

**SIXTH ASSESSMENT CYCLE** ipcc

## The IPCC Perspective: The oceans and recent climate change

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AR6 Co-Chair IPCC WGII and Co-Chair IPBES IPCC workshop and report*

WGI

AR6 Climate Change 2021: The Physical Science Basis

WGII

Climate Change 2022: Impacts, Adaptation and Vulnerability

WGIII

Climate Change 2022: Mitigation of Climate Change

Special Report

Ocean and Cryosphere in a Changing Climate

Climate Change and Land

Global Warming of 1.5°C

ipbes ipcc  
BIODIVERSITY AND CLIMATE CHANGE  
WORKSHOP REPORT 2021

**REVIEW**  
**SUSTAINABILITY**

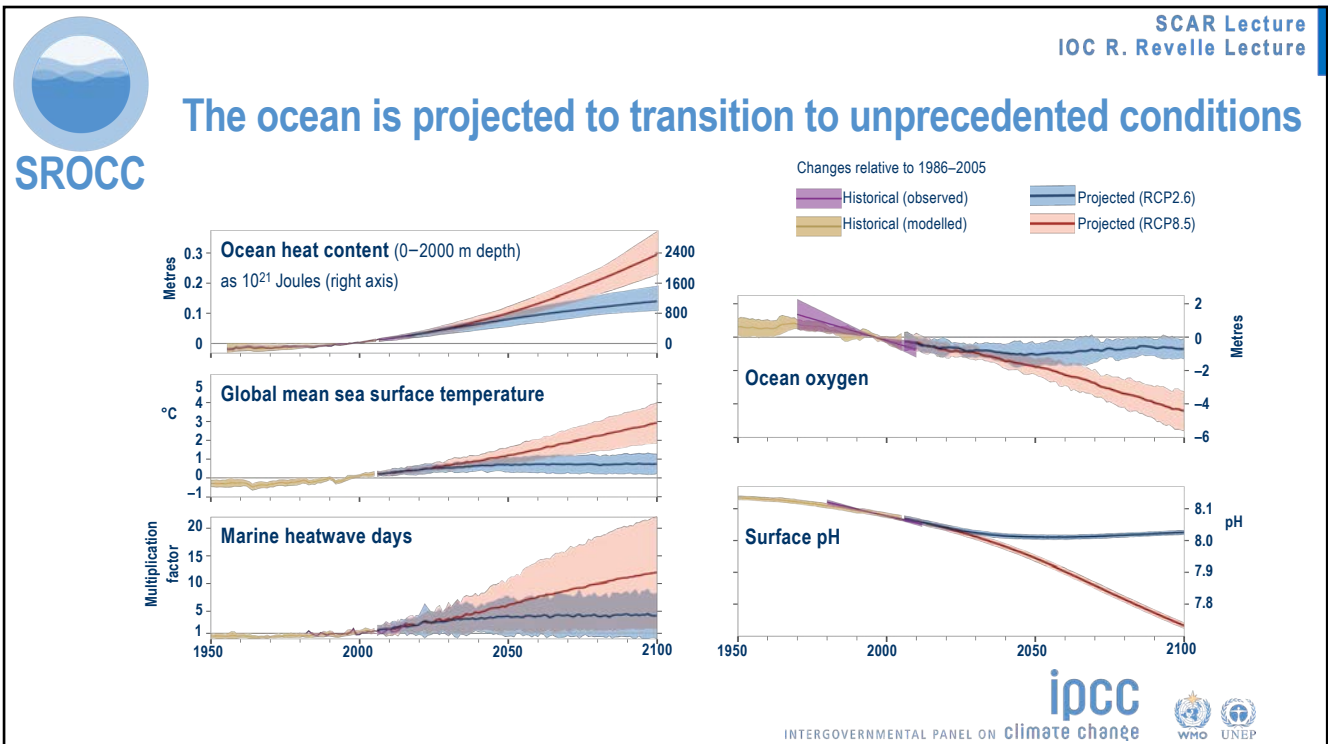
**Overcoming the coupled climate and biodiversity crises and their societal impacts**

H.-O. Pörtner<sup>1,2,\*</sup>, R. J. Scholes<sup>3</sup>, A. Ameth<sup>4</sup>, D. K. A. Barnes<sup>5</sup>, M. T. Burrows<sup>6</sup>, S. E. Diamond<sup>7</sup>, C. M. Duarte<sup>8,9</sup>, W. Kiessling<sup>10</sup>, P. Leadley<sup>11</sup>, S. Managi<sup>12</sup>, P. McElwee<sup>13</sup>, G. Midgley<sup>14</sup>, H. T. Ngo<sup>15,16</sup>, D. Obura<sup>17,18</sup>, U. Pascual<sup>19,20,21</sup>, M. Sankaran<sup>22</sup>, Y. J. Shin<sup>23</sup>, A. L. Val<sup>24</sup>

