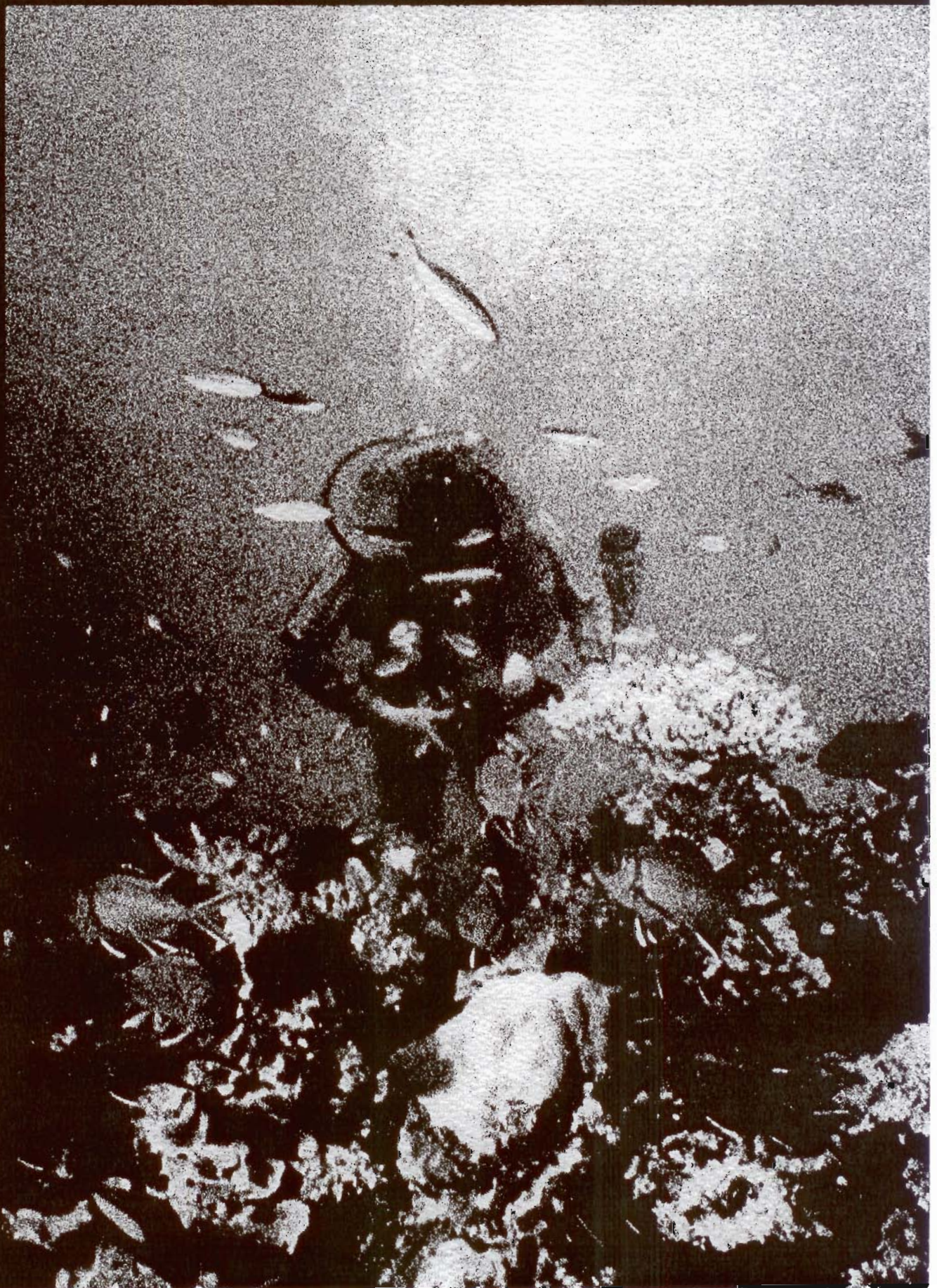


L I Z A R D I S L A N D

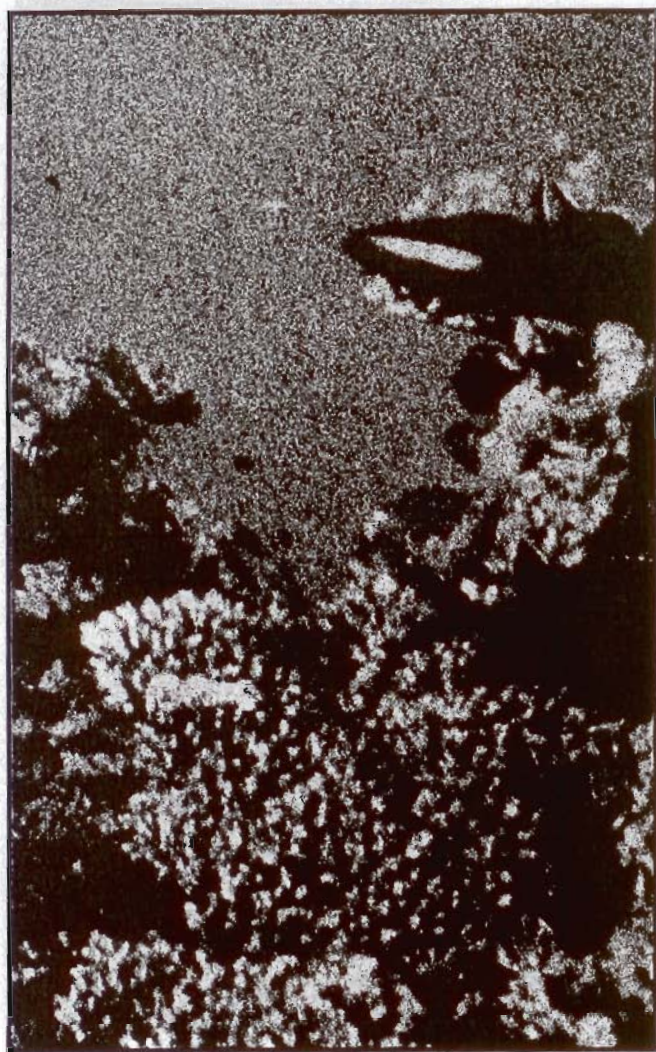
Research Station



NEWSLETTER 88/89

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The Lizard Island Research Station is a facility of the Australian Museum dedicated to supporting research into all aspects of the biology, geology, hydrology, history, management and conservation of the Great Barrier Reef.

Accommodation for up to 16 people, boats, diving equipment, a running seawater system and air conditioned laboratories are available on the reef to support scientists and students with research and educational interests in the tropical marine environment. Enquiries concerning these facilities are invited and should be addressed to: Co-Directors, Lizard Island Research Station, Private Mail Bag 37, Cairns, Queensland 4871, Australia. Phone (070) 60 3977; fax available but ring first.

Station Co-Directors: Drs Barbara L Kojis and Norman J Quinn

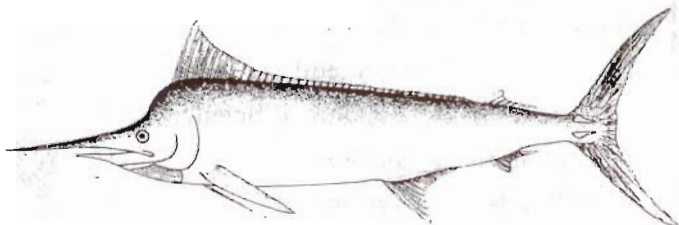
This newsletter summarises the activities of the station from 1 July 1988 to 30 June 1989.

Discoveries presented at International Coral Reef Symposium

Research from work done at Lizard Island Research Station was well represented at the very successful 6th International Coral Reef Symposium in Townsville. Associate Professor **AWD Larkum** and Dr **GC Cox** (University of Sydney), 1988 Lizard Island Fellows, reported on a previously undescribed cyanobacterial symbiont found in sponges from Lizard Island. The three other 1988 fellowship holders, plus a host of other researchers from the station, also contributed interesting papers which are being published in the proceedings of the symposium.

Phylogeny of Australian Amphipoda

James Darwin Thomas (Reef Foundation) and **Jan Clark** (Smithsonian Institution) studied the distributional ecology of cryptofaunal coral reef amphipods. The long-term research goal, to examine the evolutionary relationships of amphipods from comparable coral reef habitats, is constrained by the paucity of research collections of amphipods from the Great Barrier Reef. A number of new taxa were collected and will require formal description before comparisons of amphipod assemblages from the Caribbean, Central and South Pacific and Indian Ocean reefs are undertaken.



Black Marlin

Black Marlin prefer scad bait

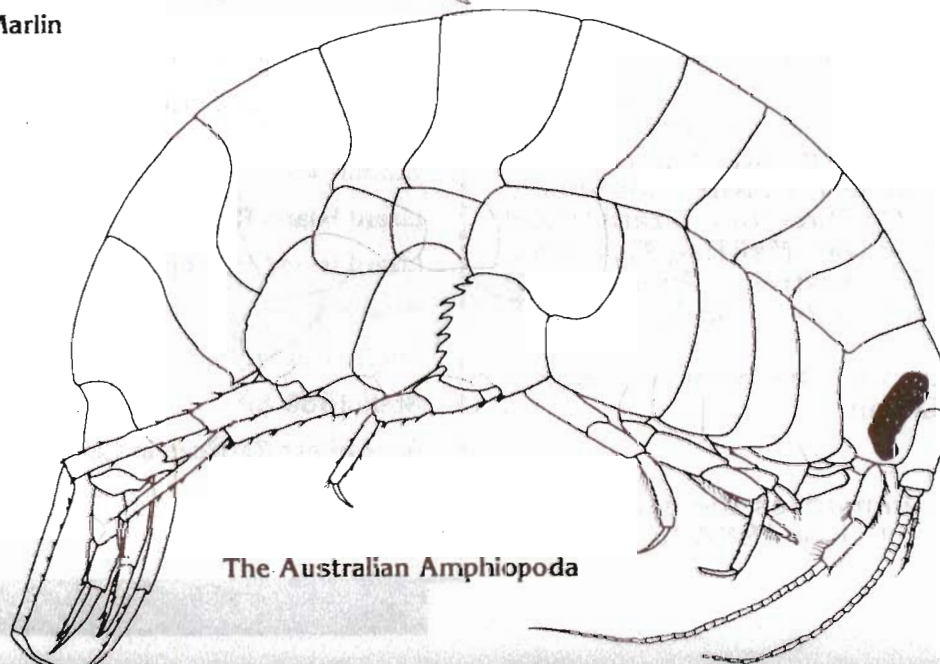
Peter Spear (James Cook University) dissected 11 black marlin at the station during the marlin season, September to November, with the cooperation of Lizard Island Lodge and the marlin fishing boats. All the fish had been caught on scad which is interesting as most, if not all, boats troll kawa kawa, spaniards or shark mackerel as well. 48 billfish larvae 3-10mm long were caught in plankton tows.

