MOSTI

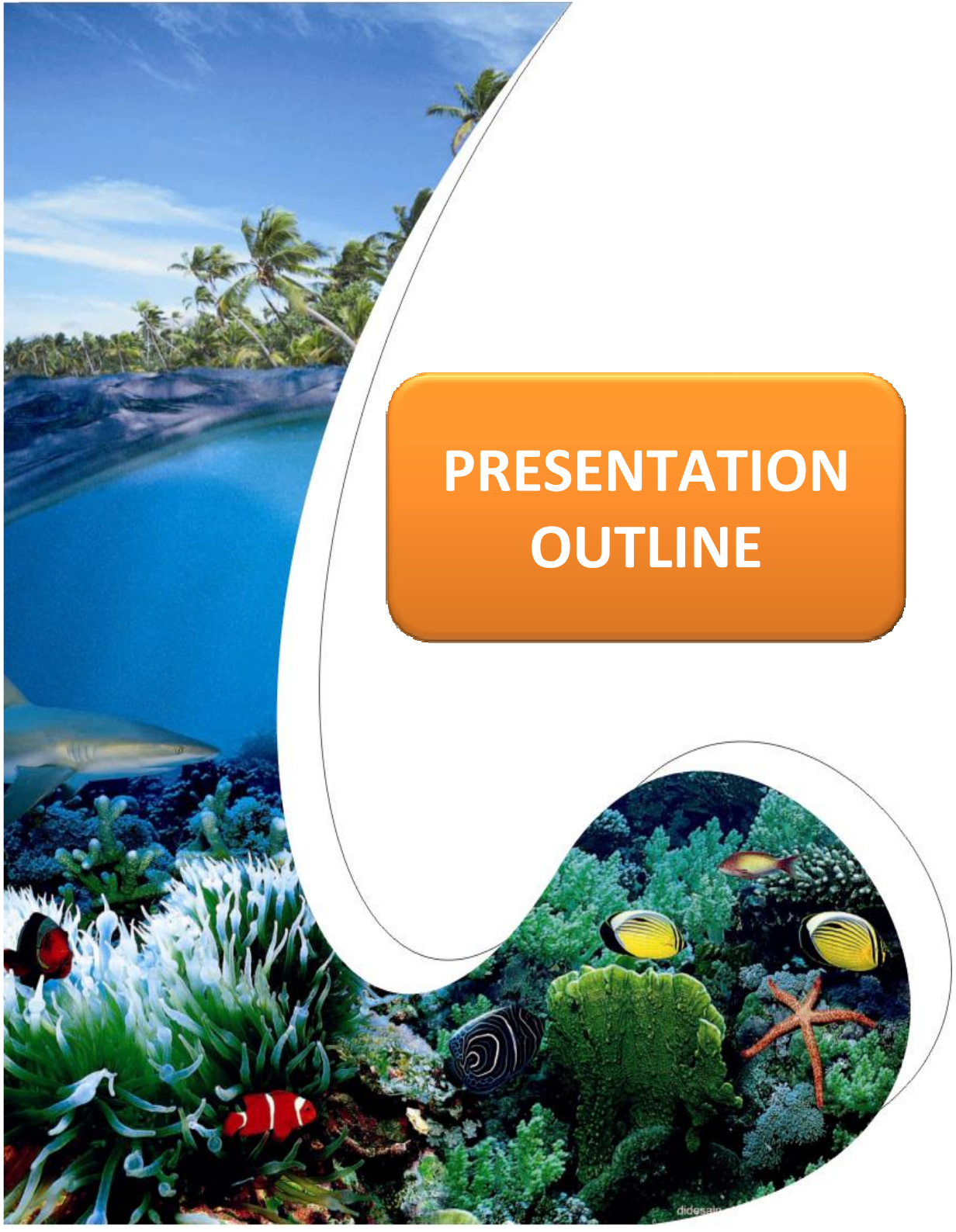
MyNODC NATIONAL OCEANOGRAPHY DATA CENTRE

Prof. Dr. Nor Aieni Haji Mokhtar
Mr. Mohamed Zaini Abdul Rahman
National Oceanography Directorate
Ministry of Science, Technology and Innovation Malaysia

International Symposium for the integration of Marine-related Data and Information

