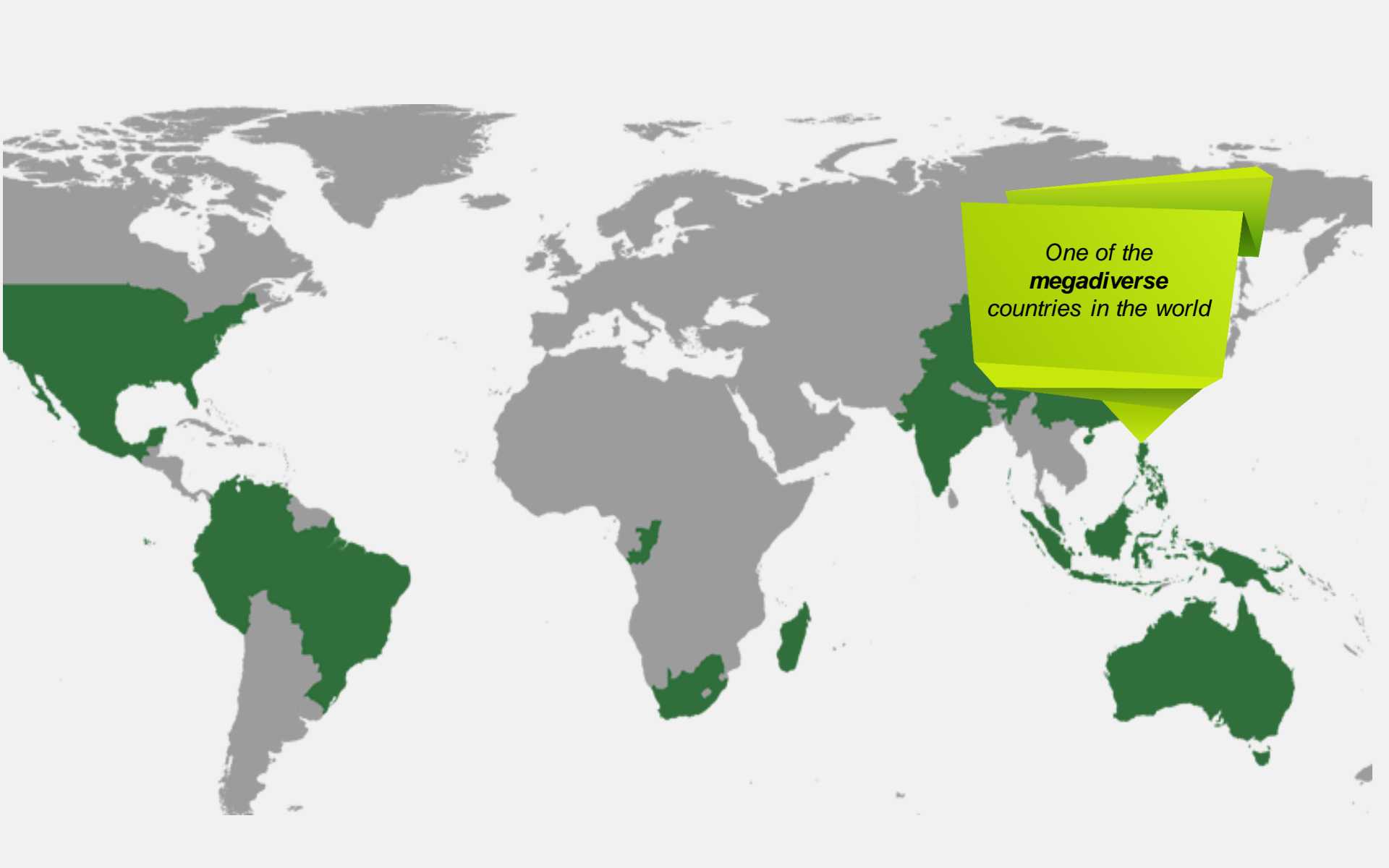


# BIOGEOGRAPHY OF FRESHWATER FISHES AS INDICATOR OF PALEOGEOGRAPHIC AND TECTONIC DIVIDES

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One of the  
**megadiverse**  
countries in the world

The country is characterized  
by **six major island  
groups**





*Mistichthys luzonensis*



*Puntius manguaonensis*  
(Paller et al, 2011)

