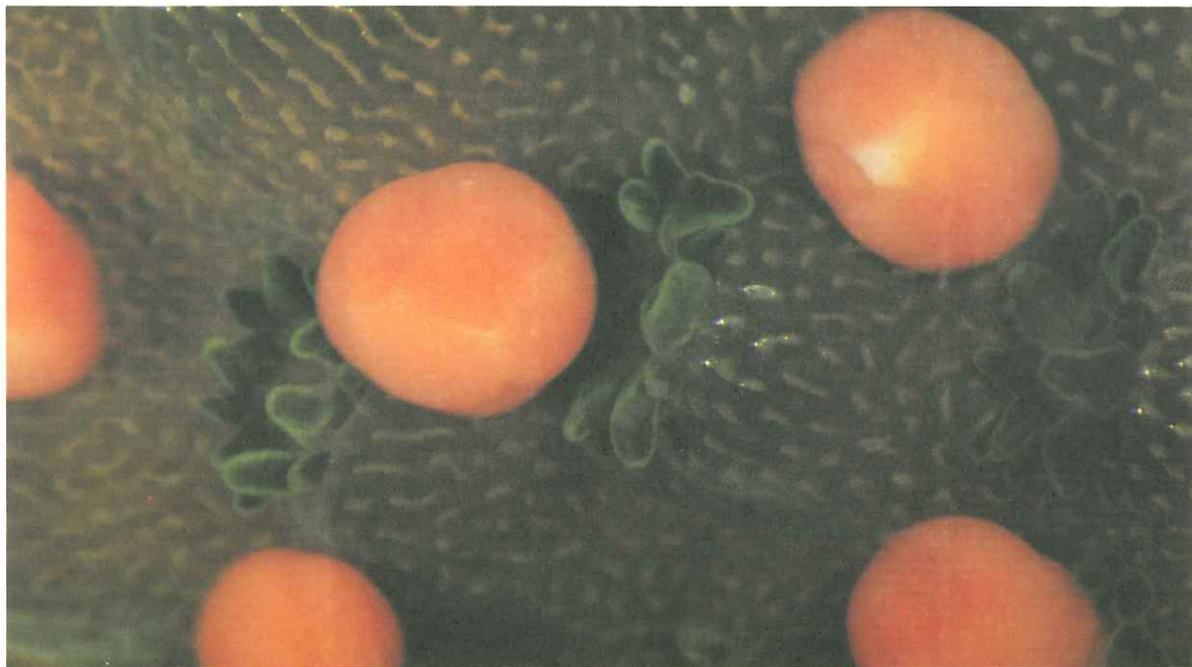


# THE SWIRE MARINE LABORATORY

## ANNUAL REPORT FOR 1993



*Acropora humilis* (Dana, 1846): gamete bundles were discharged from the mouths of individual coral polyps on the night of 7 June 1993. Photo: P.R.J. Collinson



The University of Hong Kong

# The Swire Marine Laboratory Annual Report for 1993

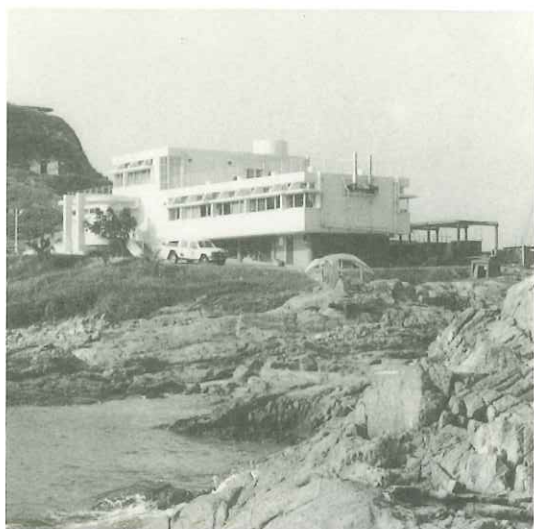


Photo: E. Stokes

Officially opened on the 3 November 1990, The Swire Marine Laboratory has now completed its third year of research activity and development.

This Annual Report covers the period from 3 November 1992 to 2 November 1993.

Enquiries about the facilities and activities of the laboratory should be addressed to:

The Director,  
The Swire Marine Laboratory,  
The University of Hong Kong,  
Cape d'Aguilar,  
Shek O, Hong Kong.  
Tel. (852) 8092179  
Fax (852) 8092197  
E-mail: SWIREML@HKUCC.HKU.HK

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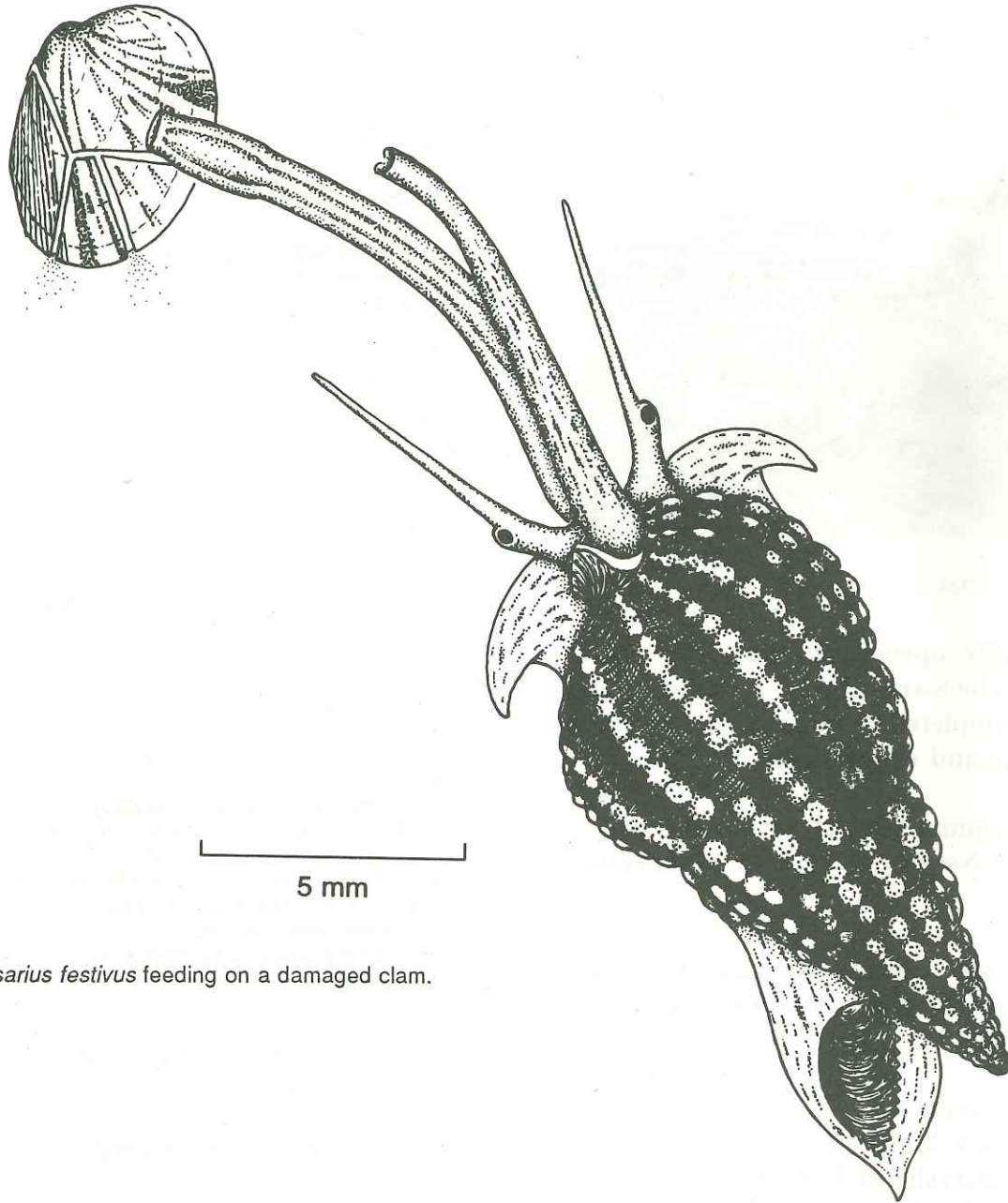
- Bermuda Biological Station for Research
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How can I undertake research at The Swire Marine Laboratory?

Publications by staff and students (1992-1993)

Publications on Hong Kong's marine life by visitors to the laboratory

Acknowledgements



*Nassarius festivus* feeding on a damaged clam.

## THE LABORATORY

The Swire Marine Laboratory is a facility of The University of Hong Kong and was built with a grant of HK\$12.5 million from The Swire Group of Companies. The laboratory was officially opened on the 3 November 1990 by Sir John Swire CBE.

Located on the tip of the Cape d'Aguilar peninsula, Hong Kong Island, the laboratory allows easy access to a wide range of shore types experiencing various degrees of exposure to wave action. The surrounding waters are probably the cleanest in Hong Kong and the shores are geologically interesting and biologically diverse.

The laboratory provides facilities and equipment for a wide range of both laboratory and field oriented studies and is the most modern and best equipped marine facility in Hong Kong.

Visitors to the laboratory can stay in comfortably furnished rooms at The Residence. Capable of accommodating up to 20 people in either single or double rooms, The Residence also has a lounge/dining room, kitchen, sun balcony and spectacular views to the east.

