IPCC Working Group II:

assessing research on impacts, adaptation and vulnerability during the 6th assessment cycle (AR6)

WGII GUIDING AMBITION IN ADAPTATION AND MITIGATION: ....influencing policy decisions....the Paris agreement 2015

H.O. Pörtner (Co-chair WGII Developed Ctry), and IPCC WGII Technical Support Unit (TSU)

Approval plenary AR6 outline, Montreal 2017

The role of the IPCC is …

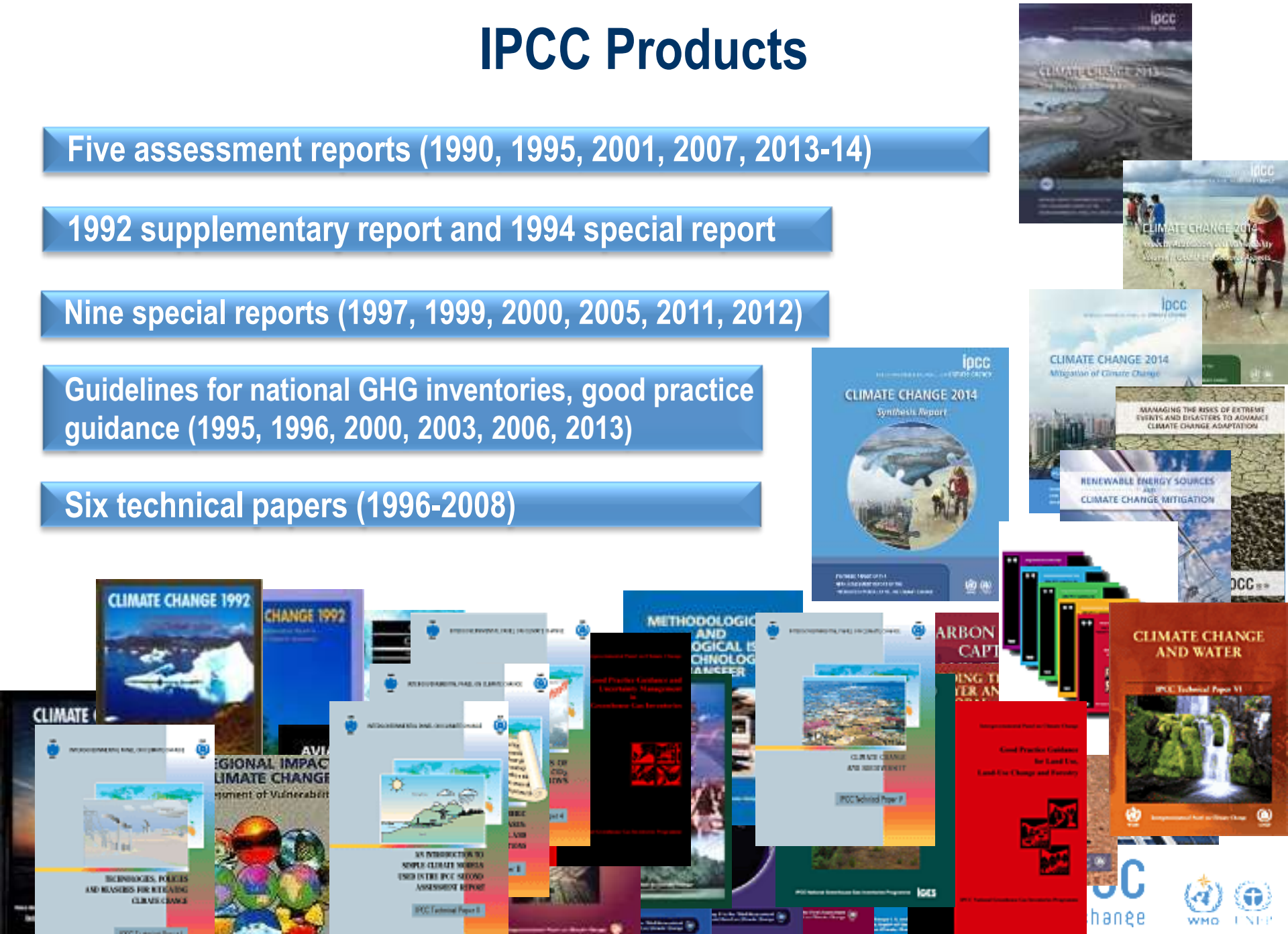
"… to ASSESS on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation."

"IPCC reports should be neutral with respect to policy, although they may need to deal objectively with scientific, technical and socio-economic factors relevant to the application of particular policies."

