

# REEF

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# ENCOUNTER

Newsletter of the International Society for Reef Studies



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# Reef Encounter No. 35 September 2007

## Newsletter of the International Society for Reef Studies

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Ecological Editor: P Mumby

Biological Editors: M. P. Lesser, M McCormick and R Gates,

Environmental Editor: R van Woessik

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#### ISRS Honorary Members

J Connell, S Kawaguti (deceased), DW Kinsey, J Randall, G Scheer (deceased), DR Stoddart, J I Tracey Jr.

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The International Society for Reef Studies was founded at a meeting in Churchill College, Cambridge, UK in December 1980. Its aim under the constitution is to promote, for the benefit of the public, the production and dissemination of scientific knowledge and understanding concerning coral reefs, both living and fossil.

In order to achieve its aim, the Society has the following objectives:

- i. To hold meetings, symposia, conferences and other gatherings to disseminate this scientific knowledge and understanding of coral reefs, both living and fossil.
- ii. To print, publish and sell, lend and distribute any papers, treatise or communications relating to coral reefs, living and fossil, and any Reports of the Proceedings or the Accounts of the Society.
- iii. To raise funds and invite and receive contributions from any persons what so ever by the way of subscription, donation or otherwise providing that the Society shall not undertake any permanent trading activities in raising funds for its primary objects.

The Society collaborates with Springer-Verlag in producing the quarterly journal *Coral Reefs*. This large-format journal is issued free of charge to all members of the Society, and concentrates on quantitative and theoretical reef studies, including experimental and laboratory work and modelling.

Printed on recycled paper by Allen Press Inc., 810 East Tenth, Lawrence, KS 66044, USA.

Copy deadline for *REEF ENCOUNTER* 36  
(due out March 2008) is 31 January 2008

#### Front cover:

Cover image by Ana Bikic, Polyblock print, 2005 from her 'EcoSymbolism' Collection. Ana has kindly offered the use of her paintings free of charge for *Reef Encounter*. She is also helping to raise awareness about reefs through exhibitions of her reefscapes at the Florence Biennial, Italy 2007, and in Miami, Florida, 2008 for the IYOR. [www.anabikic.com](http://www.anabikic.com)





# Editorial

This issue of *Reef Encounter* is the first under the new editorial team which has taken over from the hard-working group led by Bill Precht. We hope we can keep up the high standards. As requested by the ISRS Council, we are introducing a few changes, both to reduce costs and to try and help attract new members.

First, you will receive the newsletter electronically, and a hard copy will be sent only if you specifically request this. Note that there will be an inevitable delay between the two versions; we will send out the electronic version as soon as it has been put together, and will then send it for printing. We won't know the time-lag until this first issue has been printed and mailed, so please bear with us. Those interested in the history of ISRS might like to know that the pros and cons of an electronic version of the newsletter were hotly debated as early as 1991 (see 1991 issues of *Reef Encounter*) – and judging from the responses to the recent poll on whether we should go entirely electronic, opinion is still divided. One very good reason for making a certain number of printed copies available is that they can be lodged in libraries and accessed by a much wider readership.

The second change is to make the newsletter shorter and to produce it twice a year – so that people think they are getting more for their money! More seriously, it means that the newsletter can carry 'news' style articles without the risk of them being out-of-date by the time they are printed. And this leads into a plea for contributions for future issues.

Suggestions for books to review or publicise, letters or articles with your thoughts and comments on topical issues, and news items on projects, events and other activities will be most welcome. There have been some excellent exchanges on Jim Hendee's Coral List Server; could we for example, work some of these up into short communications or discussion summaries? Next year is the second International Year of the Reef (IYOR) and, as in IYOR 1997, this provides a major opportunity for ISRS members to publicise their work and promote the Society. On page 11 and 12, some of the planning activities underway are described, in the hope that this will encourage others to participate.

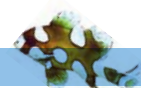
We also need interesting reports of meetings that have taken place – what did these contribute

to the advancement of coral reef science? Were recommendations made for future research priorities? For example, in this issue, we have a report on ITMEMS 3 in October 2006, with a list of the recommendations relating to Research and Monitoring that should be of interest to ISRS members. We also welcome humorous contributions. We have started a series of 'Reef Sights', a non-serious version of Reef Sites in *Coral Reefs*. Send in your suggestions! And does anyone know whether Spyhopper is still out there and whether she/he would like his/her column back?

Finally perhaps we should introduce ourselves. Sue Wells (based in the UK) and Steve Coles (Hawaii) need little introduction. Sue was editor of the newsletter from 1989 to 1997, and Steve is a long-standing Society member. Mike Arvedlund (Denmark) works on coral reef fish but his importance to ISRS is as a digital and electronic wizard – in his hands, we hope that *Reef Encounter* will eventually move into 21st century publishing, but we are doing this slowly so that the readership can evolve and adapt with the publication. Adel Heenan (UK) has produced the beautiful revamped design, whilst doing her PhD, having bike accidents and travelling the world. As you can see, the team is notably short of people from the main coral reef regions of the world, and we would like to rectify this as soon as possible. If you or anyone you know, comes from the Caribbean, Indian Ocean, South-east Asia or South Pacific, and would like to join the team, please contact us. The main task will be to chase up potential contributors and find interesting stories and news items for each issue.

In the last issue of *Reef Encounter*, both the outgoing and the incoming Presidents stressed the need for ISRS members to become more visibly active on behalf of the Society, and for ISRS itself to become more engaged in the worldwide initiatives underway to address the problems facing coral reefs. The newsletter is one small tool that can be put to this purpose. It is up to you, the members, to use it!

Sue Wells  
Steve Coles  
Mike Arvedlund  
Adel Heenan



## From the President

The ISRS Officers and Council are working to make your Society more prominent and active in coral reef science, conservation and education. On behalf of ISRS, I recently joined with heads of 32 other NGOs in signing letters, drafted by the Marine Conservation Biology Institute and the Coastal States Organization, to the U.S. Senate and House of Representatives urging reauthorization and strengthening of the USA's national Coral Reef Conservation Act of 2000 (see box). (see [www.mcibi.org/what/coral\\_reef\\_policy.htm](http://www.mcibi.org/what/coral_reef_policy.htm)). I can also report that we are getting involved in activities for the upcoming International Year of the Reef (IYOR), and you can find out more about IYOR in this issue of *Reef Encounter*.

In July, I sent each of you a letter about an initiative to reform the Society's Constitution. Sections of the Constitution dealing with voting procedures are especially in need of revision, because we are moving to electronic balloting in ISRS elections. As I said in my letter, the proposed new language provides for electronic balloting but preserves the option to vote by paper ballot.

A second item you may already have received in the mail is your membership-renewal form; if not you should receive it shortly. Included with that form are the actual balloting materials for voting on the proposed constitutional revisions. **A change to the Constitution requires at least 40% of you to cast ballots. For a proposed change to pass, two-thirds of those voting must approve. I strongly urge you to cast your vote, because it is the only way to move the Society forward.**

filling out forms is the last thing you want to be doing. We are therefore making this as simple and straightforward as possible. Just place the ballot in the same envelope as your membership renewal and mail it in! We will have staff at Allen Marketing and Management, the organization that manages the Society's membership rolls, separate the ballots from the renewals. The anonymous ballots will be forwarded to Recording Secretary Rob van Woelik to be tallied. **Again, please, please, please take a few minutes to fill out the ballot!**

The 11th International Coral Reef Symposium (11th ICRS) is coming up next July. Registration and the Call for Papers opened 1 August and the deadline for abstracts is 15 November 2007. Dick Dodge, chairman of the ICRS Local Organizing Committee, asks me to remind you to start thinking about your presentations. Dick points out that there is plenty of room in the venue, the Broward County Convention Center, and with 25 mini-symposia from which to choose, the breadth of topics is great enough that everyone should be able to find an appropriate session for a presentation. More details of the 11th ICRS can be found on page 9 in this *Reef Encounter*.

Finally, I announced in the last issue that *Reef Encounter* is going electronic. Several ISRS members expressed regret at no longer being able to enjoy reading a hard copy of *Reef Encounter* in a relaxed setting. We take seriously our members' concerns and suggestions, so editor Sue Wells sent out a notice offering the option of continuing to receive hard copies of *Reef Encounter*. If you missed that notice and would like to

have future issues of the newsletter as hard copy, please email Sue at [suewells100@tiscali.co.uk](mailto:suewells100@tiscali.co.uk) or write to her at 95 Burnside, Cambridge CB1 3PA, UK.

As always, please do not hesitate to contact me ([raronson@disl.org](mailto:raronson@disl.org)) or Corresponding Secretary Isabelle Côté ([imcote@sfu.ca](mailto:imcote@sfu.ca)) with questions, suggestions or concerns.

Rich Aronson,  
President

### Re-authorization of the USA Coral Reef Conservation Act of 2000

ISRS has signed on to a letter in support of re-authorization of this piece of legislation. Coral reef legislation is currently pending in both houses of congress. The new law will be called the Coral Reef Ecosystem Conservation Amendments Act of 2007. Provisions supported by the NGOs and 180 coral reef scientists (in a separate Scientists' Statement to congress) intend to give the legislation more "teeth" for coral reef conservation and include the following:

- Increased protection for corals in all U.S. waters;
- Increased funding for coral reef conservation projects; the letters ask for an authorization of US\$52 million annually for NOAA and US\$10.5 million for the Department of the Interior;
- NOAA enabled to respond effectively to vessel grounding incidents, e.g those occurring outside marine protected areas;
- Liability provisions that hold parties responsible for damage to coral reefs;
- U.S. Coral Reef Task Force made a permanent body; other government agencies authorised to play a wider role in coral reef conservation;
- Increased coordination between federal agencies, States, Territories and Commonwealths; and
- Increased emphasis on adaptive management, including rigorous and continuous monitoring, assessment, and reporting of the effects and effectiveness of federally granted activities.



## ISRS Financial Report 2006

Total cash assets as of December 31, 2006 were US\$134,804.31, all of which are in interest bearing checking accounts. At the beginning of the year cash assets were US\$150,751.24, representing a net loss of US\$15,946.93. This is attributed to a substantial decrease in memberships (representing a deficit of US\$11,130 over 2005), plus the cost for publishing the Membership Directory, an increase in postal expenses (US\$3,206.49), and US\$8,951.86 in subsidies for meetings (both organizational expenses as well as travel expenses for participants). There were modest decreases in the expenses for *Reef Encounter* and *Coral Reefs* but this was due to the decrease in membership. Income and Expenses for 2006 were as follows:



INCOME	US\$
Membership dues	50,945.00
Interest	1,051.42
Editorial Subsidies (from Springer-Verlag)	36,940.50
Bremen Conference Refund	362.21
<b>Total Income</b>	<b>89,299.13</b>
EXPENSES	
Editorial Subsidies Paid	36,663.48
Travel/Meeting Subsidies	8,951.86
Postal Permit & Fees	17,190.65
Bank Charges	50.00
Credit Card Charges	869.37
Management Fees – Allen Marketing & Management	11,337.16
Marketing Fees – Allen Marketing & Management	1,585.34
<i>Coral Reefs</i> – Springer-Verlag	20,085.20
<i>Reef Encounter</i> – Allen Press	3,471.38
2005 Tax Prep.	700.00
Miscellaneous**	4,241.62
<b>Total Expenses</b>	<b>105,246.06</b>
<b>NET INCOME (LOSS)</b>	<b><u>(\$15,946.9)</u></b>

\*\*Miscellaneous expenses include warehouse fees, interest fees, bank correction and publication of the annual membership directory.