Tokyo, Japan

08 December 2011



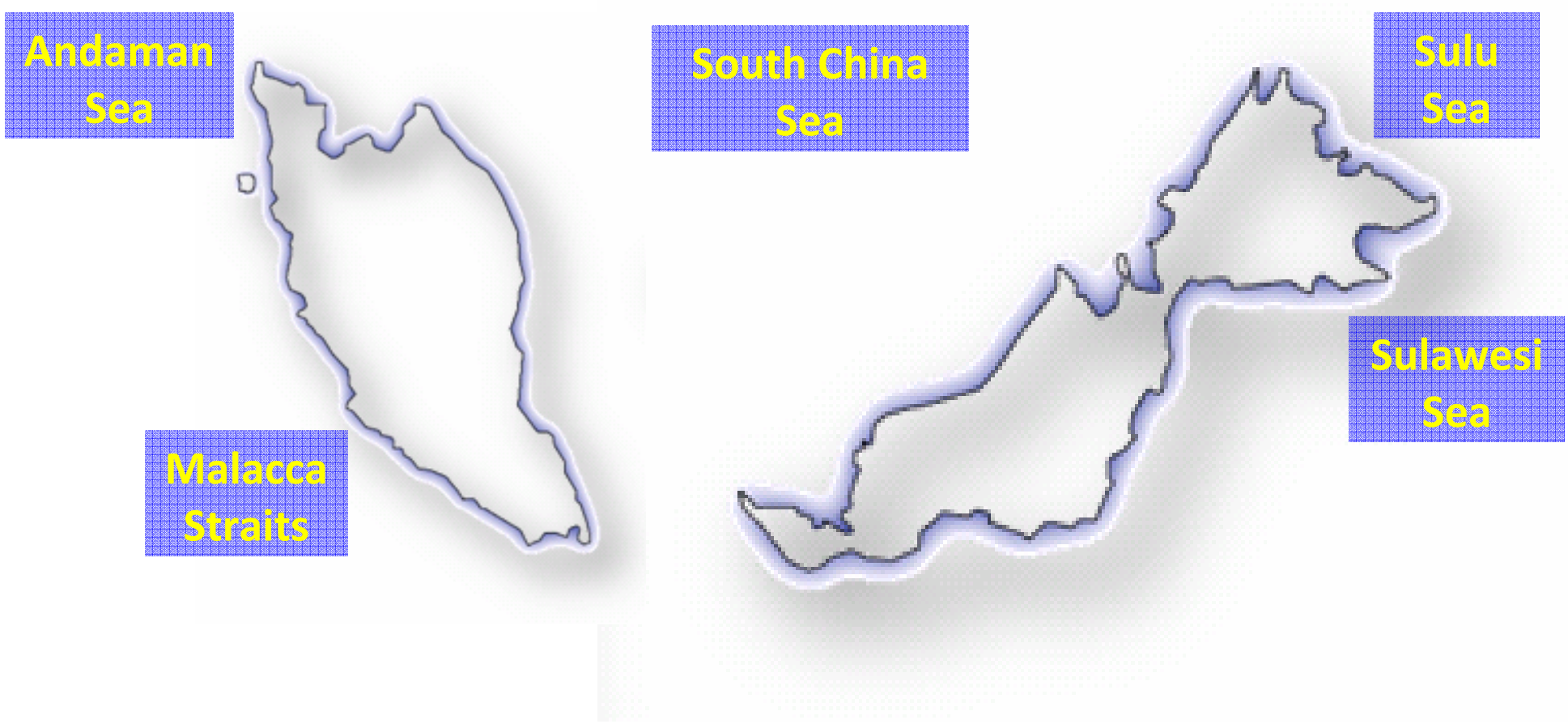
PRESENTATION OUTLINE

- Introduction
- MyNODC
- Partnership
- Conclusion

Malaysia as a Maritime Country

329,845 km^2 of landmass

450,000 km^2 of marine coverage (EEZ)



OCEAN GOVERNANCE

PRIME MINISTER DEPT

- National Security Council
- Economic Planning Unit
- Maritime Enforcement Agency

MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION

- National Oceanography Directorate
- Meteorological Dept
- Remote Sensing Agency

MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT

- Centre for Geospatial Data Infrastructure
- Dept of Environment
- Dept of Marine Park

MINISTRY OF TRANSPORT

- Marine Dept
- Port Authority
- Maritime Institute of Malaysia (MIMA)

MINISTRY OF AGRICULTURE AND AGRO-BASED INDUSTRY

- Dept of Fisheries
- Fisheries Development Authority

MINISTRY OF DEFENCE

- Royal Navy
- National Hydrographic Centre

MINISTRY OF FOREIGN AFFAIRS

- Multilateral Economic and Environment Division

MINISTRY OF HOUSING AND LOCAL GOVERNMENT

- Town and Country Planning Dept

MINISTRY OF INFORMATION, COMMUNICATION AND CULTURE

- Department of Natural Heritage

MINISTRY OF RURAL AND REGIONAL DEVELOPMENT

- Sustainable Islands and Island Communities

MINISTRY OF TOURISM

- Coastal and Marine Tourism

MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER

- Ocean Renewable Energy

National Oceanography Directorate (NOD)

NOD is the

National Focal Point

for Oceanography and Marine Sciences on R&D&C and related activities in Malaysia



Committed to Excellence in the Marine Sciences


Malaysia
CAMBODIA
VIETNAM
LOCATION OF MARINE SCIENCE AND OCEANOGRAPHY
CENTRE OF EXCELLENCE (COE) IN MALAYSIA
PHILIPPINES
THAILAND
South China Sea
MALAYSIA
BRUNEI
USM
(CEMACS)
UMT
(INOS)
UM
(IOES)
UMS
(BMRI)
UIAM
(INOCEM)
Kuala
Lumpur
UKM
(EKOMAR)
UPM
(IBS)
UTM
(COE)
Sumatra
Singapore
SINGAPORE
Rejang
UNIMAS
(ASD)
Kapuas
Borneo
Barito
INDONESIA
Feet
Meters
10000
3050
5000
1525
2000
610
1000
305
500
153
Sea Level
0
100
200 mi
0
100
200 km
10°
5°
0°
100°
105°
110°
115°
120°