Principles Governing IPCC Work, paragraph 2
Source: http://www.ipcc.ch/pdf/ipcc-principles/ipcc-principles.pdf

IPCC Products

- Five assessment reports (1990, 1995, 2001, 2007, 2013-14)
- 1992 supplementary report and 1994 special report
- Nine special reports (1997, 1999, 2000, 2005, 2011, 2012)
- Guidelines for national GHG inventories, good practice guidance (1995, 1996, 2000, 2003, 2006, 2013)
- Six technical papers (1996-2008)



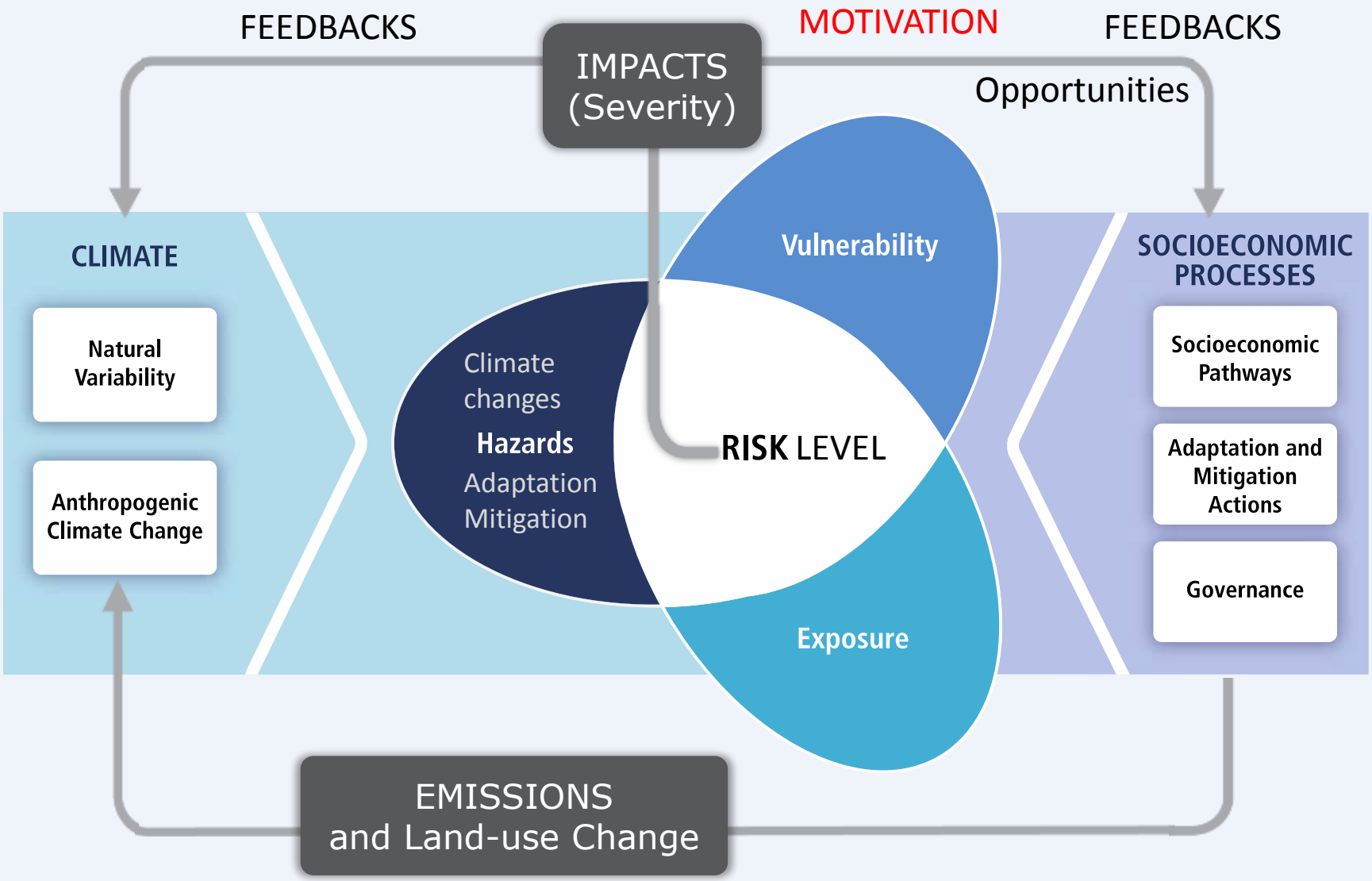
…that have made an impact

FAR (1990)	led to	UNFCCC
SAR (1995)	input for	Kyoto Protocol
TAR (2001)	focused attention on	Impacts of climate change and need for adaptation
AR4 (2007)	input for	Decision on 2ºC limit; basis for post Kyoto Protocol agreement
AR5 (2013/2014)	input for	

