GSTC
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A Carbon-Neutral Marine Tourism Route for Snorkeling in Trat Province, the Eastern Gulf of Thailand

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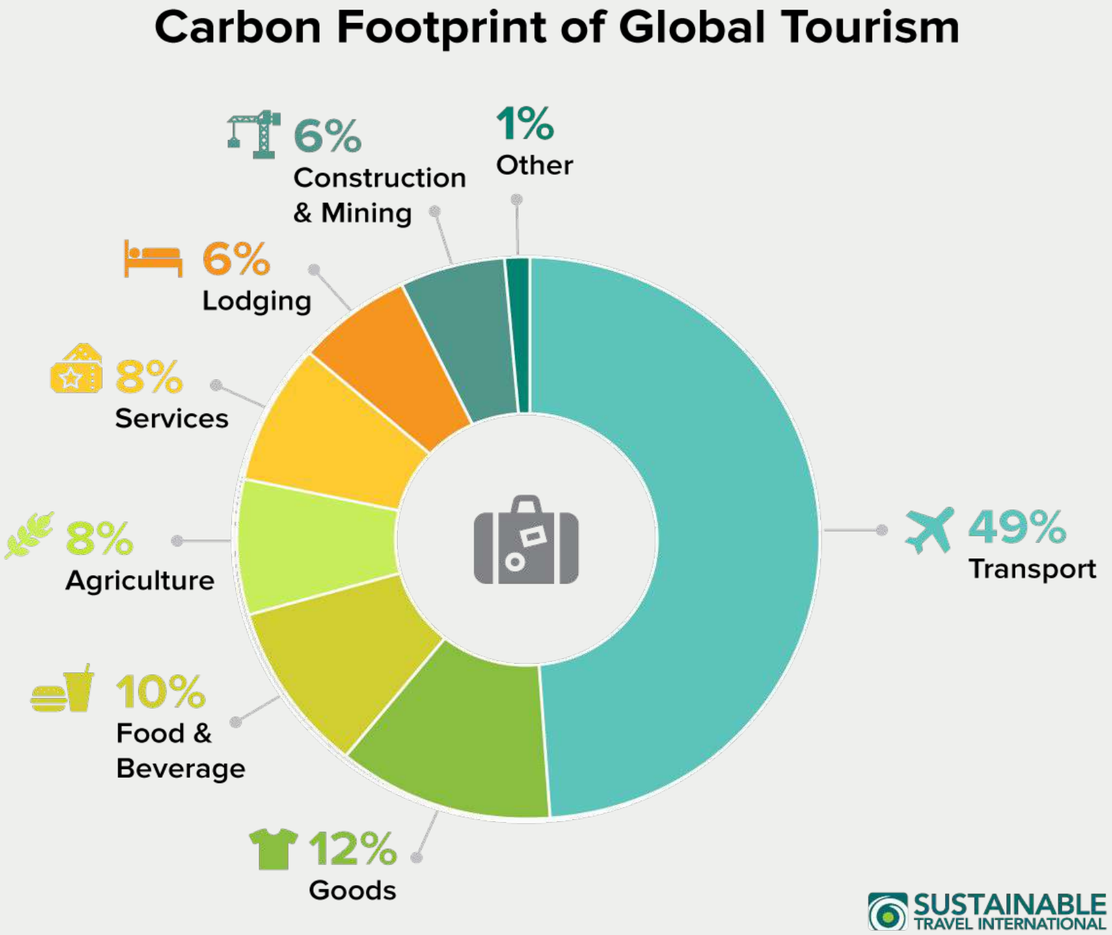
Why Carbon-Neutral Marine Tourism?

- Marine tourism is vital for economies but creates carbon emissions.
- Climate action requires reducing emissions in all sectors.
- This project demonstrates a replicable model for carbon-neutral marine tourism.

