

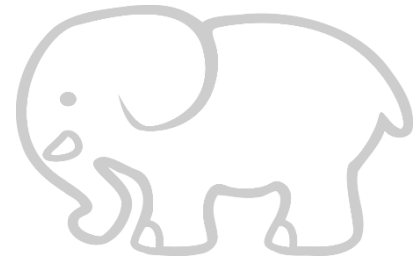


Global Dialogue on Ocean Accounting

November 12-15 2019



Malaysia



by
Department of Statistics, Ministry of Economic Affairs, Government of Malaysia
And

University of Malaya Team

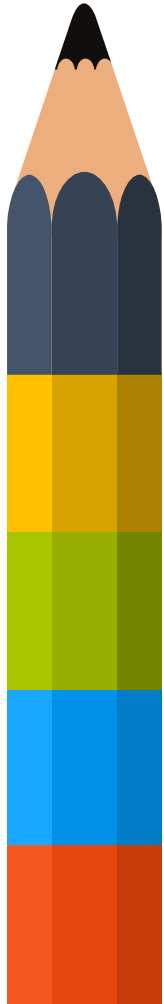
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Global Ocean
Accounts Partnership



System of
Environmental
Economic
Accounting



-  **The Pilot Study**
-  **Scoping the pilot**
-  **Pilot Design**
-  **Activities & Result**
-  **Issues and Challenges**
-  **Policy**



A Study on the Sustainable Fisheries of the Straits of Malacca

- Scoping report
 - Malaysia – attained independence from the Commonwealth of Nations on 31 Aug '57. Steep climb to ocean resource protection in the midst of nation-building
 - Importance of the ocean - a maritime nation surrounded by seas and heavily committed to SDG 14 through international treaty ratification and domestic implementation of laws, policies, strategies, action plans, among others
 - Plausible Concerns – unsustainable fisheries, loss of mangroves, and marine pollution including oil pollution resulting in poor marine water quality in the Straits of Malacca
 - Stakeholders – ocean governance.
 - Initiatives (policies, strategies, targets) – no specific policy on oceans but there are several policies and acts related to oceans (e.g biodiversity policy, transportation policy, environment act & fisheries act)

2. Scoping the pilot



Table 3: List of Topics

Topic	Work to be done	6-month output	DOSM and...	Number of votes
Living resources (Straits of Malacca)	<ul style="list-style-type: none"> Compile existing data for the area 	<ul style="list-style-type: none"> Inventory of available data Test accounts for extent & conditions Proposal for analytical project 	State & local authority, Forestry, DOF, KATS, Marine Parks, MOA, LKIM, MIMA, Local univ., Minerals and Geoscience, NAHRIM, DID	22
Protecting marine habitat (2) (P.M'sia)	<ul style="list-style-type: none"> Fish catch/stock Ship movement Mapping unprotected resources (tbd) 	<ul style="list-style-type: none"> Initial map of unprotected res. Test accounts for extent & aquatic resources. Assessment of pressures 	Marine Parks, Fisheries and Marine Dept, DOE, State and local authority, DID,	1
Ocean conservation (indicators)	<ul style="list-style-type: none"> water quality, CO2 land-based pollution 	<ul style="list-style-type: none"> Agreement on indicators Mapping of spatial data Test accounts for conditions 	DOE, KATS, MESTECC, DOA, Marine Dept.	7
Klang Straits (land-based)	Distinguish land-based activities and estimate pollutants	<ul style="list-style-type: none"> Inventory of available data Integration of scientific data Test accounts for water emissions, wastewater, solid waste 	DOE, KATS, Marine Dept, DID, Port Authorities, NAHRIM, DOA, Forestry, UM, MIMA	12



1. Main considerations for design of the pilot

- 30 relevant stakeholder agencies related to ocean
- Data availability
- This Pilot is the first effort of its kind in Malaysia and there are no prior works on ocean accounts
- Time constraint

ii. Pilot design

- Research question
- Data sources
- Analytical outputs



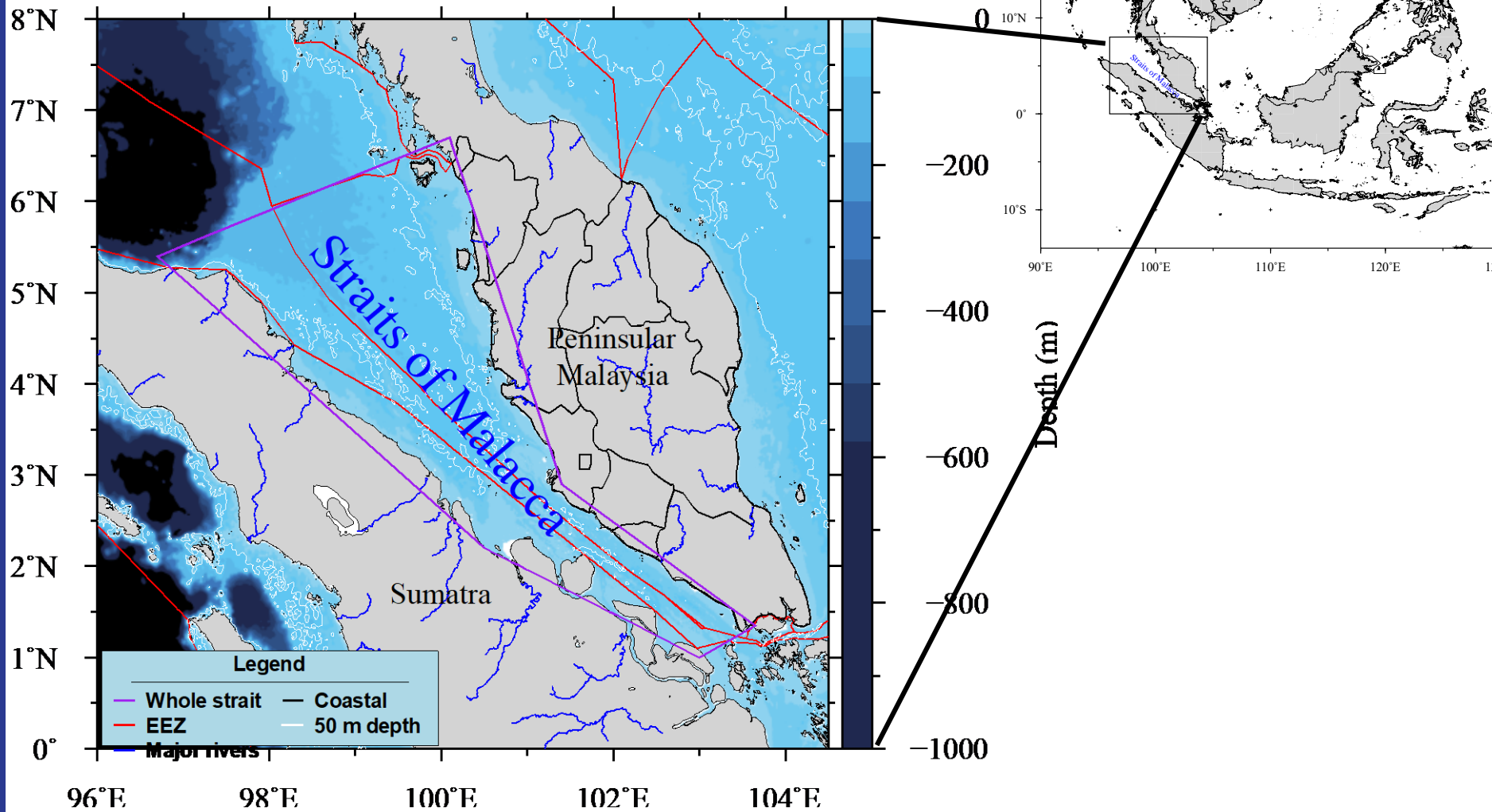
- Activities undertaken in implementing the pilot
 - Establishment of working group – High-level Panel and Small Working Group
 - Research – hired three research assistants
 - Consultation – frequent consultation with DOSM and most directly relevant stakeholders
 - Data collection, integration
 - Mapping
 - Analysis, accounting, valuation ...



