MARITIME INSTITUTE OF MALAYSIA

Water Quality Assessment in the Straits of Malacca

An overview in the west coast of Peninsular Malaysia



Cheryl Rita Kaur
Centre for Coastal and Marine Environment

7th Cooperation Forum under the Cooperative Mechanism on Safety of Navigation and Environmental Protection in the Straits of Malacca and Singapore
Langkawi, Malaysia: 22-23 September 2014

Presentation outline

- Introduction:

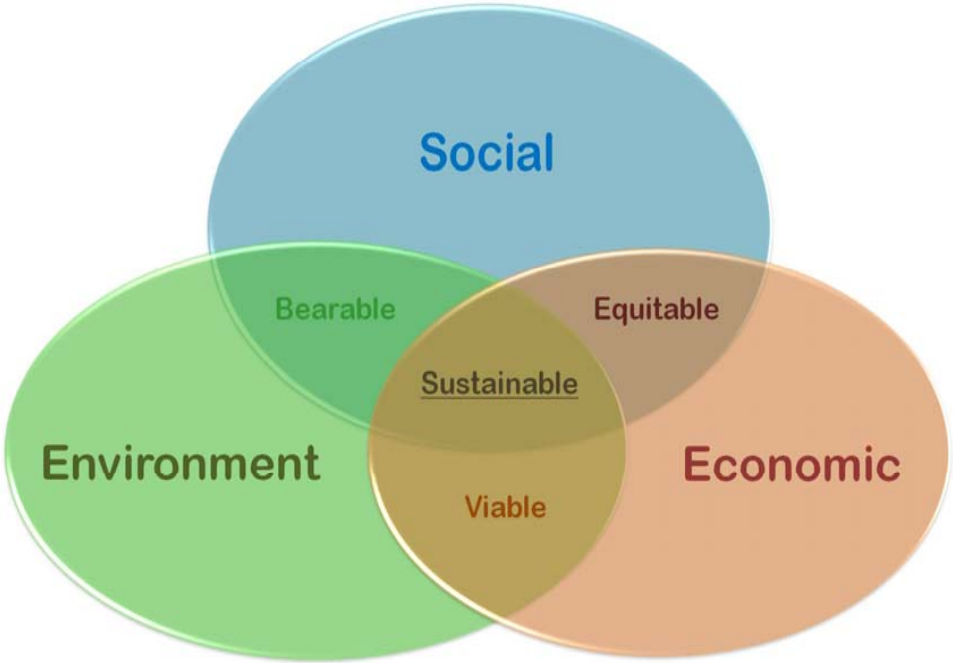
  Ensuring Sustainable Development in the Straits of Malacca
- Issues and challenges
- Priority areas for cooperation
- Conclusion

Introduction

- **SUSTAINABLE DEVELOPMENT**

  Commonly referred to as *development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*

* World Commission on Environment and Development (WCED) (1987). *Our Common Future*. Oxford University Press [The Brundtland Report].



Sustainable development

- The meaning of ‘sustainability’ and the necessity of achieving it is widely acknowledged and well understood. Sustainability has itself become a strong driver for growth.

- Although often linked to economic growth, in recent years the idea of sustainable development includes additional factors such as environmentally sound processes that must be taken into account such as pollution prevention and resource conservation.

- Embedded within intergovernmental and multilateral environmental agreements.

