

## Praise for 'courageous' colleagues

**S**ymposium organisers have been praised for their "courage" in releasing the Consensus Statement on Climate Change and Coral Reefs this week.

The decision to go public with the statement at this Symposium was a "bold move", President of the International Society for Reef Studies, Robert Richmond, said.

He said Symposium Convenor Terry Hughes, of James Cook University, "has my total admiration".

"Terry was willing to make this bold statement and I know that he has become a bit of a target for it and got some hate mail," he said.

"Terry is a brilliant scientist – the total package – and he has always been prepared to go the extra mile for science. This has been a difficult thing to do and I totally admire his personal integrity.

"He really gets it," said Professor Richmond, who is Research Professor at Kewalo Marine Laboratory at the University of Hawaii in Manoa.

Professor Richmond denied the statement was a political act, or a politically-motivated stand.

It had been created by a small group of scientists and it had been peer-reviewed by up to 60 colleagues and then distributed to more than 2,600 more who "agreed with it and were prepared to sign it".

"The aim is to provide political leaders with what they need to know about the marine environment, not to just hand them a sheet of numbers," Professor Richmond said.

"It is an interpretation of a range of issues that must be dealt with locally – not a broad statement on climate change. It does not go beyond the bounds of scientists' responsibility to present the facts and interpret the impact on society."

Professor Richmond said he was concerned that some of his colleagues, especially those working within government, had been advised not to sign the document.

He dismissed "as ridiculous" the argument that any scientist who offered an interpretation of their work was, by definition, taking an advocacy position.

"If the taxpayer is paying for work to be done and if you cannot stand by your work, then something is wrong," he said.

"We have a responsibility to be candid and honest," continued Professor Richmond.

"I don't see any political element in being honest."

He described as "confusing and inappropriate" some of the behaviour he had witnessed in Washington, where "people will ignore factual information in favour of their own egos, financial ties and colour of their politics".

Political leadership was more evident in the Pacific than in the United States, he said.

"You see real leaders – tribal chiefs and



council members – in the Pacific. They talk about the impact of environmental change on future generations; everything in America is based on electoral cycles of two, four and six years".

"I have never been asked a question in Washington about what this means for future generations, it just never comes up."

Professor Richmond said that when dealing with Pacific leaders "it is inappropriate to make value judgments or tell leaders what they should do but you can help them by answering their questions with the findings of science".

However, the "paradigm" had changed for scientists, providing the additional challenge of needing to communicate more clearly and to help politicians.

They needed to realise that "brakes only work before you go over the cliff", said Professor Richmond.

"We have a responsibility to continually evaluate. As we get more information, (the situation) will become easier and more

clear to understand," he continued.

"The science has gone from 'could be', to 'likely' to 'probably', and now we are saying 'this is happening'."

Professor Richmond described the current Symposium – the tenth he has attended since 1977 – as "outstanding".

"The science is the main draw for the Symposium. And I have seen enough to make me optimistic about our future.

"The science is great but the people are better. We are starting to see a tremendous effort to bridge the science and make it more understandable and relevant to society.

"It is great to see such high levels of academic skills and the integrity to share the information."

Professor Richmond said if insufficient action was taken to save coral reefs and coral fish in the long-term, then scientists and politicians would "both" have to accept responsibility.

"Times have changed since I started," he recalled. "Communication skills never came up and courses such as applied biology and the application of knowledge in the real world were seen to be beneath true academia."

"You were discouraged from communicating with the rest of society – which is what we are now saying young scientists should do today."

"As scientists, we have responsibility for helping to solve the challenges in front of us. We have one of the best jobs in the world."

## Today's Program Highlights

### Plenary Speakers

#### Professor Helene Marsh

James Cook University, Australia

#### 0930-0945 Plenary Hall 2

Helene Marsh is Professor of Environmental Science and Dean of Graduate Research Studies at James Cook University. She was awarded her PhD from James Cook University. She is an international authority on the conservation biology of tropical coastal megafauna: dugongs, sea turtles and cetaceans. Marsh is committed to informing solutions to conservation problems and collaborates widely with natural and social scientists and stakeholders including Traditional Owners. Her plenary address today is titled "Conserving coral reef megafauna: issues of ecological process, biodiversity, cultural diversity and food security".



#### Dr Madeleine van Oppen

Australian Institute of Marine Science, Australia

#### 1400-1445 Plenary Hall 2

Madeleine van Oppen is the Director of the Centre for Marine Microbiology and Genetics at the Australian Institute of Marine Science. She was trained in marine (molecular) ecology in the Netherlands and started her research on reef corals in 1997 at James Cook University, Australia. In 2001 she moved to the Australian Institute of Marine Science, where she is a principal research scientist leading a program on the genetics/genomics of adaptation/acclimatisation and resilience of corals to climate change. Her plenary address today is titled "Can old corals learn new tricks?".