The laboratory has two vehicles, a five seater field truck and a seven seater van. There are also two, six and ten man, "Zodiac" inflatables.

### STAFF

The staff of the laboratory are:

Professor Brian Morton, Director  
Dr. S.Y. Lee, Resident Scientist  
Dr. Gray A. Williams, Resident Scientist  
Dr. Yvonne Sadovy, Resident Scientist  
Miss Diana K.F. Ip, Secretary  
Mr. James C.T. Hui, Laboratory Technician  
Mr. Jimmy C.W. Chu, Technician  
Mr. Cheung Ming, Driver/Boatman  
Mr. Patrick P.C. Chan, Leading  
Artisan/Caretaker  
Ms. Maggie M.K. Yiu, Cleaner/Caretaker  
Mr. M.H. Ko, Research Assistant  
Mr. Terence C.W. Fong, Research Assistant  
Ms. Kelly L.Y. Lau, Technician

### RESEARCH PROFILE

In its third year of operation, the laboratory has solved many of its early teething problems and the ability of its resident staff and students to do research has grown apace. The laboratory and its staff look forward to 1994 with confidence.

The ecological research begun in 1991 of the surrounding shores will continue, largely under the supervision of Dr. G.A. Williams. Mr. Sven Kaehler is completing a study of intertidal algae; Ms. Kate Harper is completing a study of the chiton *Acanthopleura japonica* while Mr. Robin Kennish and Mr. Mak Yiu Ming are studying rocky intertidal crabs and littorine snails, respectively.

Additional emphasis is now, however, being placed on the subtidal, in particular the corals that grow in the adjoining Lobster Bay and rock pools. Mr. Albert W.Y. Leung is completing a study of the fish fauna of the bay while Ms. Susan Hawkins is studying its productivity, both under the supervision of Prof. B. Morton. Ms. Alice L.C. Chan is studying the zooplankton of Hong Kong's southern waters, while Dr. R.G. Ong-Che (Research Associate) is completing studies of the benthos of Tai Tam Bay and surrounding shores.

Dr. S.Y. Lee and his students continue to work on various aspects of mangrove ecology at the Mai Po Marshes Nature Reserve. Ms. Winnie P.W. Kwok studies herbivorous crabs, Ms. Josephine K.Y. Yang studies mudskipper ecology and Mr. Steve McChesney is investigating the mudflat community at Mai Po. Mr. Vincent C.S. Lai is studying the predatory crab, *Thalamita*, on various shores in Hong Kong, also under the supervision of Dr. S.Y. Lee.

Prof. B. Morton and his students work at Hoi Ha Wan, proposed as Hong Kong's first Marine Park. Mr. Peter R.J. Collinson is completing a study of the corals at Hoi Ha. Mr. Albert W.Y. Leung, Mr. K.F. Leung and Ms Katherine K.Y. Lam have begun a three-year study of an Experimental Artificial Reef, also at Hoi Ha.

Prof. B. Morton and Dr. S.Y. Lee also supervise Mr. Alan W.L. Chan and Ms. W.C. Sze on their studies of industrial pollutant effects on marine life.

The sea and shores around the laboratory were designated a Site of Special Scientific Interest in 1991. We hope that they will achieve Marine Reserve status in 1994, allowing us to control public access to the bay, thereby minimizing disturbance and further allowing us to better understand natural versus unnatural changes in water quality and shore ecology.

Two students, Mr. E.M. Parsons and Ms. L. Porter will arrive soon to begin a pioneer study of Hong Kong's Humpback dolphin, *Sousa chinensis*, in the northeastern waters of Hong Kong. These studies are being financed by a grant from The Hong Kong Government.

### NEW DEVELOPMENTS

New equipment has been ordered recently and includes a C:H:N analyzer, an Image Analysis System for a new Leitz microscope and a Scanning Electron Microscope. The latter will be installed in its own room in the extension to the laboratory that is planned for completion by spring 1994.

Work has proceeded over the summer to catalogue and computerize the infant Reference Collection of Hong Kong's marine flora and fauna. With the establishment of the Reference Collection, all workers at the laboratory will be required to lodge voucher specimens in it to ensure conformity of identification and to build up our knowledge of the local marine flora and fauna.

### PROBLEMS

Our biggest problem is still fresh water (or, rather, the lack of it). The desalinators cannot provide sufficient quantities for all our uses and we continued to run out of water occasionally in 1993. Plans have been developed by the Estates Office of The University of Hong Kong to pump water from a nearby well and to collect rain water from the roof of The Residence. Work on this proposal is expected to begin in November 1993.

During July 1993, the rusting iron pipework of the laboratory was finally removed and the entire system replaced with PVC pipes. This

has now solved the problem of poor potable water quality for both the laboratory and The Residence.

Numerous minor problems with the laboratory have been identified, including wall cracks, condensation from pipes and leaking windows.



A sand-dredger at work near the laboratory.



Lobster Bay at low tide.

The Hong Kong Government has gazetted marine areas close to Cape d'Aguilar, for dredging of marine sand for the Port and Airport Development Strategy. The first gazetted area to the east around the Ninepin

Islands destroyed the subtidal benthos, both of the sea bed itself and the shallower hard surface corals. On the basis of the Ninepins experience, second and third gazetted areas, east and west of Po Toi Island and, thus, just south of the laboratory pose a real hazard, not only to the shores around the laboratory already gazetted as a Site of Special Scientific Interest (SSSI) and proposed as Hong Kong's first Marine Reserve, but also to the sea water intake upon which the work of the laboratory is dependent.

Studies undertaken during 1991-1993 have shown that the water transparency of Lobster Bay has fallen from ~4m to ~1m. The runoff from the dredgers has thus significantly affected this Site of Special Scientific Interest and Government plans to control the dredgers have been ineffectual.

## TYPHOONS

Typhoon Koryn affected Hong Kong on the 27 June 1993. No damage was done to either the Laboratory or The Residence but waves reached virtually up to the laboratory from the east. The sea water/sewage effluent discharge pipe was badly damaged by the typhoon and is currently under repair.

Typhoon Tasha affected Hong Kong on the 20 August 1993. No damage was done to either the Laboratory or The Residence, other than leaking windows.

Typhoon Becky affected Hong Kong on the 17 September 1993. Once again, no damage was done to either the Laboratory or Residence, but arriving waves, this time from the west, undercut the boat ramp and destroyed some experiments placed in Lobster Bay. Windows also leaked.

Typhoon Dot affected Hong Kong on the 26 September. No significant damage was sustained by the laboratory, other than the usual leaking windows.

Following visits by the typhoons, it is clear that the shores around the laboratory are highly mobile and thus ecologically dynamic. Research, focusing on such natural perturbations, is clearly needed.

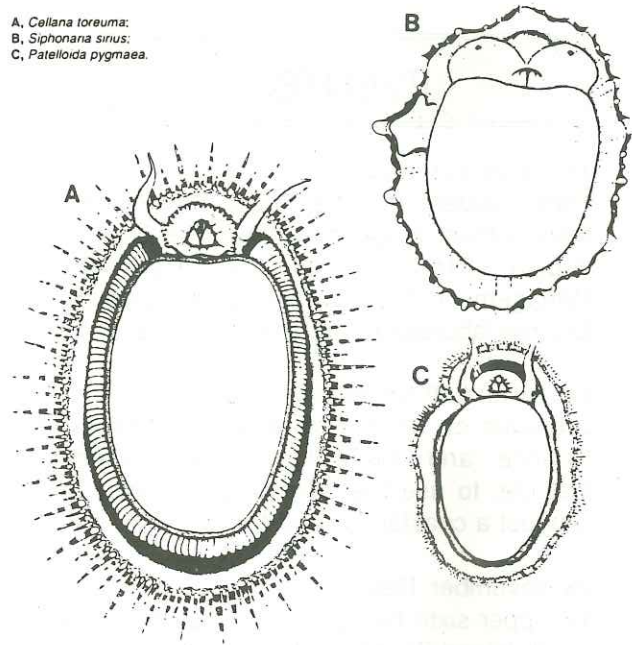
## FUTURE PLANS

The Director, in co-operation with the Director of Estates, has prepared plans for expansion of the physical structure of the Laboratory and The Residence. This has been necessitated by the demand for research and accommodation space, such that three years post-opening, the laboratory is over occupied. Students now have to share research bench space. A request by the Director for further funds to effect the expansion plans was considered by The Swire Group of Companies in 1992. Subsequently, a further donation of HK\$6 million has been made to The University of Hong Kong by the Group to execute Phase II of The Swire Marine Laboratory.

The plans include, for the laboratory, an addition of four research bench spaces to the research laboratory with enhanced diving facilities beneath; a doubling of the size of the

library/seminar room and the construction of new offices, research laboratories and a Reference Museum on the deck above the existing research laboratory. At The Residence, a new building is planned to provide an additional eight bedrooms for resident staff, students and visitors. Work on Phase II is due to begin on the 1 November 1993 and to be completed by April 1994.

A, *Collana toreuma*;  
B, *Siphonana sirius*;  
C, *Patelloida pygmaea*.



Underneath views of three limpets from the shores at Cape d'Aguilar.

