Marine Traffic Analysis of the Strait of Malacca

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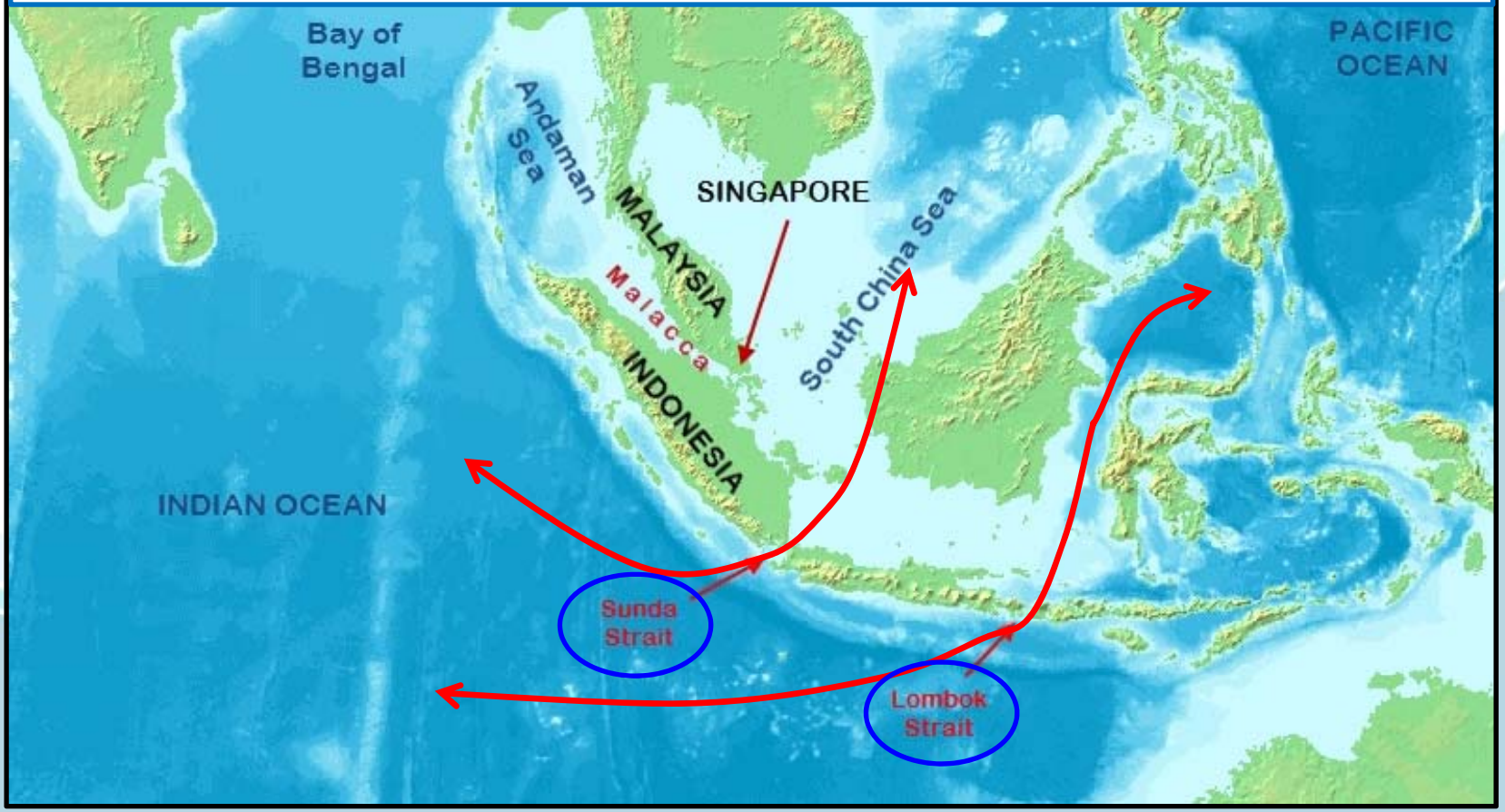
I-i The Strait of Malacca

International Shipping community connecting the Indian Ocean with the South China sea and Pacific Ocean.

