

Environmental Impacts of Increasing Vessel Traffic in the Straits of Malacca and Singapore



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Outline of presentation

- Introduction
- Vital statistics
- Issues and challenges in managing the marine environment of the Straits of Malacca and Singapore
- Case examples of major concerns
- Conclusions

Introduction

- Important East-West sea lane of communication.
- Records show rich biological diversity in the Straits of Malacca and Singapore (SOMS).
- Important for socio-economy and environment of littoral States.
- Important fishery for littoral States.
- Borders areas of extensive human activities.

Vital statistics

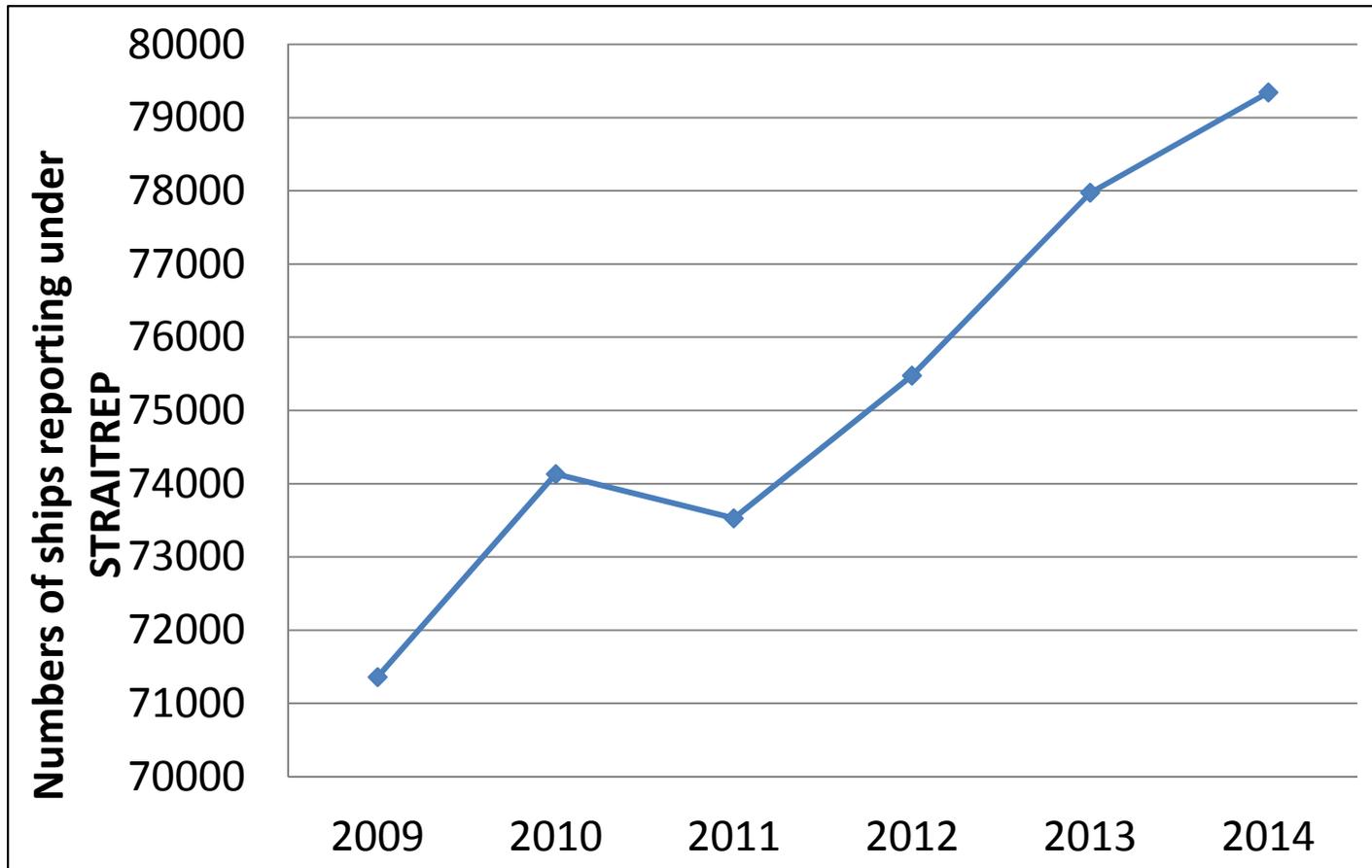
Characteristic	Figures
Length	About 500 nautical miles or 900 from Pulau Rondo to Koh Phuket (northern limit) to Pulau Karuman and Tanjong Piai. Longest Straits used for international navigation.
Width	Widest point - 220 nautical miles at northern limits Narrowest point – 8 nautical miles around Riau archipelago
Marine and Coastal Ecosystems	<p>Mangroves – 498,109 hectare</p> <ul style="list-style-type: none"> •Malaysia (93,503) •Indonesia (404,606) <p>Coral Reefs</p> <ul style="list-style-type: none"> •Malaysia – fringing reefs in Port Dickson, Pulau Payar. Newly discovered reefs in Pulau Perak •Indonesia – some fringing reefs in northern Sumatera <p>Seagrass</p> <ul style="list-style-type: none"> •Malaysia – Langkawi, Port Dickson, Seberang Prai, Teluk Nipah (9 species) •Indonesia – East coast of Sumatera (12 species) •Singapore – Southern Island (11 species)
Fisheries landings	715,684 metric tonnes from the West Coast Peninsular Malaysia (2013)
Population	22.5 million in Peninsular Malaysia recorded in 2010
Accidents (1978 – 2003)	888
Length of Traffic Separation Scheme	240 km