…and are relevant

Climate Targets linked to reaching SDGs

Setting targets through comparing and avoiding risks



…. the risk concept of IPCC WGII, liaising to WGI and WGIII approaches

…. linking to Article 2, UNFCCC

ipcc
INTERGOVERNMENTAL PANEL ON Climate change

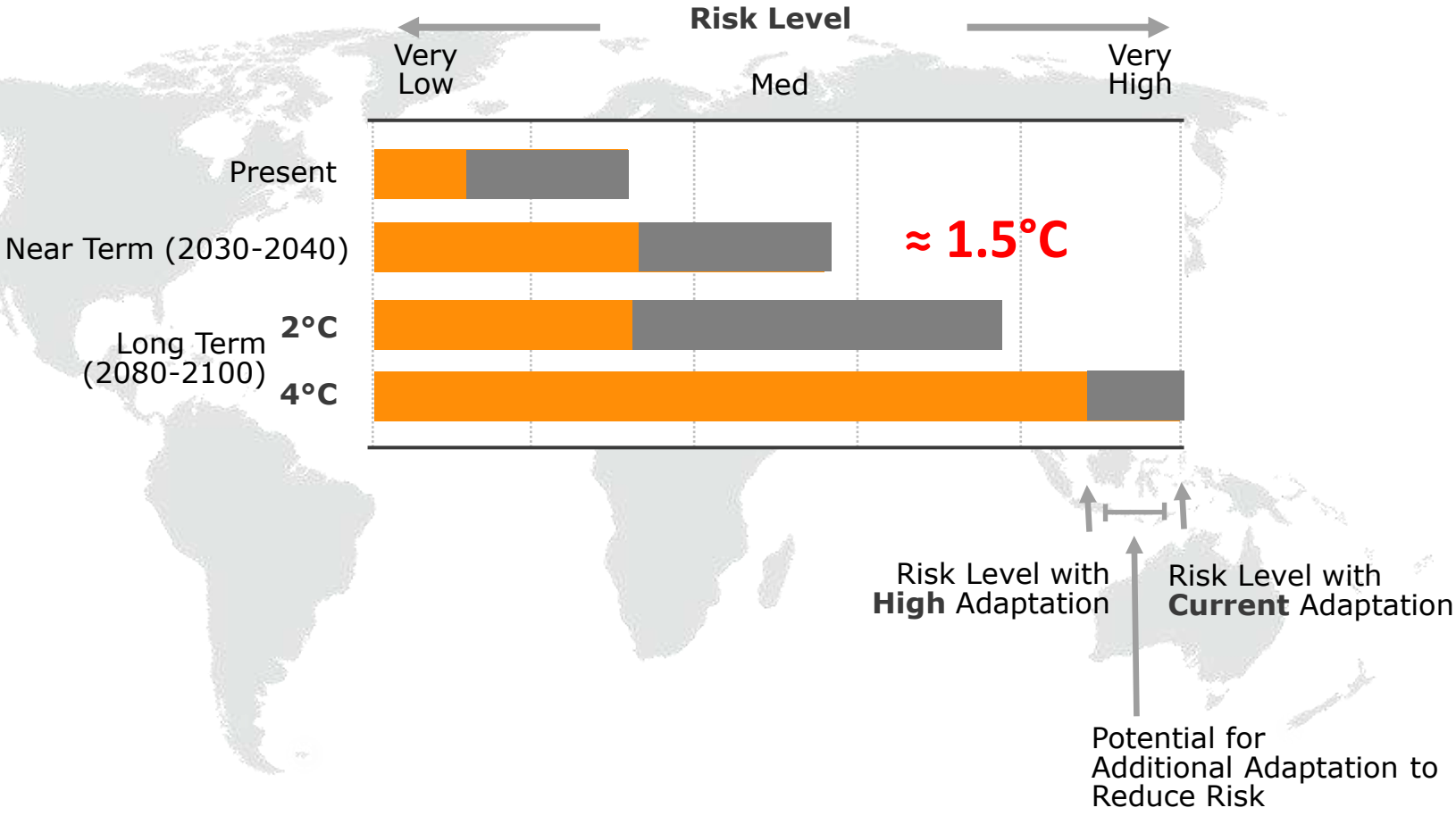
Climate change….causing risks

….which were assessed in AR5, with open questions for AR6:

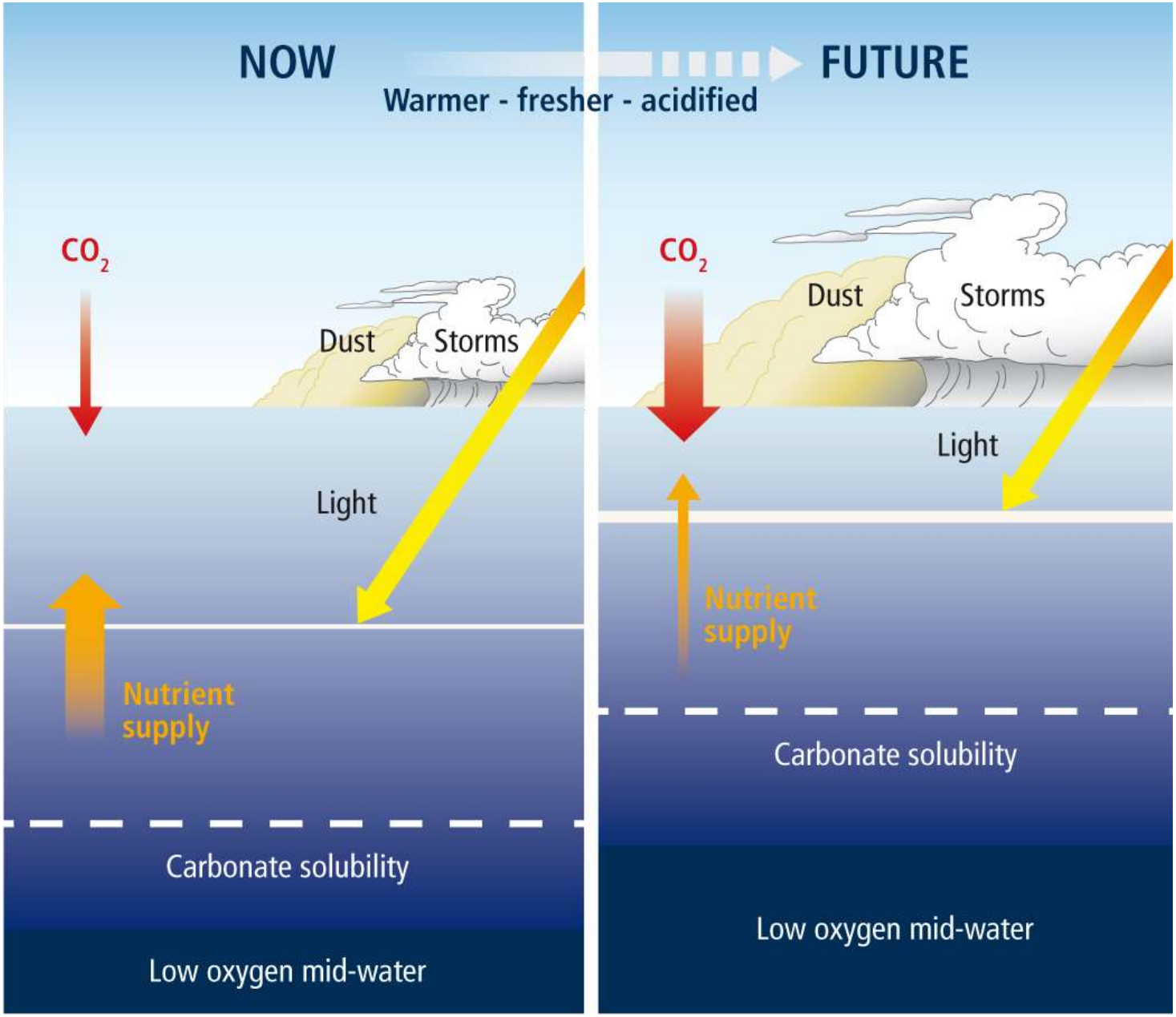
1.5°C not fully covered and compared

(key risks are those relevant to article 2, UNFCCC:

"avoid dangerous anthropogenic interference with the climate system")