## Speakers' preparation room: the heart of the Symposium



**Y**esterday marked the busiest speaker day on the Symposium program with 324 individual presentations given over the course of the day.

This week a total of 1294 speakers (including 1143 full oral presentations and 151 speed talks) have already passed through the speakers' preparation room. Each speaker has been personally welcomed and assisted by an audio visual technician to upload their presentation to the specially created ICRS 2012 network. The presentations are then sent to the eight concurrent session rooms at the

convention centre, or to the four concurrent rooms at the Sebel Hotel.

Each networked presentation has an average size of 12MB, with an anticipated total weekly storage requirement of over 60GB.

The ICRS 2012 website should exceed 500,000 hits for the week of the Symposium alone.

There are still 455 more presentations to be delivered over the course of today and tomorrow ensuring an action-packed final two days for delegates here in Cairns.

## New parks a step closer to reality

**D**elegates gave generous applause at the beginning of yesterday's sessions when Symposium convenor Terry Hughes announced that the Australian government was about to announce a 500,000km sq Marine Protected Area (MPA) in the Coral Sea.

The announcement from Canberra came as the final 60-day round of public comment opened on government plans to create the world's biggest network of marine reserves.

Professor Hughes told the audience that the MPA would be the size of Spain, prompting delegates to show appreciation for the landmark proposal.

Australian Environment Minister Tony Burke said yesterday: "The key principle for me is very straightforward: 'Do we go ahead with the most comprehensive marine park network in the world, or do we not?'"

At the conclusion of this last 60-day period of consultation, the Director of National Parks must hand over any comments to the minister.

Mr Burke said: "A total of 96 per cent of Commonwealth waters within 100km offshore remain open to recreational fishers and in most cases you have to travel hundreds of kilometres before you hit a highly protected marine national park zone."

On the east coast of Australia, the closest marine national parks in the new network will be 200km offshore.

"The impact on the commercial fishing sector has been restricted to just over 1 per cent of the annual catch," continued Mr Burke.

Government was "currently working with the (fisheries) industry to establish how adjustment assistance will be delivered to businesses that are likely to be affected".

Once the parks are established under Australian law, the next step will be to develop management plans for them.

Mr Burke added: "We can ensure that Australia leads the world in marine protection."



### Speakers' Preparation Guidelines

If you are presenting a talk, you must upload your presentation at least three (3) hours prior to your presentation, at the same venue where you are giving your talk: MR8 on the mezzanine at the Cairns Convention Centre and the Rosser Room on the first floor at the Sebel Hotel. The Speakers' Preparation Rooms at both venues will be open at these times:

Sunday: 1200 – 1700 • Monday-Thurs: 0730 – 1800 • Friday: 0730 – midday

### Free WiFi

WiFi is available throughout the Cairns Convention Centre for the duration of the Symposium. WiFi is available throughout the Sebel Hotel for the duration of the Symposium. To access please enter the code **MQ6HNW**

### Connect at ICRS 2012 with Social Media

To discuss today's media briefings online, use the following hash tags:

Lessons from the Great Barrier Reef - #icrs2012 #reef

The State of Coral Reefs - #icrs2012 #coral



## ICRS 2012 Program changes

### Thursday 12 July

**Martin Russell** – Oral presentation at 0930, Plenary Hall 2

*Presentation to be given onsite by Yvonne Sadovy; new abstract.*

**Dominique Roche** – Oral presentation at 0945, Sebel Mossman  
*Withdrawn.*

**Henrich Bruggemann** – Oral presentation at 1000, MR1

*Presentation to be given onsite by Mireille Guillaume.*

**Lewis Gramer** – Oral presentation at 1000, Sebel Mossman

*Presentation to be given onsite by Scott Heron.*

**Roldan Munoz** – Oral presentation at 1500, Plenary Hall 2

*Presentation to be given onsite by Scott Radway; new abstract.*

**Matthew Dunbabin** – Oral presentation at 1630, Hall D

*Presentation to be given onsite by Simon Albert.*

**George Schmahl** – Oral presentation at 1700, Hall B

*Presentation to be given onsite by Billy Causey.*

**Nathalie Hilmi** – Oral presentation at 1715, Hall C

*Presentation to be given onsite by Nicolas Pascal.*

**Marlene Brito** – Oral presentation at 1730, Hall D

*Withdrawn.*

**Martin Russell** – Oral presentation at 0930, Plenary Hall 2

*Presentation by Martin still going ahead.*

**Angelique Braithwaite** – Speed talk at 1040, MR3

*New abstract.*

**Edward JK Patterson** – Oral presentation at 1215, Hall

*Presentation to be given by Jerker Tamelander.*

**Merinda Nash** – Speed talk at 1255, MR5

*New abstract.*

**Sander Scheffers** – Oral presentation at 1530, MR5

*Withdrawn.*



# We can be optimistic

**M**arine scientists can afford to be more optimistic about the future, according to yesterday's plenary speaker, the Chief Scientist at The Nature Conservancy, Peter Kareiva.

