

Marine species richness is not highest at equator

August 4 2016, by Anne Beston

New research indicates that zones closest to the equator have less species diversity than previously thought.

A research team from the University of Auckland has reviewed 27 previously published studies and used the Ocean Biogeographic Information System (OBIS) to mine data on 65,000 [marine species](#).

The team, including doctoral candidate Chhaya Chaudhary, researcher Dr Hanieh Saeedi and Associate Professor Mark Costello from the University's Institute of Marine Science also analysed fossil records of 50,000 species from the Paleobiology database.

Species included within the study ranged from marine mammals, microscopic plankton and algae, to seabed-living invertebrates. Despite their contrasting ecology, all showed an unexpected decrease just south of the equator (-5° to -15° latitude).

Analysis of the fossil marine species showed that the number of species has shifted as continents drifted, but has never peaked at the equator. Present peaks are in the northern tropics (Caribbean and Philippine-Indonesian regions) with a smaller peak in the southern tropics; that is, peaks at -20° to -30° and $+10^{\circ}$ to $+35^{\circ}$ degrees latitude.

Further research by the team aims to see if the peaks have been moving further apart due to climate change.

"The findings are significant because they indicate that our previous view that the tropics may have been a 'goldilocks' zone for evolution due to having the most sunlight and warmth may not be entirely true," says University of Auckland Associate Professor of Marine Science Mark Costello.

He says further research will investigate if peaks in marine diversity near the equator are moving further apart and further away from the [equator](#) as a result of climate change.

"Equatorial conditions may already be limiting, or perhaps too hot, for many marine [species](#) and this may be what we are seeing in recent coral bleaching due to prolonged high sea temperatures."

Other questions raised by the latest study are the need to revisit assumptions about patterns of [species diversity](#) on land and in fresh water.

Provided by University of Auckland

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