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Peter Harrison - International coral 'sexpert'

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Video:

Coral has been the focus of Professor Peter Harrison's life for more than 35 years. As reef systems come under increasing environmental pressure around the world, Harrison is racing against the clock to "reseed" coral reefs, saving ocean ecosystems and the communities that rely on them in the process.

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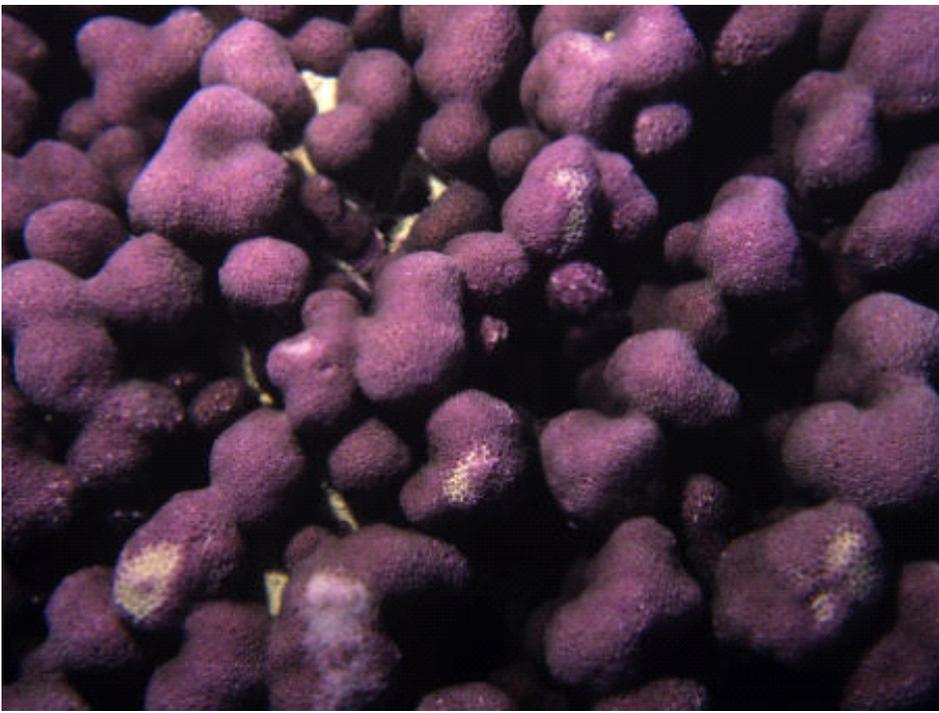
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In the early 1980s, Professor Peter Harrison was sitting on a beach near the Great Barrier Reef, watching a mass coral spawning event.

He describes it as a pinky-red “slick” that coats the surface of the sea.

“You can see it from the air,” Harrison says. “Pilots notice these events when they fly over. The enormous slicks can be kilometres long.”

It was at around the same time as this mass coral spawning event, in the 1980s that Harrison and his then colleagues at James Cook University made a world-first finding.

They discovered – that most corals spawn their eggs and sperm into the water.

Their larvae develop externally and can drift onto different reef systems nearby. It happens for a limited time – usually in late spring or early summer, at a particular time of night and after a full moon.

Their discovery, published in the journal *Science*, led to a global renaissance in coral reproduction studies

around the world.

“I thought wow! we should be able to use these sperm and eggs, otherwise, most of it will end up as fish food or disintegrate,” he says.

Harrison’s intimate knowledge, accumulated over more than 30 years of work with coral around the world, has gained him an unusual title: coral ‘sexpert’.

“That’s a reasonable description,” he laughs.

RAINFORESTS OF THE SEA

Coral reefs are crucial for many reasons.

“They are the equivalent of rainforests of the sea in terms of biodiversity,” Harrison says.

“The numbers and abundance of different types of organisms in reefs are much higher than they are in any other type of marine environment.”

Reefs are also socially, culturally and economically valuable. Millions of people in the world’s tropical areas rely on reefs for their existence.

There’s been increasing pressure on reef systems, for many years, from overfishing, blast fishing, pollution and increasing sea temperatures. In 2011, the “Reefs at Risk” report by the World Resources Institute said the threat level has grown from “worrisome to dire.”