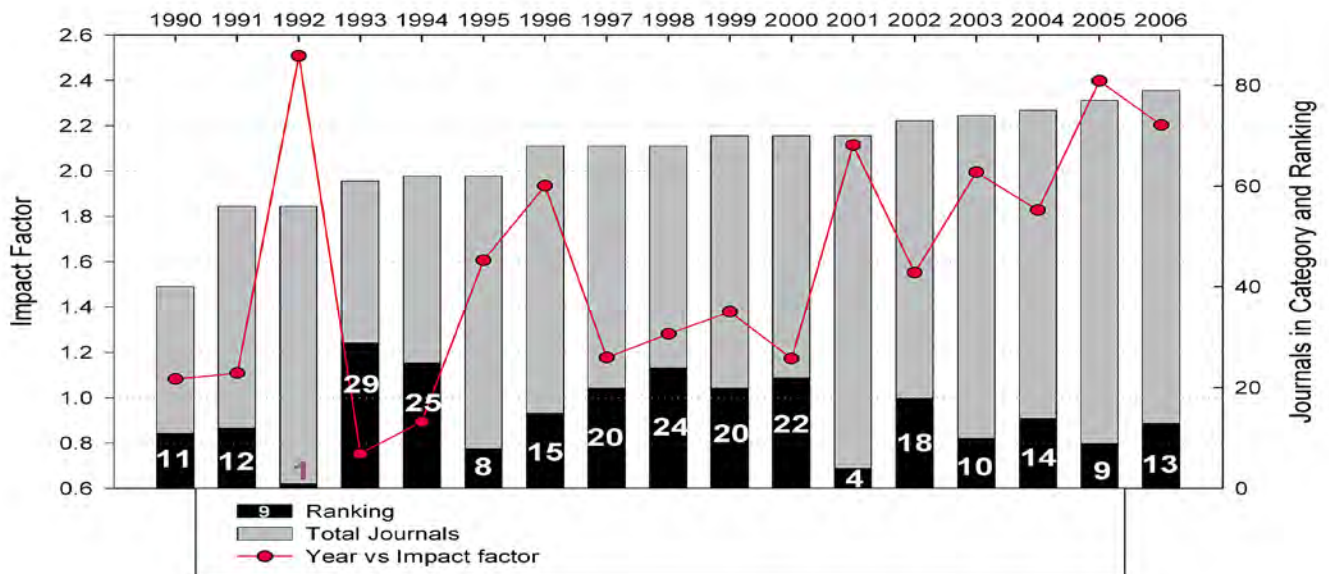
John Ware, Treasurer

## News from the Editor in Chief - *Coral Reefs*

2007 is the 25th anniversary of the founding of the journal *Coral Reefs*. In those 25 years the journal has grown from a publication containing 138 pages to over 900. This reflects the enormous expansion in the field of coral reef studies. In the early days the pattern of reef research was changing from expeditionary work in remote areas to more quantitative study based at research stations and on research vessels in the tropical seas. Much has changed in the intervening years, not only in the expanding number of scientists working on reefs but in the scope of work carried out. The journal's research focus has now shifted to issues that threaten the coral reef ecosystem; to

the potential effects of climate change and other anthropogenic influences; reef resilience; the importance of marine protected areas; understanding the social context of coral reefs; the significance of cold water reefs, and emerging problems such as disease and its implications for reefs.

We are now a leading international publication, currently ranked 13th in the category *Marine and Freshwater Biology* with an impact factor of 2.203 (2006). This is based upon the number of citations in 2006 of papers published in *Coral Reefs* in the years 2004 and 2005. Over the past six years we have maintained a position well into the top quartile of the



Impact Factor and Journal Ranking 1990 – 2006.





journals in the category, and for the last two years the impact factor has been well in excess of 2, the second highest level in the history of the journal. This all reflects the high standard of papers that we are receiving and publishing.

To match the effort by our contributors, *Coral Reefs* offers a very high standard of presentation, with leading quality graphics, and the opportunity to publish in colour without charge. Submission and review is conducted electronically, enabling rapid online processing of manuscripts. Of particular note is our ability to progress a paper from acceptance to proofs within two weeks, followed by on-line publication ten days after return of proofs.

In this anniversary year we have launched two 'Open Access' initiatives, designed to encourage and promote contributions to the journal. In each issue of the journal, there is free on-line access to one selected paper, and commencing with 2006, the 'Best Paper of the Year' has also been made 'Open Access'. Non-subscribers are able to visit the SpringerLink journal site and access the full electronic text for these papers. To date the following papers are 'Open Access':

#### Issue 26(1) – March 2007

Phage therapy of coral disease. R. Efrony, Y. Loya, E. Bacharach, E. Rosenberg. *Coral Reefs* (2007) 26:7-13. DOI 10.2007/s00338-006-0170-1

#### Issue 26(2) – June 2007

Swimming speed performance in coral reef fishes: field validations reveal distinct functional groups. C. J. Fulton. *Coral Reefs* (2007) 26:217-228. DOI 10.2007/s00338-007-0195-0

#### Best Paper Award 2006 for *Coral Reefs*

This has been awarded to the following paper:

**Title:** Is the timing of spawning in sparid fishes a response to sea temperature regimes?

**Author:** Marcus Sheaves of James Cook University, Townsville, Australia

The paper appeared in *Coral Reefs* (2006) 25:655-669 and was made 'Open Choice' on the Springer website which means that it can be accessed and downloaded free of charge by any reader. DOI 10.1007/s00338-006-0150-5

#### Best Paper of the Year 2006 - see box

In 2007 we will also be publishing two Special Theme Sections. The first, 'Conservation Genetics of Coral Reefs' will appear in Issue 26(3) due out in September. The second is entitled 'Humans and their place in the coral reef ecosystem' and will appear in Issue 26(4) in December. Together with these themed sections, we are also publishing seminal Reviews, and Perspectives by leading scientists. The first of these in Issue 26(3) will be a Perspective: 'Corals in deep-water: Will the unseen hand of ocean acidification destroy cold-water ecosystems?' by Dr Carol Turley and colleagues. These are all exciting research topics that take *Coral Reefs* to the forefront as an international journal, offering a multidisciplinary approach to reef studies.

#### Links:

##### Journal Submission website:

<https://mc.manuscriptcentral.com/coral>

##### Springer *Coral Reefs* website:

[www.springer.com](http://www.springer.com)

##### SpringerLink:

<http://springerlink.com/home/main.mpx>

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## Nominations for the Darwin medal

The Darwin Medal, the most prestigious award given by ISRS, is presented every four years at the International Coral Reef Symposium. It is awarded to a senior ISRS member who is recognized worldwide for major contributions throughout their career. Previous recipients have been David Stoddart, Peter Glynn, Ian Macintyre, Yossi Loya, and Charlie Veron. The next occasion at which the medal will be presented is the 11th ICRS in Ft. Lauderdale in July 2008.

ISRS members are invited to send nominations (500 words maximum) to the Corresponding Secretary Isabelle Côté [imcote@sfu.ca](mailto:imcote@sfu.ca) by the end of October 2007. All nominations will then be forwarded to the ISRS Council for a vote. Candidates will be judged on merit and service to coral reef science. On receiving the award at the 11th ICRS, the medalist will give a plenary address reviewing their field.



## International Coral Reef Symposia

Every four years the International Coral Reef Symposium (ICRS) is convened as a major scientific conference to provide the latest knowledge about coral reefs worldwide. Scientists, resource managers and users, and conservationists meet together to advance

coral reef science, management, and conservation. The ISRS officially sanctions ICRS meetings. Here we report on the 10th ICRS in 2004 and give information on the forthcoming the 11th ICRS.

### 10th ICRS, Okinawa, Japan, 28 June-2 July 2004, Okinawa, Japan

Over three years have passed since the 10th ICRS was held at the Okinawa Convention Center, Okinawa, Japan, and we have finally published the proceedings on CD. Now, it is time to look back and review the results. The symposium was organized by an international and local organizing committee (President Kiyoshi Yamazato and Chairperson Makoto Tsuchiya), the Japanese Coral Reef Society, and ISRS, and hosted by the Ministry of the Environment, Okinawa General Bureau, and Okinawa Prefecture. It was supported by the Ministry of Foreign Affairs, Ministry of Land, Infrastructure, and Transport, the Fishery Agency of the Ministry of Agriculture, Forestry, and Fishery, the Pacific Science Association, and the Okinawa Churaumi Aquarium.

There were 1,420 registered participants from 87 countries and regions, with most from the USA (435), followed by Japan (295), Australia (159), UK (40), Philippines (37), Indonesia (26), Republic of China (25), France (23), Thailand (21), Brazil (20), Israel (20), Canada, the Netherlands and Mexico (18 each), Palau (17), Germany (14), New Caledonia (12), Hong Kong (11), and Fiji (10). In addition, about 600 local people attended the Plenary Special Session, giving a grand total of some 2,000 participants. This compares with 600 participants at the 5th symposium (congress) in Tahiti, in 1985, and 1,000 at the 8th ICRS in Panama, in 1996, demonstrating an increasing upwards trend.

The main focus of the 10th ICRS was 'Stability and Degradation of Coral Reef Ecosystems', and there were five themes, each with 6-25 mini-symposium sessions, making a total of 60 sessions:

- Evolution of coral reef ecosystems,
- Environmental factors controlling coral reef formation in space and time,
- The relationship between ecosystem stability and biogeochemical cycles,
- Towards a system where humans and coral reefs coexist, and
- Remote sensing and others.

The Scientific Programme Committee, chaired by Yoshimi Suzuki and Toru Nakamori, arranged the sessions. There were 1,381 presentations (770 oral, 611 posters), seven plenary talks and eight presentations at the Plenary Special Session. Of these, 246 peer-reviewed papers and five keynote papers were published on CD and distributed recently to the registered participants. Michio Hidaka controlled the acceptance of presentation files, which was crucial to the smooth running of the sessions.

The Venue Committee chaired by Yuji Arakaki, with the support of many resident scientists and the conference management company, Plan-Do, put much effort into running this big symposium. Several ceremonies were arranged to give participants a taste of

traditional Ryukyu culture. There were ten pre-symposium excursions (chaired by Hironobu Kan). Unfortunately the two post-symposium excursions had to be cancelled because of the sudden arrival of two typhoons, which are a main component of coral reef processes in Japan.

The total budget was around 1 million yen (ca. US\$850,000), and was managed by a Finance Committee chaired by Kazuo Nadaoka. Registration fees accounted for 60% of the income, exhibition revenue for 5%, and the host governmental organizations, with donations from many companies, institutes, and individuals, contributed the remaining 35%. Expenditures included preparation (25%), operating costs (60%), and post-symposium (15%) costs, including the editing and publication of the proceedings. To our delight, the income and expenditures essentially balanced.

The ISRS-STAP (Student Travel Award Program) and LOC-LOCAP (Local Organizing Committee Travel Assistance Program) supported the travel expenses of seven out of 77 student applicants, and 42 out of 205 young researcher applicants, respectively. The Review Committee, chaired by Kenji Konishi, assessed applications for both programmes.

With the increasing number of sessions at the symposia, many of which are in parallel, it has become difficult for participants to exchange views and network. To overcome this problem, the Scientific Program Committee organised a special session for each theme specifically for this purpose. The Plenary Special Session, which was open to the general public, had the theme 'People and Coral Reefs—Messages from Southeast Asia and Okinawa'. Spreading our message to local and international governments and the public was one of the most important functions of the 11th ICRS. The ISRS released briefing papers each day, and the Public Relations Committee, chaired by Hiroya Yamano and Tatsuro Nakai, put out press releases. Moreover, at the end of the symposium, the participants adopted the 'Okinawa Declaration on the Conservation and Restoration of Endangered Coral Reefs of the World'.

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'Okinawa Declaration on the Conservation and Restoration of Endangered Coral Reefs of the World'.

In terms of lessons learnt from this event, I personally regret that we could not provide a more informal setting, which I feel was achieved at the 6th ICRS in Townsville, Australia, the first symposium that I participated in. However, this had only 600 participants, and it is markedly more difficult to create such a setting with over 1,500 participants. Nevertheless, in Okinawa, the participants seemed to enjoy friendly communications outside the official schedule. I hope that the

symposium served as a forum for exchanging and spawning a broad scope of research activities and for learning about current research, especially for young scientists. More than anything else, I hope that this symposium will lead to innovative future research and more effective management and conservation activities for our precious coral reefs.

