Conserving Marine Environment towards the Sustainability of Marine Resources for Food Security

Wan Izatul Asma Wan Talaat
Institute of Oceanography and Environment
UNIVERSITI MALAYSIA TERENGGANU
MALAYSIA

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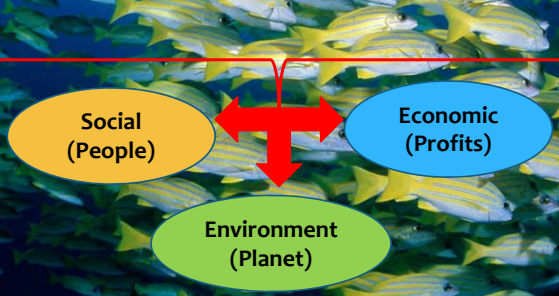
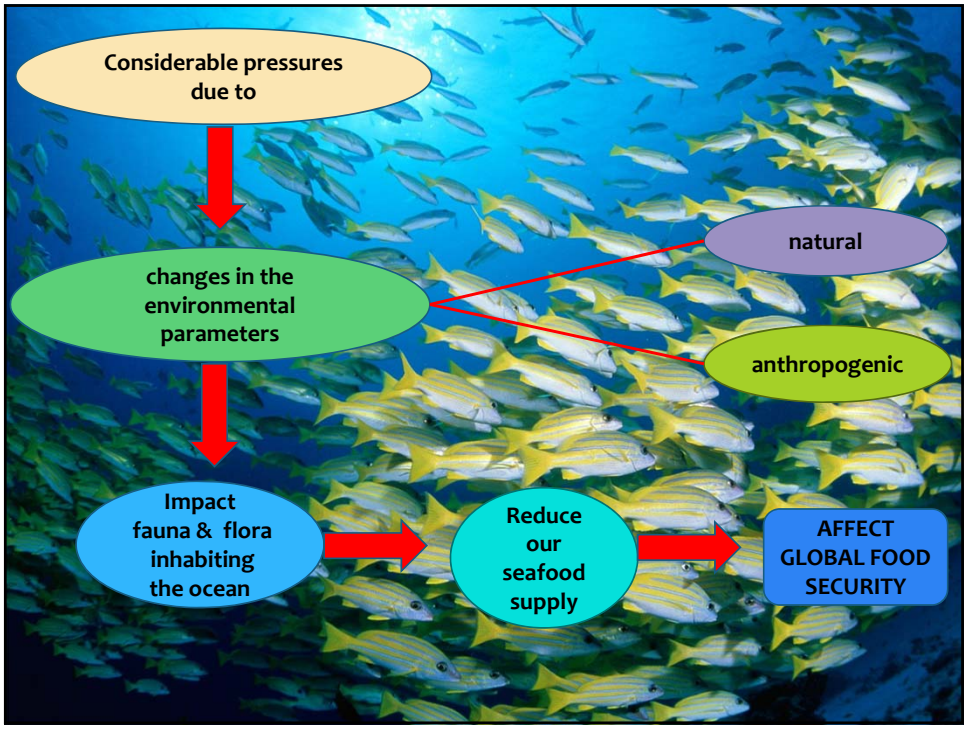
INTRODUCTION

* As the world population rapidly grows - FOOD SECURITY is a major concern to many nations
* Seafood has always been important to the livelihood of mankind & its role –
  * to the global FOOD SECURITY - irrefutable
  * evolves around the 3 pillars of sustainable development (3Ps)





Malaysia's LME

* Malaysia is essentially a maritime country
* Spanning –
  * more than 19 degrees of longitude
  * > 4600 kilometers of coastline
  * bordering 4 major large bodies of water

Straits of Malacca
South China Sea
Sulu Sea
Sulawesi Sea

* World Resources Institute (2006) - Malaysians derive more of their protein from fish than any other country in Southeast Asia

* One of the most productive seas in the world
* World's highest level of biodiversity (Tałaue-mcManus, 2000)
* (Jin, 2000) - harbours –
  * 1,027 species of fish
  * 91 species of shrimp
  * 73 species of cephalopods

MALAYSIA'S INITIATIVE

- As a coastal State –
  - Seafood or marine resources have been playing important roles to Malaysia
    - Not only as a key source of food & nutrition
    - Also as a major economic source either –
      - In food production chain
      - As revenue for economic growth

"Malaysia is very committed to ensuring that our marine ecosystem remains healthy so that this rich biodiversity can be enjoyed in perpetuity and sustainably utilised for wealth creation in line with out objective to be a fully developed nation by 2020"

