

## **International marine project helps protect some of the world's rarest and most fragile coral reefs**

Some of the world's rarest and most fragile coral reefs and the economies that depend on them will be better protected thanks to a major international marine project led by the University of Southampton.

The three-year, Government-funded, Darwin Initiative project *Galapagos Coral Conservation: Impact Mitigation, Mapping and Monitoring* was led by Professor Terry Dawson, from the University of Southampton's School of Geography. The research is published in a special edition of the peer-reviewed journal *Galapagos Research*.

The aim was to assist the Ecuadorian Government in protecting the last remaining extensive Galapagos coral reefs of the northern Wolf and Darwin Islands and how they can be managed in a way that still supports the economic activities that are so important to the Galapagos Islands.

The coral reefs of the Galapagos Islands contribute significantly to species richness and diversity in the Galapagos Marine Reserve (GMR). They support thousands of species, including many rare and endemic corals. In addition, these reef ecosystems are major hotspots with remarkable numbers of sharks, tuna, turtles, and dolphins all ecologically linked to the area's reef complexes.

However, their distribution has been strongly affected by extreme climatic events over the last 30 years, especially El Niño events where extensive coral reefs were reduced by 95 per cent in 1982–3, with further mortality in 1997–8 due to increased sea surface temperatures as a result of ocean warming.

The project also engaged the fishing and tourism industries for improved management of the marine environment through capacity-building of tourism, dive guides and fishers, and established permanent mooring buoys to avoid boat anchor damage.

Professor Dawson comments: "These significant findings greatly improve our knowledge and appreciation of the value and current condition of the Galapagos's northerly coral communities and establishes conservation measures and stakeholder commitments to protect these valuable habitats.

"This step forward demonstrates how relatively modest external aid can empower applied marine research and lead to management policy. Such steps are critical if natural ecosystem function is to be conserved to maintain Galapagos's intrinsic value and contribution to the wellbeing of future generations."

The project also discovered new species both to science and to Galapagos, including zooanthid species from the genera *Hydrozoanthus*, *Parazoanthus*, *Antipathozoanthus* and possibly *Epizoanthus*, although the latter may be an entirely new species as yet undescribed.

Other reef-building corals have been identified, which are new to Galapagos, including *Pocillopora effusus*, *P. inflata*, and *Pavona chiriquiensis*. In addition, a possible new gorgonian of the genus *Pacifigorgia* (*Octocorallia: Gorgoniidae*) species has been collected, together with a new reef-building coral, *Leptoseris* sp. The coral species *Gardineroseris planulata* was thought to have gone extinct during the 1997-98 El Niño event, but the project (re)discovered several separate, but small colonies at the Wolf and Darwin island sites

The three-year project is the most comprehensive study using innovative mapping and rapid assessment techniques undertaken to date in the remote northern Galapagos Islands.

The project brought input from a large number of international and local marine and coral scientists, including the Charles Darwin Research Station, Conservation International, Galapagos National Park Service and WildAid, to address the particular conservation challenge faced by Wolf and Darwin Islands.

Ends

**Notes for editors:**

1. A PDF version of the journal and a selection of images are available from Media Relations on request.
2. Professor Dawson's recent research was essentially a follow-on project, based upon the recommendations that arose out of research by Professor Ken Collins at the University of Southampton's School of Ocean and Earth Science. Professor Collins was the Principal Investigator/Project leader of an earlier Darwin Initiative project that helped to develop the Galapagos Marine Park.
3. The Galapagos Islands lie in the Pacific Ocean about 1,000 km from the South American coast and straddling the Equator. Galapagos is a province of Ecuador, and have been recognised internationally as a Man and Biosphere Reserve, and as a World Heritage Site by UNESCO.
4. The Darwin Initiative was established in 1992, to assist countries rich in biodiversity but poor in resources to meet their obligations under the Convention on Biological Diversity (CBD). Projects supported from Darwin Initiative funding link UK institutions with public and voluntary sector institutions in partner countries.
5. The University of Southampton is a leading UK teaching and research institution with a global reputation for leading-edge research and scholarship across a wide range of subjects in engineering, science, social sciences, health and humanities.

With over 22,000 students, around 5000 staff, and an annual turnover of more than £370 million, the University of Southampton is acknowledged as one of the country's top institutions for engineering, computer science and

medicine. We combine academic excellence with an innovative and entrepreneurial approach to research, supporting a culture that engages and challenges students and staff in their pursuit of learning.

The University is also home to a number of world-leading research centres, including the National Oceanography Centre, Southampton, the Institute of Sound and Vibration Research, the Optoelectronics Research Centre, the Web Science Research Initiative, the Centre for the Developmental Origins of Health and Disease and the Southampton Statistical Sciences Research Institute.

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