Malaysia's response: An overview

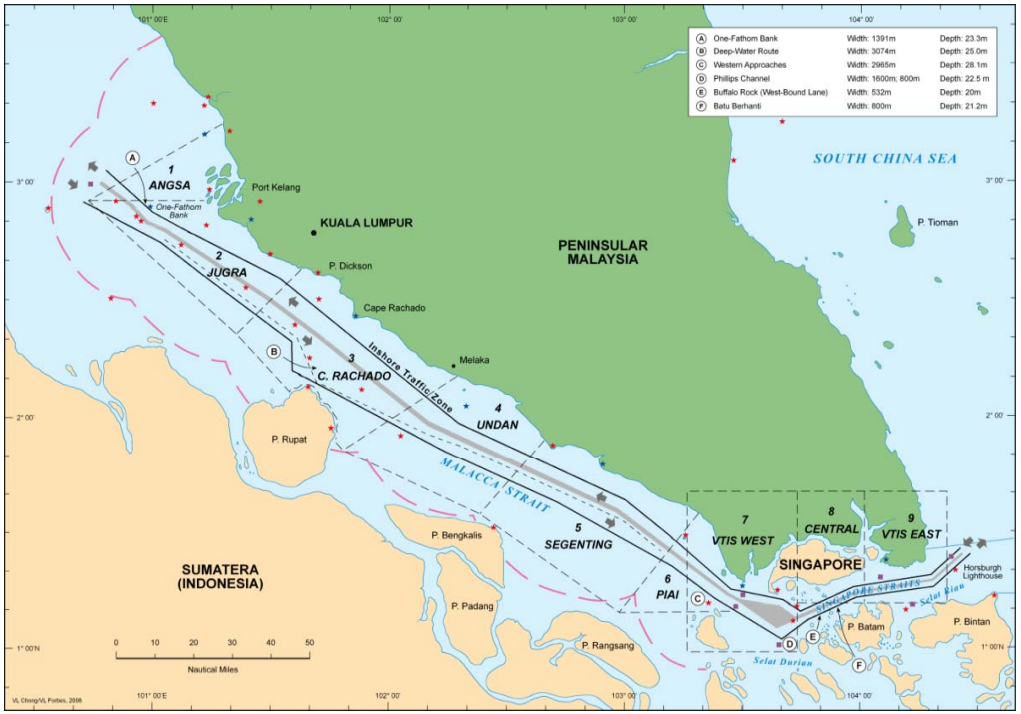
- Five-Year Malaysia Plans
- Second Outline Perspective Plan (1991-2000), Third Outline Perspective Plan (2001-2010)
- Vision 2020
- *Environmental Quality Act 1974*

Five-year Malaysia Plans & the environment:

Malaysia's overall environmental policy objectives since 1976 have always intended to "balance the goals for socio-economic development and the need to bring the benefits of development to a wide spectrum of the population … against the maintenance of sound environmental conditions."

The Straits of Malacca (SOM)

- The SOM is a multiple-use sea area vital for the socio-economy and environment of the littoral states.
- Shipping coexists with tourism, fisheries and marine ecosystems.
- Until recently not much appreciated for biological diversity. Recent discoveries however show otherwise.



