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Towards An Integrated Nesting Beach Management Plan for the Conservation of Sea Turtles in Bird's Head Peninsula, Papua Barat, INDONESIA

Presentation · July 2015

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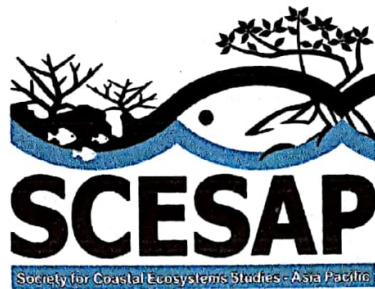
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The Society for Coastal Ecosystems Studies - Asia Pacific



**Biodiversity Symposium 2015
in Bangkok, Thailand**

**"Biodiversity in Asian Coastal Waters:
Looking Towards the Future"**

3-7 July 2015

host: Chulalongkorn University
co-host: Ramkhamhaeng University



Program book

The Society for Coastal Ecosystems Studies- Asia Pacific



Biodiversity Symposium 2015 in Bangkok, Thailand

"Biodiversity in Asian Coastal Waters: Looking Towards the Future"

3-7 July 2015, hosted by Chulalongkorn University

(co-host: Ramkhamhaeng University)



*Welcome from the President
of the Society for Coastal Ecosystems Studies - Asia Pacific*

On behalf of the Society for Coastal Ecosystems Studies – Asia Pacific, I would like to welcome you to the SCESAP Biodiversity Symposium 2015 – “Biodiversity in Asian Coastal Waters: Looking Towards the Future”, in Bangkok, Thailand.

The Society for Coastal Ecosystems Studies - Asia Pacific (SCESAP) has been established to advance research and education in the science and management of coastal ecosystems in the Asia-Pacific region and worldwide, through the promotion of effective cooperation and communication among interested individuals and organizations in Asia and elsewhere. While the coastal ecosystems of Asia Pacific (Indo-Malay) boast the highest level of biodiversity in the world, they are under ever-increasing threats, mostly of human origin, and the rate of their loss and degradation is something to which we all need to give a serious consideration and attention. It is therefore urgent that biological information on coastal ecosystems be collected and disseminated in a systematic manner. For this, SCESAP has an important role to play.

The Society is honoured to have its first Symposium in Bangkok, Thailand, that has fast become an important centre of research and education in South-East Asia. Chulalongkorn University has prepared an excellent venue and I am convinced that all the participants will have a most fruitful and enjoyable time on this occasion. A smile to all of you, from the land of smiles.

Prof. M Tokeshi

President of the Society
for Coastal Ecosystems Studies – Asia Pacific

Schedule

3 July	4 July (Tab Nilaniti Building)	5 July (Tab Nilaniti Bld.)	6 July (Mahamakut Bld.)	7 July
	Opening session 9:00 - 12:00	Oral session 3 (A Tan HS) 9:00 - 10:30	Oral session 7 (Y Osawa) 9:00 - 10:30	Y Excursion 10:00 -
		Coffee break		
		Oral session 4 (MN Aoki) 10:45 - 12:00	Oral session 8 (V Viyakarn) 10:45 - 12:00	
	Lunch			
Reception & welcome mixer 14:30-18:30 (Mahamakut Building)	Oral session 1 (T Yeemin) 13:30 - 14:45	Oral session 5 (HT Yap) 13:15 - 14:45	Oral session 9 (GN Nishihara) 13:15 - 14:45	
	Coffee break			
	Oral session 2 (+ SCESAP session) (T Yeemin) 15:00 - 17:00	Oral session 6 (S Arakaki) 15:00 - 16:30	Oral session 10 (CL Nanola Jr) 15:00 - 16:30	
		Coffee break		
		Poster session 1 16:45 - 17:45	Poster session 2 16:45 - 17:45	
	Welcome Dinner 18:00-20:00 Bangkok Centre Hotel	Dinner 18:00-20:00 (TBD)	Dinner 18:00-19:30 Chamchuri Square Bld.	