Dato' Sri Mohd Najib bin Tun Haji Abdul Razak,
Coral Triangle Initiative Summit, Manado, Indonesia,
15 May 09

Coral Triangle Initiative
Coral Reefs, Fisheries and Food Security (CTI-CFO)

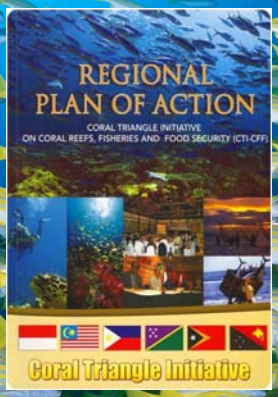
MOSTI
Ministry of Science Technology & Innovation

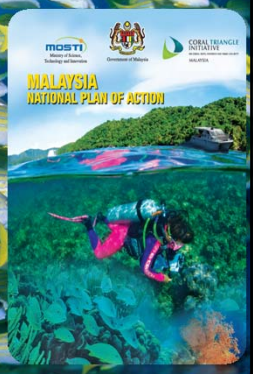
CORAL TRIANGLE INITIATIVE
MALAYSIA

Coral Triangle Initiative (CTI)

- Goal 1: • Priority Seascapes Designated and Effectively Managed
- Goal 2: • *Ecosystem Approach to Management of Fisheries (EAFM) and Other Marine Resources Fully Applied
- Goal 3: • *Marine Protected Areas (MPAs) Established and Effectively Managed
- Goal 4: • Climate Change Adaptation Measures Achieved
- Goal 5: • Threatened Species Status Improving

*Active in Malaysia





DOMESTIC INITIATIVES

Marine Protected Areas (MPAs)

83 MPAs
(43 coral reefs)

Ramsar sites for mangrove forests

3 out of 5 Ramsar Sites

Aquaculture Industry Zone (ZIA)

DOMESTIC INITIATIVES

Artificial Reefs

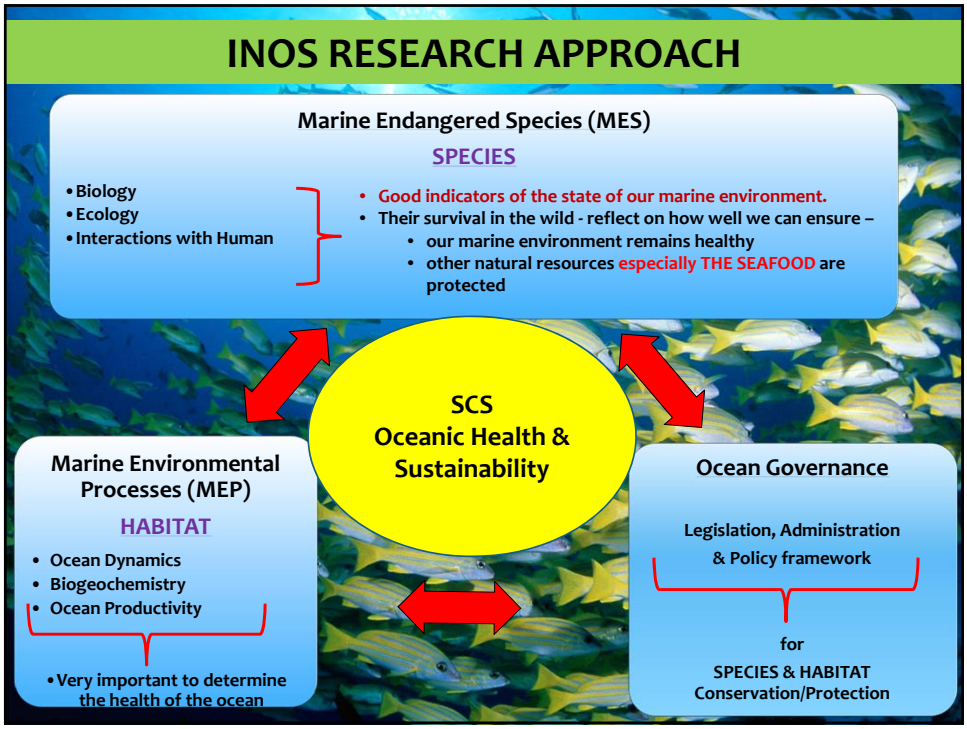
Institute of Oceanography and Environment (INOS) MALAYSIA

