

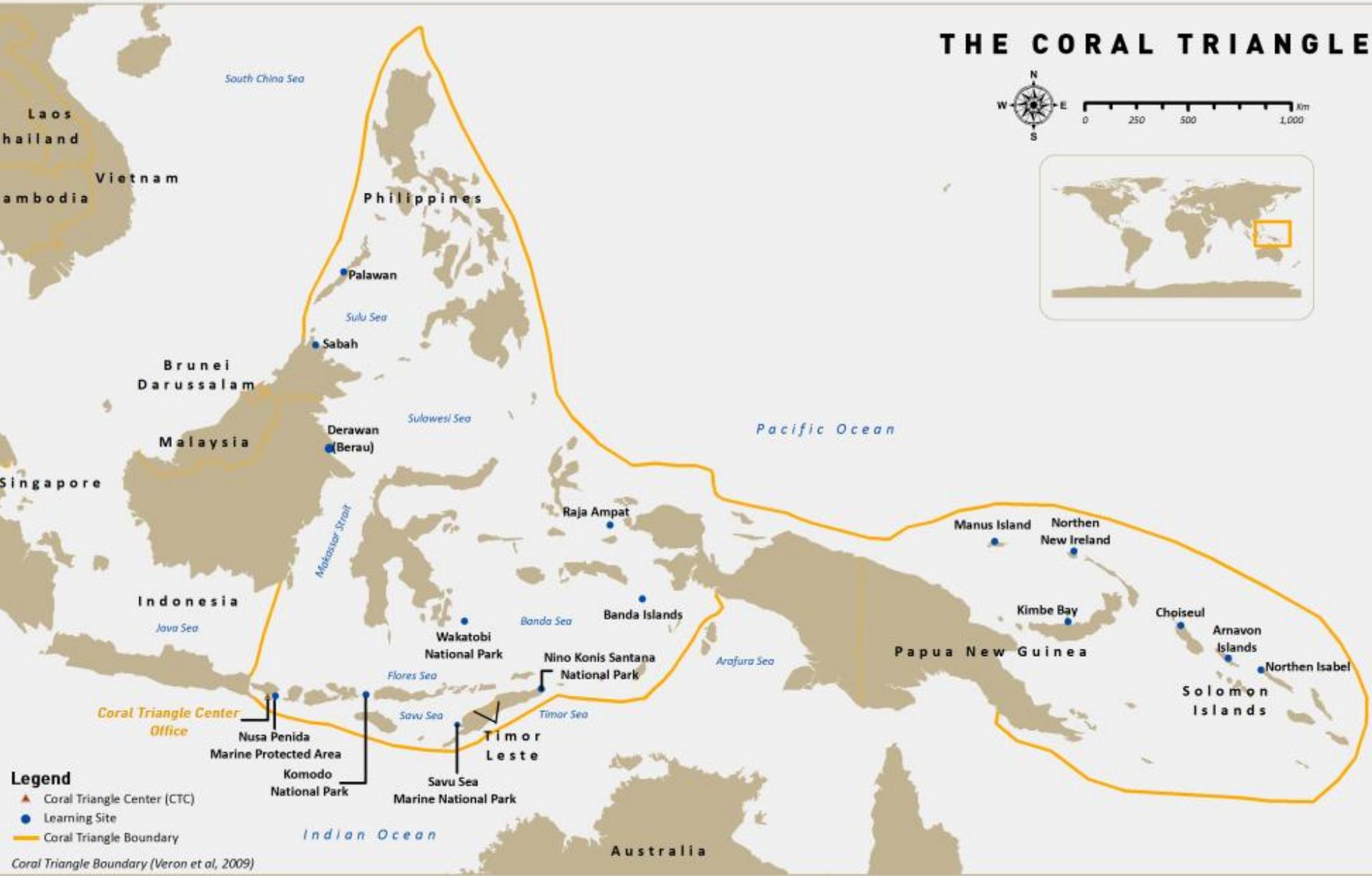
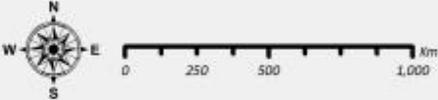
THE STATE OF THE CORAL TRIANGLE IN INDONESIA

Coral Triangle Marine Resources: Their Status,
Economies, and Management

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12th International Coral Reef Symposium
9-13 July 2012. Cairns. Queensland. Australia

THE CORAL TRIANGLE



- Legend**
- ▲ Coral Triangle Center (CTC)
 - Learning Site
 - Coral Triangle Boundary

Coral Triangle Boundary (Veron et al, 2009)

1. Physical Characteristics
2. Biological Characteristics
3. Governance
4. Socio-Economic Characteristics
5. Threats and Vulnerabilities
6. The Indonesian CTI National Plan of Actions
7. Conclusions and Recommendations

Outline



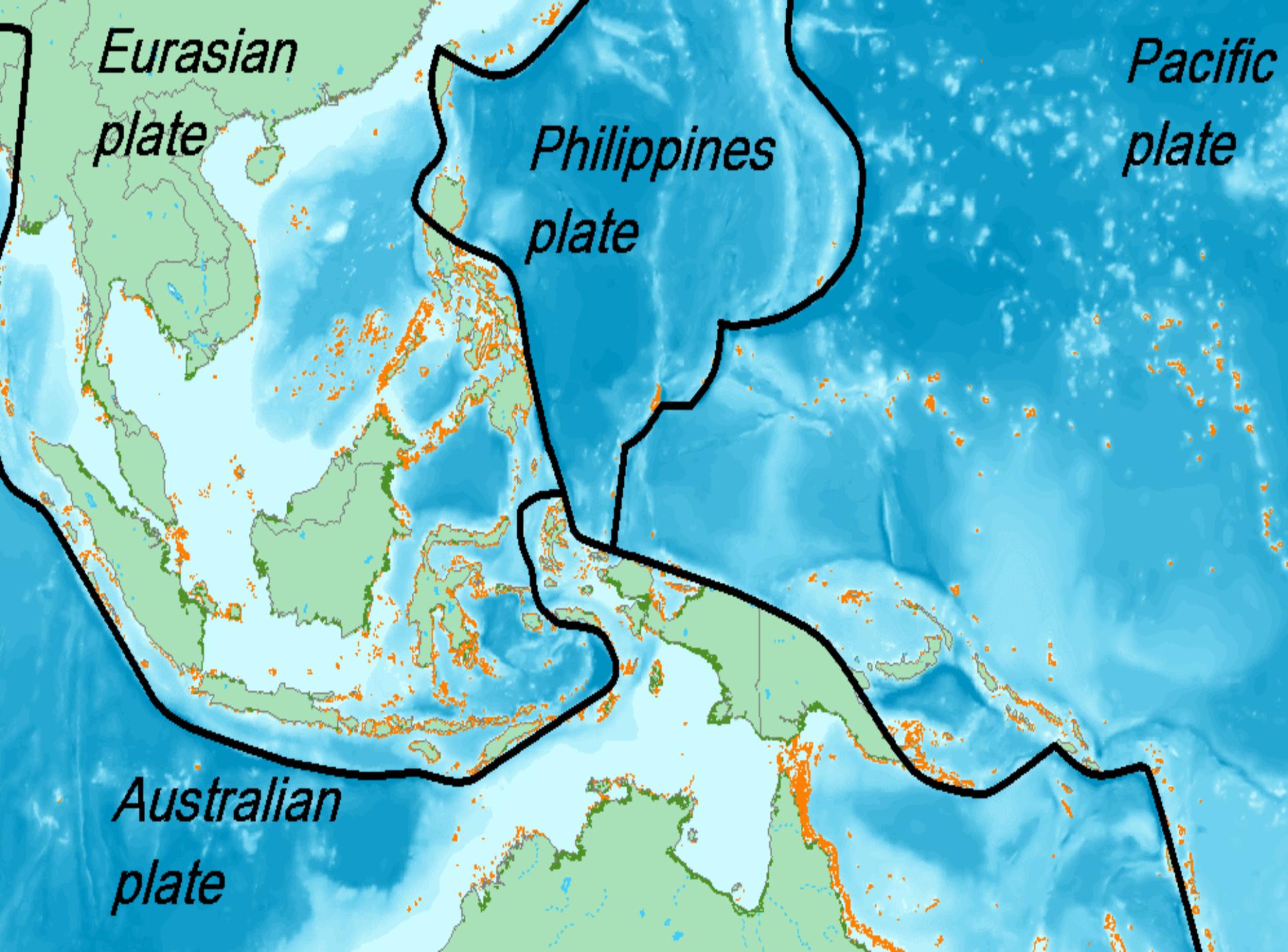
BIOPHYSICAL CHARACTERISTIC/1

n National Jurisdiction	: 7.73 million km ²
n Total land area	: 1.93 million km ²
n Total Sea area	: 5.80 million km ²
n Archipelagic water	: 2.80 million km ²
n Territorial sea (12 miles)	: 0.30 million km ²
n Economic Exclusive Zone	: 2.70 million km ²
n Number of Island	: 18,110 Islands
n Total shoreline	: 108,920 km
n Length: west – east	: 5,200 km
North - south	: 1,760 km