- 1. Fisheries data: 1998-2017**
 - fish landings, licensed vessels, gear type, etc.
 - Source: Department of Fisheries Malaysia
- 2. Phytoplankton chlorophyll a (indication of primary production): 1998-2017**
 - Source: Satellite data (Ocean Colour Climate Change Initiative)
- 3. Sea surface temperature (SST): 1998-2017**
 - Source: NOAA's Optimum Interpolation SST (OISST) products
- 4. Total suspended matter: 2002-2012**
 - Source: ESA's MERIS satellite sensor
- 5. Land coverage data**
 - Source: USGS's Landsat: 1995, 2006, 2017
- 6. Spatial data (satellite imagery) from Malaysia Space Agency (MySA)**

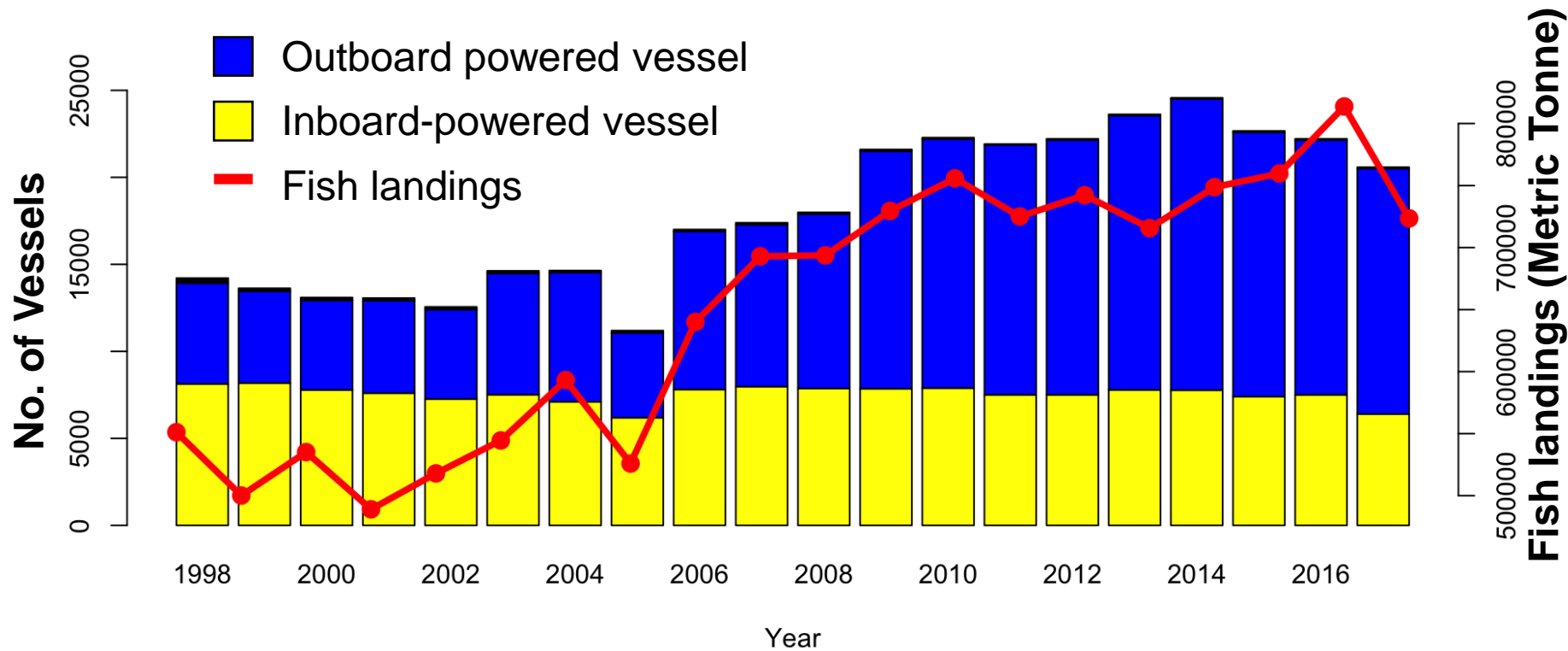


5.1 Study Area





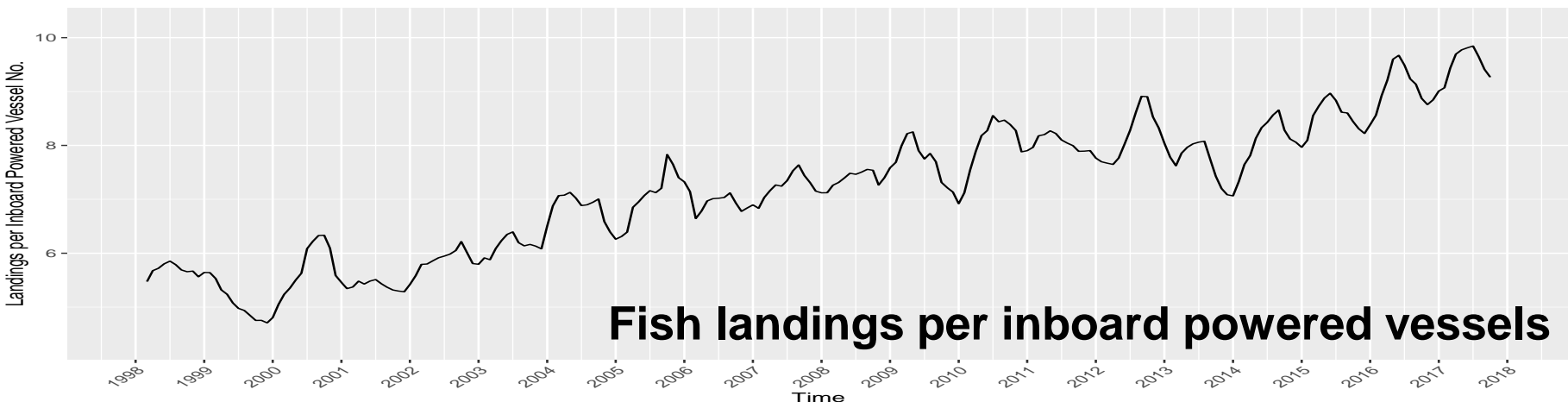
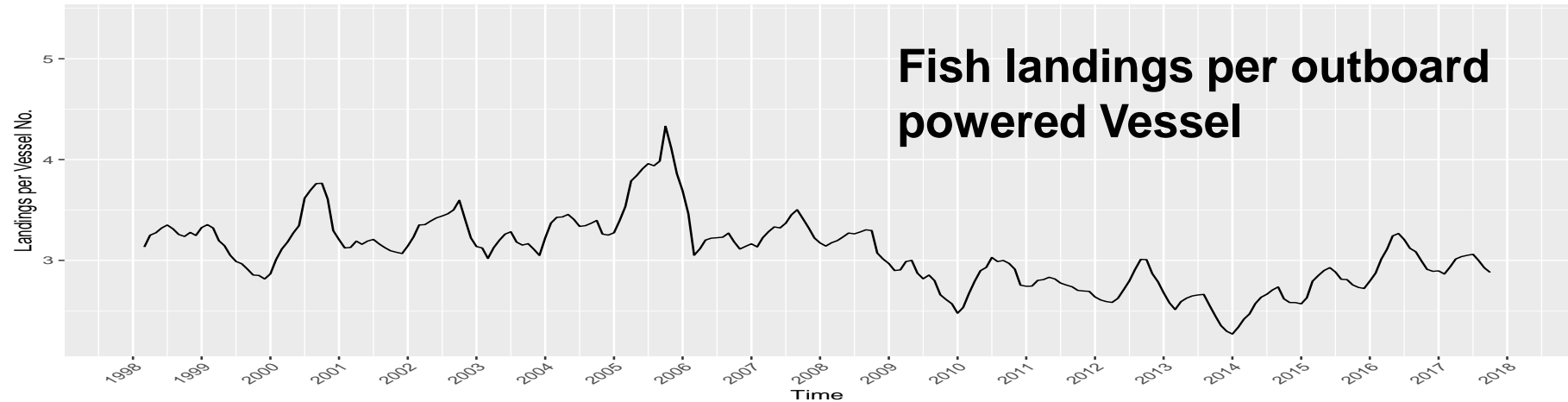
Fish landings and licensed vessels in the Straits of Malacca from 1998-2017