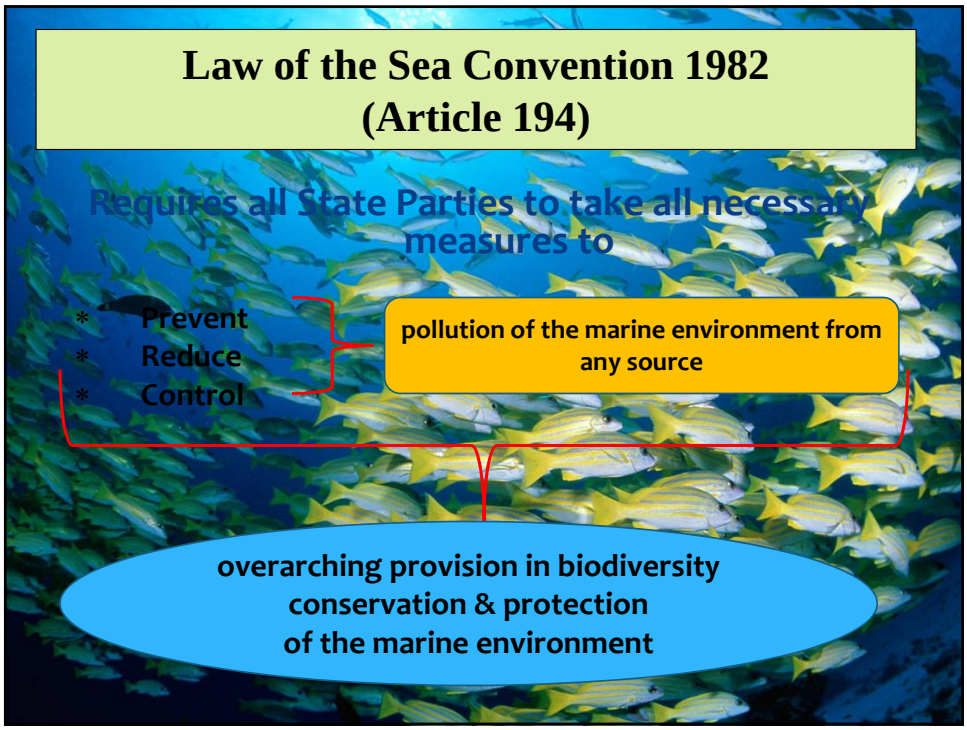
- National Higher Institution Centre of Excellence in Marine Science
- Mandate - Sustainability of the Marine Ecology
- Current research focus –
  - in sustainable resource management
  - through understanding of the processes & interactions

in the southern part of South China Sea (Sunda Basin)

highest coastal zone population growth in the world & relies heavily on its marine resources

Influenced by river & other terrestrial inputs


INOS RESEARCH APPROACH
Marine Endangered Species (MES)
SPECIES
• Biology
• Ecology
• Interactions with Human
• Good indicators of the state of our marine environment.
• Their survival in the wild - reflect on how well we can ensure –
• our marine environment remains healthy
• other natural resources especially THE SEAFOOD are protected
SCS
Oceanic Health & Sustainability
Marine Environmental Processes (MEP)
HABITAT
• Ocean Dynamics
• Biogeochemistry
• Ocean Productivity
• Very important to determine the health of the ocean
Ocean Governance
Legislation, Administration & Policy framework
for
SPECIES & HABITAT Conservation/Protection


Law of the Sea Convention 1982
(Article 194)
Requires all State Parties to take all necessary measures to
* Prevent
* Reduce
* Control
pollution of the marine environment from any source
overarching provision in biodiversity conservation & protection of the marine environment

To create Sustainable Ocean Governance -

* **At the domestic level-**
  * **Steps must be taken to strengthen the existing –**
    * **National policies**
    * **Laws**
    * **Administrative measures**

govern the management of Malaysian waters

Integrated Inputs from

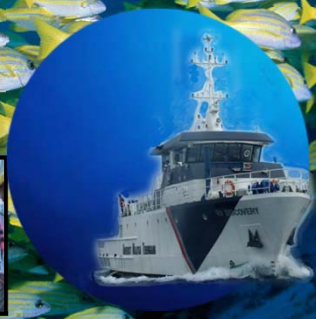
Stakeholders' Meeting

MES

MEP

SCIENTIFIC CRUISE

- To understand the oceanic process of the open water
- Will help gain an understanding on the regional scale of the different environmental processes & MES distribution in the SCS

