



Lizard Island Research Station

Newsletter 2001

Published April 2002



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Lizard Island Reef
Research Foundation

Lizard Island Reef Research Foundation

The Lizard Island Reef Research Foundation is an independent trust established to raise funds for the Station and to support research on the Great Barrier Reef. Its major commitments are to the Doctoral Fellowships program and to capital development of the Station. Donations to the Foundation are tax deductible within Australia. More than \$2 million has been raised by the Foundation since its inception in 1978.

FOUNDER

Sir John Proud[^]

PATRONS

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Dr Des Griffin AM
Mr Raymond Kirby AO
Mr Henry Loomis and
Mrs Jacqueline Loomis
Lady Proud
Mr Robert Purves
Mr Charles Warman AM

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and Treasurer)
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Dr Penny Berents
Mr James Bildner
Lord Catto of Cairncatto*
Mr Trevor Haworth AM
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Mr Vivian King
Mr Raymond Kirby AO
Mr Gordon Moffatt AM
Mr Bill Page-Hanify AM
Mr Robert Purves
Associate Prof Margaret Rose
Mr Charles Shuetrim
Ms Julianna Walton
Mr Charles Warman AM

Donations of more than \$100,000 in total

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The Japan Foundation
The Consulate General of the
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Donations of more than \$50,000 in total

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Donations of more than \$10,000 in total

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The Queensland Government
Westpac Banking Corporation
Brian Wiesener
and one anonymous donor

[^] deceased

* deceased 3 September 2001

Donors who have provided support in the current year are acknowledged and thanked in the body of the Newsletter.



Lizard Island Research Station Newsletter 2001

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Dr Anne Hoggett and Dr Lyle Vail

All photographs by Lyle Vail or Anne Hoggett unless otherwise indicated.

This newsletter covers events during 2001.
Published April 2002.

Research News

Lizard Island misses out on major funding

Lizard Island is the only major research station on the Great Barrier Reef that was not awarded significant Federal funding during 2001. The government committed \$10.8M over three years to upgrade and improve the infrastructure of research stations at Heron Island, Low Isles, Moreton Bay (operated by the University of Queensland), Orpheus Island (James Cook University) and One Tree Island (University of Sydney). The grant was made through the Department of Education, Training and Youth Affairs under a program for which only higher education institutions were eligible. The Lizard Island Research Station's parent body, the Australian Museum, was thus not able to be part of the DETYA submission that included all other partners in the Tropical Marine Network.

The research stations have been providing an extremely cost-effective platform for coral reef research and education for many years. Most of them now require major infrastructure development to enable them to keep providing this service and to enhance the range of research that can be conducted. Accordingly, an early priority of the Tropical Marine Network is to raise substantial funding to refurbish and enhance the island facilities. The group sought infrastructure funding during 2001 through the Federal government's Major National Research Facility program. That proposal was shortlisted but was ultimately unsuccessful. The successful DETYA opportunity came up shortly afterwards. This funding goes a long way towards achieving the Network's initial goal but leaves Lizard Island as the only station in the network without funding for a much-needed infrastructure upgrade.

While Lizard Island Research Station has had the benefit of regular injections of capital funding from the Lizard Island Reef Research Foundation, this source does not provide sufficient funds for the expenditure that has become necessary after nearly 30 years of providing service to the marine science community. Lizard Island is an essential part of the Tropical Marine Network, occupying a strategic position as the northernmost station and the only one with practical access to the entire width of the continental shelf. A major source of funding for Lizard Island must be found soon to enable it to continue and enhance its important role.

Doctoral Fellowships

A Lizard Island Doctoral Fellowship is awarded annually to a PhD candidate conducting significant long-term coral reef studies who will make effective use of the Lizard Island Research Station's facilities. Each new Fellowship is worth up to A\$6,000 per year for up to three years. The program is funded by the Lizard Island Reef Research Foundation and is awarded by the Australian Museum. Fellowship applications are peer reviewed and we sincerely thank all reviewers for contributing to this program.

Information about the 2003 Lizard Island Doctoral Fellowship will be available at www.amonline.net.au/lizard/index.htm by July 2002. Closing date for applications is 1 October 2002.

Justine Becker collects cleaner shrimp
(Photo: courtesy Justine Becker)



2002 Doctoral Fellow

Justine Becker, a PhD student from the University of Queensland, was awarded the 2002 Lizard Island Doctoral Fellowship which will fund her fieldwork to the end of 2004. She will spend a large portion of each year at Lizard Island investigating the ecological role of cleaner shrimps on coral reefs.

Associations between cleaning animals and their clients are found all over the world and cleaners form an integral part of community ecosystems. Surprisingly few researchers have examined cleaning associations involving crustaceans, yet more than 40 species of cleaning shrimp have been recorded either by photographs or observation. Justine aims to document the diversity and ecology of cleaner shrimp, client fishes, and their parasites at Lizard Island. She will develop a model system for testing hypotheses about cleaning and use that model to examine cleaning behavioural ecology using field observations and manipulative experiments in both the laboratory and the field.

This study will provide the first quantitative investigation of cleaner shrimp and their associations with client fishes, in Australia and worldwide, to determine if these interactions between different species are mutually beneficial to both parties. In the long term, this study may enhance our knowledge of factors that affect the survival of reef fish. This may allow the development of strategies that can be used in the management of marine parks. As well, the findings of this study may lead to methods which will facilitate the aquaculture industry in controlling parasites abundance to a level at which their stocks remain healthy.

Other Doctoral Fellows

Jackie Wolstenholme (1999 Fellow, James Cook University) and Ulricke Siebeck (2000 Fellow, University of Queensland) both finished their fieldwork at Lizard Island during 2001 and are currently writing up. Jackie has done an admirable job of sorting out a taxonomic tangle within a group of common corals, finding congruence in the relationship patterns found using several state-of-the-art methods. Uli's field and laboratory experiments have shown that ultraviolet colour patterns on the skin of fishes can influence the behaviour of other fishes. Although these patterns are invisible to humans, they appear important to some fish communities in influencing behaviours such as foraging, predator avoidance and reproduction.

