

# Managing coasts under threat from climate change and sea-level rise

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Sea levels are rising.

Coastal regions under threat from climate change and sea-level rise need to tackle the more immediate threats of human-led and other non-climatic changes, according to a team of international scientists.

The team of 27 scientists from five continents, led by Dr Sally Brown at

the University of Southampton, reviewed 24 years of Intergovernmental Panel on Climate Change (IPCC) assessments (the fifth and latest set being published in 2013 and 2014). They focused on climate change and sea-level rise impacts in the coastal zone, and examined ways of how to better manage and cope with climate change.

They found that to better understand climate change and its impacts, scientists need to adopt an integrated approach into how coasts are changing. This involves recognising other causes of change, such as population growth, economic development and changes in biodiversity. Dr Brown emphasised that: "Over the last two and half decades, our scientific understanding of climate change and sea-level rise, and how it will affect coastal zones has greatly increased. We now recognise that we need to analyse all parts of our human and natural environments to understand how climate change will affect the world."

The scientists also acknowledged that long-term adaptation to climate change can greatly reduce impacts, but further research and evaluation is required to realise the potential of adaptation. "Many parts of the coast can, with forward planning, adapt to sea-level rise, but we need to better understand environments that will struggle to adapt, such as developing countries with large low-lying river deltas sensitive to salinisation, or coral reefs and particularly small, remote islands or poorer communities," said Dr Brown.

For example, in the Maldives, many small, remote low-lying islands are at risk from climate change and will struggle to adapt. But around the densely populated capital city and airport, adaptation has already occurred as land claim is a common practice in order to relieve population pressure. Sea-level rise has already been considered into newly claimed land. Thus in decades to come, potential [climate change impacts](#), such as flooding, will be reduced for this island, benefiting both the local population and economy.

Dr Jochen Hinkel from Global Climate Forum in Germany, who is a co-author of this paper and a Lead Author of the coastal chapter for the 2014 IPCC Assessment Report added: "The IPCC has done a great job in bringing together knowledge on climate change, [sea-level rise](#) and its potential impacts but now needs to complement this work with a solution-oriented perspective focusing on overcoming barriers to adaptation, mobilising resources, empowering people and discovering opportunities for strengthening coastal resilience in the context of both climate change as well as existing coastal challenges and other issues."

This new research, published as a commentary in *Nature Climate Change*, will help in the understanding of the impacts of [climate change](#) and how to reduce impacts via adaptation. Its multi-disciplinary approach could be useful if future IPCC assessment reports are commissioned.

Provided by University of Southampton

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