

IPCC AR6 WGII Report on Impacts, Adaptation and Vulnerability

Common Climate and Adaptation Goals

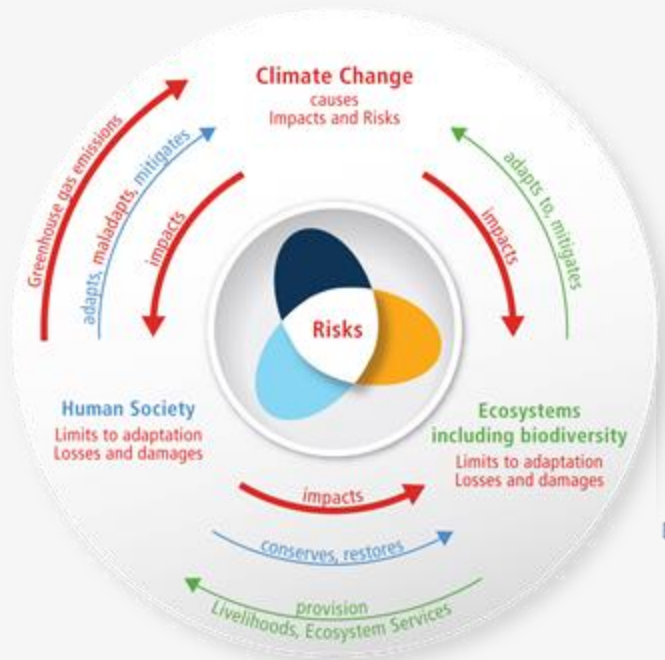
...where do we stand and what is needed

Hans-O. Pörtner, Co-Chair IPCC Working Group II, WGII authors and TSU



Ocean Image Bank/M.
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Current imbalance ...

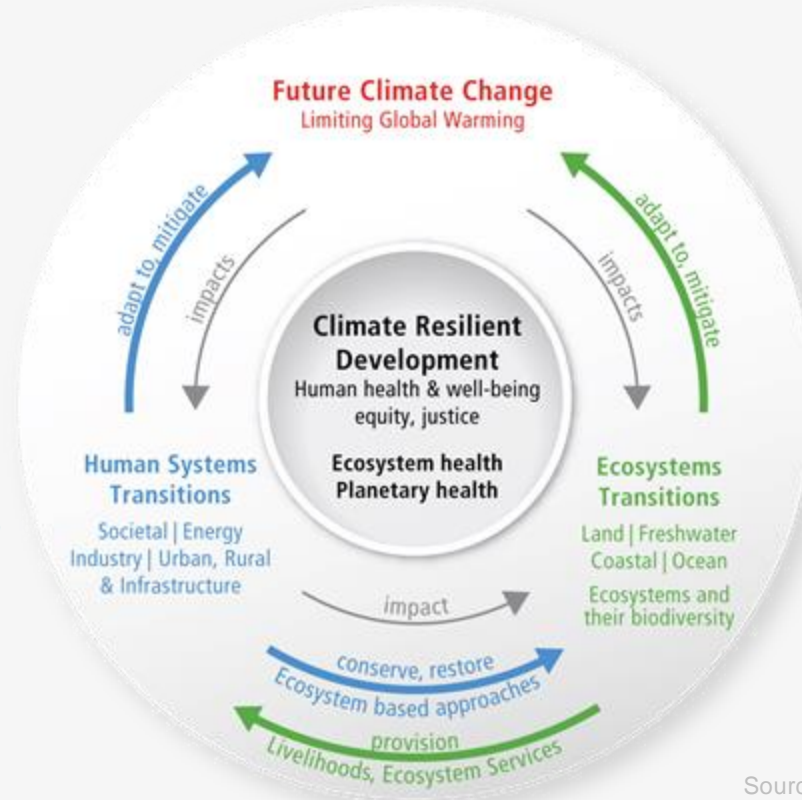


...a sustainable future?

