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Australian coasts

Observed coastal impacts

- From 1920 to 2000 there has been a rise in sea level of about 100 mm.
- Long-term Australian tide gauge records show a more frequent occurrence of extreme sea-level events in the second half of the 20th century
- Saltwater intrusion into northern Australian freshwater swamps since the 1950s
- Long-term beach monitoring in NSW shows linkages between beach erosion and El Nino events or even longer decadal events
- 8 mass bleaching events on the Great Barrier Reef since 1979 were triggered by unusually high sea surface temperatures. The most widespread events of 1998 and 2002 affected up to 50% of reefs in the Great Barrier Reef Marine Park.

Projected climate change

- Tropical cyclones are predicted to become more intense
- Storm surges are likely to become more frequent and intense
- Sea-level is estimated to rise by up to 0.59 m by the end of the century

Potential impacts

- Coastal communities are projected to have increased risk from sea-level rise, storm activity and coastal flooding by 2050, especially regions with ongoing development and population growth, such as Cairns and southeast Queensland
- Increased coastal risk and liability could have cost implications for governments and the insurance industry
- Estimates of the number of low-lying coastal addresses in Australia show that the majority of these are in Queensland and New South Wales
- Coastal communities, natural ecosystems and water security have been identified as the three sectors in the Australian region, which are most vulnerable to climate change.
- National vulnerability hotspots include the Great Barrier Reef and eastern Queensland
- A Tasmanian study has identified 21% of its coast is at risk to future sea-level rise and erosion in the next 50-100 years.
- Coast protection costs will increase with sea-level rise

Global coasts and low-lying areas

Observed coastal impacts

- Global average sea-level rise rose at an average of 1.8 mm/yr between 1961-2003. The rate was faster between 1993-2003 at 3.1 mm/yr.

Projected climate change

- Model predictions for sea-level rise to the end of the century range from 0.18 to 0.59 m for different scenarios

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- Changes in ice sheet flow from Greenland and Antarctica could increase the upper range of model estimates.

Potential impacts

- Coasts are very likely to be exposed to increasing risks due to climate change and sea-level rise, and the effect is likely to be exacerbated by increasing human-induced pressures on coastal areas
- It is likely that corals will experience a major decline due to increased bleaching and mortality due to rising ocean temperatures. Salt marshes and mangroves are likely to be negatively affected by sea-level rise
- Hundreds of millions of people are vulnerable to flooding due to sea-level rise, especially in densely populated and low-lying settlements where adaptive capacity is relatively low and which already face other challenges such as tropical storms or local coastal subsidence. The greatest populations at risk are in the mega-delta areas of Asia. Some of the more vulnerable countries are the low-lying atoll states of the Pacific.
- Sea-level rise would continue for centuries even if greenhouse gases were stabilised.