*Hajime Kayanne, Executive Secretary, 10thICRS, University of Tokyo, Japan*



Left: 10th ICRS Banquet; Top right: (From right to left) Makoto Tshuchiya (chair), Hajime Kayanne (secretariat), Kazuo Nadaoka (finance), Yoshimi Suzuki (Program), Kiyoshi Yamazato (president), Kenji Konishi (STAP and LOCAP), Hiroya Yamano (public relation), Yuji Arakaki (venue). Bottom right: Ex-ISRS President Nick Polunin.

## The origin of the name Reef Encounter

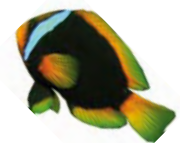
Unless you are British and a film buff, it is possible that you are unaware of the source of the name of ISRS's newsletter. Indeed, many people think it is called Reef Encounters. The name is in fact a pun on one of Britain's best loved post-war films: *Brief Encounter*. Directed by David Lean, the film is based on a play by Noel Coward and premiered in 1945. It is a 'post-war morality tale about resisting adultery' and tells the story of Laura Jesson (Celia Johnson) who, bored with the security of married life, visits town once a week to shop and catch a film matinee. On one such excursion,

she accidentally meets the married Dr Alec Harvey (Trevor Howard) in a station waiting room. Enjoying one another's company, they soon become dismayed to find their innocent and casual relationship develops into love. The film has just been re-released in the UK. Quite how, why and whether it relates to coral reefs is another matter!



## Corrigendum

Charles (Chuck) Birkeland was the author of the article 'Pacific Islanders' Awareness of Responsibility' in Reef Encounter 34 (pp 34-35) and his name was inadvertently omitted. His e-mail address is charlesb@hawaii.edu, if anyone wishes to contact him about the article.







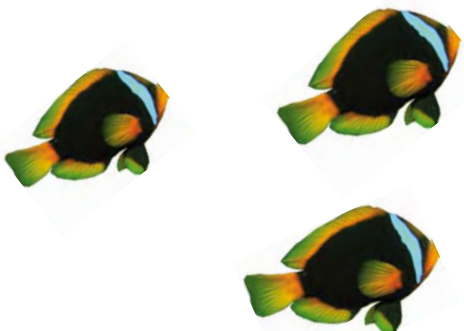
**11th International  
Coral Reef  
SYMPOSIUM 2008**  
FORT LAUDERDALE • FLORIDA • USA

The 11th ICRS will be held in Ft. Lauderdale, FL, USA, 7-11 July, 2008 with the theme **REEFS FOR THE FUTURE**. Over 2,500 participants from the international marine science, management, and conservation communities are expected. The goals of the Symposium are to:

- Provide a scientific basis for coral reef ecosystem management and conservation;
- Articulate the state of the science with respect to current and emerging stressors;
- Improve the understanding of reef condition, function, and productivity;
- Expand and advance coral reef ecosystem science
- Encourage multidisciplinary research; and
- Facilitate the exchange of ideas.

There will be 25 Mini-Symposia sessions, six Plenaries by distinguished scientists, the ISRS Darwin Award, a large Exhibit Area (including an Educational Center), opening and closing ceremonies, lunches, a variety of receptions, and a celebration social. Field Trips are being arranged to the Atlantic, Caribbean Sea, Gulf of Mexico, and Meso-America.

The venue is the Broward County Convention Center, which offers a spacious setting for the sessions, posters, and many other activities. There is convenient national and international access through airports at Ft. Lauderdale and Miami. **Online registration, abstract submission, and reservations for field trips, guest tours, and housing are now open on [www.nova.edu/ncr/11icrs](http://www.nova.edu/ncr/11icrs).** There is also opportunity to apply for travel stipends and fellowship scholarships as well as for Field Trip support. Deadline for abstracts (submissions for oral and poster presentations) is 15 November 2007.



### ISRS Student Travel Award Programme (STAP)

**Application deadline for the 11th ICRS: 1 December 2007**

Students, scientists, conservationists, and managers worldwide who may benefit professionally from attendance at the 11th ICRS are eligible to apply for support for travel and living expenses. Stipends are between US\$500 and US\$3500. Full travel and support costs will generally not be covered unless there is a compelling demonstration of need and professional development. The selection committee will give priority to applicants who:

- Can show evidence of professional career and coral reef science advancement;
- Can show leverage of the stipend to gain full support; and/or
- Are presenting a paper or posters.

Conference registration fees will be paid by the LOC for successful applicants. Restrictions on the funds being awarded mean that 80% of the successful applicants must be from Mexico, the Western Pacific, Asia, and the Indian Ocean, and 20% to those from other regions.

The application should include:

- A brief (1 page) statement describing how attending the 11th ICRS will advance the career of the applicant and reef science, with a statement of financial need;
- A letter of support from a mentor, director, or supervisor, that states the need and professional relevance;
- A simple expense budget showing the expenses that will be covered by the requested stipend and the source of funds for other expenses.

Applications should be sent via email as a single pdf file with the applicants name as the file name to *Isabelle Cote, Secretary, ISRS* at [imcote@sfu.ca](mailto:imcote@sfu.ca).



## Acidification and coral reefs – ISRS contributions

Rising levels of atmospheric carbon dioxide from fossil fuel combustion and deforestation are altering the carbonate chemistry of the oceans and reducing carbonate saturation level and pH, with potentially profound effects on coral reefs. The *IPCC 2007 Working Group II Fourth Assessment Report: Climate Change 2007, Summary for Policymakers* states that progressive acidification of oceans due to increasing atmospheric carbon dioxide is expected to have negative impacts on marine shell forming organisms (e.g., corals) and their dependent species.

At the ICRI General Meeting in Tokyo, April 2007, the following recommendations were made, in recognition of the fact that further scientific information and awareness on the actual impacts of progressive acidification on coral reefs is needed.

- Potential funding sources to consider providing funding for continued research and monitoring on acidification and coral reefs;
- The ISRS to prepare a draft scientific briefing paper on acidification and coral reefs for the 11th ICRS; and,
- ICRI members to promote awareness of and encourage dialogue on this issue. For example, the UNEP Coral Reef Unit is facilitating the production of a television documentary on the impacts of ocean acidification on key marine environments, including tropical and cold-water coral reefs, for global broadcast in early 2008.

**ISRS is taking action on two fronts as follows:**

### **(1) Special Section on 'Ocean Acidification and Coral Reefs' in *Coral Reefs***

This will come out in June 2008, and is being co-ordinated by Dr Katharina Fabricius and Guest Editors Professors Denis Allemand, Jonathan Erez, Victoria Fabry, Richard Feely and Chris Langdon.

The section will cover any type of physiological, ecological, geochemical or geological research related to altered ocean carbonate chemistry. Relevant studies

could include, for example, any aspect of the performance of calcifying or non-calcifying organisms (e.g., corals, mollusks, echinoderms, foraminifera, algae or seagrasses) in response to changing CO<sub>2</sub> and/or carbonate saturation, or abiotic processes such as reef accretion and erosion. Also of interest are studies on the interactive effects between acidification and other environmental variables such as temperature, light or storms, and studies on high-latitude or deepwater reefs growing in marginal environments, or other reefs growing in waters with naturally low carbonate saturation levels. Of particular interest are studies that address the broader relationships between carbonate chemistry and ecosystem performance in past and present coral reefs, or model projections of the future condition of coral reefs.

Please send submissions as soon as possible, preferably by October 31st 2007, to allow sufficient time for peer review. Accepted manuscripts will go to the publisher no later than March 1st 2008. Contributors are encouraged to consult the Instructions to Authors, and File Format Instructions that are available from the journal submission site at Manuscript Central (<https://mc.manuscriptcentral.com/coral>) before starting. An MSWord template, journal abbreviations list, and Endnote output style are also available. For enquiries please contact Katharina Fabricius (K.fabricius@aims.gov.au).

### **(2) Production of ISRS Briefing Paper on Acidification**

This is being authored by Joan Kleypas. A first draft has been prepared and is out for review by the ISRS membership. The Briefing Paper (BP) is expected to be completed by the end of the year. This will be the fourth ISRS BP, following on from MPAs, Water Quality and Sustainable Fisheries, all of which can be downloaded from the ISRS website. Each BP gives a comprehensive overview of a topic, broadly representing the views of ISRS members, and provides a valuable synopsis of the research undertaken that is easily intelligible to the general public, conservation practitioners and decision makers.

## Dredging and Port Construction Around Coral Reefs – guidelines in preparation

The physical alteration of the coastal zone is one of the most immediate and visible outcomes of population growth and expanding urbanisation. A third of the world's population lives in coastal areas, which constitute just 4% of the earth's total land area. Rapid coastal development has meant increased construction of urban centres, ports, airports, tourist facilities and other infrastructure. Various types of dredging activity are employed to, for example, maintain ports and navigation channels, reclaim land, or mine sand for construction. With proper and prudent management, these activities can support sustainable economic development, but without, they are a major threat to coral reefs and

the services they provide.

In September 2004, the International Navigation Association (PIANC) Environmental Commission (EnviCom) in partnership with the United Nations Environment Programme (UNEP), Central Dredging Association (CEDA) and International Association of Dredging Contractors (IADC), established a working group (EnviCom Working Group 15) to:

1. Collect available scientific and grey literature, including specific case studies, on dredging and port construction around coral reefs and their associated communities;





2. Analyze the information in order to determine the effects of dredging and port construction on corals reefs and to identify the most effective methods/techniques available to minimize impacts; and
3. Identify knowledge gaps, critical environmental issues and practical constraints associated with implementation of the guidelines.

The Working Group is aiming to produce state-of-the-practice guidelines on appropriate planning, EIA, management and mitigation measures, that will be generic in nature but that will also cover locally unique conditions through case studies. The Working Group comprises representatives from six countries, as well as industry associations and intergovernmental organisations. The guidelines are due to be completed in early 2008.

If you would like to comment on the draft, please go to the PIANC website: [www.pianc-aipcn.org/pianc/envicom-wg.php](http://www.pianc-aipcn.org/pianc/envicom-wg.php)

Further information is available in:

Datta, A., Corcoran, E., Hain, S. 2005. Habitat alteration by mining and dredging: issues for policy and actions. Paper presented by UNEP at CEDA Dredging Days 2005.

Smith, A., Forster, T., Corcoran E., and Monkivitch, J., 2007. Dredging and material relocation in sensitive coral environments. Paper presented at WODCON, July 2007

*Tom Forster, Chair*

*PIANC EnviCom Working Group 15 on Dredging and Port Construction around Coral Reefs  
Emily Corcoran, UNEP-WCMC, Cambridge, UK.*



*Dredging and reclamation near coral reefs off Mahe, Seychelles, 2003. Jan de Null Group.*

## International Year of the Reef 2008

The International Year of the Reef (IYOR) 2008, designated by the International Coral Reef Initiative (ICRI)<sup>1</sup> and its members during its General Meeting in October 2006, is an ambitious one-year programme designed to foster outreach and conservation activities in order to raise worldwide public and political awareness of coral reefs.

It will build on the lessons learned and success of IYOR 1997 and other public awareness campaigns. Despite the success of IYOR 1997 in raising global awareness of coral reefs and associated ecosystems, ten years later, there remains an urgent need to increase awareness further, to take action to conserve and manage coral reefs and associated ecosystems, and to ensure appreciation of their value to humanity. A good example of the need for awareness was highlighted in a recent *Bulletin of Marine Science*<sup>2</sup>

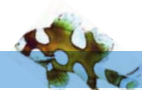
<sup>1</sup> ICRI is a partnership of nations and organizations seeking to implement the recommendations of the Rio Earth Summit (Agenda 21, Ch.17) and other international conventions and agreements for the benefit of coral reefs and associated ecosystems, such as mangroves and sea grasses. For the past 12 years, the ICRI partnership has help mobilize governments and a wide range of other stakeholders in efforts to improve management practices, increase capacity and political support, and share information on the health of these ecosystems.