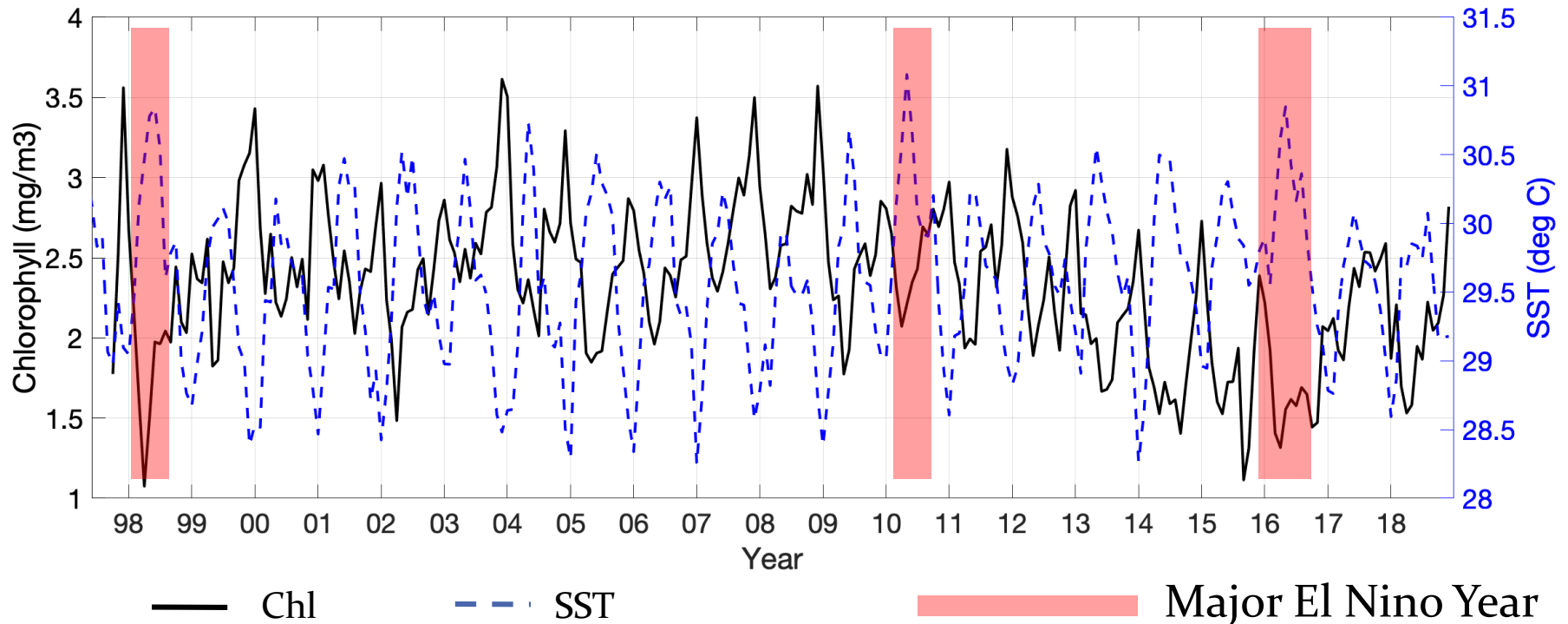


Normalized Fish Landings per Outboard and Inboard Powered Vessel in West Coast Peninsular Malaysia, 1998-2017

Normalised Time Series of Marine Fish Landings (West Coast), 1998 – 2017



Chlorophyll a vs. Sea Surface Temperature

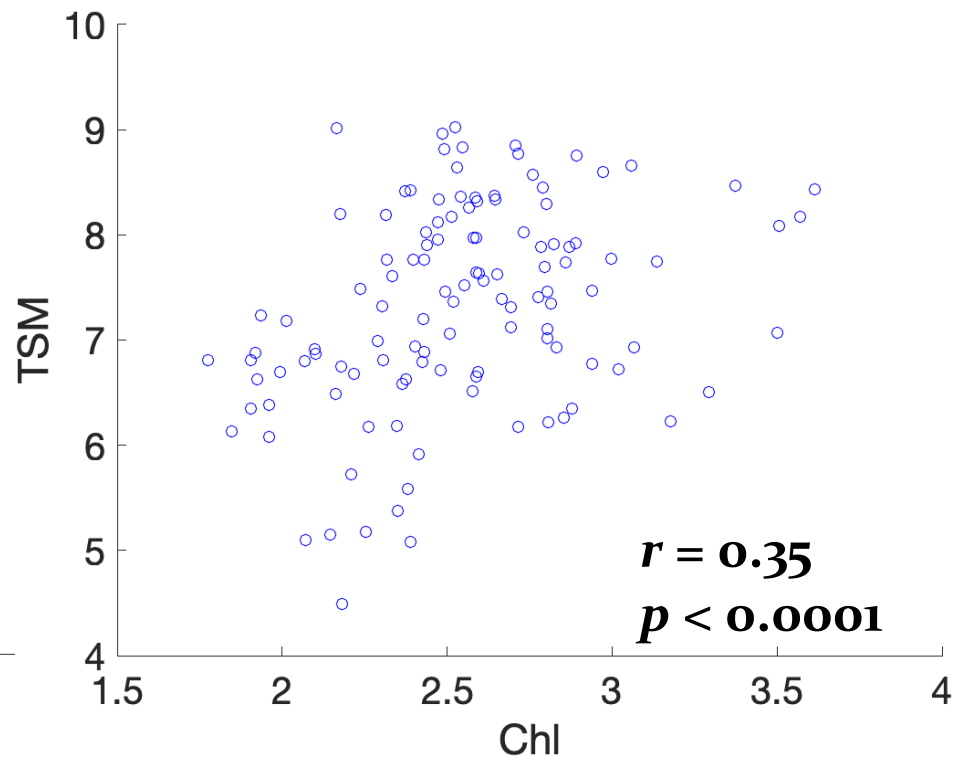
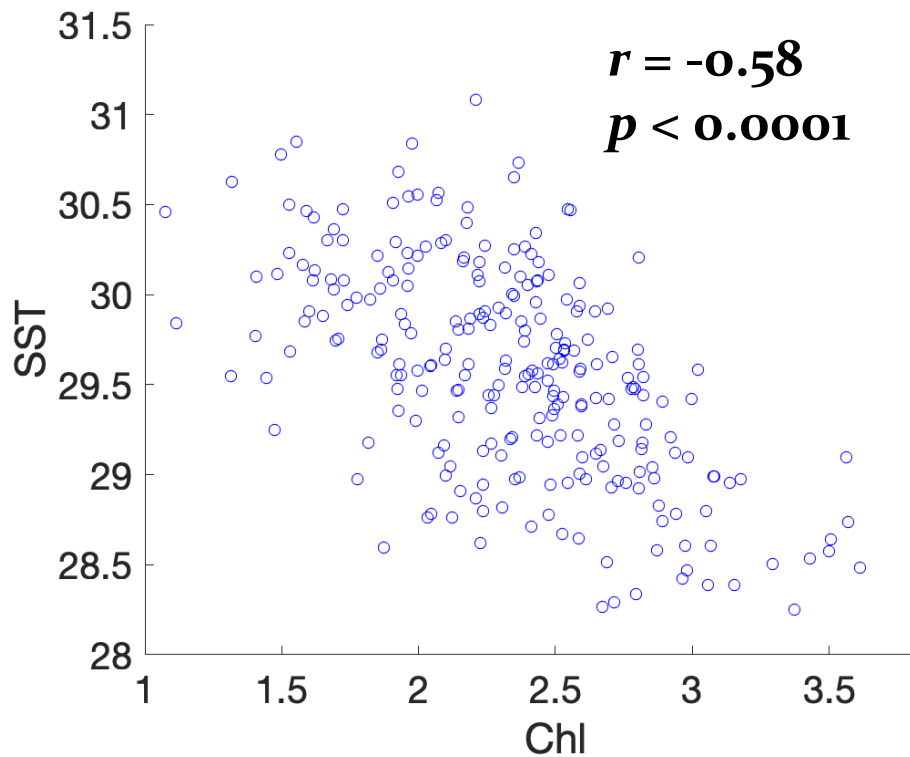


- Chlorophyll – proxy of primary production which will influence fish catch
- Inverse relationship between primary production and temperature: low temperature indicates mixing of colder-high nutrient waters

