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LIZARD ISLAND RESEARCH STATION
p.m.b. 37 cairns qld 4870 australia



Newsletter No. 8

1981-82

Visit by Premier of Qld.

**Visitor accommodation units
completed.**

**Research vessel R.V. SUNBIRD
underway.**

Computer on Great Barrier Reef.

Walk-in freezer/cold room.

The Lizard Island Research Station is a facility of the Australian Museum to support coral reef research. Accommodation, boats, diving equipment, aquaria and laboratory facilities are available for up to fourteen visiting scientists from Australian or Overseas Institutions. Those interested are invited to write to the Director for brochures, booking forms or more detailed information.

VISIT BY PREMIER OF QUEENSLAND:

The Premier of Queensland, Joh Bjelke-Petersen, visited the Research Station in May. He spent several hours looking over the facilities, discussing its activities with the Director, and familiarising himself with current problems in coral reef research and its relevance to the development of Queensland.

VISITOR ACCOMMODATION UNITS COMPLETED:

At long last three self-contained bungalows have been completed to house visiting researchers. THE TENT ERA IS OVER! The new units are raised off the ground, with wide verandahs and high, ventilated ceilings. They have been placed at the edge of the tree line in accordance with the Station's MASTER PLAN APPROVED by the Queensland National Parks Service.

Two of the units have two bedrooms the other has one. They are equipped with gas stoves, electric fridge/freezer, ceiling fans and solar hot water systems. They are designed to attract long-term visitors on sabbatical leave etc.

It was initially planned to construct four new bungalows but with escalating building costs our funds were insufficient. These units are in addition to the original visitor's house.

RESEARCH VESSEL R.V. SUNBIRD UNDERWAY:

A contract was let in June with a Perth shipbuilding Company for the construction of the 14 meter research catamaran R.V. SUNBIRD. Delivery is expected in 7 months. She will be a motor/sailor, with capacity for 5 scientists plus crew, and capable of trawling, mid-water sampling (to 1000 meters) and carrying parties of scientists to nearby reef and islands in the northern Great Barrier Reef.

COMPUTER ON BARRIER REEF:

An APPLE II 48K MINI COMPUTER has been installed in the dry-lab. and is coupled with a video screen, dual floppy discs, a Teletype line printer and a Hewlett Packard 7225A graphics plotter/digitizer. The Apple interfaces with the SCINTILLATION COUNTER and SPECTROPHOTOMETER (acquired the previous year) and greatly expands their utility and the amount of information they can provide at the Station.

The Station's accounts, lists of plant and equipment and stock inventories have been put on the computer, which also has a WORD PROCESSOR . . . that was used to prepare this newsletter.

WALK-IN FREEZER/COLD ROOM:

With some of the funds received from the Japan Foundation/Suntory Limited a walk-in cold room/deep freeze has been installed. The room measures 2.4 by 2.7 meters and can be operated at either 4 degrees or -30 degrees, pending the installation of a new 4 degree coldroom.

OTHER DEVELOPMENTS during 1981-82:

The Royal Flying Doctor communication service in Cairns has been upgraded and the Station can receive INCOMING TELEPHONE CALLS. To book a call to the Station phone 070-534500 during business hours.

A 20,000 litre bulk diesel fuel tank has been installed near the powerhouse and will greatly simplify the handling and storage of fuel for the generators. An underground supply line is being installed to the beach from where bulk diesel fuel can be pumped when the new research vessel is in operation.

With the construction of the new bungalows the electrical and water reticulation services have been almost completely renewed throughout the Station to meet planned demands.

A regular two-weekly sea freight service from Cairns to Lizard Island has been arranged with the tourist vessel TSMV PETAJ which operates from May through December. Researchers at the Station can now get heavy or volatile cargo to the island promptly and reliably.

A concrete sink/work bench has been installed on the lab. verandah to provide a better sorting area for reef specimens, and to keep preservation work outside in the fresh air.