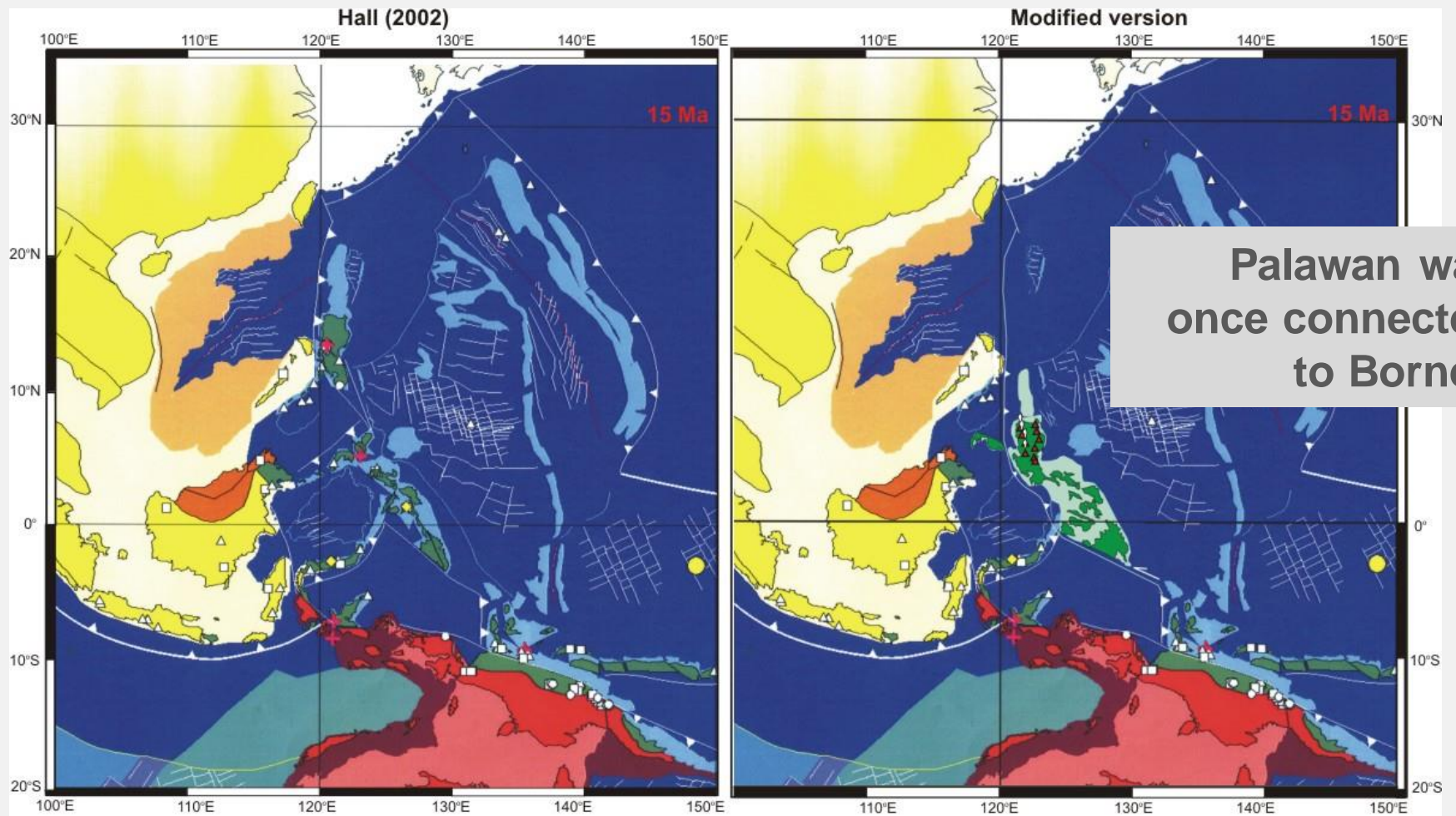


Sulu bleeding-heart



