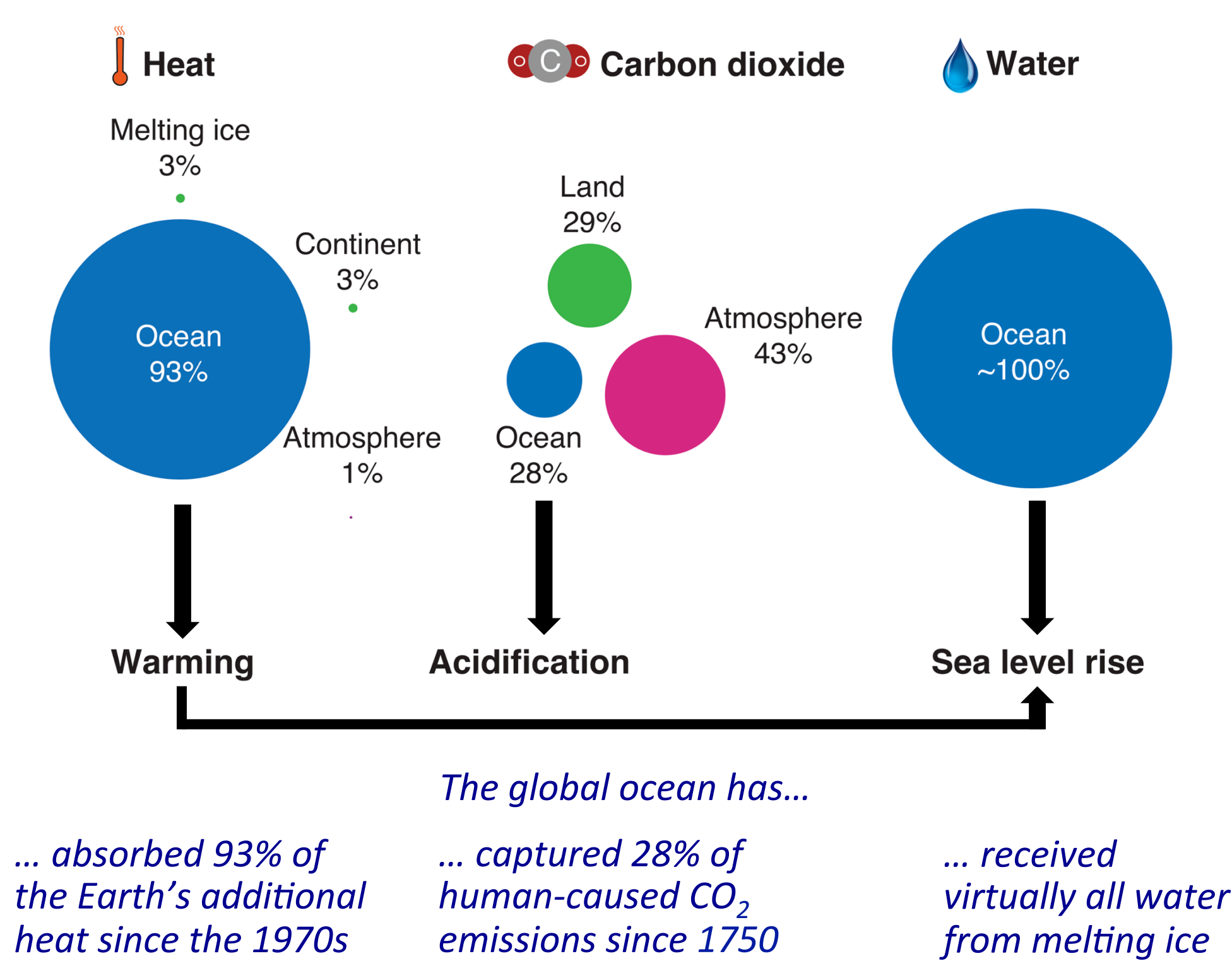


Contrasting futures for ocean and society from slow-onset climate-related changes