## THE LIBRARY

The Library Committee of The University of Hong Kong made allocations of HK\$15,000 and HK\$40,000 in 1991/1992 and 1992/1993, respectively. In 1993/1994, this allocation will hopefully increase, to allow continued purchase of research books. The laboratory is still, however, far from fulfilling a basic aim of providing a comprehensive marine library for staff, students and visitors. Upon his retirement from the Chair of Zoology, at the University of Hong Kong, Professor B. Lofts generously donated runs of a number of important journals to the laboratory. The widow of the late Professor R.D. Purchon has also donated her husband's copy of the *Journal of Molluscan Studies* to the laboratory's library. We also benefit from lodgement at the laboratory of the library of The Marine Biological Association of Hong Kong which has been built up through exchange of its journal *Asian Marine Biology*. We now shelve 110 journals through this exchange and have back runs of most Chinese marine journals.

## HEALTH AND SAFETY

The Laboratory has developed a Health and Safety Policy which is clearly spelt out in a Health and Safety Manual that is issued to everyone working at the laboratory. Mr. P.P.C. Chan is the First Aid Officer and Mr. J.C.T. Hui is the Laboratory's Safety Officer.

## EVENTS

14 November 1992

Thirty students in the M.Sc. Environmental Management programme from The Centre of Urban Planning and Environmental Management, The University of Hong Kong: to tour the laboratory and have a barbeque.

14, 22 and 29 November 1992

3 groups of 30 students from the School of Science and Technology, Open Learning Institute: to use the laboratory's facilities and conduct a coastal ecology course.

23 November 1992

12 Upper sixth Biology level 'A' students from South Island School: to tour the laboratory.

12 December 1992

The Members of The Country Parks Board: to tour the laboratory and site and have a briefing on the work of the laboratory.

19 December 1992

19 students of the INSTEP Programme from The Chinese University of Hong Kong: to tour the laboratory and have a seminar.

13 February 1993

20 members of the Institute of Biology: to tour the laboratory and have a seminar.

17 February 1993

TVB film crew: to photograph the laboratory and local marine life to publicize the conservation efforts of WWF Hong Kong.

26 February 1993

29 undergraduate students from the Biology Society, The University of Hong Kong: to tour the laboratory and clean up the beach.

15 March 1993

42 undergraduate students from the Departments of Zoology and Botany, The University of Hong Kong: to participate in a seminar on their Coastal Ecology Mini Projects.

1 May 1993

10 Members of The Marine Biological Association of Hong Kong: to participate in a Mini-Workshop on The Taxonomy and Identification of Encrusting Algae organized by Mr. Sven Kaehler and Dr. G.A. Williams.

1 May 1993

The Dive Shop, Hong Kong: 16 divers to undertake diving activities and have a seminar.

5 May 1993

22 students from the Chinese International School: to tour the laboratory.

3 June 1993

Film crew from the ETV Unit of RTHK: to film a programme on "The World of Living Things" at the laboratory.

20 July 1993

30 students from Baptist Oi Kwan Social Service: to tour the laboratory and clean up the beach.

10 August 1993

15 young people from the Hong Kong Playground Association: to tour the laboratory and clean up the beach.

15 August 1993

24 people from the Industrial Evangelistic Fellowship Choi Wan Centre: to tour the laboratory and clean up the beach.

15 August 1993

Mr. L.K. Young and 20 staff of WWF Hong Kong: to tour the laboratory.

13 September 1993

2 Teachers and 23 students from St. Paul's School (Lam Tin): to undertake ecological research on the shores of Lobster Bay.

23 September 1993

2 Teachers and 40 students from California International School: to visit the laboratory and have a seminar.

10 October 1993

10 divers from the Underwater Centre: to participate in an underwater naturalist's course and attend a seminar.

30 October 1993

Thirty students in the M.Sc. Environmental Management programme from The Centre of Urban Planning and Environmental Management, The University of Hong Kong: to tour the laboratory and have a seminar.

## OFFICIAL VISITORS

22 November 1992

Mr. Ton van der Werf, General Manager Hong Kong, KLM Royal Dutch Airlines and Mr. Peter Sterkenburg, Artist, The Netherlands: to tour the laboratory and have discussions.

17 December 1992

Sir John Swire CBE and Lady Swire: to tour the laboratory and have discussions.

22 December 1992

Mr. Y.W. Liu, Mr. P.S. Ng and Mr. W.K. Cheuk, Inspectors of Students, Education Department, The Hong Kong Government: to have discussions on educational developments for the laboratory.

16 January 1993

Mr. R.E. Moore, Director, Jardine Matheson Holdings Ltd., Bermuda: to have discussions on an academic link with the Bermuda Biological Station for Research Inc., Bermuda.



Ms. Kate Harper with her inflatable.

19 February 1993

Professor D. Cheng, School of Biological and Biomedical Sciences, University of Technology, Sydney, Australia: to tour the laboratory.

27 March 1993

Mr. Johnathan Swire: to tour the laboratory.

9-10 April 1993

'The Birdbrains', The University of Hong Kong's team for the WWFHK Big Bird Race: to stay at The Residence and birdwatch.

8 May 1993

Mr. Canice Mak, Deputy Secretary, Lands & Works Branch of the Hong Kong Government and Mr. C.C. Lay, Mr. S.P. Lau and Mr. M.K. Cheung, Agriculture & Fisheries Department: to discuss the proposed Marine Reserve.

12 May 1993

Ms. S. Liao, Hong Kong Institution of Engineers: to tour the laboratory and have discussions.

24 September 1993

Mr. T. Kosuge, University of the Ryukyus, Japan: to tour the laboratory.

30 September - 3 October 1993 and

9 - 11 October 1993

Dr. K.E. Collins, Department of Oceanography, The University of Southampton, U.K.: to tour the laboratory and have discussions on Artificial Reef research.

2 - 3 October 1993

Mr. Y. Takada, Kyushu University, Japan, and Ms. I. Yosho, National Research Institute of Fisheries, Japan: to tour the laboratory.

9 October 1993

Sir Adrian Swire, Chairman, John Swire & Sons Ltd., and Mr. N. Rhodes, Group Public Affairs General Manager, John Swire & Sons Ltd.: to tour the laboratory and make a video documentary.



Katherine Lam and Leung Kim Fung with Mr. R.E. Moore in Bermuda.



## RESEARCH VISITORS

From 13-26 November 1992

Professor Jiang Jinxiang, Third Institute of Oceanography, State Oceanic Administration, Xiamen, China. To undertake research on coastal ecology, with Dr. G.A. Williams.

From 22 December to 10 January 1993

Professor Wu Baoling and Mr. Qiu Jianwen, First Institute of Oceanography, State Oceanic Administration, Qingdao, China. To undertake research on polychaetes from Hong Kong's southern waters, with Dr. R.G. Ong Che.

From 13-15 January 1993

Dr. I.G. Gleadall, Tohoku University, Japan. To undertake research on Hong Kong Octopus.

From 3 February to 6 March 1993 and  
from 3 June to 31 July, 1993

Dr. D. Morritt, University Marine Biological Station, Millport, U.K.. To undertake research on the behaviour and physiology of the limpet, *Cellana grata*, with Dr. G.A. Williams.

From 13-21 March 1993

Prof. J.C. Britton, Department of Biology, Texas Christian University, Fort Worth, U.S.A: to complete writing of a joint research paper with Prof. B. Morton.

From 30 March to 2 April 1993

Dr. R. Seed and Dr. C. Richardson, School of Ocean Sciences, University of Wales, Bangor, U.K.. To visit the laboratory and discuss the final production of research papers with Dr. S.Y. Lee and Dr. J.H. Liu under the Tripartite Link with the University of Wales, Bangor and the South China Sea Institute of Oceanology, Guangzhou, China. Also to attend *The Second International Conference on the Marine Biology of the South China Sea, Guangzhou, China*, from 3-8 April 1993.

From 15 April to 6 May 1993

Dr. J.D. Taylor, Department of Zoology, The Natural History Museum, London, U.K. To undertake research on gastropod feeding, with Prof. B. Morton.

From 23 May to June 13, 1993

Prof. M.H. Depledge, Dr. C.G. Warman, Mr. A. Agaard and Mr. B. Styris have, Institute of Biology, Odense University, Odense, Denmark. To undertake research on the physiological and behavioural responses of selected sub-tropical macro-invertebrates to pollution.



Researchers at work on the shores at Cape d'Aguilar.



Limpet body temperature being monitored on the shores at Cape d'Aguilar.

From 2-30 June, 1993

Dr. M.S. Davies, The Marine Biological Association of the United Kingdom, Plymouth, U.K.. To undertake research on the role of mucus in the biology of intertidal gastropods and in influencing algal colonisation and succession, with Dr. G.A. Williams.

From 2 August to 5 September 1993

Dr. G. Walker, School of Ocean Sciences, University of Wales, Bangor, U.K. To undertake research on the biology of the nemertean worm, *Nemertopsis quadripunctatus* associated with the barnacle, *Capitulum mitella*, under the Tripartite Link with the University of Wales, Bangor and the South China Sea Institute of Oceanology, Guangzhou, and to visit Guangzhou to give seminars.