Resplendent in a pair of bright red shorts, Dr Kareiva told Symposium delegates they probably had a reputation among young people as being "not much fun" and "preachy".

He estimated that only 1 per cent of yesterday's audience stood up when he asked whether they thought life would be better for their children than it has been for them.

"You are more pessimistic than anyone out there," he said. "And plenary speakers like me are the worst of all."

Society was being "subjected to curmudgeon conservation" and the public "does not think there is a trade-off between conservation and the economy", said Dr Kareiva, who is Chief

Scientist at The Nature Conservancy which is the largest non-government organisation engaged in coral conservation and education.

"We give messages of sacrifice and doom and gloom... messages of fear ... and that does not work because as any social scientists will tell you, that leads to a state of paralysis," he said.

Change in attitudes and behaviour would come from "social networks" and volunteerism in which people were physically engaged in making a difference.

Dr Kareiva expressed an unswerving optimism for the future of the planet, predicting peaks in consumption, population and damage to the environment.

While the human impact on ecosystems



was "severe and egregious", he said society needed to "get through the next 50 to 100 years and ensure there are enough systems to seed recovery".

He cited birth rates in Europe – now at 1.5 births per couple – as evidence of how trends can reverse. This was due to women entering the workforce and forging careers, and this had had an immediate impact on fertility rates.

Dr Kareiva also said scientists were self-indulgent if they thought they could

study coral reefs but neglect the needs to make their findings relevant to society.

The general approach by the science community needs to be reconsidered.

"We frame things, like 'the fragile planet'. We are drawn to the metaphor but it hides the science. 'Fragile' is a crisp negotiating position – it is a no-compromise position but that means you are resistant to compromise," he continued.

"I don't get the sense that we are handling ourselves well, and part of the problem is us."

Dr Kareiva said he had looked at multiple studies on the marine environment and found they lacked a consistent analytical approach.

He presented data that sought to answer the question, 'can systems maintain stability while being buffeted by stressors?'

"Nothing will recover if you do not stop hammering them," said Dr Kareiva. "That is pretty obvious."

## Fellowships at ICERS 2012

**D**avid Yellowlees said the Organising Committee were thrilled with the support provided by a range of organisations that have assisted in bringing delegates and media to ICERS 2012.

He said a number of organisations had been very generous in helping fund both delegates and the media to participate in the Symposium.

Around \$350,000 supported the registration, accommodation and travel expenses of over 135 delegates.

Both the Australian Government through its International Seminar Support Scheme (ISSS) and the David & Lucille Packard Foundation sponsored delegates, primarily from developing countries, to attend ICERS and in the case of Coral Triangle countries, the launch of the State of the Coral Triangle Reports. Support for the latter also came from the United States Agency for International Development (USAID) Coral Triangle Support Partnership (CTSP).

A number of other organisations had been particularly generous including the Sasakawa Peace Foundation, The Nature Conservancy, the Australian Coral Reef Society, the International Society for Reef Studies and ICERS.

The International Media Visits (IMV) Program operated by AusAID supported media attendees from Belize, Indonesia, Kenya, New Caledonia, Papua New Guinea and the Philippines.

Organised by SeaWeb, a total of 11 media fellows were supported by USAID/CTSP, The Coral Triangle Programme, the Kingfisher Foundation and the Pacific Island Countries Participation Fund, which is part of the New Zealand Aid Programme.

SeaWeb indicated that the media fellows have contributed to over 1600 press uptakes reported so far around the world. Funded by a grant to ICERS from the David & Lucille Packard Foundation, SeaWeb have operated the media and press briefings room along with Melissa Lyne our Australian media consultant.

### Photo Left to Right Kristine Alave

Philippine Daily Inquirer, Philippines  
"I am so happy to be here! It is my first time in Australia and I am getting a lot of ideas for conservation and fisheries. Food security is the critical issue for our environment". "I have thoroughly enjoyed meeting the scientists in these fields"

### Henrylito Tacio

Philippine Graphic/People & Planet, Philippines  
"Receiving this grant means getting the latest status of Coral Reefs around the world. "Learning about the future source of medicines and pharmaceuticals of the future"  
"The weather cold & hot – just the way I like it".