From urgent to
timely action

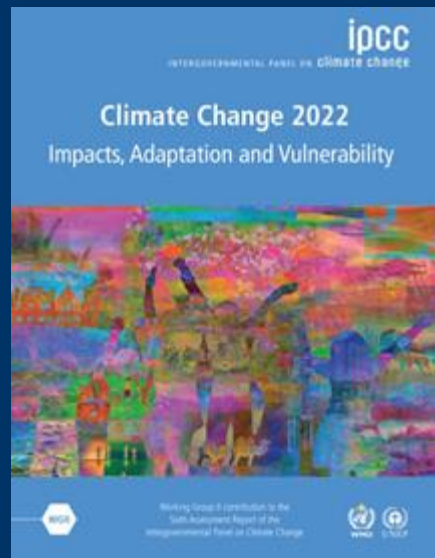
►

Governance
Finance
Knowledge and capacity
Catalysing conditions
Technologies



The risk propeller shows that risk emerges from the overlap of:

- **Climate hazard(s)**
 - **Vulnerability**
 - **Exposure**
- ...of human systems, ecosystems
and their biodiversity

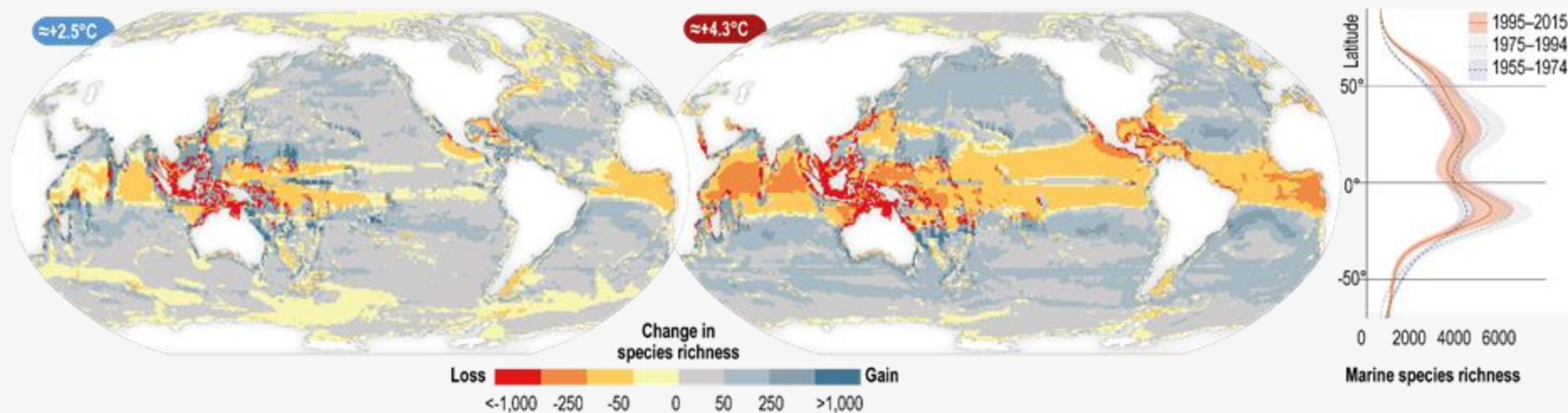


- **Developing a common language and metric to measure adaptation success within Climate Resilient Development:**
 - e.g. risk levels and reduction following IPCC risk assessments

- **Developing a uniform Common Goal on Adaptation considering equity and justice:**
 - e.g. keeping risk levels at moderate levels or below across regions and sectors
 - e.g. indicators of Climate Resilient Development?

Adaptation needs: risks of climate change

e.g., Heat induced habitat change and loss for species and humans



By analogy, similar or related mechanisms govern loss of mammalian / human / livestock habitat and societal performance.