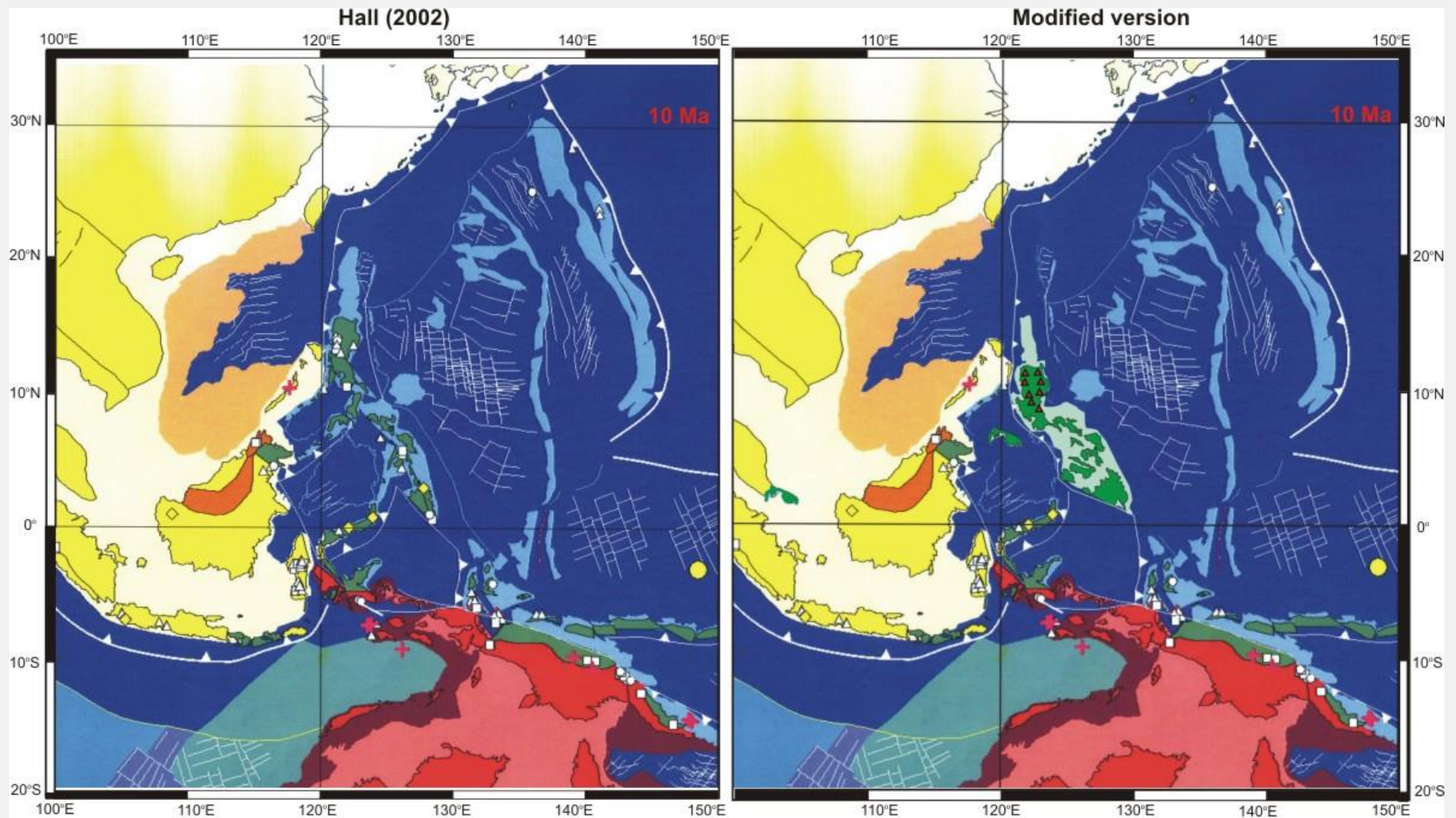
*Barbodes tumba*  
Abdulmalik-Labe & Quilang, 2019