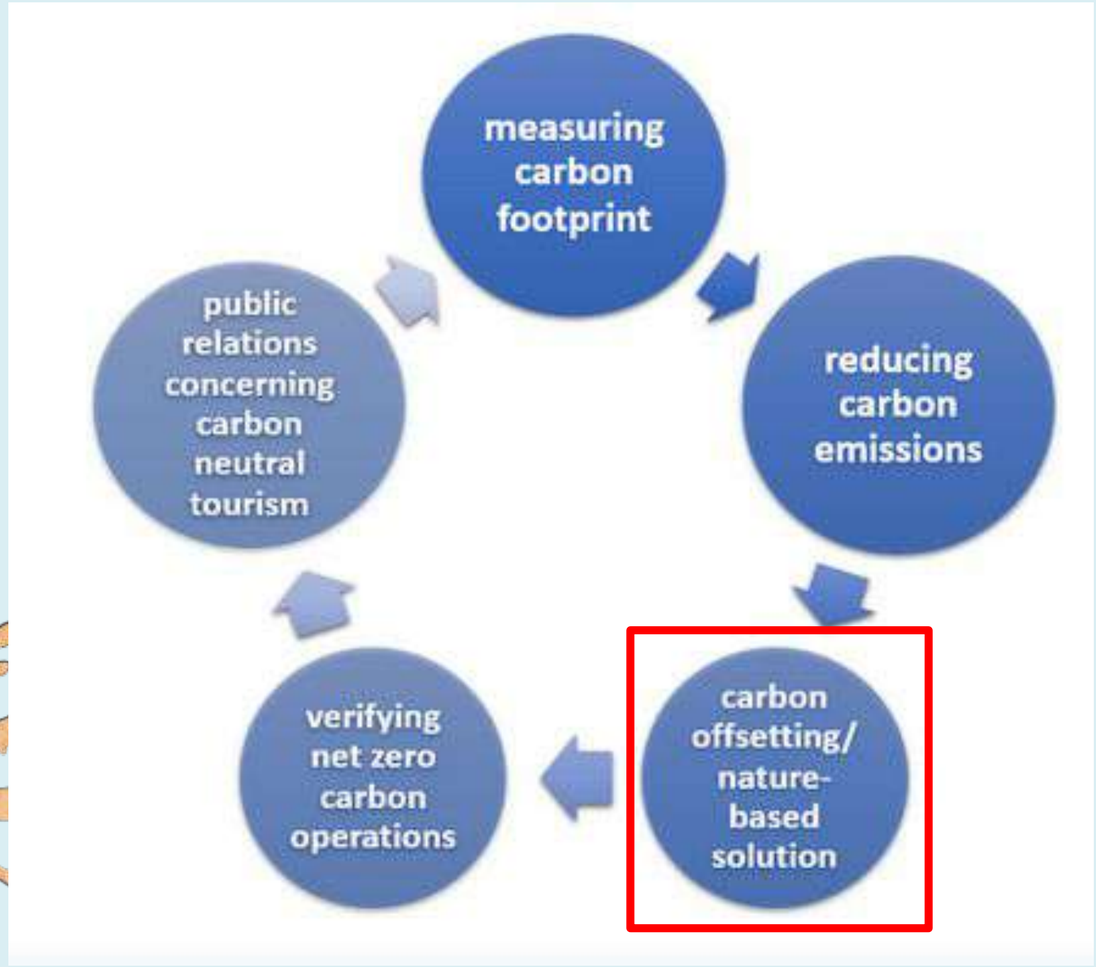


Background and Significance

- **IUCN (2021):** Nature-based solutions are critical to climate mitigation.
- Thailand's tourism policy emphasizes aligning its practices with global climate goals.
- Few projects have implemented certified carbon-neutral snorkeling routes.
- This initiative bridges that gap.