I. Introduction

I-i The Strait of Malacca

Extra expense for 1.5 to 3.5 Additional days *when not using The strait of Malacca.*



I. Introduction

I-ii Earlier studies on the;

1) Strategic importance of Malacca strait

Chia (1998) ▶ **Evers & Gerke (2006)** ▶ **Xiaobo Qu and Qiang Meng (2012)**

2) Maritime safety and security in the Malacca strait

Ibrahim (2007) ▶ **Hazmin (2012)** ▶ **Adibah (2013)**

I. Introduction

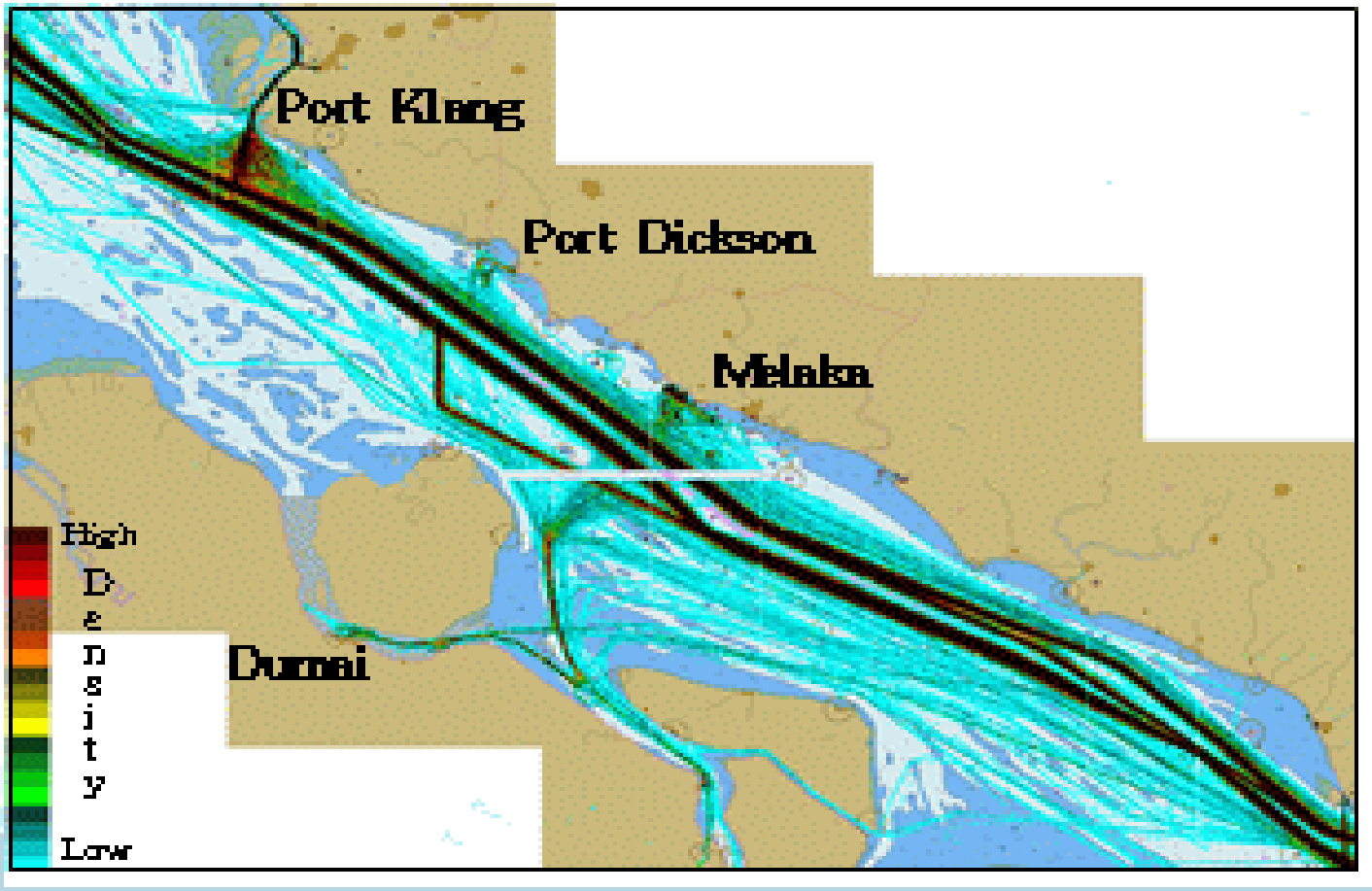
I-iii Project flow (Joint Research and Tools)