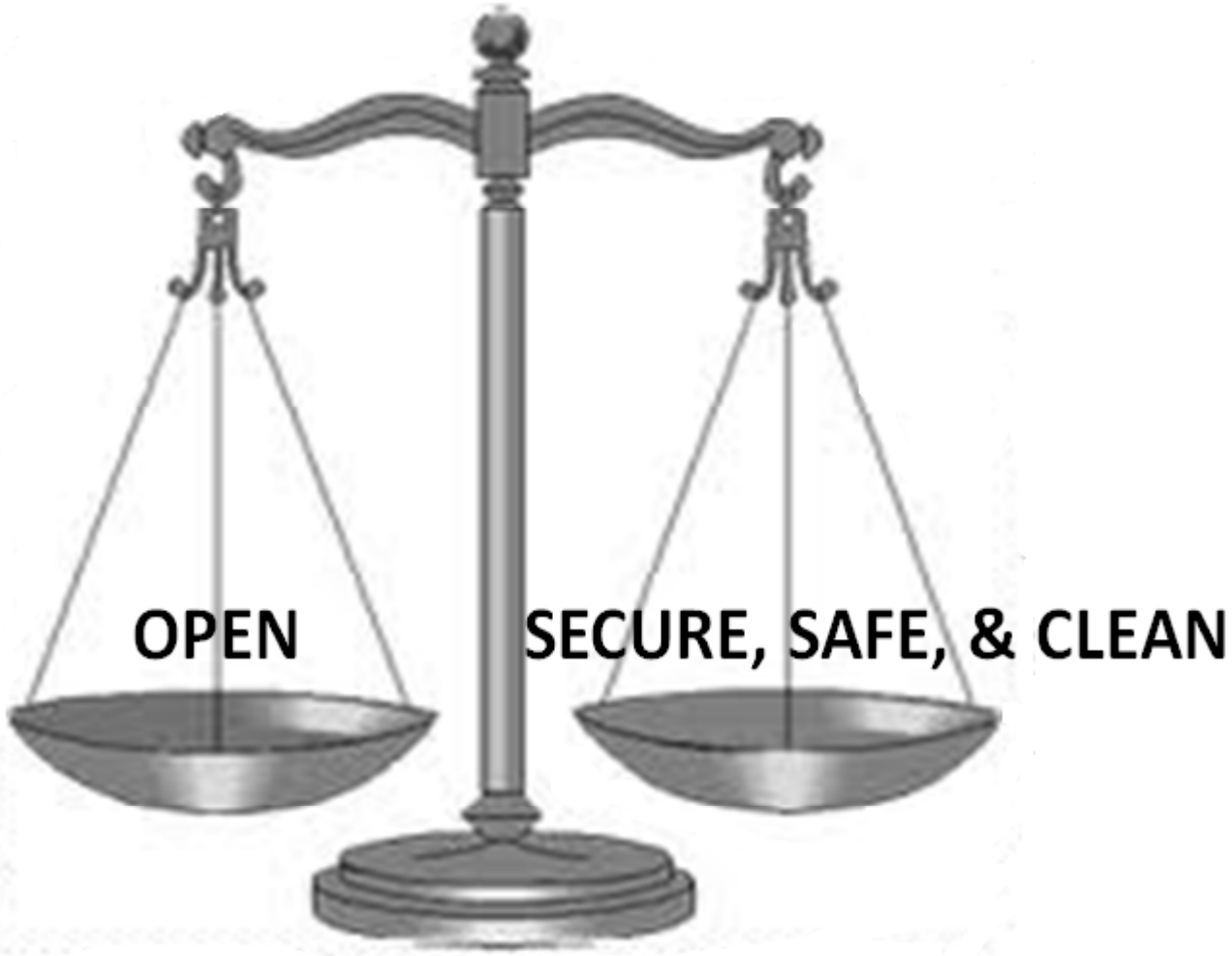
Source: Malaysia's Maritime Space Atlas, MIMA

SOM characteristics and its coastal and marine resources

Characteristic	Figures
Length	About 500 nautical miles or 900 from Pulau Rondo to Koh Phuket (northen limit) to Pulau Karimun and Tanjung Piai. Longest straits used for international navigation. Length of Traffic Separation Scheme: 240 km
Width	Widest point - 220 nautical miles at northern limits Narrowest point – 8 nautical miles around Riau archipelago
Marine and coastal ecosystems Straits-wide economic value (based on the GEF/UNDP/IMO Regional Program for the Prevention and Management of Marine Pollution, 1999) for coastal resources estimated at **USD 7 billion**.	**Mangroves** •Malaysia (93,503 hectares) •Indonesia (404,606 hectares) **Coral Reefs** •Malaysia – fringing reefs in Port Dickson, Pulau Payar. Newly discovered reefs in Pulau Perak •Indonesia – some fringing reefs in northern Sumatera **Seagrass** •Malaysia – Langkawi, Port Dickson, Seberang Prai, Teluk Nipah (9 species) •Indonesia – East coast of Sumatera (12 species) •Singapore – Southern Island (11 species)
Fisheries landings	Malaysia – 725,064 tonnes Indonesia – 389, 280 tonnes

Data from various sources.

Sustainable development of the Straits require balancing its different uses.