Saturday 4 July, morning

Opening session (9:00-12:00) -----

Welcome address

Representative from Chulalongkorn University

Opening remarks

Representative from Chulalongkorn University
Prof M Tokeshi (AMBL, Kyushu University)

Opening lectures

UNESCO – IOC/WESTPAC activities related to marine biodiversity and oceanographic research
Dr. Somkiat Khokiattiwong (Chairperson of UNESCO-IOC/WESTPAC)

Xeniidae soft corals: taxonomic and biological challenges for reef conservation
Prof. Dr. Yehuda Benayahu (Professor of Marine Biology, Tel Aviv University)

Current status of marine biodiversity in the western Pacific region: threats and conservation
Dr. Suchana Chavanich (SCESAP 2015 Symposium Organizer, Chulalongkorn University)

Saturday 4 July, afternoon

Oral session 1 (13:30-14:45)

Chair: T Yeemin

Keynote 1

ONE ECOSYSTEM analysis: land-ocean-livelihood in Occidental Mindoro, the Philippines
HT Yap

(O-01) The changes in diversity of marine macrogastropods in the seagrass bed of Gazumbo Island, Penang (Malaysia) from year 2000 until 2015
SH Aileen Tan, CP Teh, BAK Nur-Najmi, SH Bong, TTB Clictus, L Salniza Akmar, TH Lee, KY Poi, GOJL Chang, PF Amelia Ng, Zulfigar Yasin

(O-02) Sponge culture trials for biomass production of renieramycin M-producing sponge *Xestospongia* sp.
G Manzano, C Yu, P Aliño

(O-03) Towards an integrated nesting beach management plan for the conservation of sea turtles in Bird's Head peninsula, Papua Barat, Indonesia
RF Tapilatu, M Tiwari, PH Dutton, T Wibbels

Chair: T Yeemin

Oral session 2 (15:00-17:00)

Keynote 2

Decadal changes (1935–2013) in the algal assemblages of tropical-subtropical Yonaguni Island in the western Pacific
EA Titlyanov, TV Titlyanova, M Tokeshi

(O-04) Analysis of density and distribution of toxic benthic dinoflagellate *Gambierdiscus*, *Ostreopsis* and *Prorocentrum* in the West Sumatra waters
Thamrin, R Irmaida, S Nasution, Windarti

(O-05) Relationship between a mollusk and its epibionts: does *Cladophora* negatively affect *Turbo*?
Y Osawa, M Tokeshi

(O-s1) Re-centralization of marine resource management in Indonesia.
HA Susanto

(SCESAP session)

Working together on Asian coastal ecosystems - our challenge

M Tokeshi
On the mechanics of scientific publication: why is it so difficult to have your paper published?

Towards an integrated nesting beach management plan for the conservation of sea turtles in Bird's Head peninsula, Papua Barat, Indonesia



Ricardo F. Tapilatu^{1,2}

- 1). Marine Science Dept, The University of Papua (UNIPA) Manokwari – Papua Barat Province, INDONESIA
 - 2). Pacific Marine Resource Research Center - The University of Papua (UNIPA) Manokwari – Papua Barat Province, INDONESIA
- The Society of Coastal Ecosystem Studies of Asia Pacific (SCESAP) Symposium 2015, Bangkok, July 3 - 7, 2015

Introduction

Leatherback Turtle, *Dermochelys coriacea*

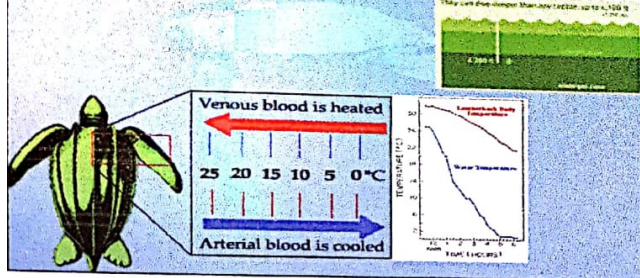
- Largest turtle in the world (up to 2 m and between 800-2,000 lbs)
- Highly vascularized cartilage, relatively high growth rate



Introduction

Leatherback turtle, *Dermochelys coriacea*

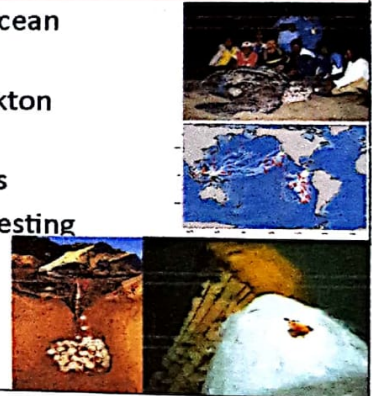
- Deepest diving reptile: ~ to 1200m
- Gigantotherm