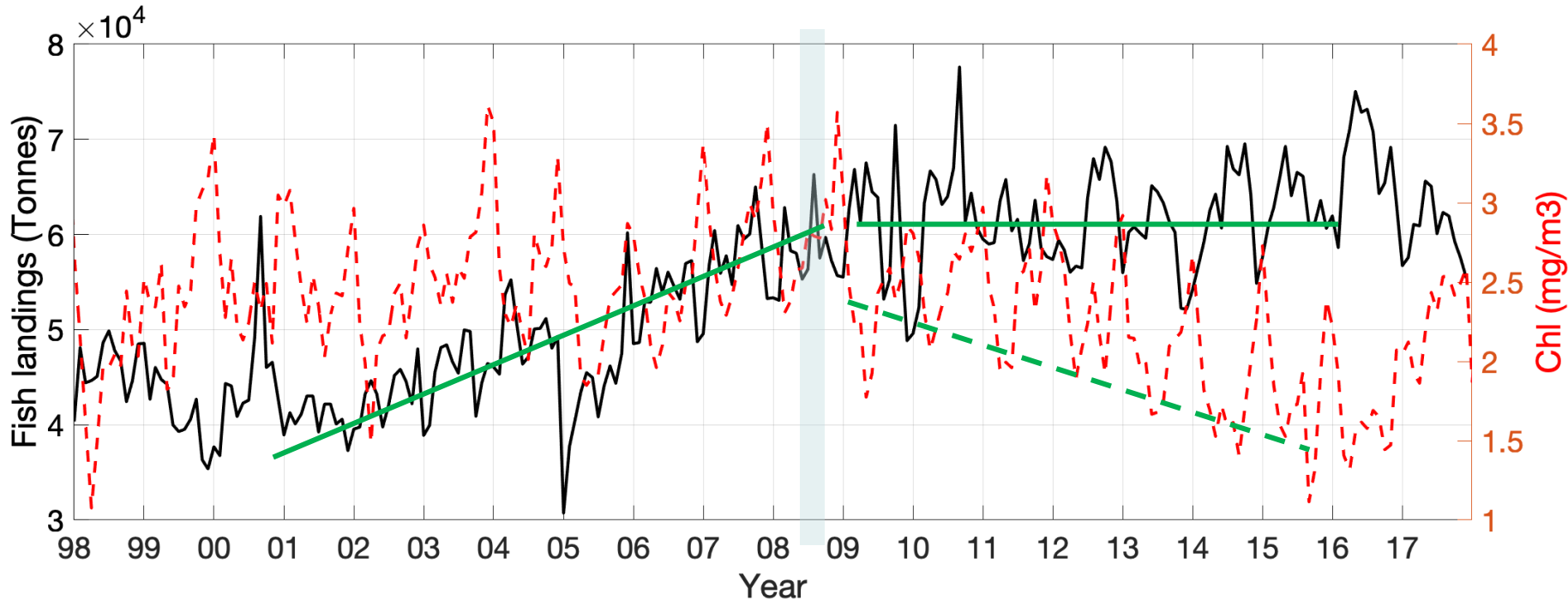


Chlorophyll vs Sea Surface Temperature

Chlorophyll vs Total Suspended Matter



Chlorophyll vs Fish Landings

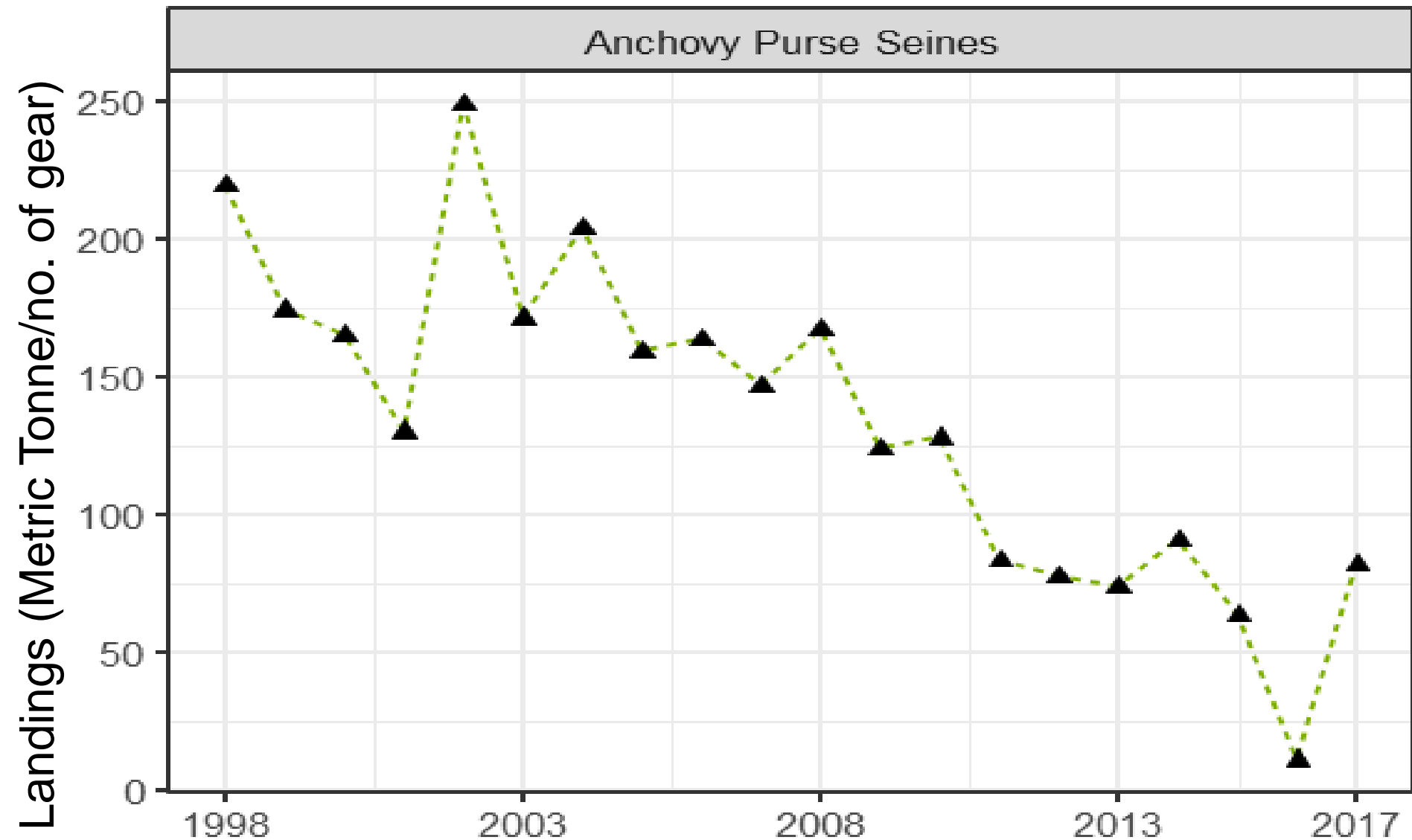


- Fish landings basically follows the chlorophyll trend
- After 2009, the trends of fish landings and chlorophyll started to split could be due to increase in the number of outboard vessels



Parameters	1998	2017	Changes (%)
Fish landings (Metric Tonnes)	551,183	723,543	+31.3
Chlorophyll (mg/m ³)	1.96	2.29	+16.8
Temperature (°C)	29.86	29.48	-1.29

Area (km square)	1995	2006	2017	Changes (%)
Mangrove	688.27	411.17	180.75	-73.7
Aquaculture	45.15	105.02	152.79	+238.4
Built-up	550.38	733.75	1113.92	+102.4



5. Summary of findings

- Total fish landings generally increased from 1998 and reaching its peak in 2016.
- Contrary to the increase in total fish landings, fish landings per vessel are decreasing.
- Fish landings per inboard vessel (bigger vessel) is increasing. This could be due to better strategy and technology.
- Impact of decrease in mangrove area seems to influence only selected species e.g. anchovy.
- Phytoplankton biomass appears to be the main driver of fish landings which is controlled by temperature and river runoffs.
- Thus, fisheries is indirectly subjected to the atmospheric/climatic phenomenon such as El Nino, monsoon, warming, etc.

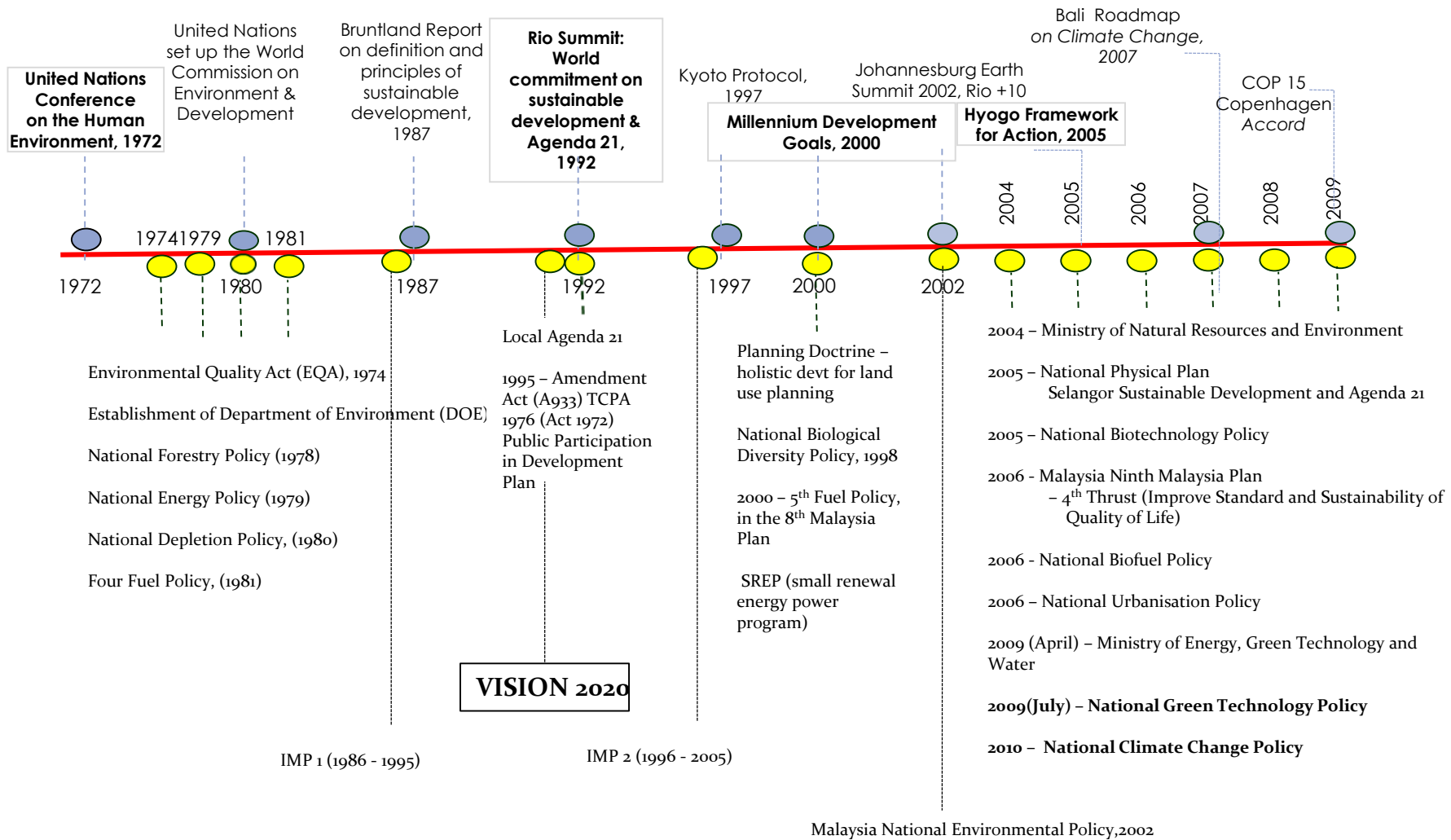
6. Main challenges and needs

- Data
- Institutional (such as data sharing)
- Technical capacity
- Time limitation
- Guidance (such as the framework)
- International collaboration