From 21 September to 4 October 1993

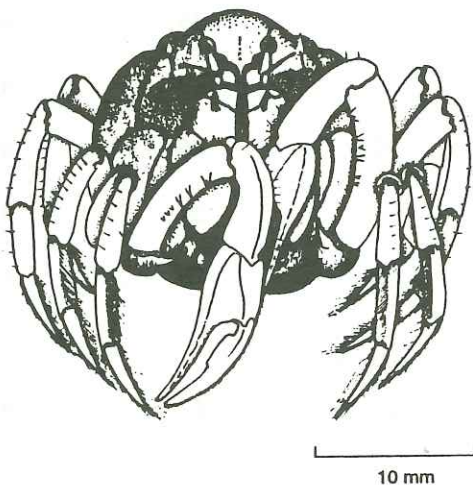
Mr. Qiu Jianwen, First Institute of Oceanography, State Oceanic Administration, Qingdao, China. To undertake research on polychaete species composition and distribution in Deep Bay, with Dr. S.Y. Lee.

From 12-18 October 1993

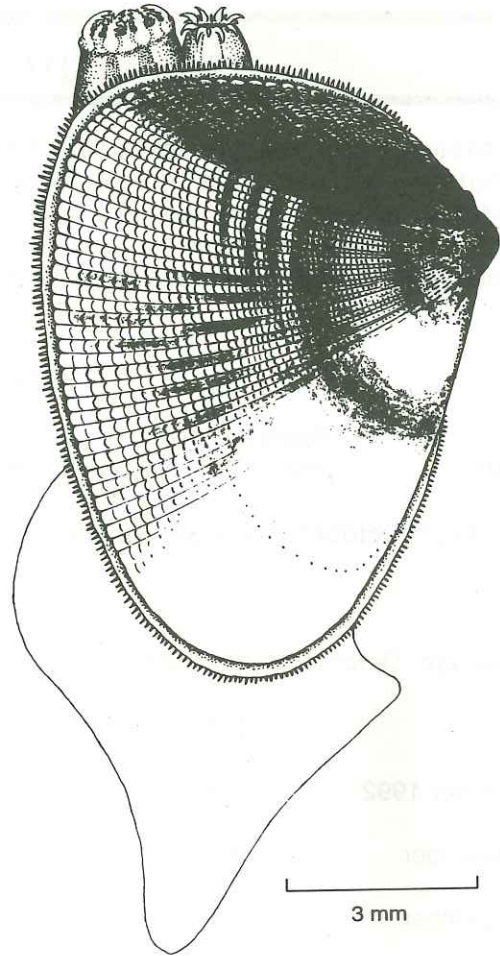
Mr. Lu Lin, Third Institute of Oceanography, State Oceanic Administration, Xiamen, China. To undertake research with Dr. J.H. Liu on rocky shore ecology.

From 15 October to 1 November 1993

Prof. Tang Chong Ti, Parasitology Research Laboratory, Xiamen University, Xiamen, China. To undertake research on the parasites of intertidal snails, with Dr. G.A. Williams and Mr. Y.M. Mak.



The Blue soldier crab, *Mictyris longicarpus* from Starfish Bay.



The Surf clam, *Donax semigranosus* from the beach at Shek O.

## THE SHORT-TERM VISITORSHIP SCHEME

The laboratory's Short-Term Visitorship Scheme is financed through profits made from the sale of souvenir items and marine biological books published by Hong Kong University Press.

Funded by a loan of HK\$81,695 from The University of Hong Kong in 1990, the sale of souvenir items up until 30 September 1993 amounted to HK\$68,080; proceeds from the sale of books was HK\$25,400. This year, the scheme has funded 8 short-term visitors from China to the laboratory.

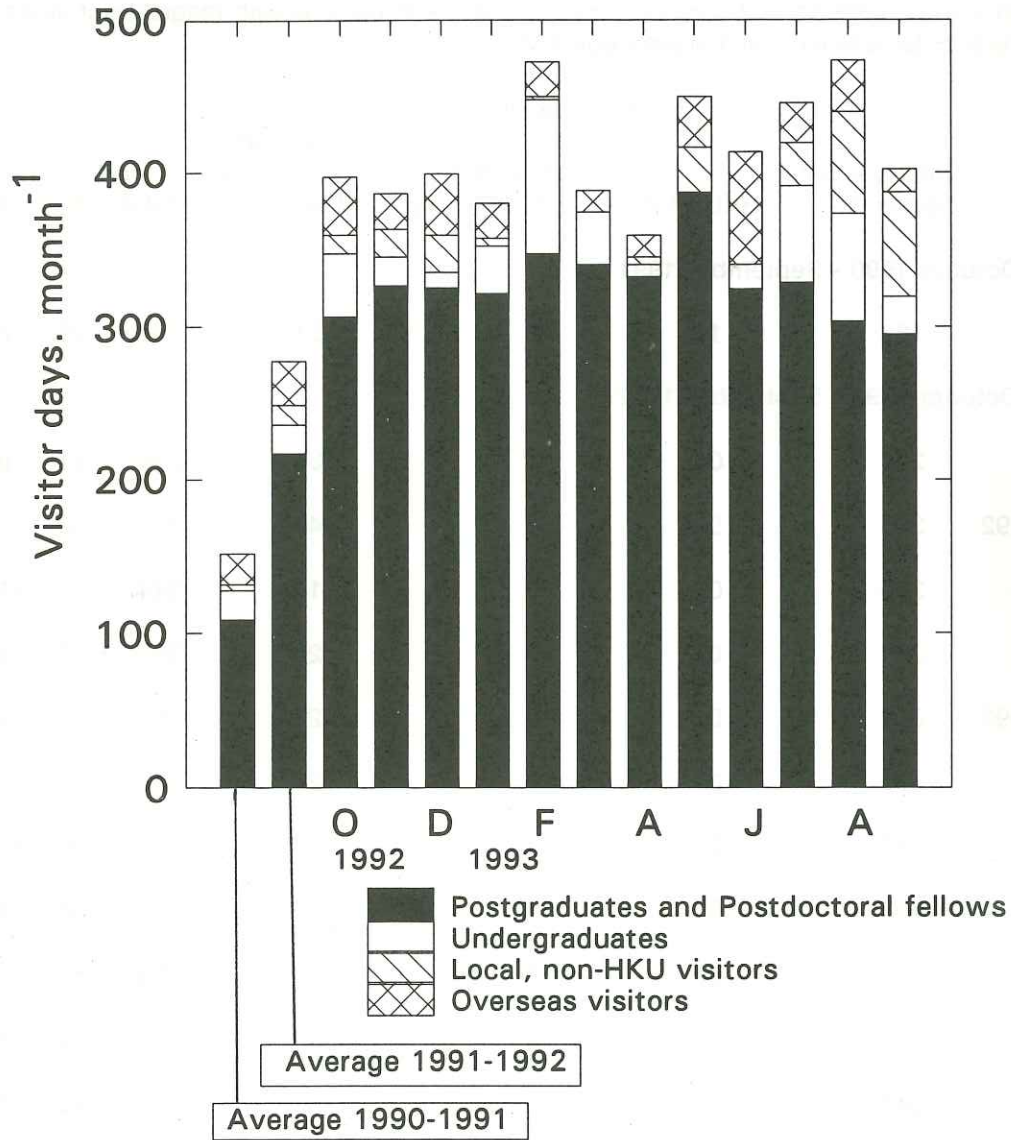
## VISITOR STATISTICS

In addition to providing research facilities for local academics, students and visitors, the laboratory also entertains educational visits by public groups and welcomes volunteers to help with beach clean ups and other activities. The laboratory also provides a conference venue for University personnel and organizations with an interest in marine biology. Local diving clubs also make use of the laboratory's diving facilities and occasionally help staff with their research projects.

Date	Visitor days.month <sup>-1</sup>				
	Postgraduates and postdoctoral fellows	Undergraduates	Local, non H.K.U., visitors	Overseas visitors	Total
<b>Average: October 1990 - September 1991</b>					
	109	19	4	20	153
<b>Average: October 1991 - September 1992</b>					
	217	19	13	29	279
October 1992	306	41	12	38	397
November	326	19	18	23	386
December	325	10	24	40	399
January 1993	321	31	5	23	380
February	347	100	2	23	472
March	340	34	0	14	388
April	332	8	5	14	359
May	387	0	29	33	449
June	324	16	0	73	413
July	328	63	28	26	445
August	303	70	66	34	473
September	295	24	68	15	402
<b>Average: October 1992 - September 1993</b>					
	328	35	21	27	414

At present there is 1 postdoctoral fellow and 23 postgraduate students undertaking research at the Laboratory; of these 10 reside at The Residence.