Examination of the parasites in the marlin, including remnants from previous infections, suggested that there is no interaction between the juvenile inshore and mature offshore fish. Many of the parasites found on coastal caught fish were absent at Lizard and vice versa.

Peter believes that studying fish between 50-500kg will allow researchers to establish the relationships in migratory habits between juveniles and adults. These fish would also assist in establishing the size/ages of sexual maturity for each sex.

Taxonomy of Ascari- doid Nematodes from marine fishes

Dr NL Bruce, **Dr LRG Cannon**, **Dr T Cribb** and **RT Springthorpe** (Queensland Museum, CSIRO and Australian Museum) visited the station to collect parasitic nematodes (Ascaridoidea in particular) from predatory and scavenging marine fishes.



The Australian Amphipoda



Around 100 fish stomachs were examined (about 31 species) and only 3 yielded ascaridoid worms. In nearly all fish examined the gut mesenteries were infested with larval ascaridoids, the causative organism of anisakiasis or "sushi disease".

The worms collected were of interest in spite of their small number. One species from *Lutjanus argentimaculatus* and *L. bohar* belongs to a new genus. The other, from *Scomberomorus commerson*, is the first record of the species since its description, and the first record from Australia. Travel assistance for this work was provided by Australian Airlines.

Scavengers at work

Steve Keable (Macquarie University) is working on small invertebrates, particularly amphipods and isopods, which forage in tropical waters. These animals are well known from cold water and deep sea environments but little is known about them in tropical waters. They cause problems to fisheries using traps or nets by destroying the bait and attacking the catch, making it unmarketable. Steve is collecting these scavengers using small traps baited with fish scraps. His work is being assisted by an Australian Museum Postgraduate Grant and by travel assistance from Australian Airlines.

He is being supervised by Dr J Lowry from the Australian Museum.

Successful collecting trip to PNG for RV Sunbird

In December-January *RV Sunbird* made her second successful trip to Papua New Guinea. Financed mainly by a National Geographic grant, six researchers left Cairns on December 15th: Tish Ennis (mammalogy, leader), George Hangay (preparation), Roger de Keyser (entomology) and Phil Colman (malacology) from the Australian Museum; Steve Donnelin (herpetology) from the South Australian Museum and Sydney photographer Pavel German. At Alotau, Milne Bay Province, PNG they were joined by Walter Boles, Australian Museum ornithologist and Lester Seri, a senior officer from the PNG Dept of Environment & Conservation, Division of Wildlife. The primary purpose of the trip was to collect and nitrogen-freeze fresh tissue samples of vertebrates. Secondly the team collected molluscs and insects which will be of significance to anthropological "digs" carried out in PNG by Peter White (University of Sydney) and Jim Specht (Australian Museum).

Visiting Researchers 1988-1989

Australian Workers

N BRUCE (assisted by R SPRINGTHORPE), Queensland Museum, Brisbane. Taxonomy of ascaridoid nematodes from marine fishes.

L CANNON, Queensland Museum, Brisbane. Taxonomy of parasitic trematodes in fish.

J H CHOAT (assisted by J ACKLEY, B MOLONY, M MILLSTONE, B KERRIGAN & D BELLWOOD), James Cook University, Townsville. Dynamics of herbivorous fish populations.

T CRIBB, CSIRO, Canberra. Taxonomy of parasitic trematodes in fish.

J DECAMPO & C CARNEY, Queensland National Parks & Wildlife Service. Survey of *Tridacna* population.

M DIGBY, R PLUMB, Environmentalists, Sydney.

E HEIGEL, A HILL, T WARD, A GREEN, G & H BELL, G & J BATIANOFF, N HUNGERFORD & G CLARIDGE, Australian Littoral Society, Brisbane. Collection of data for Lizard Island handbook.

J LEIS, Australian Museum, Sydney. Larval fish ecology.

J LOWRY, Australian Museum, Sydney. Biology of the small demersal invertebrate scavengers of Lizard Island.

J HANLEY (assisted by P HOYLE), Australian Museum, Sydney. Field survey of Lizard Island Research Station for article for **Australian Natural History**.

P HUTCHINGS, Australian Museum, Sydney. Leader of pre 6th Coral Reef Symposium excursion.

K CLEMENTS (assisted by S Trueman), James Cook University, Townsville. Leader of post 6th Coral Reef Symposium excursion.

Overseas Workers

S ARMANCH, University of Chicago, USA. Survey of research facilities on Lizard Island.

S & A BEDDING, Papua New Guinea University of Technology, Lae, PNG. Investigation of nesting turtle populations.

T BOLTON-MAGGS, Newcastle-upon-Tyne, UK. Investigation of tropical reefs for advancement of teaching skills.

V BROCK, University of Copenhagen, Denmark. Genetic variation in oysters.

C BROMHALL (assisted by C BROMHALL, N BROMHALL, R ISAACS & T DALTON), UK. Filming for the series "The Second Imperative".

G BUCKLEY (assisted by P GAGNON), Harvard University, USA. Collection of terrestrial molluscs.

R CALDWELL (assisted by J MACGRORY & S BARRIE), University of California - Berkeley, USA. Chemical communication in stomatopods.

R DANGZIER, Southampton College, New York, USA. Investigation of educational facilities of the station.

W DAVIES, Cambridge University, UK. Survey of ar-

chaeological sites on Lizard Island.

K FUJIWARA (assisted by T YOSHIZAWA, K KAWABATA, H HAMADA, S MOCHIZUKI, M NAKAO, A KAINUMA, H YAMAGUCHI & three other assistants), Tokyo, Japan. Filming coral spawning and the marine life of the Great Barrier Reef.

S GAFFEY (assisted by M GAFFEY), Rensselaer Polytechnic Institute, New York, USA. Early diagenetic effects of phases and abundances of water in skeletal carbonates in coral reefs.

D HAARHAUS, G JARMS, K LECHER & K SEACK, Institut für den Wissenschaftlichen Film Gemeinnutzige, Göttingen, West Germany. Filming for scientific film on Coelenterates.

T LAMB, Cambridge University, UK. Phototransduction and adaptation in photoreceptors of vertebrates and invertebrates.

R KRAUSKOPF, University of Göttingen, West Germany. Geology of Lizard Island.

C LAU, University of Hawaii, USA. Collection of ctenoids for culture and educational display.

J A MORIN (assisted by M SHULMAN), University of California - Los Angeles, USA. Courtship signals in luminescent ostracod crustaceans.

R ORMOND, York University, UK. Sedimentation effects on corals.

V PAUL (assisted by K VAN ALSTYNE), University of Guam. Marine chemical ecology.

Y SEYER, University of Lund, Sweden. Optics and adaptation mechanisms in molluscan eyes.

K SMART (assisted by M DE GRUY, P ATKINS, J MACGRORY & S BARRIE), Bristol, UK. Producer for David Attenborough's BBC production "Trials of Life".

J THOMAS (assisted by J CLARKE), Smithsonian Institution, Washington, DC, USA. Phylogeny of Australian amphipods.

R WILICE (assisted by J PARKER), University of Massachusetts, USA. Phycological studies.

H ZANKEL (assisted by G & H ZANKEL), University of Göttingen, West Germany. Geology of Lizard Island.

Participants in pre 6th International Coral Reef Symposium excursion:

A ANTONIUS, KAA University, Jeddah, Saudi Arabia.

R BARNES, Gettysburg College, Pennsylvania, USA.

A BUDD, University of Iowa, USA.

J & S CHRISTOFFERSON, California State University, USA.

I HUNTER, University of Alberta, Canada.

S KAWAGUTI, Okayama City, Japan.

G LANG, Lutheran Economic Service, Lae, PNG.

S & R LEWIS, Harvard University, USA.

H MERGNER, Ruhr Universität, Bochum, West Germany.

E MÜLLER, State Museum, Stuttgart, West Germany.

T NAKAMORI, Tohoku University, Japan.

D OBERSTE-LEHN, R & D Associates, Menlo Park, California, USA.

P ROE, California State University - Turlock, USA.

G WALKER, University of Maryland, USA.

R WARNER, University of California - Santa Barbara, USA.

D VALLANTINE, University of Puerto Rico.

Postgraduate Students

T AUSTINS, James Cook University, Townsville. Herbivorous fish grazing on Porites coral.

J CALEY (assisted by T POPLE, O HOEGH-GULDBURG, P HOWARD, A PAPAS, L GOGGIN, S BARRIE, J MACGRORY, & C HUDSON), University of Sydney. Fish settlement on disturbed reefs.

K CLEMENTS (assisted by S BARRIE and D TOULET), James Cook University, Townsville. Herbivory in newly settled reef fish.

E COX (assisted by F STANTON), University of New Mexico, USA. Feeding selectivity in corallivorous butterfly fishes.

J ELLIOT (assisted by K KEOGH), University of Florida, USA. Sex change in anemone fish.

J GODWIN, University of Hawaii, USA. Sex change in anemone fish.