Tripartite Joint research -> **Traffic distribution and a quantitative assessment of marine traffic risk in the Strait**

TOAIS	Easy Fit	IWARP Mk2
Analyze AIS DATA (30 days: 16 May~15 Jun 2012)	Lateral **traffic distribution**	Assessment for **Risk of Collision**

II. Traffic Analysis

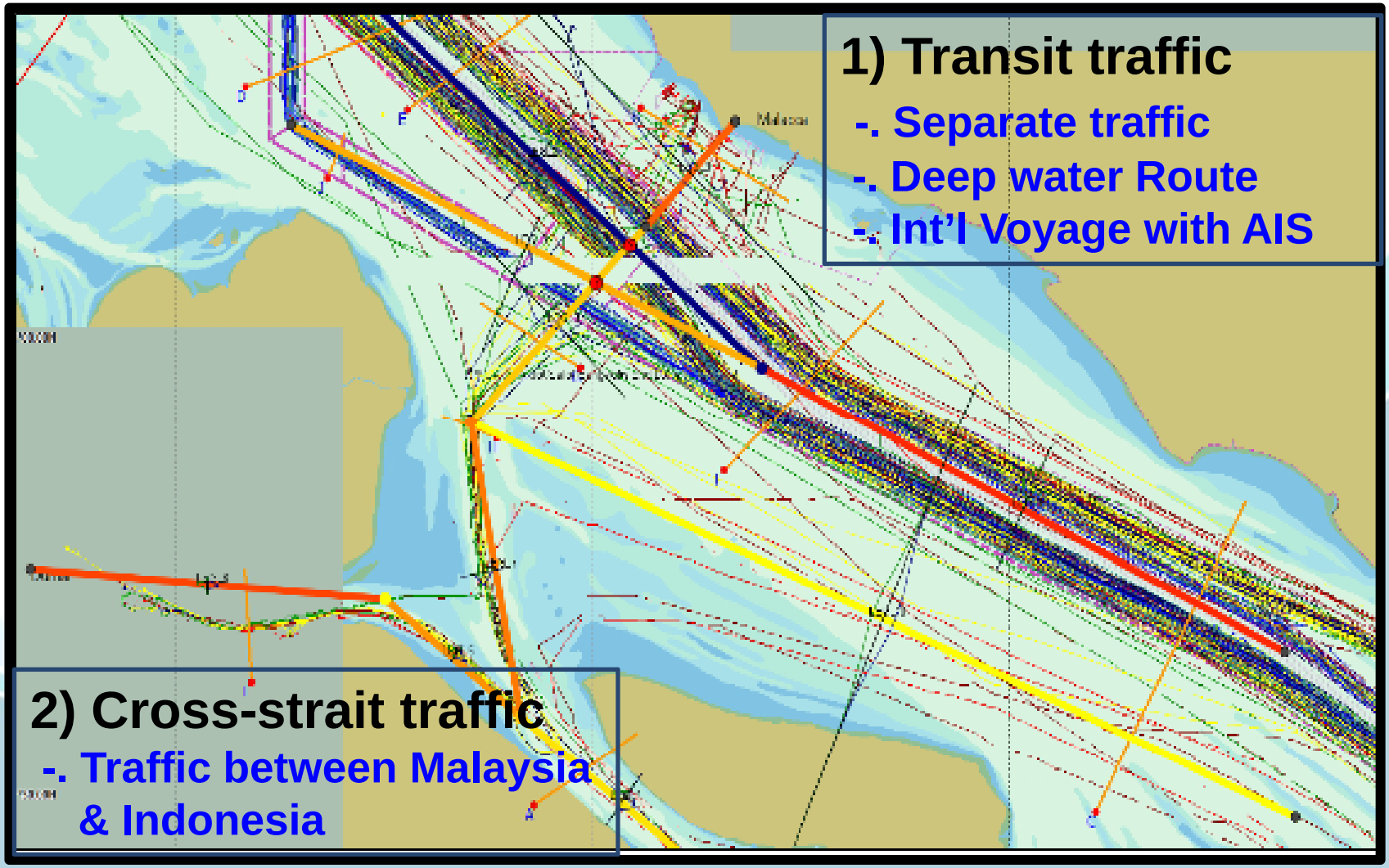
II-i Traffic Density in the Strait



★ Port Klang area⇒

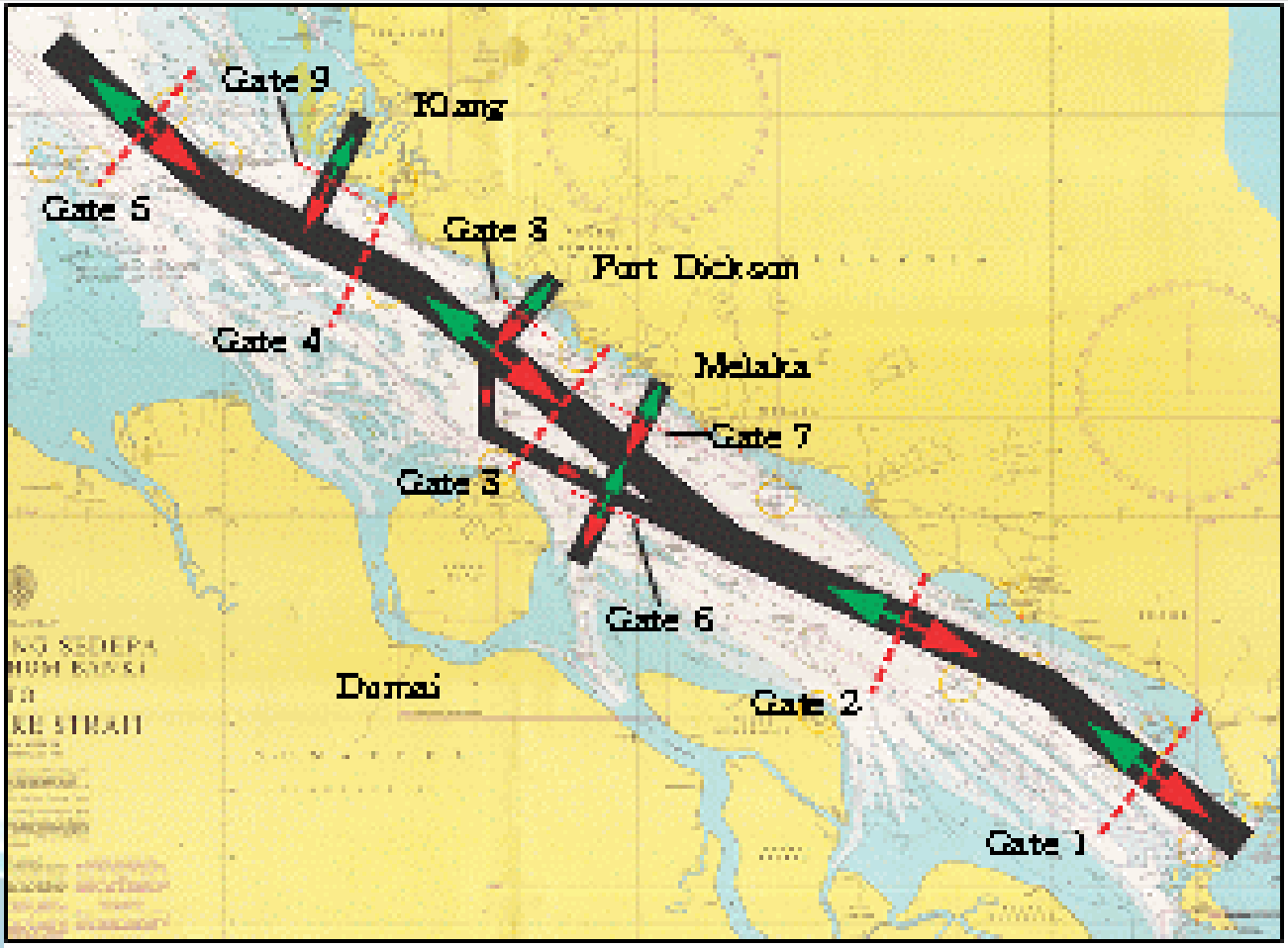
II. Traffic Analysis

II-ii Main type of traffic