How the Model Was Developed

Carbon Neutral Marine Tourism in Thailand



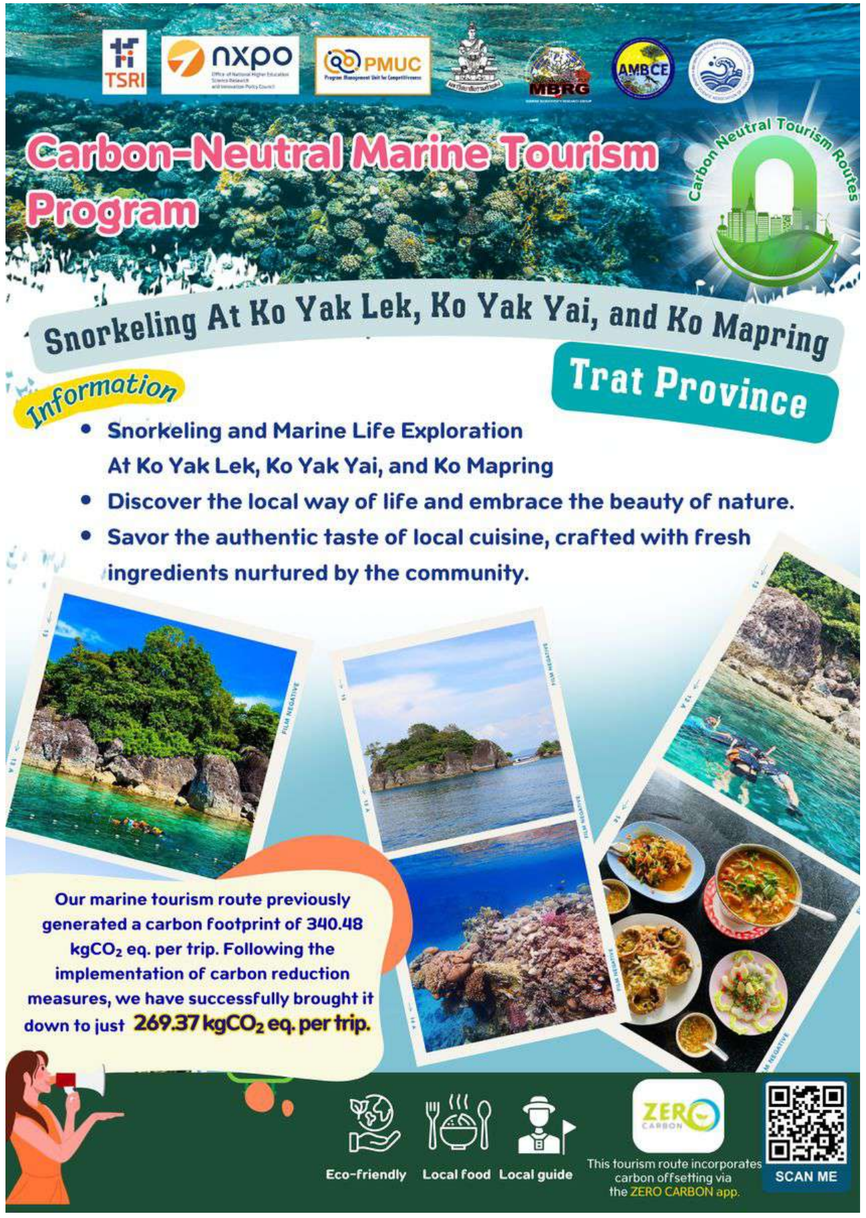
Yeemin et al. 2025

“ ZERO CARBON

- The Thailand Greenhouse Gas Management Organization (TGO)
- Program Management Unit for Competitiveness (PMU-C)
- collaborative agencies

