

Climate and Ocean nexusⁱ

1. Key points

- Climate change threatens the livelihoods, security and wellbeing of the peoples of the Blue Pacific, including through the rise of ocean temperature, sea level rise, deoxygenation, change in salinity, coastal erosion and more frequent and extreme weather events. It is considered as an existential threat today for Pacific island countries and territories (PICTs) and communities.
- Some Pacific island countries experience up to four times greater sea-level rise than the global average of 3.2 millimeters (mm) sea-level rise per year.
- The recently published IPCC Special Report on the Ocean and cryosphere in a changing climate provides a rather bleak picture for the present and future of the ocean and the countries depending on it. It reaffirmed that the effects of GHG, in particular CO₂ emissions on the oceans are profound, complex and expected to continue for a long time even if emissions are brought under control.
- This IPCC report, as well as the special report on 1.5 further highlighted the need for urgent action to mitigate climate change, as well as the need to take measures to adapt and increase the resilience to the impacts that will occur.
- The ocean is a significant carbon sink absorbing a third of carbon emissions. The value of this hidden 'ocean service' is estimated at USD 60 to 400 billion per year.
- The ocean produces about half of the world's oxygen and absorbs over 90% of excess heat accumulated in the climate system.
- The ocean has both buffered and suffered from the effects of climate change. Anticipated effects of climate change on the region's coral reefs is expected to cause a decrease of 20% in fisheries and 30% in tourism earnings.
- Ocean acidification is a global issue, caused by the build-up of carbon dioxide in the atmosphere, that affects marine ecosystems broadly. The primary direct impacts of concern are damage to shellfish, reef-building corals, some plankton, and impacts on other marine species such as tuna. It could impact industries and economies via losses in tourism, food security, livelihoods, aquaculture, and increased hazard vulnerability due to reduced shoreline protection from coral reefs.
- The impacts of climate change exacerbate existing human-caused problems in the ocean such as pollution, overharvesting, and habitat destruction. These stressors also inhibit the capacity of the ocean, its ecosystems and species, to respond and adapt to the effects of climate change.
- Increase in sea level is likely to cause the coastline to recede landward affecting the basepoints from which States generate their maritime zones and their associated sovereign, jurisdictional and resource rights.
- The first priority is to redouble efforts to bring emissions under control consistent with the UNFCCC Paris Agreement.

- Pacific island resilience to climate change will require addressing stressors to the marine environment and the coast, including through integrated management to address some of the drivers of coastal and marine degradation.
- Some measures that participate in improving the resilience of the Blue Pacific to climate change include:
 - i. Restoration and conservation of coastal (protective) vegetation – increasing Blue Carbon and coastal resilience
 - ii. Elimination of overexploitation and improve sustainable management of marine resources
 - iii. Mitigating coastal and ocean pollution
 - iv. Effective protection of habitats and ecosystems
 - v. Reef restoration
 - vi. Restoring hydrological regimes
 - vii. Securing maritime boundaries
 - viii. Improving energy efficiency and use of cleaner energy, including in maritime transport design and operation
 - ix. Providing adequate means of implementation to sustain action and research
- The fragmentation of and siloed approach of sectoral programmes and policies have contributed to the inability to effectively address climate change impacts, including on the ocean.

2. Challenges and opportunities

- Impacts from climate-induced changes in the ocean challenge the adaptive capacity of societies and ecosystems as well as their governance to address risks.
- Impacts of climate change are inter-related and multiplicative, requiring integrated management to address the various issues in a holistic way as well as to consider land and sea interactions. Climate change threatens a broad range of ecosystem services and development factors, from food security to the islands themselves. There is a need for more integrated approach of climate and ocean agendas.
- Capacity to measure, plan, adapt, mitigate and respond is limited in Pacific island countries. Building capacity, developing technology and expertise will strengthen Pacific responses.
- The use of traditional knowledge in addition to the best available scientific information can inform the development of improved management measures on the marine and coastal environment.
- In responding to sea level rise and associated extreme events (storm surges, etc.), Pacific countries face challenging choices in crafting context-specific and integrated responses that would involve using approaches such as integrated spatial planning, community and stakeholder’s participation, and conflict resolution tools supported by monitoring systems.
- The Pacific Climate Change Centre and the Pacific Community Center for Ocean Science (PCCOS) are envisaged as regional hubs for inclusive collaboration and coordination to meet regional adaptation and mitigation priorities on the climate-ocean nexus.

3. How issues link to key policies (SDG14, FPO, Samoa Pathway, 2050 Regional Strategy, etc.)

- SDG1, 2, 3: Poverty reduction, food security and health in the Pacific depend on agriculture and fisheries, threatened by climate change including: sea level rise, increased storm severity, higher temperatures, and ocean acidification. SDG1.5 – build the poor’s resilience to climate change and other shocks
- SDG5, 10: The impacts of climate change are uneven across gender, socio-economic backgrounds, geography and Nations.
- SDG6: Clean freshwater and sanitation are threatened by inundation and salinization.
- SDG9, 11: Resilient infrastructure and sustainable cities and communities rely on an understanding of, adaptation to, and mitigation of climate change.
- SDG7, 12, 13, 15: Responsible consumption and production, including clean energy and avoidance of degradation of life forms, rely on and are part of climate action.
- SDG 14: The entire SDG 14 provide for measures to decrease stressors on the ocean and its resources, as well as to decrease the vulnerability of SIDS.
- 2050 Strategy: An overarching regional approach could provide pathways to improving the necessary coherent integration of climate change and ocean agendas.
- Sustainable development and addressing development issues as highlighted in the SAMOA Pathway contribute to mitigating climate change and its effects as well as improving the health, productivity and resilience of the ocean and its resources for the benefit of the Blue Pacific and its peoples.

¹ This brief was compiled by SPREP with inputs from relevant organisations and experts