Situational Analysis

Ocean is complex

Different jurisdictions under various agencies

- **Heterogeneous**
- **Distributed**
- **Autonomous**

→ **Need mechanism for data sharing**

↓

Data Centre
Portal
Database

SEAMLESS SOLUTION

MyNODC NATIONAL OCEANOGRAPHY DATA CENTRE

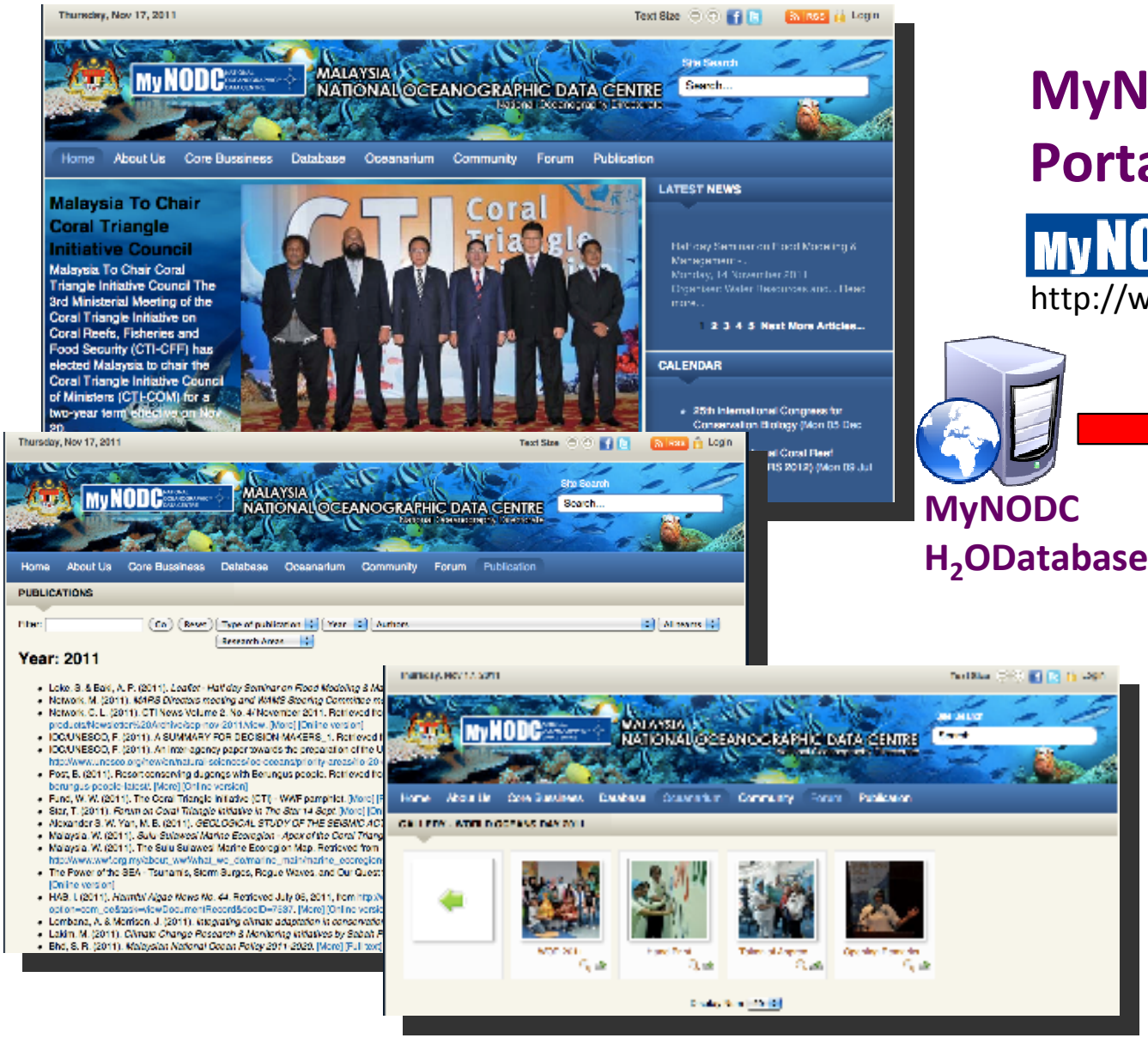
MyNODC

http://www.mynodc.gov.my/

MyNODC

- Imperative need for a central database housing oceanographic and marine data and information
- Launched on the 24th of July 2010
- Mission is to provide stewardship and access for the national resource of oceanographic data
- Requires the gathering, quality control, processing, summarisation, dissemination, and preservation of data generated by stakeholders
- Plays an important role in identifying and disseminating information