II. Traffic Analysis

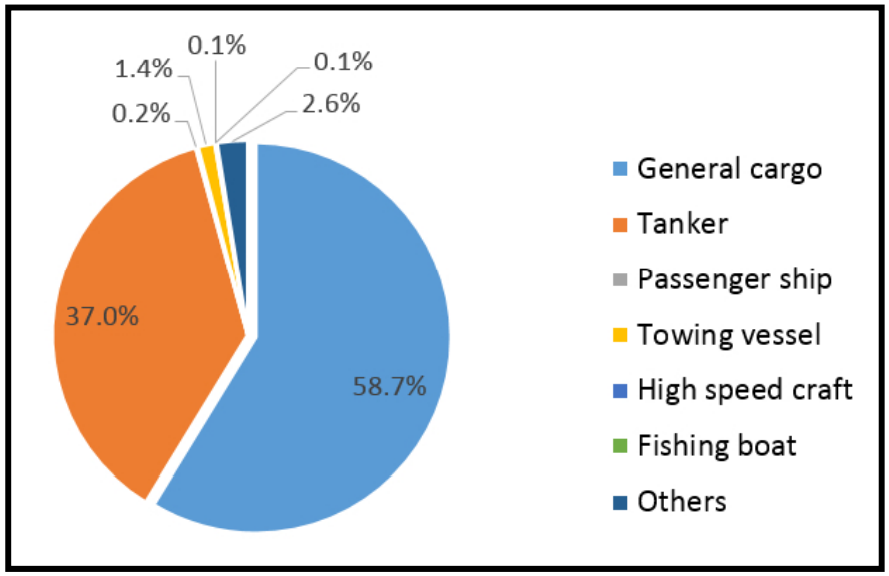
II-iii Transit traffic

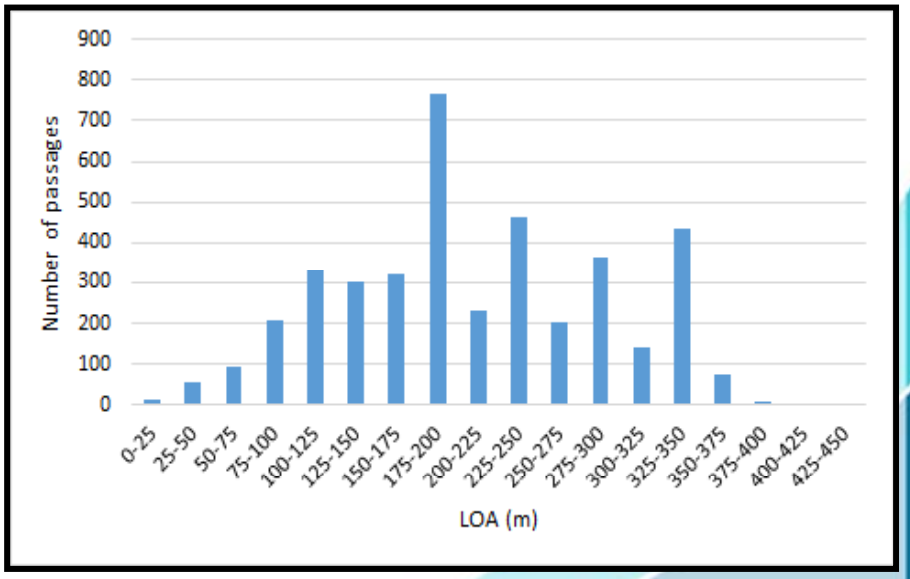


Set 9(nine) gates to analyze the traffic using TOAIS

II. Traffic Analysis

II-iii Transit traffic (No.1 Gate)