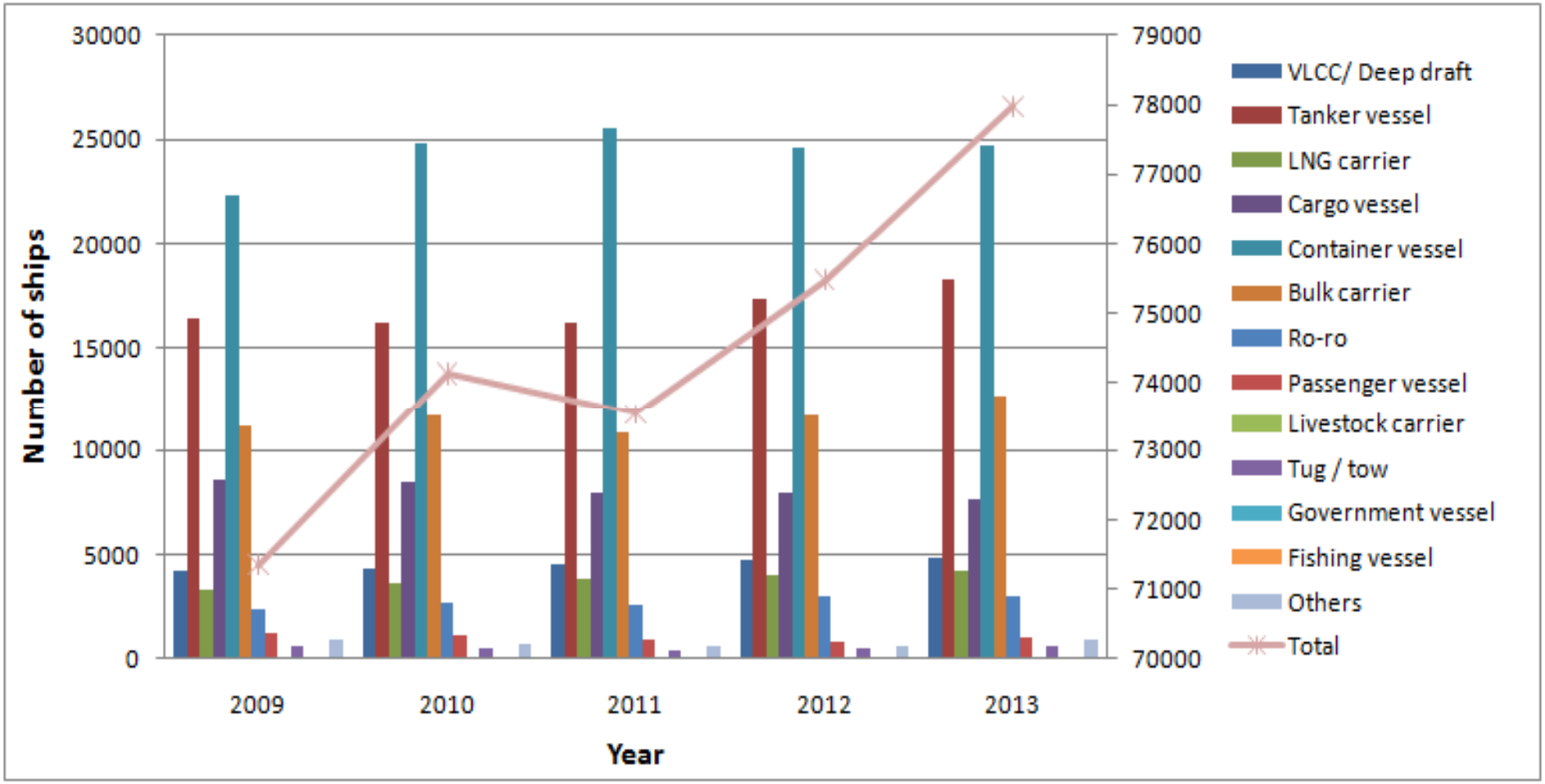
Promoting sustainability in the SOM:
Keeping it OPEN yet SECURE, SAFE, and CLEAN

Issues and challenges

- The SOM is subjected to a variety of environmental pressures due to its position as a major international shipping lane and the concentrations of agricultural, industrial and urbanisation activities.

- Safety of navigation
- Environmental sustainability of coastal and marine living resources
- Contributions of the activities in the Straits to the coastal communities

Ships reporting to STRAITREP (SOM)



Source: Marine Department Malaysia

Navigational safety and environmental protection:

• More than 70,000 vessels passing through the Straits yearly pose a potential threat from accidental oil spills and intentional discharges. Vessel movements in the SOM are expected to reach 122,640 by 2024.

• Incidents of marine casualties have highlighted the danger of the increasing density and volume of traffic, especially of tankers, through the Straits.

• Major oil spills in the SOM include the *MV Nagasaki Spirit* vs. *MV Ocean Blessing* incident in September 1992, spilling 100,000 barrels of oil and the SS SUN Vista which sank in the SOM after spilling 14,000 barrels of oil in May 1999.