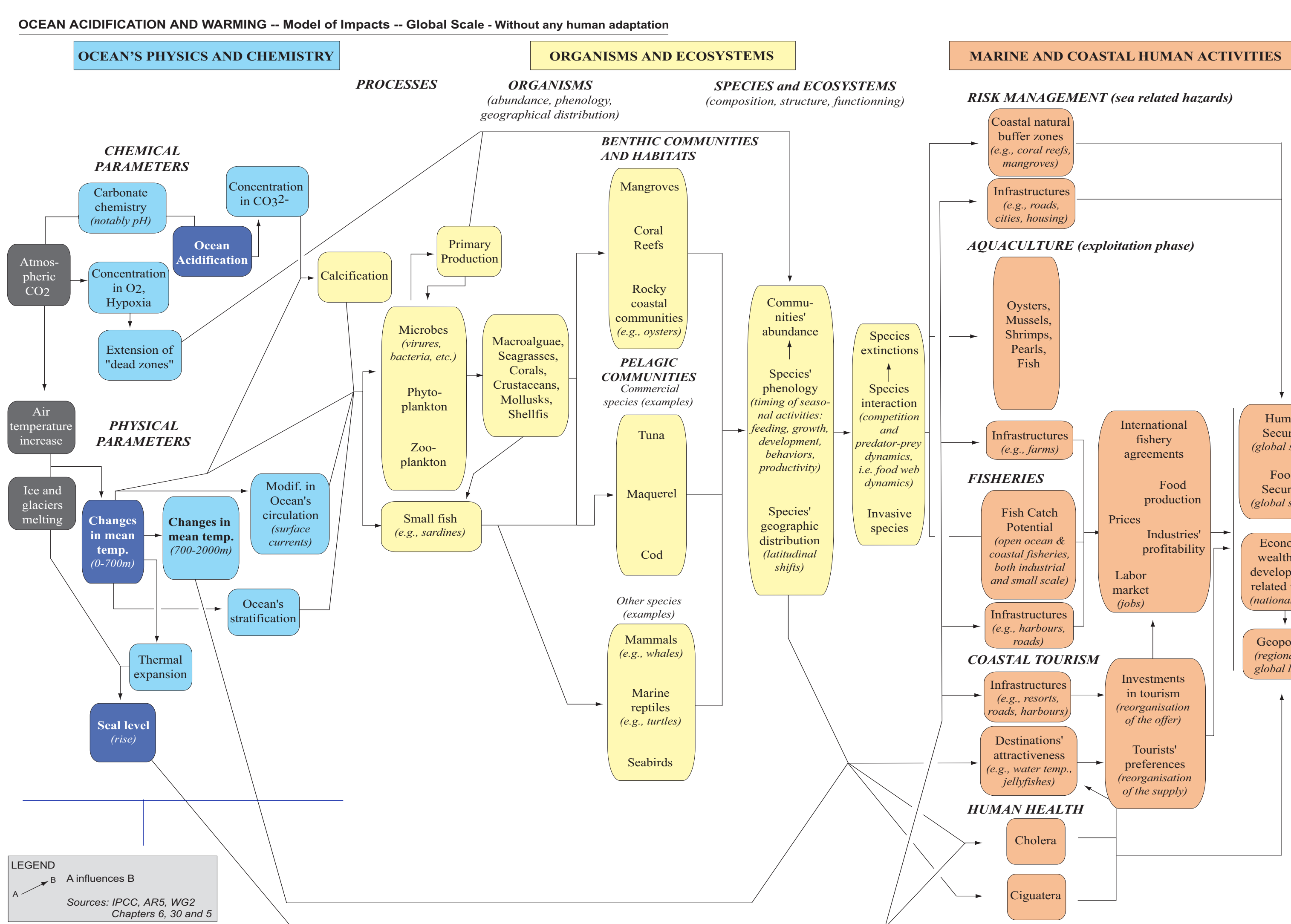
by Alexandre K. Magnan & Jean-Pierre Gattuso

1. The ocean is both an actor and a victim of climate change



2. Chain(s) of impacts

From the ocean's basic physical and chemical parameters, to organisms and ecosystems, to human societies



Gradual climate-related changes in the ocean induce complex cascading effects that started (and will continue) to affect worldwide marine and coastal environmental conditions, making these long-lasting changes a direct concern for societies.

