Adaptation limits and vulnerability: marine ecosystems, fisheries

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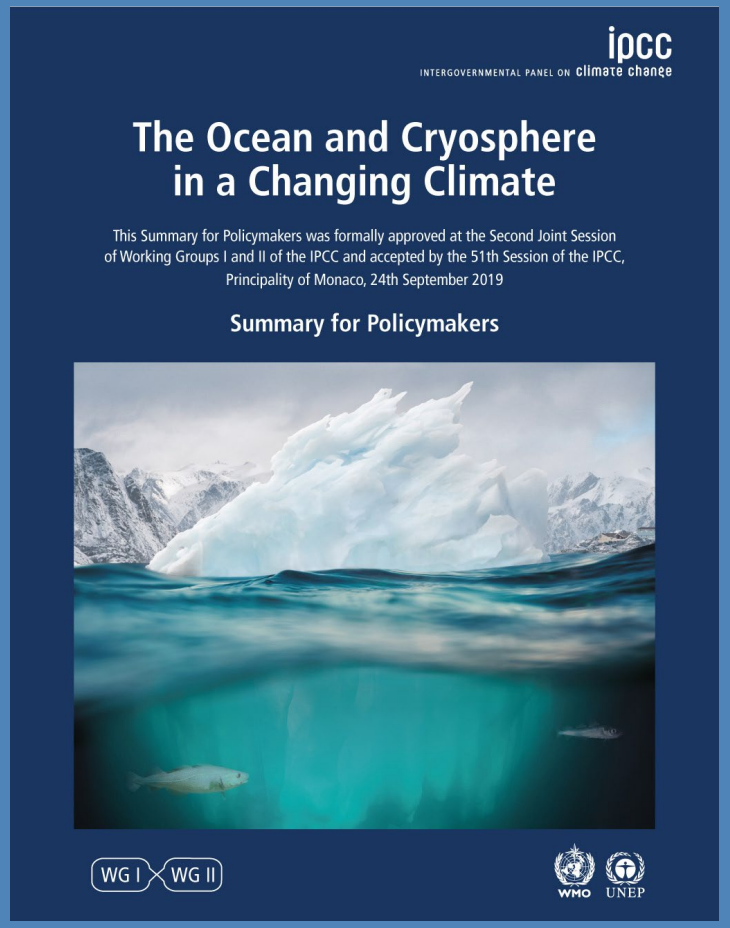
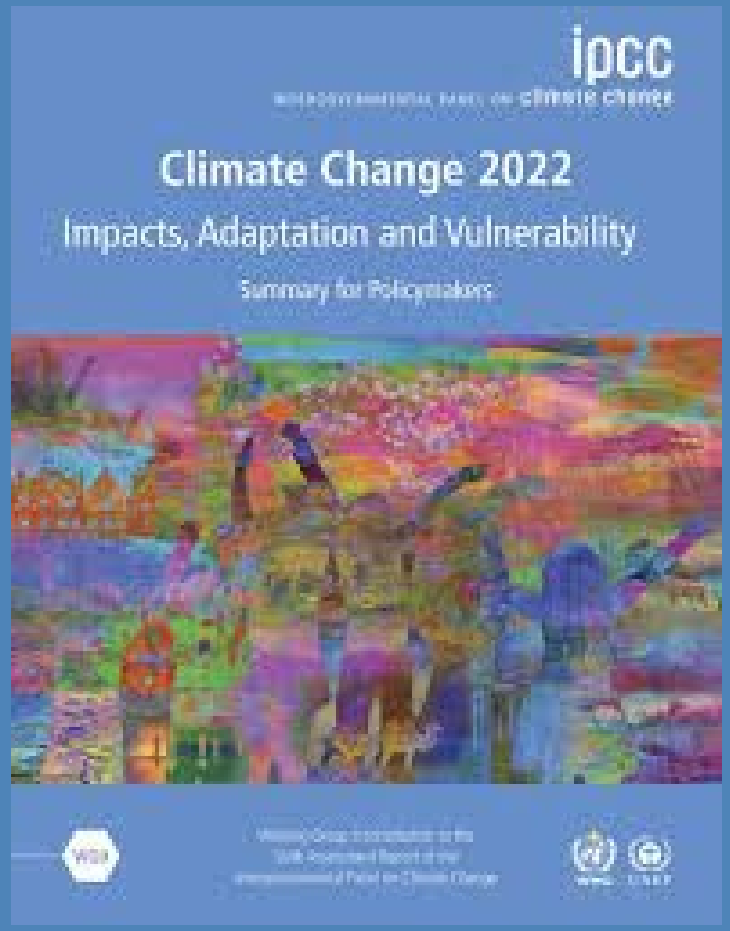
Impacts, risks and adaptations of marine ecosystems and fisheries are assessed in a Special Report, WGII and the Synthesis Report