…. complemented by Potential for Mitigation to Reduce Risk



Climate-Related Ocean Hazards

WGII AR5 Figure 6-2

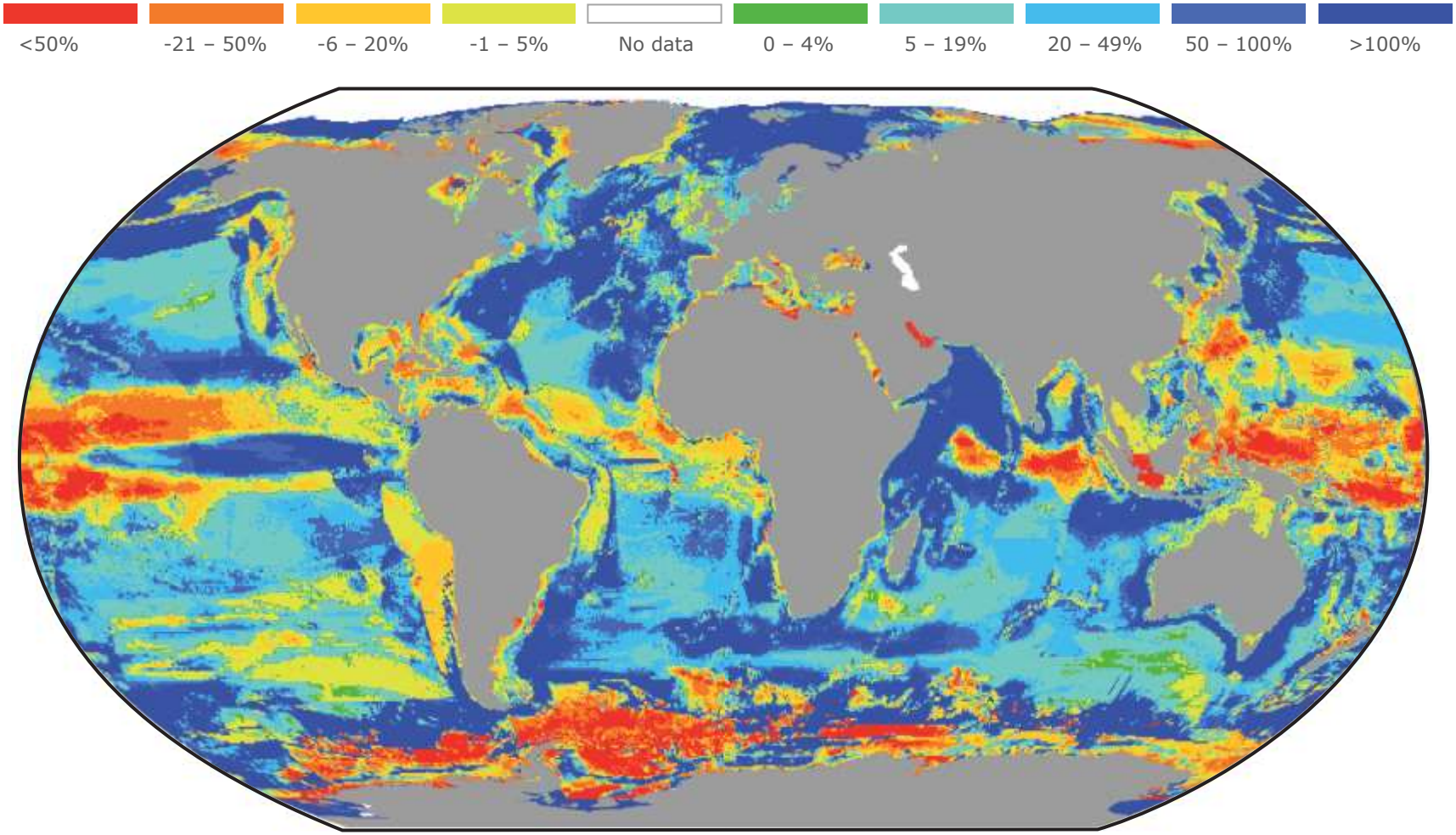
Unabated Ocean Warming by 2050

Projections

2°C

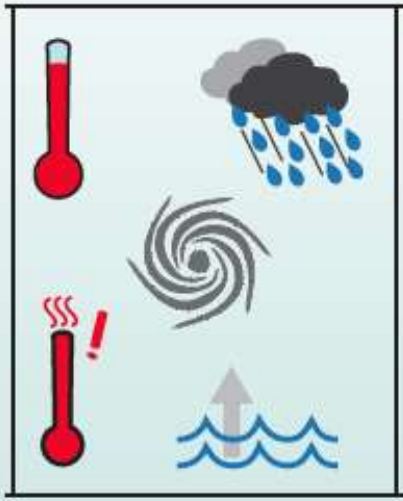
2051-60: fish and invertebrate biomass and diversity displaced and reduced at low latitudes

CHANGE IN MAXIMUM CATCH POTENTIAL (2051-2060 COMPARED TO 2001-2010, SRES A1B, 2°C warming of global surface T 0.7°C warmer Sea Surface T)

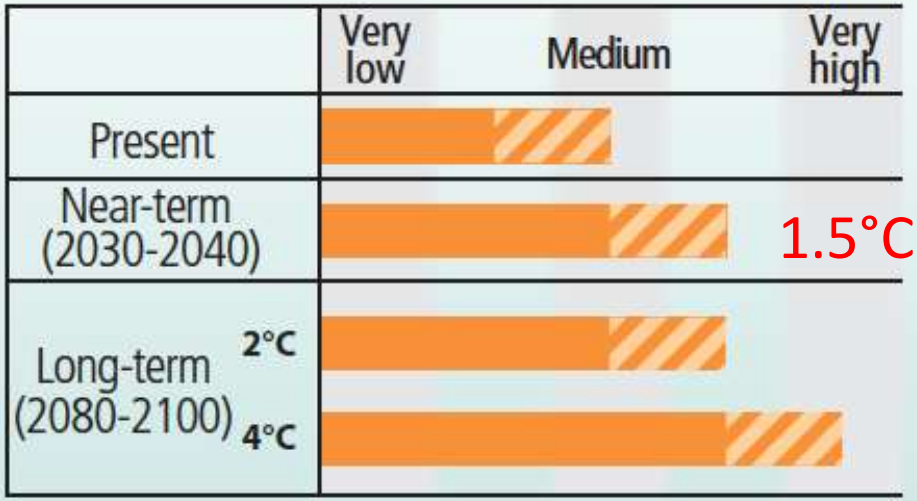


WGII, 6-14, SPM.6, SYR 2.6

Key risk	Adaptation issues and prospects
Risks to fisheries	
Temperature driven stock displacement	
Reduced livelihoods and increased poverty (*medium confidence*)	Human adaptation options involve the large scale relocation of industrial fishing activities following the regional decreases (low latitude) versus increases (high latitude) in catch potential and shifts in biodiversity. Artisanal local fisheries are extremely limited in their adaptation options by available financial resources and technical capacities, except for their potential shift to other target species.