6. Need for

Increase global mitigation effort (via the Paris Agreement 5-year revision process of NDCs)

Better anticipate gradual changes in the ocean

&

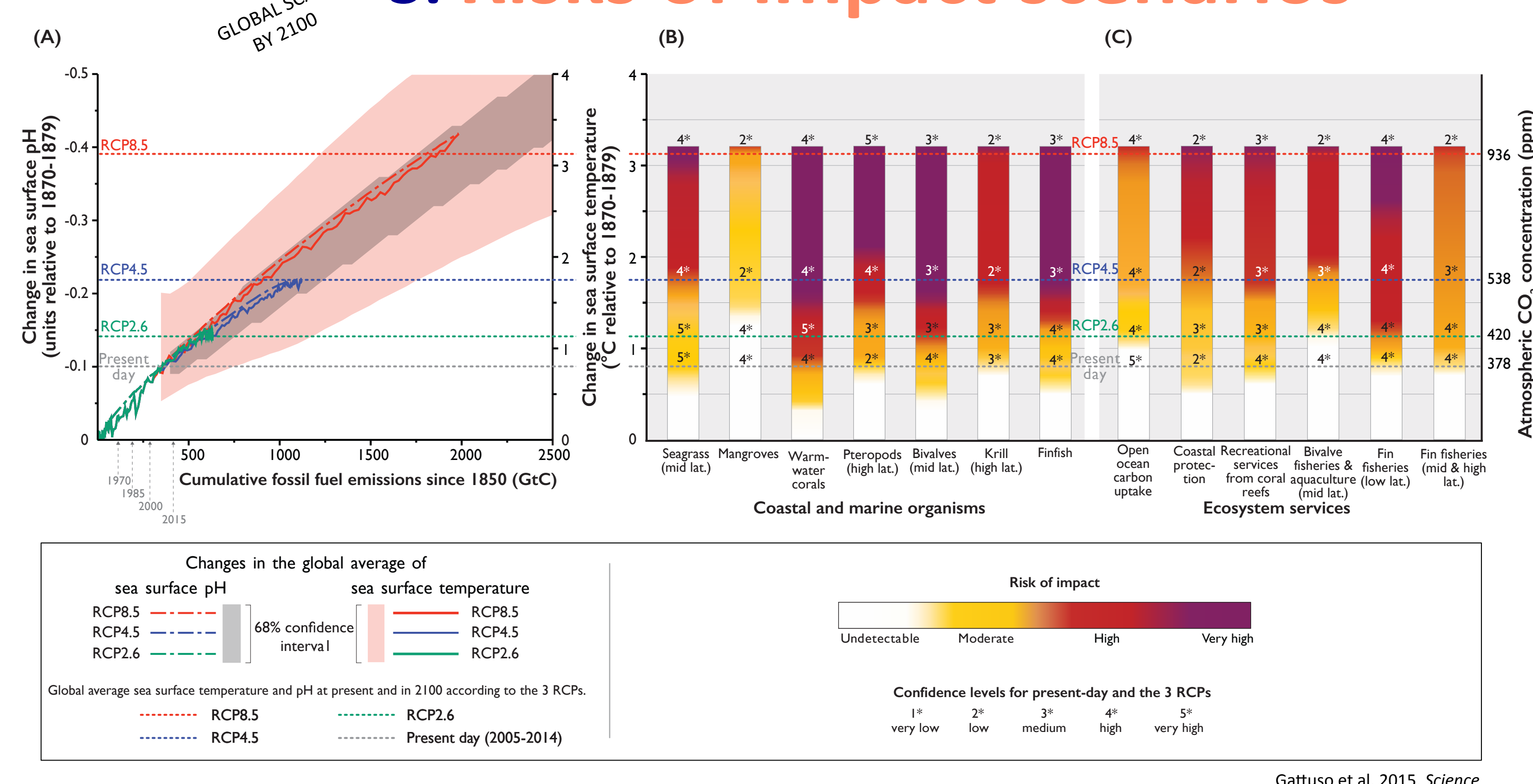


5. Key messages

- Climate and ocean are inseparable.
- The ocean's climate-regulating function happens at the cost of profound alterations leading to major gradual changes (notably ocean warming and acidification, and sea level rise) that significantly affect the ocean's ecology (organisms and ecosystems) and human societies worldwide.
- This scientific statement provides further compelling arguments for immediate and ambitious CO₂ emissions reductions at the international level.