### Jason Wuri

South Pacific Post Limited, Papua New Guinea  
"This Symposium opens a whole new world in understanding of Coral Reef Eco-Systems for me. "With this grant I am able to meet with colleagues and new people".

### Pita Ligaiula

Pacific Island News Association, Fiji  
"Coming together with 2000 people with one common interest - being the protection of coral". "For me, hearing expert scientific evidence relayed to the layman". "This helps me to communicate better the importance of coral reef preservation in the Pacific".

### Moffat Ghala Mamu

Solomon Star Newspaper Limited, Solomon Islands  
"The weather is great and the Sunday

tour to the Great Barrier Reef was fantastic". "This grant gives me new opportunities and excitement in the areas of coral and oceans, such as climate change affecting the Pacific region."

### David Yellowlees

ARC Centre of Excellence, Australia  
**Wesley Manuai**  
National Television Service Kundu2TV, Papua New Guinea  
"This is one of the greatest opportunities for me coming from an island community dependant on seafood. "It is a vital issue facing not only PNG but other island provinces as well."  
"Talking to well-known scientists who can simplify the science so that people better how this information affects critical issues. The message is then spread to the wider community. "



# Fishy business

**D**emand for coral fish at luxury restaurants is likely to rise with the growth of the Chinese economy, scientists at the conference predicted yesterday.

Reef delicacies such as Napoleon and Maori Wrasse risked being over-fished because of heavy consumer demand in Beijing, southern China and Hong Kong.

Prices are reaching up to \$US400 a kilo for Napoleon Wrasse in Beijing, according to Michael Fabinyi, a Research Fellow at the ARC Centre of Excellence for Coral Reef Studies at James Cook University.

He said he had also seen Leopard Coral Trout on the menu for \$US200 a kilo.

Catching a Leopard Coral Trout in the Philippines could bring a fisherman the equivalent of one month's wages.

Being offered these rich rewards, many fisherman were now catching and keeping fish alive, knowing their likely ultimate destination would be luxury Chinese restaurants.

"Some areas (of the Philippines) have been fished out," Mr Fabinyi said.

"There is recognition among villagers that catching these fish on such a large

scale is not sustainable, but those concerns are dwarfed by their aspirations for a better quality of life."

Social need among Chinese to impress friends and business associates, and gain greater status in society, was driving the demand.

Desire for reef fish was not contained only to China. Significant importers included Singapore and the United States, which have substantial Chinese populations, as well as Australia, which was catering to the tourism needs of its target Chinese market.

Annual trade in reef fish in Hong Kong alone has previously peaked at 30 million tonnes and was worth \$US1 billion, according to Yvonne Sadovy, Professor of Marine Science at the University of Hong Kong.

She said she had seen a "boom, bust" cycle for demand that was influenced by the overall health of the economy.

However, the trend showed the popularity of reef fish in luxury restaurants would likely increase significantly in the medium to long term.

"It is easy in Hong Kong to see large



Yvonne Sadovy

tanks of reef fish," she said. "Hong Kong is the centre of this type of trade."

"In southern China, it has become a very important part of the diet. In the '60s and '70s, reef fish could be found in the northern sector of the South China Sea. Now, the trade has had to go farther east and west, and importers are bringing in reef fish from the Indian and Pacific oceans. It has become a massive trade."

The cause for sustainable fishing of reef fish was not helped by the lack of public awareness in China.

She cited an independent survey among Cantonese speakers that found 42 per cent "believe there is an endless supply of fish in the sea." "This just shows how little the public understands of what is going on."

She said this had biological, ecological and social implications.

Without management, it would be easy to over-fish reefs, especially if demand continued to grow in alignment with the increasing wealth of mainland Chinese.

This would also affect the food security of coastal communities.

Ms Sadovy said she had seen evidence of traders establishing themselves in coastal communities, over-fishing the immediate area and then moving elsewhere when stocks dried up.

James Cook University's Mr Fabinyi said that in China especially, research needed to be conducted into where the reef fish were coming from, and how many were being caught.

## Reef needs urgent action

**R**ecent science suggesting coral reef cover of the Great Barrier Reef is the lowest since 1985 has not been sufficient to instigate a government response, a leading Australian scientist told a media briefing this week.

Peter Doherty, of the Australian Institute of Marine Science, called the diminishing state of the reef "alarming and unsustainable" and lamented how "the coral has been declining for decades".