Introduction

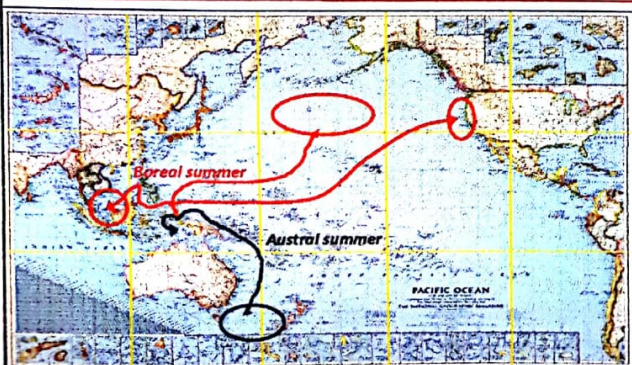
Leatherback turtle, *Dermochelys coriacea*

- Adapted for open ocean existence
- Gelatinous zooplankton specialist
- Nest every 2-4 years
- Multiple clutches/nesting season (3-12)



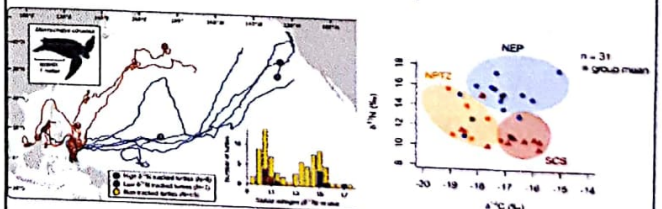
Introduction

Foraging regions: boreal vs austral summer nesters (modified from Benson et al, 2011)



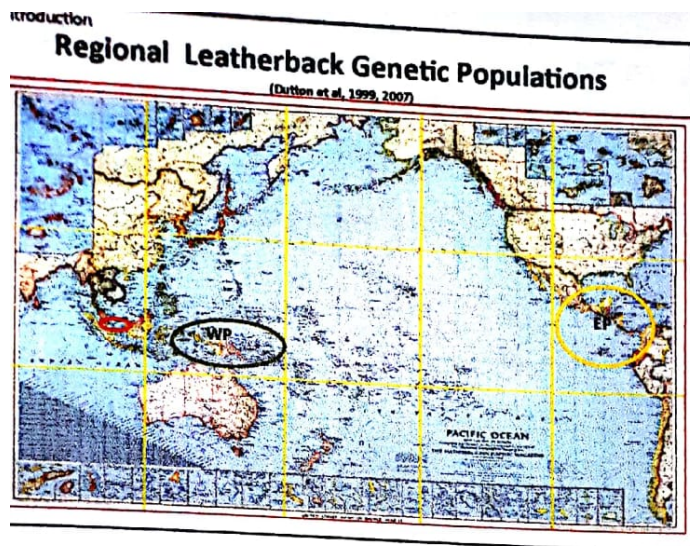
Introduction

Leatherbacks foraging grounds based on stable isotope analysis ($\delta^{15}\text{N}$ and $\delta^{13}\text{C}$)