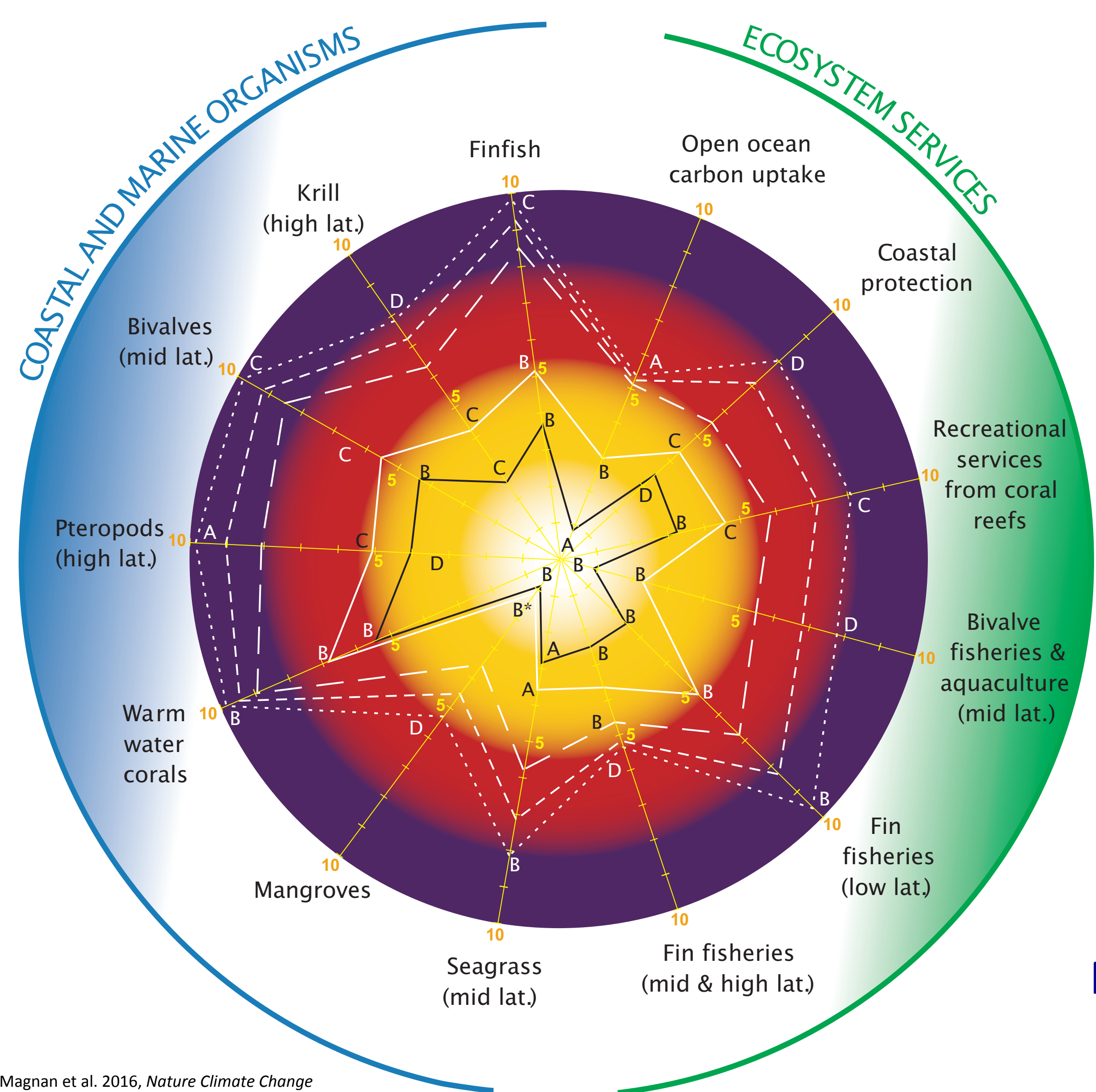


3. Risks of impact scenarios



Impacts are already detectable, and contrasting end-century greenhouse gas (GHG) emission trajectories ... will result in contrasting risks of impact scenarios on key organisms and ecosystem services

... and a global concern beyond the traditional North-South divide



Pre-COP21 national mitigation pledges (i.e., INDCs) provide:

- a positive signal : they suggest a major deviation from the IPCC business-as-usual scenario (RCP8.5)
- but they also indicate that we are not on the <+2°C path

4. Aggregated risks of impact

Multiplication of the present-day aggregated risk of impact by: **x 1.4** in the RCP2.6 scenario, **x 2.2 to 2.5** in current INDCs-induced scenarios, **x 2.7** in RCP8.5 scenario