A new 5 litres/hour ALL-GLASS STILL has been installed in the wet lab. together with a REDISTILLATION set up for retrieving solvents used in chemical analyses. To improve the efficiency of stills and rotary evaporators a pumped REFRIGERATED WATER system has also been installed.

DONATIONS:

The second installment of \$100,000 was received from the Japan Foundation and Suntory Company of Japan. In addition we received donations from the James N. Kirby Foundation, Dr. & Mrs. J.D. Marks; and commitments for support towards the SUNBIRD from K.F.V. Fisheries in Townsville, and ALCAN Australia Ltd. There are some donors who prefer to remain anonymous.

More funds are urgently needed to complete the development of the research station.

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STAFF:

Allan and Jenny Young left in early July to take up appointment driving tourist boats in Cairns and to put their children into 'proper' schools. They were replaced by Chris and Morven Cockcroft who also multiplied while on the island and left within 12 months to have their offspring back home in New Zealand. The present maintenance officer is Robert Wasser, accompanied by his wife Elaine and two youngsters Adam (6) and Julia (4).

Lois Goldman took part in a management improvement program conducted by the Queensland Public Service Board. She brought back many worthwhile approaches to improve the operation of the Station.

The Director is still maintaining two research programs funded by Australian Marine Science and Technologies Grants. The projects involve Dr. Jeff Leis and Greg Stroud and are aimed at studying the taxonomy and ecology and coral reef fish larvae in the vicinity of Lizard Island.

MEETINGS:

There were three meetings of the Committee of Trustees of the Lizard Island Research Station - on August 11 at the Australian Museum, on February 24 at the Australian Museum and on June 22 at the University of Queensland. At the February meeting it was agreed to recommend to the Trustees of the Australian Museum that the Committee of Trustees be reduced in number to minimise the amount of overlap that these members had with other related institutions on the Barrier Reef.

The Director attended the two meetings of the "Directors of Island Research Stations" which is a sub committee of the Consortium of Island Research Stations that was established to co-ordinate the activities of the four barrier reef stations and bring them in line with the concepts of a National Facility.

The Director also attended a meeting of the Lizard Island Reef Research Foundation on May 24 when he was elected to membership of the Foundation.

Finally, the Director attended the coastal engineering and pollution control symposium at James Cook University in July.

VISITORS:

Due to reduced funding allocated for marine research and increases in air fares there was less activity on the barrier reef this year. Only 80 scientists and assistants visited the Station (as against 101 last year). However, the total amount of work done was not significantly less as the average number of scientific workers at the Station was 5.9 per day (6.2 last year) while the average occupancy for all visitors was 6.8.

The table below shows visitor statistics for the year (the number in brackets indicating the number of visitors who came twice or more).

	Australian	Overseas
Scientists & Assistants	42 (6)	24 (1)
Post-graduate Students	13 (6)	2 (1)
Spouses	2	1
Children	2	

AUSTRALIAN POSTGRADUATE STUDENTS:

VICKI HARRIOT James Cook University. Community relationships and ecological aspects of reproduction in Pocilloporid corals.

DAVID BELLWOOD James Cook University. Feeding in parrotfishes with emphasis on the mechanisms for species partitioning of the reef habitats to minimise competition.

KO FUJIWARA James Cook University. Community structure, habitat requirements and reproduction in soft corals.

LYLE VAIL Macquarie University/James Cook University. Distribution, reproduction and habitat requirements of comatulid crinoids (feather stars).

BRIAN LASSIG Macquarie University. Last field trip for his Ph D studies on the role of predation in determining reef fish community structure.

HUGH SWEATMAN Macquarie University. Continuing studies on the population dynamics and feeding behaviour of trigger fishes; and studies on larval settlement success and relationships to the presence of adult conspecifics in the humbug fish.