The United Nations recently threatened to list the Great Barrier Reef as a World Heritage Site in Danger.

Its Education, Scientific and Cultural Organisation (UNESCO) has given the Australian government a deadline of next February 2013 to report on the progress being made on the reef's recovery.

Since the listing in 1981, an estimated 50 per cent of the reef has been lost.

The single most significant act to help the reef recover was to minimise Crown of Thorns outbreaks created by sediment from land run-offs and pesticides, Mr Doherty said.

These starfish outbreaks had caused 40 per cent of "observable loss".

More action was needed to "relieve the known causes" of degradation and it was

important to assess all the "cumulative effects that are causing it stress."

However, the future of the reef was even more uncertain "because of the unknown effects that climate change will bring," said Mr Doherty.

Mr Doherty praised the overall management of the reef, saying that the 2004 decision to create a no-take fishing zone across one-third of the reef had been an important decision.

At a separate briefing, Jeremy Jackson, Senior Scientist Emeritus at the Smithsonian Institute, congratulated Australia on that decision and said such a move would have been politically impossible in the United States.

"That would have been like saying there would be no more fishing along the entire east coast of the States – and that is never going to fly," he said.

Principal Research Scientist at James Cook University, Jon Brodie, said it had taken until 2008 to create a political environment in which federal and state governments would co-operate on managing the catchment areas that affected the Great Barrier Reef.

Now, however, authorities were able to work with farmers and heavy industry to help curtail erosion and use of pesticides that affected reef quality through

sedimentation after big rains.

While the Great Barrier Reef was possibly the best managed in the world, the "bar is relatively low".

"Urban development is not part of the plan for the Great Barrier Reef, and it should have been," said Mr Brodie, who works in JCU's Catchment to Reef Research Group for Tropical Water and Aquatic Ecosystem Research.

He agreed with Mr Doherty on the need to focus on Crown of Thorn outbreaks but said further restrictions on fishing and action to mitigate climate change were also essential.

Laurance McCook, of the Great Barrier Reef Marine Park Authority, said Australia was in a privileged position to be a wealthy country that could afford to protect the coral and now it had to "stand behind its values".

Many nations that had threatened coral were emerging or struggling economies that did not have the resources that Australia could afford to deploy, he said.

The reef is estimated to put \$A5.5 billion into the Australian economy through tourism and associated commercial activity.

Mr McCook said that restrictions aimed at improving coral quality had an

estimated impact of only 0.7 per cent of that total revenue.

However, he said the future of the Great Barrier Reef was "at the crossroads".

"With the decisions taken now, we determine the long-term future and we need to step-up the management of the reef," he said.

Chairman of the authority, Russell Reichelt, said it as "important we do not lose hope".

"The fact is we have a complete set of national parks but we do need to do more. We need to be better at explaining the science and not underestimate the importance of communication."

He said his authority had launched a "Guardian" program of more than 100,000 schoolchildren, which was aimed, in part, at educating parents.

"But we need to work directly with farmers, the fishing community and tourism leaders to enhance the reef, Mr Reichelt continued. "The early conflicts are decades behind us and stakeholders realise the extent of the challenge now."

He added that his authority would include in its 2014 Outlook Report an assessment and valuation of the reef's World Heritage status.



# Oceans of fruit... from the land

**M**arine scientists enjoyed their opportunity to get a special taste of the land yesterday. Some 23 fruits and other delicacies have been on offer at the Symposium to promote the beautiful, nearby area of Mission Beach and the Cassowary Coast.

Two of the most exotic fruits on offer on Level 1 of the Convention Centre have been kwa muk and abiu.

This writer can assure delegates that kwa muk is a "party in your mouth".

And the manager of Mission Beach Business and Tourism, Angi Matveyeff, says abiu is a fruit "you have to put on your bucket list".

Ms Matveyeff says she has been thrilled with the response of delegates.

Many of the fruits are originally from South America and Asia – and delegates from those parts of the globe are thrilled to get a little taste of home.

"We do not usually come to conferences but this has been delightful", says Angi.

"Everybody has been so friendly. Some say they are now going to visit Mission Beach on their way to Townsville, so that's fantastic."

*Right: Mission Beach tourism volunteer Marie Greatrex promotes the exotic fruits of Far North Queensland at the Symposium yesterday.*



## GBR coral cover: scientist calls for more action to build reef resilience

**T**he AIMS Long-Term Monitoring Project (AIMS LTMP) has surveyed coral cover annually on approximately 100 coral reefs representative of the Great Barrier Reef (GBR) since 1985. Shifts in coral cover over this 27 year period provide a wealth of important information about the changing health of coral reefs and the major disturbances reducing coral cover.