<sup>2</sup> Kleypas, J. and Eakin, M. 2007. Scientists' perceptions of threats to coral reefs: results of a survey of coral reef researchers. Opinion Paper. *Bulletin of Marine Science* 80(2): 419-436.



paper on scientist's perceptions of threats to coral reef. To the question: "For reefs worldwide, which three actions do you think would most effectively improve the overall state of coral reefs?", the top ranked answer was "Improve education/communication about coral reefs". IYOR 2008 is targeted at several different target audiences (including people who live far away from coral reefs), and has the following goals:

- Strengthen awareness about ecological, economic, social and cultural value of coral reefs and associated ecosystems
- Improve understanding of the critical threats to reefs and generate both practical and innovative solutions to reduce these threats



- Generate urgent action to develop and implement effective management strategies for conservation and sustainable use of these ecosystems.

The IYOR 2008 campaign will involve events and initiatives hosted by governments, individuals, corporations, and schools around the world to promote conservation action and strengthen long-term constituencies for coral reef conservation. ICRI will launch the IYOR 2008 in conjunction with its General Meeting during the week of the 21st of January 2008 in Washington, DC. The 11th ICRS will also be a keystone event.

Everyone is welcome and actively encouraged to participate. An online calendar will allow event organizers to

post their activities, and participants are able to sign up to receive the IYOR 2008 newsletter. Several countries and organizations have already nominated IYOR focal points and these are listed on the website, so contact them to learn more about what will happen in your country or region. If there is no focal point for your organization or country, please contact the IYOR International Co-ordinator in order to nominate one.

We encourage you to spread the word about IYOR 2008 by adding a link to your website, mentioning IYOR in your newsletter, or taking any other appropriate actions.

For more information, visit [www.iyor.org](http://www.iyor.org) and [www.icriforum.org](http://www.icriforum.org) or contact the IYOR International coordinator: [info@iyor.org](mailto:info@iyor.org).

## IYOR 2008 in the USA

The U.S. Coral Reef Task Force (USCRTF) has been a strong supporter of the ICRI designation of 2008 as the IYOR, and is committed to doing its part to help achieve the IYOR goals. IYOR 1997 and related efforts helped to spur U.S. and international actions, including the establishment of the USCRTF and passage of the Coral Reef Conservation Act of 2000. The USCRTF was set up in 1998 to lead, coordinate, and strengthen U.S. government actions to conserve coral reef ecosystems, both domestic and international, as called for in the Executive Order for the Protection of Coral Reefs (E.O. 13089). 2008 is thus also the 10-year anniversary of the USCRTF and this, combined with the IYOR 2008 designation, provides a unique opportunity for enhanced efforts, further communication of the issues, threats, and actions required for coral reef conservation, and promotion of stewardship through greater participation, partnerships, and collaborative action.

The USCRTF has played a key role in identifying what is required to conserve U.S. coral reef ecosystems through development of the *U.S. National Action Plan to Conserve Reefs (2000)* and the *National Coral Reef Action Strategy (2002)*. The Plan provides thirteen broad goals and objectives, and the Strategy focuses on key implementation measures to be taken in 2002 and 2003. The Strategy now needs a comprehensive reexamination, and the identification of priorities and targets to help guide the future of the USCRTF and its work during the period 2009-2011. The USCRTF will lead this reexamination and launch a 'Renewed Call to Action' at the end of the 2008 IYOR, which will contribute to building a movement to carry the attention and momentum of IYOR into the future. The USCRTF, as a leader in the race to save reefs, wishes to help create a community empowered to make great strides in their restoration and conservation. During 2008, the USCRTF will also facilitate working sessions for the U.S. coral reef conservation community to share experiences and lessons learned, and to promote development of action-oriented plans, and two such sessions have already been held.

While the 1997 IYOR served to raise the profile of coral reef issues and increase our collective awareness of the threats facing these valuable ecosystems, the 2008 IYOR aims to create a community with the knowledge and power to take action, addressing the threats coral reef ecosystems face. There are outstanding examples of successful efforts to

reduce threats and sustain coral reefs, but increased action over the next several years is critical. Many reefs continue to be degraded or destroyed by overfishing, destructive fishing practices, land-based pollution, coastal development and other human activities. In addition, climate change is having a variety of impacts on reef ecosystems, including loss of corals from bleaching and diseases linked to increased sea surface temperatures. The 2008 IYOR must therefore be a year of renewed action to increase awareness and understanding of the value of and threats to coral reefs, serve as an impetus to motivate individuals and organizations to reduce threats, and launch significant new efforts to conserve these vital ecosystems.

The success of IYOR 2008 is dependent on a host of players and will rely upon a multi-faceted approach to conservation. Despite the advances that have been made in the past forty years, there remains a great deal we do not understand concerning coral reefs and the human communities that are dependent upon them. Both natural and social scientists have a key role to play by conducting research that leads to management-relevant solutions to the varied threats now faced by our reefs. Those responsible for policy development and coral reef management must work to identify current and potential future impediments to conservation, and devise strategies to effectively prevent or mitigate these challenges. This will require active participation of coral reef stakeholders, whose specialized knowledge and concerns will be vital to the success of any management strategies and research. Given the impact coastal uses have on coral reefs, the general public can itself influence the success of conservation efforts. Reaching those whose everyday actions have downstream impacts on coral reefs is essential to sustaining coral reefs.

*Timothy E. Keeney, Co-chair,  
United States Coral Reef Task Force  
Deputy Assistant Secretary for Oceans and  
Atmosphere, National Oceanic and Atmospheric  
Administration, U.S. Department of Commerce*





## Reef Conservation UK (RCUK)

It took a meeting organised in the UK to discuss possible activities for IYOR 1997, and subsequent IYOR projects, for full recognition of the wide range of reef-related activities being conducted by UK-based universities, aquariums, NGOs, consultancies and other organisations. As a result, in order to provide an 'umbrella' for these organisations and to continue IYOR activities, Reef Conservation UK (RCUK) was established in 1998. Given the limited co-ordination among UK organisations working on reefs, a conference where people could discuss their work in a relatively informal setting was recommended. The first RCUK meeting was therefore held at the Zoological Society of London (ZSL) in December 1998 and was attended by over 100 people. There was a full day's programme of talks with posters and networking opportunities, as well as an evening reception.

This meeting was such a success that it became an annual event, continuing to attract over a hundred delegates and attended by students, researchers and professionals from a wide range of backgrounds and disciplines. The annual meeting has remained the focus of RCUK activities, with the same general aim retained: to raise awareness of an individual's or organisation's work and interests to the wider UK community through presentations, posters and providing opportunities for networking. The need for multidisciplinary studies of coral reefs and adjacent environments, as linked to the RCUK themes of conservation, management and education, has been regularly highlighted.

Students and NGOs, who may not be able to attend international coral reef meetings, have found the meetings particularly beneficial as a forum for presenting their work. The events have also been well supported by more senior academics and on one occasion even saw three presentations of data that subsequently resulted in papers in *Science* or *Nature*. The meetings have also generated modest profits each year, and these funds



have been used to support a grant scheme for UK-based researchers. While grants are relatively small, they have been beneficial to a number of projects including surveys of the exploitation of the Banggai cardinalfish (see p. 15 of this issue), capacity building in the Comoros and Kenya, and a study of livelihoods in the Philippines.

RCUK has now been in existence for a decade and on 8 December 2007 will celebrate its 10th Annual Meeting at ZSL, during which discussions will be held to initiate UK-based activities for IYOR 2008.

The RCUK Committee comprises Alastair Harborne (University of Exeter), Kristian Teleki (ICRAN), Heather Koldewey (Zoological Society of London), Elizabeth Wood (Marine Conservation Society) and Simon Harding (Coral Cay Conservation). For more information please contact [rcuk@zsl.org](mailto:rcuk@zsl.org) or go to [www.rcuk.org.uk](http://www.rcuk.org.uk)

## Reflections on progress since IYOR 1997

The origins of IYOR 1997 are somewhat lost in the mists of time, this lack of information being a reflection of modern times. Much of the communication and planning happened 'electronically' and has disappeared as laptops have been thrown away and hard drives wiped clean – it seems we have no paper archives to rummage through. Indeed, the March 1997 *Reef Encounter* bewailed the fact that more IYOR activity might be taking place in cyberspace than on the reefs themselves.

In my case, memories are limited to 'meetings' in a living room in my house in Cambridge, which was one IYOR HQ, when we struggled to come up with ideas that would be implementable with no funds, much laughter with the members of our various informal committees (notably Bob Ginsburg, Kristian Teleki, Stephen Colwell and Paul Holthus), frustration (dare I say it) at the initial lack of involvement of the 'big' NGOs, and frantic and very funny times in Miami, the main IYOR HQ, getting leaflets photocopied at midnight and Spanish translations corrected (the Spanish leaflet was missing an accent which gave a whole new meaning to IYOR).

Fortunately, past issues of *Reef Encounter* provide some record of what happened. The idea for such

a campaign first surfaced at the 1993 colloquium in Miami on the Global Status of Coral Reefs, at the initiative of Bob Ginsburg, and the meeting enthusiastically declared 1996 to be the IYOR. In the event, with no funding and entirely voluntary input, we had to delay it to 1997, although it was kicked off (literally – with a dance, choreographed by Barbara Brown, and preceded by Bob reading a poem he had written about coral polyps) at the 8th ICRS in Panama in 1996. By December 1997, according to *Reef Encounter* 22, some 60 countries were involved in IYOR activities, despite the lack of any central secretariat. Germany and the Pacific nations were particularly active, as were the USA and UK (see articles above), but there were numerous others from Australia to Zanzibar.

One of the key aspects of IYOR was its all-inclusiveness and openness, and the encouragement given to grass-roots and community organisations – an aspect that could perhaps be worked on further for IYOR 2008. To achieve this, the website needs to be user-friendly, regularly updated and fully promote activities underway by all IYOR participants. Equally, a user-friendly and inclusive e-mail listserver would be invaluable – the



IYOR 1997 one was modeled on Jim Hendee's Coral Listserv. A second key aspect was the 'do-it-yourself' approach – and the immense enthusiasm and creativity on the part of the participants in developing activities without any help other than provision of the logo.

So did we achieve anything, other than having an enormous amount of fun? Certainly many activities, monitoring and assessment programmes, and education events were initiated, and I like to think that awareness was considerably raised. But are reefs in any better state of health as a result of IYOR 1997? Sadly, I think not, judging from the recent spate of journal papers with growing gloomy statistics about their decline. We seem to have been very successful at monitoring the demise of coral reefs with increasing exactitude, but less successful at addressing the causes of this demise.

IYOR may thus need to focus this time on 'action' as much as 'awareness-raising' – to use the over-used expression, it needs to 'Walk the Talk' as well as 'Talk the Talk'. Awareness-raising is vital but, as we all know in the case of climate change, this is only the first step; turning awareness and understanding into **changes in behaviour** is the real challenge. We are probably all concerned about climate change, but how many of us are really doing all we can to reduce our carbon footprint?

As with IYOR 1997, there is little funding for IYOR 2008, and so a similar approach will be needed – to inspire any and all groups (NGOs, academic groups, dive clubs, university groups, youngsters) as well as individuals to use IYOR 2008 as an umbrella for current initiatives or for new ones. Could we perhaps draw up a list of specific actions that could be taken by individuals, communities, NGOs and countries and widely circulate it? And could we then have a simple monitoring system based on the list so that all participants could measure progress? Although more research is required, we know many of the interventions that can help to reverse reef decline – some that

can be achieved by individuals, some by communities and some that require full government support:

1. Better use of environmental impact assessments (EIAs) to prevent land-based impacts on reefs
2. More MPAs for coral reefs, particularly for those identified as being particularly resilient or resistant to bleaching
3. Better management of existing coral reef MPAs by preparing management plans, training staff, providing resources for good enforcement, undertaking assessments of management effectiveness etc.
4. More no-take zones both within MPAs and as part of broader reef and fisheries management schemes
5. An end to damaging fishing methods – will 2008 be the year that dynamite fishing is finally eliminated?
6. An end to the live fish trade
7. Mooring buoys on all reefs likely to be visited by boats
8. .... and so on ...

The list might be long – but if carefully thought through it could provide something for everyone – from an individual pledge to stop eating unsustainably sourced reef fish pledge, to a government commitment to abide by the forthcoming dredging and port construction guidelines for reefs (see above). And we should not shy away from actions that seem 'difficult' – IYOR is an opportunity to be idealistic and visionary and to push the boundaries of what we think can be achieved. If we don't, what will be the state of the world's reefs 10 years from now?