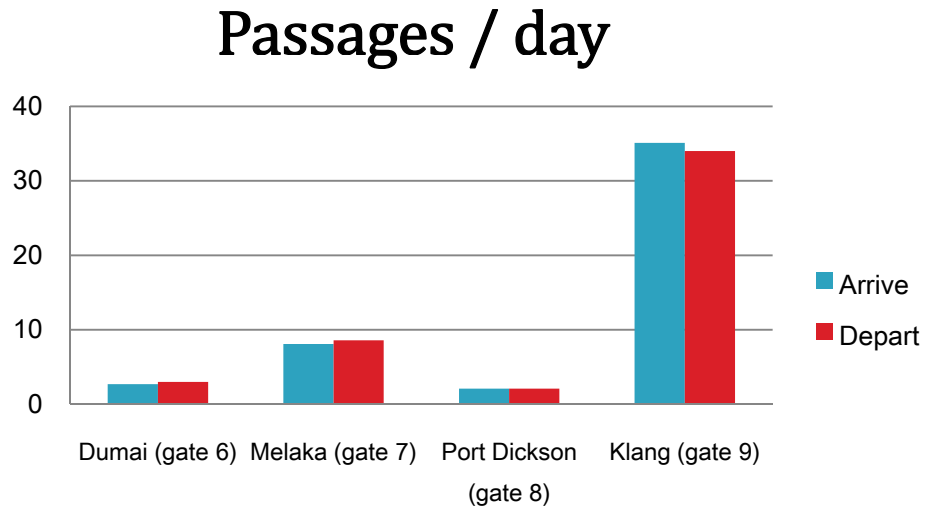




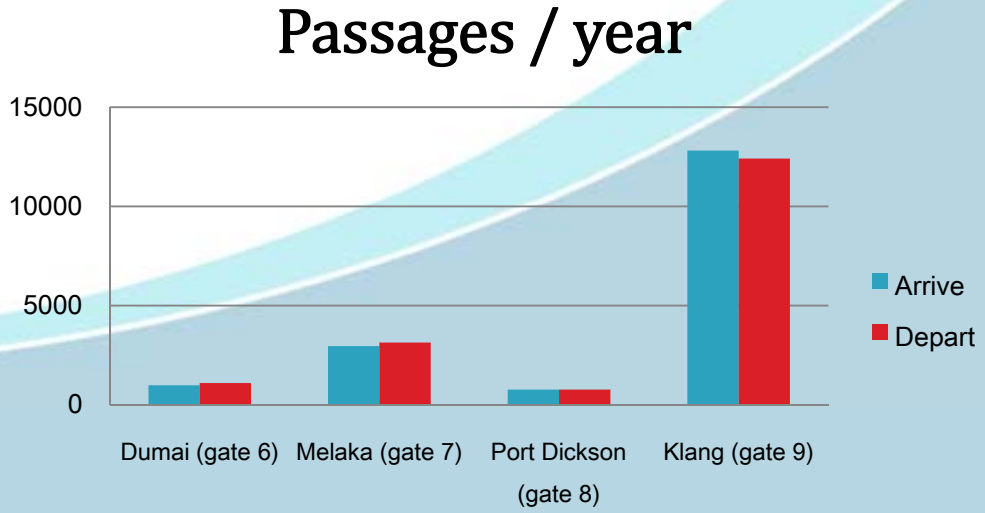
- **6,484 ships were identified at Gate 1 by TOAIS program**
- **about 216 ships/day, 77,800 ships/year**
- **General cargo & Tankers account for about 95%**
- **Most of vessels are length over 175meters (Large size)**

II. Traffic Analysis

II-iv Cross traffic (No. 6,7,8 and 9)