Vessel-based pollution prevention:

- Prevention of accidents through traffic separation scheme and mandatory reporting.
- Preparing for pollution incidents by placing oil spill control stockpile and national contingency planning.
- Enforcement and surveillance ongoing but difficult as it is a factor of traffic volume, size of sea area and time vs. availability of assets.

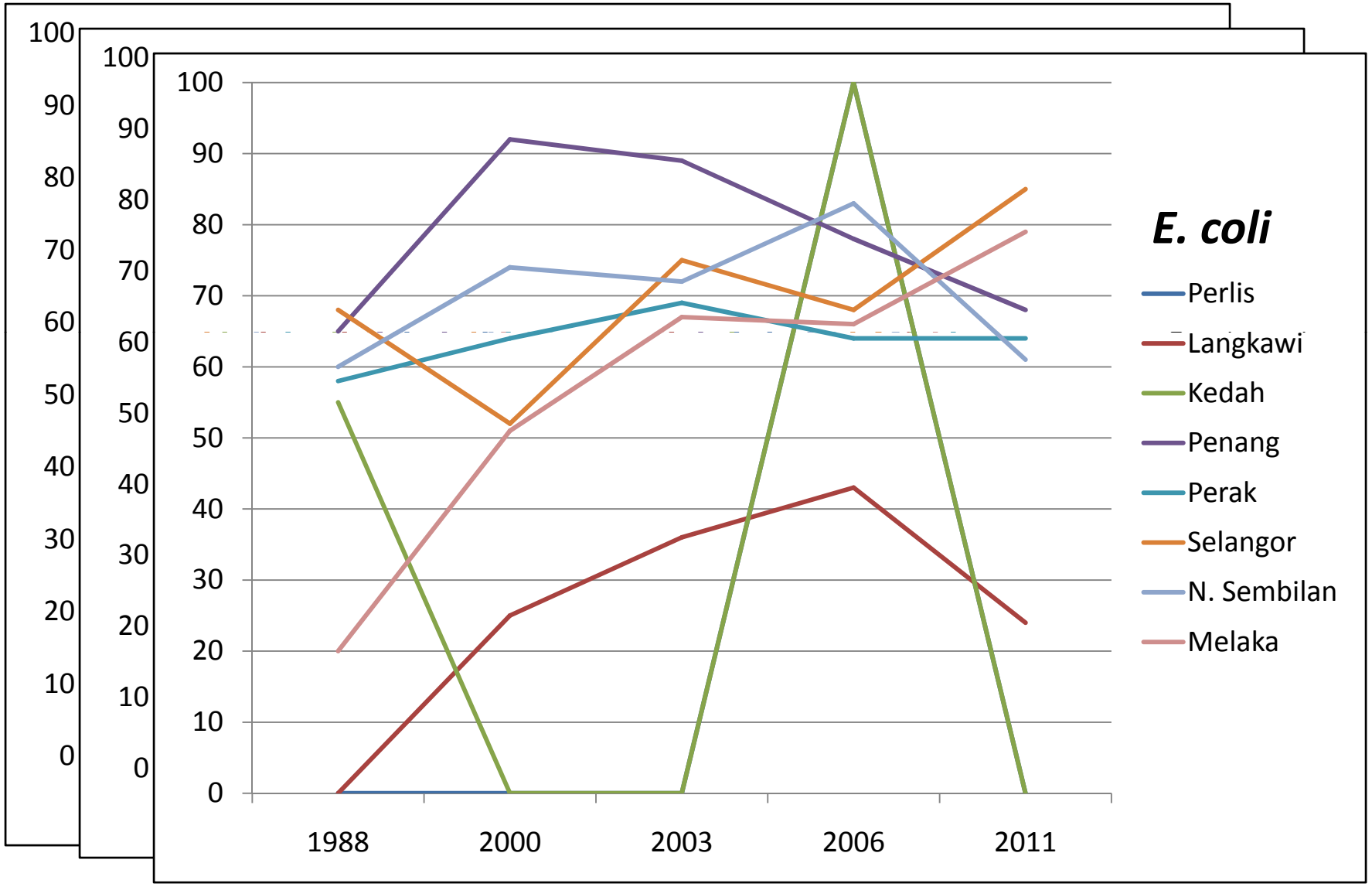
Land-based pollution prevention:

- Population and economic centers produce vast amounts of pollution, making this issue more insidious than vessel based pollution.