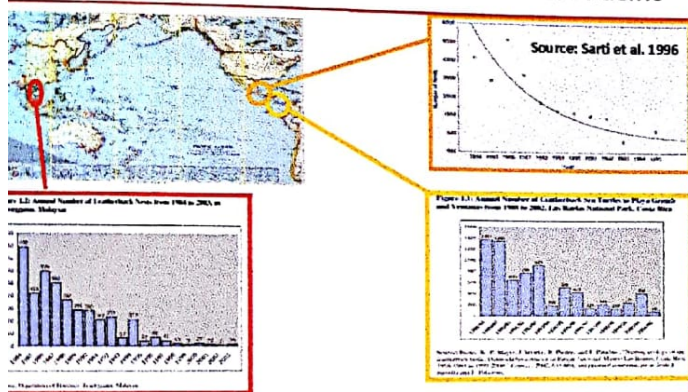


Sources:
Seminoff et al, 2012

Lontoh, 2014

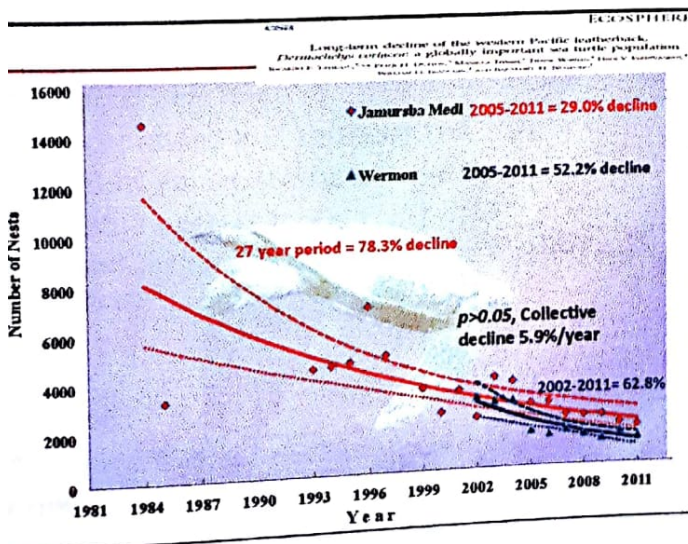
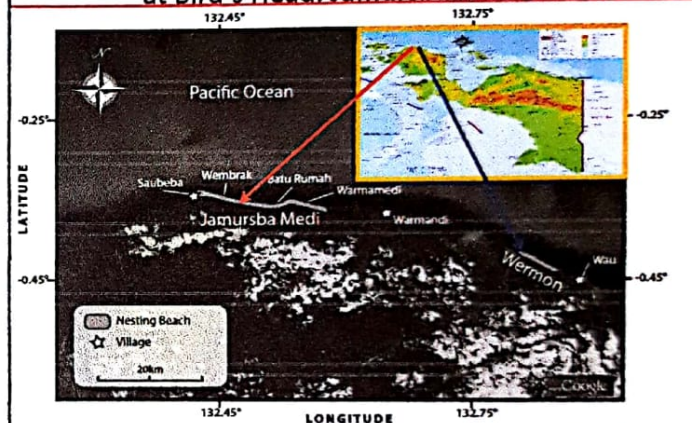


Historic decline of Pacific leatherback in the Pacific



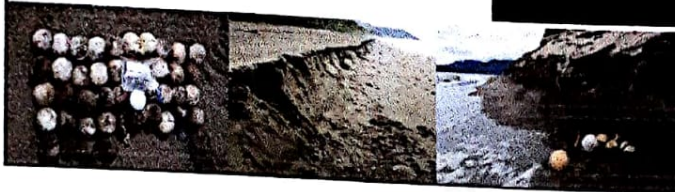
• Critically Endangered

Two principal nesting sites for leatherback at Bird's Head: Jamursba Medi and Wermom



Threatening factors on nesting beaches:

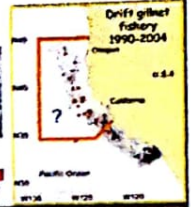
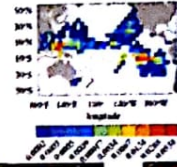
- Beach erosion
- Tidal inundation
- Extreme sand temperature?



Discussion

Threatening factors at sea:

- High mortality due to interaction with **many** fisheries
- Traditional hunting



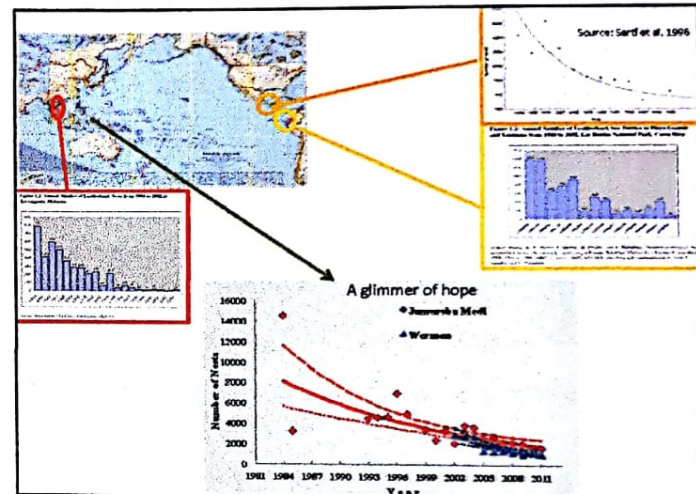
Pacific leatherback conservation efforts

US Recovery Plan 1998: Pacific leatherback Priority conservation actions:

- Tri-National Agreement (Indonesia, PNG and Solomon Island).
- IOSEA Marine Turtle Memorandum
- Coral Triangle Initiatives (CTI)
- Bellagio

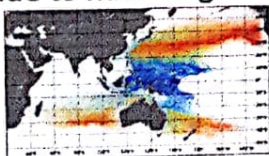


Holistic approach (Dutton and Squires, 2011):
Beach and at sea management plans



A glimmer of hope

- Isolated beaches
- Concentrated and represented 75% of western Pacific leatherback (Dutton et al, 2007)
- Sizeable nesters (~500 FNA)
- Important due to hatchling distribution (Gaspar et al, 2012)