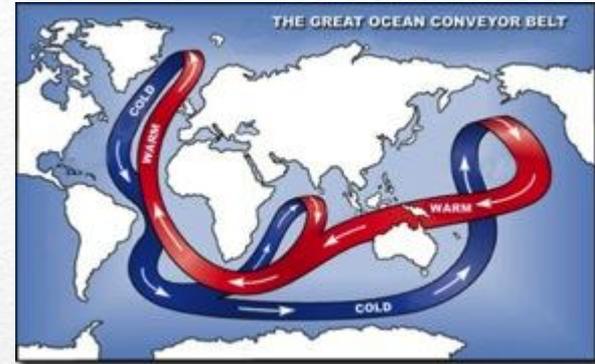
INDONESIA

- Indonesian archipelago - complex geological setting.
 - Extensive shelves, deep-sea basins, trenches, and submarine volcanoes
- Tectonically - highly unstable
 - *Pacific Ring of Fire* : Indo-Australian Plate & Pacific Plate → pushed under the Eurasian Plate → melt about 100 km deep → Tsunamis and Earthquakes
- World leading in volcano statistics
 - 400 volcanoes - approximately 150 active
- Climate - almost entirely tropical.
 - Average temperature (coastal plains)-28°C
 - Humidity: 62–81%.

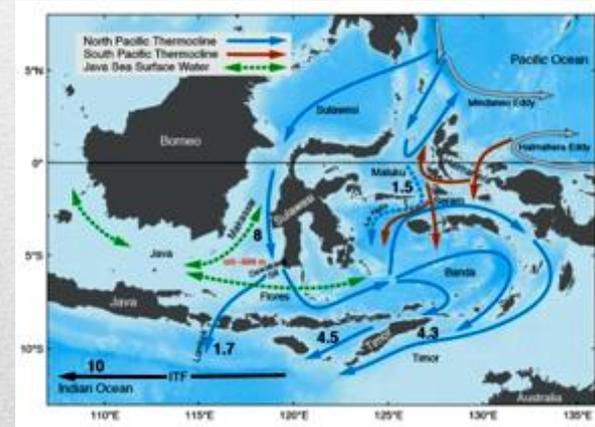
Geological Setting and Climate



- Seas tidal phenomena → among the most complex in the world.
- Surface current → strongly influenced by *Pacific Ocean* circulation rather than *the Indian Ocean*.
- The Indonesian archipelago → important role in global water mass transport → Pacific to Indian Ocean: → the Indonesian Through Flow (ITF) or Arlindo.
- a “maritime continent” along with equatorial Africa and South America.



The great ocean conveyor belt



The Indonesian Through-Flow pathways and estimates of total volume transport (in Sv = 106 m³/sec). (Gordon, 2005)

Oceanography



BIOLOGICAL CHARACTERISTIC/2



Coral	590	Crustacean	1512	Mammals	24
Seagrass	13	Echinoderm	1412	Reptile	37
Mangrove	43	Algae	782	Turtle	6
Sponge	850	Mollusc	2500	Sea Bird	151
Marine Fish	3429				

Marine Biodiversity

Based on Ramsar's definition, Indonesia possesses at least 40 millions hectares of wetlands, excluded rivers.

Types and extent (ha) of Indonesian wetlands



No	Type	Extent (ha)	
		Original Area	Remaining Area
1	Peat swamp	16,266,000	13,203,000
2	Freshwater Swamp	11,544,000	5,185,500
3	Mangrove Forest	9,248,038	5,326,870
4	Coral Reef	≥ 5,102,000	5,102,000
5	Seagrass	≥ 3,000,000	3,000,000
6	Coastal Vegetation	180,000	78,000
7	Mud/sand flat	n.d	n.d
8	Lake	774,894	308,000
9	Estuary	n.d	n.d
10	Rivers	n.d	n.d
11	Freshwater pond	155,216	80,995
12	Dams	n.d	n.d
13	Paddy Field	8,393,290	7,787,339
14	Brackish Water Pond	304,623	435,000
15	Salt Pans	n.d	n.d
	Total	54,968,061	40,506,704

Indonesian Coastal Ecosystems



Mangroves distribution in Indonesian

- Total mangrove forests $\pm 35,337 \text{ km}^2$ or $\sim 76\%$ total mangroves in Southeast Asian region.
- 41 species (true mangroves) and 116 associated species.
- Functions of mangrove ecosystems:
 - Physical barrier \rightarrow natural catastrophes;
 - Basic Basic producers of nutrient to supply near shore food-webs;
 - Place for wild life (nursery ground); as a recreational opportunity
- Mangroves uses: charcoal, firewood, construction materials, chip, tannin, nipa, medical plants, fisheries and agriculture.
- Mangrove ecosystems value $\pm \text{Rp. } 60,900,000 \text{ (USD5,478)/ha/year}$

Mangrove Status

Indonesian seagrass-associated flora and fauna: number of species

Taxon	Location				
	Banten Bay	Jakarta Bay	Lombok	Ambon Bay	Kotania Bay
Algae			37		34
Meiofauna			6 groups		
Mollusks	15		55		143 (hermit crabs)
Crustaceans	25	32	84		30
Echinoderms	3		45		
Fishes	180	78	85	168	205
Fish Larvae			53		



Seagrasses distribution in Indonesian

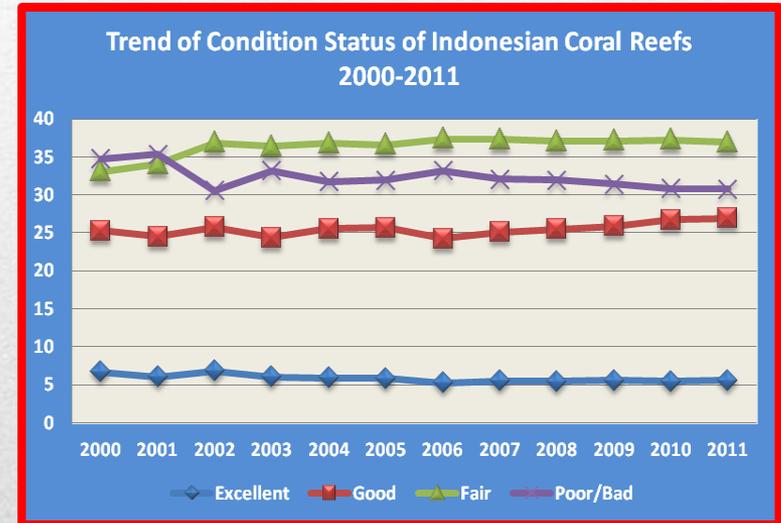
- Total area of seagrass $\pm 30,000$ km²
- 13 species of seagrasses (recorded)
- Seagrasses functions:
 - main diet of dugongs and sea turtles, and
 - habitats \rightarrow many commercially important species of fishes, shrimps and shellfish.
 - > 200 fish species, 85 crustaceas and other marine species (seagrass beds \rightarrow various studies)
- seagrass ecosystems value \pm US\$2,287/ha/year