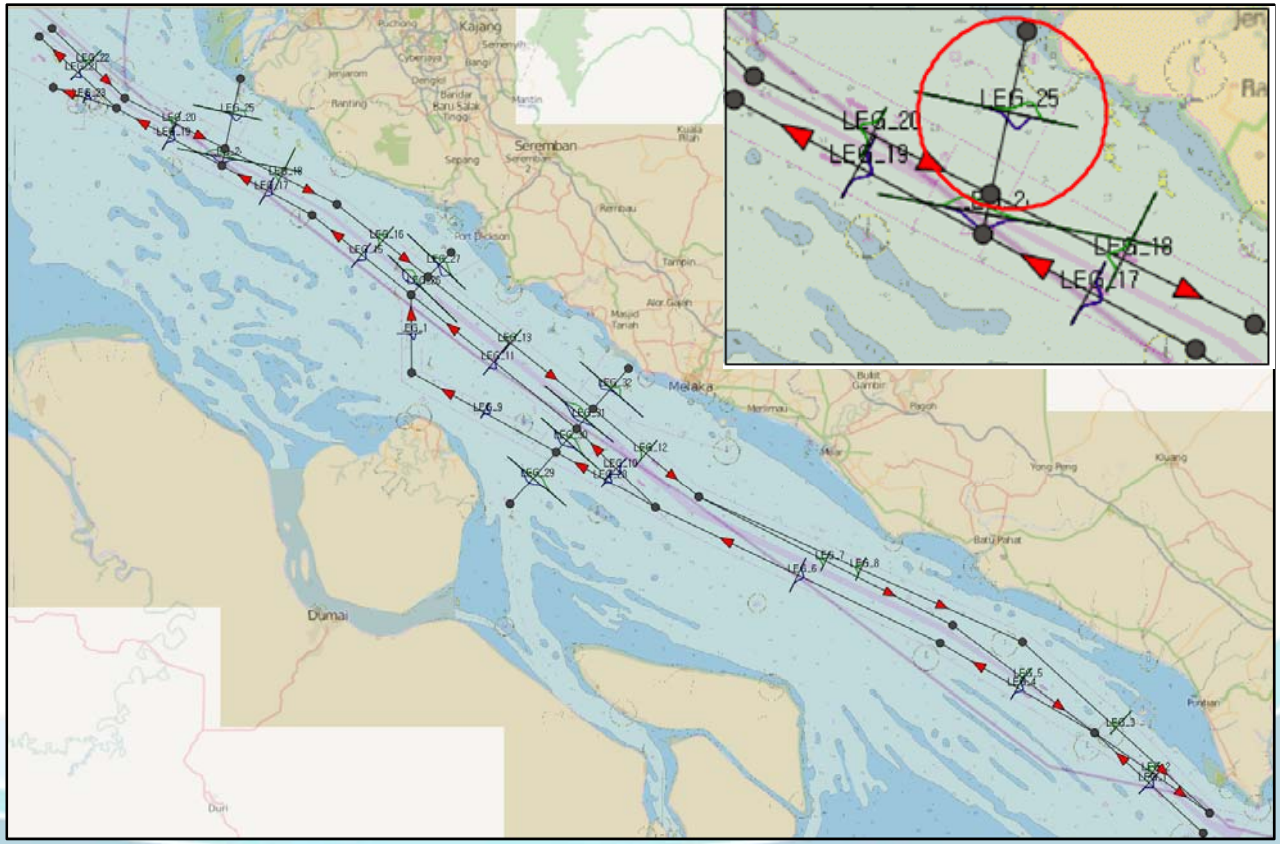


Number of vessels arrive and depart ports in - **Dumai**(6), **Melaka**(7), **Port Dickson**(8) and **Klang**(9)