Economic value (000,000 USD)

	Indonesia coastline	Malaysian coastline	Singapore coastline	Straits-wide
Coastline(km)	1,641	956	130	2727
Fisheries	456.39	341.11	4.03	801.53
Aquaculture	87.18	57.62	11.16	155.96
Mangroves	3766.10	1747.65	44.12	5557.87
Mudflats	0.03	31.58	0.03	31.34
Coral reefs	455.20	34.57	0.07	484.84
Seagrass	N/A	8.10	0.09	8.19
Seaweed	9.36	1.02	N/A	11.46
Beach	369.35	169.23	275.87	814.45
Sea Lanes	N/A	N/A	N/A	340
Total	4,687.22	2,173.61	333.37	7,534.21

Source: GEF/UNDP/IMO Regional Program for the Prevention and Management of Marine Pollution in the East Asian Seas.

Vessel traffic in the SOMS



Numbers of ships reporting under STRAITREP (2009 – 2014)

Source: Marine Department Malaysia (2015)

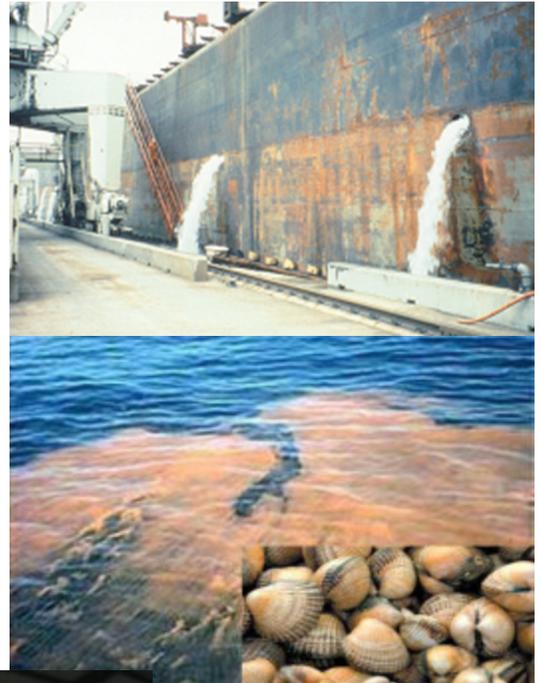
Issues in managing the marine environment of the SOMS

Biodiversity and environmental degradation

- A perennial problem given rising coastal population resulting in increasing pressure for more resources, especially fisheries.
- Ecosystems and habitats are being degraded.
- Loss of biodiversity, to an extent, not monitored.
- More than 70,000 vessels passing through the Straits yearly pose a potential threat from accidental oil spills and intentional discharges.
- Large Marine Ecosystems (LME) approach.