Seagrass Status

- largest coral reef area in Southeast Asia ± 51,000 km² or 18% world's coral reefs
- 4 coral reefs types: fringing reef, patch reef, barrier reef and atoll
- Conditions (2011): Excellent: 5.58%, Good: 26.95%, Fair: 36.90% and Poor: 30.76%.
- coral reefs value ± US\$2,287/ha/year



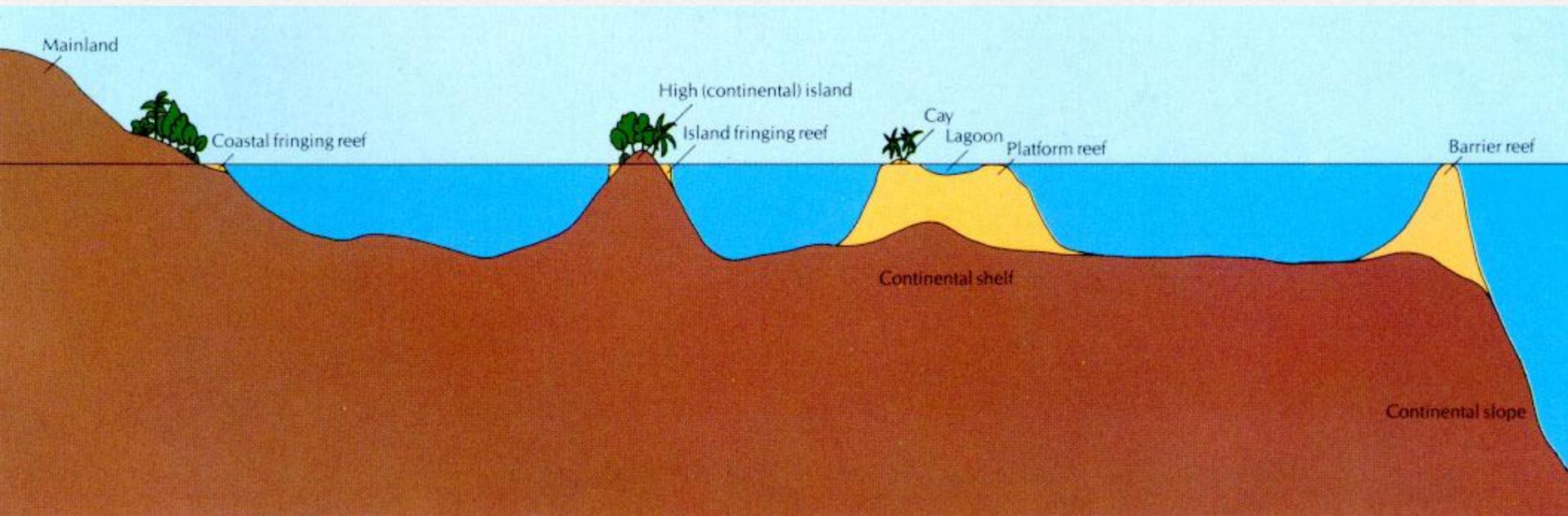
Coral reefs distribution in Indonesian waters



Trend of coral reef conditions in Indonesia 2000- 2011

Coral Reef Status

- a. Fringing reef (70%).
- b. Barrier reef (20%).
- c. Atoll (2.5%).
- d. Patch reef (7.5%).



Types of Indonesia Coral Reefs

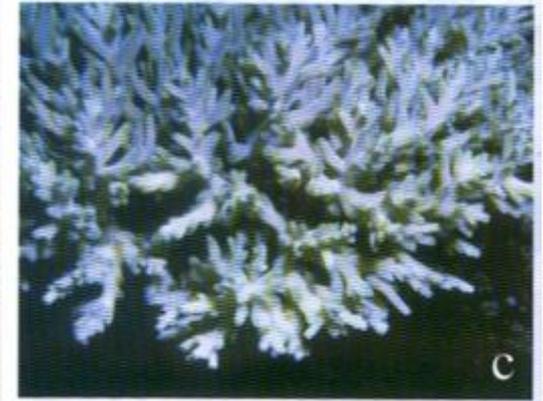




*Acropora
suharsonoi*



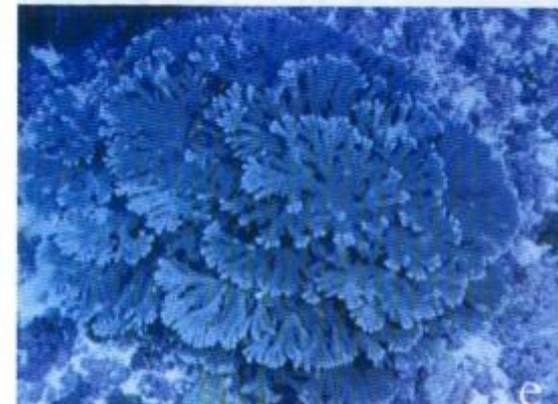
Acropora indonesia



Acropora desalwii



Acropora hoeksemani

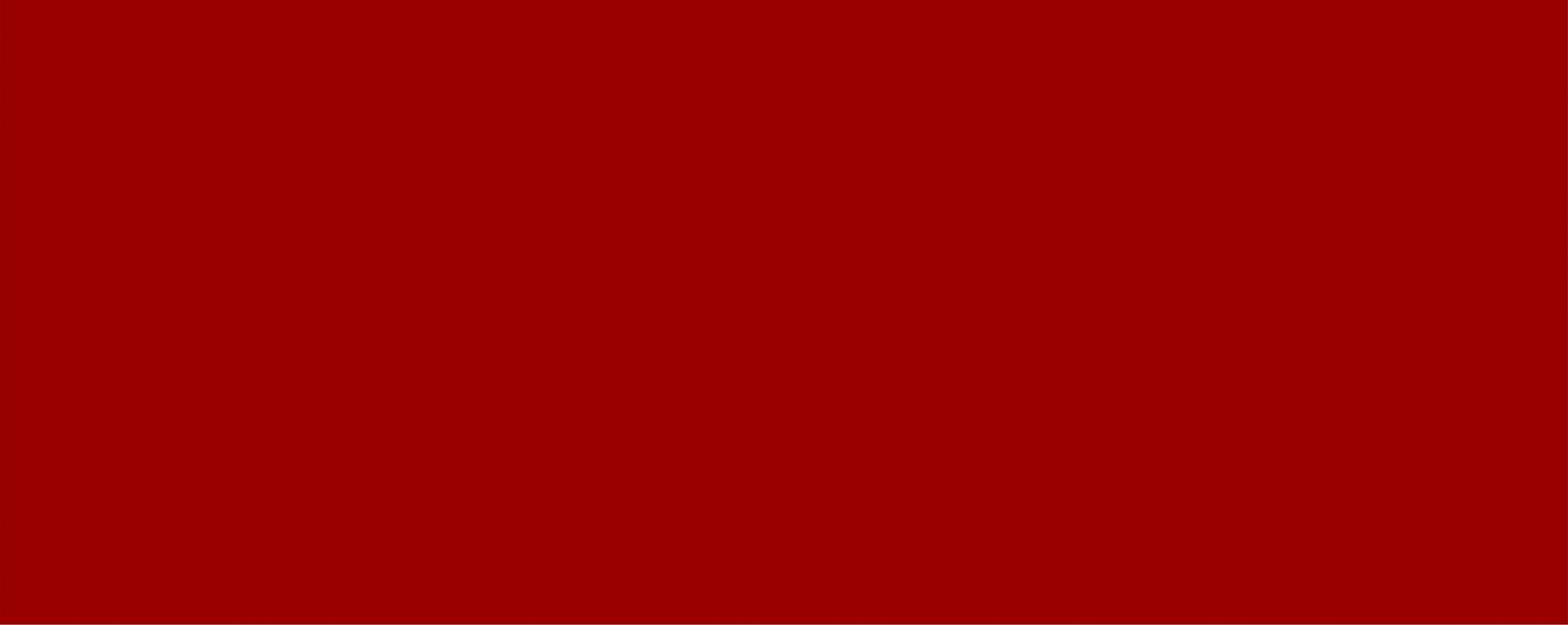


Acropora sukarnoi



Acropora togianensis

Distinct coral reef species



GOVERNANCE/3

Section 33, Para 3 of the 1945 Basic Constitution

The
foundation

“Land and water and natural resources therein shall be controlled by the State and shall be utilized for the greatest benefit of or welfare of the people”

Current 17 laws and regulations on natural resource → Marine resources management

national marine policy bases → 2010-2014 National Medium Term Development Plan → fisheries, marine environment, forestry, small island development and management, marine tourism, mining, and sea transportation.