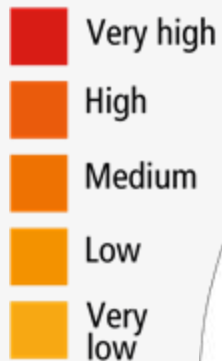


e.g. Quantified societal consequences

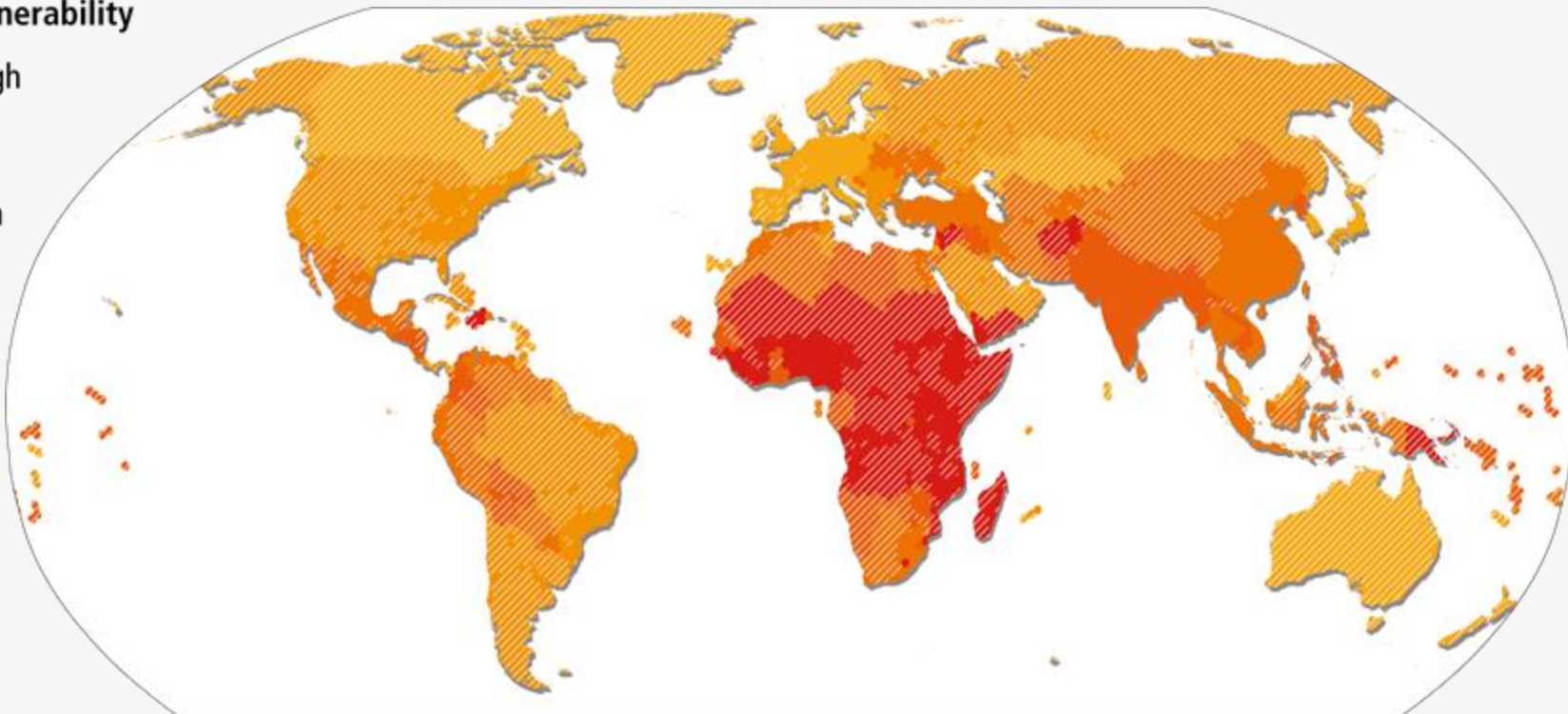
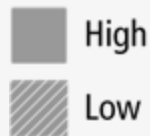
- Regional vulnerability due to overlapping challenges, effects of compound risks
- To what extent are adaptation capacity and limits improved/shifted upward by poverty reduction, equity, justice and resource distributions?
- Integration of different knowledge systems towards Climate Resilient Development?
- How to avoid maladaptation?