Rebecca Fisher (joint 2001 Fellow, James Cook University) has been at Lizard Island for two summer seasons and finished her fieldwork early in 2002. She has demonstrated that larvae of many taxa can swim indefinitely if they have access to food and that there are distinct differences in larval swimming ability and vertical distribution between fish families. Building on previous work done at Lizard Island, this study helps fisheries managers understand how and where adult fish populations develop and are maintained.

Heather Patterson (joint 2001 Fellow, James Cook University) started her field program in late 2001 and she has one more year of funding. Heather plans to investigate the chemistry of ear bones (otoliths) of some reef fish to determine if fish larvae on one reef reach other reefs. Her results will help determine the degree of recruitment of some reef fish to their natal reef. This knowledge is important when designing marine protected areas.

Small boats are the workhorses of reef research



Lizard Island Reef Research Foundation

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A major initiative of the LIRRF this year was to assist in the establishment of a complementary foundation in the United States, the Coral Reef and Marine Science Foundation (see box). There are strong links between the two Foundations: all CRMSF directors have an association with the Lizard Island Research Station and three of them are on the LIRRF board. The CRMSF's charter is broader than that of the LIRRF but it provides an avenue for donations that are tax-deductible in the USA to contribute towards research at Lizard Island and to the development of the Station.

Private funding through the LIRRF (and soon through the CRMSF) is the Station's lifeline. Without the funding for capital development provided by the Foundation, the Station would not be able to offer the range of facilities and services it does at such a low cost. In fact, it may not even be able to keep operating. The committed people within the Foundation who have worked to provide consistent funding over many years and the donors who regularly contribute are to be congratulated for their vision.

Coral Reef and Marine Science Foundation

The Coral Reef and Marine Science Foundation Inc. recognises the threat to coral reefs from human activities such as destructive fishing practices and global warming. It aims to bring new knowledge to the widest possible audience to contribute to the understanding and conservation of coral reefs everywhere. The CRMSF will work towards achieving this aim by providing funding for:

Research into the biology and natural history of coral reefs around the world;

Research and other projects concerning the effects of human and natural influences on coral reefs;

The maintenance and upkeep of the Lizard Island Research Station, and similar stations anywhere in the world.

The Foundation was incorporated in Massachusetts, USA in January 2001 through the generous efforts of Mr Jim Bildner who is also a trustee of the Lizard Island Reef Research Foundation. The CRMSF received tax-deductible status from the US Internal Revenue Service in July 2001. Its board is drawn from both the USA and Australia and encompasses a formidable range of skills and experience in coral reef research, business and philanthropy.

Directors

Mr Jim Bildner, President
Boston

Mr James Duplessie
Connecticut

Mr Ken Coles AM
Lizard Island Reef Research
Foundation, Sydney

Prof Michael Archer
Australian Museum, Sydney

Prof Roy Caldwell
University of California, Berkeley

Dr Andrew Baker
Wildlife Conservation Society, New York

New digital photomicroscope system



Ken Coles and Rowena Danziger at Coles House



Vale Lord Catto

Lord Catto of Cairncatto died peacefully at home from cancer on 3 September 2001 in the presence of his family. A patron of the LIRRF and a donor to the cause since the Foundation's inception, his death is noted sadly by the Foundation and the Research Station. Stephen Catto had a remarkable life, from flying Mosquitos in post-war Asia to chairmanship of merchant bank Morgan Grenfell. His association with the Lizard Island Research Station began with a visit in the 70s that inspired his imagination. It wasn't the coral reefs that inspired him so much as the challenges and rewards of living in an isolated community, and he went on to put many of the ideas he obtained from Lizard Island into practice at his remote property in Greece. Lord Catto revisited Lizard Island in 1999 and we are pleased to have met him. His estate continues to support the Foundation.

Coles House

A new house for maintenance staff was constructed this year with funds raised by the LIRRF. It is named in honour of Kenneth Coles AM, Chairman of the Foundation since 1994. Ken is an indefatigable supporter who keenly embraced the plan to provide high-quality accommodation for the Station's staff and who made it happen. Coles House now joins Warman House (built in 1997) as the best staff accommodation on the Great Barrier Reef.

The two-bedroom house is well suited to the lifestyles of the two couples who each work for six months in the maintenance positions. It is built on the site of the old staff house, which was well and truly ready for demolition. Features of Coles House include plenty of storage space, timber floors, front and back verandahs, plenty of screened windows, a terrific kitchen and a bathroom with composting toilet – beats the old dunny out the back! As well, it is built to the current cyclone code offering significant peace of mind during that season.

Staff at the Station offer their heartfelt thanks to all supporters of the staff housing project!

Developments funded by the Foundation

The Foundation contributed almost \$225,000 during the 2000/01 financial year, much of which was allocated to construction of Coles House. The funds also enabled the following projects:

- Support the fieldwork of three PhD students under the Lizard Island Doctoral Fellowships program.
- Continue the replacement schedule for outboard motors every two years to ensure reliability and ease of maintenance.
- Purchase a new water storage tank, completing replacement of all three of the early 70s tanks on which the Station's freshwater distribution system relies.
- Replace the split-system air-conditioning unit in the microscope room.
- Purchase some new furnishings for visitor houses.

During the latter half of 2001, the following additional developments occurred:

- A new high-quality photomicroscope system was installed in August 2001, comprising a dissecting microscope, digital camera and monitor. Trustee Mrs Alison Hayward provided funds for this excellent system: It has virtually replaced the film-based photographic system that was used previously. Digital is definitely the way to go in the field – researchers know immediately whether the image is suitable, while there is still time to take another shot if it isn't. Researchers are delighted with the system and it has been in heavy use ever since it arrived. Student groups will also make good use of it during the winter season, especially the opportunities for group viewing of microscopic marine life on the monitor.
- A new 4.93 metre aluminium dinghy with 25 hp outboard motor and safety equipment was purchased with funds donated by Mr Bill Hayward. The dinghy is named *Alison* in honour of Bill's wife, trustee Mrs Alison Hayward. This boat is of the style that is popular at the Station: it has low sides making diving and loading easy, and lots of open deck space for equipment. The Station needs at least one new dinghy

Lord Catto with Anne Hoggett in 1999



Mr Dick Smith AO and Prof Mike Archer
at the dinner



of this kind every year for the next few years to rejuvenate its ageing fleet.

