

SMALL ISLAND STATES



VULNERABILITY

Table 29-1 | Climate change projections for the intermediate low (500–700 ppm CO₂e) Representative Concentration Pathway 4.5 (RCP4.5) scenario for the main small island regions. The table shows the 25th, 50th (median), and 75th percentiles for surface temperature and precipitation based on averages from 42 Coupled Model Intercomparison Project Phase 5 (CMIP5) global models (adapted from WGI AR5 Table 14.1). Mean net regional sea level change is evaluated from 21 CMIP5 models and includes regional non-scenario components (adapted from WGI AR5 Figure 13-20).

Small island region	RCP4.5 annual projected change for 2081–2100 compared to 1986–2005						
	Temperature (°C)			Precipitation (%)			Sea level (m)
	25%	50%	75%	25%	50%	75%	Range
Caribbean	1.2	1.4	1.9	–10	–5	–1	0.5–0.6
Mediterranean	2.0	2.3	2.7	–10	–6	–3	0.4–0.5
Northern tropical Pacific	1.2	1.4	1.7	0	1	4	0.5–0.6
Southern Pacific	1.1	1.2	1.5	0	2	4	0.5–0.6
North Indian Ocean	1.3	1.5	2.0	5	9	20	0.4–0.5
West Indian Ocean	1.2	1.4	1.8	0	2	5	0.5–0.6

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Mediterranean	2.3	–6	0.4–0.5
Northern tropical Pacific	1.4	1	0.5–0.6
Southern Pacific	1.2	2	0.5–0.6
North Indian Ocean	1.5	9	0.4–0.5
West Indian Ocean	1.4	2	0.5–0.6

IMPACT

Coastal Flooding in the Caribbean

“Loss of livelihoods, coastal settlements, infrastructure, ecosystem services, and economic stability (high confidence)”

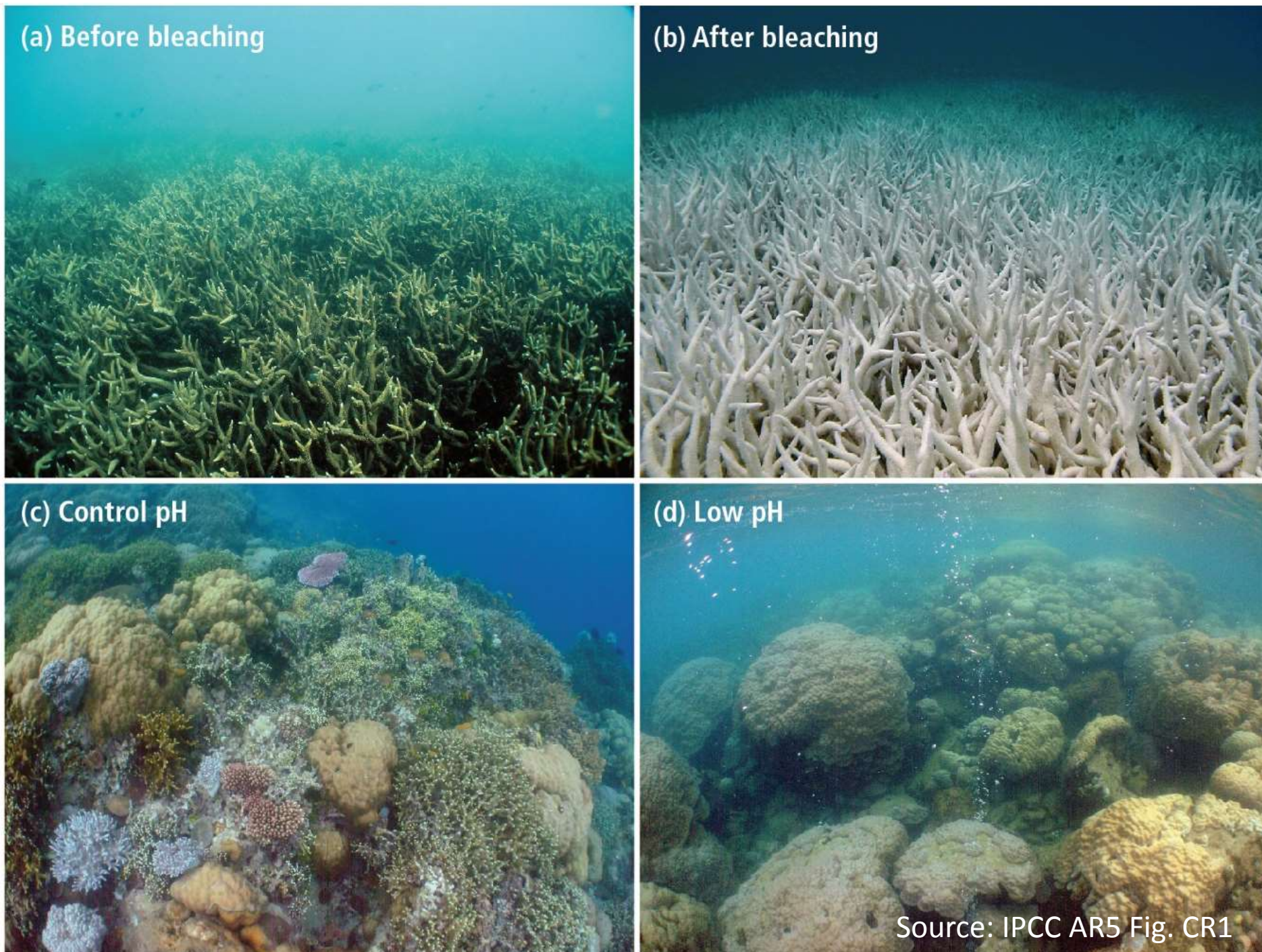
Source: IPCC AR5 WG II
Ch. 29.6, 29.8



Temperature and pH effects on coral reefs

“Decline and possible loss of coral reef ecosystems in small islands through thermal stress (high confidence)”

Source: IPCC AR5 WGII
Ch. 29.3.1.2



An Example of storm surge in the Caribbean

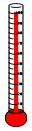
“The interaction of rising global mean sea level in the 21st century with high-water-level events will threaten low-lying coastal areas (high confidence)”

Source: IPCC AR5 WG2 Ch. 29.4, Table 29-1;
WG1 13.5, Table 13.5



ADAPTATION

Climate Change



Temperature



Precipitation

Tropical Storms



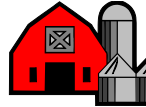
Sea Level Rise

Potential Climate Change impacts



Health

Insect vectors and infectious diseases increase
eg. Zika, Chikungunya, Dengue



Agriculture

Crop yields decrease
Irrigation demands increase



Infrastructure

Damage to infrastructure from increased intensity of Tropical Storms



Watershed Management

Decrease in water supply



Coastal Areas

Erosion of beaches (loss of coral reefs). Inundation of coastal wetlands. Costs to protect coastal communities



Natural Areas and Wildlife

Change in forest composition
Shift geographic range of forests
Loss of habitat and species

Possible Climate Change Adaptation Measures

Health

Prevent mosquito access to standing water

Agriculture

Plant more drought tolerant varieties of crops

Infrastructure

Improve and enforce National Building Codes

Watershed Management

Reduce water leakage from underground pipe supply network

Coastal Areas

Replant and restore mangrove wetlands and coral reefs

Forests

Restore degraded forest for Carbon sequestration

THE END