Australian Government
Department of Climate Change and Energy Efficiency

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factsheet

Climate Change – potential impacts and costs

Tasmania

Snapshot

Tasmania has an estimated population of approximately 509,000 people, divided almost equally between the north and south of the state. It is the smallest of Australia's six states with much of the population living in regional centres.

The island of Tasmania is rugged with a temperate climate. Tasmania lies in the 'Roaring 40's' belt of westerly winds with mountainous regions covering most of the central, west and south-west. The interactions between these two factors influence the spatial variation of rainfall across the state.

The following information highlights some of the potential impacts and costs to the state's industries, infrastructure, environment and people from climate change.

Coastal Zone

Climate change will lead to sea level rise and potentially greater storm surges which will impact on coastal settlements, infrastructure and ecosystems. Between 12,000 and 15,000 residential buildings, with a current value of $4 billion, may be at risk of inundation from a sea level rise of 1.1 metres.

A 1.1 metre sea level rise will also put up to 2,000km of Tasmania's roads, up to 160km of Tasmania railways and up to 300 commercial buildings at risk. These assets have an estimated value of up to $4.5 billion, $700 million and $1 billion respectively.

Global sea levels increased by 1.7 mm per year over the 20th century. Over the past 15 years, this trend has increased to approximately 3.2 mm per year. This rate varies significantly around Australia. Since the early 1990s, Tasmania has experienced increases of 2.6 to 3.4 mm per year.

In 2009, the Australian Government produced the report, Climate Change Risks to Australia's Coasts, followed in 2011 by an update to this report entitled Climate Change Risks to Coastal Buildings and Infrastructure. These reports provide information on sea-level rise in Australia.

Extreme Events

Projections indicate an increase in mean wind speed across southern Tasmania during spring and a slight increase in fire weather.

Human Health

As the population of Tasmania is more susceptible to cold-related deaths than heat-related deaths, the total number of temperature-related deaths is expected to be lower in 2100 with no mitigation, compared to a world with no human induced climate change.

Natural Environments

The Tasmanian Wilderness World Heritage area covers an area of 1.38 million hectares or 20 per cent of Tasmania. Coastal regions are expected to experience the most dramatic climate change impacts due to rising sea levels. In subalpine areas, a change in fire regimes may affect fire-sensitive conifer species including Huon pine and is likely to cause a significant decline in the populations of these species. Changed fire regimes have already resulted in landscape changes from extensive erosion. Endemic fish species in the highlands of Tasmania are also vulnerable to extinction under higher temperatures.

Waters off the east coast of Tasmania have recorded an increase in temperature of around 1.5°C since the 1950s. The warming of sea surface temperatures, which is projected to be greatest off south-east Australia, is likely to affect the distribution of species with flow on effects to the broader marine ecosystem. In the last decade, around 36 species of marine fish have shown noticeable changes in distribution, including range shifts further south and species not previously recorded in Tasmania.

An increase in sea surface temperature and strengthening of the East Australian Current will drive many plankton, seagrass and mangrove species southwards and significant declines in marine kelp forests around Tasmania have already been attributed to warmer sea temperatures.

Agriculture

Agriculture plays an important role in the Tasmanian economy. In 2009-10, the gross value of agricultural commodities produced in Tasmania was $1.088 billion. The value of crops was $571 million, while the value of livestock products (consisting mainly of wool, milk and eggs) was $211 million.

Output from some industries, such as dairy, are expected to reduce with a changing environment.

Other areas such as pasture production and viticulture could benefit from the projected changes in climate, such as warmer weather and earlier spring growth. It has been estimated, however, that even in Tasmania's cooler climates, climate change could have significant impacts. For example, the projected increase in rainfall during summer and autumn could lead to the development of fungal disease when crops are in the development stage and particularly vulnerable.

In 2008-09, the value of Tasmanian fisheries production reached $522 million, with 34 per cent contributed from wild catch ($176 million) and 66 per cent from aquaculture production ($346 million).

The Tasmanian salmon industry is one of Australia's largest and most valuable aquaculture industries. Increased sea surface temperatures may present challenges for the production of this cool-water farmed species as they are currently farmed near the upper thermal limits of their optimal growing temperature. A temperature rise of 3°C may result in severe stress to Tasmanian salmon. Warmer temperatures are also likely to increase outbreaks of disease in aquaculture operations and changes to rainfall and changes in salinity, nutrients and sediments may also have a negative impact.

The Tasmanian rock lobster fishery, with an estimated value of $72 million (at the first point of landing) in 2009, is also vulnerable to climate change. Warmer water and changing ocean currents are expected to impact on lobster fisheries and allow the spread of sea urchins that damage lobster habitat.

Adaptation

Given the state's high vulnerability to projected climate change, it is important that appropriate actions are taken by government, businesses, communities and individuals to ensure effective adaptation is possible in a changing environment.

More information

For details on what the Australian Government is doing to prepare for the impacts of climate change, visit www.climatechange.gov.au

See what the Tasmanian Government is doing at: www.dpac.tas.gov.au/divisions/climatechange

For details on the Antarctic Climate & Ecosystems Cooperative Research Centre (ACE CRC) and the Climate Futures for Tasmania Project, visit www.acecrc.org.au

Contact Details

GPO Box 854
Canberra ACT 2601 Australia

Phone: 1800 057 590 within Australia
Email: enquiries@climatechange.gov.au
Web: www.climatechange.gov.au