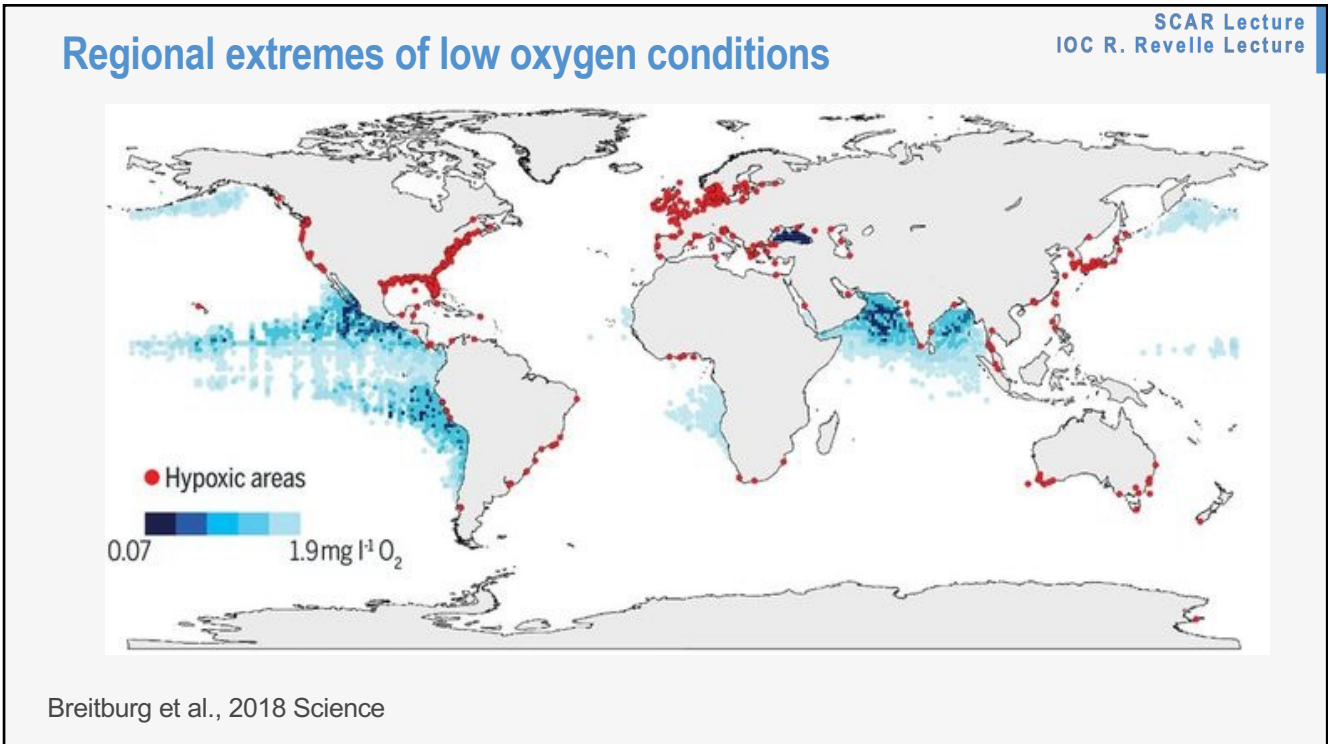
Science  
AAAS

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INTERNATIONAL PANEL ON CLIMATE CHANGE