## The Laboratory: Occupancy Rates



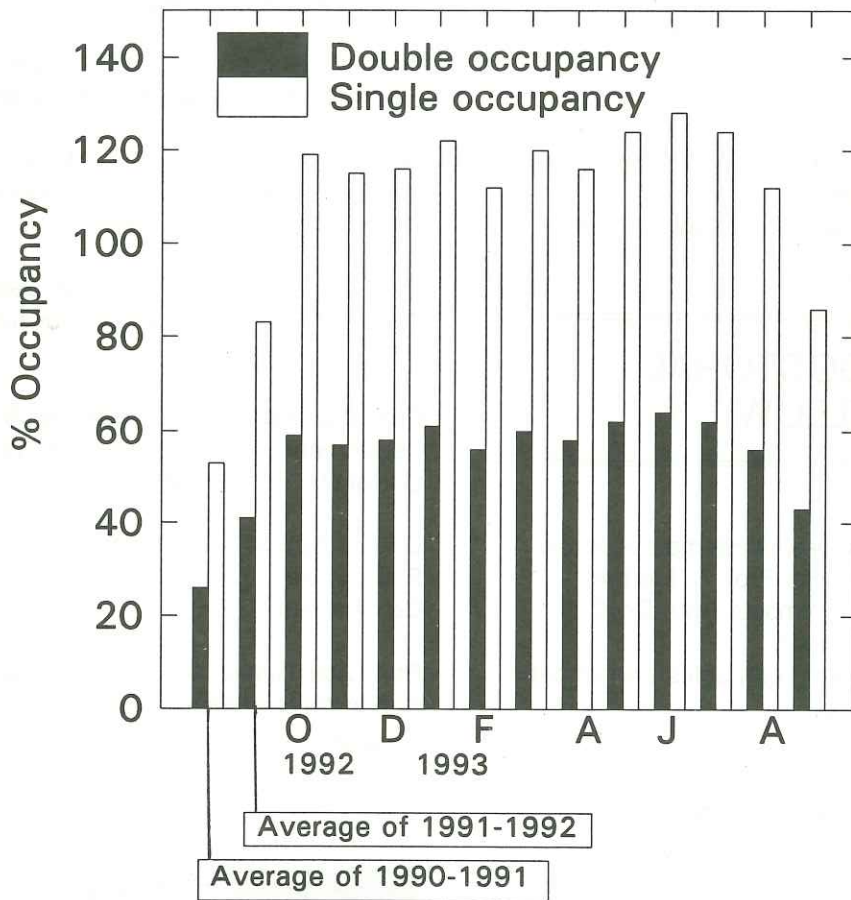
## THE RESIDENCE STATISTICS

Over the past year, The Residence has well served its purpose of providing good residential accommodation for scientists and students to stay and work at the laboratory. The Residence, comprising ten bedrooms, of which four have *en suite* shower and toilets, is a self-contained facility. With its own lounge, cooking and washing facilities and a sun balcony with magnificent views, The Residence is popular with local and visiting scientists.

Date	Residence nights.month <sup>-1</sup>				Total	%	%
	Post-graduate Students	HKU Staff	Local, non-H.K.U., visitors	Overseas researchers/Visitors			
<b>Average: October 1990 - September 1991</b>							
	128	1	7	21	158	26	(53)
<b>Average: October 1991 - September 1992</b>							
	214	0	1	34	248	41	(83)
October 1992	313	0	0	43	356	59	(119)
November	330	0	0	14	344	57	(115)
December	330	0	0	20	350	58	(116)
January 1993	341	0	0	23	364	61	(122)
February	308	0	0	26	334	56	(112)
March	341	0	0	17	358	60	(120)
April	330	0	0	16	346	58	(116)
May	341	0	0	33	374	62	(124)
June	283	0	0	99	382	64	(128)
July	341	0	0	31	372	62	(124)
August	279	0	0	57	336	56	(112)
September	240	0	0	15	255	43	(86)
<b>Average: October 1992 - November 1993</b>							
	315	0	0	32	348	58	(116)

Note: The % figures represent the proportion of the total available bed spaces, i.e., 20 bed spaces x 30 nights.month<sup>-1</sup> = a total of 600 residence nights. Since, however, most students and visitors require a room to themselves, occupancy rates based on 10 bed spaces x 30 nights.month<sup>-1</sup> = a total of 300 residence nights are also given in brackets.

## The Residence: Occupancy Rates



## ACADEMIC ACTIVITIES

### STAFF

Professor B. Morton

- (i) Predatory gastropods of Cape d'Aguilar shores (with Dr. J.D. Taylor).
- (ii) Predation by *Apollon natator* (with Dr. J.D. Taylor).
- (iii) The significance of carrion in the marine environment.

Dr. S.Y. Lee

- (i) Ecology of Mai Po Marshes Nature Reserve.
- (ii) Predation by shore crabs with (Dr. R. Seed).

Dr. G.A. Williams

- (i) Algae-herbivore interactions on the Cape d'Aguilar shores.
- (ii) The behaviour and physiology of high shore limpets.

### POST-DOCTORAL FELLOW

Dr. Liu Jianhua

- (i) Thermal tolerances of intertidal mussels and barnacles (with Prof. B. Morton).
- (ii) Growth bands of limpets (with Dr. C.A. Richardson, Bangor).
- (iii) Competition among barnacles and limpets on rocky shores.

### RESEARCH ASSOCIATES

The following persons have been appointed as Research Associates at The Swire Marine Laboratory by the Faculty of Science of The University of Hong Kong.

Dr. M.W.M. Yipp M.Phil., Ph.D (H.K.U.), Senior Lecturer, Department of Applied Science and Chemical Technology, Hong Kong Polytechnic.

Dr. S.F. Leung Ph.D (H.K.U.), Fisheries Officer, Agriculture and Fisheries Department, The Hong Kong Government.

Prof. N.Y.S. Woo Ph.D (H.K.U.), Department of Biology, The Chinese University of Hong Kong.

Dr. B.W. Darvell Ph.D (Birmingham), Dental Materials Science Unit, Prince Philip Dental Hospital, The University of Hong Kong.

Dr. R.Y.H. Cheung Ph.D (Manchester), Senior Lecturer, Department of Applied Science, City Polytechnic of Hong Kong.

Prof. R. Cowan Ph.D (New South Wales), Head, Department of Statistics, The University of Hong Kong.

Dr. S.C. Cheung, Ph.D (H.K.U.), Lecturer, Department of Applied Science, City Polytechnic of Hong Kong.

Dr. E.M. Harper Ph.D (O.U.), Department of Earth Sciences, University of Cambridge, U.K.

Dr. R.G. Ong Che Ph.D (H.K.U.), Lecturer, Applied Science, the Vocational Training Council Technical College.

Dr. J.D. Taylor Ph.D (London), Department of Zoology, The Natural History Museum, London, U.K.

Prof. J.C. Britton Ph.D (George Washington), Department of Biology, Texas Christian University, Forth Worth, U.S.A.

Dr. M.J. Broom Ph.D (Malaysia), Environmental Protection Department, Hong Kong Government.

Prof. Zou Renlin, Vice Director, South China Sea Institute of Oceanology, Academia Sinica, Guangzhou, China.



Members of The Country Parks Board during their visit to the Cape d'Aguilar proposed Marine Reserve on 12 December 1992.

## HIGHER DEGREE STUDENTS

Ms. Deborah M.W. Cha (Ph.D.)  
The ecology, population dynamics and growth of *Tapes philippinarum* at Starfish Bay.

Ms. Carmen A. Anderson (Ph.D.)  
The productivity of the Mai Po mangrove.

Mr. Llewellyn K. Young (Ph.D.)  
Habitat use by Chinese Pond Herons at the Mai Po Marshes Nature Reserve.

Mr. Albert W.Y. Leung (M.Phil.)  
Fish community structure in Lobster Bay, Cape d'Aguilar.

Ms. Winnie P.W. Kwok (Ph.D.)  
Interactions between mangroves and grapsid crabs at the Mai Po Marshes Nature Reserve.

Ms. Alice L.C. Chan (Ph.D.)  
The zooplankton of Tai Tam Bay.

Mr. Sven Kaehler (Ph.D.)  
The ecology of epilithic crustose algae on Hong Kong shores.

Miss Kate D. Harper (Ph.D.)  
The ecology of *Acanthopleura japonica* on Hong Kong's exposed rocky shores.

Mr. Sanjay Nagarkar (Ph.D.)  
The ecology of intertidal, epilithic, cyanobacteria.

Mr. Peter R.J. Collinson (Ph.D.)  
The ecology, growth and reproduction of Hong Kong corals.

Ms. Susan Hawkins (Ph.D.)  
The productivity of Lobster Bay.

Mr. Y.M. Mak (Ph.D.)  
The ecology of rocky shore littorines.

Mr. Robin Kennish (Ph.D.)  
Crab herbivory on the shores of Cape d'Aguilar.

Ms. Qin Huang (Ph.D.)  
Shell and isoenzyme polymorphism of the Neritidae.

Mr. Steve McChesney (M.Phil.)  
The intertidal mudflat community at the Mai Po Marshes Nature Reserve.

Mr. Alan W.L. Chan (M.Phil.)  
Retention and depuration of heavy metals by commercial bivalves.

Miss Phoebe W.C. Sze (M.Phil.)  
Bioenergetics and accumulation of copper in the mussels *Perna viridis* and *Septifer virgatus*.

Miss Josephine K.Y. Yang (M.Phil.)  
Ecology of the mudskipper *Boleophthalmus pectinirostris* at the Mai Po Marshes Nature Reserve.

Mr. Vincent C.S. Lai (M.Phil.)  
Feeding by species of the crab *Thalamita*.



"Sor jiu": the laboratory's dog.

## ASSOCIATED RESEARCH PROJECT

Ms. Kristine K.H. Chu, an M.Phil. student in the Department of Botany, is working under the supervision of Dr. Y.B. Ho on the sewage treatment plant. The water of the final effluent is being used to grow the water lettuce (*Pistia stratiotes*). Effluent quality and plant growth is monitored regularly and periodically the harvested plants are removed and used in a second experiment. Here, the harvested water lettuce is dried and added, in different quantities, to soil as an alternative fertilizer and used to grow vegetables. The growth of these is monitored with the long term objective of seeing if sewage effluent can, in this way, be used as a substitute for artificial fertilizer.



