Key Findings

SELECTION OF KEY FINDINGS RELEVANT TO THE PACIFIC

From the United Nations **Intergovernmental Panel on Climate Change's (IPCC's)** Synthesis Report. This is the final report in the IPCC's Sixth Assessment Cycle (AR6), integrating all IPCC reports from the past 7 years.

Limiting global warming to 1.5°C instead of 2°C would increase benefits from reduced impacts and related risks, and reduce adaptation needs, despite increasing mitigation costs.

+1.5°C

It is certain that human activities have caused the climate (ocean, land, and atmosphere) to warm at a rate never seen before

The carbon budget for limiting warming to 1.5°C will be exceeded by the CO_2 emissions created from existing fossil fuel infrastructure alone

Between 1850 to 2019 accumulated net CO_2 emissions amount to around 80% of the total carbon budget needed to limit the global temperature rise to 1.5°C

Many climate change-driven impacts and risks are larger for small islands than for larger landmasses

At 1.5°C risks to health, livelihoods, water supply, food security, human security and economic growth will increase

There are affordable and practical measures for adaptation and mitigation that can be taken now

More finance is needed to support the Pacific in taking effective adaptation and mitigation actions

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From the United Nations **Intergovernmental Panel on Climate Change's (IPCC's)** Synthesis Report. This is the final report in the IPCC's Sixth Assessment Cycle (AR6), integrating all IPCC reports from the past 7 years.

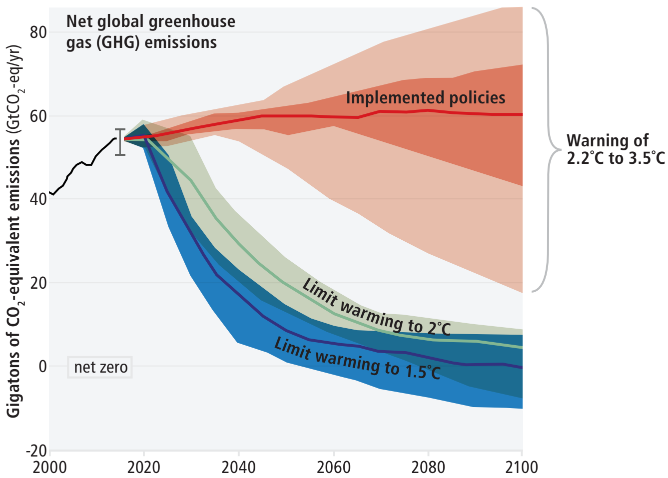
The scientific evidence is clear: Climate change is a threat to human well-being and planetary health. There is a rapidly closing window for action to secure a liveable and sustainable future for all. We collectively have sufficient knowledge, tools and global capital available to address the challenges. The choices and actions we take now will have impacts for thousands of years.***[1]

Human activities are responsible for global warming since 1850.[2]

It is unequivocal that human influence has warmed the climate (ocean, land, and atmosphere) at a rate never seen before.[3] Surface temperature had warmed by 1.09°C in 2011–2020.[4] Global surface temperature has increased faster since 1970 than in any other 50-year period over at least the last 2000 years.**[5]

Net emissions from all major sectors have continued to rise since 2010 with energy, industry, transport and buildings together making up 79% of global greenhouse gas (GHG) emissions in 2019.**[6]

The policies that were in place at the end of 2020 were not consistent with the emissions reduction targets countries laid out in their international commitments, showing a gap between ambition and actual policies. If these policies are not strengthened, warming in 2100 is projected to reach around 3.2°C.**[7]



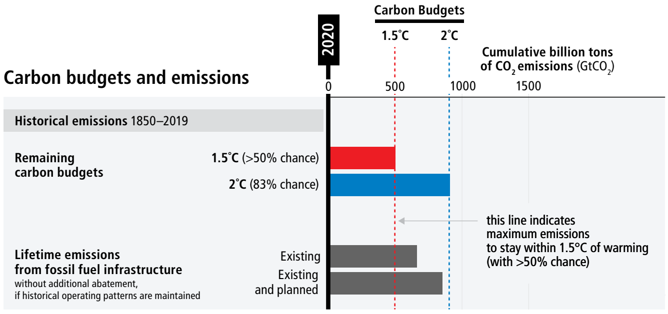
Adapted from Figure SPM.5 — Implemented policies result in projected emissions that lead to warming of 2.2°C to 3.5°C. Only deep, rapid and sustained GHG emissions reductions would limit the warming to 1.5°C or less than 2°C across the century.**