MyNODC Portal



MyNODC Portal

MyNODC NATIONAL OCEANOGRAPHY DATA CENTRE

http://www.mynodc.gov.my

MyNODC H_2ODatabase

Government Agencies

Academic & Research Institutions

Private Sector

Public

Forum e-Learning

Community Events

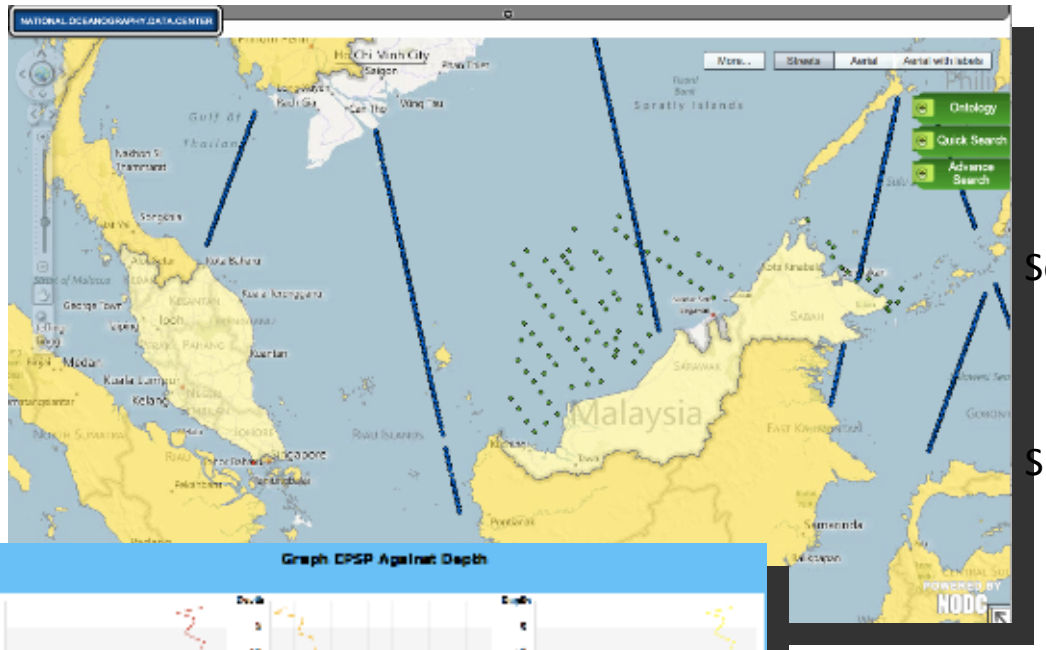
Publication News

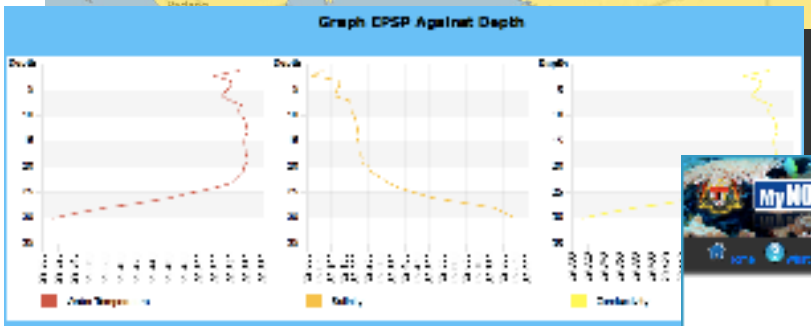
Announcement

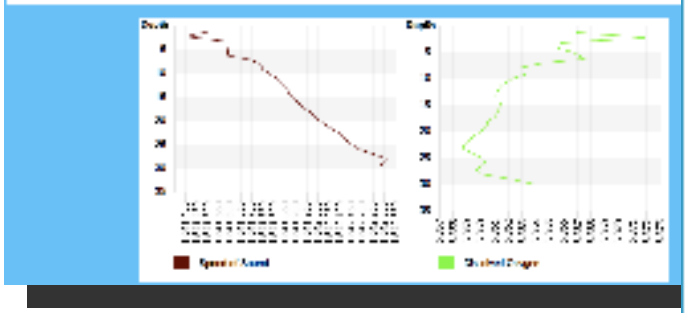
Oceanarium

MyNODCFacebook

MyNODC Database



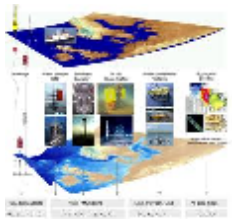




Field Study

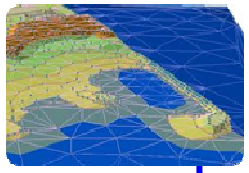
Sensor

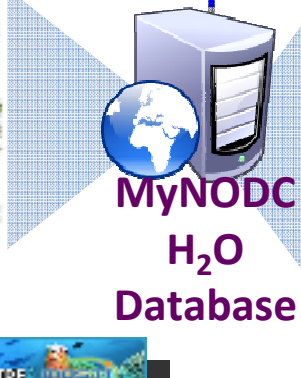
Spatial



GUI

Advanced MIS & GIS Editing





MyNODC H_2O Database

RDBMS Format

MySQL

XML Format

SDE Format

Ontology

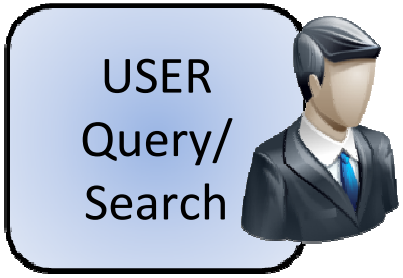
Data Model

Semantic Searching

Spatial Data Infrastructure

Data Browser

MyNODC Data Infrastructure



RESULTS

Web Services

SBML -MyNODC
Exchange
Language

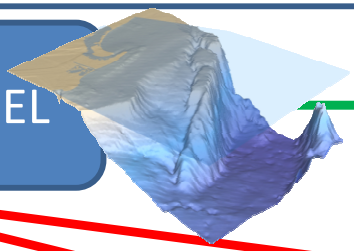
MyNODC
ONTOLOGY

ANNOTATION

MyNODC
Annotation

DATA
STANDARD

MyNODC DATA MODEL



DATA MODEL | DATA MODEL | DATA MODEL | DATA MODEL | DATA MODEL

DTI

INOCEM

INOS

OTL

PHN

JMM

EXL

JUPEM

DTM

ATT

MOSTI

MyNODC MyNC

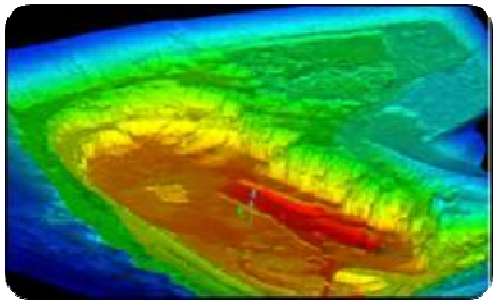
National Oceanography Directorate