L GOGGIN, University of Queensland. Tridacna clam deaths.

O HOEGH-GULDBURG (assisted by M SHAND), University of California - Los Angeles, USA. Photo adaptation in corals.

S KEABLE (assisted by J LOWRY & D TOWNSEND) Macquarie University, Sydney. Biology of the small demersal invertebrate scavengers of Lizard Island.

D LOU, James Cook University, Townsville. Herbivory in reef fish.

M MCCORMICK (assisted by S COMPOST, B KERRIGAN, B MAHONEY & M MERKLEIN), James Cook University, Townsville. Fish community dynamics.

D MCNIEL, University of Miami, USA. Geology of Lizard Island.

M MEEKAN (assisted by J ACKLEY, J DAVIDSON, D GRICE, P GODDARD, L MCILWAIN, B MILLER, M MERKLEIN, R SCOTT & C WINTER), Griffith University, Brisbane. Fish recruitment on disturbed reefs.

C MEYER, Colgate University, USA. Anatomical and physiological variation in cowrie shells.

M MILICICH (assisted by J ACKLEY, J DAVIDSON, D GRICE, L MCILWAIN, P & K MILICICH & R SCOTT), Griffith University, Brisbane. Larval fish recruitment using light traps.

P NEWTON (assisted by D NEWTON), Reef Bio-search, Mossman, Queensland. Photoadaptation in corals.

W PRECHT, University of Miami, USA. Geology of Lizard Island.

C SHILLER, University of Wien, Austria. Ecology of tropical vibrio bacteria and assessment of their role in nutrient transformations in tropical marine environments.

S SMITH (assisted by D PUGH), James Cook University, Townsville. Ecology of tropical vibrio bacteria and assessment of their role in nutrient transformations in tropical marine environments.

P SPEAR (assisted by T MUNDAY), James Cook University, Townsville. Parasitic indicators of black marlin migrations.

M STAFFORD-SMITH (assisted by O HOEGH-GULDBURG, L COWAN, S BARRIE, J MACGRORY & C

WINTER), University of York, UK. Sedimentation effects on corals.

M VAN ERP, University of California - Santa Barbara, USA. Photoadaptation in corals.

S WELLS, International Union for Nature Conservation. Cambridge, UK. Conservation of coral reefs.

Station Visitor Statistics 1 July to 30 June 1989

	'87-'89	'88-'89
Total number of researchers and assistants	142	157
Number of Australian workers	35	31
Number of foreign workers	72	71
Number of post graduate students and assistants	35	55
Number of volunteers	20	33
Number of distinguished visitors	82	96
Mean number of researchers per night	8.4	6.3
Mean number of all visitors per night	9.5	8.8
Mean number of researchers, including those on board RV SUNBIRD, per day	10.7	10.2

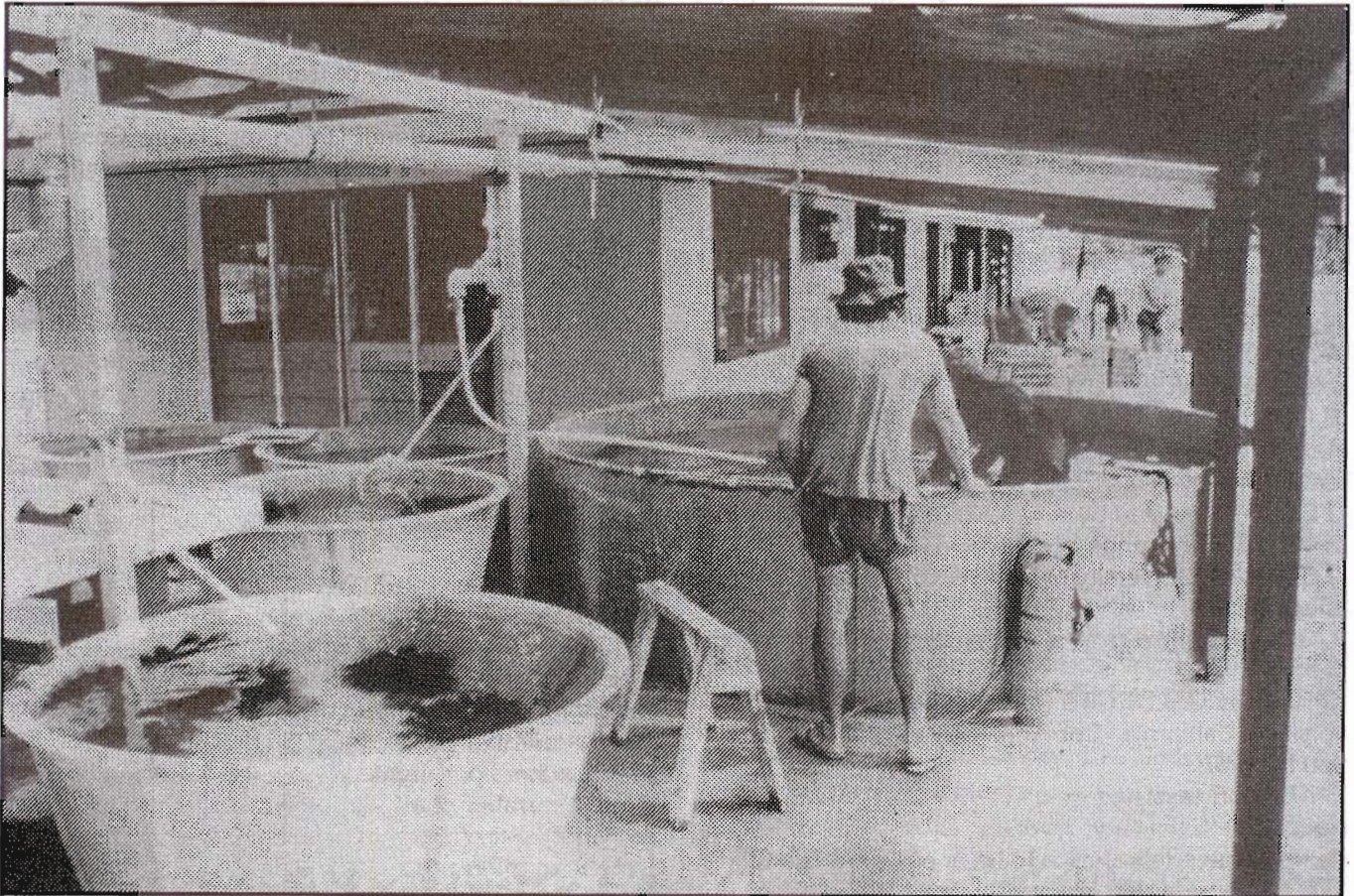
Lizard Island Research Station Fellowship Awarded

The successful Lizard Island Doctoral Fellow for 1989 is **Mark McCormick**, who is enrolled in the Marine Biology Department, James Cook University of North Queensland. The title of his project is "Factors influencing the settlement and subsequent survival of a group of mullids on the Great Barrier Reef." Mark is supervised by Professor J H Choat.

As the standard of applications was high the Museum is also offering partial support in 1989 to **Joel Elliott**, Department of Biological Sciences, Florida State University. The title of his project is "The influence of larval recruitment, dispersal and acclimation ability on host specificity of anemone fishes." QANTAS Airways has kindly agreed to assist the station by providing a complimentary air ticket for him (see below). Congratulations Mark and Joel!

PhD Fellowship Details - Three years support

The Australian Museum, in conjunction with the Lizard Island Reef Research Foundation, each year offers a



three-year fellowship to a PhD student to support field work on the Great Barrier Reef, based at Lizard Island Research Station.

The fellowship is available to any student enrolled, or about to be enrolled, in a PhD program. It is expected that the recipient will carry on significant long-term studies in a scientific discipline relevant to the Barrier Reef.

The fellowship is valued at \$A12,000 (\$4,000 for 3 years). It covers bench fees and assists with travel costs to the island and a small amount of equipment. It is not a stipend.

A student enrolled at an Australian university should be in receipt of a Commonwealth or other recognised scholarship. A student enrolled at an overseas university should provide documentation showing how living expenses will be covered. Grantees will be required to make a progress report at the end of each year of the grant.

The research proposal should clearly set out: 1) aims, 2) methodology, 3) budget, 4) name of supervisor, 5) summary of the applicant's academic record and achievements, 6) significance of research to the Great Barrier Reef, 7) personal curriculum vitae, and 8) a letter approving the project from the head of the university department where the applicant is enrolled. Overseas students should include a letter from their supervisor indicating the acceptability of overseas field work to the program at that particular university and how

closely involved the supervisor will be with the project. **Applications for the awards for 1990 close on 15 October 1989.**

Applications and requests for further information should be sent to: Director, LIRS Fellowships, The Australian Museum, PO Box A285, Sydney South, NSW 2000, Australia. For details about the facilities at the Lizard Island Research Station contact the Co-Directors, Drs Barbara L Kojis and Norman J Quinn.

Qantas/Lizard Island Travel Fellowships

The Australian Museum and the Lizard Island Research Station in cooperation with QANTAS Airways, 'The Spirit of Australia', are able to offer two economy class return air tickets to Cairns from any city served by QANTAS. These tickets are available to people who will conduct significant research at the Research Station within the next year. We would prefer that the successful applicants spend a minimum of four weeks at Lizard Island.

Applicants for the 1990 travel fellowships should submit a three page research proposal clearly setting out: 1) aims, 2) methodology, 3) a personal curriculum vitae and 4) significance of research to the Great Barrier Reef. Bench fees and other costs are not included in the fellowship. Visa arrangements are also the responsibility

ity of the successful applicants.

Applications should be sent simultaneously to Dr Jeff Leis, Department of Ichthyology, Australian Museum, 6-8 College Street, Sydney, NSW 2000 (FAX number (02) 339 8304) and Dr Norman J Quinn, Co-Director, Lizard Island Research Station, PMB 37, Cairns, Queensland 4871. Submissions should reach them by 15 March, 1990. A condition of the award is the receipt by Dr Quinn within two months of the trip of a report on the trip, including photographs, if possible. This report will be used as a basis for publicity by both QANTAS and the Research Station.