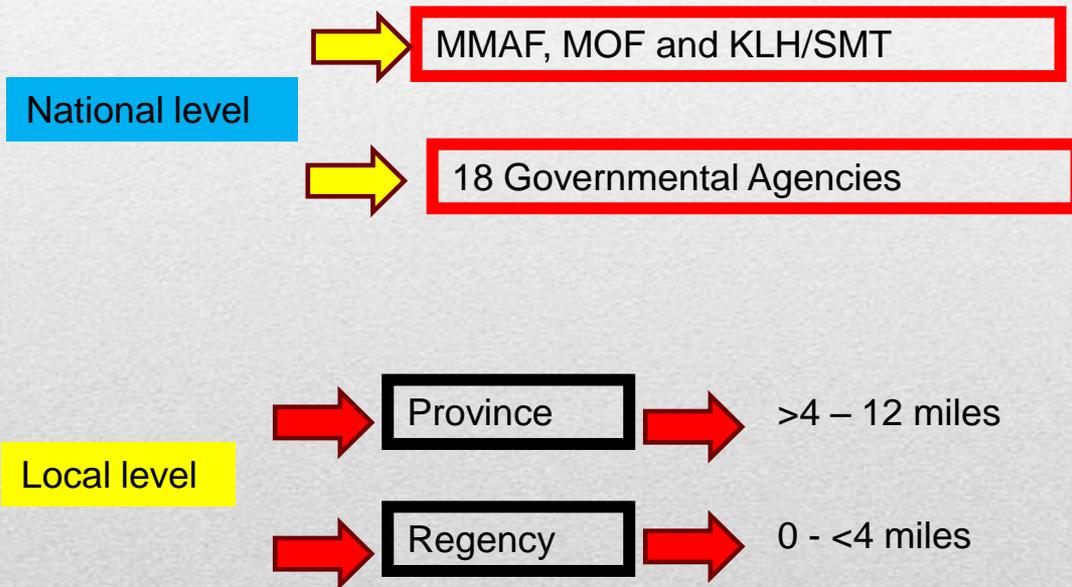
Legal and Policy Framework

Legislations affecting marine resource management

I	National Level	
A	Ocean Jurisdiction Claims	
1	Act No. 6/1996	Indonesian Waters
2	Act No. 5/1983	Indonesian Exclusive Economic Zone
3	Act No. 1/1973	Indonesian Continental Shelf
B	Ocean Resources and Activities on the Sea	
4	Act No. 17/2008	Shipping
5	Act No. 4/2009	Minerals and Coal Mining
C	Terrestrial Spatial and General Planning Laws	
6	Act No. 26/2007	Spatial Use Management
7	Act No. 9/1990	Tourism
D	Coastal and Marine Resources Management	
8	Act No. 31/2004 and added or revised by Act No 45 of 2009	Fisheries
9	Act. No. 41/1999 and added or revised by Act No 19 of 2004	Forestry
10	Act No. 16/1992	Quarantine of Agriculture, Cattle, and Fish
11	Act No. 27/2007	Coastal and Small Islands Management
E	General Legislation of Environmental Management	
12	Act No. 32/2009	Environmental Protection and Management
13	Act No. 5/1990	Conservation of Biological Resources and Their Ecosystems
F	Legislation of Decentralization	
14	Act No. 22/1999	Regional Government
15	Act No. 25/1999	Financial Balancing between Central and Regional Government
II	International Level	
1	Act No. 17/1985	Ratification of United Nations Convention on the Law of the Sea
2	Act No. 5/1994	Ratification of United Nations Convention on Biological Diversity

Institutional Arrangement

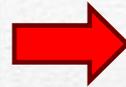
State is primarily responsible for coastal and ocean governance.



No	Government Agencies
1	Coordinating Ministry for Economic (MENKO EKU)
2	Ministry of Marine Affairs and Fisheries (MMAF)
3	Ministry of Forestry (MOF)
4	Ministry of Energy and Mineral Resource (MOEMR)
5	Ministry of Home Affairs and Regional Autonomy (MOHARA)
6	Ministry of Transportation and Communication (MOTC)
7	Ministry of National Education (MONE)
8	Ministry of Resettlement and Regional Infrastructure (MORRI)
9	Ministry of Defence and Security (MODS)
10	Ministry of Trade and Industry (MOTI)
11	State Ministry for Environment (SME)
12	State Ministry for Culture and Tourism (SMCT)
13	State Ministry for Research and Technology (SMRST)
14	National Development Planning Agency (BAPPENAS)
15	Indonesia Institute of Sciences (LIPI)
16	National Coordinating Agency for Survey and Mapping (BAKOSURTANAL)
17	Board of Implementation and Assessment of Technology (BPPT)
18	Indonesian Maritime Council (DMI)

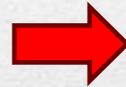
Law Enforcement Authority

Law enforcement of coastal and ocean resources management



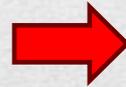
Joint responsibility on several national government agencies.

Main agencies



MMAF and MOF

Other agencies



KLH, Navy, Police, Immigration, Customs, and Sea Communication

Modes of enforcement activities:

Sea Patrols

Aerial surveillance



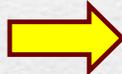
Recent Development – Law Enforcement Program

Community enforcement programs



Sistem Pengawasan Masyarakat / SISWASMAS
(Community Surveillance/Monitoring System)

Devolution of Authority



Fisheries Act No. 31 of 2004 → revised Act No 45 of 2009

Establishment of ad hoc fisheries courts



North Jakarta, Medan-North Sumatra, Pontianak-West Kalimantan, Bitung-North Sulawesi and Tual-Southeast Maluku