# Centers of animal diversity



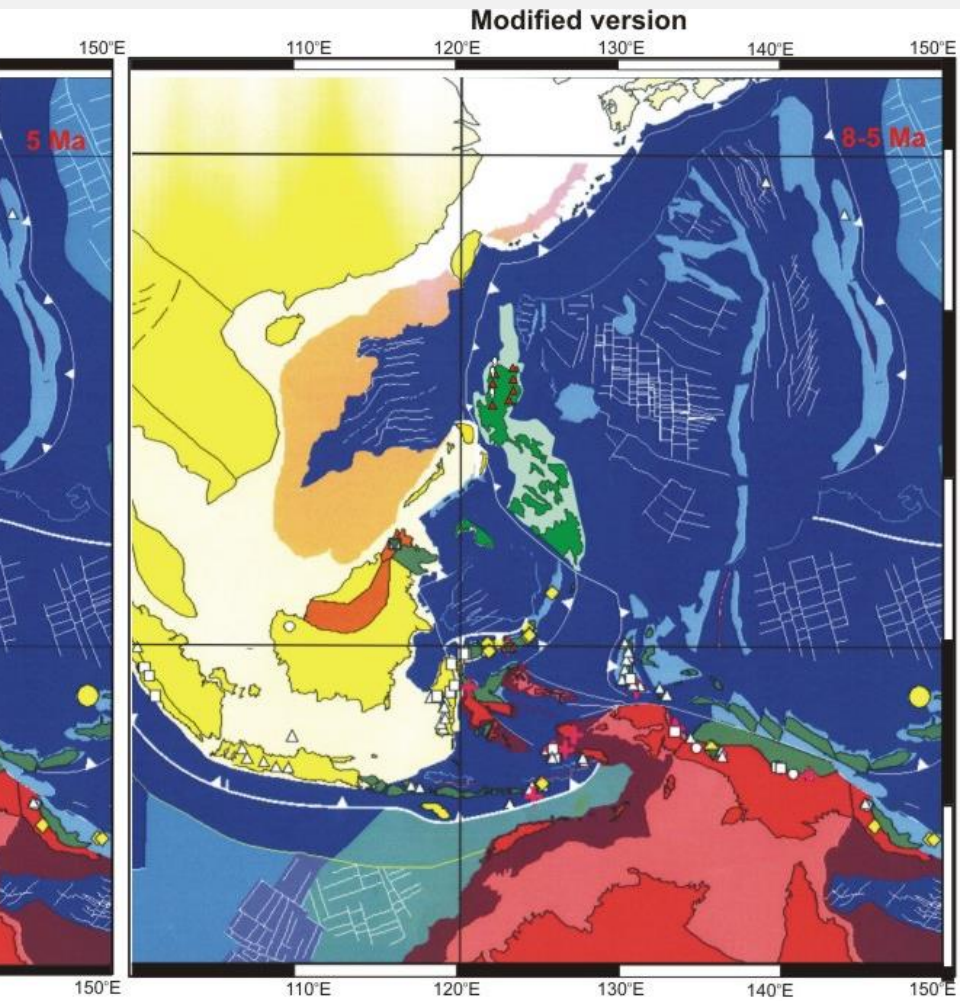
**Figure 7.10.** Tectonic reconstruction at 15 Ma. Spreading in the South China Sea ceased and the Palawan microcontinental block collided with the Cagayan de Sulu Ridge around this time. Spreading in the Shikoku and Parece Vela basins had also ceased.

Models by Hall, 2002 and Queano et al., 2008



**Figure 7.11.** Tectonic reconstruction at 10 Ma. It is proposed that the “sweeping off” of the edge of the Palawan micro-continental block had caused significant uplift of the Central Cordillera during this period.