III. Assessment of Traffic Risk

III-i Modelling the Traffic using IWRAP Mk2

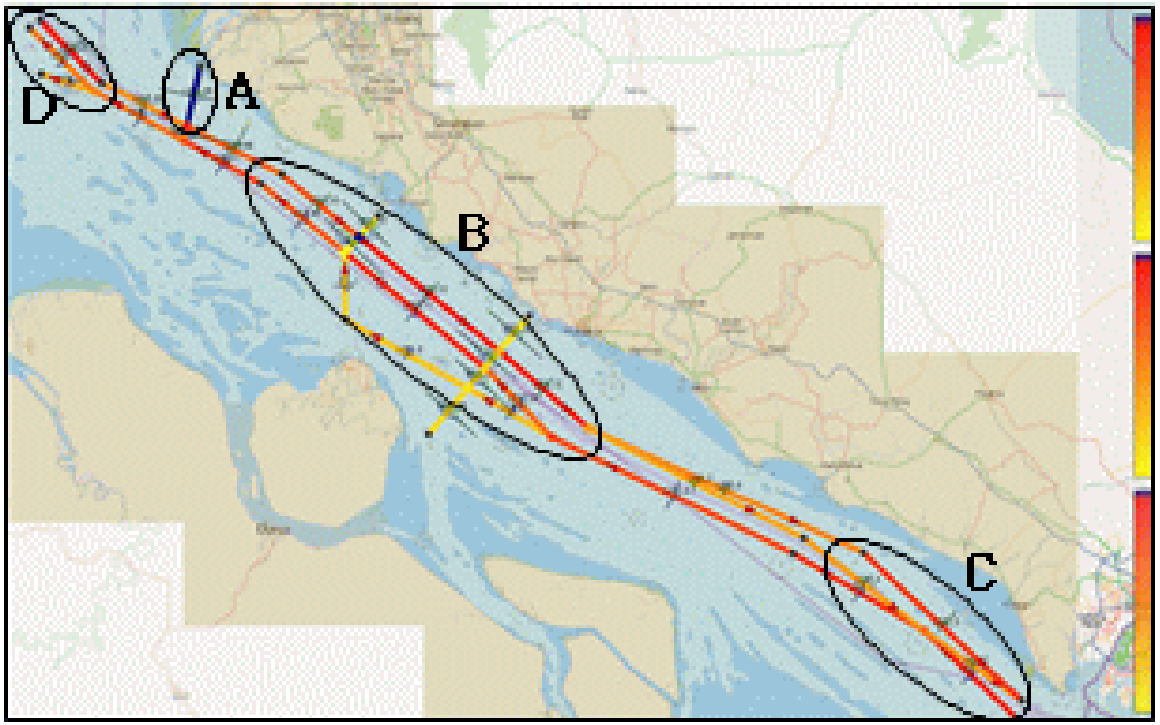


- **IWRAP** : IALA , Canada, Denmark, Germany etc. ,
- **Calculate frequency** of accidents(Col. Gro) in the waterway
- **AIS Data**: numbers, distribution, speed, draft, types & size of vessels

Traffic distribution in the SOM modelled in IWRAP Mk2
(Traffic distribution in the fairway connects the Strait and Port Klang)

III Assessment of Traffic Risk

III-ii Assessment results (tentative)



- **Collision Risk in area "A"** is the highest in whole area of SOM (high possibility of head-on vessels in the fairway + highest number of traffic)
- **Second area is "B",** higher collision risk by overtaking situation

IV. Summary & Remarks (1)

(1) SOM is one of the **most important waterway** in the world, the SOM plays a **crucial role** for smooth running of International trade, especially for **East Asian Countries**.

(2) Traffic in the Malacca strait consists of the **two main routes**: East-West route and North-South route.

-.East-West route: General cargo+ Tanker traffic, Av. LOA 210m
-.North-South route: Smaller size, General(Klang), Tanker(others)

(3) Traffic distribution in the Malacca strait follows the **normal distribution.**

* In some gates the normal distribution is not the best fit distribution

IV. Summary & Remarks (2)

(4) The fairway which connects the Malacca strait and Port Klang has the **highest risk of collision**

In conclusion,

some kind of **counter measure** should be considered to

enhance the safety of traffic in the Malacca strait

V. Acknowledgements

Korea Maritime and Ocean University

Official Website
Jabatan Laut Malaysia

Thank you !

Terima Kasi !

Kam-Sa-Ham-Ni-Da !