Human vulnerability at regional scale

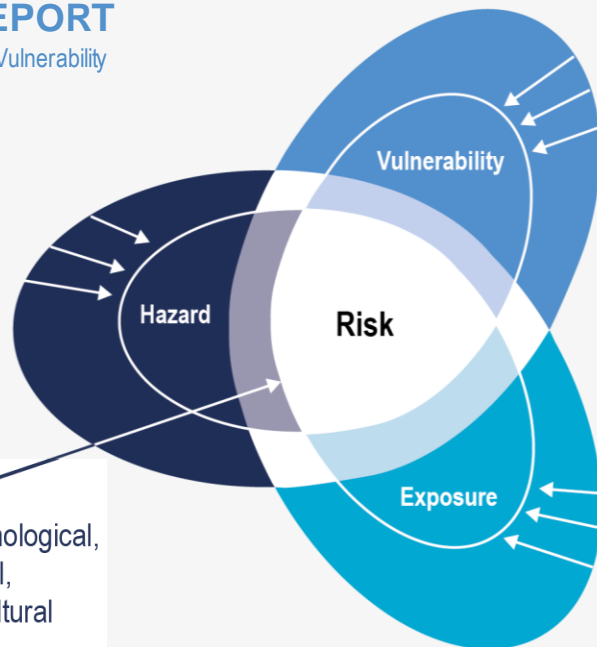
Relative vulnerability



Population density



Evaluating risks



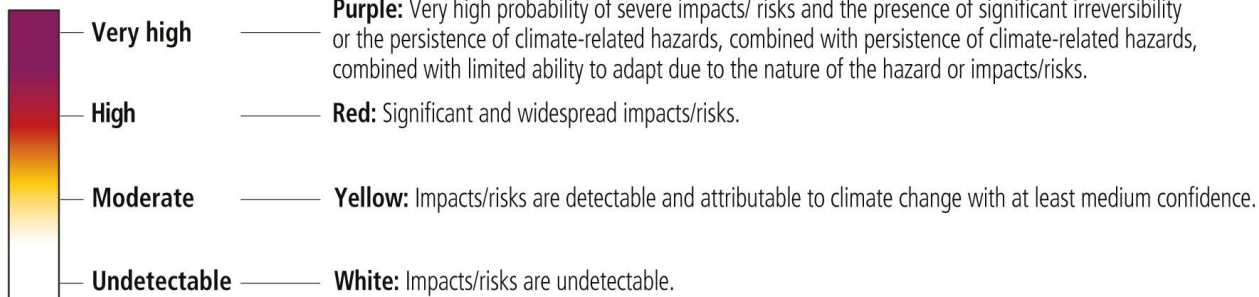
The IPCC concept of risk

Climate action entails risk reduction by adaptation and mitigation ... considering limits to adaptation

Limits to Adaptation

- E.g. physical, ecological, technological, economic, political, institutional, psychological, and/or socio-cultural

