

Tues 19 Mar 2019 | 4pm | DBS Conference Room 1

Hosted by A/P Peter Todd



*Professor Andrew Baird is an Australian marine scientist and a chief investigator at the ARC Centre of Excellence for Coral Reef Studies at James Cook University. He has broad research interests in many aspects of coral reef ecology ranging from organism biology to the biogeography and evolution of Scleractinia. The main focus of Andrew's research has been coral larval ecology and reproductive biology, but he has also made significant contributions to the field of coral bleaching and likely effects of climate change on coral reefs. Andrew's research into coral larval ecology has been instrumental in establishing the role of pre-settlement process, in particular larval behaviour, in determining patterns of adult distribution at multiple scales. His primary research interest at present is to understand and predicting range limits of corals under a changing climate.*

## Global warming and recurrent mass bleaching of corals

**By Andrew H. Baird**

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The world's tropical reef systems, and the people who depend on them, are entering a new era in which the interval between recurrent bouts of coral bleaching is decreasing and few regions of the world remain unaffected. Following the record marine heatwave in 2015/16, we analysed the pattern of recurrent bleaching over the past four decades at 100 globally-distributed reef locations. The median return time between pairs of severe events at each location since 2000 is only five years, far shorter than the minimum 10-15 years needed for coral assemblage to recover. The 2016 bleaching was particularly severe on the GBR affecting 91% of reefs and driving an unprecedented shift in the composition of coral assemblages. Water quality and fishing pressure (reef zonation) had minimal effect on the severity of bleaching in 2016, suggesting that local protection of reefs affords little or no protection from global warming. Similarly, past experience of bleaching in 1998 and 2002 did not lessen the severity of bleaching in 2016. This large-scale transformation from high to low coral abundance, along 1000km of the Great Barrier Reef, is a harbinger of further radical shifts in the species composition of all marine ecosystems, especially if global action on climate fails to limit warming to +1.5-2oC above the pre-industrial base-line.