Dr Peter Doherty, past Research Director of the Australian Institute of Marine Science (AIMS) and Science Leader of the Tropical Ecosystems Hub of the National Environmental Research Program (NERP) says "over the last three decades, tropical cyclones and storms, crown-of-thorns starfish and coral bleaching, have each

taken their toll of coral cover". Each one can cause widespread damage but it is the cumulative effect of multiple disturbances that is most worrying especially as extreme weather events may become more common in the future".

Our monitoring shows that the repair process is generally slow. It can take 20 years to rebuild the coral community on a reef which has suffered a severe loss of coral cover even under good conditions. Some reefs are not as resilient", Peter adds

"Some inshore reefs have shown little recovery due to poor water quality and naturally low levels of replenishment. While other reefs have shown robust recovery, losses have outnumbered gains and the overall picture is one of slow decline."

## A growing threat: coral cores reveal the impact of bleaching events on the Great Barrier Reef

**C**oral bleaching is a serious threat to coral reefs across the globe. Scientists from the Australian Institute of Marine Science have used coral cores to track and better understand the responses of corals to documented bleaching events on the Great Barrier Reef.

Using cores extracted from massive, long-lived corals at four sites across the GBR, Dr Neal Cantin and Dr Janice Lough were able to measure changes in coral growth characteristics

during times of stress.

"There are three clear growth responses to biological stress in corals. A decline in the extension rates of coral tissue, which itself causes a decline in the extension of the coral skeleton. This in turn leads to growth bands that are unusually dense, as the production of new skeleton occurs in the same physical space for a longer period of time than under normal conditions."

Through the study of these coral cores, the scientists have also been

**"Coral growth rates take approximately three years to recover to pre-bleaching levels."**

between annual growth bands. Growth bands are formed as the coral puts down its skeleton; a process known as calcification that is critical to the persistence of tropical reef ecosystems.

The data show that these corals exhibit a marked slowdown in growth after severe bleaching events, especially at sites that were subject to the highest levels of thermal stress.

"Coral cores provide an important window into the past," says Dr Cantin, "Not only are we able to determine typical rates of growth for these corals but by using these biological recorders we gain insight into how and why growth slowed

able to assess the recovery times of corals from severe bleaching events, as Dr Lough explains:

"Coral growth rates take approximately three years to recover to pre-bleaching levels. After the 1998 bleaching event, coral growth slowed by about 20 per cent. We don't see a return to historical baseline growth rates until 2002."

These findings show that coral bleaching events not only have an initial impact on coral communities by killing off individual coral colonies, but also cause long-term reductions in growth even among the more resilient massive corals that were used in this study.





# Coral fluorescence on show

**T**oday a truly spectacular cinematographic experience will be showcased and complemented by a stunning and mesmerising soundtrack.

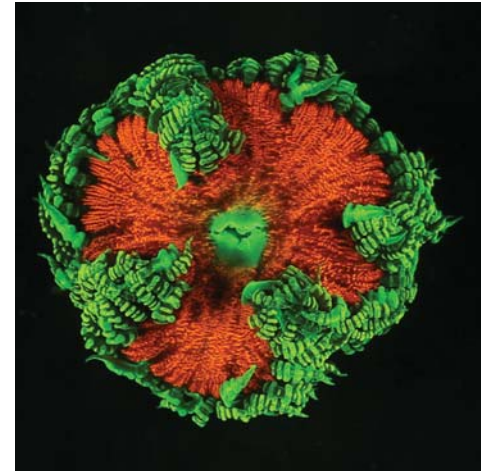
*Coral - Rekindling Venus* by Lynette Wallworth is a unique film that immerses the audience in an underwater world of sights and sounds of an ecosystem at great risk from climate change. Lynette Wallworth is an Australian artist whose immersive video installations reflect on

the connections between people and the natural world. Her work uses photography, film and interactive technologies, like touch-based interfaces, to engage viewers and allow them to experience her works intuitively.

"Imagine global co-operation for a global problem. Imagine corals as the barometer of climate change. Imagine we are the pivot point. Imagine rekindling Venus" said Lynette Wallworth.

"My intent is to leave the audience with a sense of wonder for the complexity of the coral community and a deep-felt longing to see it survive. What is apparent when you watch the film is the remarkable survival mechanisms already at play in the community of coral reefs, mechanisms that will be put to the test in the coming years."

*Coral - Rekindling Venus* will be shown today from 1315 until 1345 in Meeting Room 1 (Convention Centre).