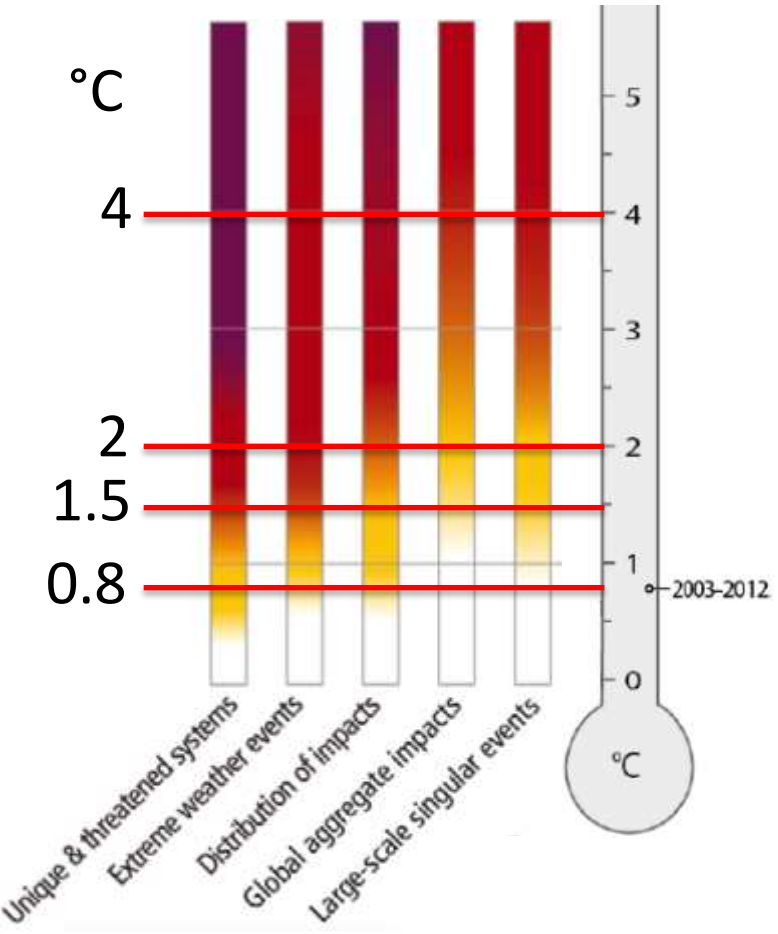


6.4.1-2, 30.6.2, 30.6.5, Table 30-3



LTGG

How to widely compare climate impacts?



Risk assessment IPCC WGII:

A role for human and natural systems to guide the setting of **long-term global goals** (LTGG, relative to preindustrial), considering levels of **risk for vulnerable systems**

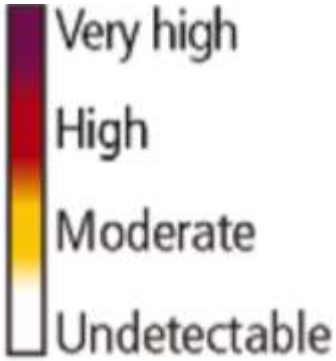
LTGG

4°C

2°C

1.5°C

0.8°C



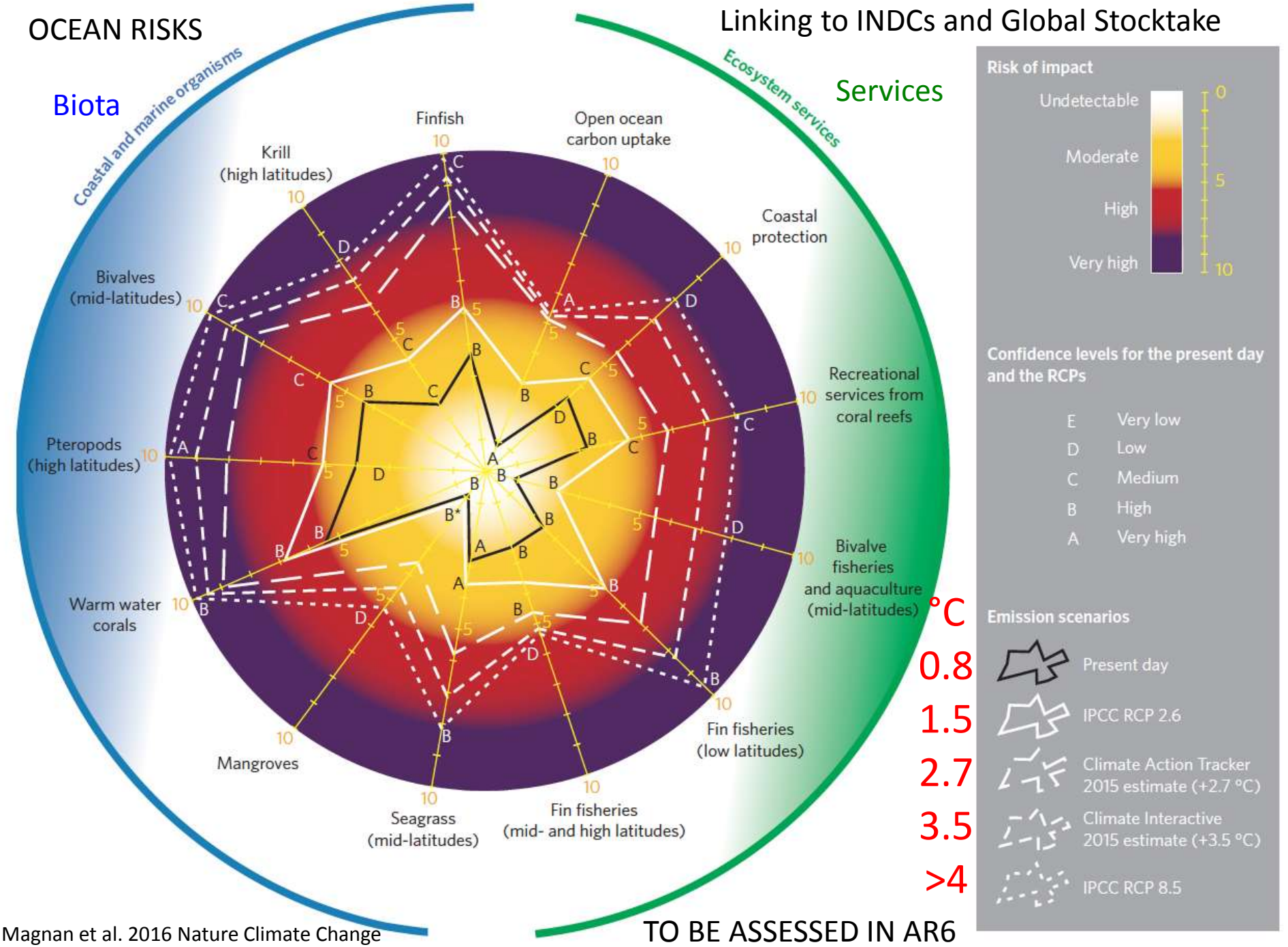
Level of additional risk due to climate change