- Another new 4.93 m aluminium dinghy, identical to *Alison*, was purchased with a grant from the US-based PADI Foundation. As "PADI Foundation" is a bit of a mouthful, this boat is imaginatively named *Number VII* and it replaces a 14-year old dinghy that had reached the end of its useful life.
- The Station's diesel workboat, *NQEA One*, was retired from service during 2000 as it was no longer feasible to continue to repair the motor. Foundation funds became available in the 2001/02 financial year to replace the motor, shaft and electricals, enabling the boat to go back into service in late 2001. Foundation member, Mr Don Fry AO of NQEA Australia, generously contributed 10% of the cost of this major work. Unfortunately, the new motor had some initial problems but these have been resolved and the boat is now fully operational.
- Mr & Mrs Doug Markell have donated funds to produce a display about the Research Station for permanent exhibition in the Australian Museum. The display is in preparation and will be completed in 2002.

Foundation members' dinner

The Wharf Restaurant at Walsh Bay on beautiful Sydney Harbour was the venue for this year's members' dinner on 17 September 2001. Attended by a capacity crowd of more than 100 people, it was a great success. The annual dinner is not a fund-raising function but an event at which members and guests can learn more about the relevance of work at the Research Station. The Museum's Deputy Director, Patrick Filmer-Sanke, spoke entertainingly of his experiences as a student at the Station in its early days and of the ways in which non-scientists can contribute to coral reef research. We thank Anders Ousback for providing both the venue and the wonderful meal. Wine for the dinner was generously donated by Fesq & Company, Petaluma Vineyards and Windowrie Estate.

Melbourne luncheon

Patrick Filmer-Sanke was also called upon to speak at the Foundation's annual lunch in Melbourne on 11 May 2001. The lunch was hosted by Ken Coles at the Athenaeum Club and was attended by ten members and guests. Like the dinner in Sydney, this function is not intended as a fundraiser but as a thank you to existing donors and as a means of interesting others in the Foundation's work. Ken is to be thanked yet again for his consistent success in drawing together people who wish to support coral reef research.

Members' prizes

Each year, current members of the Foundation are automatically entered into a draw for two excellent prizes. With membership of the Foundation limited to 100 people, the odds on this draw are very good! One prize is a four-night stay for two at the Lizard Island Resort with return air fares to Lizard Island from within Australia, and the other is a four-night cruise for two to Lizard Island aboard the Captain Cook Cruises ship *Reef Endeavour* with return air fares to Cairns from within Australia. P&O Australian Resorts and Captain Cook Cruises generously sponsor these prizes, respectively. In 2001, Mrs A. Albert won the Resort prize and Mr Bill Winning won the *Reef Endeavour* cruise.

Foundation visitors

Many people associated with the Foundation visited the Station during the year while staying at the Resort or visiting the island during a *Reef Endeavour* cruise: Coral and Ian Ackery; Ken Coles and Rowena Danziger (to inspect Coles House!); Robert and Margaret Coles; Howard Cox and his sister Maizie; Margaret and John Goodall; Geoff and Liz Haddy; Trevor and Geraldine Haworth; Alison Haworth; Raymond and Deirdre Kirby; Gordon and Jackie Moffatt; Bill and Barbara Page-Hannify; Dick and Pip Smith, and; Jerry and Alleen Tostrud. As well, Julie Walton and her family stayed at the Station in April, and Rob Purves and his sons Rhett and Scott stayed at the Station during July.

Ray and Deirdre Kirby at Kirby House



Donations

The following individuals and organisations have donated funds or made in-kind donations to the Lizard Island Reef Research Foundation during 2001. Members each contributed \$1,000 or more during the year, while Friends contributed sums of up to \$1,000. Special donors to the staff housing project are indicated with an asterisk (*) and gifts in kind are indicated with a plus sign (+).

Members

Coral and Ian Ackery
Antoinette Albert
Philip Bacon AM
Diane and Neil Balnaves
Peter and Penny Berents
*James and Nancy Bildner
Terry and Robin Bolin
Ted and Mary Carter
*Lord Catto of Cairncatto
Arthur and Prudence Charles
*Ken Coles AM and Rowena Danziger
Robert and Margaret Coles
Shirley Coles
James Duplessie
Andrew Duplessie
William Duplessie
Don Fry AO and Leslie Fry
Leona Geeves
Geoff and Elizabeth Haddy
Barbara Hardy AO
Trevor Haworth AM and Geraldine Haworth
Bill and Alison Hayward
Chris and Katy Joscelyne
Vivian and Wendy King
Professor Judith Kinnear
James N. Kirby Foundation
*Raymond Kirby AO and Deirdre Kirby
Geoff Lee AM OAM and Judy Lee
John and Anne Leece
Henry and Jacqueline Loomis
Susan and Robert Maple-Brown

Mr and Mrs Markell
Peter and Kate Mason
Charlotte Moffatt
Gordon Moffatt AM and Jackie Moffatt
Susan and Lynton Morgan
Michael Dowe and Louise Nettleton
Michael and Helen Nugent
*Graham and Glynn O'Niell
Anders Ousback
Bill Page-Hanify AM and Barbara Page-Hanify
*Lady Laurine Proud
Robert Purves
Pam and Allan Rogers
Susan Rothwell
*Alan and Lynne Rydge
Brian and Jene Sherman
*Charles and Sandy Shuetrim
Paul Slade
Dick and Pip Smith
John and Christina Stitt
Jerry and Alleen Tostrud
Lyle Vail and Anne Hoggett
*Charles Warman AM
Sir Bruce and Lady Watson
P.M. Weate and M.J. Barr
Robert and Sarah Whyte
Bill Winning (Winning Appliances)
and four anonymous members

Corporate members

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PADI Foundation
+Petaluma Vineyards
*Raymond E Purves Foundation
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*Trust Company of Australia
+Windowie Estate

Friends

T.F. Bathurst
Anne and Julian Beaumont
Louise Berg and family
John Charrington
C.P. and S.C. Davidson
S.J. Fouracre
Brian France
Hilary Hill
Michael and Aletha Hoy
Stephen Johns
Elizabeth and Robert Johnson
Kospartov family
Mrs Margaret McDonald
Ian and Di Moncrieff
Margaret Rose
Ian and Jocelyn Russell
Martha Steensrup
Frank and Sue Talbot
Lois Wilson
and many anonymous donors

For the record...