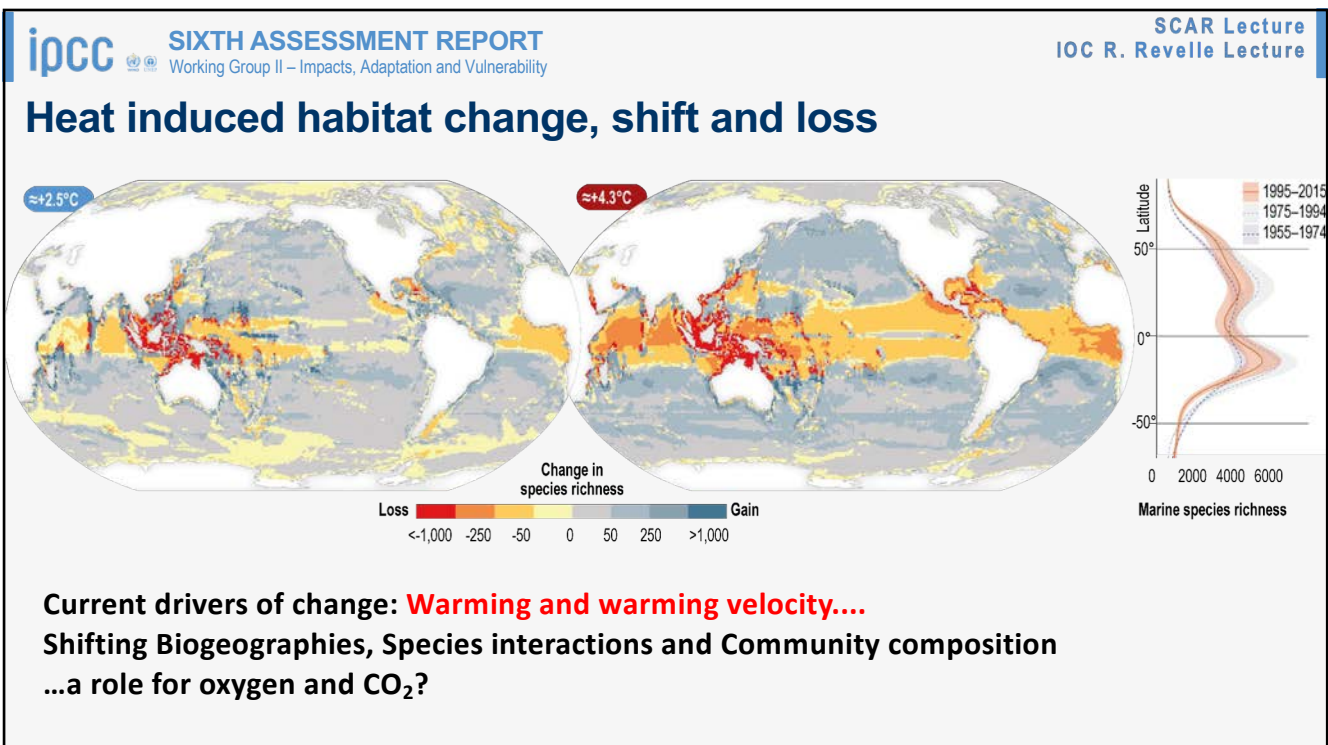
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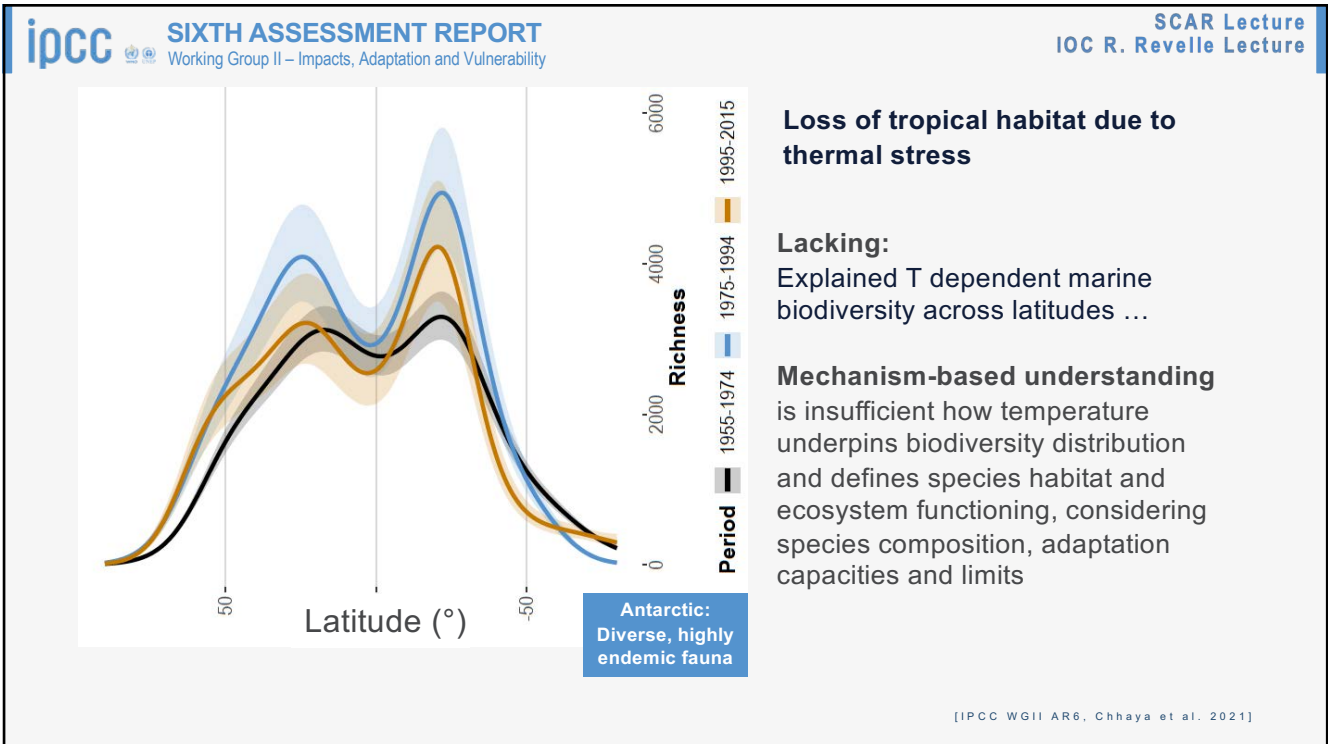
