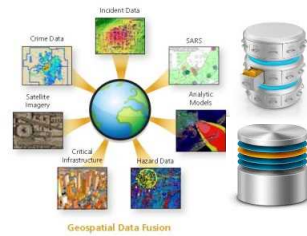
Radar tracker information

COSPAS SARSAT SATELLITE



SEARCH AND RESCUE (SAR), SAR OPS

Emergency incidents location information



MMEA C4ISR DATA WAREHOUSE



Automated data extraction, migration, consolidation, cleansing and harmonization

EXISTING SYSTEM
- SSPv2, SPM, MYMDI, DBOps

OTHER SYSTEM
- SEAVISION, GIRN, MCAMP

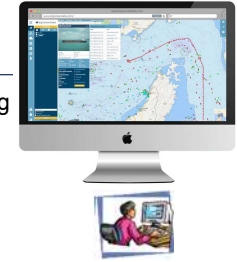
OTHER SOURCE
- ARSM, MET

GEOSPATIAL MULTISENSOR DATA FUSION, PROCESSING AND ANALYTICS



- C4ISR Capabilities**
- Common Operating Picture (COP)
 - Alert Notification
 - Incident Response
 - Asset Readiness
 - Resources Availability

COAST GUARD MARITIME DOMAIN AWARENESS (CGMDA)



- Intelligent Capabilities**
- Maritime Visual Analytics Dashboard
 - Activity Based Intelligent Analysis
 - Anomaly Detection and Situation Analysis
 - Resources Planning Analysis
 - Vessel of Interest (VOI) Analysis

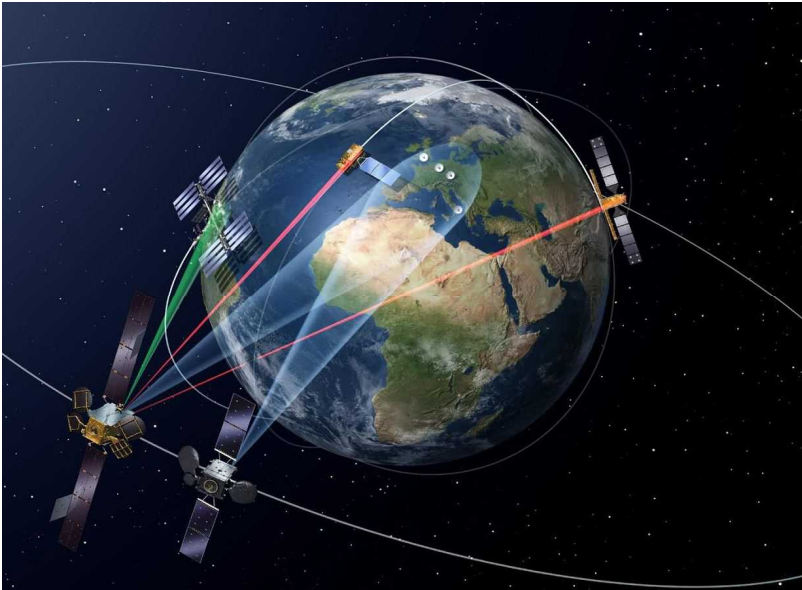
COAST GUARD INTELLIGENT INFORMATION SYSTEM (CGIIS)





FUTURE PROJECTS

- 6 NGPC – 3 IN SERVICE. 3 IN PROGRESS. COMPLETION BY END OF YEAR 2018
- 3 NEW OPVs – IN PROGRESS. COMPLETION ON YEAR 2020
- HEAVYWEIGHT HELICOPTER (AW 189 EQUIVALENT)
- MARITIME PATROL AIRCRAFT (MPA)
- SATELLITE SURVEILLANCE SYSTEM



OPV DAMEN TYPE 1800

This vessel is designed for border and EEZ surveillance, control, interception, search and rescue missions, disaster relief and humanitarian aid as well as counter piracy and smuggling activities



ILLEGAL UNREPORTED UNREGULATED (IUU) FISHING



FV MING NO 5 (FV THUNDER)



Section 16(3) Fisheries Act 1985 (Act 317)

“The master of a foreign fishing vessel entering Malaysian fisheries waters for the purpose mentioned in subsection (1) shall notify by radio, telex or facsimile in the English or Malay Language an authorized officer of the name, the flag State, location, route and destination of the vessel, the types and amount of fish it is carrying and of the circumstances under which it is entering Malaysian waters”