...comparing LTGGs,
identifying... Key risks of impacts
.... Risks to be avoided

IPCC WGII

OCEAN RISKS

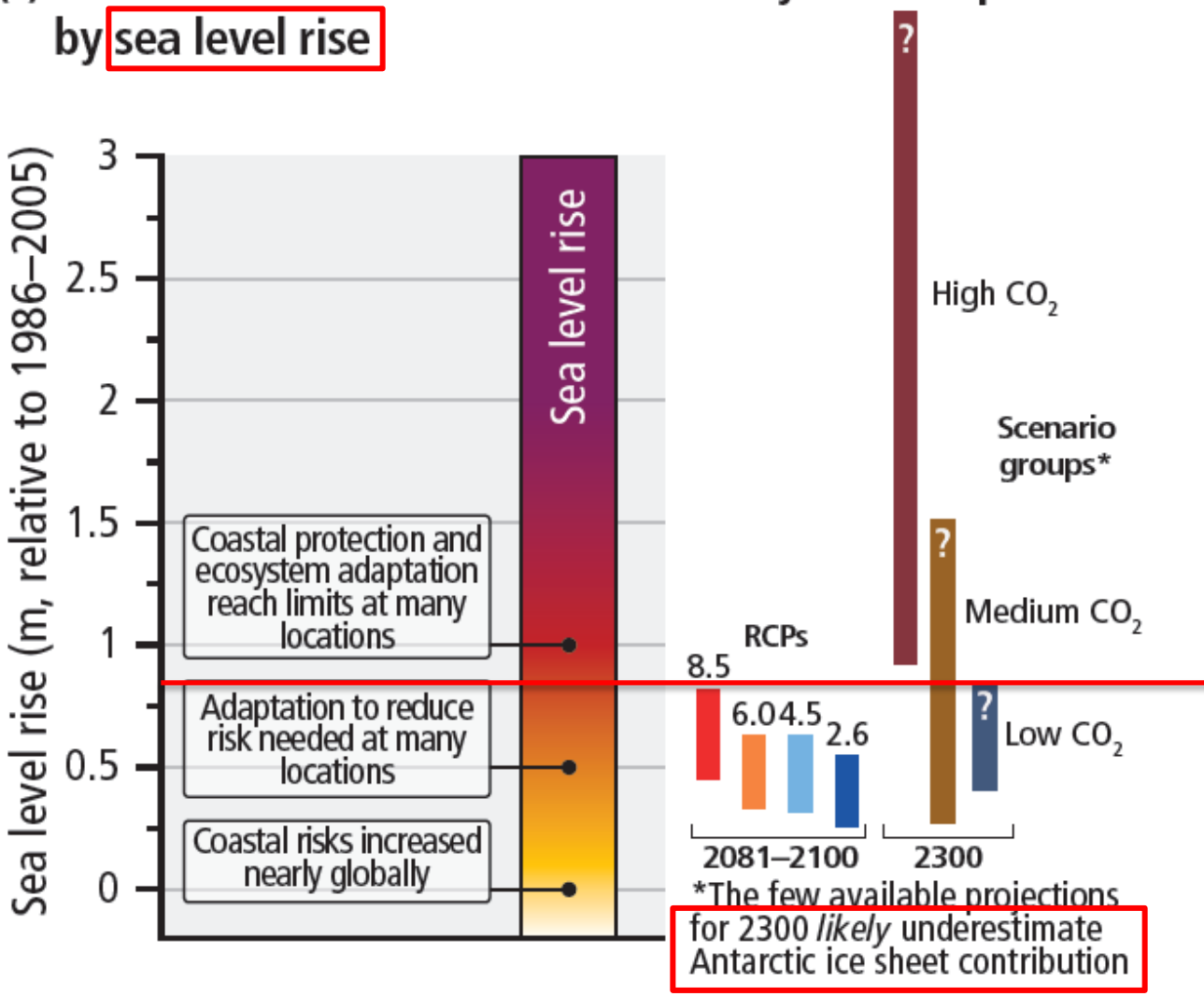
Linking to INDCs and Global Stocktake



Magnan et al. 2016 Nature Climate Change

TO BE ASSESSED IN AR6

1.5°C



Increasing risk associated with high sea level beyond 2100 under RCPs > 2.6

~1.5°C (2300)