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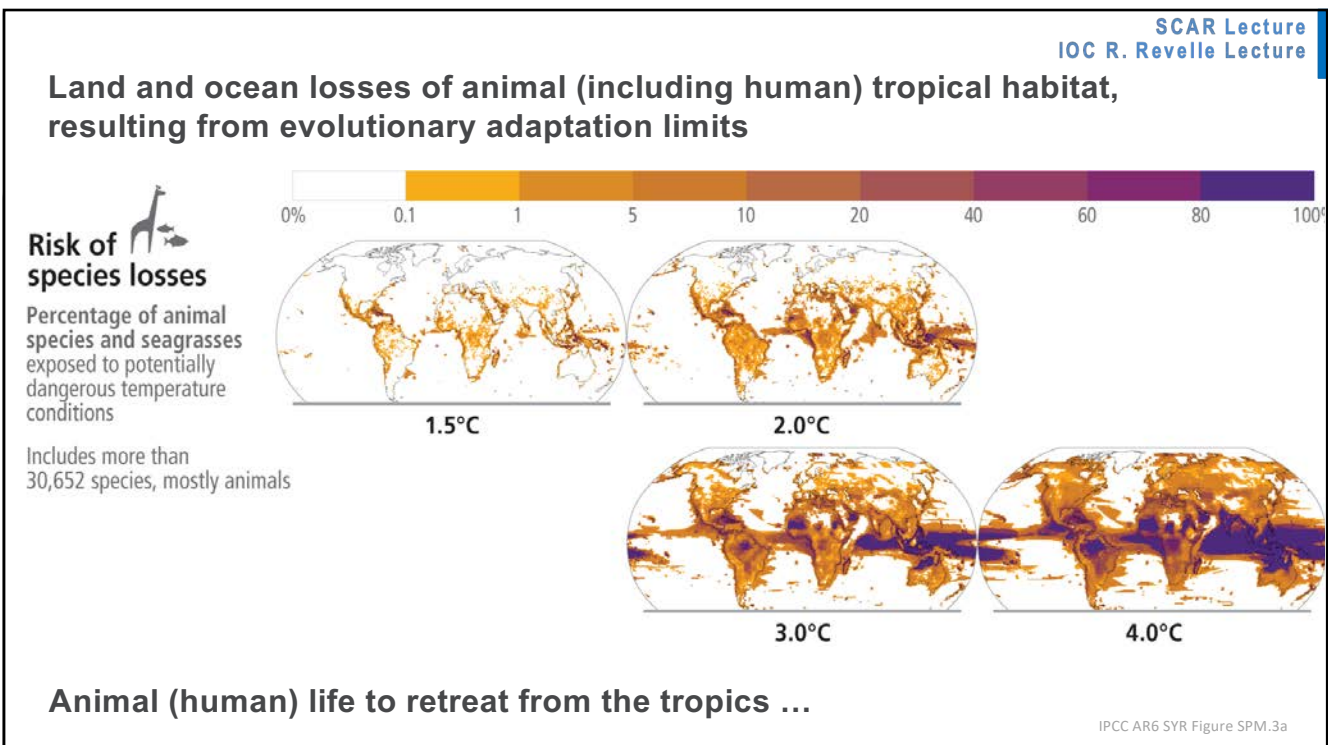
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SCAR Lecture  
IOC R. Revelle Lecture