"The importance of understanding and protecting the wonders of the Great Barrier Reef cannot be understated. The importance of encouraging young scientists to continue their research on this magnificent area through the financial and academic support of the Lizard Island Fellowship program is a proud tradition of the Australian Museum.

This year, with the assistance of QANTAS, we are taking an even larger step to realising the Museum's goal of ensuring a future for the greatest remaining marine wilderness in the world."

Dr Des Griffin, Director, Australian Museum, Sydney.

Joel Elliot, a PhD student at the University of Florida, Miami, USA, has been awarded the first fellowship. He proposes to study the relationship between clown fish and sea anemones. Elliot's studies will provide a new understanding of how such seemingly incompatible creatures, the clown fish and the anemone, rely on each other for survival. This knowledge can then be applied on a broader basis to help identify the complex factors that contribute to the unique ecosystems of the Great Barrier Reef.

Air Travel Assistance to Cairns For Australian Researchers

Ansett and Australian Airlines have generously offered discount air fares to assist scientists whose funding has fallen short of requirements and who wish to travel to Cairns to undertake studies on the Great Barrier Reef at the Lizard Island Research Station. The Co-Directors approve requests on the basis of need and scientific merit. Applicants for this program should send their research proposal to the Co-Directors. Please

indicate the source of funding for your project and why travel assistance is required.

You may either apply for a 50% reduction on a confirmed ticket with Australian Airlines or a 75% reduction for a stand by ticket with Ansett. Please indicate in your letter to the Co-Directors which discount you are applying for. These discounts apply only on the published economy fare between your base location and Cairns. The ticket is not transferable. This does not include the cost of travel from Cairns to Lizard Island. The approval for the discounts is controlled by the management of the Cairns offices of the airlines where the ticket is issued.

We hope that the generous assistance offered by Ansett and Australian Airlines helps you in your efforts to understand the Great Barrier Reef.

Private Grants for Field Research

In 1990, EARTHWATCH will award grants of \$US10,000 to \$US100,000 for 110 projects addressing significant questions in the sciences and humanities. The Center for Field Research invites scholars engaged in marine research to apply for awards of funds and volunteer staff to assist them with work at Lizard Island Research Station. Proposals will be considered from scholars of any nationality.

All funds are derived from the contribution of participating volunteers selected from the EARTHWATCH membership; non-specialist volunteers must be integrated into the research design.

Preliminary proposals can be made by telephone or by detailed letter to The Center. Upon favorable review, full proposals will be invited to be submitted twelve months before the proposed field date of the project.

For further information contact: The Center for Field Research, 680 Mount Auburn Street, PO Box 403, Watertown, MA 02272, USA. Phone (617) 926-8200.

Two new 7.2M Aluminium Dorries Received from NQEA

With the generous assistance of North Queensland Engineering Agency (NQEA), the station has obtained two 7.2m aluminium dorries with 38hp diesel engines. These safe and economical vessels, worth over \$100,000, will assist researchers with their work around Lizard and have replaced the old Trojan. "NQEA made the donation having confidence in the

Lizard Island Research Station to use the craft to give their researchers a greater opportunity to access the reef, both for research and to provide feedback to the community," said Mr Don Fry, NQEA chairman.

Additional New Dinghies

A new 4.3m Savage dinghy was purchased in October 1988 to replace an aging DeHaviland. With the cooperation of everyone we hope it will help meet station boating needs for the next 15 years.

Alcan Donates 4.6M Quintex Reefmaster Dinghy

Alcan's much appreciated donation of a fancy new dinghy with windscreen, steering, front swivel seats and rear box seats assists the station with its on-going dinghy replacement program. Some of our dinghies have been around since 1974 and while they still perform well, the time spent keeping them in shape can be much more profitably allocated to numerous other station projects. This boat should be versatile, able to perform the usual tasks researcher ask of a boat and cope well in heavy seas.

Telephone Installed Lizard Island Research Station - (070) 60 3977

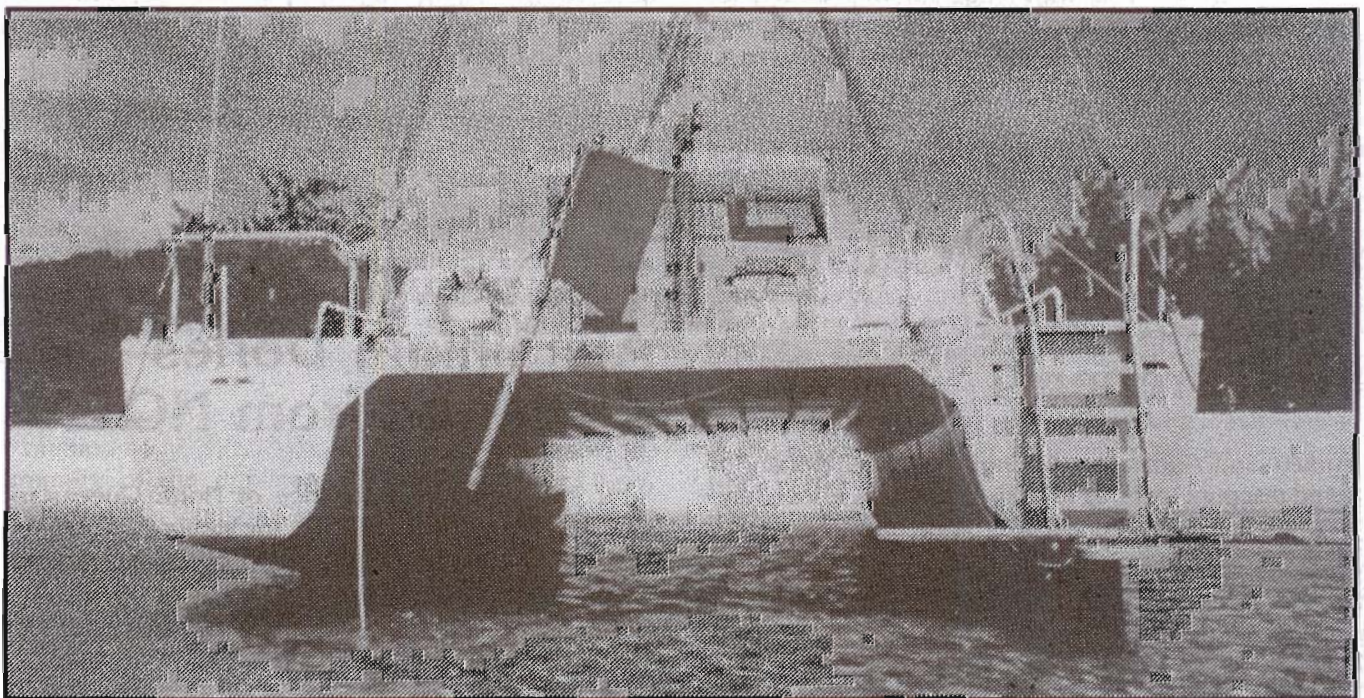
On 23 September 1988, Telecom connected Lizard Island to the rest of the world via a microwave telephone. The station now has an office phone - (070) 60

3977 - where the answering service can be contacted 24 hours a day. Station business calls are taken between 8:30 and 17:00 Monday to Friday and 8:30 to 12:00 on Saturday. We take messages for researchers and arrange to have them call you back. The country code for Australia for international callers is 61. Dial your international access number, then 61 70 60 3977 to call us from overseas.

A pay phone is available for outgoing calls. The phone has been popular with researchers, fishermen, campers, lodge staff and guests. Researchers can be contacted by calling the pay phone number, (070) 60 39C4 - yes that is 60 39C4 - through an operator-assisted call. A fax machine is also available and shared with the voice line. You must telephone first to advise you wish to send a fax so we can hook up the facsimile machine to receive your image. Faxes to or from visitors at the station are charged at Australia Post rates. The Lizard Island Lodge received their phone in May 1989. The Lodge's telephone number is (070) 60 3999; their fax number is (070) 60 3991.

Busiest Year Ever for RV Sunbird

It was a very busy year for **RV Sunbird**. Scientific usage of the vessel exceeded all previous years usage by 40 days totaling 152 days. Captain Matt and Mipi Jumelet assisted Dr I Poiner's (CSIRO) sea grass research in Torres Strait in August/September and October/November. C Rasmussen (James Cook University) took cores from reefs off Cairns in September. Professor H Choat (James Cook University) and Dr J Leis (Australian Museum) in November studied larval fish in the waters around Lizard. In December/January Captain Matt and Mipi Jumelet took **RV Sunbird** on a successful cruise to the seldom traveled regions of New Britain Province, Papua New Guinea. Relief Captain Terry Ford skippered



the vessel for **Brian Long** (CSIRO) to Torres Strait for sea grass sampling with Relief Crew Angela Fielding. With Relief Crew Lois Wilson, Captain Ford assisted marine archaeologists from the Queensland Museum in their search for wrecks off the far north Queensland coast.

RV Sunbird Users

J H CHOAT & J LEIS, (assisted by J ACKLEY, B MAHONEY, B KERRIGAN & M MILLSTONE), James Cook University and Australian Museum. Larval fish ecology.

J CALEY (assisted by T POPLE, P HOWARD, A PAPAS, L GOGGIN & C HUDSON), University of Sydney. Fish settlement on disturbed reefs.

T ENNIS (assisted by G HANGAY, R DE KEYSER, P COLMAN, P GERMAN, S DONNELIN, W BOLES and L SERI, Australian Museum, Sydney; South Australian Museum, Papua New Guinea Department of Environment and Conservation, Division of Wildlife. Collections of mammal fauna in Papua New Guinea.

P GESTNER (assisted by A BARNING, B BATLEY, W DELANEY, G SANDS and J TILLING) Queensland Museum, Brisbane. Marine archaeology survey of wrecks in the Far Northern Section of the Great Barrier Reef.