A science-based beach management plan:
Pumping out more hatchlings

Identified threats

1. Predation

Beach	High-risk beach sectors	Primary predators*
Jamur's Moll		
1. Wumbrah	1-40, 60-80	dog
2. Batu Kumah	110-155, 180-220	dog, pig
3. Wumbrah	261-302	dog, pig
Wumbrah	1-10, 35-35, 65-90	dog, pig

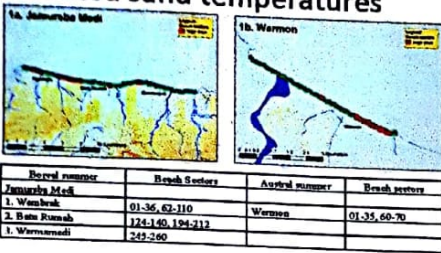
*The order of predation is based on the magnitude of their area.

2. Tidal inundation and erosion

Beach	Beach meters	Beach	Beach meters
Wumbrah	0-25, 42-50, 60-80, 119-124	Wumbrah	1-12, 30-25, 40-45
Batu Kumah	170-185		
Wumbrah	240-247, 266-270		

Identified threats

3. Elevated sand temperatures



4. Poaching

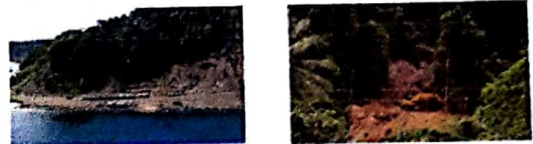
- Primary beaches
- Secondary beaches

Identified threats

5. Local and regional fisheries issues



6. Logging and road development



Beach Management Plan: Major components

1. Predator control

Feral pig control: traditional pig trapping methods, electric fences, and barbed-wire corral and box traps, combined with shooting
Dog control program: Sterilization techniques and effective dog management program



2. Nest Protection

Net, bamboo grid, and perimeter enclosures



Beach Management Plan: Major components

3. Nest relocation, controversial but warranted

JM: 33m; Wermon: 18m

Shaded hatcheries
Upper beach zones
Nest shading



4. Conservation actions at Wermon during BS

5. Fisheries:

Seasonal fisheries closures during main nesting season

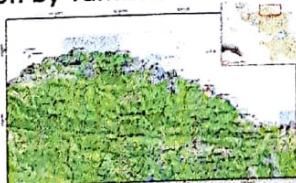


6. Local communities and socio-economic considerations

Strong community partnership
Education
Implementation of 'Conservation Village' concept

Beach Management Plan: Major components

Endorsement and participation by Tamberauw Regency government



Leatherback summit
Abun Coastal National Park

Limit mining

Limit logging

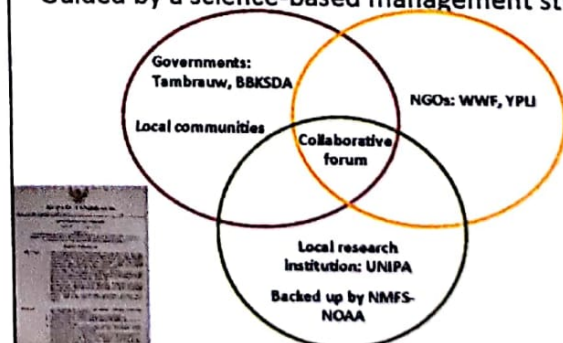
Negotiation to re-route trans-Papua Barat road



Beach Management Plan: Major components

7. Management tasks and stakeholder responsibilities

Guided by a science-based management strategy



Funding and logistical support

- U.S NOAA Southwest Fisheries Science Center
- Biology Department – UAB
- MTCF - US Fish and Wildlife Service
- Bird's Head Leatherback Conservation Program – The State University of Papua (UNIPA)
- Fulbright
- Indonesian governments: Tambrau, BBKSDA, Forestry, Marine-Fisheries
- WWF and CI Indonesia Program
- Leatherback trust, ISSF, Walton Foundation, etc



TERIMA KASIH

Committee:

- Dr. Thane R. Wibbels
- Dr. Peter H. Dutton
- Dr. Manjula Tiwari

Indonesia:

- Bird's Head Leatherback personnel
- Deasy Lontoh
- Tettha Hitipeuw (†)
- Betuel Samber – BBKSDA

Southwest Fisheries Science Center

- Scott R. Benson
- Dr. Karin Forney

Labs:

- Sea turtle & histology lab – Biology Dept UAB
- Marine lab & dept UNIPA