**Article**

## Arctic Ocean annual high in $p_{CO_2}$ could shift from winter to summer

Nature | Vol 610 | 6 October 2022 | 95  
<https://doi.org/10.1038/s41586-022-05205-y> James C. Orr<sup>1,2</sup>, Lester Kwiatkowski<sup>2</sup> & Hans-Otto Pörtner<sup>3</sup>

Oscillations of climate drivers may coincide and act synergistically:  
 excessive warming and acidification may characterize the future Arctic Ocean

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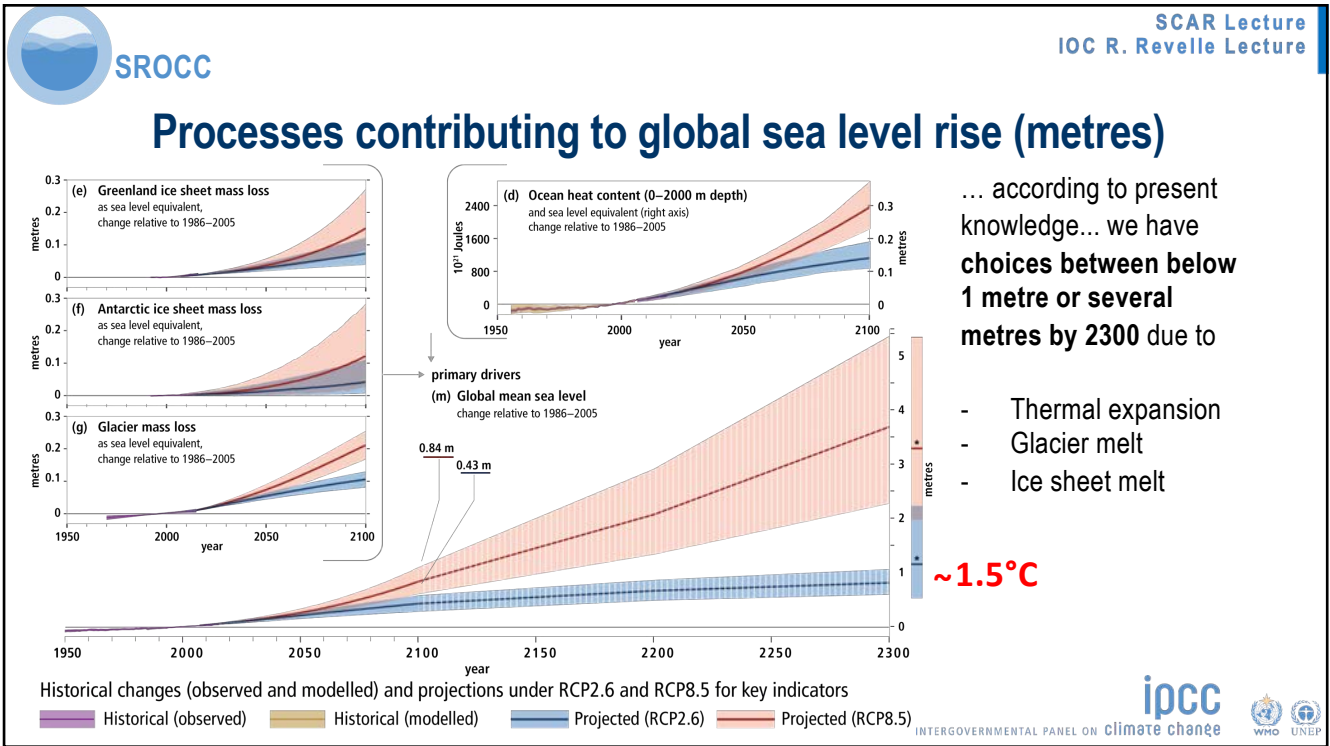
SCAR Lecture  
IOC R. Revelle Lecture

**Common functional background for all organisms:**  
 specialization on limited ranges of ambient temperature,  
 reflected in dynamic thermal performance curves, constrained by other drivers (CO<sub>2</sub>, hypoxia etc.)