Introduction of Triangle Integrated Environmental Criminal Justice System



Three key legal players: Investigator (police), Prosecutor and expert witnesses





SOCIO-ECONOMIC/4

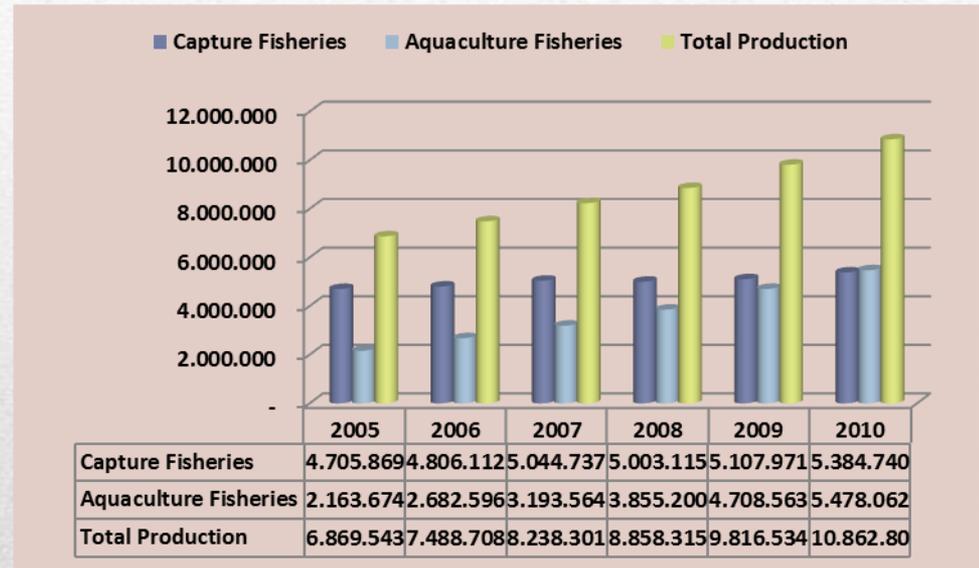




RESOURCE USE PATTERN AND ISSUES/5

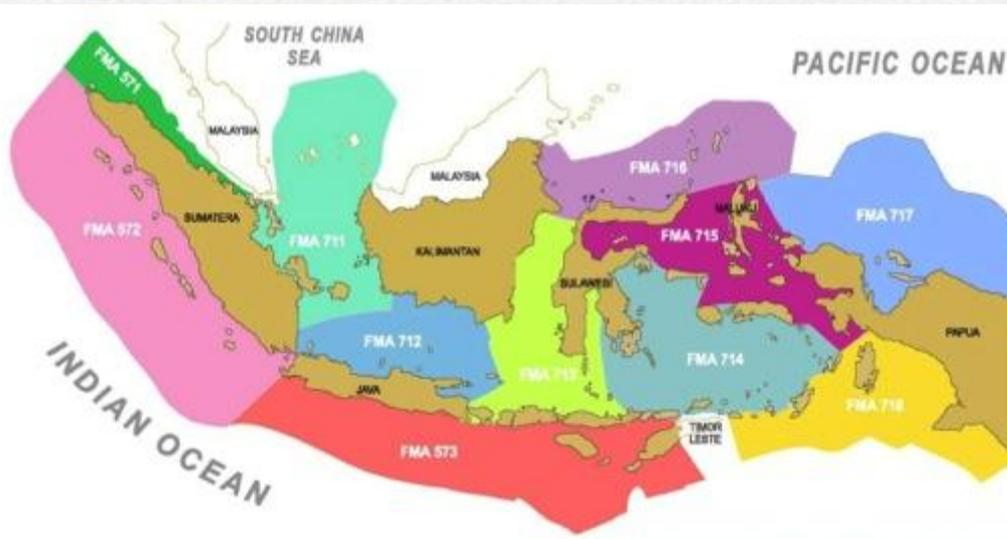
Fisheries Productions and Values

- capture fisheries industry contribution
→ national economy (income, foreign exchange and employment)
- 2009 production → 9,8 million tonnes
(± Rp. 94,4 trillion or US\$ 10,4 million)
- Capture Fisheries: 5,1 million tonnes ±
Rp. 53,9 trillion or US\$ 5,9 million;
- Aquaculture Fisheries: 4,7 million
tonnes ± Rp. 40,5 trillion or US\$ 4,5
million;



Total Volume of Fisheries Production in 2000-2010

- Since 1999 → fishery management areas (WPP) systems → 9 WPP covers Indonesian territorial sea and Exclusive Economic Zone (EEZ)
- WPP allotment bases → bottom bathymetry, environmental characteristics, cartographic principles and maritime boundaries (particularly EEZ boundaries with neighbouring countries)
- Since 2009 → 11 WPP



Note:

WPP 571: Malacca Strait and Andaman Sea

WPP 572: Indian Ocean of Western Sumatera and Sunda Strait

WPP 573: Indian Ocean of Southern Java, Southern Nusa Tenggara, Sawu Sea and Western of Timor Sea

WPP 711: Karimata Strait, Natuna Sea + South China Sea

WPP 712: Java Sea

WPP 713: Makassar Strait, Bone Bay, Flores Sea + Bali Sea

WPP 714: Tolo Bay and Banda Sea

WPP 715: Tomini Bay, Maluku Sea, Halmahera Sea, Seram Sea and Berau Bay

WPP 716: Sulawesi Sea and Northern of Halmahera Island

WPP 717: Cendrawasih Bay and Pacific Ocean

WPP 718: Aru Bay, Arafuru Sea and Eastern of Timor Sea

Indonesia WPP Map

The State of Fisheries Resource Utilization

Shipping

- Straits of Malacca borders → world most strategic & important shipping lanes → strategic geographic position
- Straits → connects east - west world parts → trade key link of sea transportation → half world's oil supplies & third of world trade

Coastal tourism

- Indonesia tourism industry → rapid expansion → increased visitor numbers
- long sandy beaches, islands, diving spots and uniqueness underwater resources → attract the world tourists

Coastal and marine areas Mining activities

- oil, gas and minerals, i.e. ***Delta Mahakam in East Kalimantan, Macassar Strait and Arafura Sea***
- mineral resources at sea territories and seabed zones → under explored
- others underexplored natural phenomenon → ocean current energy, tides, waves (OTEC).

Other Maritime Activities

Raja Ampat – Papua



Bunaken – North Sulawesi



Attractive Tourism Sites

Indonesia's world ranks:

- Rank 25: Natural oil potential → 4.3 billion barrels
- Rank 21: crude oil production → 1 million barrels/day
- Rank 13: Natural gas potency → 92.9 trillion cubic feet (tcf)
- Rank 8: Natural gas production → 7.2 tcf
- Rank 2: LNG exported country → 29.6 bcf,



Ocean current energy



Potential Energy



"Sasi" offerings in ritual proceedings for declaring the restricted area in Tolobi Village, Kofiau. (Photo credited by TNC)



"Sasi" board sign on a coastal area in Kapatcol Village, Misool. (Photo credited by TNC)

- Current practices records on traditional management systems for marine resources → *Sasi* in Moluccas and Papua region, *Panglima Laot* in Aceh, *Awig-awig* in Lombok, and *Mane'e* in Sangir and Talaud Islands-North Sulawesi
- Pressures: global market & technological changes → decline on traditional marine resources management
- National Acts to recognize the traditional knowledge management or adat.

Traditional Knowledge Management

Gender/Women

- ❖ Women crucial role in coastal resource management (CRM) activities
- ❖ no evidence of women involvement in activities related to natural resources degradation → degradation adversely affects women's health and livelihood.



Payment for Environmental Services (PES)

- Recently adopted & mostly used → biodiversity conservation, watershed protection, carbon sequestration, and landscape/seascape uniqueness
- PES legal basis → several laws and regulations → water management, forest utilization, environmental services, the utilization of natural resources (such as fisheries).

Gender Issues and PES



THREATS AND VULNERABILITY/5

Fish Stock Degradation

- Overexploitation on marine resources → widespread → fish stocks exploited beyond biological limits

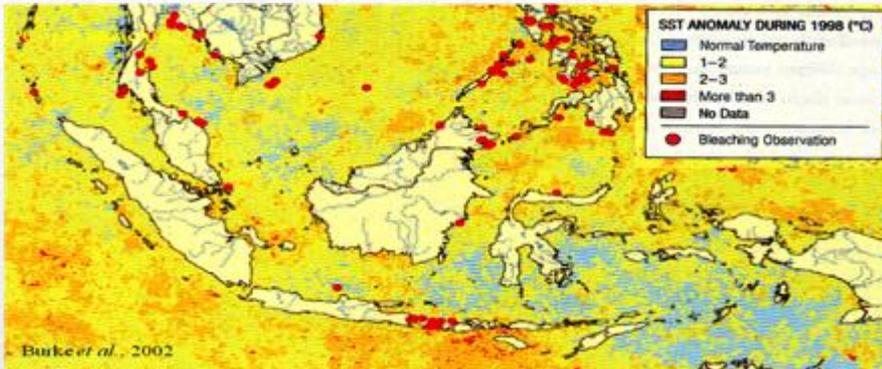
State of fisheries stock exploitation/group of species in each WPP 2010