Web site

An extensive new web site (www.amonline.net.au/lizard/index.htm) covering all aspects of the Station was launched in late June as part of the new Australian Museum site. It contains virtually all the information needed by visitors for planning their trips to the Station, from food order forms to contact details for agencies that deal with permits. As well, the site has already been successful in attracting new business and in organising potential volunteers.

Lease

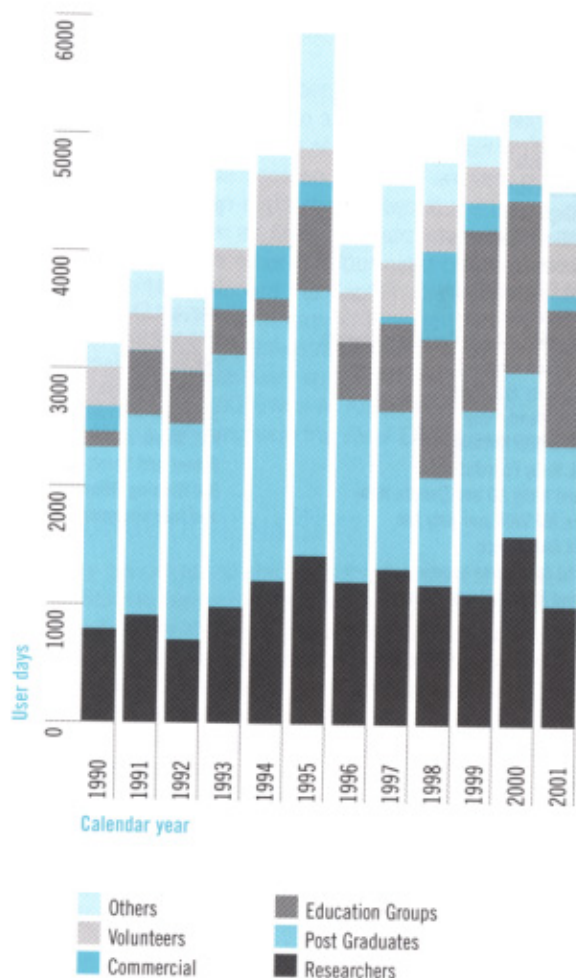
After several years of negotiation, in early 2001 the Australian Museum obtained a new 20 year lease over the land on which the Research Station is located. It is backdated to the expiry of the original lease so it will remain in force until 30 June 2018. The conditions of the new lease are much tighter than the old one to ensure environmental protection. However, very few practices at the Station will have to change because most already comply with the new conditions. Rental has increased steeply over the initial 25 year lease.

Staff

There have been no staff changes during the year. Lyle Vail and Anne Hoggett are continuing as Directors and the two maintenance positions are filled by Lance and Marianne Pearce during summer (September to March) and by Bob and Tania Lamb during winter (March to September). Renie Hood once again assisted as a volunteer when Anne and Lyle were both off the island in June.

Usage

Usage of the Station during 2001 was impacted slightly by the building program that took place over three months from April to June. While this period was chosen so as to have the least possible impact upon users, no student groups could be accepted during that period because builders and staff occupied half the Station's visitor accommodation. The events of September 11 and the concurrent collapse of Ansett Airlines also contributed to the decline as they resulted in a small number of cancellations.





Bench fees

Researchers and educational groups are charged a bench fee that is subsidised by the Australian Museum Trust and the Lizard Island Reef Research Foundation. The fee covers shared, self-catering accommodation, use of a small boat, most laboratory and aquarium facilities, and scuba tanks and air fills to qualified divers.

Starting in 2002, the bench fee will increase each year on 1 January to cover increasing costs. Researchers and student groups who are applying for grant funding should include a margin for these annual increases. The fee schedule for 2001 and 2002 is (A\$ including GST, per person per night):

	2001	2002
Researcher	\$ 88.00	\$ 93.00
Researcher's assistant	\$ 77.00	\$ 81.00
Postgrad student (own project)	\$ 33.00	\$ 35.00
Postgrad's assistant	\$ 29.70	\$ 31.00
School or university group	\$ 55.00	\$ 58.00
Commercial	\$ 165.00	\$ 173.00

For individuals staying for 28 consecutive days or longer, a 10% discount applies to the whole of their bench fee.

Other costs involved in conducting research or bringing an educational group to the Station include airfares between Cairns to Lizard (the scheduled service is operated by Macair, bookings and price enquiries through Qantas), barge freight for food and other supplies from Cairns (\$11 per grocery carton) and food (the supermarket bill plus a small cartage fee for delivery to the barge depot). Use of most laboratory and aquarium facilities is included in the bench fee although extra charges may be incurred for use of equipment that draws a lot of power or uses additional fuel. Use of a small self-drive boat is included in the bench fee, but if a larger boat is needed, the additional fuel cost is recouped on a distance basis and it is usually necessary to hire a staff boat driver at \$55 per hour. Scuba tanks and air fills are included in the bench fee for divers qualified according to the Station's regulations. Weights and belts are available to all visitors at no extra charge. High quality snorkelling gear, wetsuits, regulators, and BCDs are available for hire at reasonable rates. All prices include GST and are in Australian dollars.

Volunteer program

The Station's volunteer program is highly popular and the volume of enquiries has increased since the Station's new web site was established. Volunteers give four hours manual work each day. The work is maintenance, not research, but many volunteers are recently qualified biologists who are eager to live on a field station, experience the coral reef environment and mix with researchers. Volunteers must pay their own travel expenses and arrange for their own food supplies. To enable volunteers to donate their services, shared accommodation is provided free of charge at the Station. In general, only two volunteers are accepted at any one time on a space available basis. Opportunities are greatest from mid-February to mid-June and during August and September. More details about the program and an application form are available on our web site.