- Owner World Maritime Navigation S.A
- address: 53rd E Street, Urbanizacion Marbella, MMG Tower 16th Floor. Panama City. Republic of Panama.
- Registered Mongolian flag
- Ship Length : 53 meter , Breadth : 10 meter, draught : 4.85 meter, GRT : 1160 tonnes
- 40 crews
- carry 18,000 kg of fish



- at anchor position when detained, 3 nm Southeast of Teluk Ramunia, Pengerang Kota Tinggi Johor
- Ming No 5 under IUU blacklist
- she was committed an offence under fisheries act
- charged under Section 16(3) Fisheries Act 1985 (Act 317)

- 18 June 2014**, Ming No 5 master (Yury Gara) had been accused under section 16(3) Fisheries Act at Kota Tinggi court
- He pledged guilty and fined with RM200,000.00. The owner paid the fined as ordered by the Kota Tinggi court. Ship and cargo returned to the owner**

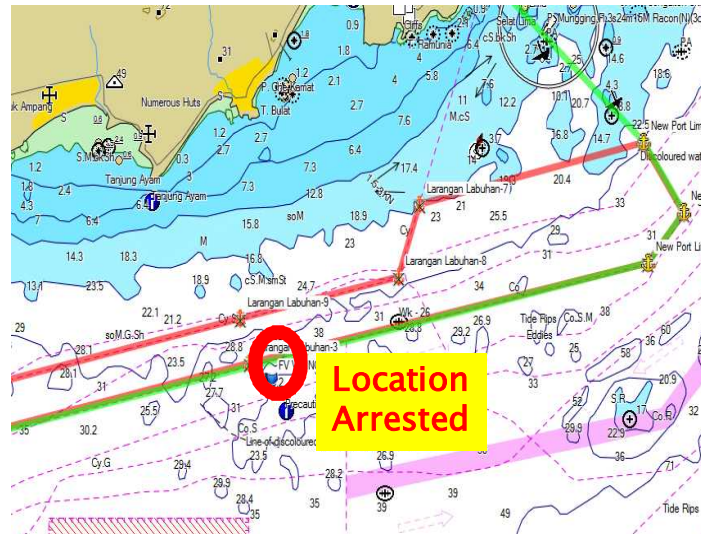


FV VIKING



- Owner: BETEX Limited
- Address: 23 Oborale Street Tedi Ojo, Lagos, Nigeria
- Flag Nigeria
- Ship length : 62 meter, breadth : 10.7 meter, depth : 6.82 meter, GRT : 1322 tonnes
- 18 crews

On the 7th April 2015, FV Viking master (Jimmi Kawilarang) had been accused under section **16(3) Fisheries Act 1985** at Kota Tinggi Session court



- 15 March 2015, she was at anchored when detained
- No permission to anchor
- Failed to inform her arrival as foreign fishery vessel to Director General of Department of Fisheries(DOF)
- FV Viking verified by DOF as a fishing vessel.

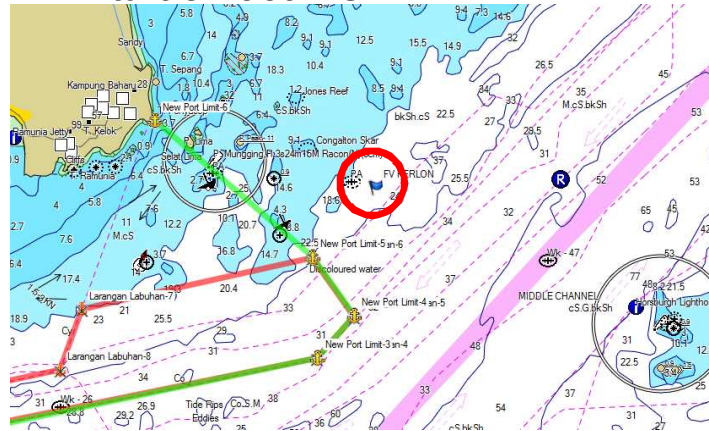
He pledge guilty and fined with **RM200,000.00**. He failed to pay and was send to Kluang prison for 3 months



FV PERLON



- ❑ Owner: Royal Marine & Spares Nigeria Limited
- ❑ Address: 7B, Balarabe Musa Crescent, Victoria Island, Lagos, Nigeria
- ❑ Flag: Nigeria
- ❑ Ship length : 60.3 m, breadth : 11m, moulded depth : 5.5m, GRT : 988 tons
- ❑ Cargo: **270 tons Patagonian and Antarctic Toothfish**