Species Group	STATUS OF FISHERIES STOCK IN WPPs										
	571	572	573	711	712	713	714	715	716	717	718
Shrimp	O	O	O	O	O	O	U	M	M	M	O
Demersal	F	F	O	F	F	O	F	M-F	M	M	O
Small pelagic	M	O	F	O	O	O	F	F	M	M	O
Large pelagic											
Non Tuna	M	O	F-O	O	F	O	O	O	O		O
Tuna Group											
❖ Skipjack	M	M	M			M	M	M	M	M	
❖ Yellow fin	F	F	F				F	F	F	F	
❖ Big eye		O	O				O	O	O	O	
❖ Southern Bluefin Tuna			O								
❖ Albacore			F								
Squid			M	M			M				
Coral fishes											
Lobster											

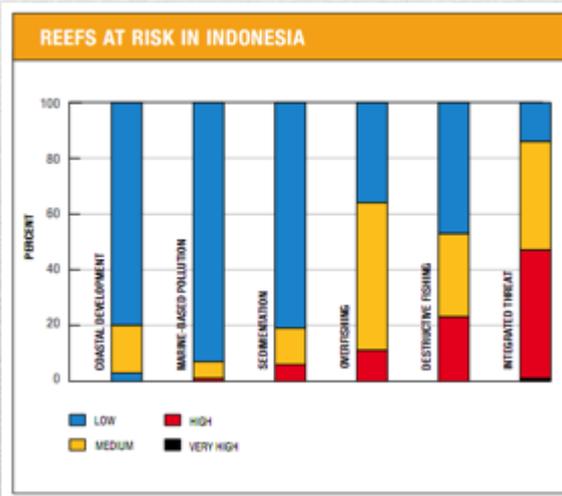
Remark

O	Over exploited	M	Moderate	U	Under exploited
F	Fully exploited	M-F		F-O	

Threatened Habitat



Observation on anomaly of sea surface temperature and occurrence of coral bleaching during El Nino 1998. Source: Burke et al. (2002)



Reefs at risk in Indonesia (Source: Burke et al. 2002)

Coral reefs

- Main threats →
 - destructive fishing practices (bombing & cyanide fishing),
 - overfishing,
 - Sedimentation,
 - pollution, coral mining and
 - coastal development
- Highest risk in Southeast Asia region:
 - 50 percent of the reefs □ “high” or “very high” threat level.
 - 12 percent of reefs □ low risk (Burke et al. 2002)
- Coral reefs >> stressed by bleaching events
 - El Nino and Climate Change >> main events triggered bleaching

Destructive Fishing

Fishing by bombing



Fishing by cyanide



Mangroves

- ❖ severely reduced → unsustainable forest practices:
 - ❖ Conversion to pond (aquaculture); reclamation for agriculture, mining, industrial, port expansion, urbanisation, tourism, infrastructure developments; coastal pollution from oil spills, domestic and industrial wastes.

Seagrasses

- ❖ Human induced stress (land and marine) & over exploitation of marine and coastal resources.
- ❖ Severely threatened → coastal construction, coastal reclamation, sand and mineral mining activities, marine pollution, run-off and land based activities, human settlement, industrial and urban development, logging and land clearing (Manado Bay and Banten Bay - West Java).
- ❖ natural stresses, i.e. cyclones, typhoons, tidal waves, and volcanic eruptions

Threatened Habitat

Flood Tide (Rob) and Coastal abrasion at Several Coastal Area



Biak (rob)



Semarang (rob)



Muara Baru (rob)

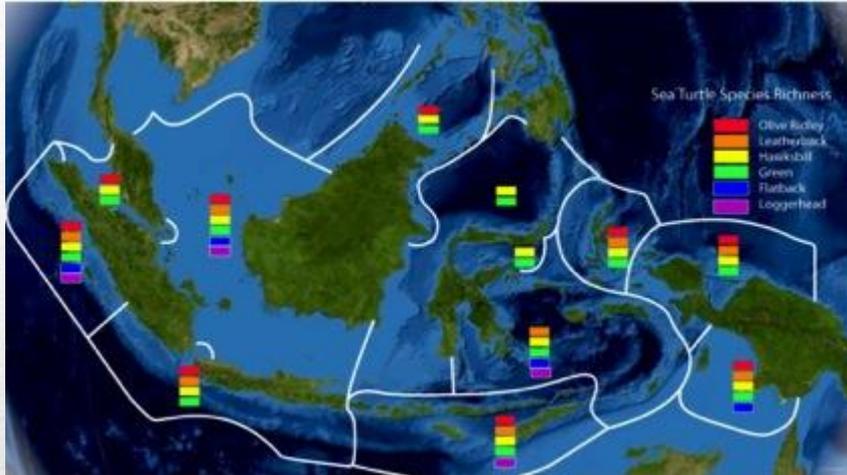


Padang-West Sumatra (Coastal abrasion)



Jakarta Tollway (rob)

Threatened Species



The turtle species richness distribution in the Indonesian marine ecoregion (Source: Erdmann and Huffard, 2009)



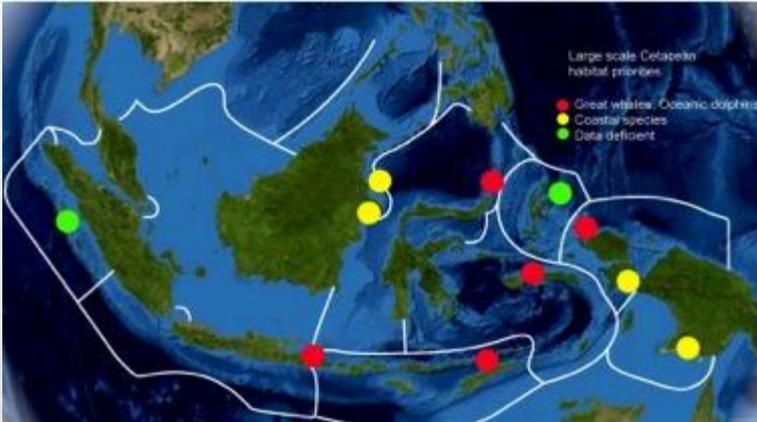
Turtle Nesting Location in Indonesia (Source: Indonesia Gap Book)

• Turtles

- Leatherback & loggerhead turtles → @ risk vanishing from Indonesian waters.
- Approx. 7,700 turtles yearly killed → accidental catch in shrimp trawls & tuna long lines.
- Threatening factors (all turtle species):
 - Illegal trade and direct consumption (meat, eggs, shell, leather, curios);
 - Bycatch (trawlers, longlines, gill nets);
 - Habitat destruction & alteration (coastal tourism, industrial development);
 - Pollution; Disease & Climate change.

• Whales and Dolphins

- population status & diversity → largely unknown at most of Indonesia → ± 22 cetacean species observed in Raja Ampat (West Papua), Savu Sea and Bali-Lombok (Lesser Sunda)
- main threats → accidental catch and pollution



Habitat priorities for conservation of whales and dolphins Source: Huffard et al., 2009



Common Name	Taxon name	Raja Ampat	Solor Alor / Savu Sea	Bali – Lombok
Toothed whales – Odontocetes				
Killer whale	Orcinus orca	X	X	
False killer whale	Pseudorca crassidens	X	X	X
Pygmy killer whale	Feresa attenuata		X	X
Sperm whale	Physeter macrocephalus	X	X	
Dwarf sperm whale	Kogia sima	X	X	
Pygmy sperm whale	Kogia breviceps		X	
Spinner dolphin	Stenella longirostris	X	X	
Pan tropical spotted dolphin	Stenella attenuata	X	X	X
Risso's dolphin	Grampus griseus	X	X	
Indo-Pacific bottlenose dolphin	Tursiops aduncus	X	X	
Common bottlenose dolphin	Tursiops truncatus	X	X	X
Fraser's dolphin	Lagenodelphus hosei	X		X
Indo-Pacific humpback dolphin	Sousa chinensis	X		
Long-nosed spinner dolphin	Sousa longirostris			X
Rough-toothed dolphin	Sousa bredanensis		X	X
Melon-headed whale	Peponocephala electra	X	X	
Short Fined pilot whale	Globicephala macrorhynchus	X	X	X
Cuvier's beaked whale	Ziphius cavirostris		X	
Baleen - whales				
Blue whale	Balaenoptera musculus		X	
Bryde's whale	Balaenoptera brydel	X	X	X
Pygmy Bryde's whale	Balaenoptera edeni	X		
Humpback whale	Megaptera novaeangliae		X	