Models by Hall (2002) and Queano et al., 2008



*Puntius manguaonensis*



*Nematabramis alestes alestes*



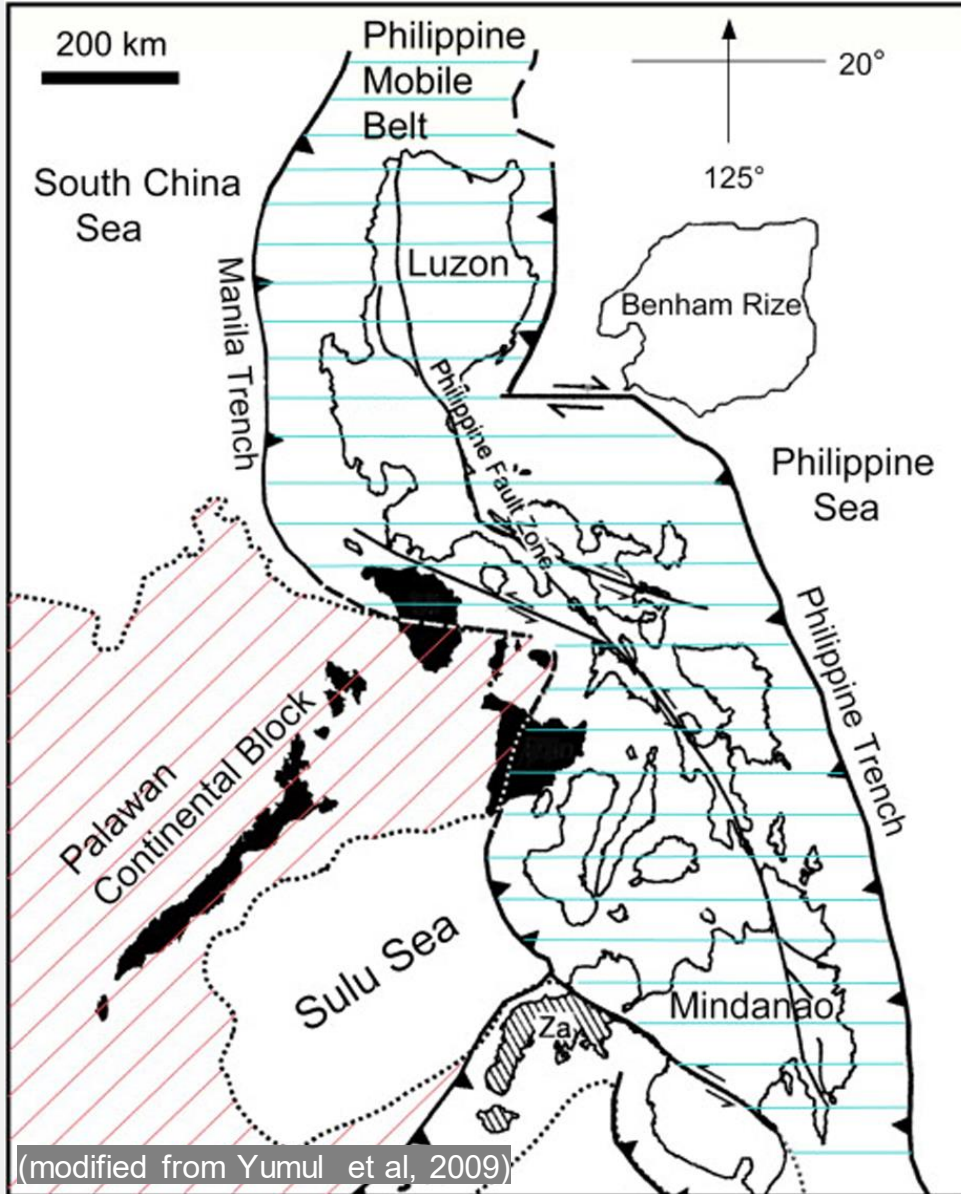
*Puntius bantolanensis*



*Rasbora argyrotaenia everetti*







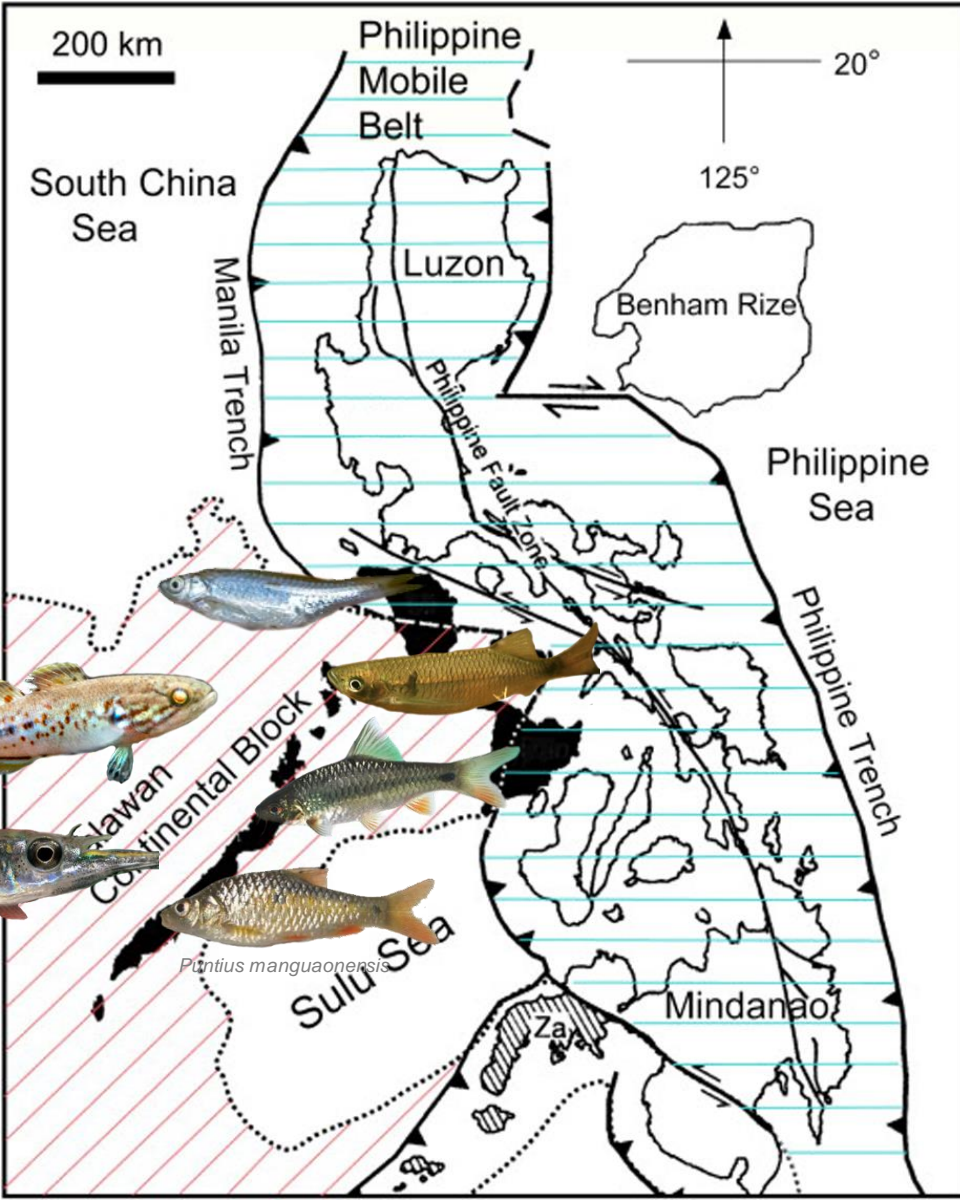
Mindoro, the Romblon Island Group, western Panay, western Masbate, and the Zamboanga Peninsula **may have all evolved similar to Palawan** (Yumul et al, 2009).





Provide additional materials to better **understand** the ecological systems in the context of tectonics and biogeography.



**Utilize freshwater fishes** to distinguish between the Palawan Microcontinental terrane and the Philippine Mobile Belt

	Palawan Continental Block			Philippine Mobile Belt		
Fish (Genus)	Palawan	Mindoro	Panay	Makiling-Banahaw	Batangas	Bicol
Ambassis	✓	✓	✓		✓	
Awaous		✓				✓
Butis	✓		✓	✓	✓	
Caranx		✓	✓			✓
Dermogenys	✓	✓				
Lamnostoma		✓				