*Sue Wells, with input from Bob Ginsburg and Kristian Teleki*



## News

### AUSTRALIA

#### Ningaloo 'Collaboration Cluster', Western Australia

The Ningaloo Collaboration Cluster is a new partnership combining the research capabilities of Murdoch University, Curtin University of Technology, the Sustainable Tourism Cooperative Research Centre, The University of Western Australia (WA), Edith Cowan University, The Australian National University, The University of Queensland and the CSIRO Wealth from Oceans Flagship. The Cluster, through the CSIRO Flagship Collaboration Fund, will help to conserve the unique marine ecosystems of Ningaloo Marine Park and promote the sustainable development of the region.

The work conducted by the Cluster will be complementary to the research being undertaken by the Ningaloo Research Program through the WA Marine Science Institution (WAMSI). There will be free transfer of data between the Cluster, WAMSI and government agencies with responsibility for managing activities in the Ningaloo Marine Park.

*Kate Wilson Science Coordinator CSIRO, Wealth from Oceans Flagship kate.wilson@csiro.au*

#### Communicating coral reef science to diverse audiences

The Australian Research Council Centre of Excellence (ARCCoE) for Coral Reef Studies was established in 2005 to conduct research on the science that underpins the sustainability of coral reef ecosystems. Part of the mission of the CoE was to communicate science to a diverse audience. With the help of a

professional media consultant CoE researchers craft fortnightly press releases, converting the sometimes 'nerdy' science into everyday language. The releases are disseminated to a huge audience, and generated 736 media stories – two a day – in 2006. The new website has developed rapidly and receives over





a million hits a year, 85% from overseas; it contains links to over 100 publications from CoE research scientists. Publicising research findings in this way helps the public to appreciate the measures needed to protect their coral reefs, building support for modern management

practices and for the science that underpins them.

Jennifer Lappin [Jennifer.lappin@jcu.edu.au](mailto:Jennifer.lappin@jcu.edu.au)  
ARCCoE website [www.coralcoe.org.au](http://www.coralcoe.org.au)

## Catastrophic fire at Heron Island Research Station

Heron Island Research Station was devastated by fire in the early hours of 30 March 2007. The fire involved an electrical fault that spread through the wooden buildings. The new research building housing nine research laboratories, library, darkroom, computer room and aquaria facilities was destroyed along with the student accommodation block and teaching laboratory complex. Fortunately, there was no loss of life as the station had a rare moment of low occupancy. One of the hardest impacts to absorb was the fact that the fire destroyed the homes and personal possessions of four staff members. Some staff members lost everything that they owned. An AU\$15 million rebuilding programme has begun and the station is already running courses and hosting research, having

established three temporary laboratories and a teaching facility. Completion is expected in mid-2008. Full details of progress to recovery are available at the www site: [www.cms.uq.edu.au/hirs/](http://www.cms.uq.edu.au/hirs/). The ISRS with the support of Springer is donating a complete set of back issues of *Coral Reefs* to assist in the re-stocking of the library.

Ove Hoegh-Guldberg, Director, Centre for Marine Studies, University of Queensland.



## WESTERN INDIAN OCEAN

### East African Coral Reef Task Force Strategic Action Plan

The signatory states of the Nairobi Convention established the East African Coral Reef Task Force (EACRTF) in 2001, to advance cooperation and coordination of the management of coral reefs and associated ecosystems in the Western Indian Ocean (WIO). The task force brings together resource managers, scientists, NGOs, and practitioners from Comoros, Kenya, Madagascar, Mauritius, Mozambique, Reunion (France), Seychelles, South Africa, and Tanzania.

The EACRTF met in May 2007 in Zanzibar to develop a 'Regional Strategic Action Plan' for the coral reefs and associated ecosystems of the WIO. The workshop was hosted by the Institute of Marine Sciences (University of Dar-es-Salaam), received financial support from the Coral Reef Trust fund of the United States, and was coordinated by the Wildlife Conservation

Society and the Western Indian Ocean Marine Science Association. 23 coral reef managers and scientists, including the team leader of each national coral reef task force, took part. The action plan will be submitted for endorsement at the 5th Conference of Parties of the Nairobi Convention in November 2007, as it is hoped that endorsement at such high level will facilitate implementation of the recommended actions. The workshop also led to networking and the exchange of information and experiences among members, and included a discussion of plans for IYOR 2008. The action plan will be disseminated to marine and coastal resource managers, scientists and practitioners in the WIO.

Joyce Kawaka, Wildlife Conservation Society, Mombasa, Kenya

## SOUTH EAST ASIA

### The Banggai Cardinalfish and CITES – a local perspective

In the early years, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which came into force in 1975, focused mainly on terrestrial species. Species whose survival is threatened by international trade are listed in three Appendices that provide for varying levels of restriction on international trade, according to strict criteria defining their risk of extinction. Marine species are now increasingly being added, and include black corals, giant clams and Napoleon wrasse *Cheilinus undulatus*. Nevertheless, proposals for marine species are often difficult and controversial as this example illustrates.

In 2007, the Banggai cardinalfish *Pterapogon kauderni* (Koumans 1933) (Fig. 1), a popular aquarium fish, was proposed for listing on CITES Appendix II. Indonesia is the only Range State for this species, for which the natural distribution is limited to the Banggai

Archipelago in Central Sulawesi (Fig. 2) and a few nearby small islands. Introduced populations have been found in Luwuk and Palu (Central Sulawesi), Tumbak and Lembeh Straits (North Sulawesi), and at least one location in North Bali, all of which lie along the aquarium trade route, and there may be others. The population has declined due to collection since the 1990s for the aquarium trade, and there has been international concern about the conservation status of this species since at least 1998 (Vagelli, 2005). The Banggai cardinalfish is a paternal mouthbrooder releasing fully-formed young (i.e. there is no pelagic phase) which, combined with static habits throughout the life-cycle, severely limits its dispersal capacity. In addition, fecundity is considered low for a marine fish (around 60 eggs/spawn). *Ex-situ* breeding is already well-developed technically and, according to some sources





Figure 1. *Pterapogon kauderni*.

could and should become the major or sole source of supply to the aquarium trade. However costs are much higher than for wild-caught fish.

We have been actively concerned with the future of the Banggai cardinalfish and the communities whose livelihoods depend at least partly on trade in this species since Yayasan Palu Hijau (YPH), a local NGO in Central Sulawesi, undertook a case study in 2004/2005 in the Banggai Kepulauan District on ornamental fishing and its relationship to the livelihoods of poor people, as part of an EC-PREP (European Community Poverty Reduction Effectiveness Programme) project. A number of recommendations were generated at local and international levels (Macfadyen et al., 2005). In 2006, with support from the National and Provincial Sea Partnership Programme and a GEF small grants programme planning grant, we were able to begin to implement some of these. As a result, in addition to obtaining improved data on the population, habitat and exploitation of the species, community

awareness was increased which resulted in the establishment of a local MPA development group, with Banggai cardinalfish collector groups as key members.

The CITES proposal for this species was prepared by the USA in 2006. In January 2007 the Indonesian Fisheries Resources Directorate of the Department for Marine Affairs and Fisheries asked the Central Sulawesi Fisheries and Marine Service (Provincial DPK) for additional data and information, which contacted us for assistance. It transpired that consultation had been largely lacking, including with the Banggai Kepulauan District Fisheries and Marine Service (DKP), local leaders and community groups, and even the national Department for Marine Affairs and Fisheries.

CITES listing had been proposed for the Banggai cardinalfish because it was thought that this would make captive-bred fish more competitive, by effectively halting the wild trade (if the species were to be listed on Appendix I) or by restricting numbers in trade and increasing the costs per fish (in the case of Appendix II listing). These statements caused great concern to many stakeholders, especially within the Banggai Archipelago. Our findings (Moore and Ndoobe, 2006) had indicated that although some populations have declined and at least one small population seems to have been virtually wiped out due to over-fishing combined with almost total habitat destruction on a small island, the species is unlikely to become extinct within the next 5-10 years. In several cases it has shown remarkable adaptability and resilience. Many fishers are now aware of and avoiding the most damaging practices such as the capture of brooding males. In addition there is growing support for conservation measures and improved regulation of the trade, based on local priorities, including use of the powers devolved to communities at village and District level under Regional Autonomy. Initial steps towards *in-situ* captive breeding of the species had been taken, and the Banggai Kepulauan District DPK have included three programmes relevant to *P. kauderni* conservation in their plan for 2007/2008. Many parties felt that, backed by local and national political will, such measures could potentially provide a more efficient alternative than CITES listing.

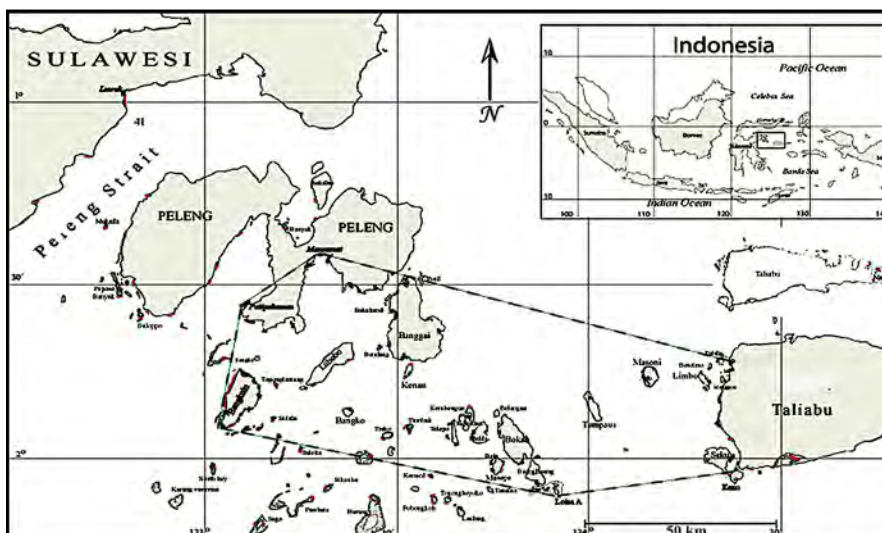


Figure 2. The natural distribution of *P. kauderni* (taken from the CITES proposal).





the proposal concluded that the species did not meet the biological criteria for listing. The panel noted that there are no data regarding pre-fishery population levels, and limited information was provided as to how the population was assessed. Subsequently, the USA withdrew the proposal at the 14th CITES Conference of the Parties in June 2007, after strong opposition from Indonesia, supported by FAO and several CITES Parties.

The CITES proposal has nevertheless put the Banggai cardinalfish in the limelight, at both National and local (Provincial and District) levels. At the CITES CoP 14, Indonesia made a strong national commitment to ensuring the survival of the Banggai cardinalfish. A multi-stakeholder meeting was held on 10th August, as a first step in the development of a comprehensive Banggai cardinalfish Management Plan. An outline action plan was agreed, addressing population and habitat conservation, fisheries management and trade, and designating the authorities responsible for specific aspects such as baseline data collection and monitoring, marine conservation areas; local/national regulations; improved collection/marketing (possibly including certification); research into various aspects of *P. kauderni* biology, ecology and breeding; and others. There is much hard work ahead, for the local communities, government agencies, NGOs, academic institutions and all other parties involved, but the outlook for the Banggai cardinalfish is now much brighter than in 2004.

Further information on CITES can be found at <http://www.cites.org>.

Vagelli A.A., 2005. Reproductive Biology, Geographic Distribution and Ecology of the Banggai Cardinalfish *Pterapogon kauderni* Koumans, 1933 (Perciformes, Apogonidae), with Considerations on the Conservation Status of this Species

## Meeting reports

### Third International Tropical Marine Ecosystems Management Symposium, October 16-20 2006, Cozumel, Mexico

ITMEMS3 - the Third International Tropical Marine Ecosystem Management Symposium - was hosted jointly by the Secretariat of the International Coral Reef Initiative (ICRI) and the Governments of Palau and Japan, in partnership with Mexico's National Commission for Protected Natural Areas and the Municipality of Cozumel (CONANP). It brought together over 300 people from 45 countries, reflecting a broad range of experience of managers, scientists, private sector, NGOs, development and funding agencies.