Support conservation and restoration of mangrove and seagrass ecosystems

Carbon-Neutral Marine Tourism Program



Snorkeling at Ko Yak Lek, Ko Yak Yai, and Ko Mapring, Trat Province

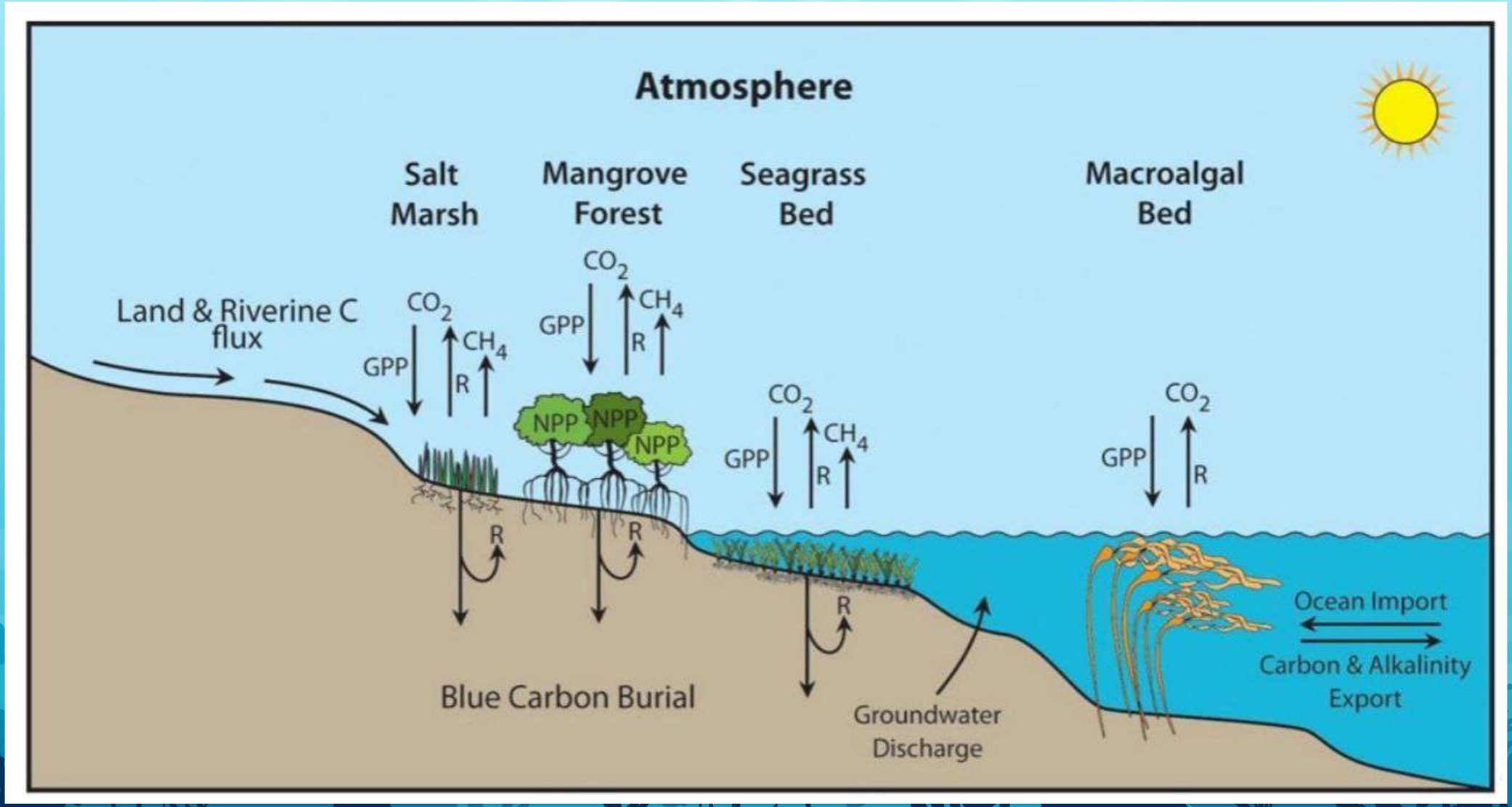
The total carbon footprint associated with the activity

Before the reduction efforts			After the reduction efforts		
	11.35 $kgCO_2$ eq.			8.98 $kgCO_2$ eq.	
	per person			per person	
Transportation	294.88	$kgCO_2$ eq.	Transportation	242.59	$kgCO_2$ eq.
Accommodation	-	$kgCO_2$ eq.	Accommodation	-	$kgCO_2$ eq.
Food and beverages	34.05	$kgCO_2$ eq.	Food and beverages	24.75	$kgCO_2$ eq.
Waste management	11.55	$kgCO_2$ eq.	Waste management	2.02	$kgCO_2$ eq.
per trip	340.48	$kgCO_2$ eq.	per trip	269.37	$kgCO_2$ eq.
per person	11.35	$kgCO_2$ eq.	per person	8.98	$kgCO_2$ eq.

ZERO CARBON

carbon offsetting, the ZERO CARBON application has been designed as a tool for accurately quantifying and offsetting carbon emissions produced by tourism operations, with an offset of 269.37 kg CO_2 eq./trip costing 180 baht per trip, or 8.98 kg CO_2 eq./person costing 7.2 baht per person.