Keeping global temperatures to a specific level of warming requires keeping CO_2 emissions within a limited carbon budget, plus strong reductions in other GHG emissions such as methane.[8]

The accumulated net CO_2 emissions between 1850–2019 equal about eighty percent of the total carbon budget to limit global temperature rise to 1.5°C.[9]

This remaining carbon budget for 1.5°C will be exceeded by the CO_2 emissions generated from existing fossil fuel infrastructure alone.***[10]

Remaining carbon budgets to limit warming to 1.5°C could soon be exhausted.



Adapted from Figure 3.5 — If we keep within a carbon budget of 500 $GtCO_2$ from 2020, we have a greater than 50% chance of remaining within 1.5 °C. If we keep within a carbon budget of 900 $GtCO_2$ from 2020, we have an 83% chance of remaining within 2°C.[11]

Note that these IPCC remaining carbon budgets don't include emissions since 2020. Globally we have emitted another 84Gt of CO_2.[12]

* = medium confidence
** = high confidence
*** = very high confidence

1 Summary for Policymakers (SPM)C.1
2 Longer Report, Figure 2.1 (d)
3 SPMA.1
4 SPMA.1; Warming is in comparison to baseline 1850–1900 temperature levels.
5 SPMA.1.1
6 SPMA.1.4
7 SPMA.4.4
8 SPMB.5.1
9 SPMB.5.4; This refers to keeping to 1.5°C with more than 50% likelihood. 'Carbon budget' refers to the maximum amount of cumulative net global anthropogenic CO_2 emissions that would result in limiting global warming to a given level with a given probability.
10 SPMB.5; SPMB.5.3; This is based on unabated fossil fuel infrastructure (e.g. without Carbon Capture & Storage).
11 SPMB.5.3
12 Global Carbon Project 2022; Friedlingstein et al 2022 'Global Carbon Budget 2022'

Only deep, rapid and immediate GHG emissions reductions would limit warming below 1.5°C and 2°C across the century. This would also limit further sea level rise acceleration.[13] In the absence of ambitious action to reduce emissions, climate impacts are likely to make some small islands uninhabitable over this century. The risk is the highest for atoll nations.[14]**

In pathways that limit warming to 1.5°C with no or limited overshoot, by 2035, global GHG emissions reduce by 60% below 2019 levels, and global carbon dioxide emissions reduce by 65% below 2019 levels.[15]

Climate change impacts are larger and more severe than estimated in previous assessments and the projected long-term impacts are many times greater than currently observed**[16].**

Human-caused climate change has led to widespread and rapid changes in the atmosphere, ocean, ice-covered areas and land, including more frequent and intense extreme events. These changes have already caused widespread negative impacts and losses and damages to nature and people.[17] Many climate impacts and risks are larger for small islands than for larger landmasses.[18]

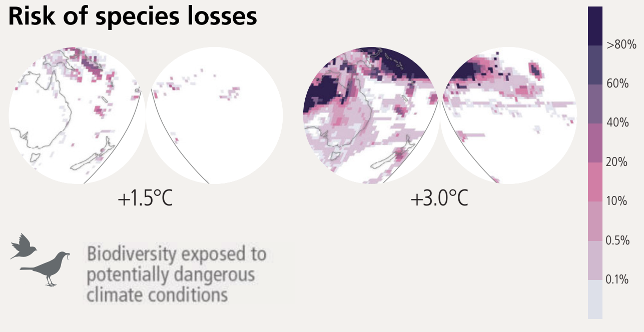
Globally, coastal wetlands have decreased in size by almost 50% in the last 100 years, as a result of the combined effects of local human pressures, sea level rise, warming and extreme climate events**.[19] The threat from climate and land-use change is also leading to the deterioration of wetland areas.[20]