Monitoring

Monitoring activities remain unchanged from last year:

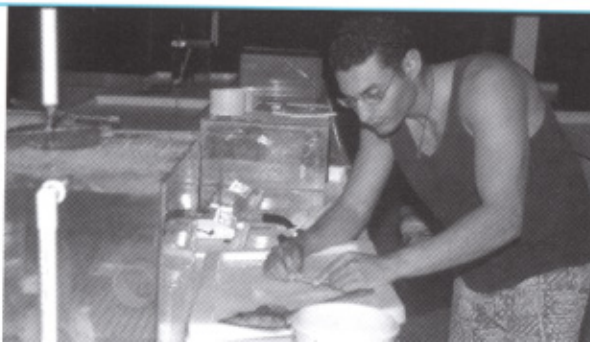
- Daily rainfall has been recorded since 1979; daily maximum and minimum air temperatures are available from 1989; and wind speed and direction and air pressure are available from 1996.
- Water temperature data from loggers at 2 metres depth are available from 1993 and at 0 and 6 metres depth from 1995.
- The number of crown-of-thorns starfish observed by divers from the Research Station has been recorded since 1993. An outbreak was noted on an outer barrier reef this year.
- Human usage and numbers of potato cod at the Cod Hole have been recorded since 1992.

Tours

Tours of the Station for Resort guests are conducted on Mondays and Fridays from 9.30 to 11 am. A tour for other island visitors, mainly campers and yachties, is conducted from 11 am to 12.30 pm on Mondays only. The tours are popular and an effective means of communicating the research being done at the Station.

A special tour was conducted in September for a group of US visitors led by Prof. Frank Talbot. Tours for other groups with a special interest in the Research Station were also given occasionally during the year.

Ameer Abdulla at work in the Sir John Proud Aquarium



Research Projects and Participants

The following research projects were carried out during 2001. Project leaders who are postgraduate students are indicated with an asterisk (*).

Molecular identification of *Symbiodinium*-like endosymbiotic dinoflagellates among soritid foraminifera (December 2001)

*Xavier Pochon (University of Geneva, Switzerland)

Chemistry of Great Barrier Reef sponges (July 2001)

Dr Mary Garson (University of Queensland, Brisbane)

Large-scale patterns of coral demography on the Great Barrier Reef (February, May 2001)

Morgan Prachett as field leader for Prof Terry Hughes' project (James Cook University, Townsville) assisted by Matt Williams and Deborah Gibson and Dr Shaun Connolly

Species boundaries in scleractinian corals (January, February, December 2001)

*Jackie Wolstenholme (James Cook University, Townsville) assisted by Jonas Sternstrom, Paul Detwiler, Margaret Brown, Zoe Richards and Xavier Pochon

The structural integrity and distribution of reef corals in the hydrodynamic environment (May, October/ November 2001)

*Joshua Madin (James Cook University, assisted by Anthony Dell

Density of burrowing clams in *Porites* – a test of island biogeography theory (May 2001)

*Kate Smith (University of New Mexico, USA) assisted by Jean Smith

Combining morphological, biochemical and DNA sequence data from nudibranchs: can this improve an evolutionary model? (July 2001)

*Shireen Fahey (University of Queensland, Brisbane) assisted by Robert Mann

Distribution and habitat selection of nudibranchs on midshelf and fringing reefs (October 2001)

*Soeren Schubert (University of Kiel, Germany)

Behavioural and ecological relevance of colour vision in mantis shrimp (October/ November 2001)

*Alex Cheroske (University of Maryland Baltimore County, USA)

Crustacean Conference Workshop (July 2001)

Dr Penny Berents (Australian Museum, Sydney), Dr Henrik Glenner (University of Copenhagen, Denmark), Dr Stefan Richter (Humboldt Universitaet zu Berlin, Germany), Dr Sara Le Croy (USM College of Marine Sciences, USA) and Dr Vania Coelho (Columbia University, USA) accompanied by Natalie Berents and Kim Parsons

Long-term effect of cleaning on gnathiid isopods (January, April, August 2001)

*Jan-Maree Murphy (University of Queensland, Brisbane) assisted by Kendra Coufal, Kylie Jennings, Stephen Beacham and Christine Fury

Taxonomic and ecological studies on the Caprellidea (Crustacea: Amphipoda) (October 2001)

Dr Jose Guerra-Garcia (Universidad de Sevilla, Spain) assisted by Steve Keable

Egg size, larval ecology and development in the brittlestar genus *Macrophiothrix* (November 2000/ January 2001)

*Jon Allen (University of North Carolina at Chapel Hill, USA) assisted by Damian Allen

Plasticity of larval skeletal growth in response to food conditions in ophiuroids (December 2001/ January 2002)

*Justin McAlister (University of North Carolina at Chapel Hill, USA)

Evolution of gamete characteristics in the brittlestar genus *Macrophiothrix* (December 2001/ January 2002)

Dr Bob Podolsky (University of North Carolina at Chapel Hill, USA) assisted by Lucy Haycock and Elizabeth Hawkins

Growth and allometry of shallow water crinoids (January 2001)

*Paul Detwiler (San Diego State University, USA)

Phylogeny of Crinoidea (November 2001)

Dr Greg Rouse and Dr Lars Jermiin (University of Sydney) and Dr Charles Messing (Nova Southeastern University, USA)

Growth rates of *Holothuria nobilis* (June 2001)

Dr Sven Uthicke (Australian Institute of Marine Science, Townsville) assisted by David Welch

Larval fish behaviour (January/ February 2001)

Dr Jeff Leis (Australian Museum, Sydney) assisted by Brooke Carson Ewart, Tove Lemberget and Amanda Hay

Recruitment dynamics of tropical fishes (January/ February 2001)

Dr Mark McCormick (James Cook University, Townsville) assisted by Paul Costello and Shawn Smith

Behavioural capabilities of tropical reef fish larvae (November 2000/ January 2001, November/ December 2001)