Major blue carbon pathways in coastal marine ecosystem



(Alongi, 2023)

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Quantifying blue carbon stocks in interconnected seagrass, coral reef, and sandy coastline ecosystems in the Western Gulf of Thailand

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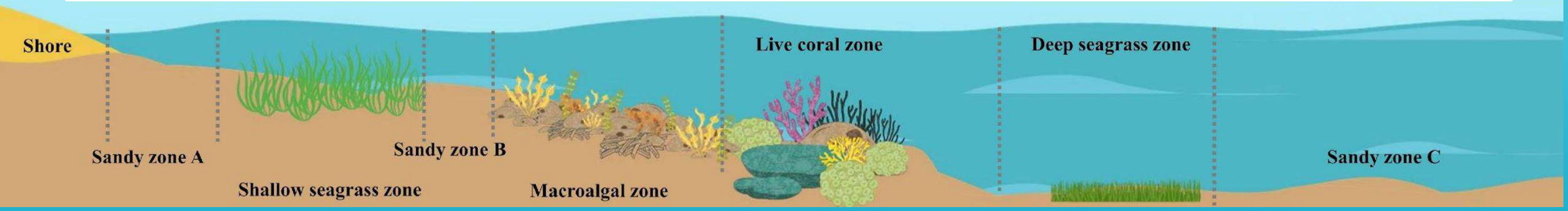
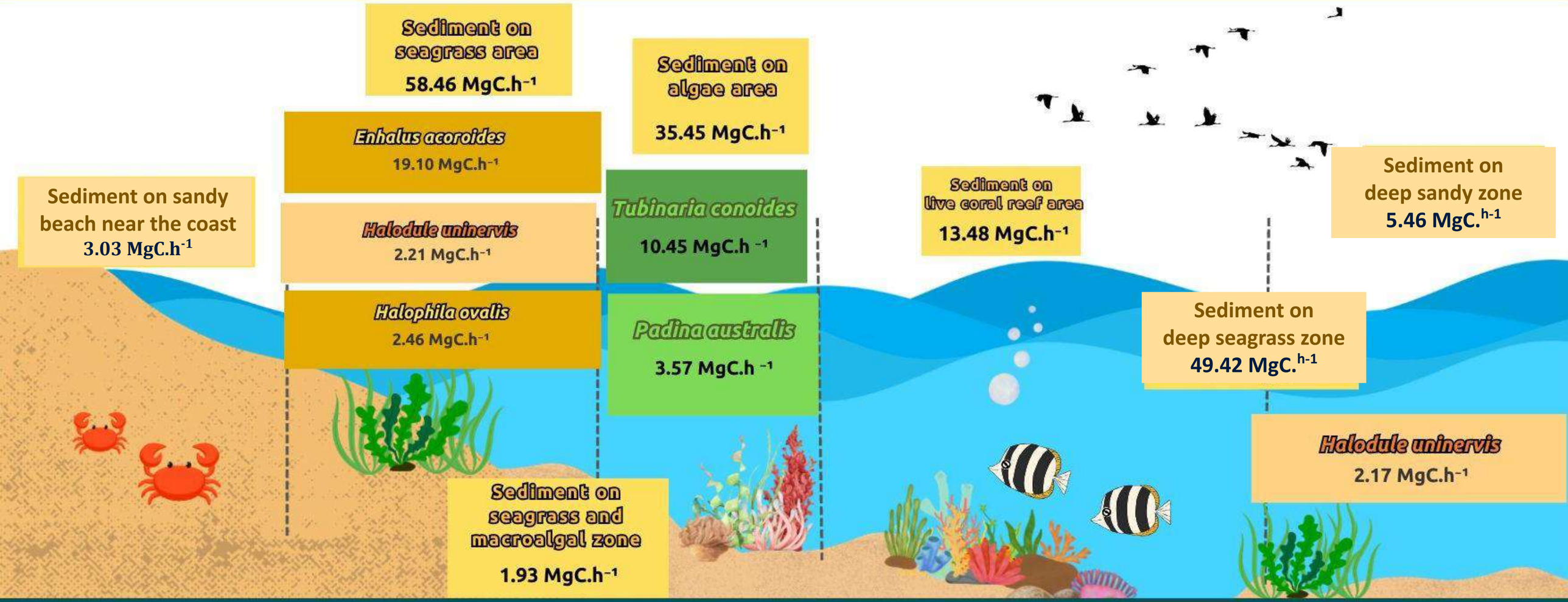


