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## M-145-9 Effects of Ocean Acidification on Metabolic Performance in Coral Reef Fishes

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E-145 (Oregon Convention Center)

**Jodie Rummer**, ARC Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, Australia

Given the dramatic changes in atmospheric conditions over the 400MY evolutionary history of the fishes, physiological tolerance to elevated CO<sub>2</sub> may not be unexpected. However, the most speciose genera of coral reef fishes radiated relatively recently (23MYA) – during a period of low CO<sub>2</sub>. And, although based on only a few studies so far, the physiological effects of elevated CO<sub>2</sub> on coral reef fishes are mixed. In some species, metabolic performance is negatively affected by near-future CO<sub>2</sub> levels. However, other species exhibit either no change or even enhanced scope for aerobic performance. The reasons for this variation could be related to differences in lifestyle and habitat use, which could influence CO<sub>2</sub> tolerance. Another possibility is that whole organism responses in some species may not be sensitive enough to pick up the fine-scale adjustments made at the tissue and cellular levels. Identifying changes at key sites related to oxygen transport, oxygen consumption, and energy production in response to elevated CO<sub>2</sub> over both acute and prolonged timescales linking back to the organism's life history are crucial. Mechanisms that may be influencing physiological changes at the whole organism level could be potential targets of natural selection and adaptation to future ocean conditions.

See more of: [Effects of Ocean Acidification in Wild and Cultured Marine Fauna Part 1](#)

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