

Pushing Western Australia's reef fish bounty into the limelight

November 13 2014, by Katherine Cure



A Dhufish (*Glaucosoma hebraicum*). Credit: Steve Lindfield

From the tropical waters of the Kimberley to the temperate coast of Esperance, Western Australia is home to more than a thousand reef fish species.

Some are shared with areas as far as Panama, like the Moorish idol (*Zanclus cornutus*), while others are found just in Australia.

But what sets WA aside as a [reef fish](#) gem is the high number of

endemics.

Endemics are [species](#) unique to an area. In Western Australia there are 27 endemic reef fish species, making it the sixth highest-ranking area in the world.

They include fish valuable for their beauty and ecosystem role such as damselfishes and butterflyfishes, as well as important fisheries targets like WA's state pride the baldchin groper (*Choerodon rubescens*) and the dhufish (*Glaucosoma hebraicum*), two of the best tasting fishes worldwide.

Why so many?

New species evolve as a response to new environmental demands or emerging physical barriers that cause spatial isolation.

Many speciation events later, areas of high [species richness](#) arise.

Western Australia is one of them.

The region has been geographically isolated, with high tectonic stability, a relatively stable temperature regime and constant oceanography, providing a space in which species have had the chance to evolve and accumulate.

Why does it matter?

First, it is an ecological asset: more fishes mean more complex ecological relationships and greater robustness to change.

Second, it is an economic asset with revenue arising from fisheries and

tourism.

Third, it is a source of pride for WA residents who feel identified with the special nature of their unique species.

Finally, it sparks the interest of researchers like myself who can start placing the pieces of the fish biogeography puzzle together.

How do we conserve it?

Endemics are at particular risk because of their limited distribution.

Protecting endemism is such an important goal, that government and non-government agencies worldwide have selected priority areas for conservation based on endemism as a metric.

The traditional approach is to set aside areas where fauna is protected from human use.

But large-scale climatic changes are teaching us a lesson about the dependence on spatial barriers as a conservation measure.

Storms, heat waves and coral bleaching can quickly turn marine parks into bare habitats and we are not finding other effective management options fast enough.

On top of this, species are shifting southwards along the coast in ways that are poorly understood.

Are fish simply moving to new areas or are their distributions contracting?

We need to cast a spotlight on our reef fish bounty and the history of

WA as a climatically stable refuge for the creation of life and introduce this concept to residents, scientists and government.

This needs to happen so that we understand our unique asset and find better ways of researching and conserving it.

This is the time to upscale our marine science and shift from the site focus limited by the boundaries of space, to the geographic range.

Only then can we be better informed on WA's endemic reef fish populations and their response to environmental gradients and heat wave events.

That way we can assist managers in their endeavor to put in place climate-adaptive measures that maintain our fish gems.

Provided by Science Network WA

Citation: Pushing Western Australia's reef fish bounty into the limelight (2014, November 13) retrieved 27 April 2024 from <https://phys.org/news/2014-11-western-australia-reef-fish-bounty.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.