Level of added impacts/risks

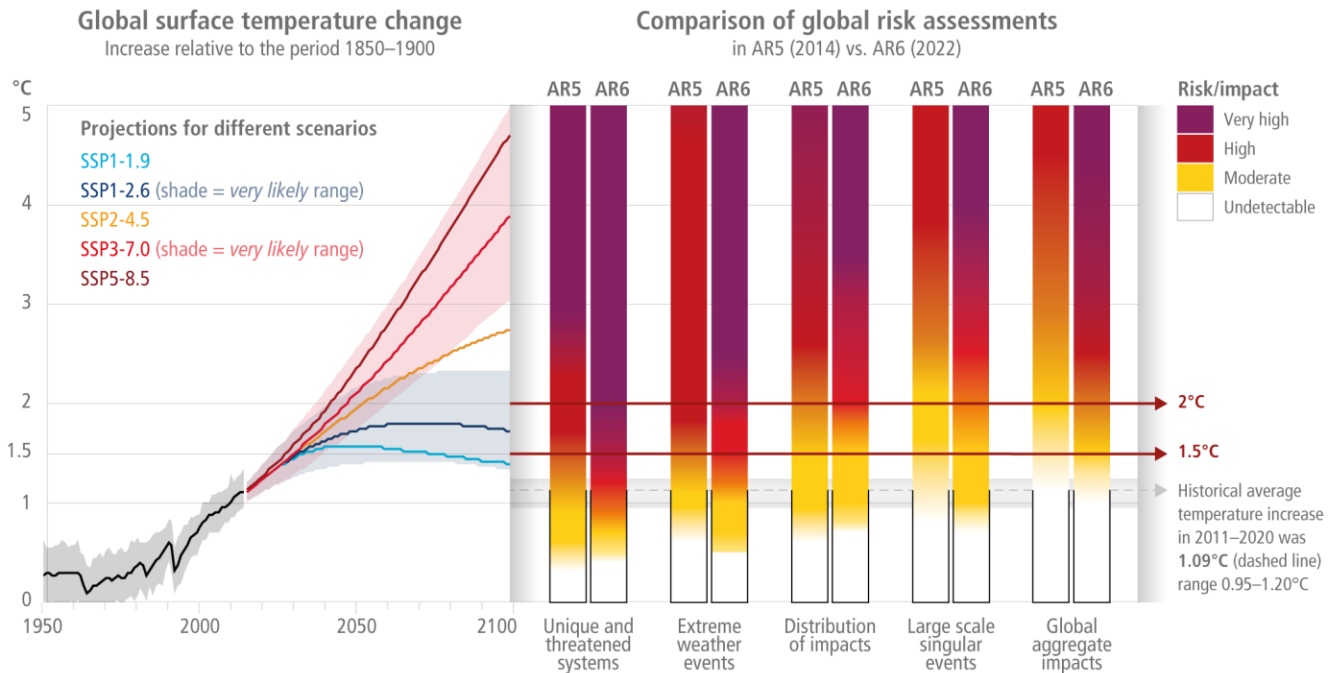


Confidence level for transition

- = Very high
- = High
- = Medium
- = Low
- | = Transition range

**see figure caption for definition

AR6 insight: Risks are developing sooner than assessed in AR5



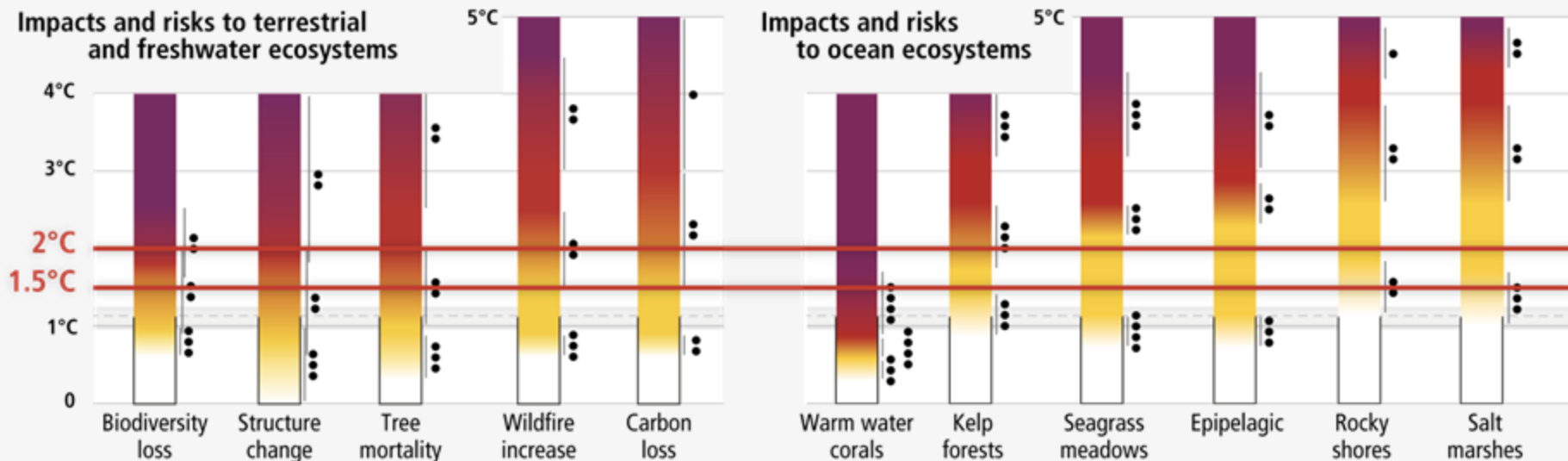
WGII identified 127 global and regional key risks

Examples of key risks for Small Islands

- Loss of terrestrial, marine and coastal biodiversity and ecosystem services
- Loss of lives and assets, risk to food security and economic disruption due to destruction of settlements and infrastructure
- Economic decline and livelihood failure of fisheries, agriculture, tourism and from biodiversity loss from traditional agro-ecosystems
- Reduced habitability of reef and non-reef islands leading to increased displacement
- Risk to water security in almost every small island