Portal

SDI

In order to move forward

Continuity to existing systems



High Impact Data

Hydroinformatics

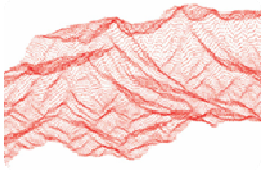
The Need of High Accuracy Data

A data center is a repository of datasets

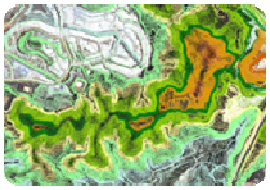
Which satisfy users datasets needs

Datasets must be high in terms of quality, accuracy, resolution and impact

Data of said values will satisfy users needs to do



Modeling



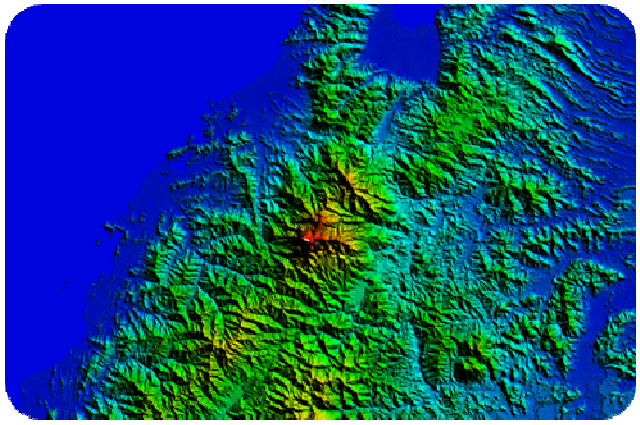
Simulation

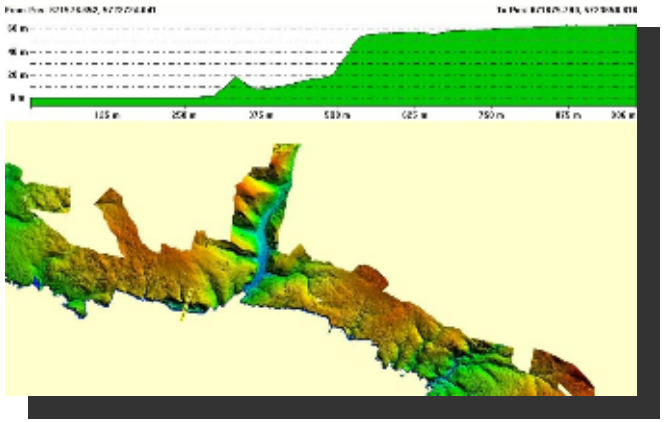
Analysis

Decision Making (DSS)

Highly Potential Applications

Primary focus will be on the coastal and shorelines





- **Coastal Erosion Control**
- **Shoreline Management Plan**
  Coastal Monitoring
- **Sediment Cell**
  Exploitation of sediment resources
- **Shoreline Classification**
- **Water Quality**

In an integrated web based GIS environment

MyNODC ROADMAP

Artificial Intelligence

Data Management & Mining

Graphics & Visualization

High Performance Computing

Network & Data Security

Software Engineering

Ocean Informatics

Phase 1

MyNODC Database & Portal

Phase 2

MyNODC Spatial Data Infrastructure

Phase 3

MyNODC Hydroinformatic & Oceanographic Data Exchange and Knowledge Management tools

