

Identifying global hotspots of plastic waste accumulation along river networks

Jesus D. Gomez-Velez¹ & Stefan Krause^{2,3}



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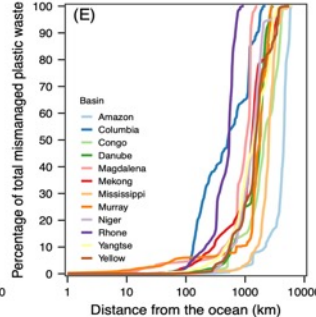
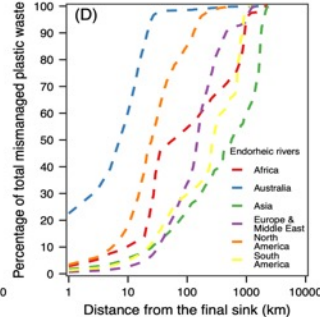
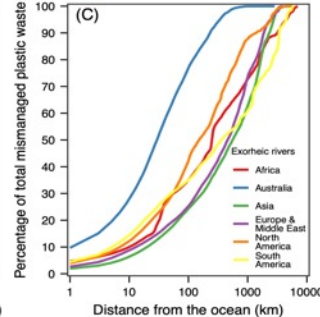
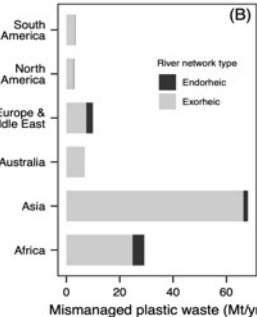
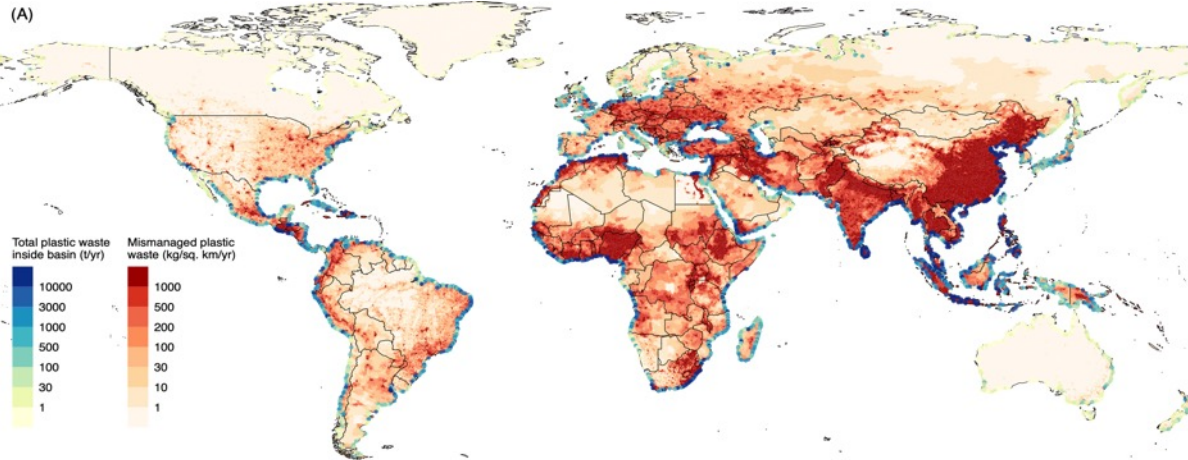


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Global accumulation of mismanaged plastic waste

(A)



Summary:

>120 Mt of mismanaged plastics waste produced globally per year (2010)

Majority on mismanaged plastic waste produced in 10-1000km distance from oceans

Long residence times in river basins with <3% of mismanaged plastic waste accumulated over last 70 years discharge by large rivers such as Ganges or Mekong

Significant storage in endorheic basins!

[Gomez-Velez & Krause, in prep]

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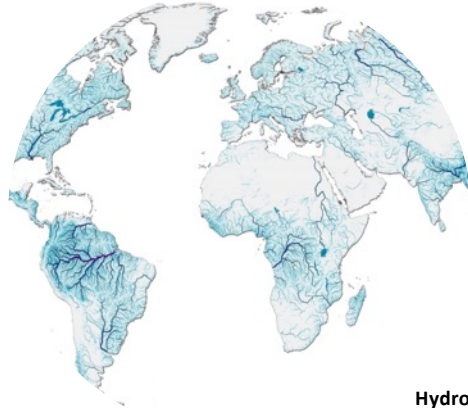
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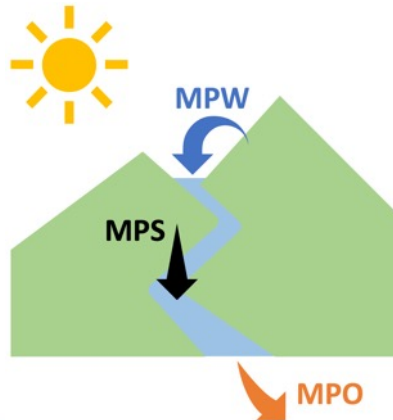


Methodology:

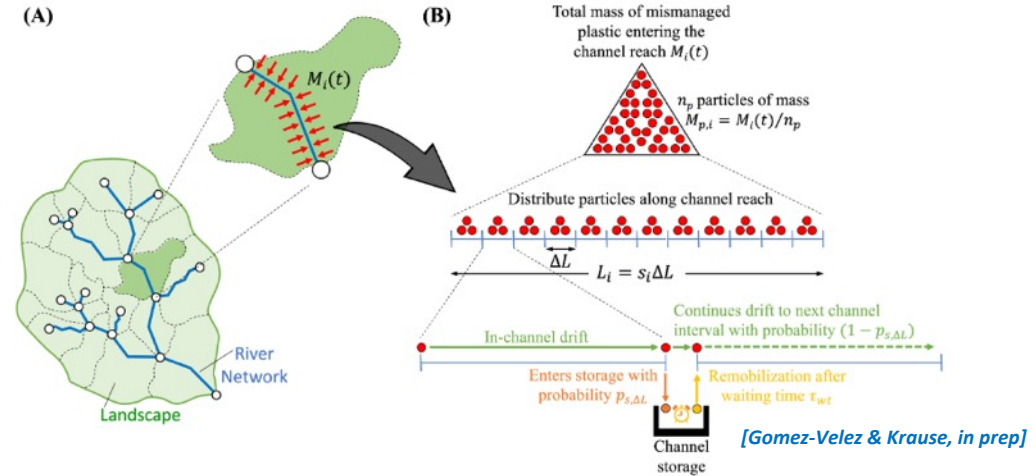


HydroRIVERS

[<https://www.hydrosheds.org/page/hydrorivers>]



Conceptual model for particle tracking algorithm



Input = MPW: Mismanaged plastic waste with the potential to enter the river network from the landscape

Storage = MPS: Mismanaged plastic storage in the river network

Output = MPO: Mismanaged plastic output to the ocean

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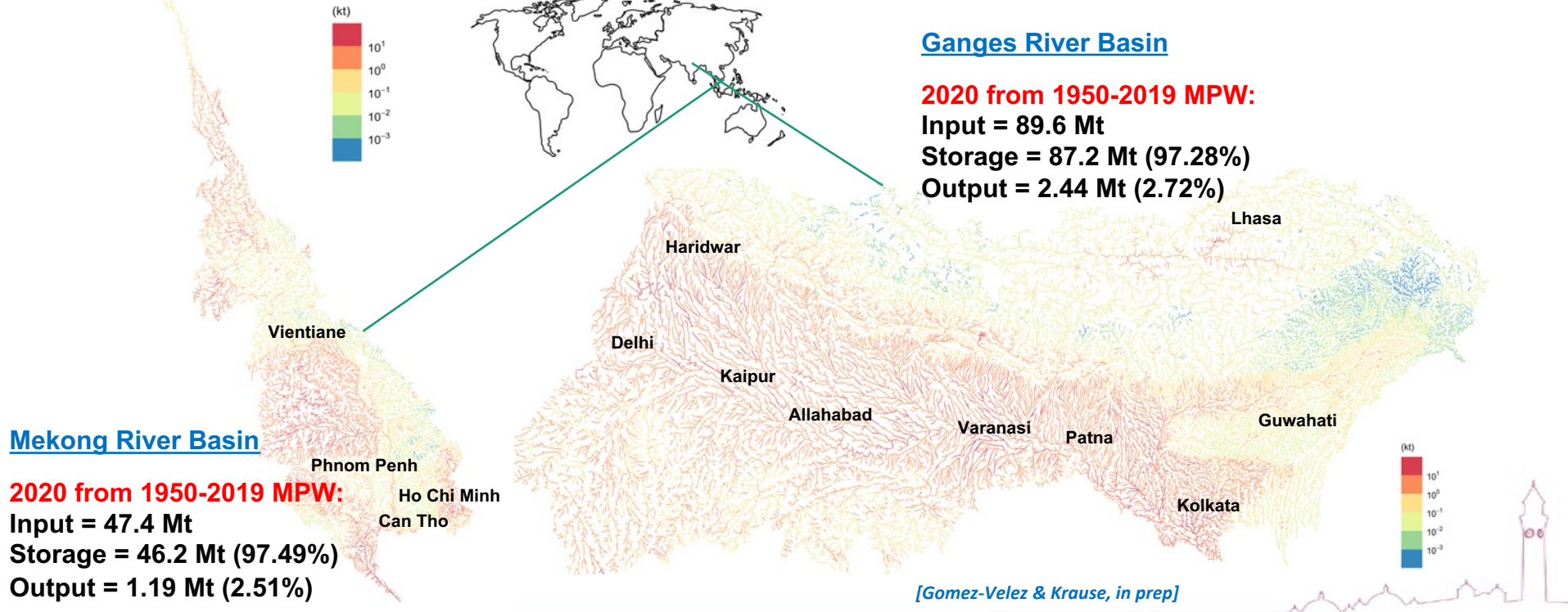
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Total mismanaged plastic waste (MPW) (2020 status based on 1950-2019 MPW inputs)





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