I POINER (assisted by B LONG, C HUDSON, M PILSWORTH & R ADLARD) CSIRO, Brisbane. Sea grass surveys in the Torres Strait.

C RASMUSSEN (assisted by T HAINES, N SEX and J MORRISON), James Cook University, Townsville. Carbonate sedimentology.

THE AUSTRALIAN MUSEUM SOCIETY, N, P & P BERENTS, L STOCKDALE, D & S NICHOLAS, F CARTER, M GERDES, L GEEVES, E BRANT, B & N CLARKE, J KENWAY & B ILSLEY, Australian Museum, Sydney. Marine biology educational tour of the Great Barrier Reef.

P HUTCHINGS, A ANTONIUS, R BARNES, A BUDD, I HUNTER, C LAU, D, T & U MEISCHNER, H MERGNER, E MÜLLER, T NAKAMORI, D OBERSTE-LEHN, G WALKER, D VALLANTINE. Participants in pre 6th Coral Reef Symposium excursion.

We are pleased with the increased scientific use of **RV Sunbird**. If you have scientific work requiring a cost effective charter vessel which can sleep up to six, please contact the Lizard Island Research Station for details.

Lizard Island Moves Ahead

In October 1988, the Lizard Island Lodge and Lizard Island Research Station decided to move forward. We have advanced our clocks by one hour making us GMT +11. The communities on the island plan to remain on Lizard Island Advanced Time throughout the year.

Volunteers in the Support of Science

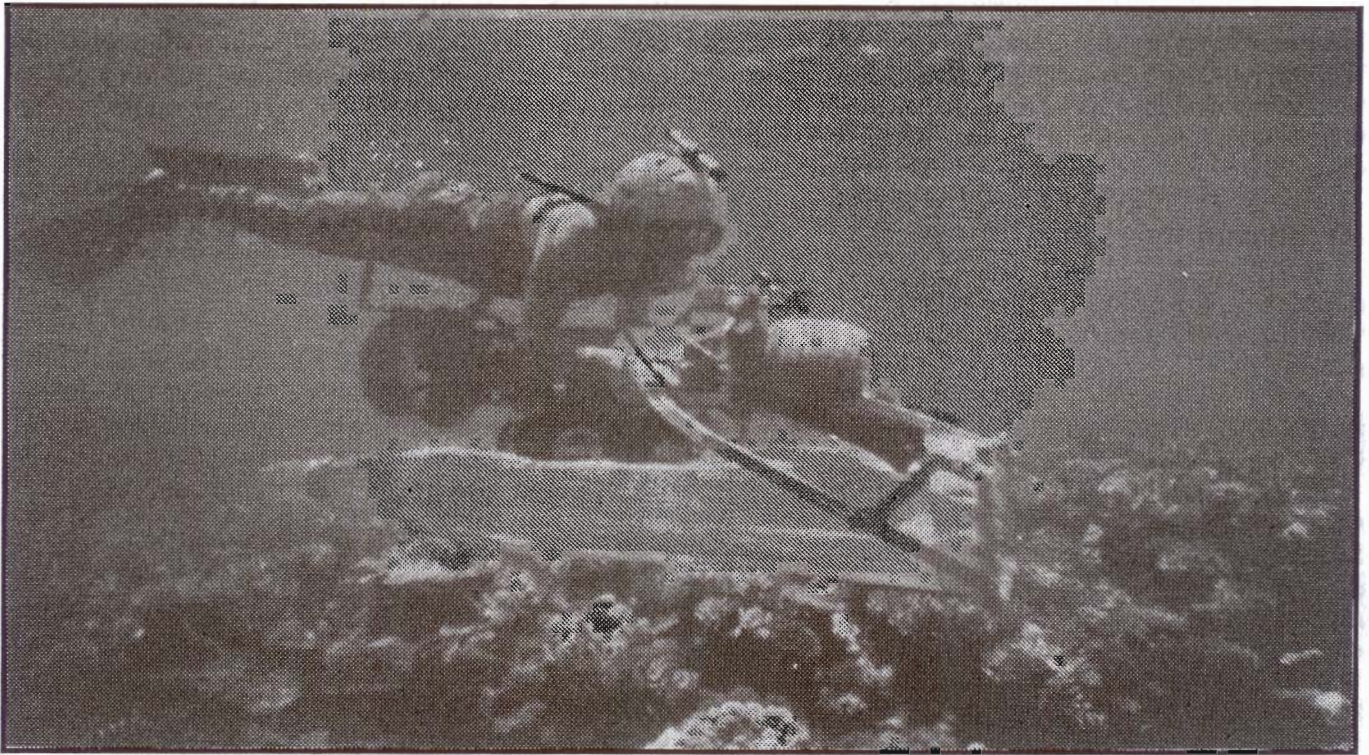
We would like to thank the following people who volunteered their time to help improve the facilities of the station and to assist with scientific research: S BARRIE (UK), J CALEY (Canada), L COWAN (UK), J CUDDIHY (Aust), M FEENEY (Ireland), J FULLER (Aust), P GODDARD (USA), L GOGGIN (Aust), J GODWIN (USA), H GRACE (UK), S GRIFFITH (West Germany, 2nd year in a row), J HORSTMANN (West Germany), P HOWARD (UK), C HUDSON (UK), M JOHNSON (Aust), M JÜLL (Canada), C JUSTINE (Aust), L KATZ (USA), B LAWERENCE (Aust), P LYONS (Aust), J MACGRORY (UK), M MERKLEIN (USA), A PAPAS (Aust), R PETERS (Aust), S PLEYDELL (USA), T POPLE (Aust), D QUAMME (Canada), M STAFFORDSMITH (UK), M SHAND (Aust), C SMYTH (USA), L STEWART (Aust), C WILLIAMS (USA) and M WITT (West Germany).

They assisted with: 1) construction of the dive shed extension, 2) construction of a BBQ fireplace, 3) cleaning and anti-fouling the hulls of station dinghies and **RV Sunbird**, 4) painting the laboratories, houses, and dive shed 5) varnishing wood trim on **RV Sunbird**, 6) preparing the deck of **RV Sunbird** for painting, 7) gardening around houses, labs and along track, 8) landscaping, 9) filling in eroded portions of the track to the airport, 10) giving station tours, 11) entry of meteorological data into computer 12) and finally, they very ably assisted scientists with their research.

Their assistance, equivalent to over 300 full-time work days, has made the station a better place to work and live and has helped push back boundaries in the quest for knowledge. The donation of their time is very much appreciated!

If you know of someone who is interested in doing some volunteer work at the station, please have them contact the Co-Directors at the station. We provide accommodation in return for work.

RV Sunbird Usage	'87 - '88	'88 - '89
<i>Number of days used for:</i>		
Science	100	130.5
Public Relations	0	0
Transit	12	20.5
Supply of Station	40	23
Maintenance	85	87
Total days	237	259
Mean number of researchers on board per day	1.2	1.4
Total number of users	59	64



Donations to the Station

The station is not directly funded by any government and we rely heavily on donations. In the past year the following organisations have kindly made non-monetary donations or offered discounts for their services to the station. We sincerely appreciate their assistance.

Robert Saunders Printing	raised letterhead stationary and envelopes
Lizard Island Lodge	assistance with freight
Australian Regional Airlines	fare discounts
Ansett Airlines	fare discounts
Australian Airlines	fare discounts
QANTAS	travel fellowships
MV Noel Buxton	assistance with freight
MV Queen of the Isles	assistance with freight
BBQ plate	
Joseph Freedman	books
Rodeway Granada Hotel	room discounts
Pacific International Hotel	room discounts

We also appreciate the people who made cash donations to the Lizard Island Reef Research Foundation.

If you are interested in supporting research on the Great Barrier Reef you can send your tax-deductible contribution to:

The Lizard Island Reef Research Station
 PO BOX A285
SYDNEY SOUTH, NSW 2000
 AUSTRALIA

In the coming year we are looking for sponsorship for:

- 1) doctoral fellowships
- 2) new 9.9hp longshaft outboard motors
- 3) enhanced computer facilities - hardware and software
- 4) new scuba tanks
- 5) books and journals for library
- 6) new freezer for researchers food
- 7) submersible temperature/salinity data loggers
- 8) solar panels, batteries and inverter
- 9) extra researcher accommodation
- 10) refurbishment of visitor and staff accommodation
- 11) a new aluminium dinghy
- 12) construction of chemistry laboratory
- 13) construction of fish dissecting wet lab
- 14) new plastic chairs

Mail Order T-Shirts & Windcheaters

If you forgot to buy Lizard Island Research Station T-shirts and windcheaters for your friends while you were on the island we would be happy to mail one to you. The T-shirts come in two designs, puffed print lizard and diver. Windcheaters only have diver design. Please specify size and preferred design. Australian orders T-shirts \$22 each, windcheaters \$32 each. Foreign orders \$A25 & \$35 each respectively via surface mail.

Cane Toads on Lizard Island

The toads have failed to submit their report on time. We have not seen them recently and have been unable to contact them. We hope they have been eliminated from the island.

Air Travel Information

AIR FARES One way economy :

From	To Cairns
Sydney	\$350
Melbourne	\$385
Brisbane	\$282
Townsvill	\$112
Lizard Island	\$116

Discounts for Researchers

Discount fares are available to well-organised researchers. Both airlines offer an AIR PASS which allows for up to 6000km of travel and five stopovers in Australia for \$750. There are some restrictions with this fare.

Full-time students under the age of 26 receive a 25% discount on Ansett and Australian Airlines. They are charged \$92 Cairns to Lizard or vice versa.

Discounts for International Researchers: A 30% rate reduction (called See Australia) is given to international travelers on domestic sectors if over 1000km in total is flown.