Phase 4

MyNODC Knowledgebase & Portal

Phase 5

MyNODC Collaborative Spatial Decision Support System

Phase 6

MyNODC Cockpit

Ocean Data Portal

National

Regional

International

Project Status

- Completed
- Proposed

Partnership

United Nations
Educational, Scientific and
Cultural Organization

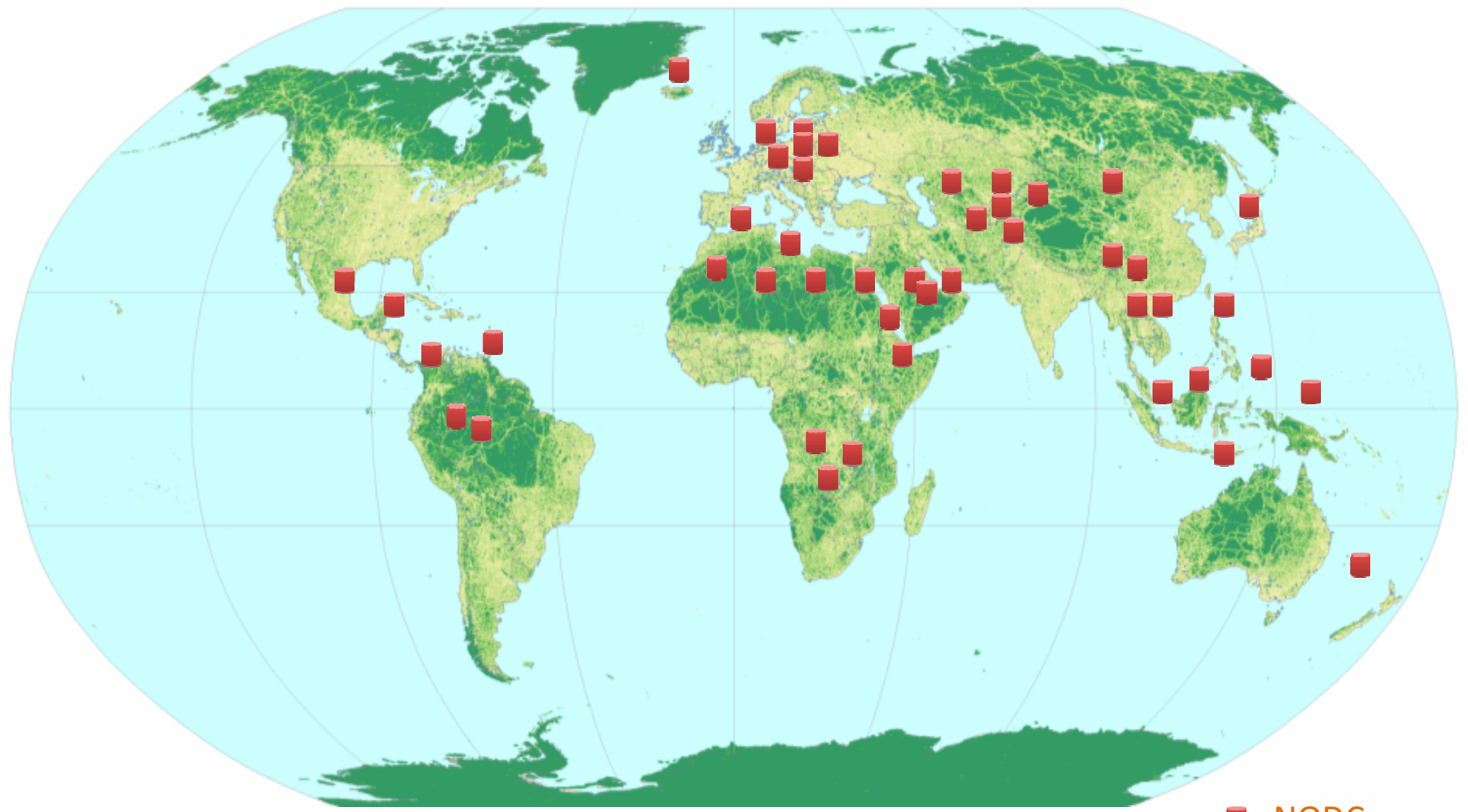
Intergovernmental Oceanographic Commission

United Nations
Educational, Scientific and
Cultural Organization

IOC Sub-Commission for the Western Pacific (WESTPAC) UNESCO Bangkok

IODE Intergovernmental Oceanographic Commission of UNESCO
International Oceanographic Data and Information Exchange

IODE Network of National Oceanographic Data Centers



INTEGRATION WITH IODE

NODC NATIONAL OCEANOGRAPHY DATA CENTRE

The data must be:
- Free and unrestricted
- Non commercial

Need to establish:
1. Meta-data.
2. Ontology to define standard vocabularies.
3. Data Exchange Language to being both human and machine understandable.
4. Malaysian National GRID to provide high computing power.
5. Subject headings.

IODE Intergovernmental Oceanographic Commission of UNESCO
International Oceanographic Data and Information Exchange

Oceanographic Data Information Network
(ODIN WESTPAC)

CORAL TRIANGLE INITIATIVE

ON CORAL REEFS, FISHERIES AND FOOD SECURITY

Search

HOME | ABOUT CTI-CFF | NEWS | EVENTS | COUNTRIES | PARTNERS | COLLABORATION

Welcome to the CTI-CFF

The Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF) is a multilateral partnership of six countries formed in 2009 to address the urgent threats facing the coastal and marine resources of one of the most biologically diverse and ecologically rich regions on earth. CTI-CFF is managed through a Secretariat based in Jakarta, Indonesia.