Convened first in Australia 1998 and a core ICRI activity, ITMEMS aims to strengthen the capacities of coastal and marine managers and their partners to conserve and promote the sustainable use of coral reefs and related ecosystems. The specific aim of ITMEMS3 was to review progress since ITMEMS2 in 2003 (Philippines) and to share and discuss lessons learned in implementing the ICRI Call to Action and the Framework for Action (the four elements of which are: Integrated Coastal Management, Capacity Building for Management, Research and Monitoring; and Performance Evaluation and Review)

The Symposium consisted of 49 workshops based around 13 themes. There were also two special sessions - one on peer-to-peer networking, and the

on its Natural Habitat. PhD. Dissertation, University of Buenos Aires. 276 pp.

Macfadyen G, Phillips M, and Haylor G., 2005. International Sea food Trade: Supporting Sustainable Livelihoods Among Poor Aquatic Resource Users in Asia (EP/R03/014).

Output 3 Synthesis Report with Pro-Poor Trade Research Findings and Policy Recommendations. Poseidon Aquatic Resource Management Ltd, Network of Aquaculture Centres in Asia-Pacific (NACA), and the STREAM Initiative. 68 pp

Moore A. and Ndobe S. 2006. Towards a Sustainable Fishery for the Endemic Ornamental Fish *Pterapogon kauderni* in the Banggai Archipelago, Central Sulawesi, Indonesia. Proc. 1st APCRS (Asia Pacific Coral Reef Symposium), Hong Kong. In press. 12pp.

Abigail Moore, Yayasan Palu Hijau (YPH), Jl Setia Budi Lrg Siswa No12, Palu 94111, Sulteng (Central Sulawesi), Indonesia. [abigail2105@yahoo.com](mailto:abigail2105@yahoo.com)

Samliok Ndobe, Ketua Sekolah Tinggi Perikanan dan Kelautan (STPL-Palu), Perumahan Dosen UNTAD BlokC3 No7, Palu 94118, Sulteng (Central Sulawesi), Indonesia. [samndobe@yahoo.com](mailto:samndobe@yahoo.com)



other on the role of local government in coral reef management. An updated Action Statement describing priorities for the next 5-10 years, in the form of some 400 recommendations, was produced. The recommendations concerning 'Research and Monitoring' are summarized in the table. Statements were also drawn up on behalf of each of the main coral reef regions, identifying specific priority needs.

A separate statement on climate change was drafted and adopted, the main action points being:

1. Limit climate change to ensure that further increases in sea temperature are limited to 2°C above pre-industrial levels and ocean carbonate ion concentrations do not fall below 200 μmol. kg .
2. Recognise that mass coral bleaching will have similar social and economic consequences as other environmental disasters such as oil spills and droughts and will require similar responses.
3. Facilitate and finance actions to increase resilience of coral reef social-ecological systems, particularly through marine management area networks comprising adequate areas of coral



- reefs and associated habitats in non-extraction zones, protection of water quality and herbivore populations, and adaptive governance.
4. Facilitate and finance assessments of risk and vulnerability of coral reefs to climate change.
5. Facilitate and finance the development and implementation of coral bleaching response programs, including contingency funding.
6. Create incentives for development of partnerships for adaptation.
7. Increase investments in targeted messages to accelerate adaptation to climate change.

8. Invest in village-to-global education and communication for climate adaptation that will integrate traditional and scientific knowledge into implementation of adaptation strategies for coral reefs around the world.

The proceedings are at the printers and will be available shortly. The digital version will be available for download from the website [www.itmems.org](http://www.itmems.org)

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*Table 1 . Recommendations of ITMEMS 3 in relation to RESEARCH AND MONITORING*

ITMEMS 3 Theme <sup>1</sup>	Recommendations for Research and Monitoring
1. Building resilience into coral reef management	<ul style="list-style-type: none"> <li>• Facilitate and finance assessments of risk and vulnerability of coral reefs to climate change</li> </ul>
2. Disaster management and restoration	<ul style="list-style-type: none"> <li>• Baseline monitoring of coastal areas prone to natural disasters to develop and maintain vulnerability mapping</li> <li>• Undertaking more scientific research on cost-effective methods applicable to large scale restoration of marine tropical ecosystems</li> <li>• Study the role of marine tropical ecosystems in coastal protection in different regions of the world</li> <li>• Review available data and information on damage valuation claims worldwide to understand the potential for seeking compensation</li> </ul>
3. Enforcement and investigation	<ul style="list-style-type: none"> <li>• Guidance be provided to resource managers regarding the entire investigation and enforcement process</li> <li>• Enhance the direct application of research and monitoring into assisting enforcement and investigation</li> </ul>
Human impacts	<ul style="list-style-type: none"> <li>• Preparation of inventories of laboratories (in addition to AMLC inventory for the Caribbean) that can handle advanced water quality analysis and ecotoxicology studies for other regions, modelled after the AMLC</li> <li>• Development of regional scale recommendations for water quality standards, and improvement of monitoring of coral disease levels and their inclusion in existing monitoring programs</li> <li>• The continued development of methods for early detection of marine invasive species</li> <li>• Research into methods of eradication of marine invasive species</li> <li>• Research into the ways in which climate change may affect or compound the threat of marine invasive species</li> </ul>
6. Information and knowledge management	<ul style="list-style-type: none"> <li>• Implementation and integration of ecological and socioeconomic monitoring in tropical marine ecosystems management and more effective communication of the results</li> <li>• In planning for research and monitoring, consider not only the financial requirements for data collection, but also for storage analysis and dissemination costs. Provide countries with data management support, tools and training</li> <li>• Improve data archiving and metadata accessibility, with full acknowledgement of partners and sources</li> <li>• Invest in peer-to-peer learning networks to accelerate the implementation and increase the effectiveness of marine resources management</li> <li>• Encourage all countries and regions to assemble status and trend assessments for raising awareness, including the IVOR in 2008</li> </ul>
7. Modelling and support	<ul style="list-style-type: none"> <li>• Participatory modelling should be used to enhance the legitimacy of models and their use by decision makers</li> </ul>
8. Integrated and participatory strategies	<ul style="list-style-type: none"> <li>• Recognition that social science is fundamental for understanding traditional management systems and appropriate forms of management intervention</li> <li>• Both scientific and local knowledge systems, and mechanisms for detecting and reacting to changes in socio-ecological systems, should be harnessed in the development of hybrid management systems</li> <li>• Traditional systems should be respected as partners in management and research, and the sharing of scientific knowledge with communities should be done in a respectful manner</li> <li>• Recognition that traditional knowledge can be strengthened and enhanced by science, and empower communities in management</li> </ul>
10. Economic valuation of marine natural resources	<ul style="list-style-type: none"> <li>• A global assessment of the availability of coastal economic value data and information to identify gaps and focus research</li> <li>• The establishment of centralized and freely available economic valuation database to improve the scope of benefit transfer studies, so that values from one study can be used to evaluate the values for other similar resource or impact situations</li> <li>• An analysis of global best practice in legal frameworks and associated damage compensation approaches to underpin effective marine ecosystems damage compensation claims</li> <li>• Investigation into how economic incentive mechanisms can be better applied, in particular the scope for "payments for ecosystem services" (e.g. off-site fishery benefits and coast protection services) and payments for indirect damages (e.g. sedimentation and greenhouse gas emissions)</li> </ul>
13. Sustainable Financing	<ul style="list-style-type: none"> <li>• Investigate establishing payments for ecosystem services such as fisheries replenishment from no-take zones, and coastal protection by natural resources (mangroves and coral reefs)</li> <li>• Determine costs of management for MPAs and ICM as a foundation for financial planning and develop benchmarks for the evaluation of cost-effectiveness</li> <li>• Monitor improvements in financial performance (revenues and costs) using financial modelling</li> </ul>

*1) There were no separate recommendations relating to research and monitoring for the themes 4. Fisheries and aquaculture, 5. Pollution and disease management, 9. Communication, education and awareness, 11. Sustainable tourism, 12. Partnerships and strategic alliances*





## Leonard Muscatine (1932 – 2007)

Len Muscatine, a man who shaped the modern understanding of plant-animal endosymbiosis, passed away on April 11, 2007. Professor Muscatine was an inspirational mentor and leader of this field, guiding both the ideas and lives of almost four decades of scientists during this period. His scientific contributions were instrumental in crafting our understanding of a fundamentally important part of our world, coral reefs. Even in his retirement, Len was an important commentator and resource for scholars and students alike.

Born in 1932, in Trenton, New Jersey, Len was raised within an academically gifted family that included the Berkeley scholar and older brother, Charles Muscatine (English literature). After national service, Len received a B.A. at Lafayette College in Pennsylvania in 1954. Having started as an English major, Len discovered biology in his senior year and, once he had obtained his BA, moved to the University of California, Berkeley to complete an MA (1956) and a PhD (1961) supervised by the renowned invertebrate zoologist, Professor Cadet Hand. Under the tutelage of Hand, Len developed his life-long passion for the symbiosis between plants and animals.

Len's career as a scientist was characterized by elegance, excellence and creativity. His hallmark approach to science was based on direct experimental evidence for a proposed function or mechanism. His science was more than often cutting edge. As a PhD student, he used the intertidal Pacific sea anemone *Anthopleura elegantissima* to demonstrate for the first time that photosynthetic carbon generated by symbiotic dinoflagellates is passed directly to their invertebrate hosts. This idea remains current (and Len's papers still actively referred to) which is testimony to Len's ability to produce science repeatedly of lasting impact. Following his PhD, Len held post-doctoral fellowships at the University of Miami (with H. Lenhoff) and Scripps Institution of Oceanography (with F. T. Haxo and A. A. Benson). He then took a position as Assistant Research Biologist at Scripps (1963-1964) before becoming an assistant professor at U.C.L.A. in 1964 where he remained for the rest of his career. He rose to Professor in 1971 and served as chairman from 1976-1979. He served as President of the American Society of Zoologists in 1987.

While *Anthopleura elegantissima* was an early emblem for studies of marine symbiosis, Len focused most of his career on understanding the symbioses of green Hydra and later, the sea anemone *Aiptasia pulchella*. These 'model' organisms provided excellent experimental systems for symbiosis research because they could be propagated asexually, grown with and without their symbionts, and the algae easily separated from the animal tissue for analyses. New graduate students were introduced to his laboratory by learning how to maintain the cultures. Using these systems Len developed break-through understandings of the cell biology of symbiosis—developing life-long collaborations with colleagues from Russia, Israel, France, Australia, Monaco and Great Britain among many other places. Len also strove to take laboratory-based conclusions



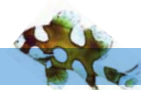
Len in his vineyard, October 2005.

for verification in the field, and undertook field research programs in many places including the Caribbean, Red Sea, Great Barrier Reef, Eniwetok, and Hawaii. He was famous for his energy, humour and engagement with often strenuous field tasks.

In all, Len supervised 19 Ph.D. students at U.C.L.A., many of whom remain active in the field. The Muscatine lab was a diverse community of students and postdoctoral fellows from all over the world. Len provided the first research opportunity for many undergraduate students. Len had a skill with keeping all of his students nurtured intellectually and on track. All of his students remember his frequent: "What is the question?" and his quiet and dreaded admonishment, "But these are answers for which there are no known questions." His students strove so as not to receive his characteristic quip "That appears to be a technique in search of a question!". Len recognized the value of informal social gatherings. The Muscatine family, especially his wife Draselle, provided an important social arena for all of Len's students, post-docs, and colleagues. Many stimulating discussions with colleagues from other parts of the country and world took place around dinner at Len's home. Len taught his students and postdocs through his support and by example – especially that it was all right to be a parent, to be involved in family, and to pursue science at a high level.

Outside science, Len led a full and rounded life as a pilot, woodworker, father, husband and vintner. He is probably the only wine maker in the world to place a symbiotic sea anemone on his label. Len Muscatine was warm and humble, yet inspirational as a mentor and scientific guru. He will be missed by his family as well as the many students, collaborators and friends. The field will never be the same again.

