

# Great Barrier Reef hiding priceless tech treasures

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Move over Elon Musk and Mark Zuckerberg – University of Queensland

scientists say the humble sea sponge or snail could unlock technological breakthroughs that might alter the course of human existence.

Professor Bernard Degnan from UQ's Centre for Marine Science said commonplace Great Barrier Reef creatures have evolved remarkable features that are now the basis of scientific breakthroughs in renewable energies, next-gen materials and other fields.

"The reef should be recognised as a place of infinite value – not simply in terms of habitat, or its commercial value to fishing and tourism – but for its potential role in inspiring tech breakthroughs to address global challenges," he said.

"It is home to many examples of adaptive ingenuity that are underpinning exciting projects and ideas around the world.

"Thousands of reef species have developed innovative solutions to live in a harsh and competitive marine environment, and we should be inspired by them to address global problems like [climate change](#)."

Global research has found that sea sponges, snails or squirts have evolved amazing abilities.

For instance, sea [sponges](#) are capable of making glass of a purity unmatched by even the best fibre optic glass humans can produce – and it's done without chemicals, heat or energy – just with seawater.

Sponges filter litres of seawater to high purity each day and, in concert with the microbes that live inside them, produce complex chemicals of high value.

Professor Degnan said scientists were only just beginning to imagine the applications for this kind of capability.

"The Centre for Marine Science is working to develop bioremediation systems based on the [sea sponge](#) that purify sea water and at the same time produce useful products," he said.

"Our work is also exploring whether the humble sea squirt could hold the key to helping us concentrate vanadium, an element that has been used to power a new generation of batteries that never run out.

"Such capability could resolve our global reliance on fossil fuels, drastically reduce carbon emissions and help us arrest climate change."

Professor Degnan warned that opportunities to overcome future challenges could be missed if governments failed to recognise the full value of the Great Barrier Reef.

"These few examples are just the tip of the iceberg.

"With incredible advances in biology and genomics, we can now understand the amazing capabilities of marine animals and convert them into new manufacturing technologies and industries," he said.

"Who knows – our ongoing survival might depend on the humble sea sponge.

"I suggest our governments to not only think of the Reef in terms of environmental and immediate commercial value, but to recognise its infinite value to the future of humanity."

Provided by University of Queensland

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