Surface Travel Cairns To\From Lizard Island

The **MV Queen of the Isles** - (070) 311 844 - offers "space available" travel from Cairns to Lizard Island for \$70. The ship departs the Cairns wharf nearly every Sunday from April to late November at 1900h and arrives Lizard Island at 1000h the next day. It then continues on to Thursday Island and returns to Cairns without stopping at Lizard Island. Reasonable amounts of cargo may be carried at no additional charge. The **MV Noel Buxton** - (070) 51 7393 - travels in the opposite direction leaving Lizard about 1530h on Saturday and arriving Cairns at 900h Sunday.

Cargo to Lizard Island: Non-perishable food and other cargo can also be transported via the **MV Queen of the Isles** and the **MV Noel Buxton**, and frozen and perishable food on the **MV Cooma Cooma** at the same rate as for **RV Sunbird**. The **MV Cooma Cooma** operates on a fortnightly basis and does not offer a passenger service. Please contact the station before you consign cargo to either vessel. Freight rates are currently \$6 per apple carton size box.

Station Visitors

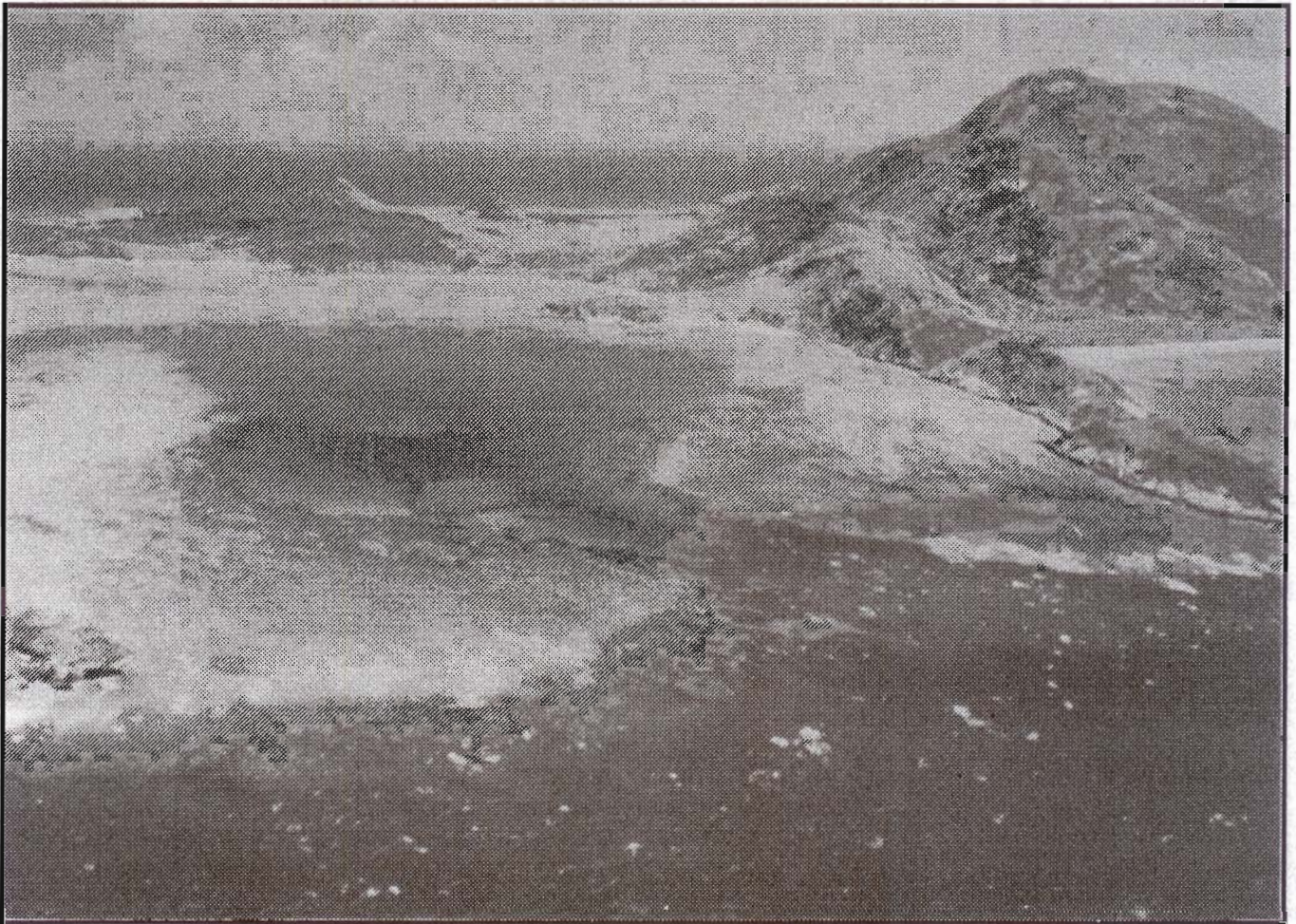
Tours

The station tours remained popular, attracting over 2000 people during the year. Most of the visitors were

passengers from the **MV Noel Buxton** and **MV Queen of the Isles**, with the rest coming from the **SV Bounty** and other tall ships, the Lizard Island Lodge, yachties and campers.

Distinguished Station Visitors

M ABRAMS, Management consultant, Sydney
R BLAKEMORE, Computer consultant, Australian Museum, Sydney
P BULL (accompanied by B THURWOOD), Donor, Sydney
B BUTTERWORTH, Wild Leitz, Brisbane
I & S CAMERON, Member of Parliament, Queensland
G DOWLING, L BEARD, D OLIVER and D FELTON, Channel Nine, Brisbane
B DUROSE, and "VIEN", Computer consultant
A FIELDING, Cairns. Relief Crew, **RV Sunbird**
T FORD, Cairns. Relief Master, **RV Sunbird**
D GABOWSKI, Occidental College, Los Angeles, USA
D GANE, Donor, Cairns
G GINN, Owner **MV Noel Buxton**, Brisbane
A GREEN, Author of underwater photography book, Canberra
D GRIFFIN, Director, Australian Museum, Sydney
M HARMELIN-VIVIEN, Centre d' Oceanologie de Marseille, France
R HAZELL, T RAIL, J COMPLING and an assistant. Telecom: installation of telephone. Townsville
M & M JUMELET, Master and Crew, **RV Sunbird**
T KAIGARA, Institute of Geography, Kansai University, Osaka, Japan
H KANEKO, B OGASAWARA and H HONNA, Marine Bioindustry Institute, Tokyo, Japan
H LESSIOS, Smithsonian Tropical Research Institute, Panama
R & H MACALLISTER, Captain of **MV Queen of the Isles**, Cairns
G MCKENZIE, Australian Museum, Sydney
K MORI, Nature Conservation Bureau, Tokyo, Japan
J & S MUNRO, ICLARM, Honiara, Solomon Islands
R OAKLEY, Australian Customs, Cairns
R OFFNER, NSW Government, Sydney
C PEARCE & R WATT, Cairns
J PETERSON, Los Angeles County Museum, USA
P PIRAZZOLI, CNRS, Paris, France
J & M POWELL, Queensland
D RICHARDS (with six researchers on **RV Allan & Vi Thistlethwaite**), Oceanic Research Foundation Ltd, Windsor, NSW.
D WILLIAMS (with four assistants), Telecom
The Captain and six crew members of Jacques Cousteau's vessel **SV Alcyon**.
Eight West German Parliamentarians.
Members of THE AUSTRALIAN MUSEUM SOCIETY:
N, P & P BERENTS, L STOCKDALE, D & S NICHOLAS, F CARTER, M GERDES, L GEEVES, E BRANT, B & N CLARKE, J KENWAY & B ILSLEY.



Lizard Island Rainfall Records

Rainfall in mm				
	1986	1987	1988	1989
January	519	205	33	96
February	53	399	297	138
March	149	117	435	340
April	187	147	141	263
May	57	49	13	115
June	74	52	44	30
July	31	32	68	0
August	11	20	21	0
September	2	53	16	0
October	5	0	23	0
November	7	18	36	0
December	6	132	312	0
Totals	1207	1224	1442	982

Lizard Islands Hydrological Data

Mean surface water temperature in °C taken daily from in front of the station at 900h		
	1988	1989
January	29.5	29.4
February	29.0	28.8
March	28.2	28.3
April	27.9	27.6
May	25.7	26.0
June	24.1	24.5
July		23.8
August		22.9
September	23.1	23.0
October	25.7	25.6
November	28.7	28.9
December	28.9	28.7

On 15 November 1988, we placed a Hugrun submersible water temperature logger on the reef flat 200m from the beach in front of the station. The logger records temperatures every 30 minutes. Please write to the Dr Norman Quinn if you would like more details about the data.

Station Publications

Since the issue of Newsletter No 14, we have received a further 30 reprints bringing the total to 259 to 30 June 1989. These publications are listed below. A complete publications list is available. Please write if you would like to receive one. If you have published a paper based on your visit to the station or use of **RV Sunbird** please send us two reprints.

- BEATON, JM 1978. Archaeology and the Great Barrier Reef. *Phil Trans R Soc Lond B* 284: 141-147.
- BRALEY, RD 1987. Reproduction and recruitment of giant clams and some aspects of their larval and juvenile biology. Dept of Zoology, University of New South Wales. 326 p.
- BUCKELY, R and H HARRIES 1984. Self-Sown Wild-Type Coconuts from Australia. *Biotropica* 16(2): 148-151.
- CLEMENTS, KD, GR RUSS, DMcB WILLIAMS and AM AYLING 1988. A species list of the family Acanthuridae (Pisces) of the Great Barrier Reef, Australia, with notes on Latitudinal distribution patterns. Manuscript.
- COATES, M, DW CONNELL, J BODERO, GJ MILLER and R BACK 1986. Aliphatic hydrocarbons in Great Barrier Reef organisms and environment. *Estuarine, Coastal and Shelf Science* 23: 99-113
- GLADSTONE, W 1988. Killer whale feeding observed underwater. *J Mamm* 69:629-630.
- GLADSTONE, W 1989. Attack. Underwater.
- GOGGIN, CL and RJG LESTER 1987. Occurrence of Perkinsus species (Protozoa, Apicomplexa) in bivalves from the Great Barrier Reef. *Diseases of Aquatic Organisms* 3:113-117.
- GRONELL, AM 1988. Sexual dimorphism: Its causes and correlates in the orange-tailed blue damselfish, *Chrisiptera cyanea* (Pisces: Pomacentridae). PhD Thesis, University of Sydney.
- HAMNER, WM and DF GINN 1980. Tropical Corallimorpharia (Coelenterata: Anthozoa): Feeding by Envelopment. *Micronesica* 16(1): 37-41.
- HOEGH-GULDBERG, O 1988. A method for determining the surface area of corals. *Coral Reefs* 7(3):113-116.
- LASSIG, BR 1983. The effects of a cyclonic storm on coral reef fish assemblages. *Environmental Biology of Fishes* 9(1): 55-63.