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Warming and heatwaves

Decrease in oxygen level

Acidification

Sea level rise

Other non-climatic stressors: over-exploitation, pollution, habitat loss, invasive species

Impacts of climate change are observed in marine ecosystems and fisheries worldwide

	Global	Asia
Shifts in ecosystem structure	●	●
Species range shift	●	○
Fisheries yield and aquaculture production	–	–

Confidence in attribution to climate change

- ● High or very high
- ● Medium
- ○ Evidence limited, insufficient

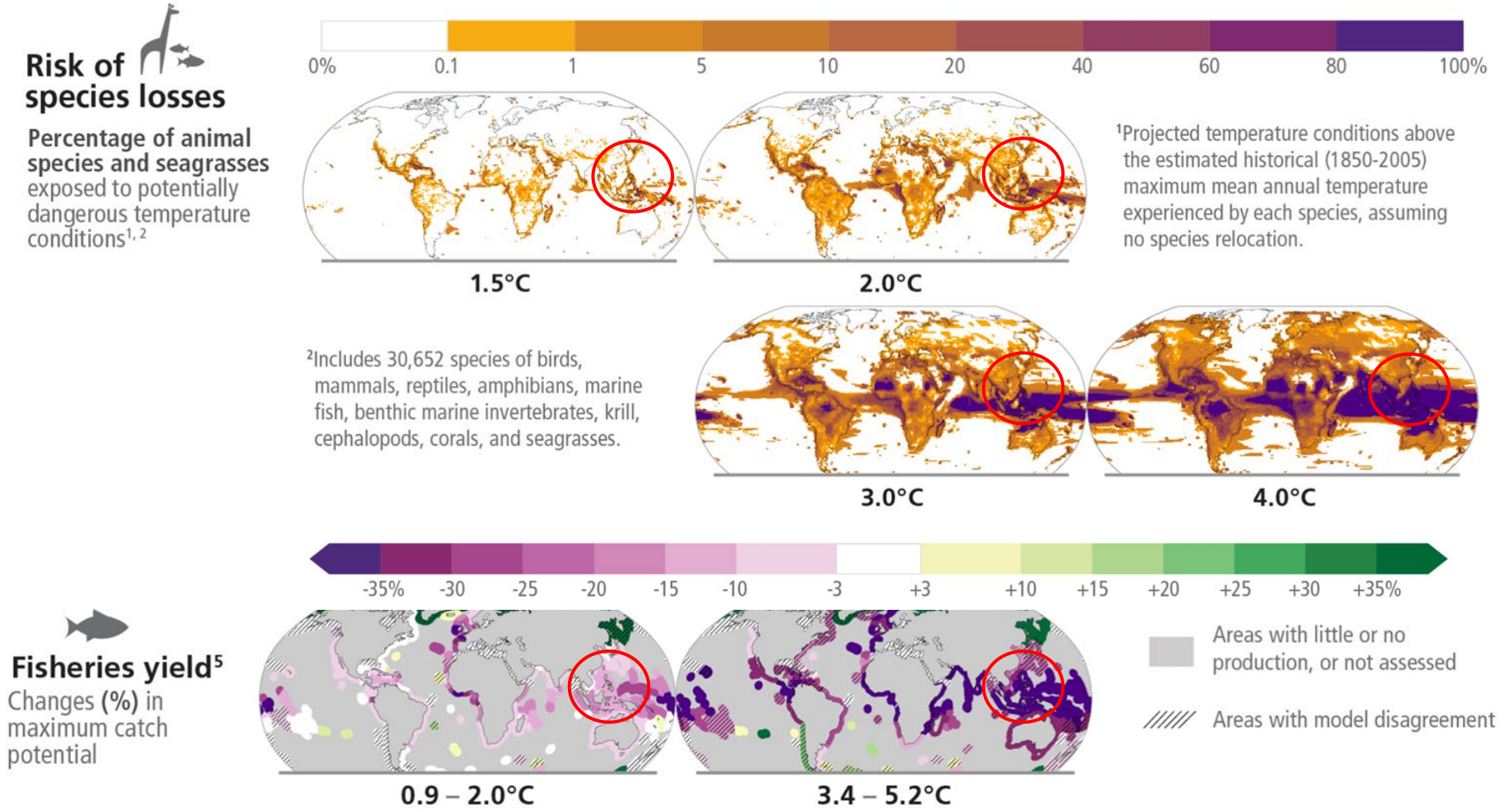
Direction of Impacts

- – Adverse

Based on IPCC AR6 WFII Figure SPM.2

Future climate change is projected to increase the severity of impacts across natural and human systems and will increase regional differences