## NEW ARRIVALS

Dr. Yvonne Sadovy. With effect from 24 September, Dr. Sadovy has been appointed a Lecturer in the Department of Zoology, The University of Hong Kong. She will, however, also be on the staff of The Swire Marine Laboratory and will co-ordinate the teaching of fish ecology and fisheries science and undertake research in the same subject areas.

Mr. Albert W.Y. Leung. To read for a Ph.D. degree under the supervision of Prof. B. Morton on the fisheries enhancement potential of the Hoi Ha Wan Artificial Reef.

Ms. Katherine K.Y. Lam. To read for a Ph.D. degree under the supervision of Prof. B. Morton on the colonization of the Hoi Ha Wan Artificial Reef.

Mr. K.F. Leung. To read for a Ph.D. degree under the supervision of Prof. B. Morton on the leaching of trace metals from the Hoi Ha Wan Artificial Reef.

Ms. Pauline Y.F. Tong. To read for a M.Phil. degree under the supervision of Dr. S.Y. Lee on herbivory in local mangroves.

Ms. Helen S.M. Chiu. To read for a Ph.D. degree under the co-supervision of Prof. B. Morton and Dr. I.J. Hodgkiss (Department of Botany) on the energetics of the rock oyster *Saccostrea cucullata*.

Mr. Jimmy C.W. Chu was appointed a Technician in the laboratory from 1 September 1993 and works under the direction of Prof. B. Morton.

Mr. Cheung Ming was appointed Driver/Boatman in the laboratory from 6 October 1993.

## UNDERGRADUATES

During 1992-1993, Ms. K.K.Y. Lam successfully conducted a final year undergraduate project on the "Escape responses of gastropods" under the supervision of Dr. G.A. Williams.

Ms. Ruby B.Y. Lam also completed a final year undergraduate project on "Shell utilization by hermit crabs" in Lobster Bay under the supervision of Dr. S.Y. Lee.

Mr. Mark Kendall (University College, University of London) conducted his final year project on "The comparative grazing effects of *Monodonta labio* and *Nerita albicilla*", under the supervision of Dr. G.A. Williams.

During 1993-1994, Ms. Daisy S.C. Wong will carry out a final year undergraduate project on the "Behavioural responses of intertidal gastropods" and Mr. Leonard Wong will carry out a final year undergraduate project on "Human impacts on rocky shore communities" under the supervision of Dr. G.A. Williams.

Ms. Queenie Y.C. Ng will carry out a final year undergraduate project on "A comparison of methods to study mangrove leaf decomposition". Ms. Jackie Yip will work on "Mangrove leaf decomposition along a salinity gradient" for her final year undergraduate project. Both students will be supervised by Dr. S.Y. Lee.



The result of a beach clean-up by Biology students from The University of Hong Kong.

## SUMMER STUDENTS

The following two students undertook on-job training at the laboratory during the summer.

Mr. Ma Che Kong and Mr. Lam Chung Nam Department of Applied Biology and Chemical Technology, Hong Kong Polytechnic.

## STAFF TRAINING

Mr. Patrick P.C. Chan  
During 1992-1993 Mr. Chan undertook air conditioner and car repairing courses organized by the Vocational Training Council.

## STAFF ACTIVITIES

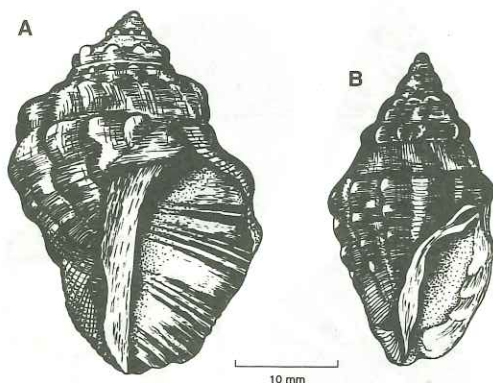
From 25 January to 3 February 1993, Dr. G.A. Williams and Mr. Sven Kaehler visited the Amakusa Marine Laboratory of the University of Kyushu, Japan, where they discussed research interests and Dr. Williams gave a seminar entitled "Seasonality on Hong Kong rocky shores". They also visited Dr. Jiro Tanaka at the National Science Museum, Tokyo, who helped Mr. Kaehler identify species of encrusting algae from Hong Kong.

From 14-20 February 1993, Dr. G.A. Williams co-ordinated and co-taught a course on Quantitative Underwater Techniques as part of the Dive Training for Marine Scientists Programme of WWF, at the Institute of Oceanography, Nhatrang, Vietnam.

From 18-28 July 1993, Professor B. Morton undertook research at the Santa Barbara Museum of Natural History, California, U.S.A. and from the 28 July - 3 August at Texas Christian University, Forth Worth, Texas, U.S.A.

From 10-16 September 1993, as in previous years, Dr. G.A. Williams was part of a University of Bristol expedition to southwest Ireland where he continued research on limpet behaviour with Dr. C. Little.

On 6 October 1993, Professor B. Morton conducted a teachers seminar on "*The Healthy Oceans*" education pack produced by WWF Hong Kong.



Two predatory gastropods from the shores at Cape d'Aguiar. A, *Thais clavigera*; B, *Morula musiva*.

**STAFF COMMUNITY  
SERVICE**

Prof. B. Morton  
Member: Executive Council, Executive Committee and Trustee of WWF Hong Kong.

Chairman: WWF Hong Kong Education Committee.

Chairman: WWF Hong Kong, Hoi Ha Wan Committee.

Member: WWF Hong Kong, Island House Management and Development Committee.

Member: WWF Hong Kong, Projects Committee.

Chairman: The Dumping at Sea Act 1974 Appeal Board. The Hong Kong Government.

Member: Water Pollution Control Ordinance (Cap 358) Appeal Board. The Hong Kong Government.

Member: Endangered Species Advisory Committee. The Hong Kong Government.

Member: The Country Parks Board. The Hong Kong Government.

Member: Planning and Management Committee, The Country Parks Board.

Chairman: The Marine Biological Association of Hong Kong.

Member: Mollusc Specialist Group, Species Survival Commission of IUCN.

Member: United Nations Environment Programme: United Kingdom Committee.

Member: Academic Commission for the First Term of the Marine Biology Research Station at Daya Bay, South China Sea Institute of Oceanology, Academia Sinica, China.

Editor: *Asian Marine Biology*.

Regional Editor: *Marine Pollution Bulletin*.

Editorial Board: *American Malacological Bulletin*.

Editorial Board: *Tropic Oceanology*.

Editorial Board: *Raffles Bulletin of Zoology, Singapore*.

Editorial Board: *Malacological Review*.

Dr. S.Y. Lee  
Member: the Hong Kong Government Working Group on Marine Parks and Marine Reserves.

Member: WWF Hong Kong: Mai Po Management and Development Committee.

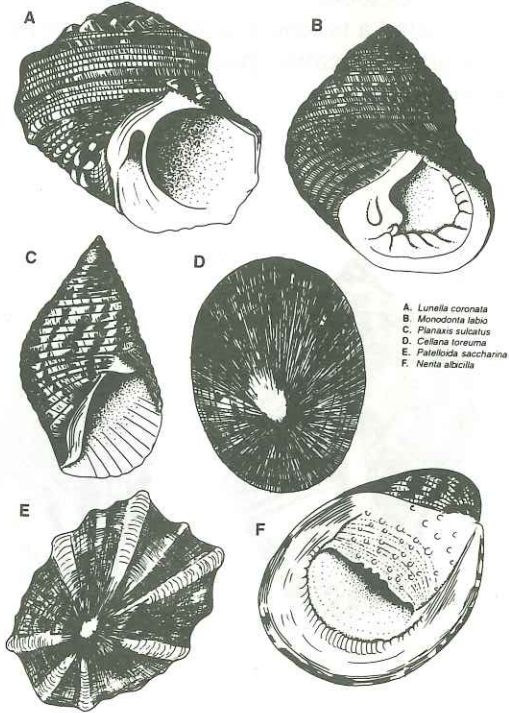
Membership Secretary: The Marine Biological Association of Hong Kong.

Member: WWF Hong Kong, Hoi Ha Wan Committee.

Member: Standing Committee on Mangrove Ecological Research, Ecological Society of China.

Dr. G.A. Williams  
Member: WWF Hong Kong: Hoi Ha Wan Committee.

Member: The Council of The Hong Kong Marine Conservation Society.



Intertidal gastropods from the shores at Cape d'Aguiar.

## CONFERENCES AND WORKSHOPS

The following scientists and students from the laboratory attended *The Second International Conference on the Marine Biology of The South China Sea*, convened in Guangzhou, China, from the 3-7 April 1993, and presented either talks or posters. Prof. B. Morton was Chairman of the Organizing Committee and a member of the Scientific Advisory Committee.

The following papers were presented orally:

Professor B. Morton. 'Perturbated soft intertidal and subtidal marine communities in Hong Kong: the significance of scavenging gastropods'.

Dr. S.Y. Lee. 'Macrobenthic community structure of a polluted tidal river in Deep Bay, Hong Kong'.