BILL GLADSTONE Macquarie University. Population dynamics and social structure in the puffer fish Canthigaster valentini with studies on the role of toxins in the evolution of predator avoidance behaviour.

GORDON ANDERSON Australian National Parks & Wildlife Service. Recruitment in coral reef fish communities - long term monitoring of fish communities on artificial reefs in Lizard Island Lagoon.

PATRICK FILMER-SANKEY Australian National University. R/k selection and the evolution of reproductive strategies in echinoids (sea urchins).

KIM BRYCESON Australian National University. Visual anatomy and behaviour in ghost crabs.

BRIAN WEAVERS Australian National University. Foraging and thermoregulatory behaviour in varanid lizards (goannas).

GEOFFREY SMITH Queensland University. Feeding strategies and breeding success in terns and shearwaters in the northern barrier reef.

BRIAN BICKNELL University of New South Wales. Attachment of bacteria to coral reef sediment particles.

OVERSEAS STUDENTS:

RANDY OLSON Harvard University. Growth rates, competition for space and larval dispersal in the compound ascidian Didemnum molle.

NEIL ANDREW Auckland University. Investigatory visit to develop Ph D project on some aspect of coral reef fish ecology.

AUSTRALIAN SCIENTISTS:

GREG STROUD Macquarie University. Continuing studies on taxonomy and ecology of coral reef fish larvae in conjunction with the Director's research projects. (Greg has also now submitted his Ph D dissertation to James Cook University on work done earlier at Lizard Island on reef fish ecology).

DILWYN GRIFFITHS & JIM LUONG-VAN James Cook University. Relationships between certain compound ascidians and their algal symbionts using C14 tracers.

PAUL GABRIELSON, MIKE FOSTER, LINDA MARTIN, JOHN HUISMAN & FIONA SCOTT Melbourne University. Taxonomy and distribution of marine algae.

JOHN COLL, RICK WILLIS & DIANE TAPIOLAS James Cook University. Comparative toxicity as it relates to morphology among soft corals.

MARGARET STREAMER & JOHN WELLINGTON James Cook University. Assay for Arginine decarboxylase and other enzymes in Acroporid and Pocilloporid corals.

JULIAN O'BRIAN Queensland Fisheries. Field testing of side-sonar to search for lost current meter in barrier reef waters.

RALF BUCKLEY Australian National University. Resurvey of coastal dune vegetation plots as part of study on community ecology and recolonization in relation to isolation of islands on the Great Barrier Reef.

DAVID VAN-SENDEN & RAY McALLISTER Australian Institute of Marine Science. Re-deployment and servicing of current meters and tide gauge around Lizard Island and the Carter Reef Platform for project of ERIC WOLANSKI.

DOUG HOESE & HELEN LARSON Australian Museum. Systematics of coral reef fishes with emphasis on the Gobies.

WENDY CRAIK & GRAEME KELLEHER Great Barrier Reef Marine Park Authority. Setting up of coral trout monitoring program in conjunction with the Lizard Island Research Station.

JEFF LEIS Australian Museum. Current systems and fish larval dispersal in the vicinity of Lizard Island - project in collaboration with that of the Director (assisted by JENNY GATES Australian Museum and DAVID MALEC James Cook University.)

DAVE MORIARTY, CHRIS MORIARTY, PETER POLLARD & TED WASSENBERG CSIRO Cleveland. The role of bacteria in the productivity of coral reef lagoon floor sediments, and digestion by Holothuria.

CLIVE TURNBULL CSIRO Cronulla. Maintenance and checking of lobster larvae collection panels in conjunction with a co-operative sampling program with the Lizard Island Research Station.

PAT HUTCHINGS Australian Museum. Continuing long term studies on coral reef endolithic cryptofauna, polychaete taxonomy, and bioerosion in dead coral substrates.

FRANK TALBOT Macquarie University (now at California Academy of Sciences). Foraging behaviour and diurnal migrations in large predatory reef fishes using ultrasonic tags.