CTI-CFF News

- Ministers of the six Coral Triangle Countries Adopt Agreement Establishing Permanent Secretariat
- Seascapes Guidebook Launched: "The Seascapes Guidebook: How to Select, Develop and Implement ...
- CTI-CFF Commits to Early Action Plan for Climate Change Adaptation
- Successful Public-Private Partnership Reaps Gains for the Coral Triangle
- Coral Triangle Photo Book Launching

See All News

Upcoming Events

06 **First CTI-CFF Regional**

CTI-CFF Learning Resource Network Launched

New suite of learning, knowledge, and communication initiatives **More** >>

CTI-CFF Site Gateway

- **CTI-CFF Learning Resource Network** - Promotes knowledge exchange within the Coral Triangle Initiative
- **CT Atlas** - GIS database of fisheries, biodiversity and socioeconomic info
- **CT Communications Platform** - Multimedia campaign platform for Coral Triangle conservation activities

Resources by Subject

- Seascapes
- Ecosystems Approach to Fisheries Management
- Marine Protected Areas
- Climate Change Adaptation
- Threatened Species
- Capacity Development

SEE ALL SUBJECTS

Resources by Type

- Reports and Studies
- Policies and Agreements
- Event Materials
- Outreach Materials
- Training Materials
- Statistics and Data Sets
- Photos, Videos, and Maps

Resources by Country

Click a country to see related resources:

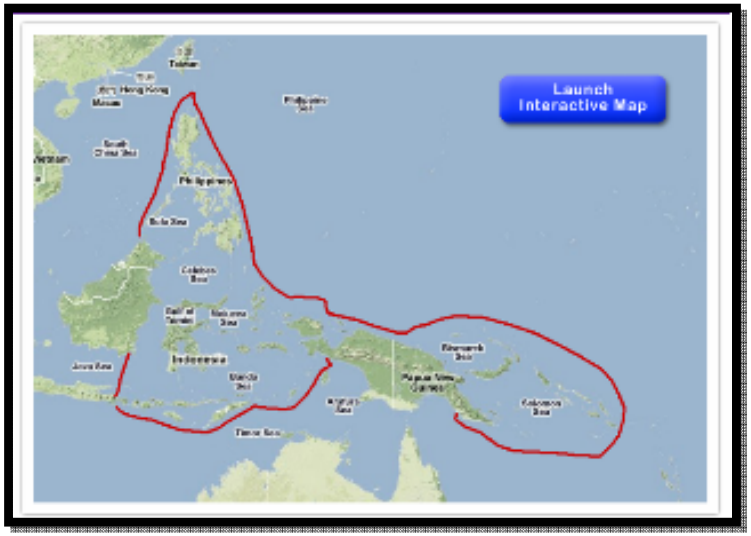
Also view our CTI-CFF Regional Map.