Pollution of the marine environment

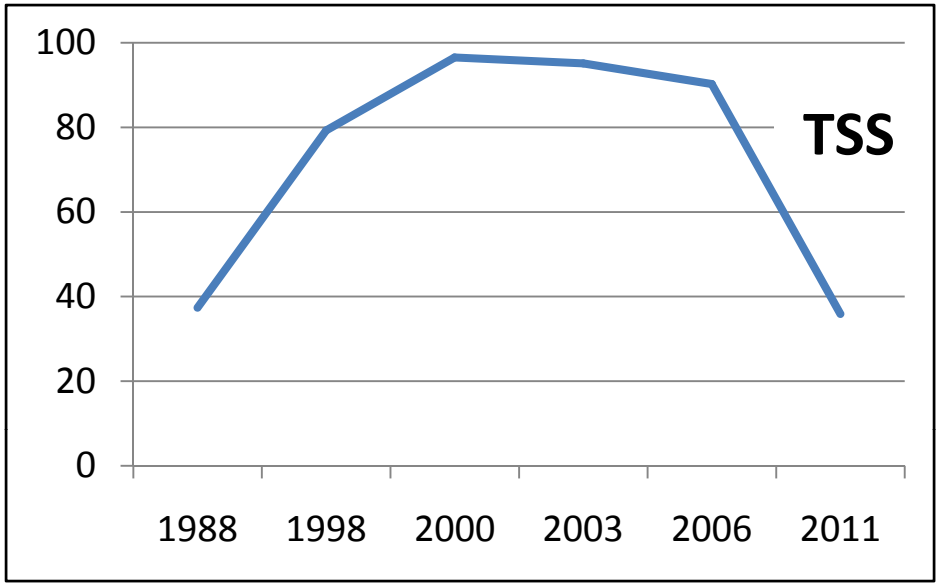
- Suspended solids/sediments
- Oil and grease
- *E. coli*
- Heavy metals

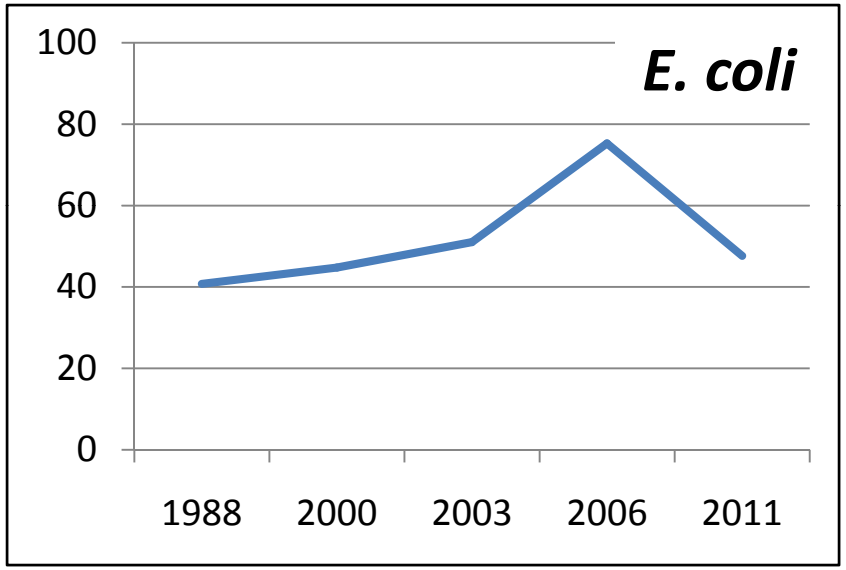
Status of coastal marine water quality by parameters (% samples exceeding standards)