Malaysia: Sustainable Development in Action

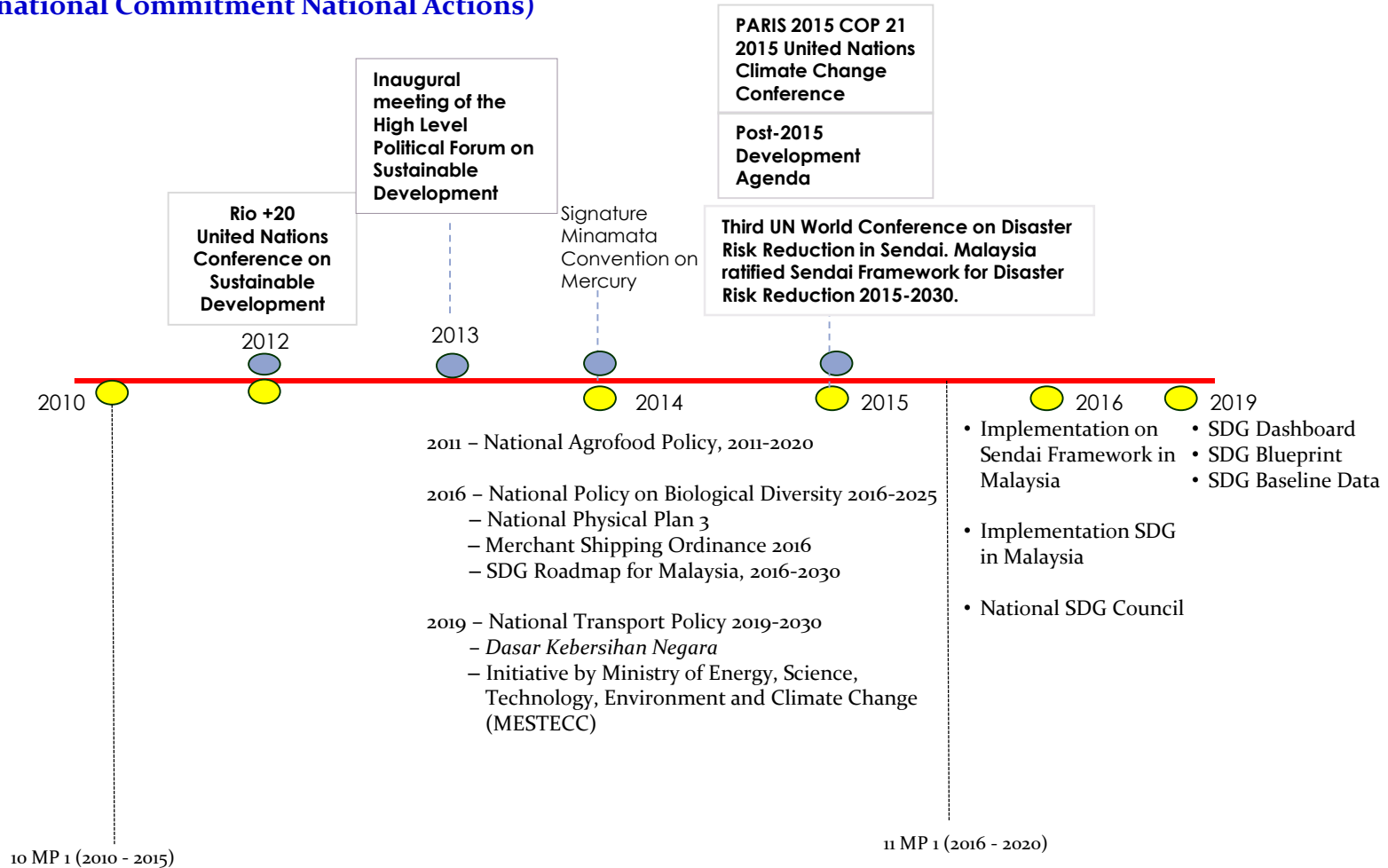
(International Commitment National Actions)





Malaysia: Sustainable Development in Action (cont'd)

(International Commitment National Actions)





1

11MP is part of a Systematic Planning of National Development ...



2

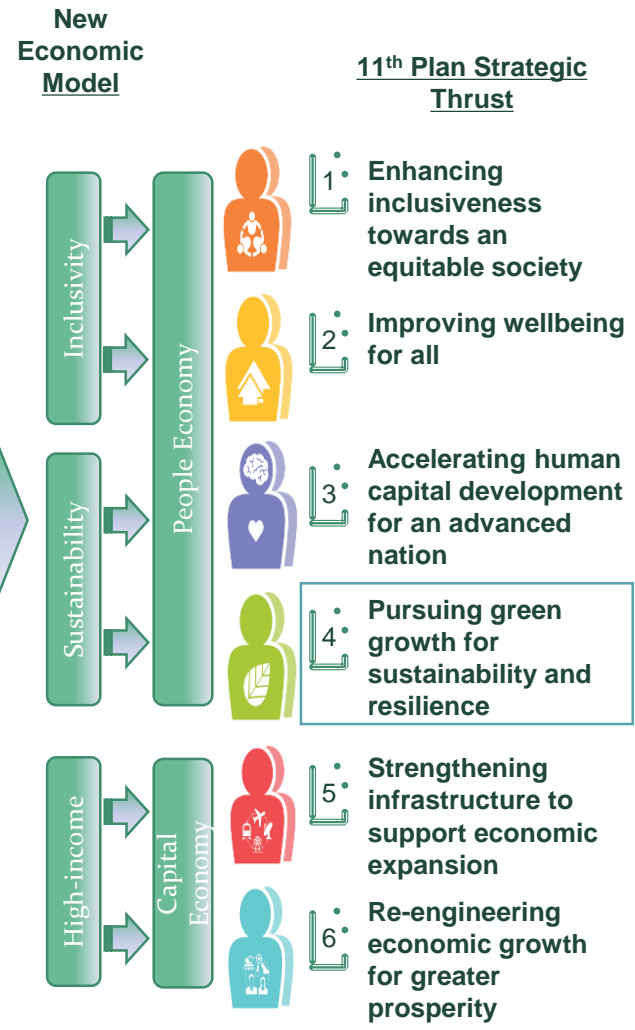
The theme of the 11MP is..... “Anchoring growth on people”

- 1** People are the bedrock of the nation
- 2** Preparing people for the future
- 3** Everyone enjoys growth and development