CTI-CFF Collaboration

CTI-CFF Countries

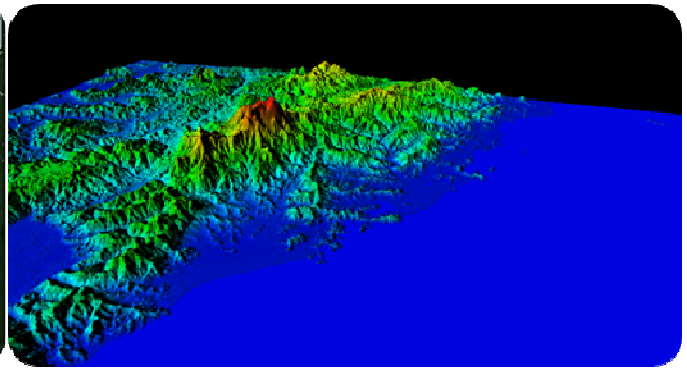
http://ctatlas.reefbase.org/

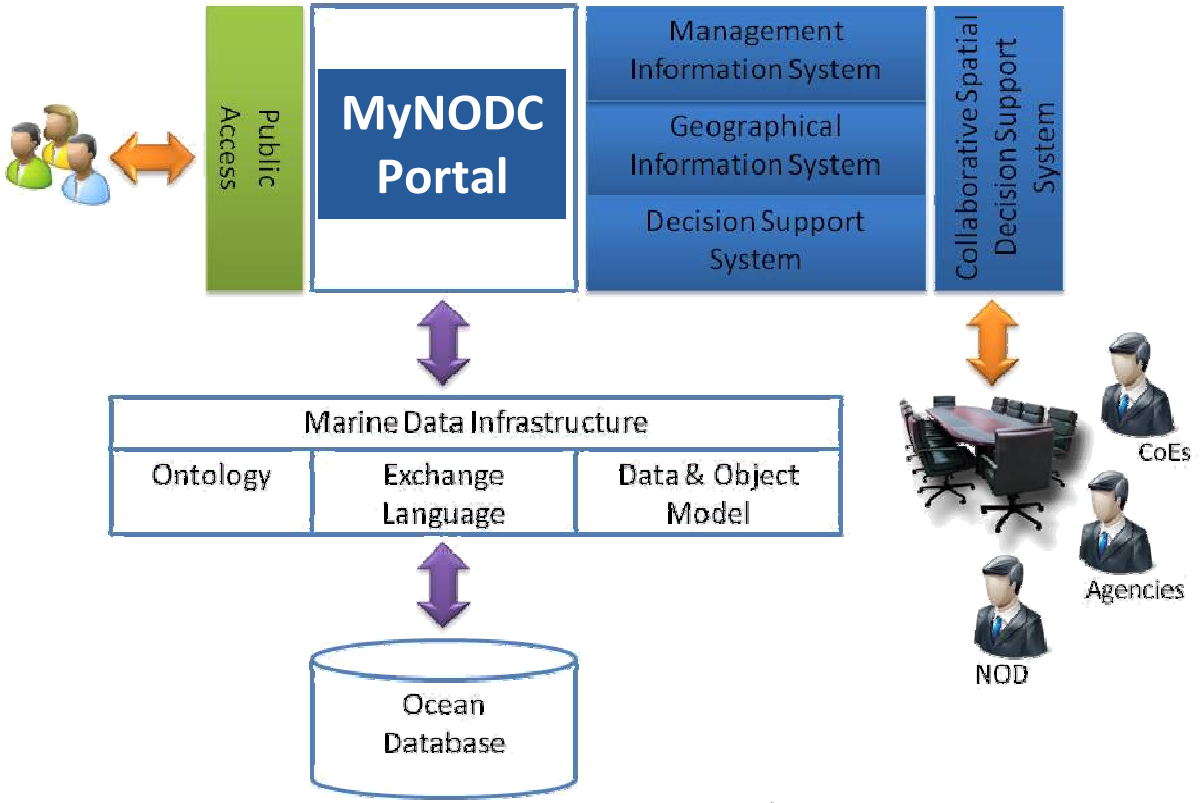
The Coral Triangle Atlas (CT Atlas) is an online **GIS database, providing governments, NGOs and researchers with a view of spatial data** at the regional scale



CONCLUSION

BENEFITS

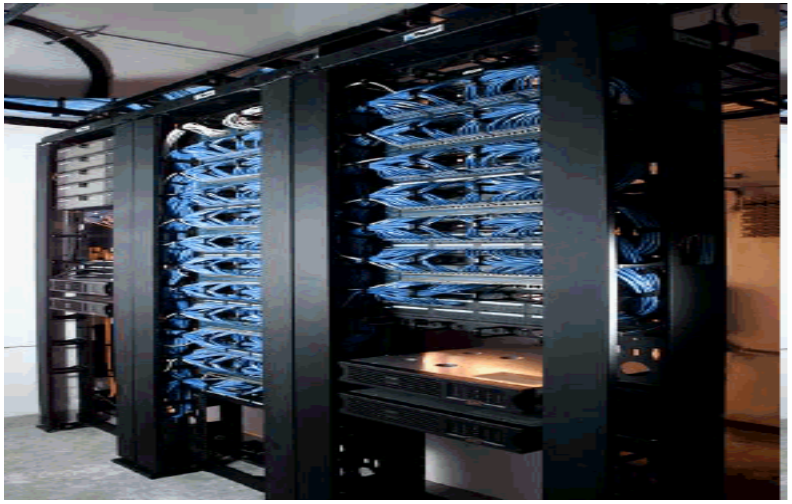




- Large quantities of oceanography data are being generated.
- To be useful, this data needs to be:
  - Stored
  - Distributed
  - Retrieved
  - Analyzed
  - Visualized
  - Interpreted

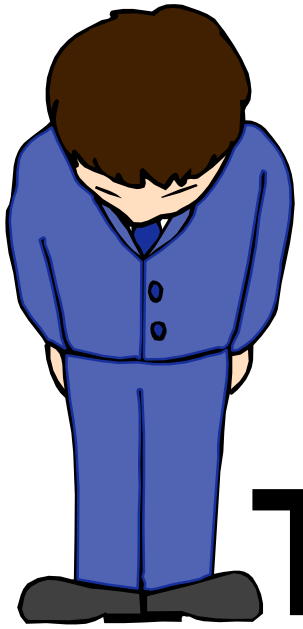
CHALLENGES

1. Inadequate human resources
2. Amount of work for Content Development and structuring of data and information
3. Complex issues in data and information management i.e **Integration with other Databases and Servers between other NODCs**
4. Level of preparedness for data owners to share information
5. Lack of stakeholder involvement
6. Time constraints in applications development



ENVISION

- **Better manage Malaysia's information on oceanography and marine science to support R&D and services.**
- **As the centre for data acquisation and exchange, NODC will augment oceanography and marine science activities at national, regional and international platforms.**
- **A healthy ocean sector is essential for Malaysia's transformation to a high income, developed nation by 2020.**



Thank You

ありがとう

Terima Kasih

noraieni@mosti.gov.my

zaini@mosti.gov.my