Environmental degradation symptoms

- Decline in quality of fisheries landings
- Lower catch-per-unit-effort (CPUE)
- Loss of mangrove cover:
 - Approximately 36 % in the SOMS
- Increased pollution
- New problems such as introduction of alien species



Navigational Safety

- Shipping is an inherently risky activity
- In the SOMS the risk is considering also the cross-straits traffic
- More than 20,000 tankers of various types
- 888 accidents have occurred in the SOMS from 1978 to 2003

Major oil spills in the SOMS

Date	Vessel/s Name	Amount Spilled (‘000 barrels)	Nature of Incident
6 Jan 1975	MV Showa Maru	54	Grounded in Singapore Straits
20 Sept 1992	MV Nagasaki Spirit vs. MV Ocean Blessing	100	Collision in the Straits of Malacca
15 Oct 1997	MV Evoikos vs MV Orapin Global	175	Collision in Singapore Straits
21 May 1999	SS Sun Vista	14	Sank in the Straits of Malacca
3 Oct 2001	MV Natuna Sea	49	Grounded in Singapore Straits

Challenges in managing the marine environment of the SOMS

Vessel-based pollution

- About 70% of all marine pollution originates from land, 10% from maritime transportation and another 10% from dumping at sea.
- However, marine pollution from sea-based activities is an “attention grabber”, especially when it involves oil spills.
- Some effects of pollution from sea activities particularly oil spills are highly visible – oil covered wildlife, oily coastline, etc.
- There are also human costs i.e., loss of income and livelihood. In addition, tropical ecosystems such as coral reefs and mangroves are also highly vulnerable to pollution.

- The primary causes of sea-based marine pollution include accidents, operational or intentional discharge and dumping at sea of wastes from land.
- Although pollution incidents caused by human error the is primary factor, operational discharges are still common despite international conventions.

Responses:

- Prevention of accidents through TSS and mandatory reporting.
- Preparing for pollution 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.

Case examples: Oil pollution and coastal erosion



- In 1997, 2 tankers collision (*Evoikos* and *Oraphin Global*) in Singapore waters caused major oil pollution.

- In Sept 2003, oil pollution washed ashore was detected in the mangroves area in Tanjung Piai National Park from unknown source.

- On 13 Sept 2011, oil pollution detected along a 300m stretch of the mangroves area in the Tanjung Piai National Park.

- On 26 June 2012, oil washed ashore along a 1.2 km stretch of coastal area in Tanjung Piai.



The incident in Sept 2011

- Occurred along a 300 m stretch of coastal area along the west coast of the Tanjung Piai National Park.
- Recorded about 3 – 6 inches of oil on the muddy area.
- Had to mobilise a *Action Plan on Coastal Cleanup*.





The incident in June 2012

- Happened on 26 June 2012, along a 1.2 km stretch of coastal area along the coastal areas of the Tanjung Piai National Park.
- Estimated 5 ha of area badly degraded due to the incident.
- 1.8 tonnes oil collected with assistance from about 300 volunteers.







Coastal erosion

- The constant reported rates in Tanjung Piai has been estimated to be about **2 - 4 m/year (1999)**.
- The coast has experienced severe erosion, in spite of the construction of various coastal defence structures. Khazanah Nasional study for IRDA on erosion in Tanjung Piai showed **7-11 m/year (2011)**. Meanwhile JPNC report stated that the recent rate is between **12-15 m/year (2012)**.
- Amongst others, one of the reported causes of erosion at Tanjung Piai include waves generated from heavy shipping activities.



Efforts undertaken

- Continuous replanting activity.





Major concerns faced

- Continuous erosion
- Mangrove loss
- Loss of muddy coastal areas
- Tourism losses
- Adverse effects on migratory birds in the area
- Fisher livelihoods
- RAMSAR status

Conclusions

- Environmental management in the SOMS is a national, sub-regional and international issue.
- The sea will continue to be at risk from maritime transportation due to dependence on seaborne trade and the transportation of oil.
- Much has been done to address the problem through framework of international conventions, non-legal instruments as well as national actions. However the problem has persisted.
- Spirit of Article 43.
- New areas should be explored.

Acknowledgement

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Thank you

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