*Rebecca Fisher (James Cook University, Townsville) assisted by Pernille Hansen, Rochelle Ferris, Damian Allen, Kate Hutson, Steve Golding, Heidi Parks, Shaun Wilson and Dustin Fisher

Dr Phil Munday injects an elastomer tag into a goby



Are pre-settlement reef fish attracted to reef sounds? (November, December 2001)

*Steve Simpson (University of York, UK)

Larval fish and sound (November, December 2001)

*Olivia Haine and Dr Nicholas Tolimieri (University of Auckland, New Zealand) assisted by Christine Dudgeon

Bi-directional sex change in coral-dwelling gobies (April, September, October 2001)

Dr Phil Munday (James Cook University, Townsville) assisted by Katherine Munday, Michael Caldwell, Melanie-Jane Underwood and Mikaela Bergenius

Butterflyfish population studies (January 2001)

*Michael Berumen (James Cook University, Townsville) assisted by Danielle de Vere and Matt Williams

Chemoreception in gobies (November 2001)

Prof Kjell Doving (University of Oslo, Norway) assisted by Vanessa Thompson

Colour polymorphism, sex allocation and mating systems in the family Pseudochromidae (April 2001)

*Peter Eyre (James Cook University, Townsville) assisted by Steve Whalan

Condition and persistence of coral reef fish recruits (April/ May 2001)

Dr David Booth (University of Technology, Sydney) assisted by Ralph Alquezar

Demography and life history traits of some serranid fishes: implications for fisheries and conservation management (January, February, December 2001)

*Rachel Pears (James Cook University, Townsville) assisted by Russell Kelley and Paul Costello

Ecological morphology of labrid fishes (January 2001)

Dr David Bellwood (James Cook University, Townsville) assisted by Andrew Hoey and Chris Fulton

Effect of cleaner fish on parasite virulence (December 2000/ February 2001)

Dr Alexandra Grutter (University of Queensland, Townsville) assisted by Fabian Grutter, Marie-Lise Schlaeppy and Mark Johnson

Effect of isopods on mate choice in cardinalfish (September/ October 2001)

*Lynda Curtis (University of Queensland, Brisbane)

Effects of line fishing - visual surveys of coral trout (September 2001)

Dr Tony Ayling (Consultant to CRC Reef, Townsville) assisted by Chris Ryan and Gabriel Codina and accompanied by Dr Avril Ayling, Bliss Ayling, Zenica Ayling, Melba Nott and Emma Ryan

Elemental fingerprints of *Acanthochromis polyacanthus* (December 2001)

Prof Michael Kingsford (James Cook University, Townsville) assisted by Julian Hughes

Evolution and dietary habits in the genus *Naso* (February 2001)

*Selma Klanten (James Cook University, Townsville)

Evolution of geographic ranges in tropical reef fish (October, November 2001)

*Karin Buechler (James Cook University, Townsville) assisted by Andreas Boesch, Tim Prior, Paul Costello and Andrew Halford

Evolutionary implications of resource specialisation (January 2001)

Dr Phil Munday and Dr Julian Caley (James Cook University, Townsville) assisted by Marie-Lise Schlaeppy

Evolutionary relationships between Pacific and Indian Ocean reef fishes: a molecular approach (January, February 2001)

Prof Howard Choat (James Cook University, Townsville) and Dr Tony Ayling (Sea Research, Daintree)

Functional feeding morphology of Pomacanthidae and Chaetodontidae (December 2000/ January 2001)

*Nicolai Konow (James Cook University, Townsville)

Genome size in tropical fishes (April 2001)

*David Hardie (University of Guelph, Canada)

Geographic variation in size at age of the family Labridae: a contribution to life history theory (January 2001)

*John Ackerman (James Cook University, Townsville) assisted by Prof Howard Choat

Growth and life history characteristics of north Queensland elasmobranchs (January, February 2001)

*Will Robbins (James Cook University, Townsville) assisted by Prof Howard Choat

Habitat structure, social organisation and reproductive biology of group-dwelling gobies (April, May 2001)

*Vanessa Thompson (James Cook University, Townsville)

Interactions between cleaner shrimp and fishes: is this mutualism? (November/ December 2001)

*Justine Becker (University of Queensland, Brisbane) assisted by Dr Alexandra Grutter and Rosa Garcia

Lynda Curtis conducting experiments with fish in the Sir John Proud Aquarium



Isotopes, early life history, and potential self-recruitment of coral reef fishes (November/ December 2001)

*Heather Patterson (James Cook University, Townsville) assisted by Ameer Abdulla, Julian Hughes and Prof Mike Kingsford

Ontogenetic changes in habitat utilisation in the common fusilier (January/ February 2001)

Dr Brigid Kerrigan (James Cook University, Townsville)

Ontogeny of sexual development in a coral-dwelling goby, *Gobiodon histrio* (September, October/ November 2001)

*Jean-Paul Hobbs (James Cook University, Townsville) assisted by John Claydon, Michael Caldwell and Peter Cumming

Post-recruitment swimming performance in reef fishes: the ecological implications (December 2001)

*Chris Fulton (James Cook University, Townsville) assisted by Siththixay Dittthavong

Predator-prey interactions in coral reef fish communities (April/ June, October, December 2001)

*Ameer Abdulla (James Cook University, Townsville) assisted by Chico Birrell, Casey Wilkinson, Rohan Arthur and Heather Patterson

Reef fishes and ecosystem function (December 2001)

Dr David Bellwood (James Cook University, Townsville) assisted by Andrew Hoey

Reproductive endocrinology of spiny and staghorn damselfishes (November 2001)

Prof Ned Pankhurst (University of Tasmania, Launceston) assisted by Dr Tish Pankhurst, David Foster, Elizabeth Cox, Harry King and Quinn Fitzgibbon

The effect of stress on damselfish offspring (November 2001/ February 2002)

Dr Mark McCormick (James Cook University, Townsville) assisted by Shawn Smith, Martial Depczynski and Johan Larson

Trophic states of blennies (December 2000/ January 2001)

*Shaun Wilson (James Cook University, Townsville)