• Dugong

- Dugong (*Dugong dugon*, Muller, 1776) endangered species & protected by Ministerial Decree.
- population under threats → mostly anthropogenic → loss of seagrass habitat (not yet protected).
 - 1970s, population estimated around 10,000.
 - 1994, population declined to about 1,000 (de longh, 1996).
- major threats;
 - incidental catch by fisheries activities,
 - Death or injury by boat propellers; and
 - Destruction of major dugong habitats
 - excessive hunting for meat/food and other parts



Distribution of dugong in Indonesian water

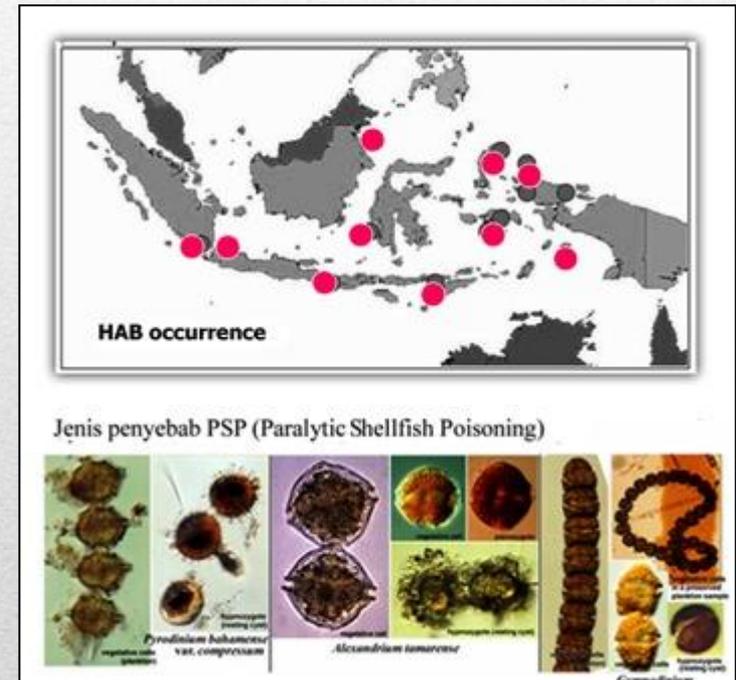
List of Indonesia Protected Marine Species

Latin Name	Indonesian Name	Common Name		Latin Name	Indonesian Name	Common Name
Mammals				Reptiles		
<i>Balaenoptera musculus</i>	Paus biru	Blue Whale		<i>Dermochelys coriacea</i>	Penyu belimbing	Leatherback turtle
<i>Balaenoptera physalus</i>	Paus bersirip	Common-finback whale		<i>Caretta caretta</i>	Penyu tempayan	Loggerhead turtle
<i>Megaptera novaeangliae</i>	Paus bongkok	Humpback whale		<i>Eretmochelys imbricata</i>	Penyu sisik	Hawksbill turtle
<i>Dugong dugon</i>	Duyung	Dugong		<i>Lepidodhelys olivacea</i>	Penyu ridel	Olive / Pacific ridley
	Paus	all of species in the family		<i>Natator depressa</i>	Penyu pipih	Flatback turtle
	lumba-lumba air laut	all of species in the family		<i>Chelonia mydas</i>	Penyu Hijau	Green turtle
	lumba-lumba air laut	all of species in the family		<i>Crocodylus porosus</i>	Buaya muara	Marsh crocodile
Fish				Coralia		
<i>Latimeria manadoensis</i>	Ikan raja laut	Coelacanth		<i>Antiphatas spp.</i>	akar bahar/koral hitam	All of species in the genus
Mollusc						
<i>Hippopus hippopus</i>	Kima tapak kuda	Horsehoof (bear paw clam)		<i>Charonia tritonis</i>	Triton terompet	Trumpet triton
<i>Hippopus porcellanus</i>	Kima cina	China clam		<i>Cassis cornuta</i>	Kepala kambing	Horned helmet
<i>Tridacna crocea</i>	Kima kunia, Lubang	Crocus, safron colored clam		<i>Trochus niloticus</i>	Susu bundar	Top shell
<i>Tridacna derasa</i>	Kima selatan	Southern-giant clam		<i>Turbo marmoratus</i>	Batu laga / Siput hijau	Green shell, turban shell
<i>Tridacna gigas</i>	Kima raksasa	Great clams		<i>Nautilus pompillus</i>	Nautilus berongga	Pearly-chambered nautili
<i>Tridacna maxima</i>	Kima kecil	Largest claw mussel		Crustacea		
<i>Tridacna squamosa</i>	Kima sisik / Kima seruling	Scaly, fluted-giant clam		<i>Tachypleus gigas</i>	Ketam tapak kuda	Horseshoe Crab
				<i>Birgus latro</i>	Ketam kelapa	Coconut Crab

Emerging Issues for Marine Resource Management

- Lewotobi (East Nusat Tenggara) in 1983; in Ambon Bay, and Kau Bay (Halmahera), Sebatik and Nunukan (East Kalimantan); East Kalimantan in 1988, at Hurun Bay (Lampung);
- More recent sea water discoloration: July 2001 in Lampung → economic loss ± USD 1.75 million (Thoha and Fukuyo, 2011).

- **Harmful Algal Bloom (HAB)**



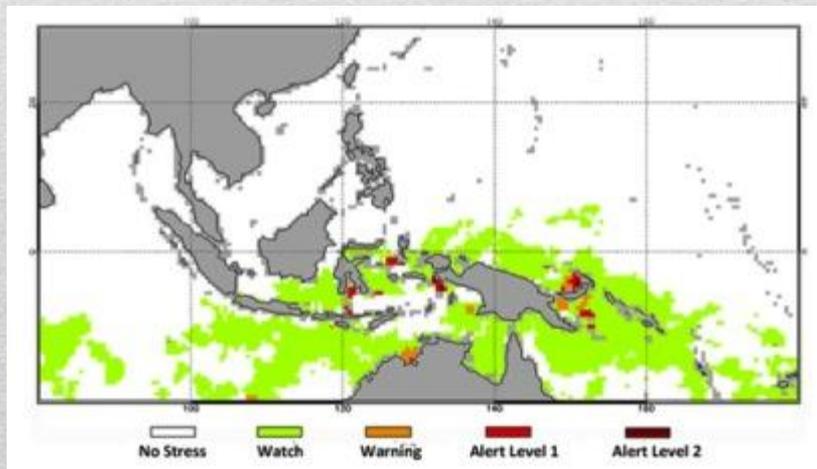
Reported Harmful Algal Bloom (HAB) occurrences in Indonesia, and species responsible for PSP (Paralytic Shellfish Poisoning)

- **Climate Change Impacts**

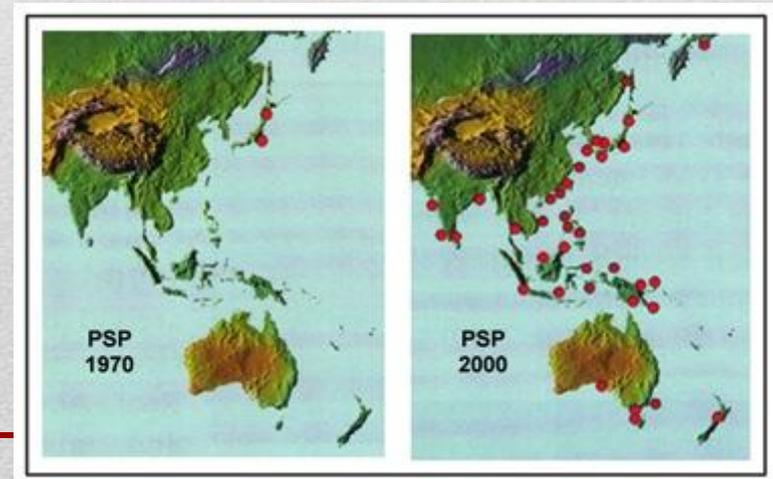
- high risk country from global climate change.
- sea surface temperature increase → detrimental effect to marine biodiversity inc. coral reefs
- Coral bleaching events → Bali Barat National Park, Bunaken Island, Derawan Island, Komodo Island, Nusa Penida, Wakatobi, Raja Ampat and Misool (NOAA, 2012). Coral bleaching reported, in Karimunjawa National Park, Mentawai island, Thousand island National Park and Weh island.