LEIS, JM, B GOLDMAN and SE READER 1989. Epibenthic fish larvae in the Great Barrier Reef Lagoon near Lizard Island, Australia. *Japanese Journal of Ichthyology* 35(4): 428-433.

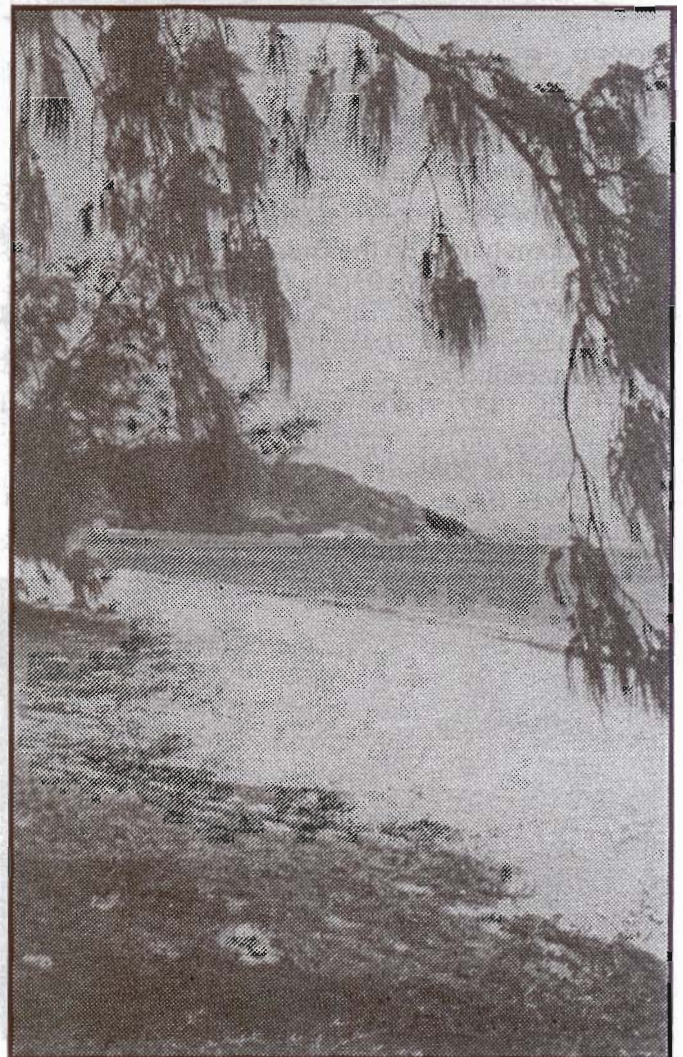
MEEKAN, M 1988. Settlement and mortality patterns of juvenile reef fishes at Lizard Island northern Great Barrier Reef. In: JH Choat, DJ Barnes, MA Borowitzka, JC Coll, PJ Davies, P Flood, BG Hatcher, D. Hopley, PA Hutchings, D Kinsey, GR Orme, M Pichon, PF Sale, PW Sammarco, CC Wallace, CR Wilkinson, E Wolanski and D Bellwood (eds) *Proceedings of the Sixth International Coral Reef Symposium*, Townsville, Australia, 1988, Vols 1, 2 & 3.

MONTGOMERY, WL 1988. Gut Microbes, Fat Storage and Gonadal Development in Surgeonfishes (Teleostei:Acanthuridae).

NASH, WJ, M GODDARD and JS LUCAS 1988. Population genetic studies of the crown-of-thorns starfish, *Acanthaster planci* (L.), in the Great Barrier Reef region. *Coral Reefs* 7:11-18.

NEWMAN, LJ and JG GREENWOOD 1988. A new species of Gymnosome, *Pneumodermodopsis spoeli* (Gastropoda: Opisthobranchia), from the Great Barrier Reef, Australia. *The Veliger* 31(1/2): 75-79.

PAGE, AJ 1987. The feeding behaviour and biology of selected corallivorous, prosobranch gastropods from the East coast of Australia. Master's Thesis,



University of Queensland. 229 pp.

PICHON, M 1976. Comparative analysis of Coral Reef community structures in the vicinity of Lizard Island (Australia). National Geographic Society Research Reports: 711-719.

PITCHER, R 1987. Validation and application of otolith aging techniques to some problems in the ecology of coral reef fishes. PhD Thesis, Griffith University, Queensland. 144pp.

PITCHER, R 1988. Validation of a technique for reconstructing daily patterns in the recruitment of coral reef damselfish. *Coral Reefs* 7(3): 105-111.

POORE, GCB and HM LEW TON 1988. Amakusanthura and Apanthura (Crustacea: Isopoda: Anthuridae) with new species from tropical Australia. *Memoirs of the Museum of Victoria* 49(1): 107-147.

POORE, GCB and HM LEW TON 1988. Antheluridae, a new family of Crustacea (Isopoda: Anthuridea) with new species from Australia. *Journal of Natural History* 22: 489-506.

POORE, GCB and HM LEW TON 1986. New Species of Aenigmathura and Pseudanthura (Crustacea: Isopoda: Paranthuridae) from Eastern Australia. *Memoirs of the Museum of Victoria* 47(1):59-73

POORE, GCB and HM LEW TON 1988. A Generic review of the Hyssuridae (Crustacea: Isopoda) with a new genus and new species from Australia. *Memoirs of the Museum of Victoria* 49(1): 169-193.

ROPER, CE and FG HOCHBERG 1987. Cephalopods of Lizard Island, Great Barrier Reef, Australia. *Occasional Papers from the Museum of Victoria* 3:15-20.

SAUNDERS, WB and PD WARD 1987. Sympatric occurrence of living Nautilus (*N. pompilius* and *N. stenomphalus*) on the Great Barrier Reef, Australia. *The Nautilus* 101(4): 188-193.

SCHWARZ, AL 1988. Sex change and its potential significance in *Dascyllus reticulatus* (Pisces, Pomacentridae).

SMITH, GC 1987. The birds of Eagle Island, a tropical sand cay on the northern Great Barrier Reef, Australia. *The Sunbird* 17(1): 1-10.

TEN HOVE, HA and MJ JANSEN-JACOBS 1984. A revision of the genus *Crucigera*

(Polychaeta: Serpulidae): a proposed methodical approach to serpulids, with special reference to variation in *Serpula* and *Hydroides*. *Linnaean Society of NSW* 3:143-180.

Future Developments

- * Increase a) scientific research and b) educational use of the station
- * Improve safety standards by replacing oldest dinghies with newer vessels
- * Establish long term observations of hydrological parameters
- * Build a well-ventilated wet lab
- * Expand accommodation available for users