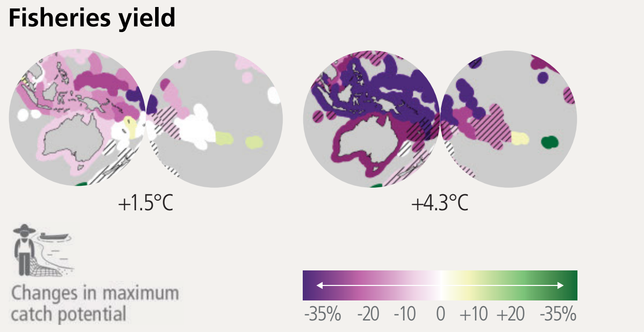
Climate-related risks for natural and human systems are significantly higher for global warming of 1.5°C than at present.**[21] For example, coral reefs are projected to decline by a further 70–90% at 1.5°C of global warming.**[22]

Small Island Developing States (SIDS), including communities in Pacific Island Countries and Territories (PICTs), are among the most vulnerable regions where the largest impacts are observed[23], despite having historically contributed the least to current climate change.[24]

Islands in the South Pacific are being disproportionately affected by displacement due to climate change and weather extremes, relative to their small population size.[25]

Limiting global warming to 1.5°C instead of 2°C would increase mitigation costs, but also bring many benefits in terms of reduced risks, reduced climate impacts and reduced adaptation needs.**[26]





Adapted from Figure A1.15, Working Group II (WGII) Annex I & Figure SPM.3 — Increasing climate change is projected to intensify risk across natural and human systems.

Projected risks and impacts of climate change on biodiversity and fisheries yield relative to 1850–1900 levels differ across regions and emission scenarios. The impact on biodiversity and fisheries all increase as temperatures rise.

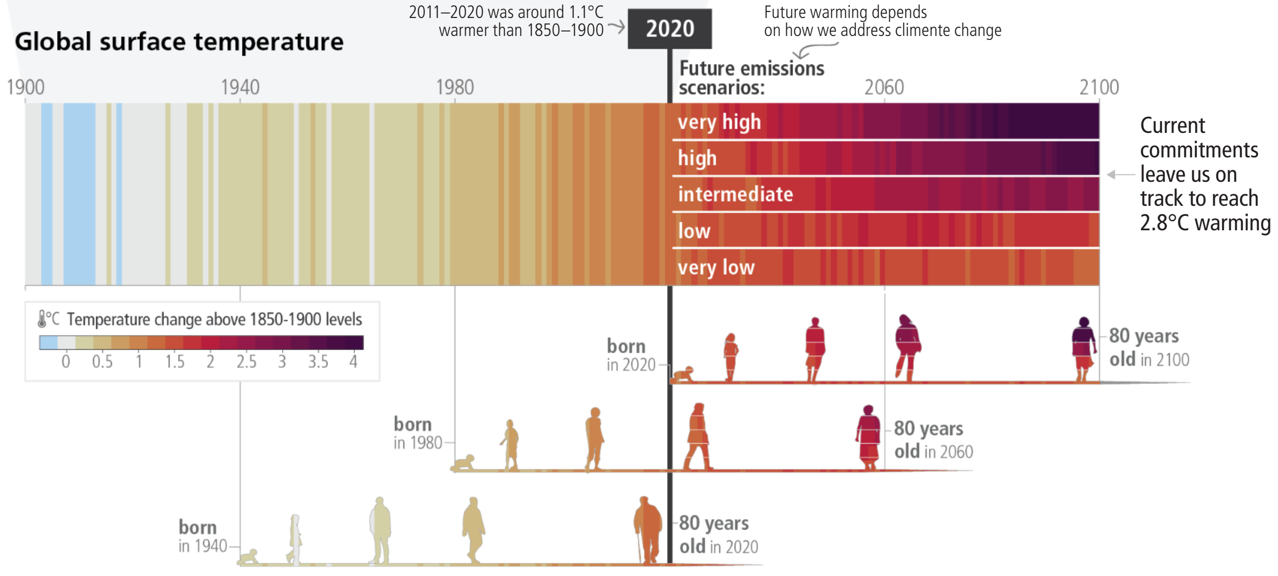
Please note that this biodiversity map is used to show the findings of Synthesis Report Figure SPM.3 which reflects the same dataset but shows a different visual map. This biodiversity map is taken from WGII Annex I AI.15.