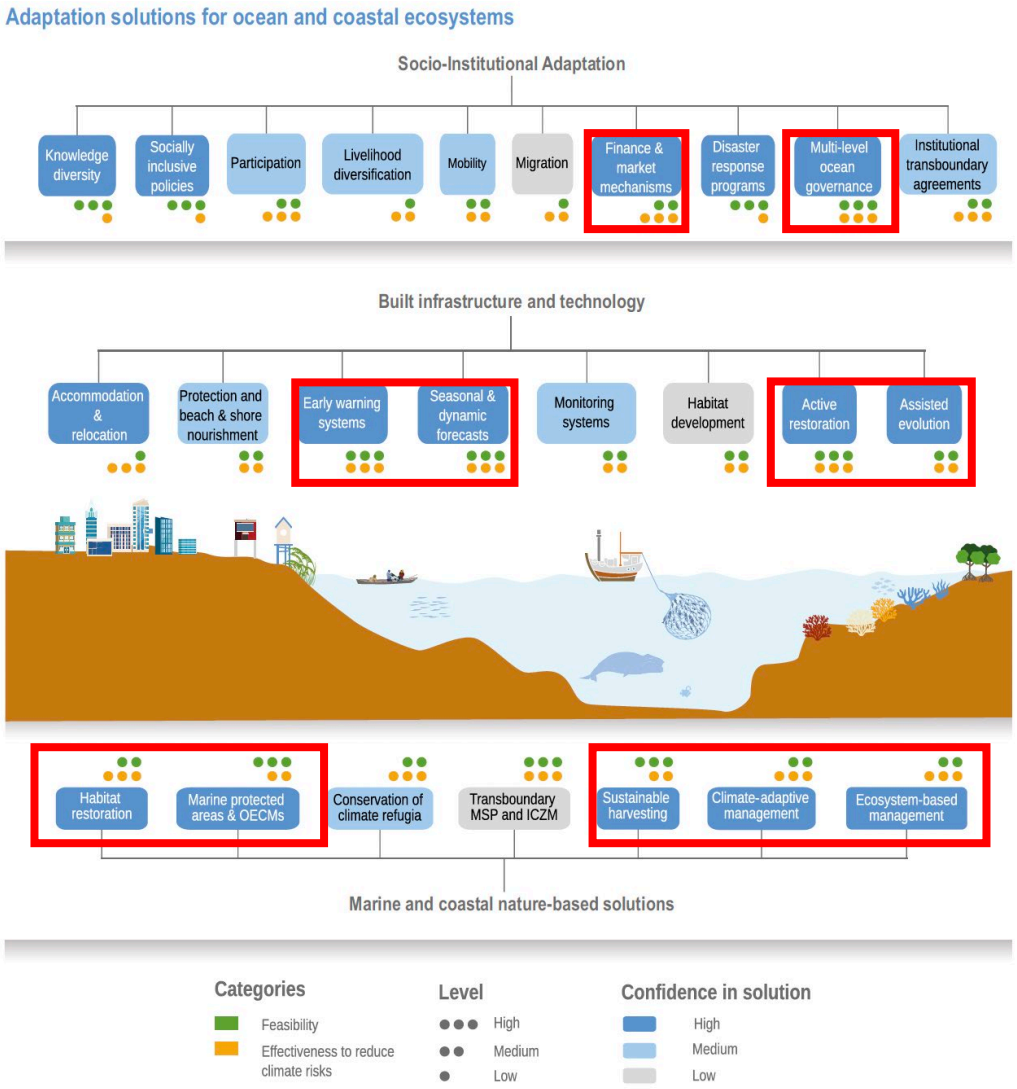
Examples of impacts without additional adaptation



[5]Projected regional impacts reflect fisheries and marine ecosystem responses to ocean physical and biogeochemical conditions such as temperature, oxygen level and net primary production. Models do not represent changes in fishing activities and some extreme climatic conditions. Projected changes in thea Arctic regions have low confidence due to uncertainties associated with modelling multiple interacting drivers and ecosystem responses.

IPCC AR6 SYR Figure SPM.3

Further adaptations are required even under low-emission scenarios, transformative adaptation will be essential under high-emission scenarios



- Nature-based solutions for adaptation can achieve multiple benefits when well designed and implemented, but effectiveness declines without ambitious and urgent mitigation;
- Rebuilding overexploited or depleted fisheries reduces negative climate change impacts on fisheries and supports food security, biodiversity, human health and well-being;
- Cooperation, and inclusive decision making, with Indigenous Peoples and local communities, as well as recognition of inherent rights of Indigenous Peoples, is integral to successful adaptation.

IPCC AR6 WGII Ch. 3 Fig. 3.2.3