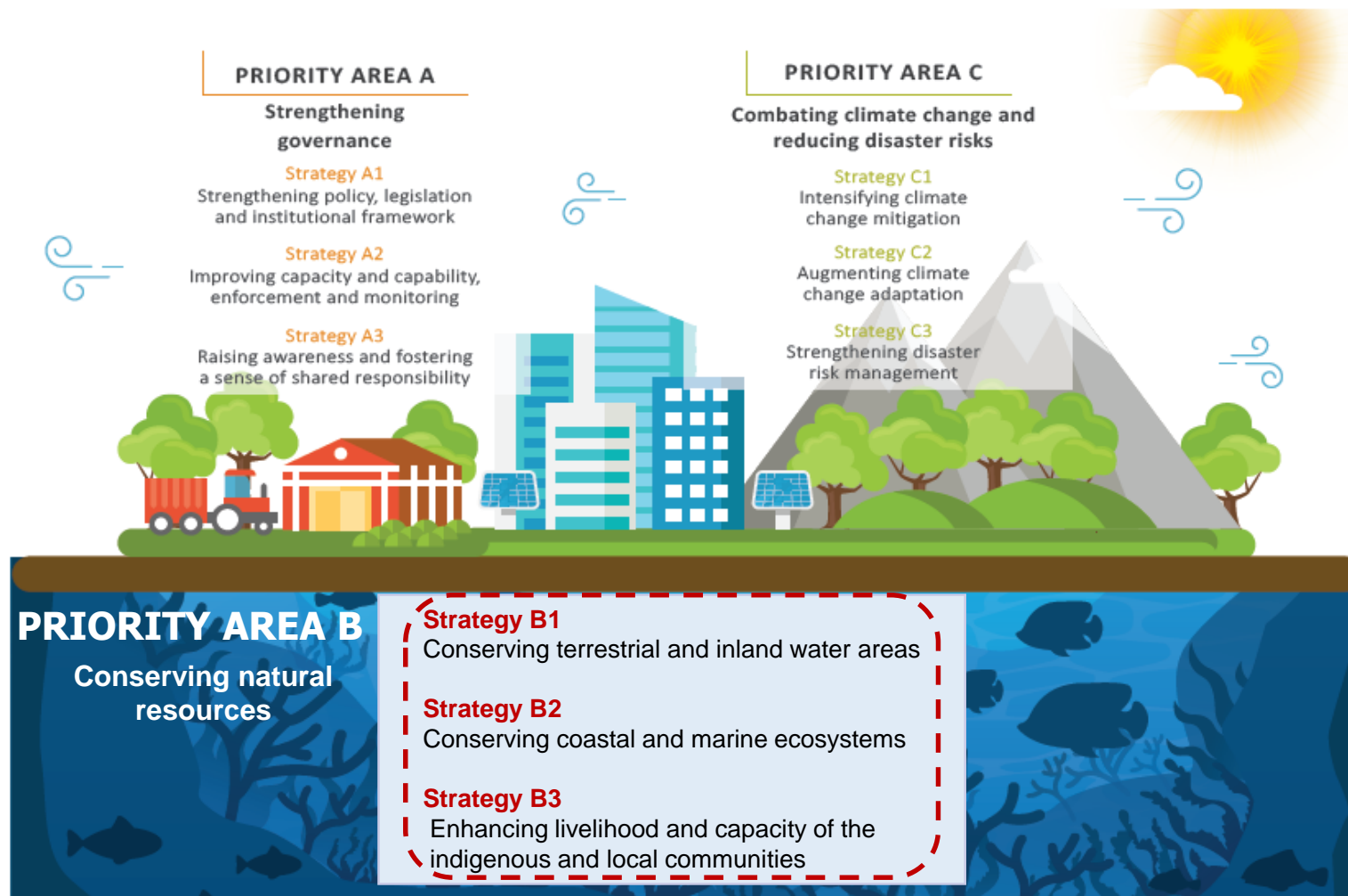
3

Aspiration
A high-income and inclusive nation





Pillar V: Enhancing Environmental Sustainability through Green Growth





Ocean Governance in Malaysia

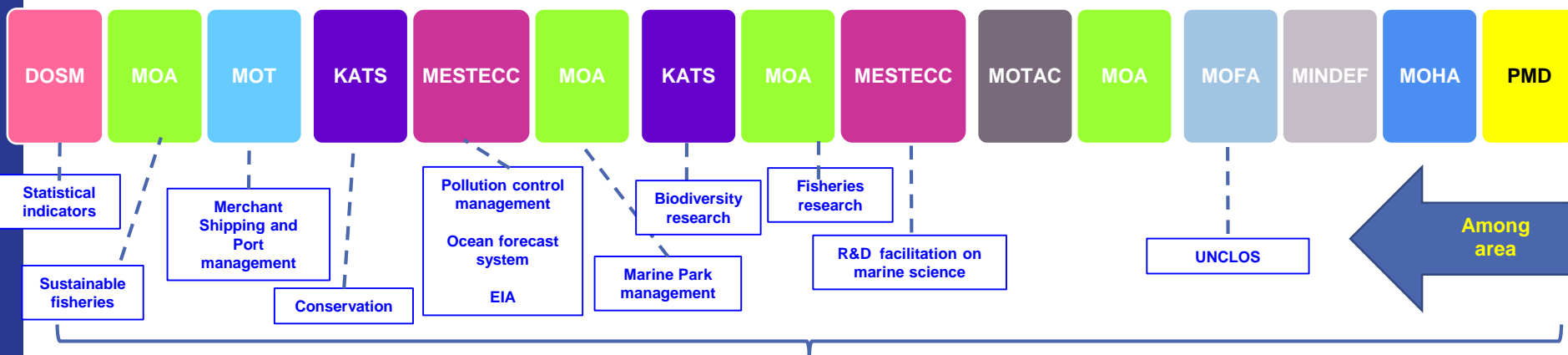
Economy

Environment

Research

Tourism

Security & Sovereignty



MEA

MOF

***Note:**

- DOSM: Department of Statistics Malaysia
- MOA: Ministry of Agriculture and Agro-based Industry
- MOT: Ministry of Transport Malaysia
- KATS: Ministry of Water, Land and Resources
- MESTECC: Ministry of Energy, Sciences, Technology, Environment and Climate Change
- MOTAC: Ministry Of Tourism, Arts & Culture
- MOFA: Ministry of Foreign Affairs
- MINDEF: Ministry of Defense
- PMD: Prime Minister Department
- MEA: Ministry of Economic Affairs
- MOHA: Ministry of Home Affairs
- MOF: Ministry of Finance

12 Ministries / Various Agencies



CAPTURE FISHERIES

- Fisheries Act 1985
- EEZ Act 1984
- National Agro Food Policy 2011-2020
- Licensing Policies and Procedures
- Strategic Planning of Department of Fisheries Malaysia 2011-2020
- FAO Code Of Conduct For Responsible Fisheries
- National Plan of Action (NPOA)

AQUACULTURE

- Fisheries (Inland Fisheries Aquaculture) (Federal Territory of Kuala Lumpur and Labuan) Rules 2017
- Malaysian Good Agricultural Practices (MyGAP) Certification Scheme

OCEAN LEGISLATION/SUBSIDIARY LAW

- Merchant Shipping Ordinance 2016
- Federation Port Rules 1953
- Boat Rules 1953

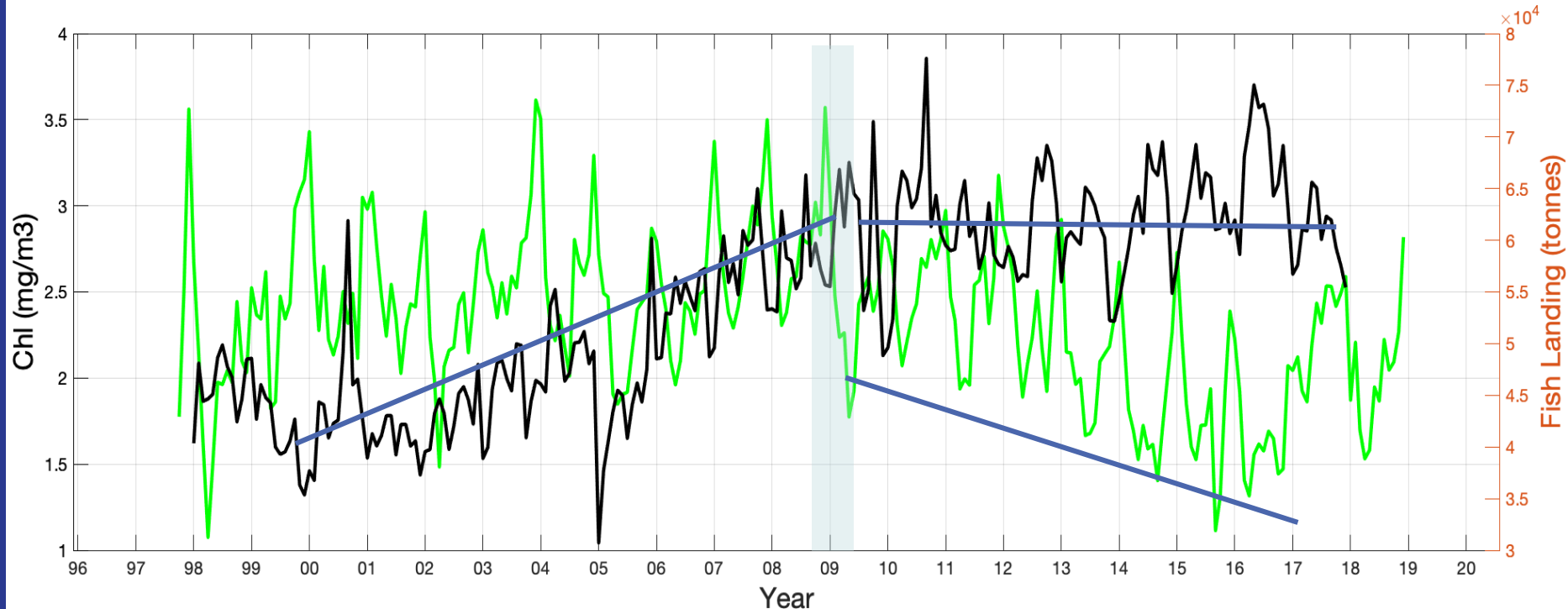






Thank you!