However..... Contribution of Antarctic ice sheet likely underestimated

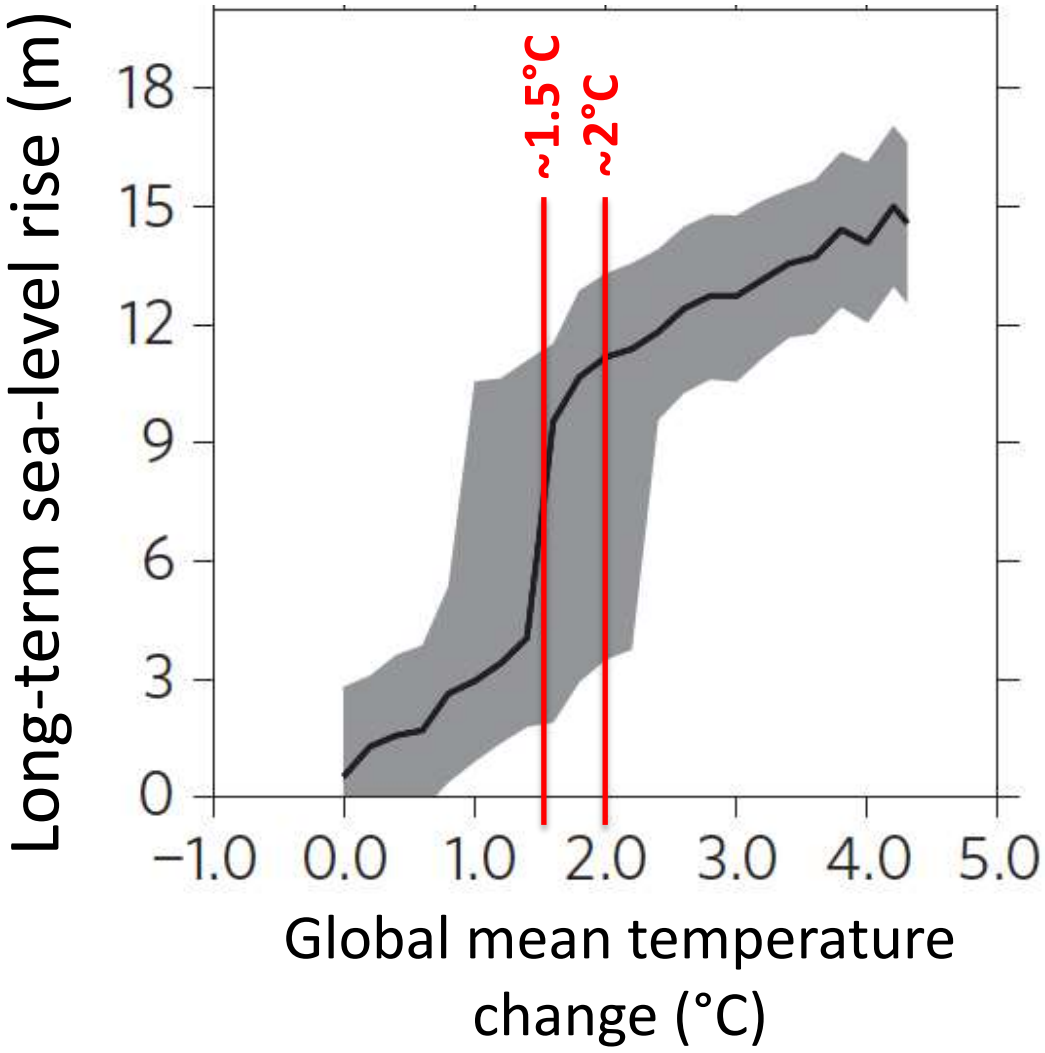
SYR 2.5

Sea level rise beyond 2100 may challenge biological and human systems:

1.5°C

....affecting habitat, freshwater resources, human society through flood events

High ambition mitigation needed



Coming close to Paleo-findings....

5-9 m : ...during the last interglacial (Eemian, 125.000 ya, at 0.7-2°C above pre-industrial)

>7m : ...last time when the atmosphere had 400 ppm CO_2 (in Pliocene, 3-5 Mya)

Knutti et al., Ngeo 2015

TO BE ASSESSED IN AR6

Sixth Assessment Cycle (AR6)

AR6 Main Report

2021: Working Group I, II, and III contribution to the Sixth Assessment Report
April 2022: Synthesis Report of the Sixth Assessment Report

Methodology Report update

May 2019: 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories

Special Reports

1. **October 2018** - Special Report on Global Warming of 1.5 °C (**SR15**)
2. **August 2019** - Climate Change and Land **(SRCCL)**
3. **September 2019** - Special Report on the Ocean and Cryosphere in a Changing Climate **(SROCC)**

3 Special Reports

**** Dates are subject to change***

The Paris agreement provides a sense of urgency: Overcoming societal inertia and inaction in transformation....

A common response even among those who (should) know...!?

- **Strengthen the UNFCCC process and global stocktake.**

- **enhance and exploit the science basis of solution options:**
  - Protected areas (terrestrial and marine)
  - Identify capacity and limits to adaptation
  - Blue carbon (conservation/restoration)
  - Sustainable development

Supporting progressive societal transformation under climate change

- **Establishing „Implementation research“ at Universities /Engineering Schools/Research Centers and associated publication activities (peer-reviewed literature, reports):**

  - Exploring diverse **mitigation options** (alleviating the overemphasis of BECCS)
  - Exploring diverse **adaptation options** (quantitative background)
    - Behavioral adaptation: Addressing the psychological background of inertia with respect to long-term climate targets
    - Establishing a facilitative environment for mitigation and adaptation
  - **Sustainable Infrastructure development enabling sustainable behaviours**
    - Considering strictly limited carbon budgets.

  - **Overarching**:
    Poverty eradication, population growth, sustainable development

THANK YOU FOR YOUR ATTENTION!

For more information:

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