## We need to 'buy time'

**L**ocal efforts to save reefs around the world are essential to "buy time" to fight against the impact of climate change, according to the President of the International Society for Reef Studies, Robert Richmond.

The issue of saving reefs was no longer a scientific question of discovery but a political imperative of countries' leaders.

"Excellent science is no longer good enough," Mr Richmond, of the University of Hawaii, said at a media conference earlier this week.

"The decisions made today will affect reefs for the generations after us."

The science community needed to improve its communication in the public domain "because it is very difficult for politicians to make decisions without the right information", he said.

Mr Richmond said he was "optimistic" but aware of the reality that "scientists should not tell people what to do but provide guidance to policymakers".

However, he confessed his belief that "leaders don't know what to do".

Stephen Palumbi, of Stanford University, empathised, saying that "turning the corner from science to politics is a really difficult thing to do".

"We cannot bring a single solution. Everyone has different problems and ways of doing things," he said. "Science needs to give up control because others have a better opportunity to make changes than we do."

The Consensus Statement on Climate Change and Reefs signed issued by more than 2,600 scientists at the Symposium earlier this week is designed to make an impact on the political landscape.

"It is political leaders and people who change the world," said Professor



Palumbi. "We need to give the science away – this is what will give the reefs the best chance."

At the conference keynote on Monday, Dr Jane Lubchenco, the Under Secretary of Commerce for Oceans and Atmosphere and a NOAA Administrator, urged delegates to "activate your science".

She said at the opening sessions: "Scientists – you and I – have a particular responsibility to share our findings broadly, develop useful and useable decision-support tools and team up with local community and industry partners."

At the media conference, Professor Palumbi warned that while action against local abuses, such as over-fishing and reef blasting were important, no one could be sure of the extent of the damage that would eventually be caused

by rising sea-surface temperatures.

"Oceans are already up 0.5 of a degree," he said. "Corals live at the top of the thermal change. They have only 1.5C of headroom, and in the next century they could lose that headroom," Professor Palumbi said.

Increases of up to 25 per cent in ocean acidity had presented a challenge for the growth of coral skeletons, which were made of calcium carbonate.

Professor Palumbi said: "Sea levels may rise 1m or more, and perhaps coral can keep up with that, but they will not be able to handle the increasing acidity of oceans if the trends continue."

Jeremy Jackson, Senior Scientist Emeritus at the Smithsonian Institute, said it was clear to him that local excesses were having a dramatic impact on reefs and

complained that efforts to police and restrict abuses "have been moderate".

"Corals persist in areas where action is taken," he said.

"This is not theory. It is fact. There is a great deal of observation we can act on.

"Reefs offshore are better than those near-shore that have been affected by human impact.

"Areas where no fishing takes place look as good as they did 50 years ago. If there is a bleaching event, then the coral recovers. You can see the difference between remote coral reefs and those that have been plundered and polluted."

This sentiment was echoed by Terry Hughes, who is Director of the Australian Research Council Centre for Excellence for Coral Reef Studies at James Cook University and the convenor of this year's conference.

He said that PhD students of his generation "have seen reefs disappear before our eyes".

Mr Hughes recounted how he had moved his own studies from the Caribbean to the Great Barrier Reef because of the diminishing quality of coral in the West Indies.

However, he had some sympathy for the issues surrounding the social importance of reefs, saying: "You can make a long list of bad things that people do to the reefs but as scientists we also have to take a more humanitarian view of their immediate importance to people."

Mr Richmond said he was "optimistic" but aware of the reality that "scientists should not tell people what to do but provide guidance to policymakers".



# Poor Nemo, the 'ornamental animal'

**A** new test that can detect whether a fish had been caught with the aid of cyanide has sparked hope that government authorities might stamp out the practice.

Cyanide is used to anaesthetise tropical fish that prove difficult to snare with nets.

These fish, when caught, are often sold as "ornamental animals" for aquariums and private fish tanks, Elizabeth Wood, conservation consultant to Britain's Marine Conservation Society, revealed at the Symposium.

The new technology opened up the potential for governments to make tests on imported reef fish mandatory, Ms Wood said yesterday.

This would help curtail an estimated global catch of 30 million fish annually that are sold for aquariums and fish tanks.

The estimated annual global trade in aquarium fish is estimated at between \$US50 million and \$US100 million.

"Private aquariums first became popular in the '50s but demand had been booming since the '70s" she said.

Now, collectors were focusing on trying to create their own balanced, natural reef and ecosystem "in their front room".

Ms Wood cited American government figures that suggest 1,800 species of fish and 900 types of coral are being imported into America every year.



Elizabeth Wood

Prices of coral fish ranged from \$US5 to \$US10,000.