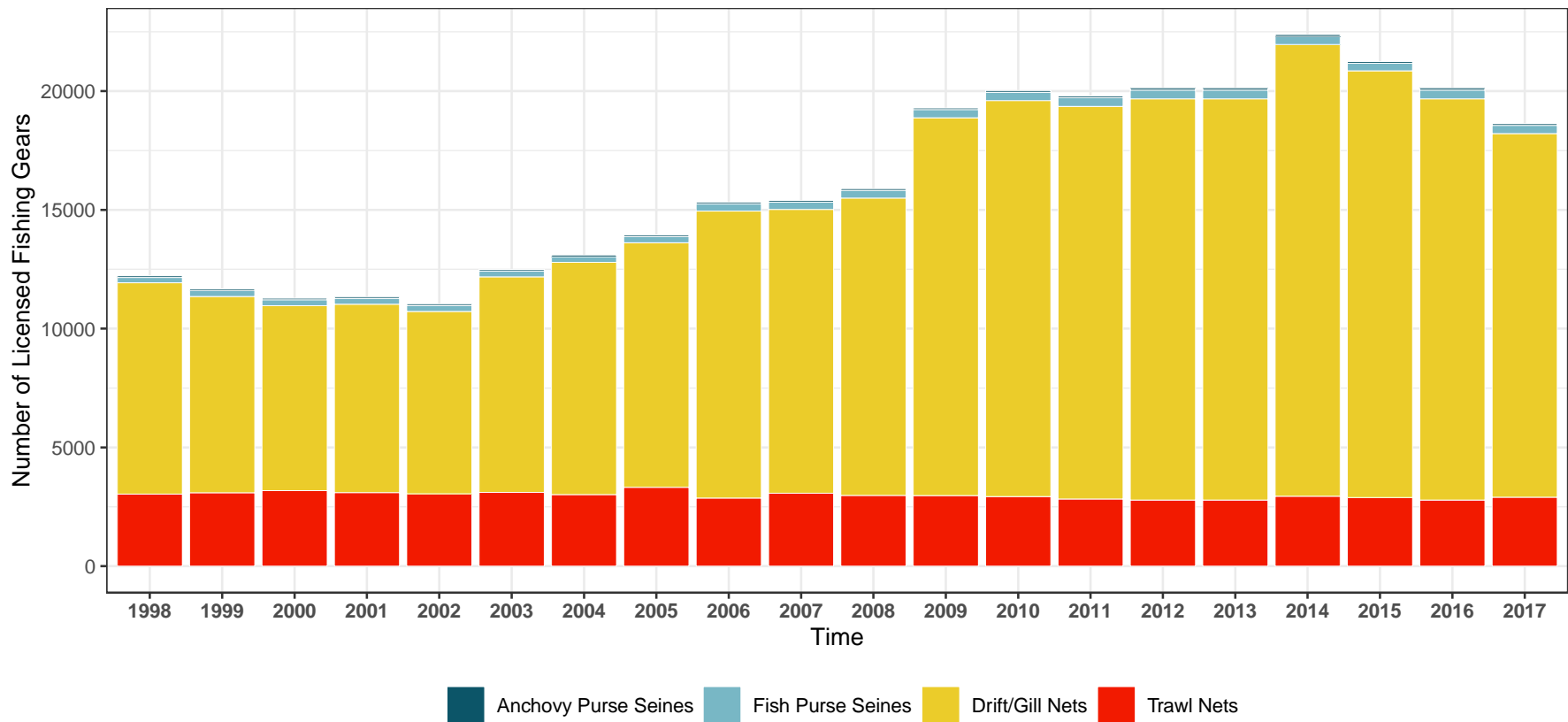
Chlorophyll vs Fish Landings



- Fish basically follows the chlorophyll trend
- After 2009, the trends of fish landings and chlorophyll started to split could be due to increase in the number of outboard vessels

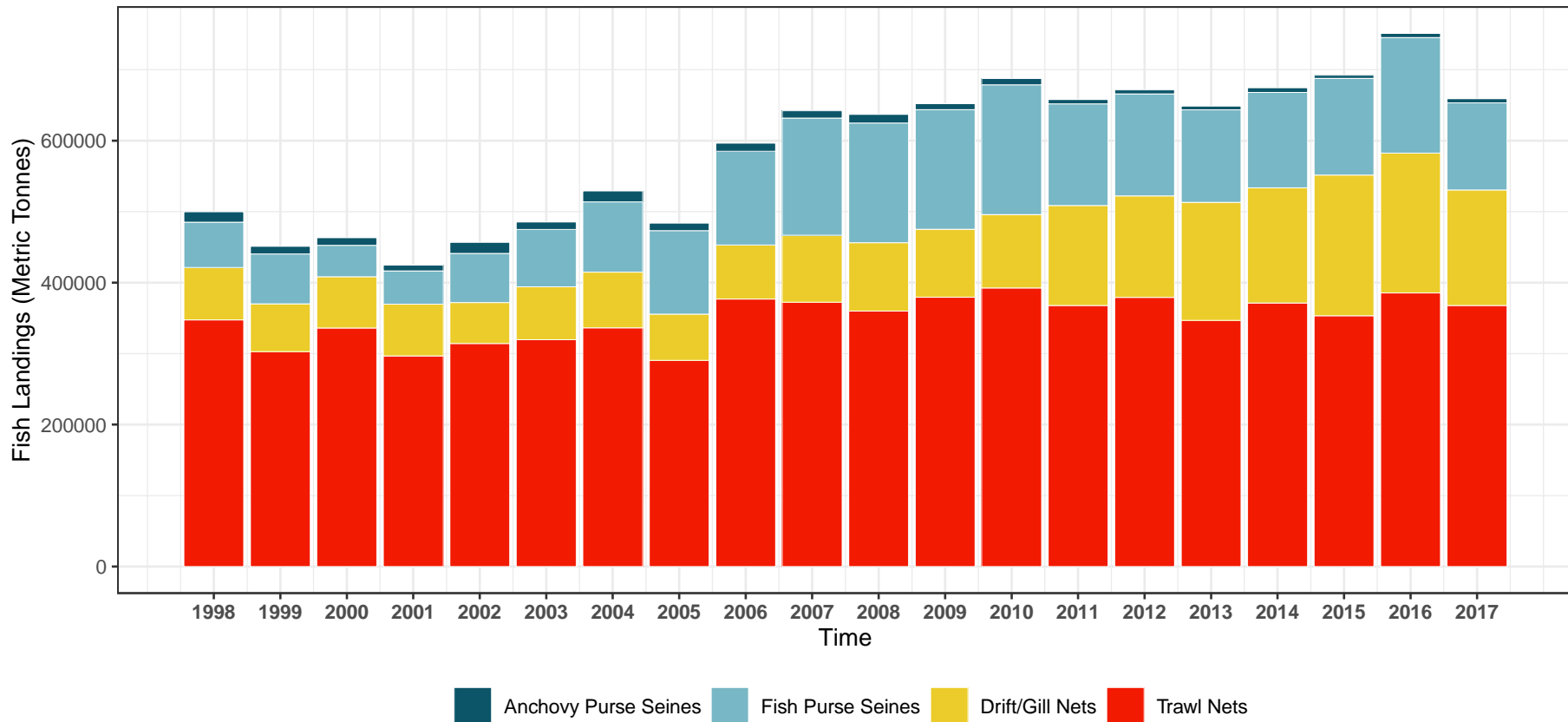
Total Number of Licensed Fishing Gears in West Coast Peninsular Malaysia, 1998-2017

