changes in the ocean, which is referred to as ocean acidification. Although the chemistry is simple and well understood, its effect on marine life is much less well known, as the process has only been recognised for around a decade. Even relatively small increases in ocean acidity decrease the capacity of corals to build skeletons, which in turn decreases their capacity to create living environments for the Reef's marine life.

Climate change is also causing increases in sea surface temperatures and atmospheric temperatures. A lack of cloud cover and also freshwater run-off can all contribute to this. Temperature is a key environmental factor controlling the distribution and diversity of marine life; it is critical to reef building and controls the rate of coral reef growth more than anything. All animals and plants have temperature limits and when these are exceeded, natural processes break down. On coral reefs, surface temperature changes affect the relationship of mutual dependence between some animals and the algae that live within their tissues. The temperature gradient along the Great Barrier Reef has shifted markedly over the last century and is likely to continue to rise over the present century. Whatever climate scenario is used, it is predicted that by 2035, the average sea surface temperature will be warmer than any previously recorded.

Rising sea levels are another significant danger, because much of the Great Barrier Reef coastline is low-lying. Predictions of a future increase in sea levels are highly variable, but large changes in sea levels can mean land inundation, which will cause significant changes in tidal habitats, such as saltwater intrusion into low-lying freshwater habitats like mangroves. Sea levels on the Great Barrier Reef have already risen by approximately three millimetres per year since 1991, due to a combination of thermal expansion in the oceans and, most significantly, glaciers melting. Changes in sea levels from temperature increases are time-dependent and uncertain, because they are partly linked to the collapse of the Earth's great ice shelves. Reefs will probably be able to accommodate a sea level rise of three millimetres, however, as the rate of sea level rise increases, the Reef's coral will be more and more affected.

It seems that local people are motivated to change in order to protect the Great Barrier Reef, however, the worst threats to the Reef are because of climate change issues. As long as this continues, the Great Barrier Reef will continue to be in danger and with many countries in the world refusing to take action that might threaten their economies, it does not really matter how behaviours are changed in Australia.

Glossary

Flood plume	A body of water that spreads out in a feather shape
Inundation	Flooding