

Ocean currents bring good news for reef fish

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A thriving fish community in Indonesia. Credit: Marine Photobank Image, Beth Watson.

Researchers have discovered some good news for fish populations living on coral reefs hit by climate change.

Renato Morais is a Ph.D. candidate from the ARC Centre of Excellence for Coral Reef Studies (Coral CoE) at James Cook University (JCU). He led a study that looked at how fish on a bleached coral reef get their [food](#).

"We already knew that [coral reef fish](#) rely on food drifting in from the sea, such as plankton," Mr Morais said.

"But, we didn't know exactly how important this was," he said.

Mr Morais and Professor David Bellwood, also from Coral CoE at JCU, combined high-resolution surveys and individual biomass production estimates to generate the first map of where the energy comes from for all fish on a coral reef.

"We looked at everything from gobies to coral trout and large jacks, assessing more than 18,000 fish from over 300 species," said Mr Morais.

"We found that various transport mechanisms, such as currents and tides, interact with the reef and bring in vast amounts of plankton."

The pair found that for every kilogram of fish produced on the reef more than 400 grams of that kilogram relied on food derived from the

open ocean, rather than the reef itself. This rises to almost 600 grams on the side of the reef facing the open ocean.

"This means, that for many reefs, food from outside can sustain [fish populations](#), even when the coral is badly damaged," Prof Bellwood said.

The scientists found that areas of the reef that were more exposed to the [open ocean](#) produced the largest quantities of fish—with reef slopes being the most fruitful.

"The discovery that reef [fish](#) get so much of their food from off-reef sources was encouraging, especially because many species that feed on oceanic material have a history of disappearing after coral loss," said Mr Morais.

"This is the first time we have been able to put all species in perspective," said Prof Bellwood. "Our study offers hope that reefs subject to coral loss can still be productive."

"The reefs may be damaged but they are still incredibly valuable."

More information: Renato A. Morais et al, Pelagic Subsidies Underpin Fish Productivity on a Degraded Coral Reef, *Current Biology* (2019). [DOI: 10.1016/j.cub.2019.03.044](https://doi.org/10.1016/j.cub.2019.03.044)

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