Dr. S.Y. Lee (with Dr. R. Seed). 'Mechanical and behavioural aspects of predation in two contrasting species of predatory crabs, *Eriphia laevimana smithii* (Xanthidae) and *Thalassidroma danae* (Portunidae).

Dr. J.H. Liu. 'The effects of physical factors and grazing by limpets on the colonization, growth and composition of intertidal algae on a rocky shore at Cape d'Aguilar, Hong Kong'.

Dr. S.G. Cheung (Research Associate). 'Effects of tidal height on the desiccation tolerance, body condition and population structure of the green-lipped mussel *Perna viridis*'.

Dr. S.F. Leung (Research Associate). 'The species composition and distribution of penaeid prawns in the southern waters of Hong Kong'.

Mr. Peter R.J. Collinson. 'The ecology of sub-tropical coral communities in Hong Kong: research in progress'.

Ms. Alice L.C. Chan. 'Hydrology and the distribution of Pteropoda in the southern waters of Hong Kong'.

The following paper was presented as a poster:

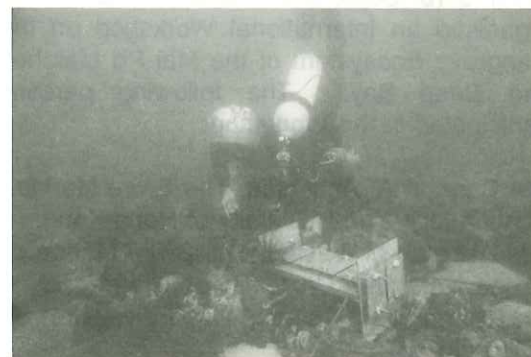
Dr. R.G. Ong Che (Research Associate). 'The macrobenthic community of an intertidal sand flat in Hong Kong'.



Research students at work in the laboratory



Open Learning Institute students conducting field work on the shores at Lobster Bay



A student examines experimental settlement panels on the sea bed at Hoi Ha

From 14-16 September 1993, Professor B. Morton attended the Centenary Symposium of The Malacological Society of London on *The Origin and Evolutionary Relationships of the Mollusca* and gave a Keynote Lecture entitled "The evolutionary history of the Bivalvia".

On 1 May 1993, Mr. Sven Kaehler and Dr. G.A. Williams held a one day mini-workshop for The Marine Biological Association of Hong Kong on the "Taxonomy and identification of encrusting algae".

From 1-3 September 1993, staff and students from the laboratory attended *The Asian-Pacific Symposium on Mangrove Ecosystems* at The Hong Kong University of Science and Technology and presented results of their research. Dr. S.Y. Lee was Scientific Programme Co-ordinator of the Organizing Committee for the Symposium.

The following papers were presented orally:

Dr. S.Y. Lee: Mangrove outwelling: a review.

Dr. S.Y. Lee (with Dr. K.D. Hyde): The ecology and role of mangrove fungi in nutrient cycling: what gaps occur in our knowledge?

Miss Winnie P.W. Kwok: Effect of litter type on growth of two mangrove crabs, *Chiromanthes bidens* and *Parasesarma affinis*.

The following papers were presented as posters:

Miss Carmen A. Anderson: Detritus production and defoliation of *Avicennia marina* in Hong Kong.

Mr. Steve McChesney: Mai Po mudflat invertebrate assemblage: changes through one year.

From 5-18 September 1993, Dr. S.Y. Lee organised an International Workshop on the Mangrove Ecosystem of the Mai Po Marshes and Deep Bay. The following persons participated in the Workshop:

Ms. Carmen A. Anderson, The Swire Marine Laboratory, The University of Hong Kong.  
Ms. Deborah M.W. Cha, The Swire Marine Laboratory, The University of Hong Kong.  
Dr. Richard Y.H. Cheung, City Polytechnic of Hong Kong.  
Dr. N.C. Duke, Smithsonian Tropical Research Institute, Australia.  
Mr. H.Q. Fan, Guangxi Mangrove Research Centre, Guangxi, China.  
Mr. J. Fellowes, Department of Zoology, The University of Hong Kong.  
Mr. W.H. Ho, Department of Zoology, The University of Hong Kong.  
Dr. Y.B. Ho, Department of Botany, The University of Hong Kong.  
Prof. J.X. Jiang, Third Institute of Oceanology, Xiamen, China.  
Mr. K. Kathiresan, Centre for Advanced Studies in Marine Biology, Annamali University, India.  
Mr. A. Khan, University of Karachi, Karachi, Pakistan.

Ms. Winnie P.W. Kwok, The Swire Marine Laboratory, The University of Hong Kong.  
Dr. S.Y. Lee, The Swire Marine Laboratory, The University of Hong Kong.  
Dr. S.F. Leung, Agriculture & Fisheries Department, Hong Kong Government.  
Ms. V. Leung, Department of Forestry, Macau.  
Mr. M.S. Li, Guangdong Environmental Monitoring Centre, Guangdong, China.  
Mr. Steve McChesney, The Swire Marine Laboratory, The University of Hong Kong.  
Mr. R. Sadaba, City Polytechnic of Hong Kong.  
Mr. D.J. Vance, CSIRO, Cleveland, Australia.  
Ms. Josephine K.Y. Yang, The Swire Marine Laboratory, The University of Hong Kong.  
Mr. L.K. Young, WWF Hong Kong.



The seagrass *Zostera nana* at Tung chung, Lantau Island.

From 14-16 September 1993 Mr. Y.M. Mak attended the Centenary Symposium of the Malacological Society of London on *The Origin and Evolutionary Relationships of the Mollusca*.

On the 17 September 1993, Dr. G.A. Williams attended a one day meeting on "The Evolution of the Patellidae" in London.

From 18-25 September 1993, Dr. G.A. Williams and Mr. Y.M. Ming attended the *Fourth International Symposium on Littorinid Biology*, Roscoff, France where Dr. Williams presented two papers on the "Maintenance of zonation patterns in *Littorina obtusata* and *L. mariae*" and "A comparison of *Littorina obtusata* and *L. palliata*" with Dr. R. Lewis (Swansea University, U.K.). Mr. Y.M. Mak presented a paper on "The ecology of Hong Kong littorinids".

## STUDENT AND STAFF SUCCESS

Mr. K.T. Chiu obtained his Ph.D. for a thesis entitled "The pollution of the Mai Po Marshes Nature Reserve" and has been appointed as an Assistant Environmental Protection Officer with the Environmental Protection Department of the Hong Kong Government.

Dr. J.H. Liu has been appointed, with effect from 1 September 1993, as the Rayson Huang Post-doctoral Fellow at Robert Black College, The University of Hong Kong. Dr. Liu will continue with her research on intertidal ecology at The Swire Marine Laboratory.

Ms. M.W. Cha has been awarded a Post-doctoral research fellowship by the Croucher Foundation to undertake research on intertidal ecology at the Culterty Field Station of The University of Aberdeen, U.K.

## AWARDS

Professor B. Morton has been elected an Honorary Member of The Malacological Society of London, in its Centennial year.

Professor B. Morton attended the Opening Ceremony of the VII Pacific Science Intercongress in Okinawa, Japan, on 27 June 1993, where he was made an Honorary Life Fellow of The Pacific Science Association.

## TRIPARTITE EXCHANGE SCHEME

Established in 1992 and supported by The Swire Group and British Council, the exchange scheme forges academic links between The Swire Marine Laboratory, The University of Hong Kong; the School of Ocean Sciences, University of Wales, Bangor, U.K. and the South China Sea Institute of Oceanology, Academia Sinica, Guangzhou, China.

The Agreement signed on the 24 February 1992 by the Vice-Chancellor of The University of Hong Kong, Professor Wang Gungwu, the Principal of The University of Wales, Bangor, Professor E. Sunderland, and the Director of the South China Sea Institute of Oceanology, Guangzhou, Professor Sun Yuke, is for 3 years and facilitates exchange of staff and students.

In 1993, the following exchanges were approved:

From Hong Kong:

Mr. Vincent Lai Chi Sing: to visit Bangor for two months to undertake joint research with Dr. R. Seed on crab predation.

From Bangor, U.K.:

Dr. G. Walker: to visit Hong Kong for one month to undertake research on the nemertean parasite of the barnacle *Capitulum mitella*. Also, to visit Guangzhou and give seminars.

From Guangzhou, China:

Mr. Cai Guoxiong and Mr. Lian Jiansheng: to visit Bangor and to work with Mr. A. Beaumont and R. Seed on fish breeding and intertidal ecology, respectively. Also to visit The Swire Marine Laboratory and give seminars.

Proposals for visits under the exchange scheme for 1991 are invited and should, in the first instance, be made to the Chairmen of the Co-ordinating Committees in Hong Kong (Professor B. Morton), Bangor (Dr. R. Seed) and Guangzhou (Professor Zou Renlin).



The experimental building, built by the Faculty of Engineering, to test the effects of strong winds on steel and glass structures at Cape d'Aguilar in 1974. Its subsequent demolition allowed The Swire Marine Laboratory to be built.

## LAURENCE CAPLIN SCHOLARSHIP IN MARINE BIOLOGY

In memory of Laurence Caplin (7 November 1914 - 30 April 1991), his widow, Mrs. E. Caplin, and daughter, Mrs. J. Woodford, of England, have donated the sum of HK\$150,000 to be invested and the interest from which is to be used to bring to The Swire Marine Laboratory young people to undertake research in Marine Biology with resident staff. Applications for the scholarship are invited.