Source: Yeemin et al. 2024

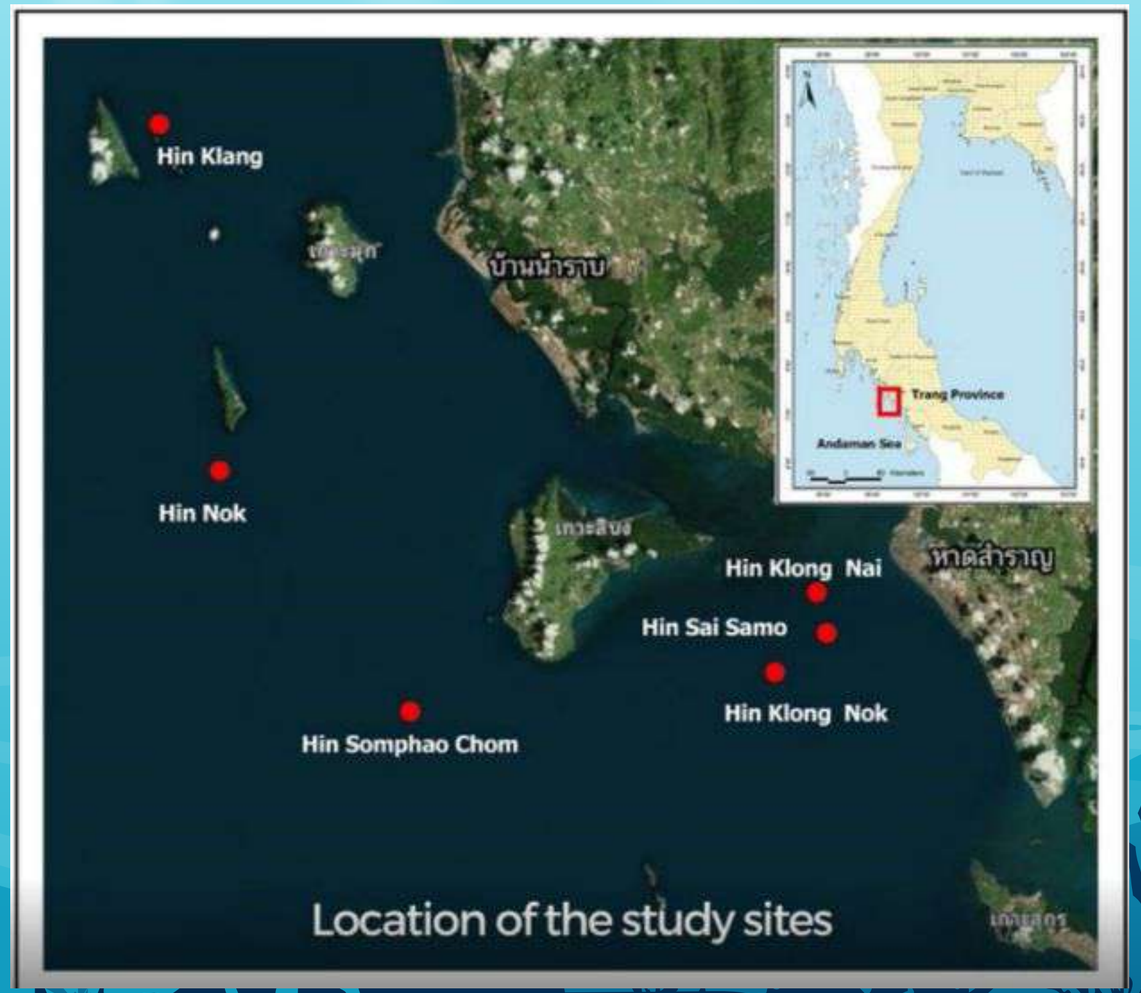
Carbon storage of coral reefs and associated ecosystems at Ao Thong Tanod



The estimated total carbon storage of coral reefs and associated ecosystems was found at 1,392.02 MgC

Source: Yeemin et al. 2024

Assessing blue carbon storage in marine sediments: underwater pinnacle ecosystems in Trang Province, the Andaman Sea (1/2)