Ultraviolet cues and mate choice in reef fish (September/ October 2001)

Dr Sara Ostlund-Nilsson (University of Queensland, Brisbane)

Why are reef fish colourful? (October/ November 2001)

Dr Justin Marshall (University of Queensland, Brisbane) assisted by Kylie Jennings

Light and visual signaling in the marine environment (October/ November 2001)

Dr Tom Cronin (University of Maryland Baltimore County, USA)

Neuroethology of colour on the reef (January/ February, June 2001)

*Ulricke Siebeck (University of Queensland, Townsville) assisted by Guy Wallis and Goslik Schepers and accompanied by Waltraut Siebeck and Dorothea Thudium

How many reef checks does it take to characterise a reef? (November 2001)

*Monique Myers (Australian Institute of Marine Science, Townsville) assisted by Sara Pausina and Jodi Salmond

Reconnaissance for future project (October 2001)

Dr Soyoka Muko (visitor to James Cook University, Townsville)

Transfer to/from AIMS vessel (February 2001)

Dr Terry Done, Dr Robert Steneck, Lindsay Harrington, Dr Laurence McCook and Emre Turak

University group (March 2001)

Two groups of students of the School for International Training (USA) led by Heidi Hock, Dr Jack Grant, Dr Andrew Lewis and assisted by Sepp Hock and Mike Emslie

University group (June/ July 2001)

Students of RMIT University (Melbourne) led by Dr Brian Leonard and Gale Spring

University group (July 2001)

Students of Pennsylvania State University (USA) led by Dr Andrew Lewis, Prof Stam Zerrano, Prof Jackie McLaughlin and assisted by Dave Williamson

University group (July 2001)

Students of University of New Mexico (USA) led by Dr Ursula Shepherd and Dr Josh Leffler and assisted by Camille Alexander and Anna Gahl

Mixed education group (July 2001)

Staff and students from various US universities and schools, led by Dr Andrew Lewis and assisted by Mike Emslie

School group (August 2001)

Students of Woodside Priory School (USA) led by Father Maurus Nemeth, Cayewah Easley and Dr Andrew Lewis and assisted by Chris Ryan



Students and staff of SCECGS Redlands prepare for a snorkelling expedition

University group (August 2001)

Students of the University of California at Davis (USA) led by Dr Tim Herrlinger

TAFE group (September 2001)

Students of the Tropical North Institute of TAFE (Cairns), Caring for Country program, led by Tom Collis and Sue Taylor

School group (September 2001)

Students of SCECGS Redlands (Sydney) led by Trent Driver, Claire Kilham, Eun Soo Hwang, Don Elphick and Peter Eaglen

University group (October 2001)

Students of the School for International Training (USA) led by Dr Jack Grant and Dr Andy Lewis and assisted by John Brown

Development of CD-ROM about Lizard Island plants and animals (April/ May 2001)

Jeremy De Waard, David Hardie, Jennifer Horbaty and Kelly-Anne Coghlan (University of Guelph, Canada)

Filming ABC "Island Life" program (December 2000/ January 2001)

Dr Richard Smith (ABC Natural History Unit, Melbourne) assisted by Danielle Annese and Jane Pinsker

Filming marlin fishing documentary (October 2001)

Daniel Trotter, Andrew Page, Marc Vincent, Anthony Smith and Max Polley (TWI Australia, Sydney)

Filming documentary about coral sand (November/ December 2001)

Tony Medcraft, Dot Medcraft, Hiroshi Izu, Koji Ozaki, Tetsuo Yasuda

Reconnaissance for documentary about the Great Barrier Reef (September 2001)

Werner Meyer (Mort Bay Films, Sydney) assisted by Melanie Sandford

Coles House construction (April/ June 2001)

Geoff Salvestro (Salvestro Constructions, Gladstone) with Ross Healy, Mitch Belton, Geoff Fowler, Jason Brown, Leigh Aumuller, Tony Skarabott, Geoff Scott, Ray Slatyer, S. Lunn, Harry Knowles, Alan Dale and Fay Van Ophem

LIRS management (April 2001)

Patrick Filmer-Sankey (Australian Museum, Sydney) accompanied by Venetia Sieveking and Amelia Filmer-Sankey

LIRRF trustee visit (April 2001)

Julie Watson accompanied by John, Nina and Julian Ubaldi

LIRRF trustee visit (July 2001)

Robert Purves accompanied by Rhett and Scott Purves

First aid training (October, December 2001)

Charlie Makray (First Aid Training Services, Cairns) accompanied by Julie Armour

Feasibility study for renewable energy sources at LIRS (November 2001)

Michelle Guelden (Ergon Energy, Cairns)

Set up GIS software and projects (December 2001)

Paul Flemons (Australian Museum, Sydney)

Boat engine assessment (December 2001)

Scott Archibald (Cairns Trucks and Tractors)

Volunteer program

Snow Amos
 Jay Banyer
 James Beattie
 Angus Benham
 Caroline Bennett
 Margaret Brown
 Michael Caldwell
 Miles Cone
 Jennifer Cook
 Elizabeth Cox
 Garrett Donnelly
 Romy Eckert
 Chris Findlay
 Tom Fox-Smith
 Charlotte Hardie
 Felicity Hayward
 Alana Hinze
 Sarah Hobbs
 Renie Hood
 Greer Howarth
 Eve Hunley
 Helen Jones
 Carla Kospartov
 Nickolas Kospartov
 Kathryn Maguire
 Rick Maunder
 Sarah Mitchell
 Thor Omundsen
 Kristel Peet
 Ethan Perlstein
 Vincent Riviere
 Cayetana Rodenas
 Alex Schroeder
 Yvonne Squire
 Darren Thomas

Publications

The following publications were received into the Station's collection this year. All are based on work carried out at the Research Station. As well as recently published works, it includes some that were published some time ago but were accessed into the collection only this year.

The collection now totals more than 700 publications. It includes 497 papers in refereed journals, 44 PhD theses, 25 other theses, 13 monographs, 20 book chapters and the remainder are in conference proceedings and in the grey or popular literature. All visiting researchers are urged to send two copies of papers resulting from work at Lizard Island to be included in this collection.