Global and regional risk provide orientation for action

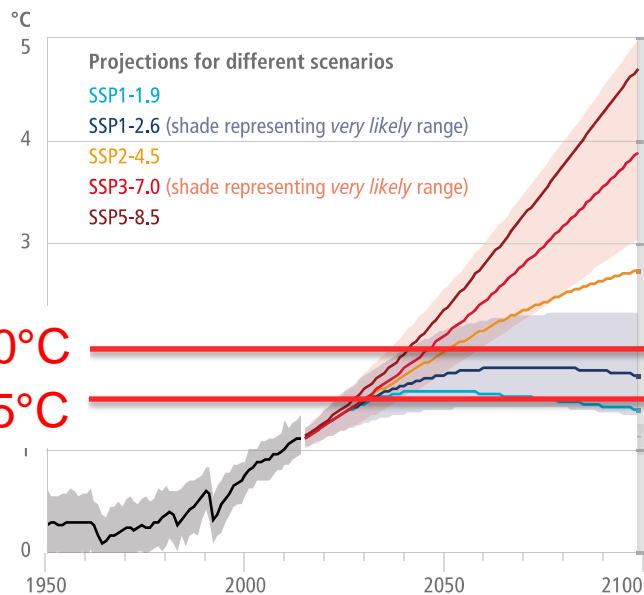
... risk can be kept at moderate more often by keeping global warming below 1.5°C



Comparing the Arctic and Antarctic:

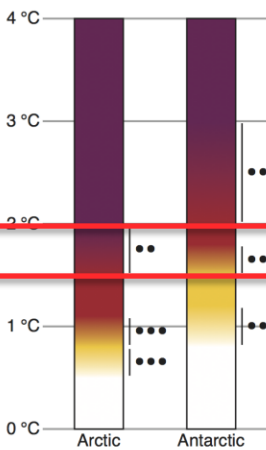
Critical risk levels to sea ice ecosystems, marine mammals and sea birds have been or are about to be surpassed in both systems

(a) Global surface temperature change
Increase relative to the period 1850–1900

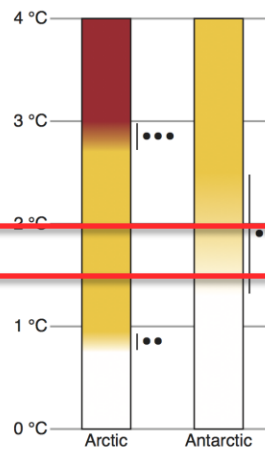


2.0°C
1.5°C

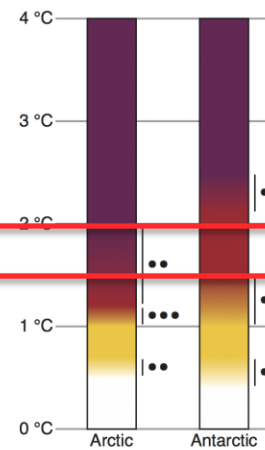
Sea-ice Ecosystems



Marine Mammals



Sea Birds



Risk/impact

- Very high
- High
- Moderate
- Undetectable

Transition range

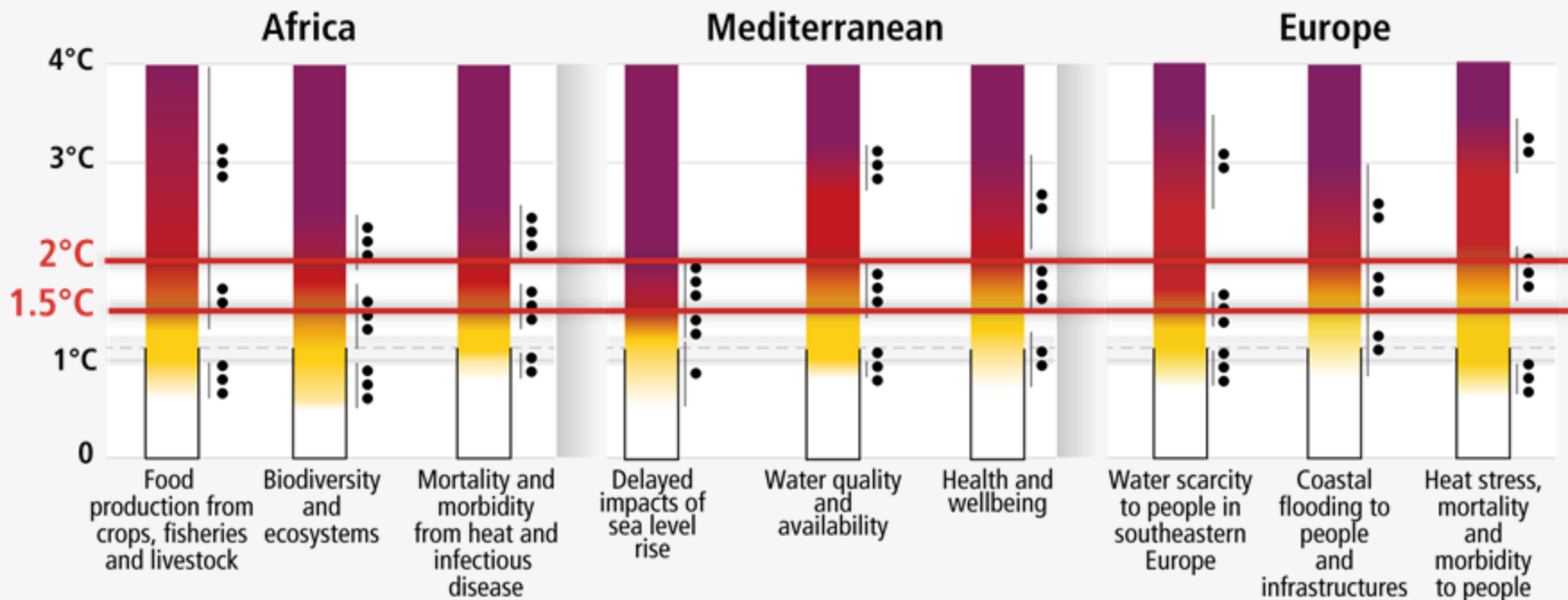
Confidence level assigned to transition range