Suebpala et al. 2024

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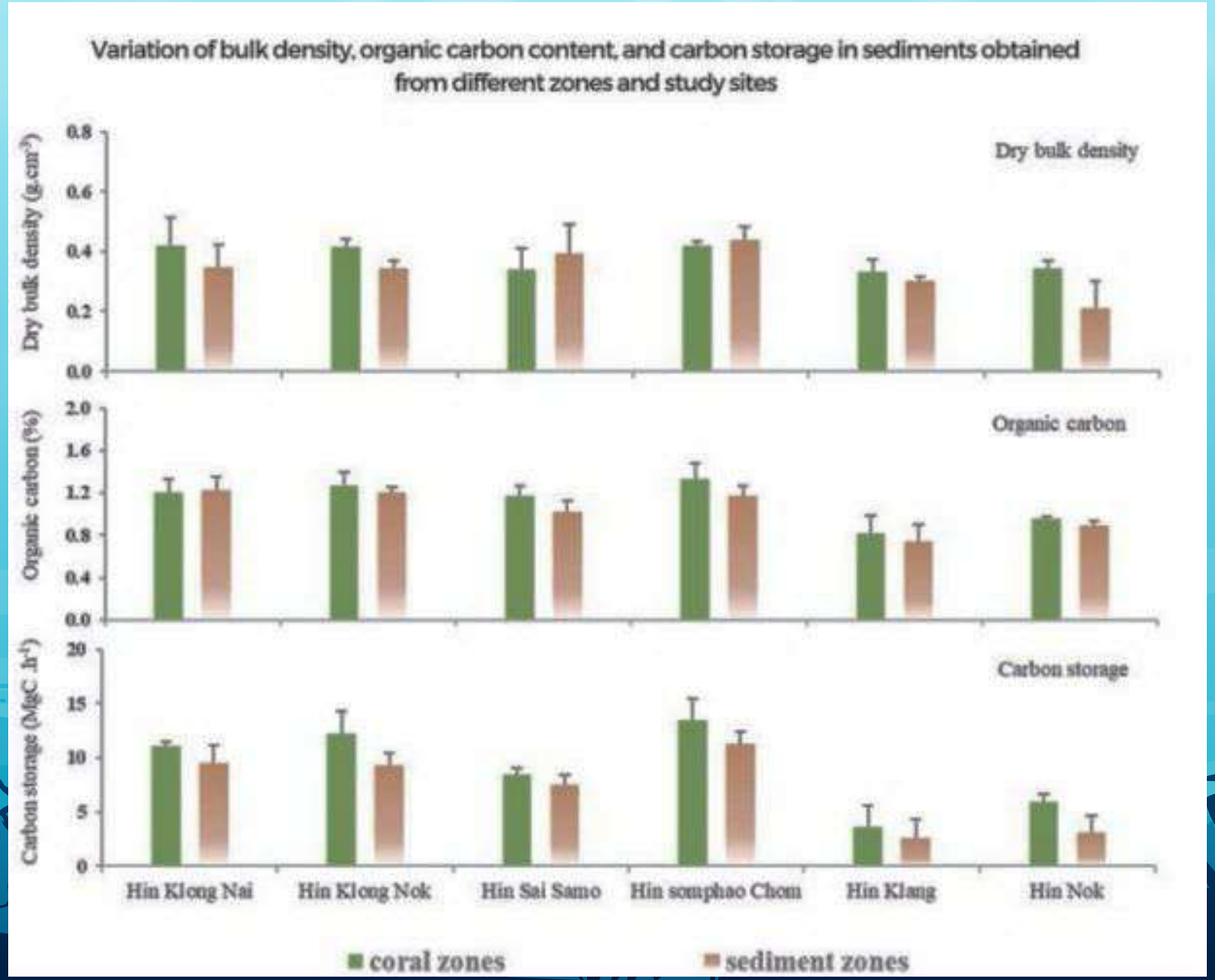


Suebpala et al. 2024

Potential Blue Carbon Sites in Trat Province

Mangrove forest

Total carbon stock

270 Kt

Area: 363.27 hectares
Living biomass (above + below ground): 156.28 tons c/ha
Sediment: 590.69 ton C/ha

Seagrass

Total carbon stock

56.47 Kt

*Area: 1,368.88 hectares
Living biomass (above + below ground): 4.00 tons c/ha
Sediment: 37.25 ton c/ha