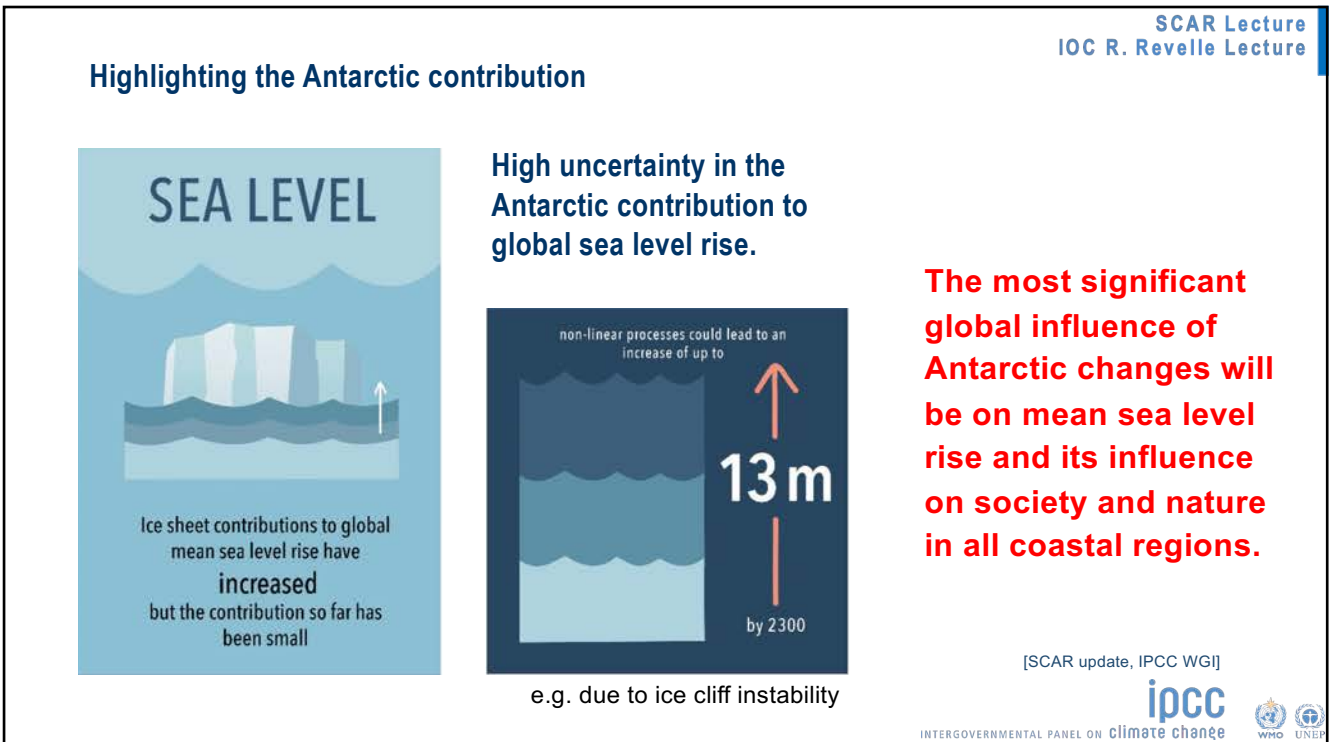
IPCC AR5 WGII Figure 6.5

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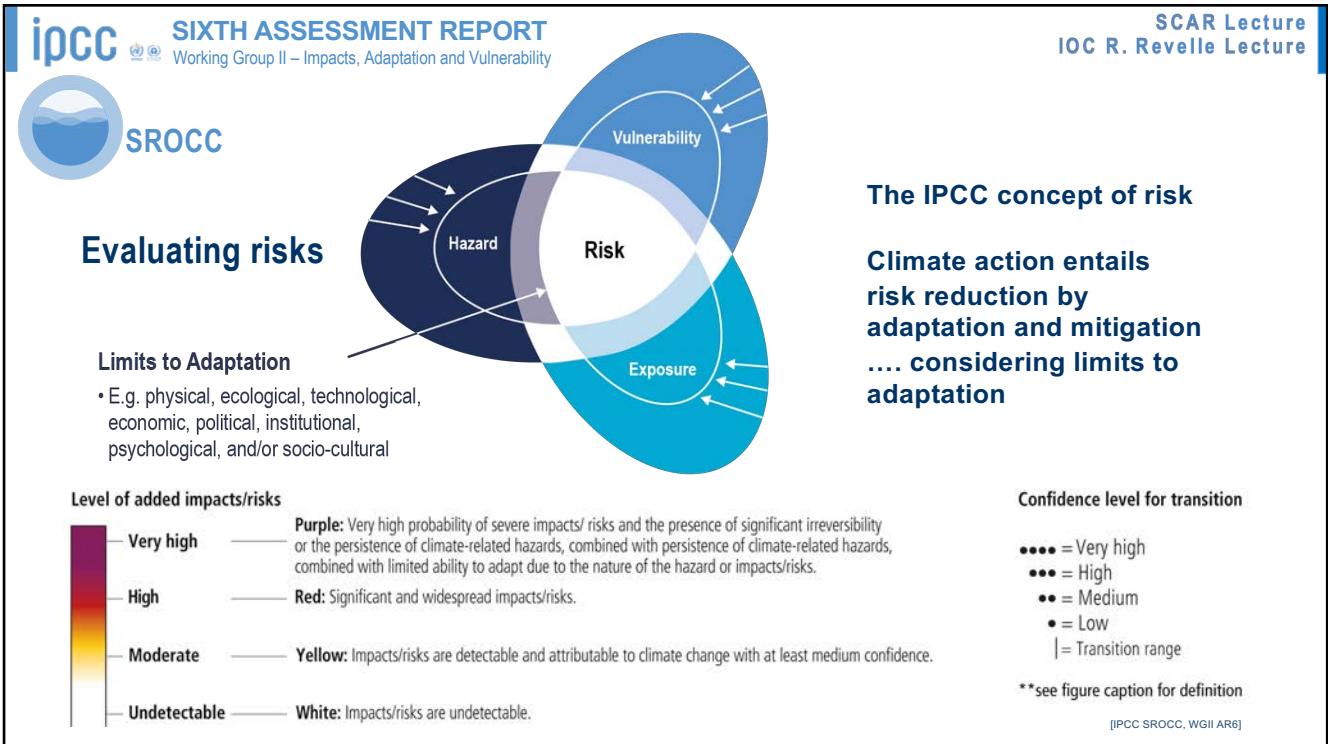
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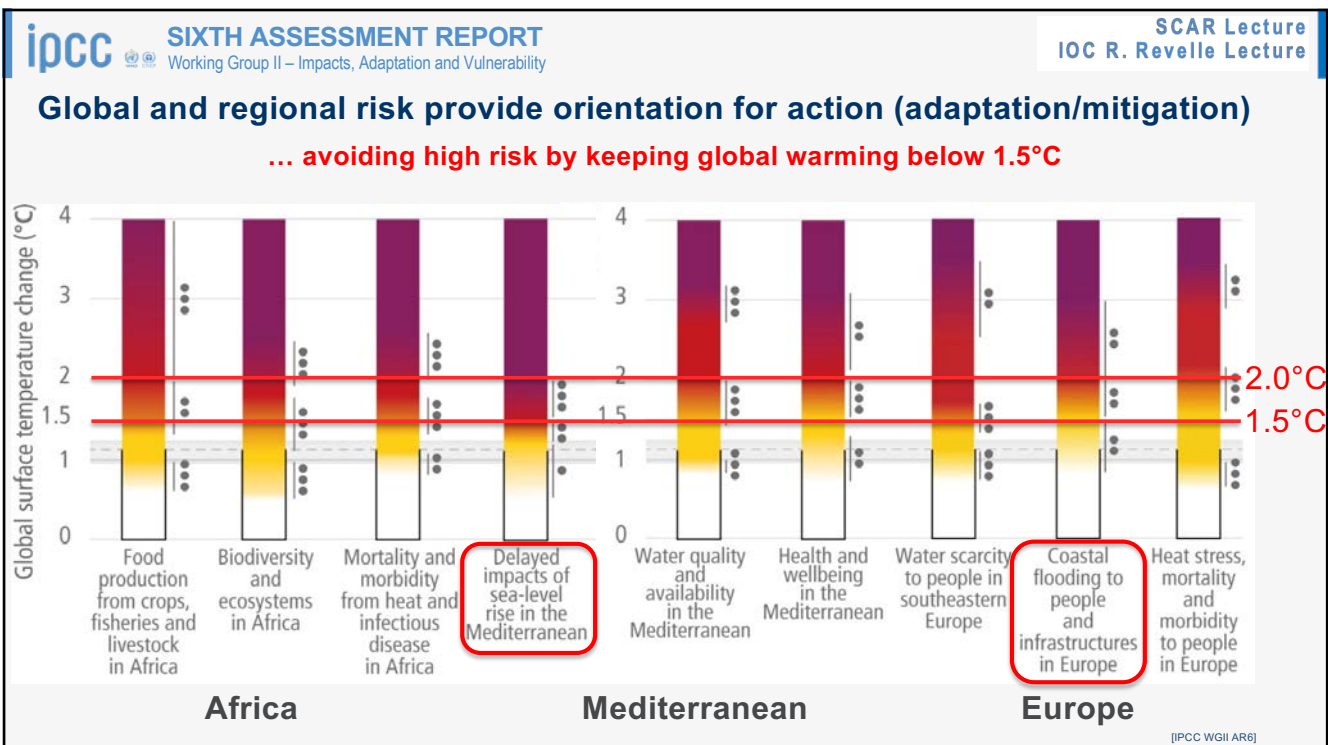
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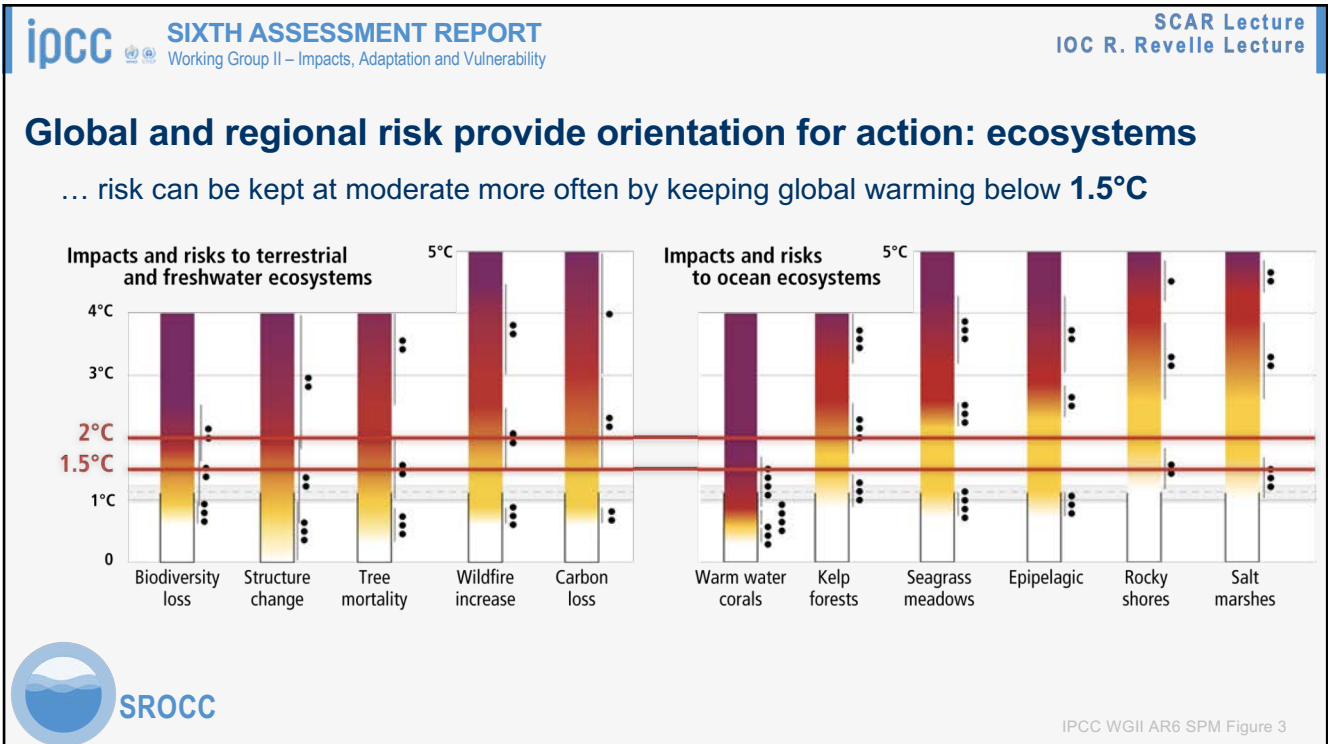
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**ipcc** INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE  
Climate Change 2022  
Impacts, Adaptation and Vulnerability

**ipcc** INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE  
CLIMATE CHANGE 2023  
Synthesis Report

The science is clear for ocean, land and human society:  
Any further delay in concerted global action on adaptation and mitigation will miss a brief and rapidly closing window of opportunity to secure a liveable future for all.  
Our reports offer solutions to the world.  
However, it is getting late!!!

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# THANK YOU

... also to Thomas Jung, Nikolay Koldunov, Sina Löschke for input and support

## For More Information:

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