Total Number of Licensed Fishing Gears in the West Coast, 1998 –2017



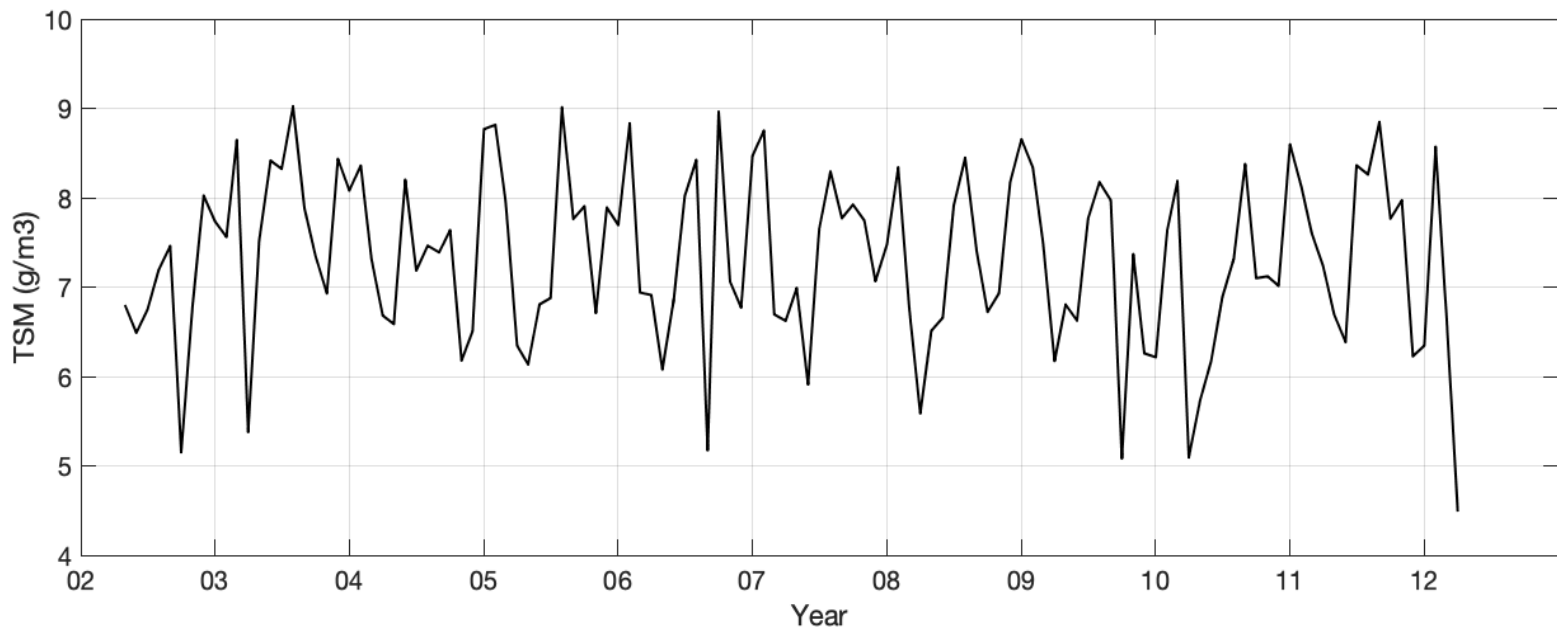
Total Fish Landings of Major Gear Groups in West Coast Peninsular Malaysia, 1998-2017

Total Fish Landings of Major Gear Groups in the West Coast, 1998 – 2017





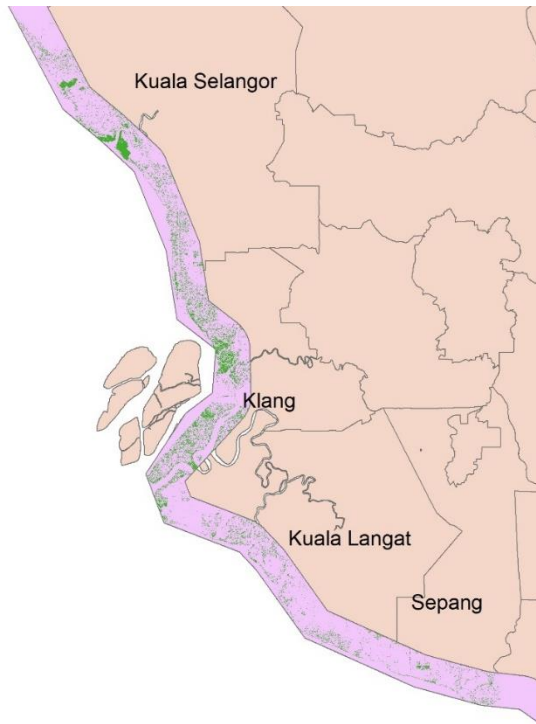
Total suspended matter (proxy of turbidity i.e. indication of river runoffs)



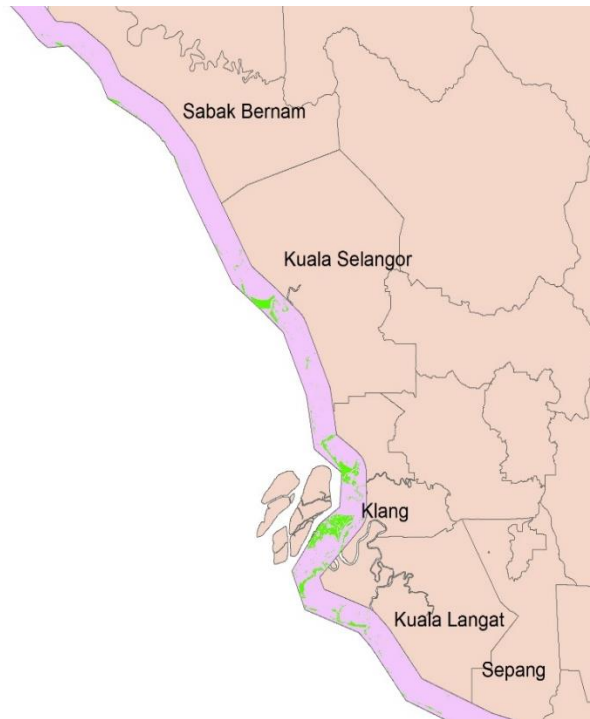
- General trend: High concentrations in summer and a smaller peak in winter
- Not significant interannual trend

Mangrove area in the state of Selangor (close to Kuala Lumpur)

1995



2006



2017



Coverage: 261.34 km²

137.73 km²

49.52 km²

Aquaculture area in the state of Selangor (close to Kuala Lumpur)

1995



2006



2017



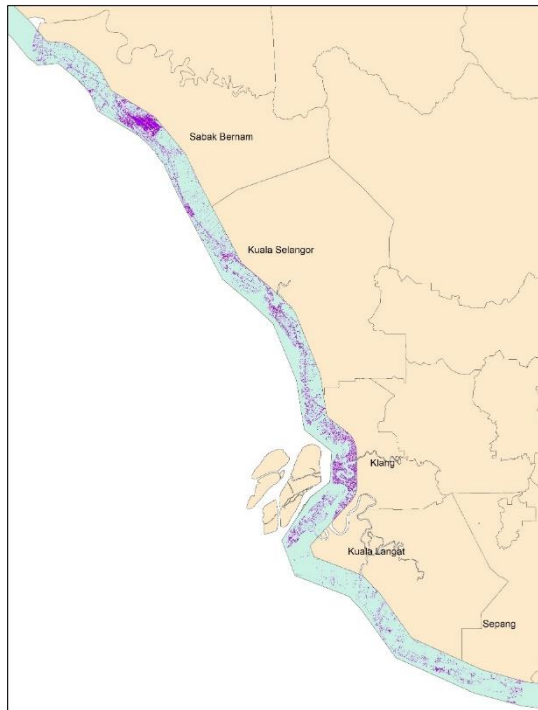
Coverage: 12.57 km²

36.82 km²

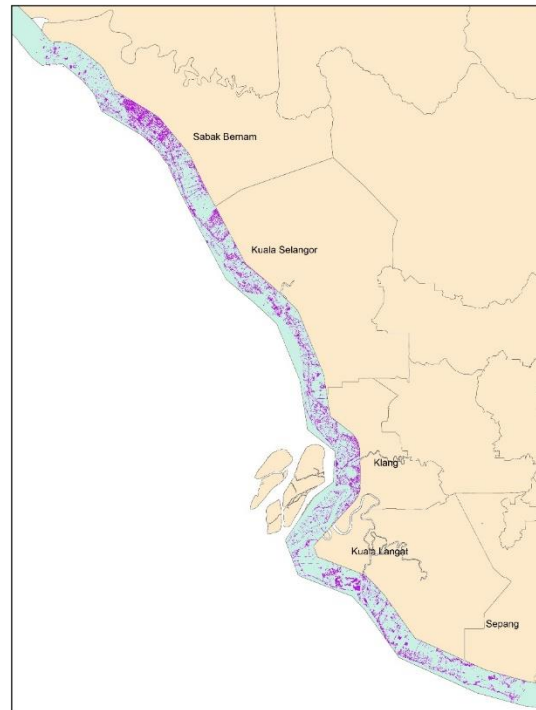
58.60 km²

Built-up area in the state of Selangor (close to Kuala Lumpur)

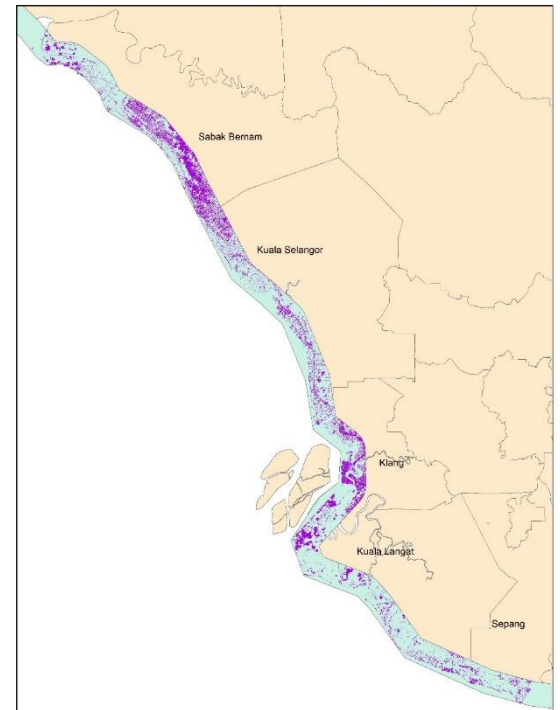
1995



2006



2017



Coverage: 144.86 km²

187.05 km²

213.70 km²