ClimateWatch *Marine* Fact Sheet

What is ClimateWatch *Marine*?

An Earthwatch initiative developed with the Bureau of Meterology and The University of Melbourne, ClimateWatch *Marin*e provides all Australians with the opportunity to be part of a movement that bridges the environmental information gap and helps scientists shape Australia's response to climate change. By becoming a ClimateWatcher, ordinary Australians can make an extraordinary difference.

Why is ClimateWatch *Marine* needed?

To understand, predict and mitigate the effects of climate change on biodiversity, scientists have identified an urgent need for large-scale data gathering to assess how biological systems are responding.

ClimateWatch *Marine* aims to enhance the understanding and appreciation of Australia's natural systems, and become a leading resource for environmental scientists studying the effects of climate change on our coastal and marine ecosystems.

Key scientific objectives of ClimateWatch *Marine* are to:

- Develop a scientifically valid, volunteer-generated data set on the response of coastal and marine ecosystems to climate change
- Provide credible data that informs future coastal and marine resource management decision-making
- Enhance understanding and support for 'citizen science'

What can I do?

By recording the presence, absence and abundance of marine plants and animals at different locations along the coast, your observations will provide the basis for a national monitoring program.

Visit the ClimateWatch website to learn how to conduct a scientific survey and access field guides for the marine species that ClimateWatch scientist have identified as the most important to study. You can record sightings on the beach or in a rocky intertidal platform.

Who will use the information recorded on www.climatewatch.org.au?

Sightings collected on the ClimateWatch *Marine* website are uploaded to the Atlas of Living Australia, the nation's biodiversity data portal. From here, your valuable sightings can be accessed by scientists, community groups and other researchers, improving our understanding of the distribution of marine species across Australia.

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The Impact of Climate Change on our Coastal and Marine Ecosystems

- Rising atmospheric greenhouse gases are warming the oceans and increasing ocean acidity. Increasing air and sea temperatures are melting polar ice caps causing sea levels to rise.
- Change in ocean currents, temperatures and increasing sea levels means our marine creatures will need to adapt by altering where they live, feed and when they reproduce.
- Both warmer water temperatures and increasing sea levels drive stronger ocean currents that can persist for longer periods of the year, enabling tropical species to survive in southern waters and pushing southern species further south. Many species have already begun the move and with no more coastline after Tasmania, many southern species will disappear from our coasts all together. Altered currents may also change the productivity of our oceans, having a direct effect on the number of fish, invertebrates and marine mammals the ocean can support.
- Even small changes in sea level may reduce the size of available habitat for many species that live on rocky shorelines, in estuaries and coastal lagoons.
- More carbon dioxide in the atmosphere will increase the acidity of the ocean, reducing growth rates of corals and molluscs, possibly making them more susceptible to disease and altering the dynamics of food chains.

Our Coastal Marine Ecosystems

As an island nation, Australia's coastlines and marine ecosystems play an important role in our social, economical and national identity. Australia has over 56 000 km of coastline and we claim over 6 million square kilometres of ocean (almost twice our land mass).

Our coastal and marine ecosystems are valuable commodities, apart from providing essential ecosystem services such as purifying our air and removing our waste, they generate considerable wealth through sectors such as tourism, fisheries and shipping.

Globally, fisheries and aquaculture support the livelihoods of an estimated 540 million people, or eight percent of the world population.

What can you do?

- "Citizen scientists play a very important role as we do not have enough dedicated scientists to monitor different areas." Dr Lynda Chambers, Senior Researcher, Centre for Australian Weather and Climate Research – Bureau of Meteorology and ClimateWatch Science and Technical Advisor.
- We need your help to observe and record the location and behaviour of our precious marine life.
- By helping scientists to collect data you will be directly contributing to the research that is monitoring the effects of climate change on our planet.

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