Most fish for American aquariums come from the Philippines, which supplies 5.7 million fish. A further 3.3 million are taken from Indonesian waters and 200,000 from Australia.

Indonesia makes up 70 per cent of the coral trade market.

Ms Wood estimated 1.4 million tonnes of coral were traded annually for aquarium use and a further 1.2 million tonnes of coral rock.

Part of the problem for the sustainable

capture of reef fish was the nature of the commercial supply chain, in which retailers placed orders with their suppliers, which were eventually communicated to the fishermen.

"If there is a fish that is in fashion, like an Angel fish, then we can see the potential of over-fishing of that species," Ms Wood said.

Fisherman might make only 10 per cent of the final retail price of a fish, she added. "They go in with nets and squirt cyanide at the fish to anaesthetise them, especially if they are dodging around and are difficult to catch."



## Reef reminiscences

**A** colourful, 35-page brochure containing a series of reminiscences of older generations of coral reef scientists has been released at the conference by the UN University Institute for Water, Environment & Health.

Called *Reef Reminiscences: Called Ratcheting Back the Shifted Baselines*, the brochure was created by Dr Peter F. Sale and Dr Alina M. Szmant.

They were inspired by the fact that most scientists engaged in trying to pin down how reefs are changing are so young they would not have seen many reefs in pristine condition.

Human effects have been so profound on some reefs that it would be difficult to imagine how they looked decades ago.

The phrase "shifting baselines" refers to the incremental lowering of the quality of coral reefs.

Each new generation of scientists would lack knowledge of how they used to be, which would redefine what is "natural" according to personal experience and set the stage for the next generation's (shifting) baseline.

Without the old-timers' knowledge, it's easy for each new generation to accept baselines that have shifted and make peace with degraded reefs.

The 13 contributors to the brochure were all pioneers in coral reef science.

Their engaging stories capture the flavour of reef science in the '60s and '70s, and reflect on what the reefs were like a few decades ago.

The brochure can be downloaded as PDF at:

<http://www.inweh.unu.edu/Coastal/Publications.htm>





# Many worlds, one language... coral

We asked some of the Symposium delegates about their attendance at ICERS 2012 and what they have enjoyed about being in Cairns.



**Roxana Capper**  
*University of Texas, USA*

Meeting with eminent scientists behind the abstracts has been a highlight and she is looking forward to hearing about the exciting research still to be presented, including the Darwin Lecture on Friday.



**Roman Stocker**  
*Massachusetts Institute of Technology, USA*

The diversity of the topics and the prestigious plenary speakers has been enormously beneficial for his own research.



**Mark Patsavas**  
*University of South Florida, USA*

Presenting an oral presentation and diving on the Great Barrier Reef for the first time while in Cairns and is looking forward to developing networks for opportunities following the Symposium as he has just completed his PhD.

“It’s big,  
it’s the  
best!”



**Christine Ferrier-Pagès**  
*Centre Scientifique de Monaco, Monaco*

Attending with 15 others including PhD students from her research group. Having the opportunity to exchange ideas, have access to so much information and be together with other researchers in the one place at the same time has been invaluable.



**Vanessa Bednarz**  
*Leibniz Center for Tropical Marine Ecology, Germany*

As a first time visitor to Australia it has been worthwhile travelling such a long way to have the opportunity to network with colleagues from all over the world.



**Michael Stat**  
*University of Western Australia, Australia*

With his own research focusing on Coral Reef biology in Western Australia he has really enjoyed interacting with and meeting new colleagues in Cairns.



**Austin Humphries**  
*Rhodes University, Kenya*

“It’s big, it’s the best!” Spending time with lots of like-minded people and catching-up with colleagues that you only get a chance to read about has been inspiring.

“Meeting with  
eminent  
scientists behind  
the abstracts  
has been a  
highlight...”



**Augy Syahailatua**  
*LIPI Marine Labs, Indonesia*

Has enjoyed having the opportunity to present a poster at the poster presentations where learning how to improve the management of coral reefs in Indonesia has been critical to his work. He attended the Symposium in Bali (2000) which was also terrific. With this Symposium being held so close to his hometown he has enjoyed the opportunity to be able to travel to Cairns.



**Brice Semmens & Christy Pattengill-Semmens**  
*Scripps Institution of Oceanography & Reef Environmental Education Foundation, USA*

They believe that ICERS is the world’s most important conference to attend for research on coral. Being their fifth Symposium they still appreciate how they are organised and what wonderful people the coral community are. Brice has particularly enjoyed taking Christy out diving on the Great Barrier Reef for her first trip to Australia.