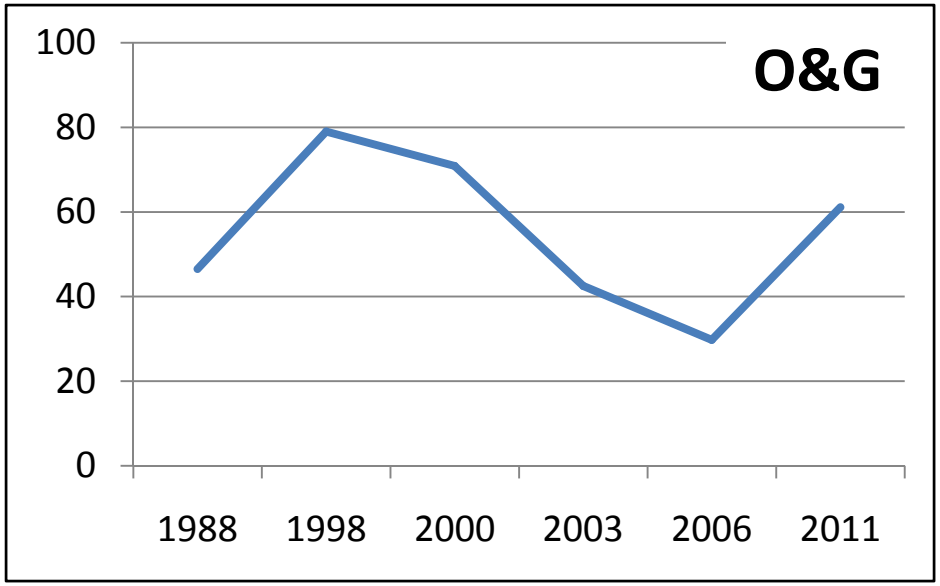


Source: Department of Environment Malaysia

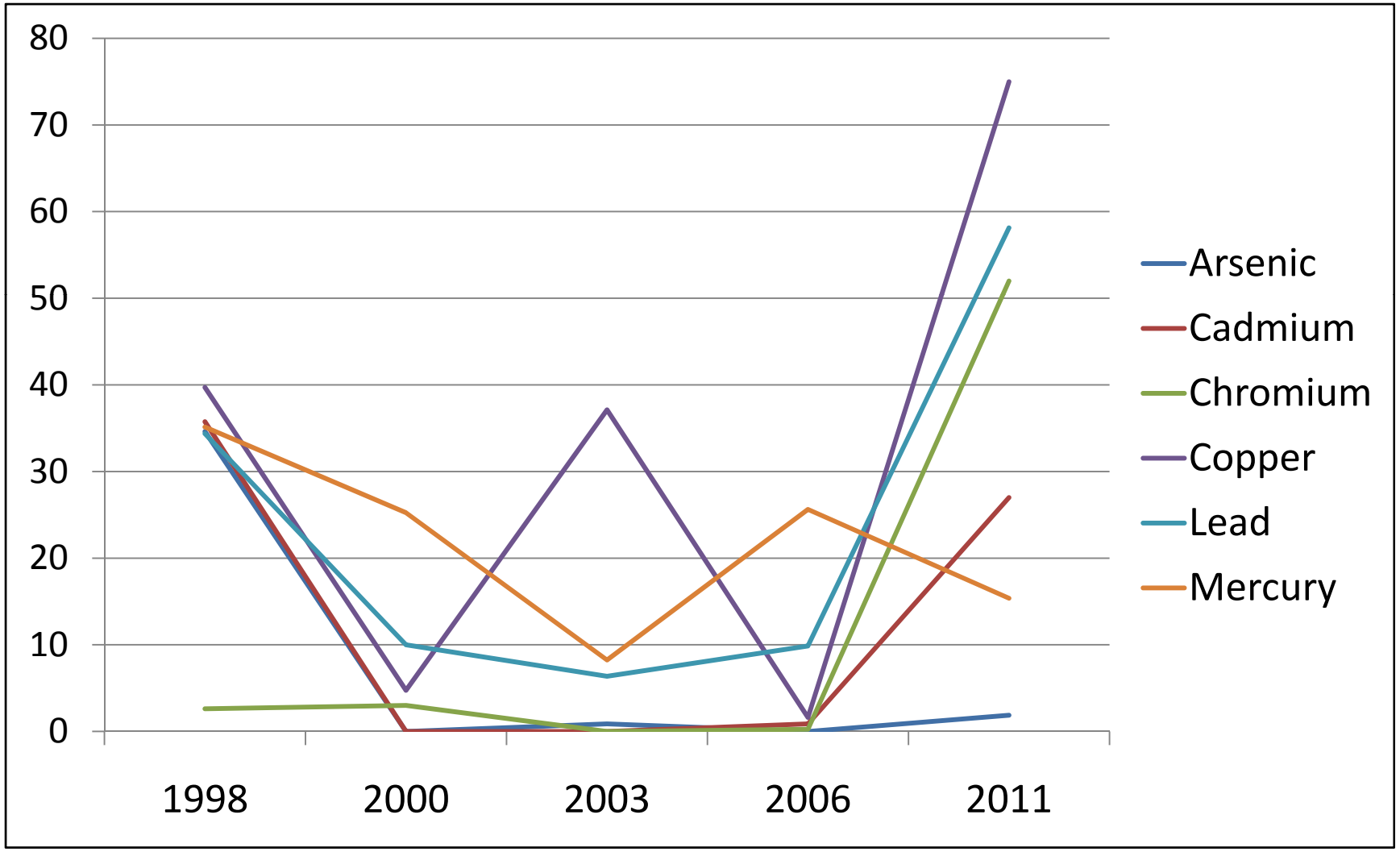
Average status of coastal marine water quality by parameters (% samples exceeding standards)