GARY DENTON James Cook University. Survey for bio-accumulation of heavy metals in coral reef biota.

BILL & JANET DAWBIN Australian Museum. Survey of holothuria and echinoderms around Lizard Island.

ERN & MEG GRANT & DON TUMA Harbours and Marine, Brisbane. Collection and photography of coral reef fishes for production of Grant's Guide to Fishes.

PETER SALE & BILL DOUGLAS Sydney University. Mechanisms for maintaining diversity in coral reef fish assemblages.

OVERSEAS SCIENTISTS:

KATY MUZIK Suntory Institute for Bioorganic Research. Systematics and ecology of octocorralia (soft corals).

LANGDON & ROBIN QUETON Santa Barbara. Behaviour, composition and distribution of mysid schools amongst coral reefs.

DAVID G. SMITH Marine Biomedical Institute, University of Texas. Taxonomy of coral reef fishes.

P. MILLER University of Bristol. Systematics of Gobiid fishes.

DANNIE HENSLEY University of Puerot Rico. Systematics of damselfishes of the genus Abudefduf and flatfishes of the family Bothidae.

JACK RANDALL Bernice P. Bishop Museum, Honolulu. Systematics of all coral reef fishes.

ROBERT ROFEN Aquatic Research Institute, California. Systematics of Gobiid fishes.

NOTE: The last five visitors were part of a field workshop following the International Symposium on the Systematics of coral reef fishes hosted by the Australian Museum.

BRIAN KENSLEY Smithsonian Institution, Washington. Systematics of Marine isopods (especially Anthuridea).

DAPHNE DUNN California Academy of Science (assisted by ANN SPARROW James Cook University). Study of factors controlling specificity for particular host anemones by the symbiotic Pomacentrid fishes Amphiprion and Premnas.

PRACHIT WONGRAT Kasetsart University, Bangkok, and FOUR other fisheries biologists from South East Asia on a tour of tropical marine research facilities.

JAMES HALL Santa Barbara. Foraging behaviour of the goanna Varanus gouldii.

ART GOLDBERG Southampton University, New York (assisted by BARRY BRUCE University of New South Wales). Extraction and analysis of biotoxins from trunkfishes of the genus Ostracion.

DAVID WHITE Florida State University. Biochemical analyses of coral reef lipids (mucus) and associated bacteria (in collaboration with Dave Moriarty).

ROSS ROBERTSON Smithsonian Tropical Research Institute, Panama (assisted by HUI PURDY). Studies on the effects of crown of thorns starfish predation of reef structure and resulting changes in fish community structure.

DON POTTS University of Santa Cruz. Population genetics and evolution in hard corals.

HOWARD CHOAT Auckland University. Systematics of Parrotfishes; and ecology of herbivorous reef fishes.

ANDY BENSON SCRIPPS Institution of Oceanography. Arsenic metabolism in molluscs and lipid studies in the foram Marginopora.

NON ACADEMIC VISITORS:

The Premier of Queensland, JOH BJELKE-PETERSEN (see above).

DOUG ANTHONY (Deputy Prime Minister) and DAVID THOMSON (Minister for Science) inspected the Station and discussed priorities for the Great Barrier Reef and the problems of funding island research stations.

TONY ELLIOT (Minister for National Parks & the Environment, Queensland) and his wife Sally visited the Station in July to familiarise himself with its activities and to discuss the Station's development plans with the Director.

SIR JOHN & LADY PROUD - Sir John is the Chairman of the Lizard Island Reef Research Foundation and visits the island Periodically to inspect the Station's progress and research activity and discuss funding requirements with the Director for the Station's development.

THE WORLD HERITAGE COMMITTEE, lead by Professor Ralf Slatyer, visited the Station in November at the time the Great Barrier Reef was declared as part of the World Heritage.

JOHN MASON (British High Commissioner) and his wife visited the Station in July whilst staying at the Lizard Island Lodge.