Ove Hoegh-Guldberg (University of Queensland) and  
Gisele Muller-Parker (Western Washington University)



## Book Reviews

### *The Geomorphology of the Great Barrier Reef: Development, Diversity and Change.*

D. Hopley, S.G. Smithers and K.E. Parnell 2007  
Cambridge University Press, Cambridge, xiii + 532pp.  
ISBN 978-0-521-85302-6 (hardback).  
£80.00/US\$150.00

There is a dearth of texts that take a geomorphological viewpoint<sup>1</sup> of coral reef systems. It is an unfortunate observation that the coral world is still largely split into the geologists who (apart from the palaeoclimatologists) tend to deal in 1,000 year or more time slices and who see reefs as robust, persistent systems in the face of short-term environmental fluctuations and the biologists who tend to see reefs as fragile systems, susceptible to catastrophic collapse under extreme natural, or more recently semi-natural, events. Arguably, these viewpoints need to be reconciled by studies that link the decadal and the millennial timescales and it is here that geomorphology – the discipline at the core of this volume – is uniquely placed to make sense of such ‘intermediate’ scales.

What this book is not is a Second Edition of Hopley’s *The Geomorphology of the Great Barrier Reef* (1982; J.Wiley). That turned out to be an incredibly valuable text (my own copy is now very battered, having served as a final year University course text for me since 1984 – I went out and bought it the day after my PhD viva, having been alerted to its existence at the Pacific Science Congress in Dunedin in early 1983) as it contained within its central chapters the most useful synthesis of general reef science since David Stoddart’s monograph in *Biological Reviews* in 1969 and, although complemented, not really superseded until the appearance of a modern morphodynamic approach to reefs in Colin Woodroffe’s *Coasts: Form, Process and Evolution* (2002; CUP).

The Great Barrier Reef (GBR) material in *The Geomorphology* was very much of its time, strongly influenced by the research undertaken on the 1973 Royal Society – Universities of Queensland Expedition to the GBR. That Expedition re-invigorated geological and geomorphological studies of the Reef through its application of radiometric dating, drilling and shallow seismic survey techniques to questions of reef history. These studies were in turn set in the contexts of, firstly, the final abandonment of the search for a global sea level curve (and its replacement with the paradigm of temporally and spatially variable sea levels from the complex interplay of eustatic and isostatic processes on a deformable Earth) and, secondly, the realisation of the potentially critical role of intricate basement topographies in determining modern surface morphologies (*The Geomorphology* contains probably the best overall critical analysis of Purdy’s theory of ‘antecedent karst topography’ ever published). This text continues to develop these themes but now in a context of a total length of ~ 2000 m of logged and dated core sequences from over 50 locations on the GBR. Not surprisingly, therefore, there is a considerable emphasis on the record of Holocene reef growth and its outcomes,

in the new volume.

The focus here is firmly on the GBR. Four introductory chapters set the scene, from large-scale structural geology, through late Pleistocene sea level change and postglacial sea-level rise, to contemporary climatic, oceanographic and hydrodynamic controls. There then follows six chapters of spatial analysis, firstly at the broad scale, detailing both reefs and inter-reefal areas (well illustrating, *inter alia*, the potentialities and shortcomings of the application of Remote Sensing and GIS to large-scale habitat mapping); then proceeding to a cross-shelf transect from fringing and inshore reefs, through mid-shelf settings, to the structures on the outer shelf; before ending up with a consideration of the histories and dynamics of reef islands. The volume then returns to the Holocene record to provide a synthesis on the depth and nature of reef basements; the timing of Holocene reef initiation (or ‘take-off’); rates of coral growth and reef accretion and their relation to sea level rise; and when reefs reached modern sea level. The final chapter, on the ‘essence of geomorphology and its usefulness’ takes a rather different tack (and I think a less sure one) and aims to assess how the material in this volume can throw light on the pressing issues of sedimentation on the Reef; eutrophication; zoning and conservation; management of reef islands; and reef responses to global climate change.

This will be a valuable source book on the GBR. The authors’ thoroughness, grasp of detail and surefootedness in covering a diverse range of topics is impressive. There are close to a thousand references in the Bibliography, over half being on the GBR itself. Even though the book is strongly GBR-focussed, it still retains a general sense of critical review that was so useful in the 1982 volume, with a text often organised around key research questions (‘was postglacial sea-level rise smooth or pulsed?’ ‘what proportion of currently stable islands will remain stable?’). Readers of *Reef Encounter* need no reminding that there is enormous current interest in reef systems, from geology to socio-economics, not least in how these systems will (or will not) respond to near-future global environmental change. There is too little geomorphology in these swirling debates – look at how ‘landform-lite’ the IPCC Assessment Reports are – and such an approach needs to be championed; this text helps with that process, from a team who know what they are about.

Tom Spencer,  
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Department of Geography,  
University of Cambridge, UK

<sup>1</sup> Geomorphology: ‘the scientific study of the nature and history of the landforms on the surface of the Earth and other planets, and of the processes that create them’.





## Coral Reef Conservation

Isabelle M. Côté and John D. Reynolds (editors) 2006. Series: *Conservation Biology*, No. 13, Cambridge University Press in association with The Zoological Society of London, 568 pp. (hardback and paperback editions). ISBN - 10: 0521855365; price £80.00 (hardback).

A title like *Coral Reef Conservation* opens the possibility for addressing a diverse array of topics and opinions, and this edited volume of 18 chapters by multiple authors and many leading specialists in reef conservation, manages to do this in a relatively balanced way. Given the breadth of discussion, the book offers pertinent and current overviews on many topical issues and provides much ammunition for improving reef conservation. For those seeking information on the history, status, issues, strategies and potential solutions relating to reef conservation, this will be an indispensable reference book, particularly for those who think that conservation is only about making a good zoning plan for a marine protected area or passing a new law. The book brings into focus the need for global perspectives, multiple disciplines, and the wide range of thinking needed to tackle the declining state of coral reefs.

Part I (Setting the Stage) gives a nice summary of current knowledge on the status of coral reefs. Wilkinson analyses reef status from a global perspective, leading up to recommendations for action, with a focus on the need for integration of conservation and management efforts. A palaeoecological view of Caribbean reefs by Precht and Aronson clearly explains what has and is occurring to reefs in that region. Mumby and Harborne's chapter shows that reefs must be viewed in relation to their associated marine and land based systems, and that seascape scales are needed to understand the ecosystem processes critical to functionality over time. Part I concludes with a discussion on cold water coral reefs by Corcoran and Hain, highlighting their widespread abundance and need for conservation, that is just as great as tropical reefs.

Part II (Uses and Abuses: Ecological and Socio-economic issues) brings home the magnitude and depth of problems causing reef degradation. McClanahan summarizes current knowledge of small-scale reef fisheries with an impressive array of global reef fish yield data, effects of fishing on reefs and various field-tested management models. He emphasizes that sustainable solutions are often generated locally to meet the demands of both reefs and people. Vincent then dives into the live food and non-food fisheries on coral reefs, with the message that these fisheries are growing, are poorly regulated, and need much more attention by government and management authorities, particularly in terms of recording catches and addressing trade policies. The last two chapters in Part II, on tourism and conservation (Jobbins) and the potential impacts of climate change on reefs (Sheppard), are also important and give relevant background and status on these growing influences in our changing world.

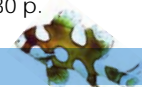
Part III (The Way Forward: Tools and Approaches) provides numerous ideas and examples of the different – and essential – components of effective reef conservation programmes. Côté et al. use meta-analysis of existing data to determine large scale trends and link them to causes of change. This helps to get the big

may not always be available in global databases, and sources are not always willing to share it. Assessing the effectiveness of MPAs is another tool for improving coral reef management as described by Wells, as is environmental impact assessment (EIA), discussed by Turner et al., and economic valuation, discussed by Spurgeon. Moving on to MPAs and direct management, Alcalá et al. explore the role of collaborative and community-based reef conservation in the Philippines, a topic close to my heart<sup>1</sup> and clearly an important tool in developing countries where small, but effectively managed MPAs can make a big difference in reef protection. A logical extension of community involvement in MPA planning and management is education in relation to reef conservation. Browning et al. make an excellent case for the relationship between effective MPAs, education and participation and they show how education that utilizes data from monitoring, cost-benefit analysis and other real time information, engages local stakeholders and helps to build sustainable programmes.

The last three chapters could have been placed in a separate concluding section since they have a different tone, offering prospective solutions, rather than definite conclusions. The first by Jaap et al. contrasts the wealth of knowledge about reef restoration techniques, with its expense and application to only small reef areas, and concludes that restoration is not a substitute for good stewardship of the natural ecosystem. The authors are careful to point out that knowing how to restore a reef, in technical terms, should never preclude the prevention of reef degradation since we will never be able to "rebuild" large reef areas. The chapter by Roberts et al., heavily influenced by global environmental perspectives, offers "big picture" thinking. The themes are "scaling up from local to regional management," "developing regional networks of marine reserves," "building regional connectivity and resilience in reserve networks," "regional refugia," "differential solutions" and "developing regional conservation plans." The authors conclude that reserves, at any scale, need to be embedded within a framework of coastal management that includes comprehensive zoning of all marine activities, control of coastal development, and watershed management to limit input of pollutants, and, that these are all difficult to achieve. Finally, Knowlton brings reality back into view, and reviews what researchers have been doing over the last 40 years. She shows that there is increasing involvement of social sciences – a trend to be optimistic about.

Several important topics such as integrated coastal management, planning for MPAs and MPA networks are not adequately covered. There are also several references in the text that are not listed in the reference section, and a few well-known references are surprisingly not included reflecting a possible narrow review process and several cases of redundancy among chapters, occurrences that are bound to creep into a 500 plus page volume. But, all in all, this current and well-illustrated volume will be a very welcome

<sup>1</sup> See: *Collaborative and community management of coral reefs: Lessons from experience*, edited by A.T. White, L.Z. Hale, Y. Renard and L. Cortesi (eds), Kumarian Press, 1994, 130 p.



addition to the library of anyone who is concerned about almost any aspect of marine conservation.

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## Bookshelf

### ***Coral Reefs of the Southern Gulf of Mexico***

Edited by John W. Tunnell, Jr., Ernesto A. Chávez, and Kim Withers

Beginning with a history of the research done in this region, *Coral Reefs of the Southern Gulf of Mexico* covers the geography, geology, oceanography, ecology, and biodiversity of the thirty-eight "emergent" or platform-type coral reefs in the southern Gulf. The book also includes a discussion of conservation issues, which is both descriptive and prescriptive in its assessment of what has been done and what should be done to protect and manage these vital ecosystems. Available November 2007 from Texas A&M University Press; \$50.00 hardcover; 181 color photos; [www.tamu.edu/upress](http://www.tamu.edu/upress)

### ***Sammy and Tina's Coral Reef Adventures***

Elizabeth Wood and Nicola Barnard, with cartoons by Bob Foster Smith. Marine Conservation Society, UK. 2007. 19 pp.

This is a colouring book for children (and of course adults as well!) produced as part of the education and awareness component of the Semporna Islands Darwin Project (SIDP) run by the Marine Conservation Society and Sabah Parks. It was produced in collaboration with the International Coral Reef Action Network (ICRAN). Available from SIDP for £25 for 10 books (minimum order; includes postage) (contact [helen@sempornaislandsproject.com](mailto:helen@sempornaislandsproject.com)) or ICRAN ([nbarnard@icran.org](mailto:nbarnard@icran.org)) if you are interested in reprinting the book for your own use.

### ***A Guide to Indicators of Reef Health and Social Well-being in the Mesoamerican Reef Region***

Written for a non-specialized readership, this is the first product of a toolkit intended to improve management decisions in relation to maintaining the health of the Mesoamerican Reef ecosystem and the well-being of the people who depend on it. It contains:

- A menu of 58 indicators of ecosystem health and social well-being;
- A '20 top' list of must-check indicators;
- A discussion on data availability, reference-values, methods, feasibility and limitations;
- 'Red flag' thresholds that signal when urgent action is needed.