Average status of heavy metals concentration in the SOM (% samples exceeding standards)



Source: Department of Environment Malaysia

Present challenges and emerging issues

- Synergy between shipping activities and environmental management.
- Limited data on marine/ sea-based pollution and transboundary pollution.
- Data sharing

- **Emerging areas in the SOM:**

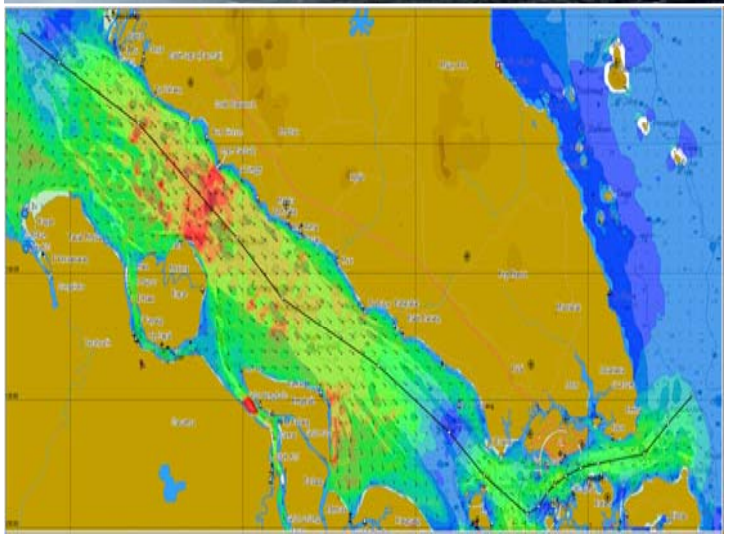
  Ships' ballast water discharges

  Air emission from ships

  Climate change impacts

  Biodiversity conservation

  Renewable energy development



Priority areas for cooperation

- The multiplicity of users maximises the potential for conflicts.
- Article 43 of the LOS provides the basis for littoral state – user state cooperation in safety of navigation and environmental protection.

Continuing with navigation and pollution prevention:

- Establishing working models of holistic, integrated environmental management programmes at regional, national and sub-national levels.
- Harmonisation of national laws and standards among littoral States
- Improving current management of transit traffic
- Managing cross-straits traffic
- Flag State vs. Port State control in ensuring seaworthiness of vessels
- Sustainable financing

Beyond navigation and pollution prevention:

- Developing criteria for the sustainability of the SOM
- Provision of timely and accurate data
- Ecosystems protection i.e., through the establishment of marine protected areas or PSSA
- Monitoring and surveillance especially in technology transfer and application of new technology
- Disaster prediction, management and response

Conclusion

- Sustainable development of the SOM is a national, sub-regional and international issue.
- National issue to achieve sustainability relate to land-based pollution; sub-regional and international issues relate to navigational safety and marine pollution.
- Many steps have been taken but more can be done.
- Scope of cooperation needs to be expanded beyond oil spill control and safety of navigation.
- Developing criteria for the sustainability of the SOM
- New areas should be explored

Thank you

cheryl_rk@mima.gov.my