JOHN & LOIS BARRACLOUGH stayed at the Station for a short period in July. John was then shadow Minister for Culture, Sport and Recreation in New South Wales; and a member of the Lizard Island Reef Research Foundation.

RALF & PAT FULLAGER (of R.A. LISTER Australia Ltd.) paid a brief visit to inspect the Station's LISTER diesel sets (towards which their Company has given financial assistance).

DENNIS BLACKETT N.S.W. Public Works Dept. As an electrical engineer, Dennis stayed at the Station for a few days to guide the Director in the design and installation of power reticulation for the Station and fabrication of a new electrical distribution switchboard.

COLIN STILL N.S.W. Public Works Dept. Visited the Station for a few days to provide architectural assistance to the Director in designing the new bungalows and planning future developments including the proposed laboratory extensions.

Mr. & Mrs. HAROLD MAGOR of the Artificer's Section, Australian Museum spent a week at the Station on a work exchange basis.

JOE WINTERTON, JOHN HICKS & JOHN CORNELIUS of the Queensland National Parks Marine Parks Section visited the Station in October to discuss research activities around Lizard Island in preparation to submitting zoning plans to the Great Barrier Reef Marine Park Authority.

ZOLLY FLORIAN of James Cook University again visited the Station to service all the microscopes and optical equipment.

NOEL WALKER of Systems Services Cairns spent a few days at the Station to assist in the installation of the Apple Computer and set up basic programs for controlling interfaces to the analytical instruments.

DAN FORD, a journalist with the New Yorker, stayed at the Station for a week to prepare an article on research on the Barrier Reef and on activities of the Lizard Island Research Station.

DAVID MALEC & GEOFFREY MOORE, undergraduate science students from James Cook University spent a month at the Station over Xmas - as volunteers assisting researchers and helping with construction work around the Station.

A number of RESEARCH VESSELS passed during the year and called to visit the research station. Among these were the LADY BASTEN (Australian Institute of Marine Sciences), the JAMES KIRBY (James Cook University) and the LINDBLAD EXPLORER.

IN GRATITUDE:

The Lizard Island Research Station has had a challenging and productive year and is gaining in recognition both within Australia and Overseas as a facility to support research into coral reef systems. It is fitting at this stage to wish Professor Frank Talbot all the very best in his new position as Director of the California Academy of Sciences and hope that we haven't lost one of the "fathers of Australian coral reef science" but rather gained an Academy . . . Frank Talbot was instrumental in raising the necessary funds and establishing the Lizard Island Research Station in 1973 and it is hoped that we can carry on without his assistance and enthusiasm (although it is anticipated that he will continue to visit the lab. on a regular basis to continue his work on coral reef fish ecology).

PUBLICATIONS:

During the last year some 21 publications have appeared resulting from work done at the Lizard Island Research Station. This brings the known total to 87. BUT I KNOW THERE ARE MORE OUT THERE SOMEWHERE . . . Would researchers who have published material that is not yet listed in our newsletters please at least send in a reference to the work. The Lizard Island Research Station needs to be able to justify its role in coral reef science and it is in your interest to provide this information which is one of the measures available to us to demonstrate our utility and keep the Station operating for your next visit!

The following is a list of those references that we have received in the last year:

LIST OF PUBLICATIONS FROM WORK DONE AT THE LIZARD ISLAND RESEARCH STATION

- Barents P, 1980 67
The systematics of selected genera of Gammarid Isopods from Lizard Island and adjacent reefs, the Great Barrier Reef.
M.Sc. Thesis University of Sydney 121 pp
- Burdon-Jones C and G Denton, 1981 69
Metals in marine organisms from the Great Barrier Reef Province. Progress report to M.S.T. Committee.
School of Biological Sciences, James Cook University, 99 pp
- Cox G and D M Duarte, 1981 68
Freeze-etch ultrastructure of a prochloron species - the symbiont of *Didemnum molle*.
New Phytol. (1981) 88:427-438
- Dinesen Z D 1980 70
Regional variation in shade-dwelling coral assemblages of the Great Barrier Reef province.
Mar. Ecol. Prog. Ser. 7:117-123
- Grygier M J, 1981 71
Petralca okadai, a new crustacean (Maxillopoda:Ascothoracica) from the Great Barrier Reef, the first shallow-water record of the genus.
J. Crust. Biol. 1(2):183-189
- Hutchings P A, 1981 72
Polychaete recruitment onto dead coral substrates at Lizard Island, Great Barrier Reef, Australia.
Bull. Mar. Sci. 31(2):410-423
- Limpus C J, 1982 73
The reptiles of Lizard Island.
Herpetofauna 13(2):1-6
- Lowry J K, 1981 74
A redescription of *Sphaerophthalmus grobbeni* Spandl based on type material from the Red Sea and new material from the Great Barrier Reef (Amphipoda, Dexaminidae).
Crustaceana 41(2):190-198
- McPherson G R, 1981 75
Investigations of spanish mackerel *Scomberomorus commerson* in Queensland waters.
In: Grant C J & D G Walters (Eds.) Northern Pelagic Fish Seminar, Darwin 1981, pp 51-58. Aust. Govt. Publ. Serv. Canberra
- Moriarty D J W, 1982 76
Feeding of *Holothuria atra* and *Stichopus chloronotus* on Bacteria, Organic Carbon and Organic Nitrogen in Sediments of the Great Barrier Reef.
Aust. J. Mar. Freshwat. Res. 33:255-263
- Mountseer D G, 1980 77
Energy and the built environment in relation to buildings in remote, tropical coastal areas in Australia.
M.Sc. Thesis, Macquarie University 155 pp

- Fichon M and J Morrisey, 1981 78
 Benthic zonation and community structure of South Island reef, Lizard Island
 (Great Barrier Reef).
 Bull. Mar. Sci. 31(3):
- Poore G C B and B Kendley, 1981 79
 Coralanthura and Sauranthura, two new genera of Anthurideans from Northeastern
 Australia (Crustacea: Isopoda: Anthuridae)
 Proc. Biol. Soc. Wash. 94(2):503-513
- Preobrazhensky B V, 1980 80
 Morphogenesis in corals: Methodological aspects.
 Acta Paleontologica Polonica 25(3-4):473-476
- Robertson R, 1980 81
 Epitonium millecostatum and Coralliohilia clathrata: Two Prosobranch Gastropods
 Symbiotic with Indo-West Pacific Palythoe (Coelenterata: Zoanthidae)
 Pac. Sci. 34(1):1-17
- Rudman W B, 1981 82
 Further studies on the anatomy and ecology of opisthobranch molluscs feeding on
 the scleractinian coral Porites.
 Zool. J. Linn. Soc. 71(4):373-412
- Rudman W B, 1981 83
 The anatomy and biology of alcyonarian-feeding aeolid opisthobranch molluscs
 and their development of symbiosis with zooxanthellae.
 Zool. J. Linn. Soc. 72(3):219-262
- Talbot F H and A J Gilbert, 1981 85
 A comparison of quantitative samples of coral reef fishes latitudinally and
 longitudinally in the Indo-West Pacific. Proc.
 Fifth Intl. Coral Reef Symp. Manila, 1981
- Wolanski E, 1981 86
 Physical Oceanography of the Great Barrier Reef Lagoon.
 Inst. Engineers, Aust. Proc. Conf. Environ. Eng. Townsville, July 1981. 5 pp
- Zmarzly D L and N D Holland, 1981 87
 Rates of food transport down the ambulacral grooves and through the gut of
 Comanthus bennetti (Echinodermata: Crinoidea) observed in situ.
 Mar. Ecol. Prog. Ser. 6:229-230