- Low
- Very high

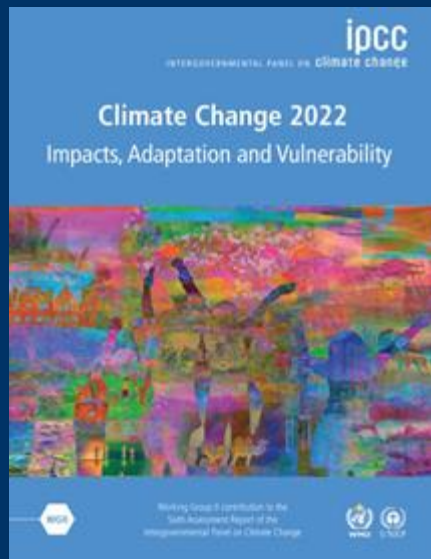
Historical average temperature increase in 2011–2020 was 1.09°C (dashed line) range 0.95–1.20°C

Global and regional risk to be kept at moderate levels or below, providing orientation for action (adaptation and mitigation)

...risk can be kept at moderate more often by keeping global warming below **1.5°C**

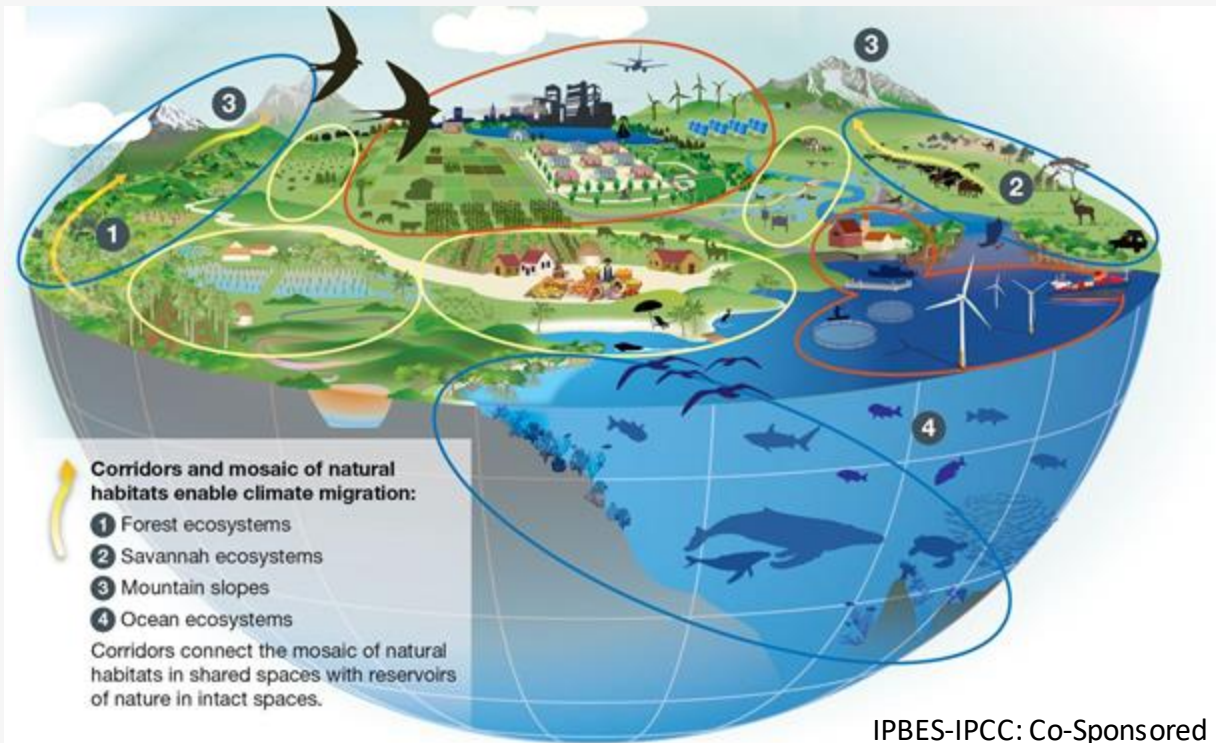


Closing the adaptation gap across systems, e.g. through spatial planning



- Strengthening the biosphere and human resilience together
- Developing and implementing spatial planning of mosaic 'scapes for freshwater / marine / terrestrial and urban systems
- In this context: Considering the spatial needs of species and ecosystems for self-sustaining biodiversity, species compositions, ecosystem services
- Optimized neighbouring of protected, shared and heavily used spaces with species migration corridors

Integrating conservation, climate and societal actions for Climate Resilient Development



Considering effective and specific uses and conservation needs:

Setting up mosaic land-, sea- and freshwater-scapes: Effective and equitable conservation and restoration of approximately 30-50% of land, freshwater and ocean ecosystems can help ensure a healthy planet

Mitigation and SDG co-benefits of adaptation options, e.g., forests

Land and ocean ecosystems



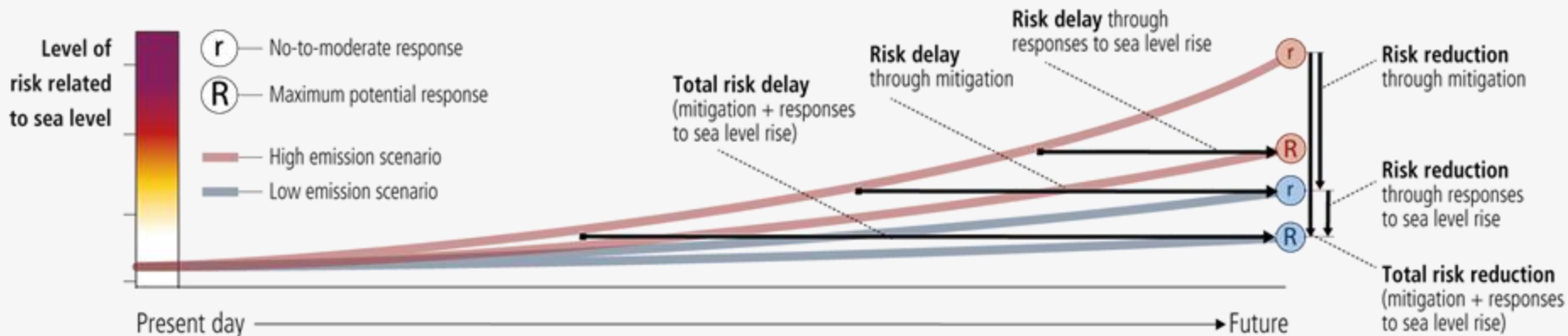
* Including sustainable forest management, forest conservation and restoration, reforestation and afforestation

● High confidence
 ● Medium confidence
 ● Low confidence

SDGs are integrated and indivisible, and efforts to achieve any goal in isolation may trigger synergies or trade-offs with other SDGs

To be developed: Risk and adaptation trajectories within CRD e.g., under sea level rise and in response to mitigation co-defined by hazard trajectories

- Schematic illustration of risk reduction and the delay of a given risk level through responses to sea level rise and/or mitigation. = **beyond a static approach**
- The amount of risk reduction and delay depends on sea level and response scenarios and varies between contexts and localities.



Thank you!



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