- **Marine Invasive Species (MIS)**

- occurred for a long time → negative impacts on several ecosystems and biodiversities.
- Study on the MIS in Indonesia → very rare.
- no specific policy & regulation on MIS.



NOAA Coral Reef Watch Satellite Coral Bleaching Alert Area



Expansion of PSP in the West Pacific region in 1970 and 2000 (Source: Fukuyo)

THE INDONESIAN CTI NATIONAL PLAN OF ACTIONS



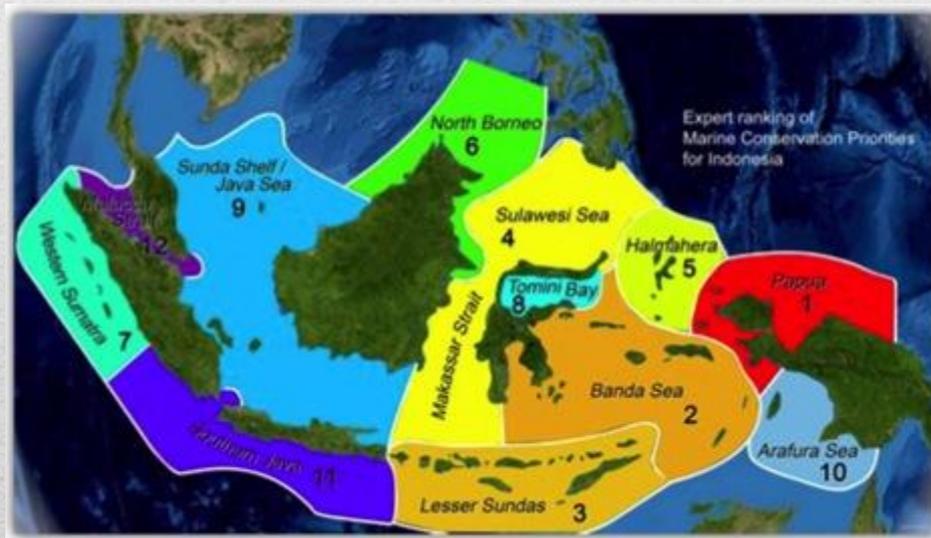
- Goal 1: Priority seascapes designated and effectively managed
 - Goal 2: EAFM applied
 - Goal 3: Improving management of MPAs
 - Goal 4: Climate change adaptation
 - Goal 5: Improving the conservation status of threatened species
-

Goal 1:

Priority Seascape Designated and Effectively Managed

Target 2010 – 2014:

- ❖ Six seascapes: Bird's Head of Papua, Anambas-Natuna-Karimata [Bastunamata], Tomini Bay, Banda Sea, Halmahera Sea, and Lesser Sunda
- ❖ Integration between the seascapes program and the Indonesia Fisheries Management program at the same seascapes.



Indonesian Bioecoregion Map



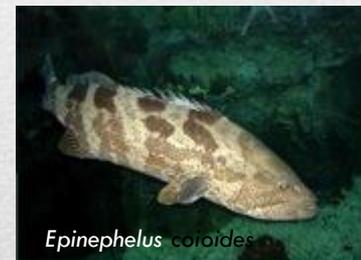
BASTUNAMATA one of seascape priorities in 2010 - 2014

Goal 2:

EAFM applied

Target 2010 – 2014:

- Strong legislative, policy, and regulatory frameworks in place for achieving EAFM;
- Improved income, livelihoods, and food security of an increasingly significant number of coastal communities across the region through the Sustainable Coastal Fisheries and Poverty Reduction Initiative (COASTFISH);
- Effective measures in place to help ensure sustainable exploitation of shared tuna stocks, with tuna spawning areas and juvenile growth stages adequately protected; and
- A more effective management and more sustainable trade in live reef fish and reef-based ornamentals achieved



Goal 3:

Improving MPA Management

Main target → “***implementation of the regionwide Coral Triangle MPA System (CTMPAS)***”

Action 2010 – 2014:

- Establishing and strengthening the national strategy of MPA and transboundary MPA through collaboration with related neighboring countries, e.g., the Sulu Sulawesi Marine Ecoregion (SSME);
- Improving the planning and management of MPAs to solve local and global threats;
- Enabling policy and institutions for MPAs; and
- Building institutional capacity for managing MPAs and ensuring sustainability of funds.

Achievement in 2010 – 2012:

- Strengthening of Savu Sea National Marine Park management;
 - Designation of the new Anambas National Marine Park (1.2 million ha);
 - Strengthening the national capacity for MPA management through the establishment of technical implementation units and the initial management body responsible for the management of eight national MPAs; and
 - Indonesian MPA size increase from 13.5 million ha in 2009 to 15.4 million ha in 2011.
-

Goal 4:

Climate Change Adaptation

Main target → “***improve the conservation status of sharks, sea turtles, seabirds, marine mammals, corals, seagrasses, and mangroves.***”

Action 2010 – 2014:

- Regionwide early action climate adaptation plan for the nearshore marine and coastal environment developed and implemented; and
- Networked national centers of excellence on climate change adaptation for marine and coastal environments established and in full operation.

Achievement in 2010 – 2012:

- Identification and mapping of the Indonesian CT areas for their susceptibility to climate change impacts;
 - Producing national guidelines for adaptation to the impact of climate change on marine and coastal ecosystems;
 - Formulating an early warning system and response to weather variability, temperature variability, and changes in storm phenomenon; and
 - Conducting strategic research to provide information critical to reducing key threats to coral reef ecosystems.
-

Goal 5:

Improving the conservation status of threatened species

Main target → “***improve the conservation status of sharks, sea turtles, seabirds, marine mammals, corals, seagrasses, and mangroves.***”

Action 2010 – 2014:

- Conducting an assessment of sharks, sea turtles and cetaceans, and selected marine invertebrates and plants;
- Strengthening the implementation of CITES through management and scientific authorities;
- Implementation of the National Plan of Action for shark conservation and management and enforcement of Ministerial

Achievement in 2010 – 2012:

- Mapping of the distribution of sharks as basis for the limited protection of this species;
- Development of guidelines for the supervision of protected fish species; and
- Mapping and determination of the potential for the trade of ornamental corals.



CONCLUSION AND RECOMMENDATIONS/7

Conclusions

- Marine and coastal areas → important resources for economic and social development
- Indonesia → world center of marine biodiversity;
- Efforts → achieve sustainability of marine resources management:
 - capacity building, public awareness, and development of some national strategy for managing of such ecosystems.

Recommendations

- Continue the introduction of integrated approach to the coastal and marine resource and ecosystems;
 - Implement sustainable financing approach for the MPAs management;
 - Public awareness or campaign
 - Continue national capacity building on resource management;
 - Studies related to:
 - Marine and coastal biodiversity,
 - Role of women and youth people on marine resource utilization,
 - Reviving of traditional knowledge management and
 - Other studies.
-



CTI Learning Networks

“A group working across organizations and/or boundaries to collectively create, apply, test, document and share solutions to common challenges.”

Learning network reaching out to **MPA Managers and Practitioners** in more than **1500 MPAs** in the Coral Triangle.



Pilot: CTI MPA Learning Network

Objectives

- Connect site managers across the CT6 to improve their capacity to manage MPAs.
- Connect MPA networks and leaders across CT6 in support of the CT MPA System (CTMPAS).
- Catalyze/accelerate learning and sharing of information by supporting linkages between MPA managers, existing networks, scientists, policy makers, local communities, and practitioners.



Save our Ocean