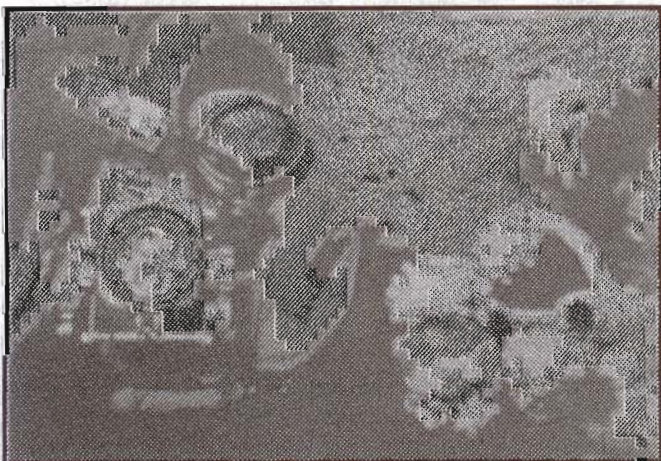
Staff 1988-1989

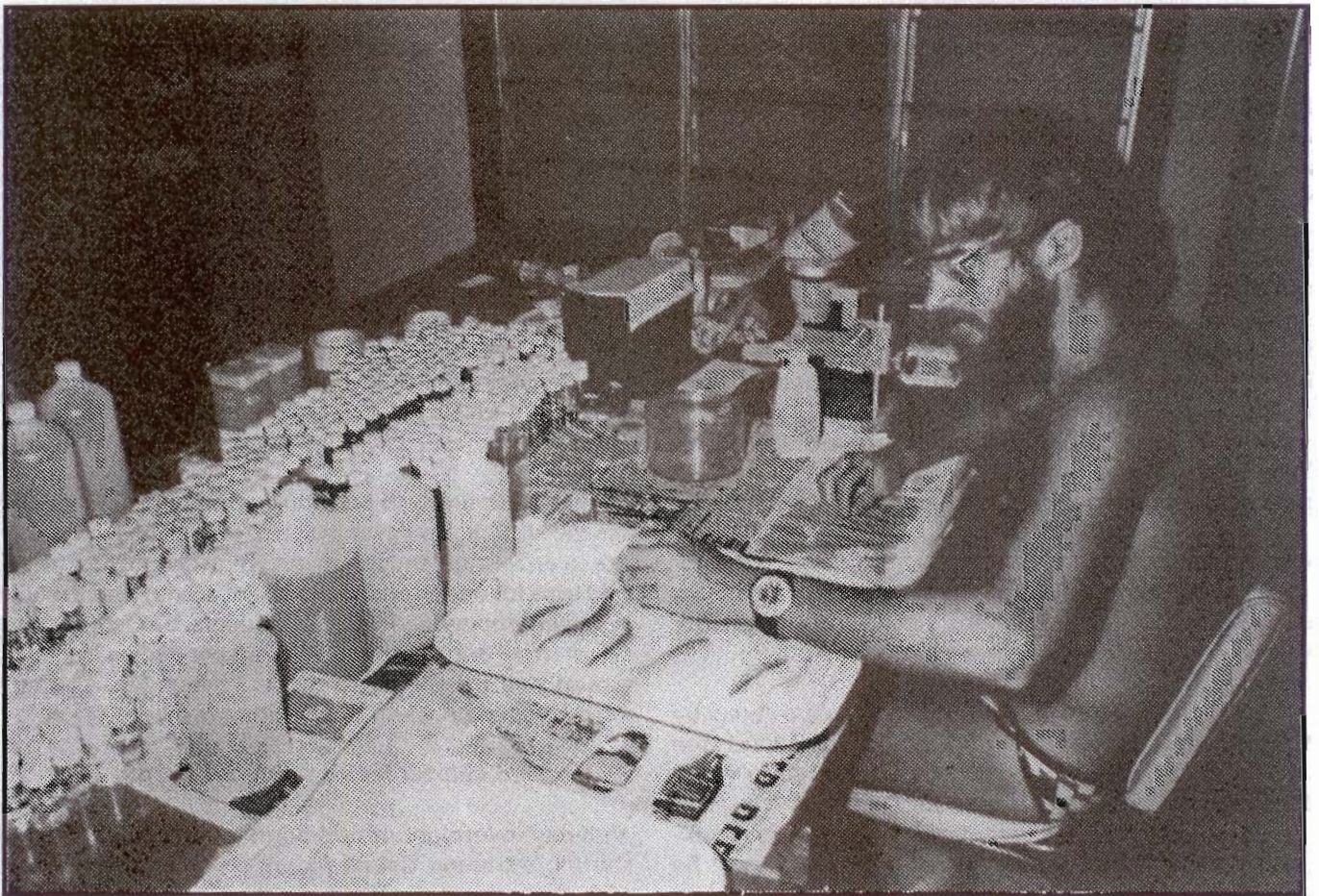
Owing to the increased usage of **RV Sunbird** we recruited in January a relief Captain, Terry Ford, to skipper the vessel from mid January to May. Relief Crew Angela Fielding and Lois Wilson assisted from mid January to March and April to May, respectively. Captain Ford holds a 3rd Class Masters ticket and is retired from the Royal Australian Navy. Angela holds a 5th Class Masters Ticket (Fishing) and previously worked for fishing vessels in the Gulf of Carpentaria. Lois previously crewed on **RV Sunbird** under Dr Goldman.

Paul and Marg Watts finished their contract in July and returned to Sydney. We welcome Marianne and Lance Pearce as Maintenance Officer and Accommodation/Transport Officer to the station. Both Lance and Marianne worked in Cairns before coming to Lizard Island; Lance at Custom Craft building boats and Marianne in the office of Australian Guarantee Corporation.

Station

Dr Barbara L Kojis	Co-Director
Dr Norman J Quinn	Co-Director
Mr Lance Pearce	Maintenance Engineer from 17/8/88
Ms Marianne Pearce	Accommodation/Transport Officer from 17/8/88
Mr Roy Hull	Temporary Maintenance Engineer 2-20/8/88 and 10-22/12/88
Ms Joyce Hull	Temporary Accommodation/Transport Officer 2-20/8/88 and 10-22/12/88
Mr Paul Watts	Maintenance Engineer until 31/7/88
Mrs Margaret Watts	Accommodation/Transport Officer until 31/7/88





RV Sunbird

Captain Matt Jumelet	Captain
Mipi Jumelet	Crew
Captain Terry Ford	Relief Captain from 17/1/89
Angela Fielding	Relief crew 17/1/89-15/3/89
Lois Wilson	Relief crew 7/4/89-26/4/89

Research Services in Cairns

Food

Procedure for Ordering Food Supplies from Woolworths
Send your order to the address below with a cheque to cover the estimated costs. Make the cheque out in excess as Woolworths will not supply any goods without first receiving the money. If your cheque falls short, then your order falls short. Woolworths charges a small handling fee for purchasing the food.

Attn: Ms Janice Woodhams (Country Orders)
Woolworths
103 Abbott Street
Cairns, QUEENSLAND 4870
Phone (070) 512015 or (070) 512148

Cartage is \$1.10/carton to a nominated delivery depot,

eg airlines freight depot or shipping wharf. Air freight costs \$1.28/kg plus a basic charge of \$25 for non-perishable items. Perishable items do not attract the basic charge. However there is a minimum charge of \$18.00 (14 kg). Sea freight is \$6 per apple carton sized item.

Organise your order into the following categories: NON PERISHABLES, FRUIT AND VEGETABLES, COLD STORE, FREEZER. Please use metric sizes. Freezer and cold store space is limited both at the station and on transported vessels. Check space with LIRS before making a commitment. Please note that Woolworths does not supply alcohol.

Beer, Wine and Alcoholic Spirits

Beer, wine and spirits can be ordered from the Liquor Barn, Abbott Street, Cairns, Queensland (phone 51 6300 and provide credit card number for payment).

Discounted Accommodation in Cairns

The Rodeway Granada Hotel, Grafton Street, Cairns, (phone (070) 51 0333) offers researchers a 25% discount on accommodation: \$A74 single and \$A83 double. The Pacific International Hotel, 45 Esplanade, Cairns ((070) 51 7888) also offers the corporate rate of \$A95 double to LIRS researchers. Please ask for the discount when making your reservation.

New Usage Fees

Inflationary pressures and increased costs have necessitated an increase in bench fees for students and researchers from 1 January 1990. The last increase was in August 1988. All fees are in Australian dollars. As of 30 June 1989 \$A1.00 = \$US 0.75. Researchers intending to use the station, especially during our busy months of July to August and mid October to January, should book early. Deposits of 10% of your estimated bench fees will allow us to confirm your bookings for both the station and **RV Sunbird**. Deposits are non-refundable. Researchers applying for grant funding for work at the station are requested to write to the Co-Director to obtain a quote for fees applicable at the proposed time of usage.

Bench fees include:

1) Accommodation, generally in two bedroom cottages with kitchen facilities (including refrigerator with freezer, stove and oven, all crockery, cutlery, pots and pans).

2) Free use of 4.3-4.6m dinghies powered by 9.9hp motor suitable for work on Lizard Island and access to 5.2-7.2m boats for a fee designed to cover fuel and some maintenance costs.

3) Diving facilities including: scuba tanks, backpacks, weights and weight belts (other gear must be provided by visitor) and scuba fills (tanks are filled by users).

4) Laboratory facilities including bench space and use of two photomicroscopes: a Leitz Dialux 22 fluorescent microscope and a Wild M400 photomicroscope with MPS45 photoautomat, a range of stereo microscopes, spectrophotometer, scintillation counter, centrifuges, IBM PC computer, microtome, walk in cold room (4°C and -15°C), etc.

5) Aquarium facilities with flow-through saltwater system and a wide range of aquaria.

Research Station

Full rate scientific researchers \$67/night per person. A \$5/night discount is given to scientific researchers if payment is received within 20 days of invoicing. A further \$5/night discount is offered for scientific researchers who visit the station between 1 February and 30 June, 1 September and 15 October. The full rate bench fee reduces to \$50/day after 30 days consecutive usage. This fee must be prepaid. There is no discount on this fee.

As of 1 July 1989, non academic visitors \$90/night per person. Full payment is requested upon departure. A \$5/night discount is offered for non academic visitors who visit the station between 1 February and 30 June, 1 September and 15 October.

A non-participating family member rate of \$30/night per person is discounted \$5/night if payment is received within 20 days of invoicing. This is subject to space availability and can only be confirmed one month prior to arrival. At other times the full bench fees apply.

Scuba tanks, boats and laboratory space are not provided for non-participating family members.

Researchers from contributing institutions and who are not funded by government grants are charged \$50/night. Please write to the Co-Directors if your institution is interested in becoming a contributing institution.

The bench fees for students working on their own independent research is \$25/night. A discount of \$3/night is given to accounts paid within 20 days of invoicing between the period 1 February and 30 June, 1 September and 15 October. At other times a discount of \$1/night will be given accounts settled within 20 days of invoicing.

Preference is given to scientific researchers wishing to use the station. However, if space is available we would like to encourage university and high school organized field trips for undergraduate student groups and groups of closely supervised Year 12 students. Student groups of 5 or more are charged \$50/night per person. Smaller groups pay the full non-scientific bench fee. This fee must be prepaid when the booking is made.

RV Sunbird charter fees as of 1 July 1989:

Full day, overnight or odd hours usage starting/returning Cairns within 100 nautical mile radius	\$575
Full day 8 hours or less between 7 am and 6 pm	\$450
Half day 4 hours or less between 7 am and 6 pm	\$350
Fee for customs entering or leaving Australia	\$275

A \$25/day discount on charter fee applies for accounts paid within 30 days of invoicing.

The use of scuba tanks and dinghies (other than the Zodiac 3.2m tender) will incur an additional charge. A 14ft dinghy with a 9.9hp motor and one 27L petrol tank can be provided for an extra charge of \$25/day. Scuba tanks with harness cost \$3/day, weights and belt \$1/day. There is no charge for scuba fills. Catering is optional. Researchers wishing to have their charter catered for should write for current costs. Catering costs include the cost of the food and a labor component for organising menus, purchasing food and cooking. Researchers are expected to help clean up after meals.

If you are interested in chartering RV Sunbird after 31 December 1989, please contact us regarding rates.