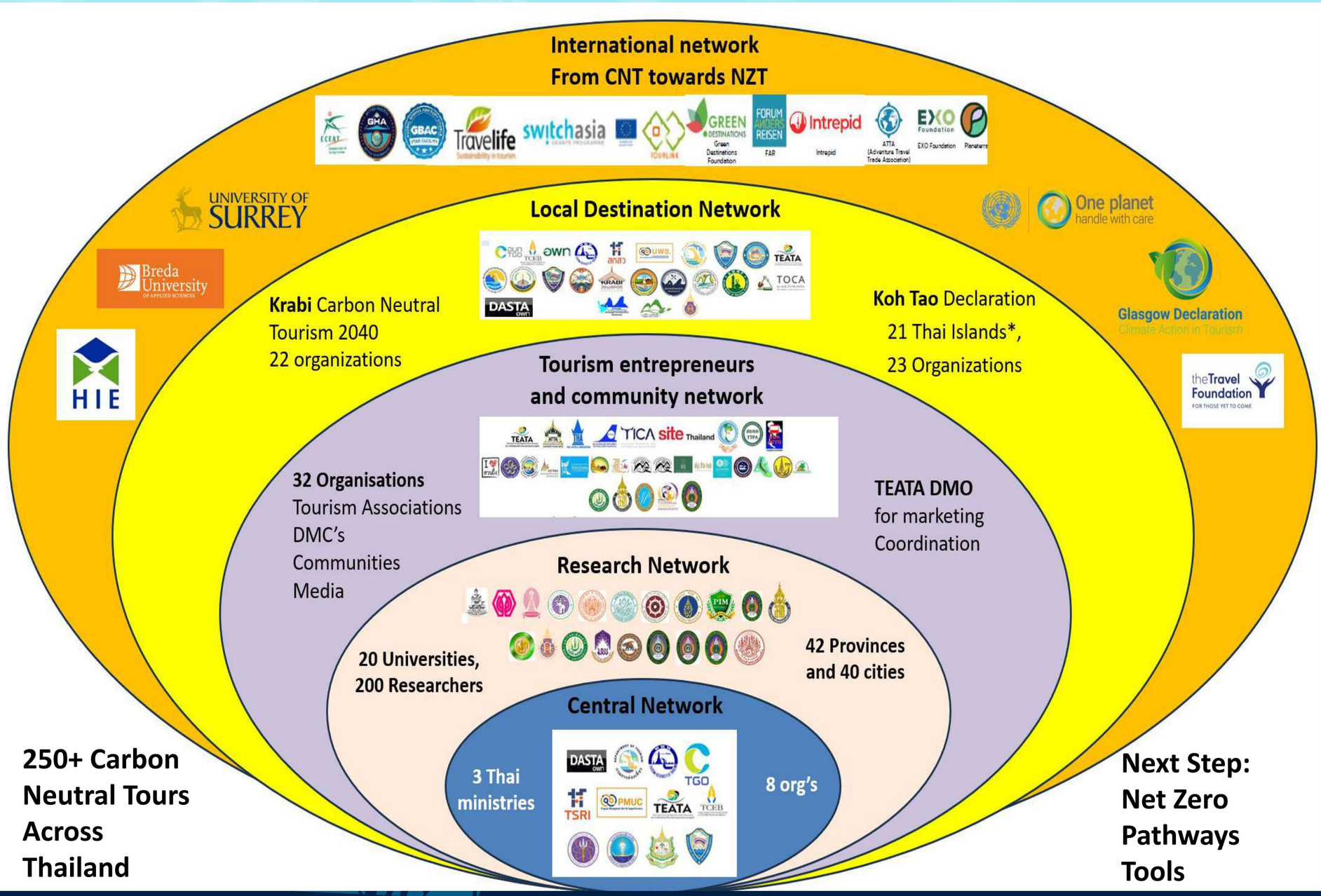
Coral reef

Total carbon stock

7.66 t

*Area: 0.37 hectares
Sediment: 20.69 ton c/ha

Facilitating cooperation and action from government to grassroots, local to global



250+ Carbon Neutral Tours Across Thailand

Next Step:
Net Zero Pathways
Tools
Products

Why This Matters

- Demonstrates feasibility of net-zero tourism
- Strengthens Thailand’s international competitiveness
- Supports compliance with Global Sustainable Tourism Council (GSTC) criteria
- Creates a template for scaling up carbon-neutral marine tourism nationwide

Main Lessons Learned

Integrated Approach Works

Measurement, reduction, and offsetting together create a credible carbon-neutral model.

Collaboration is Critical

Partnerships drive innovation and help overcome barriers to change.

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THANK YOU

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