TOOTH FISH

- ❑ 9 May 2015, she was at anchored when detained. Approximately , 2.7 nm south of Tanjung Bulat, Pengerang Kota Tinggi Johor
- ❑ Involved in STS activity
- ❑ Other ship: Asia Link Barge
- ❑ 60 tons already transfer to Asia Link Barge.
- ❑ FV PERLON charged under Section 16(3) Fisheries Act 1985 (Act 317) and Section 15(2) Fisheries Act 1985 (Act 317)
- ❑ Asia Link Barge charged under Section 20 Fisheries Act 1985 (Act 317)

- ❑ 7th July 2015, master and crew Asia Link pledged guilty and fined RM400,000.00
- ❑ 2 August, all crews FV Perlon pledged guilty for the charges. They was fined total of RM 1.595 million and cargo auctioned RM 5 million forfeited to Malaysia Government



PIRACY & ARMED ROBBERY



MT SUN BIRDIE – 29 JAN 2015

29 Jan 2015 - MT SUN BIRDIE was robbed by 9 robbers 1 nm south of Tanjung Ayam, Johor. The MMEA detained the ship's crew and seven perpetrators found on board MT SUN BIRDIE. Another two perpetrators jumped overboard and fled. They were picked up by a passing ship, MV CHALLENGER PREMIER at approximately 13 nm east of Tanjung Penawar, Johor. They were arrested, convicted and sentenced to 10 years imprisonment and 1 strokes of the cane.





MT ORKIM HARMONY – 11 JUNE 2015



- ❑ Owner Magna Meridian Sdn Bhd
- ❑ Malaysian flag tanker
- ❑ Ship Length : 106 meter, breadth : 18.8 meter, draught : meter, GRT: 5081 tonnes
- ❑ 22 crews (16 Malaysians, 5 Indonesian 1 Myanmar)
- ❑ Carry 5879 metric tonnes of petrol RON 95 worth USD 5.6 million.



Eight robbers were sentenced to between 15 and 18 years in prison and 5 strokes of the cane by Kota Tinggi court for the hijacking Mt Orkim Harmony last year. Albert Yohanes, the mastermind of Mt Orkim Harmony arrested outside Jakarta by Indonesian Authority on 31 August 2015.

- ❑ Was reported missing near Tg Sedili Johor on **11 June 2015**
- ❑ Been hijacked by 8 robbers with pistols & machetes
- ❑ Detected by P3C Orion aircraft from Australian Air Force near Gulf Of Thailand on 17 June 2015
- ❑ Pirates changed ship name from **ORKIM HARMONY** to **KIM HARMON**
- ❑ The 8 robbers eluded search crews by escaping in a lifeboat under cover of darkness, near **Tho Chu Island, Vietnam. Was arrested by Vietnam Coast Guard.**
- ❑ Extradite to Malaysia after 1 year and charged in Kota Tinggi court under **Penal Code Act Section 395 & 397**



MT MGT 1 – 6 SEPTEMBER 2017



- ❑ Owner Marine Global Tanker
- ❑ Thailand flag tanker
- ❑ Ship Length : 68.4 meter , breadth : 12.01 meter, draught : meter, GRT : 983 tonnes
- ❑ 14 crews (all Thailand nationality)
- ❑ Carry. 2.2 million liters of diesel valued at about RM 7 million



On 20 September 2017, 10 robbers were sentenced to 16 years' jail each, with six of them to be given five strokes of the cane, by Sessions Court in Kuala Terengganu, after they pleaded guilty to hijacking MT MGT 1 tanker in the waters off Terengganu. Heinrick Piterson Parera, the mastermind for hijacking MT MGT 1 arrested in budget hotel in Johor Bharu by MMEA on 7 September 2017. He was sentenced 16 years in prison.

- ❑ MMEA opsroom maintain **24/7 monitoring for 2 months using AIS** after fuel siphoning of a Thailand oil tanker **CP41** of Kuantan on July 2017
- ❑ MT MGT 1 was reported missing on 6 September 2017 in South China sea 38 nm northeast of Tenggol Island, Terengganu
- ❑ Been hijacked by 13 robbers with knife, swords & machetes (10 onboard ships, 3 pirates in small boat)
- ❑ 10 hours after reported missing, MMEA STAR (Special Task & Rescue Team) stormed the ships using 2 AW 139 helicopters (Fast Roping)
- ❑ 10 robbers apprehended, 3 robbers flee the area when helicopters low on fuel
- ❑ They were charged under Penal Code Section 395



THANK YOU