

SCIENCE

SHARKCANO

No, not a small budget sequel to the Hollywood flop *Sharknado*, but news of the ground-breaking discovery that sharks can live in the extreme environments created by submarine volcanoes.

Ocean engineer, Brennan Phillips, has led a team to investigate the Kavachi Volcano in the Solomon Islands, one of the most active submarine volcanoes in the Pacific. Their mission was to create a map of Kavachi's peak and learn as much as possible about the chemical plumes, geology and biology of the volcano. The extremely hostile habitat meant that the team had to deploy disposable robots and cameras to conduct their research, with each mission only lasting a maximum of one hour.

Footage revealed hammerheads and silky sharks living in the toxic waters surrounding the volcano, and within its caldera, seemingly unaffected by the hostile temperatures and acute acidity.

This discovery poses many further questions: how do sharks detect, or react to, underwater eruptions? How well adapted are they to other



extreme conditions? And what kinds of environmental changes have they adapted to in the past?

IT'S A MAN(GROVE)'S WORLD

We are locked in a race against time to identify prospective habitats that may shelter corals from some of the worst effects of climate change.

Now, a recent study published in the journal *Biogeosciences* points to

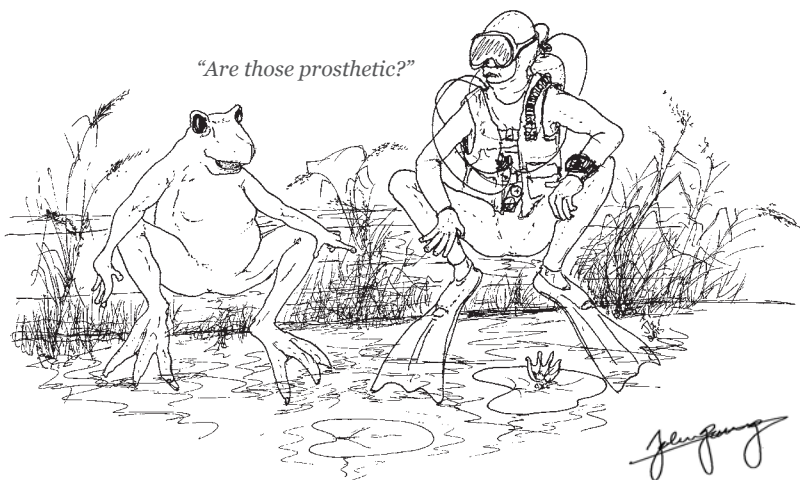
a potential sanctuary for corals in the sheltering roots of mangrove ecosystems. Mangroves, sub-tropical or tropical trees that colonise coastlines and brackish water habits, have networks of prop roots that extend like GoPro pole mounts down to the sea floor, structures which have now been identified as a safe environment for corals to colonise.

The combination of chemical, biological and physical conditions around mangrove habitats help protect corals from the worst threats of climate change; shade provided by the shrubs protect the corals from high levels of solar radiation and can help deter coral bleaching. Waters around mangrove systems are also "out of equilibrium" with the wider ocean, which allows corals to avoid exposure to harsh increases in temperature and acidification.

Research indicates that by 2030, over 90 percent of the oceans' reefs will be threatened by climate change and local human intrusion, rising to a terrifying forecast of 100 percent by 2050.

This discovery of their role as a coral refuge further reinforces the importance of the relationship between coral reefs and coastal mangrove systems, and implies that mangroves will play a vital role in protecting coral species in the future. That is, if we stop cutting them down. [SDAA](#)

COMIC CORNER



FACTS AND FIGURES

Life began in the ocean around **3.5 billion** years ago

Of the more than **500** or so shark species, about

80% grow to less than

1.6 metres