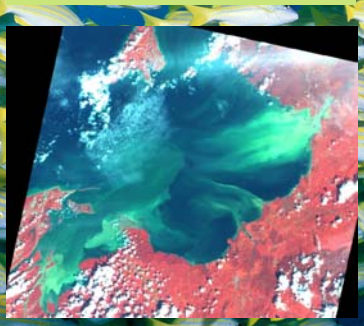


DEMONSTRATION SITES

- At the moment - the vastness of the SCS and the legal implications of international territorial waters preclude studying the entire SCS
- Hence - this project programme looks at 2 specific sites

Coastal Waters of East Coast of Peninsular Malaysia

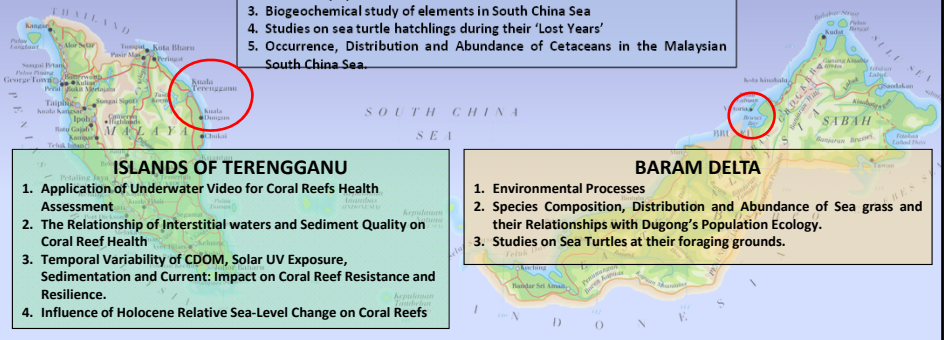
Part of Baram Delta in Borneo



PROJECTS BASED ON DEMOSTRATION SITES

HICOE OCEANOGRAPHIC CRUISE

1. Inter seasonal monsoon current circulation and water characteristics dynamics of the South China Sea
2. Spatial and temporal variations of phytoplankton biomass and production related to physical and chemical environmental factors.
3. Biogeochemical study of elements in South China Sea
4. Studies on sea turtle hatchlings during their 'Lost Years'
5. Occurrence, Distribution and Abundance of Cetaceans in the Malaysian South China Sea.



ISLANDS OF TERENGGANU

1. Application of Underwater Video for Coral Reefs Health Assessment
2. The Relationship of Interstitial waters and Sediment Quality on Coral Reef Health
3. Temporal Variability of CDOM, Solar UV Exposure, Sedimentation and Current: Impact on Coral Reef Resistance and Resilience.
4. Influence of Holocene Relative Sea-Level Change on Coral Reefs