- Adamo, S.A. and K.J. Weichelt, 1999.** Field observations of schooling in the oval squid, *Sepioteuthis lessoniana* (Lesson, 1830). *Journal of Molluscan Studies*, 65: 377-380.
- Ben-Eliahu, M.N., P.A. Hutchings and C.J. Glasby, 1984.** *Ceratonereis lizardensis* n. sp. (Polychaeta: Nereididae) and *Malacoceros indicus* (Spionidae) from a mangrove habitat at Lizard Island, North Queensland. Proceedings of the First International Polychaete conference, Sydney, P.A. Hutchings (ed.), pp. 91 - 97. The Linnean Society of New South Wales: Sydney.
- Beukers, J.S. and G.P. Jones, 1998.** Habitat complexity modifies the impact of piscivores on a coral reef fish population. *Oecologia*, 114: 50-59.
- Blaber, S.J.M., D.A. Milton, M.J. Farmer and G.C. Smith, 1998.** Seabird breeding populations on the far northern Great Barrier Reef, Australia: Trends and influences. *Emu*, 98: 44-57
- Bray, R.A. and T.H. Cribb, 2001.** *Weketrema* gen. n., a new genus for *Weketrema hawaiiense* (Yamaguti, 1970) comb. n. (Digenea: Lecithasteridae) recently found in Australian marine fishes. *Folia Parasitologica*, 48: 109-114.
- Buckley, R., 1988.** Plant succession under repeated disturbance: establishment and growth of strandline forbs and creepers on unstable beaches in the wet tropics. *Proceedings of the Ecological Society of Australia*, 15: 307-311
- Chiao, C.-C., T.W. Cronin and N.J. Marshall, 2000.** Eye design and colour signaling in a stomatopod crustacean *Gonodactylus smithii*. *Brain, Behaviour and Evolution*, 56: 107-122.
- Chisholm, L.A. and I.D. Whittington, 1999.** *Empruthotrema quindecima* sp. n. (Monogenea: Monocotylidae) from the nasal fossae of *Taeniura lymma* (Dasyatidae) from Heron Island and Lizard Island, Great Barrier Reef, Queensland, Australia. *Folia Parasitologica*, 46(4): 274-278.
- Cronin, T.W., R.L. Caldwell and J. Marshall, 2001.** Tunable colour vision in a mantis shrimp. *Nature*, 411: 547-548.
- Crook, A.C., 1997.** Colour patterns in a coral reef fish: is background complexity important? *Journal of Experimental Marine Biology and Ecology*, 217: 237-252.
- Crook, A.C., 1999.** Quantitative evidence for assortative schooling in a coral reef fish. *Marine Ecology Progress Series*, 176: 17-23.
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- Dixon, P.A., M.J. Milicich and G. Sugihara, 1999.** Episodic fluctuations in larval supply. *Science*, 283(5407): 1528-1530
- Eagle, J.V., G.P. Jones and M.I. McCormick, 2001.** A multi-scale study of the relationships between habitat use and the distribution and abundance patterns of three coral reef angelfishes (Pomacanthidae). *Marine Ecology Progress Series*, 214: 253-265.
- Elliott, J.K., J.M. Elliott and R.N. Mariscal, 1995.** Host selection, location, and association behaviours of anemonefishes in field settlement experiments. *Marine Biology*, 122: 377-389.
- Emslie, M.J. and G.P. Jones, 2001.** Patterns of embryo mortality in a demersally spawning coral reef fish and the role of predatory fishes. *Environmental Biology of Fishes*, 60(4): 363-373.
- Ferreira, B.P., 1995.** Reproduction of the common coral trout *Plectropomus leopardus* (Serranidae: Epinephelinae) from the central and northern Great Barrier Reef, Australia. *Bulletin of Marine Science*, 56(2): 653-669.
- Ferreira, B.P. and G.R. Russ, 1994.** Age validation and estimation of growth rate of the coral trout *Plectropomus leopardus* (Lacepede 1802) from Lizard Island, northern Great Barrier Reef. *US National Marine Fisheries Service Fishery Bulletin*, 92: 46-57.
- Ferry-Graham, L.A., P.C. Wainwright, M.W. Westneat and D.R. Bellwood, 2001.** Modulation of prey capture kinematics in the cheeklined wrasse *Oxycheilinus digrammus* (Teleostei: Labridae). *Journal of Experimental Zoology*, 290: 88-100.
- Fulton, C.J., D.R. Bellwood and P.C. Wainwright, 2001.** The relationship between swimming ability and habitat use in wrasses. *Marine Biology*, 139: 25-33.
- Grutter, A.S., 1996.** Experimental demonstration of no effect by the cleaner wrasse *Labroides dimidiatus* (Cuvier and Valenciennes) on the host fish *Pomacentrus moluccensis* (Bleeker). *Journal of Experimental Marine Biology and Ecology*, 196: 285-298.
- Grutter, A.S., 2000.** Ontogenetic variation in the diet of the cleaner fish *Labroides dimidiatus* and its ecological consequences. *Marine Ecology Progress Series*, 197: 241-246.
- Grutter, A.S., R.J.G. Lester and J. Greenwood, 2000.** Emergence rates from the benthos of the parasitic juveniles of gnathiid isopods. *Marine Ecology Progress Series*, 207: 123-127.
- Grutter, A.S., J.A.T. Morgan and R.D. Adlard, 2000.** Characterising parasitic gnathiid isopod species and matching life stages with ribosomal DNA ITS2 sequences. *Marine Biology*, 136: 201-205.
- Grutter, A.S. and N.W. Pankhurst, 2000.** The effects of capture, handling, confinement and ectoparasite load on plasma levels of cortisol, glucose and lactate in the coral reef fish *Hemigymnus melapterus*. *Journal of Fish Biology*, 57: 391-401.
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- Gust, N., J.H. Choat and M.I. McCormick, 2001.** Spatial variability in reef fish distribution, abundance, size and biomass: a multi-scale analysis. *Marine Ecology Progress Series*, 214: 237-251.
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DESIGN: Amanda Lo, Australian Museum Design Unit