Without strong mitigation, adaptation and risk management, losses and damages will continue to affect the poorest and most vulnerable communities, potentially creating poverty traps.**[27] Losses and damages have particularly negative effects on sustainable development in SIDS, including PICTs, in part due to the increasing and irreversible risks that climate change poses for small islands.[28]

* = medium confidence
** = high confidence
*** = very high confidence

13 SPMB.6; SPMB.7.2
14 WGII Chapter 15.3.4.9; FAQ15.1
15 Table XX: SPMB.6
16 SPMB.2; Figure SPM.4(a)
17 SPMA.2; SPMA.2.6
18 WGII Chapter 15.3
19 Section 2.1.1
20 SPREP 2020 State of Environment & Conservation in the Pacific Islands Regional Report
21 SPMB.2.2
22 Figure SPM.4(b)
23 SPMA.2.2
24 Section 2.1.2
25 SPMA.2.5
26 Section 3.4.1; SPMC.2.4
27 Section 2.1.2
28 WGII Chapter 15, Box 15.2

Our choices determine the extent to which today's children will live in a different, hotter world



Adapted from Figure SPM.1 — Our choices determine the extent to which today's children will live in a different, hotter world. The world is already around 1.1°C warmer than 1850–1900. The level of projected climate change experienced by individuals across the three illustrative generations representing the human population (being born in 1940, 1980 and 2020) will differ significantly based on the future emissions scenario (very low, low, intermediate, high, and very high).

While adaptation responses have protected against some climate impacts, some adaptation limits have already been reached.**[29] Many adaptation options will become less effective with more warming.[30] For example, some warm-water coral reefs are unlikely to survive increased temperatures, making reef ecosystem-based adaptation actions less effective.[31]

There is a gap between the current implementation of adaptation and the levels needed to respond to impacts and reduce climate risks.**[32]

Finance is an enabler for nearly every aspect of accelerated climate action.*[33] Finance required for both mitigation and adaptation in developing countries remained insufficient in 2018.**** Private and public finance flows were below the collective goal under the UNFCCC and Paris Agreement for developed countries to mobilise USD100 billion per year by 2020.[34] **Increased adaptation finance is needed to address soft limits to adaptation, rising climate risks and related losses and damages, particularly in vulnerable developing countries.**[35]** More mitigation finance is needed to accelerate investments in emissions reduction to address rising climate risks.**[36]

Public and private finance flows for fossil fuels are still greater than those for climate action.**[37]

The greatest gains in well-being in urban areas can be achieved by prioritising finance to reduce climate risk for low-income and marginalised residents including people living in informal settlements.[38] To date there is limited evidence of investment in informal settlements.*[39]**

The assessed long-term risks to sectors and livelihoods escalate with projected levels of global warming, but they will also strongly depend on socio-economic development pathways and adaptation actions to reduce vulnerability and exposure.[40]

Shifting development pathways towards sustainability and climate resilient development is supported when governments, civil society and the private sector make inclusive choices that prioritise risk reduction, equity and justice[41]. Integrating decision-making processes, finance and actions across governance levels and sectors and involving local knowledge and Indigenous knowledge also increases the likelihood of sustainability.[42]

29 SPMA.3
30 SPMB.4
31 SPMB.4.2
32 SPMA.3.3
33 SPM.C.7
34 SPMA.4.5
35 SPMC.7.2
36 SPMC.7.1
37 SPMA.4.5
38 SPMC.5.3
39 Section 4.5.3
40 SPMB.2.4
41 SPMC.1.2; Figure SPM.6
42 SPMC.6.5

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*** = very high confidence

Prepared by the Australian National University Institute for Climate, Energy & Disaster Solutions
pacific climate change centre
SPREP Secretariat of the Pacific Regional Environment Programme