Liza	✓	✓	✓			
Lutjanus	✓	✓	✓			
Nematabramis	✓	✓				
Oxyeleotris	✓		✓			
Pterocryptis	✓					
Puntius	✓	✓		✓	✓	✓
Rasbora	✓	✓	✓			
Rhyacichthys	✓	✓				
Scatophagus		✓	✓	✓	✓	
Sicyopterus						✓
Stipodon	✓	✓		✓	✓	✓



Fish (Genus)	Palawan Continental Block		
	Palawan	Mindoro	Panay
Ambassis	✓	✓	✓
Awaous		✓	
Butis	✓		✓
Caranx		✓	✓
Dermogenys 	✓	✓	
Lamnostoma		✓	
Liza		✓	✓
Lutjanus		✓	✓
Nematabramis 		✓	
Oxyeleotris 	✓		✓
Pterocryptis	✓		
Puntius	✓	✓	
Rasbora 	✓		
Rhyacichthys		✓	
Scatophagus		✓	✓
Sicyopterus		✓	
Stipodon	✓	✓	

# Conclusion

Freshwater fishes are taken as one of the better **indicators** of **terrane boundaries** given their immobility across barriers such as open seas or highlands.



# Next steps

is to look at the **drivers of speciation** within this region, especially as they relate to **isolation**, periodic interisland linkages, and other **tectonic deformations**.



