



THE CHAGOS CONSERVATION TRUST

Climate Change and the significance of the Chagos archipelago

The 55 islands and extensive reefs of the Chagos archipelago are the least impacted in the Indian Ocean, from the perspective of direct human impacts, and therefore provide a unique environment in which to study the effects of global warming on reef ecosystems. The archipelago lies at the centre of the Indian Ocean and is vulnerable to exactly the same physical pressures from global warming as other reefs in the same ocean. These include:

- Sea level rises leading to inundation of low-lying islands.
- Sea surface temperature rises leading to coral bleaching and mortality.
- Coastal erosion from loss of protective structure of reef due to coral mortality.
- Rising CO₂ levels causing ocean acidification and reduced reef growth.

The distinguishing factor in the Chagos is that there are 25,000 km² of reefs with very low human impacts (and a resident population confined, at present, to just one island). This means that the associated human pressures affecting other reefs in the Indian Ocean are not a confounding factor here. This provides a unique opportunity for scientists from many countries to examine the effects of global warming without the additional effects of pollution, overfishing and other extractive processes.

The Chagos has several key roles to play in our understanding of how global warming will affect marine ecosystems in the future:

- It acts as a control site to compare with other more impacted reefs in the Indian Ocean – in most countries, causes of mortality of reefs and erosion of islands cannot be separated from effects from local development, shore use, fish extraction and other direct ecosystem disruptions.
- It provides an excellent opportunity to study the reefs' natural ability to recover from ecosystem changes such as those listed above. These can be contrasted with changes seen in populated countries so that coastal management methods in populated countries can be developed.
- It fills several gaps in global climate monitoring programmes. Many of the global programmes on acidification, sea temperature, sea levels and gasses largely omit the Indian Ocean. Development of these monitoring parameters would be central to much of the world's current reef recovery and climate change research and programmes.

The Chagos archipelago represents the last pristine set of reefs left in the Indian Ocean. As such it can make unique and vital contributions to our understanding of the processes that collectively represent global warming, the threats they pose to marine ecosystems, and to developing the management options that are available to counteract them.

The Chagos Conservation Trust is a charity (Registered in the UK No. 1031561), whose aims are to promote conservation, **scientific** and historical research, and to advance education concerning the archipelago. The Trust is a non political association.

If you would like more information on the publications or membership, please visit www.chagosconservationtrust.org or contact the Secretary (simonhughes@hughes-mccormack.co.uk).