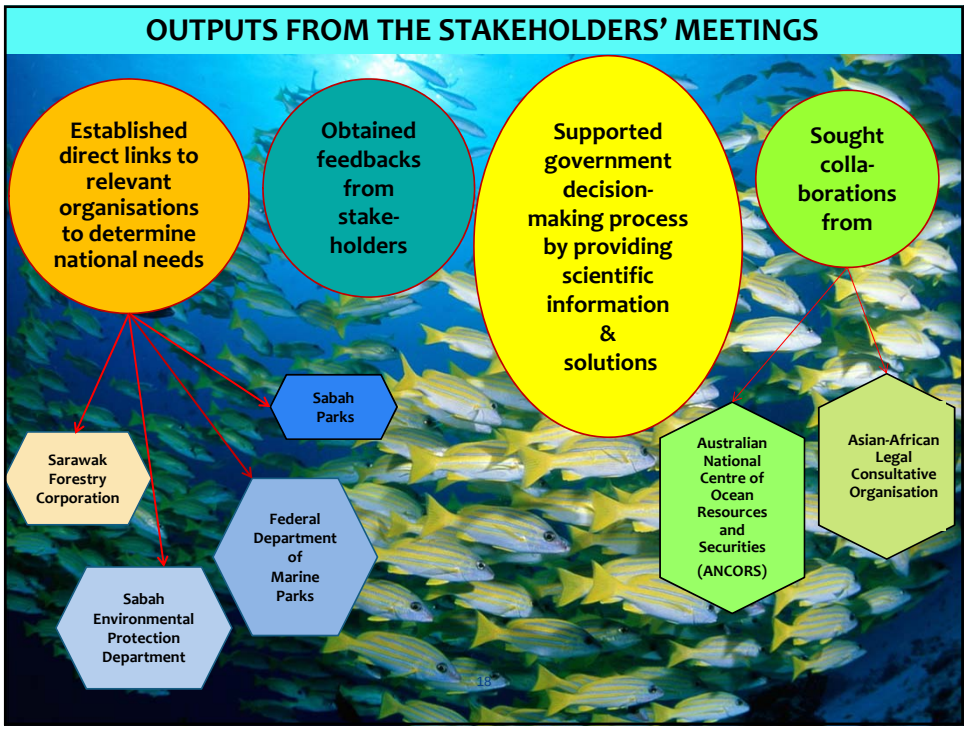
BARAM DELTA

1. Environmental Processes
2. Species Composition, Distribution and Abundance of Sea grass and their Relationships with Dugong's Population Ecology.
3. Studies on Sea Turtles at their foraging grounds.

GOVERNANCE

1. Developing Effective Governance for the Sustainable Management and Conservation of Marine Endangered Species
2. Understanding the Human-Marine Mammal Interactions and their Implication on the Livelihood of Coastal Communities in the Malaysian South China Sea.


Higher Institution Centre of Excellence (HICoE)
in Marine Science
STAKEHOLDERS
MEETING
17 June 2013
Institute of Oceanography and Environment
UNIVERSITI MALAYSIA TERENGGANU


OUTPUTS FROM THE STAKEHOLDERS' MEETINGS
Established direct links to relevant organisations to determine national needs
Obtained feedbacks from stake-holders
Supported government decision-making process by providing scientific information & solutions
Sought colla-borations from
Sabah Parks
Sarawak Forestry Corporation
Federal Department of Marine Parks
Sabah Environmental Protection Department
Australian National Centre of Ocean Resources and Securities (ANCORS)
Asian-African Legal Consultative Organisation

What INOS has done

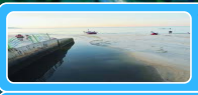
for Coral Reefs Conservation

Developed underwater video transect survey for the public to help in monitoring status of Corals [with Marine Park]

Mapping Coral reefs distribution [with Marine Park and Sabah Parks]

Developed strategies to improve corals resilience

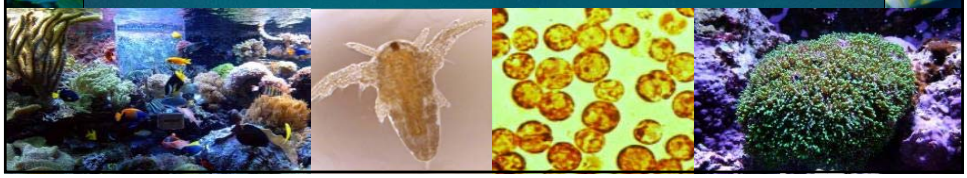
Coral Reefs Health Index to improve efficacy of reef management



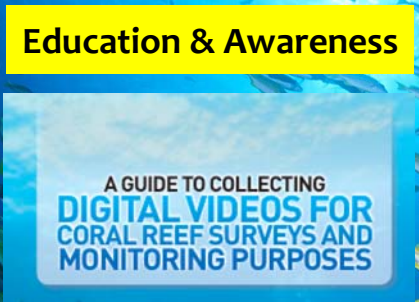
Water quality monitoring and ecosystem modeling for impact mitigation and prediction

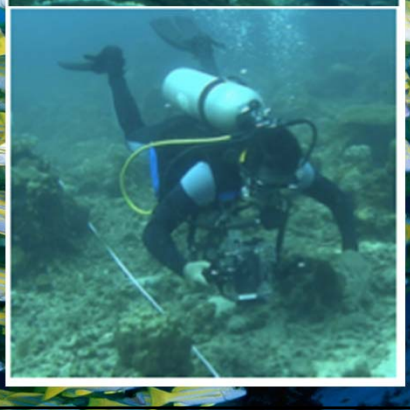
Offshore Corals Farming

Offshore Coral Farming Platform



Education & Awareness





CONCLUSION

* Sustainable oceanic health is crucial to conserve marine resources – to ensure sufficient SEAFOOD SUPPLY
* Considering that -
  * some of Malaysia's seas lie within one of the most biodiverse regions of the world
  * marine conservation in Malaysia is critical – for GLOBAL FOOD SECURITY
* INOS three- pronged research programme –
  * to help the government create sustainable marine environment
  * through –
    * scientific-based law and policy reform
    * effective governance framework
    * regional environmental cooperation


THANK YOU
for
your kind
attention