The guide also covers specific conservation objectives and management actions for various attributes, including biodiversity, community structure, habitat extent, coral reproduction and recruitment, herbivory, as well as drivers of change and governance and socio-

economic factors, such as tourism and coastal development, human health, economy, and policies. It provides practical suggestions on how reef managers can apply the indicators to real-life situations, and how to link indicators to each other for a larger, more accurate picture of reef condition and health over time.

Available in print, CD and PDF, in English only. The Spanish translation will be available in the fall of 2007. For more information on the Initiative, to download the PDF version or request a CD of the Guide, please visit: [www.healthyreefs.org](http://www.healthyreefs.org)

### ***Proceedings of the 7th Indo-Pacific Fish Conference, Taiwan, 2005***

*The Raffles Bulletin of Zoology*, Supplement No. 14 (31 Jan 2007), is now available online: <http://rmbz.nus.edu.sg/rbz/biblio/#s14>

### **FMSP products freely available from new projects database**

The Fisheries Management Science Programme (FMSP) was funded by the UK Department for International Development (DFID) between 1991 and 2006, and managed by the Marine Resources Assessment Group (MRAG). Since 1991 FMSP has commissioned over 60 research projects on management of marine and inland capture and enhancement fisheries. The FMSP projects database provides fast, easy access to information and products for all projects, and allows searches against different criteria. For each project there is a summary description, as well as information about the project team and their organisations. Manuals, guidelines, and project reports can be freely downloaded in pdf format, whilst links are provided to publications in copyright journals. FMSP software may also be downloaded, including four stock assessment tools and a decision support tool for fisheries enhancements. Key Programme Lessons provide policy briefs that synthesise learning across all projects, on themes including the importance of fisheries in the global economy, the impacts of FMSP research, and common pool resources and fisheries management

For further information contact: MRAG Ltd, 18 Queen Street, London W1J 5PN, Tel: +44 (0) 20 7255 7755, Fax: +44 (0) 20 7499 5388 ; Email: [fmsp@mrage.co.uk](mailto:fmsp@mrage.co.uk); Web: [www.fmsp.org.uk](http://www.fmsp.org.uk)

### **Hans and Lotte Hass underwater movies now available on DVD**



If you would like to see what Caribbean coral reefs looked like in the early 1950s, I strongly recommend the underwater colour movies of pioneering SCUBA naturalists and scientists Hans and Lotte Hass. These have recently been transferred to DVD and can be purchased at the German [www.amazon.de](http://www.amazon.de). The Hans Hass Classical DVD edition contains the 1950s colour movies in both English and German language. DVDs of their more recent SCUBA movies can also be ordered at this website. I enjoyed watching all the movies immensely; they are of high quality for their time.

Michael Arvedlund, [arvedlund@speedpost.net](mailto:arvedlund@speedpost.net)



# The DisneyWorld of coral reefs ....



**Castaway Cay** is a private island in the Bahamas which serves as an exclusive port of call for the Disney Wonder and her sister ship, the Disney Magic. The island, formerly known as **Gorda Cay**, is owned entirely by the Walt Disney Company. Disney is said to have spent US\$25 million to develop and outfit the island.

Construction took 18 months and included dredging 50,000 truck-loads of sand from the depths of the Atlantic Ocean. The pier and its approaches were constructed specifically for the Disney ships, so that they could dock alongside easily. To create the mooring site for the ships, workers dredged sand from a 1,700-foot channel about 35 feet deep and 200-400 feet wide. The dredge material was used to build the landing island. The island is still largely undeveloped: only 55 of the 1,000 acres are being used. Sea water is changed into pure water with reverse osmosis water processors.

Each ship connects to a fiber optic link at the dock to provide data services to the island and allow guests to charge souvenirs, equipment rentals, massages or other purchases back to their cabins.

Two submarine ride vehicles from the closed 20,000 Leagues Under the Sea: Submarine Voyage ride at the Magic Kingdom now lie underwater in the snorkeling area. Also in the snorkeling area is a statue of a little friend, Mickey Mouse. There are three beaches on the island, one for families, one for teens, and another exclusively for adults called Serenity Bay. Due to the island's expansive insect population, Disney cruises generally depart the island before sunset.

*Adapted from text extracted from Wikipedia*

## Reef Sights

### Diary

#### October 2007

1-5 International Workshop on the Taxonomy and Biology of Octocorals, Phuket, Thailand. [http://octocoralresearch.com/Octocoral\\_workshop\\_2007.htm](http://octocoralresearch.com/Octocoral_workshop_2007.htm)  
18-19 Coral Reef Futures 07, Canberra, Australia. [www.coralcoe.org.au/news\\_stories/07.html](http://www.coralcoe.org.au/news_stories/07.html)

#### November 2007

5-9 60th Annual Conference of the Gulf and Caribbean Fisheries Institute, Punta Cana, Dominican Republic. [www.gcfi.org/Conferences/60th/GoliathGrouper.html](http://www.gcfi.org/Conferences/60th/GoliathGrouper.html)

#### December 2007

8 10th Annual Meeting of Reef Conservation UK, London, United Kingdom. [www.rcuk.org.uk](http://www.rcuk.org.uk)

#### January 2008

24 Launch of the International Year of the Reef (IYOR), Germany Düsseldorf (European dive fair), Germany. [www.boot.de](http://www.boot.de)  
22-25 1st General Meeting of the International Coral Reef Initiative (ICRI), Washington, United States. [www.icriforum.org/dcgm.html](http://www.icriforum.org/dcgm.html)  
25 Launch of the International Year of the Reef (IYOR), US Washington, United States. [www.lyor.org/](http://www.lyor.org/)

#### March 2008

2-7 2008 Ocean Sciences Meeting, Florida, United States. [www.aslo.org/orlando2008/](http://www.aslo.org/orlando2008/)  
March 30-April 8 8th Workshop of the Group for Aquatic Primary Productivity (GAP), Eilat, Israel. [www.gap-aquatic.org](http://www.gap-aquatic.org)

#### July 2008

7-11 11th International Coral Reef Symposium, Florida, United States [www.nova.edu/ncri/11icrs/](http://www.nova.edu/ncri/11icrs/)  
See announcement on p. 9.

#### October 2008

5-14 4th IUCN Congress, The World Conservation Forum, Barcelona, Spain. [www.iucn.org/congress/2008/index.htm](http://www.iucn.org/congress/2008/index.htm)

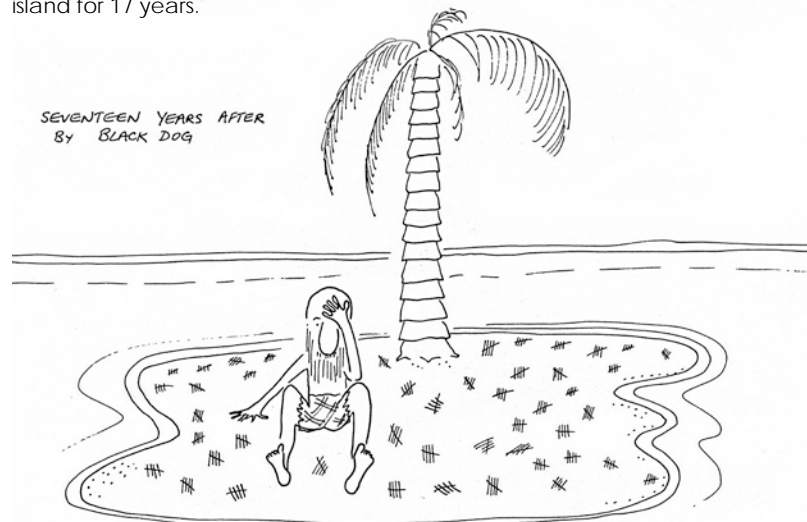
#### December 2008

1-5 4th International Symposium on Deepsea Corals, Wellington, New Zealand. <http://coral2008.niwa.co.nz/index.php>

#### 25-29 May 2009

8th Indo-Pacific Fish Conference, Perth.

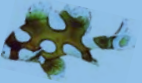
**A set of cartoons drawn by Terry Scoffin**, under the name of Black Dog. Terry (see obituary in Reef Encounter 32, April 2004) has been submitted by Gray Multer for the enjoyment of readers. The cartoons, one or two of which appeared in earlier issues, describe the adventures of 'Ross', who has been shipwrecked on a very small island for 17 years.



ROSS WAS RELIEVED WHEN ON REDOING HIS CALCULATIONS HE REALIZED THAT THE DATE WAS IN FACT FRIDAY THE FOURTEENTH

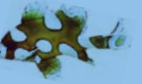


# MEMBERSHIP



The annual subscription for individual membership of ISRS is currently US\$80, provided renewal payments are made by 1 March each year. Individual and Family Members receive the journal *Coral Reefs*, the magazine *Reef Encounter* and other periodic mailings. Family membership is US\$90. Student membership costs US\$25 and benefits include all of the above except the journal *Coral Reefs*. The Category - Patron Member- is for those supporting the society with a subscription of \$200. In addition to the standard benefits, Patron Members will see their names printed in each issue of *Reef Encounter*. Renewals received between 1 March and 30 April cost US\$30 for a student member, US\$90 for a full member and US\$100 for a family membership. Those received after 1 May will cost US\$32, US\$100 and US\$110 respectively. New members can join at the base rate of US\$25, US\$80 and US\$90 at any time of the year. Financial assistance may be available to prospective members with legitimate needs. Please contact ISRS Corresponding Secretary Dr Isabelle Côté at [imcote@sfu.ca](mailto:imcote@sfu.ca). Institutional subscriptions to *Coral Reefs* must be placed directly with Springer-Verlag. Subscriptions to the Society should be addressed to: International Society for Reef Studies, P.O. Box 1897, Lawrence, Kansas 66044-8897, USA.

# NOTES FOR CONTRIBUTORS



*Reef Encounter* is the International Society for Reef Studies magazine-style newsletter. In addition to our main feature articles, we include news on all aspects of reef science, including meetings, expeditions, book reviews, and information on student opportunities. We encourage discussion and debate on issues concerning reefs or the ISRS, and we welcome letters to the Editor for our correspondence column (Upwellings). We aim to complement the Society's journal, *Coral Reefs*, by publishing brief reviews of recent trends and developments that bear on reef studies. Please note that *Reef Encounter* does not publish original scientific data.

*Reef Encounter* has an informal and journalistic style and, while references are permitted, they should be kept to a minimum. Please number references in the text using superscript, and list them at the end of the article in the order in which they are cited, first through the text, and then through the table and figure legends. Each reference should have a unique number, and references should not be combined. Avoid the use of op.cit. or ibid, and use World List abbreviations. In all other aspects, references should follow the style prescribed for *Coral Reefs*.

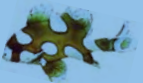
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Articles should range between 200 and 1000 words. If you are planning a substantial contribution, it will help the Editor plan ahead by contacting her first. Except in exceptional circumstances, text should be sent by email to [suewells100@tiscali.co.uk](mailto:suewells100@tiscali.co.uk). We welcome contributions regardless of when they arrive, but submissions for issue 36 should arrive no later than January 31 2008. Thank you for your support.

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(DUE OUT March 2008) - JANUARY 31, 2008**

Please send correspondence and submissions to one of these addresses: Editor, **Sue Wells** 95 Burnside Cambridge CB1 3PA, UK. Email: [suewells100@tiscali.co.uk](mailto:suewells100@tiscali.co.uk), Associate Editor **Michael Arvedlund** Reef Consultants, Raadmand Steins Allé 16A, 2-208, 2000 Frederiksberg Denmark Email: [arvedlund@speedpost.net](mailto:arvedlund@speedpost.net), Associate Editor **Steve Coles** Department of Natural Sciences, Bishop Museum, 1525 Bernice Street, Honolulu, HI USA, Email: [scoles@bishopmuseum.org](mailto:scoles@bishopmuseum.org), Associate Editor **Adel Heenan** School of Biology, University of Edinburgh, Ashworth 2, King's Buildings, Edinburgh EH9 3JT, Scotland. Email: [adel.heenan@gmail.com](mailto:adel.heenan@gmail.com)

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Signature .....