The report found that around three quarters of the world’s reefs are under so much pressure, that many of them are at risk of dying by 2050.

“If we lose corals, the reef will disintegrate and people will no longer be able to rely on its resources,” says Harrison.

“That’s why engaging local communities is so important - to show them that simple restraint can have a massive positive effect.”

EDUCATING TROPICAL COMMUNITIES

Some of the world’s most heavily impacted reefs are in the Philippines.

Harrison, who is now Director of the Marine Ecology Research Centre at Southern Cross University in Lismore, New South Wales, is working in the northern Philippines on his “most thrilling” project yet.

It is the world’s first large-scale restoration of damaged coral. His team is farming coral eggs and sperm, growing the larvae and then spreading it over damaged reefs to “reseed” them.

“After two years of growth we now have corals that are about dinner-plate size,” says Harrison.

“They’re now big enough to be sexually reproductive themselves. So in March when they spawn next, they will be re-spawning themselves!”

Harrison was recently awarded a \$1.2 million grant from the Australian Centre for International Agricultural Research (ACIAR), to continue this work for five years.

The team has been designing the reseeded process to be low cost, low technology and as simple as possible, so it can be easily shared with reef communities around the world.

Harrison says “the only way reefs will be sustainable in the future is if the communities learn how to value

them.”

“It’s not only about regenerating the corals, but also creating a balance with local communities,” says Harrison.

“With training of the next generation of reef users, they will hopefully, understand how crucial the reef system is for their communities.”

INTERNATIONAL MAN OF CORAL

The work in the Philippines is just one part of Harrison’s vast and fascinating career. Apart from coral ‘sex’, the other main theme of his work has been looking at the effects of pollution and stress on reefs.

After the first Gulf War, Harrison worked for the United Nations in the Arabian Gulf to investigate how the reef had been damaged during the fighting. There was much eco-vandalism during the war, with oil heads blown up around the region and millions of barrels of oil released into the ocean.

During that time, Harrison also happened to discover a new coral species. It has since been named after him – the *Porites harrisoni*.

“It’s one of the really tough corals in the Arabian Gulf,” says Harrison.

Harrison says he feels “privileged” to have seen so many of the world’s reefs, he has worked in Japan, Micronesia, French Polynesia, Florida, the Bahamas, Maldives, Papua New Guinea, New Caledonia, the Philippines and Antarctica. “I often have to “mentally pinch” myself,” he says.

THE GREAT BARRIER REEF

When Harrison finishes his Philippines project, he wants to turn his attention to the Great Barrier Reef.

Situated off the east coast of Australia, it is the world’s most significant coral reef system.

“The Great Barrier Reef is immensely valuable to the Australian economy and Australia’s national character,” says Harrison.

“It’s very much a part of what Australian’s see as important in our environment.”

Most of the \$6 billion dollars the Great Barrier Reef brings into the Australian economy comes from ecotourism.

But Harrison says the reef is in a delicate situation.

“Some of the long-term monitoring of the reef shows that overall, slightly more than 50% of live coral cover has been lost in the past 27 years. And this is the world’s best-managed marine park system.”

Despite the reductions in fishing pressure, sediment run-off and industrial action nearby, coral bleaching and the Crown of Thorns starfish have still had some effect.

“But the thing I’m most excited about,” says Harrison, “is that the success of the experiment we’ve done in the Philippines, can now be applied to the Great Barrier Reef.”

CORAL CONTAGION

Harrison has an undeniably contagious enthusiasm for coral.

“When I’m flying and I first see that brilliant blue that you get, when coral sand is reflected through the sea... it makes the hair on the back of my neck stand up, it inspires me, even after all these years,” he says.

“To me, it’s like a research and spiritual home. Knowing how important these systems are, that’s what keeps me going.”

Harrison has a recurring dream of swimming over a regenerated reef that is bursting with coral, fish and other marine life and being able to think “we did that”.

He is optimistic and hopeful for the future, yet fearful that unless the global community starts appreciating reefs, we will lose them.

“I wish everyone could see them, and understand what they’re losing,” he says.

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