## OTHER ACTIVITIES

### BERMUDA BIOLOGICAL STATION FOR RESEARCH

The Bermuda Biological Station for Research Far Eastern Trust this year sponsored two newly graduated students from the Environmental Science Programme of The University of Hong Kong to go to Bermuda and participate in a marine course on "Tropical Invertebrate Ecology". The two students, Mr. Leung Kim Fung and Ms. Katherine Lam King Yiu, joined The Swire Marine Laboratory on their return to take up scholarships for the Artificial Reef Project.

From 3-8 August 1993, Professor B. Morton visited the students at The Bermuda Biological Station for Research and held discussions with members of staff and Directors of the Trust.

### AN ARTIFICIAL REEF AT HOI HA WAN

Hong Kong Electric Co.Ltd. and China Light and Power Co.Ltd., have donated the sum of HK\$3 million to the laboratory to build, deploy and study an Experimental Artificial Reef at Hoi Ha Wan, Hong Kong's first proposed Marine Park. The Artificial Reef will be constructed from several mixes of PFA (pulverized fuel ash) and cement, the former being a by-product of power generation from coal-burning power stations in Hong Kong. Constructed from 1000 blocks each of 0.5 x 0.5m<sup>2</sup> plus 1000, smaller, experimental blocks, made up of four different PFA and cement mixes. The aims of the reef project are:

1. To ascertain whether or not such structure can be used safely to rebuild marine habitats in Hong Kong which have been progressively destroyed by shore reclamation and pollution.
2. To determine whether or not such structures will act as either fish aggregating or breeding devices to stimulate fisheries production in Hong Kong's coastal waters.

3. To understand the processes of marine life colonization of the Artificial Reef by encrusting organisms with particular reference to corals.

That is, can corals, in particular, be encouraged to grow on the reef and thus create a new coral reef.

4. To research the leaching of trace metals from the reef blocks and their uptake by encrusting marine life, coral and fish.

The grant provides research scholarships for three Ph.D. students to be based at The Swire Marine Laboratory and to work on the project as a team for 3 years. The following students will take up the scholarships.

Mr. Albert Y.W. Leung. Formerly a Fisheries Officer with the Agriculture and Fisheries Department of the Hong Kong Government, Albert is completing an M.Phil. degree at the laboratory on the fish fauna of Lobster Bay and will supervise field work at Hoi Ha Wan and research the fish fauna of the Artificial Reef.

Ms. Katherine K.Y. Lam. A new graduate in Environmental Science from The University of Hong Kong, Katherine will research the colonization of the Artificial Reef by corals and other organisms.

Mr. K.F. Leung. A new graduate in Environmental Science from The University of Hong Kong, Kim Fung will research the leaching of trace metals from the reef blocks and their uptake and transport within the marine life of the Artificial Reef.

### SEAGRASS REHABILITATION

Dr. S.Y. Lee has been awarded the contract (HK\$200,000) for a Seagrass Rehabilitation project for *Zostera* beds to be affected by the New Airport construction work at Tung Chung, Lantau Island. The objectives of the research are to assess the stress levels experienced by the seagrass and propose measures to minimize construction impacts.

## WATER POLLUTION OF ABERDEEN HARBOUR

The Rotary Club of Hong Kong Northwest donated the sum of HK\$60,000 to the laboratory for a Community Project to study the water pollution status of Aberdeen Harbour. Three second year undergraduate students in Environmental Science undertook the research from 15 June - 14 September 1993 and gave a presentation to The Rotary Club on 5 October 1993.

The three students are:  
Miss Chan King  
Miss Yip Shuet Ming  
Miss Wu Kar Yee

A copy of their Project Report is available from The Director, The Swire Marine Laboratory.

## 'HONG KONG'S WHALE'

The skeleton of Hong Kong's whale on display at the laboratory attracts much public interest. During 1993, the head has been further protected using marine fibreglass and the whole structure repainted using paints once again provided through the generosity of Winsome Paints Ltd.. Mr. A.J. Bentham (Faculty of Dentistry) and Mr. J.W. Bradford and Mr. P.T.T. Kou (Faculty of Architecture) have, once again, assumed responsibility for undertaking these necessary repairs. The skeleton suffered no damage during the typhoons which affected Hong Kong this summer, attesting to the brilliance of the support system.

## WORLD WIDE FUND FOR NATURE HONG KONG

Staff of the laboratory sit on various committees of WWF Hong Kong to help promote local environmental awareness.

In particular, our researches provide information on and management procedures for The Mai Po Marshes Nature Reserve, the Hoi Ha Wan Site of Special Scientific Interest and educational materials produced by the Island House Conservation and Field Studies Centre.

## THE MARINE BIOLOGICAL ASSOCIATION OF HONG KONG

Founded in 1982, The Marine Biological Association of Hong Kong has some 90 members and holds regular meetings and other events, some of which are held at The Swire Marine Laboratory. The Association produces its own international journal, *Asian Marine Biology*. The Association's library is housed at The Swire Marine Laboratory.

Prof. B. Morton is Chairman of the Association and Dr. S.Y. Lee is the Membership Secretary.



During May 1993, soldiers of F Troop, 68 Squadron, the Queen's Gurkha Engineers removed 16 old concrete blocks from the shores around the laboratory.

## THE HONG KONG MARINE CONSERVATION SOCIETY

Founded in June 1991, The Hong Kong Marine Conservation Society has some 300 members and holds regular meetings and other events. It also produces a Marine Conservation Newsletter.

Dr. G.A. Williams is a member of the Council of the Society.



## CAPE D'AGUILAR AS HONG KONG'S FIRST MARINE RESERVE

The inshore sea areas around the laboratory, already designated a Site of Special Scientific Interest, have been recommended by a Country Parks Board Working Group as of sufficient importance to constitute Hong Kong's first Marine Reserve. On 8 October, the Governor of Hong Kong announced that the Executive Council had, in principle, approved the establishment of Marine Parks and Reserves. Draft legislation will go before the Legislative Council in 1994.

## HONG KONG'S 5TH UNDERWATER SHOOTOUT

The Fifth Underwater Shootout Competition took place on the 6-7 November 1993 with Mr. Peter R.C. Collinson and Ms. Susan Hawkins participating as the "Cape Crusaders" team. The coral-fringed bay of Hoi Ha in the north-eastern New Territories has been proposed as Hong Kong's first Marine Park. Sponsored by WWF Hong Kong, The Marine Biological Association of Hong Kong and The Hong Kong Marine Conservation Society, the annual shootout raises public awareness and funds to publish educational material about the bay and Hong Kong's marine life.

## OLD CONCRETE BLOCKS REMOVED

In the 1960's, the Faculty of Engineering of The University of Hong Kong had built on the site presently occupied by The Swire Marine Laboratory, a 10 storey structure of steel and glass to measure the effects of high winds on such buildings. To increase 'fetch' on the building, the engineers also destroyed the eastern cliffs of the peninsula and erected there, on the foreshore, towers with anemometers arranged up their height. When this project ended in 1985, the glass and steel building plus pylons were pulled down and removed. The site then became available for development as The Swire Marine Laboratory. Notwithstanding, the old concrete blocks of the pylons were left intact, with iron brackets atop,

like rows of rotten teeth in an already badly decayed mouth. The sea and shore area around the Marine Laboratory is proposed as Hong Kong's first Marine Reserve and it is time for us to begin rehabilitation of its shores.

At the request of the Director, Hong Kong Telecom has removed the old posts and blocks of previous telecommunication ventures from Kau Pei Chau; it was time for The University to also begin clearing up. The Commander British Forces, Major General J.P. Foley, was asked in 1992 if the British Army could destroy the 16 unsightly blocks and, following site inspections, it was agreed that the job would be tackled by the Queen's Gurkha Engineers. Initially, explosives were contemplated, but this suggestion was, gratefully, replaced by one which used the expanding foam "*Bristar*".

From the 17 May - 2 June 1993, a group of fifteen members of F Troop, 68 Squadron of the Queen's Gurkha Engineers, under the command of Lieutenant Simon Thomas, removed the 16 old concrete blocks from the Cape d'Aguilar seashore. F Troop began the work of destroying the blocks by drilling holes down them, pouring in the "*Bristar*" and waiting for it to crack the blocks. The blocks were then finally broken up using road drills and an air compressor. During their stay with us, the Gurkhas pitched a tent in The Residence car park and cooked their curries on the Barbeque. The job was completed in two weeks and during their stay, students and staff got to know the soldiers and shared their evenings and curries.

The eastern shoreline of Cape d'Aguilar looks much better now. If only the Hong Kong Government could find a solution to the rubbish!



The end of the old concrete blocks on the shores around the laboratory

## NEW BIRD-SIGHTING RECORDS FOR HONG KONG

Professor B. Morton and Mr. Steve McChesney have compiled a checklist of *Birds recorded from the Cape d'Aguilar proposed Marine Reserve*. Copies are available from The Director, The Swire Marine Laboratory.

During Typhoons Becky and Dot in September, members of the Hong Kong Birdwatching Society camped at The Swire Marine Laboratory and watched for the arrival of normally oceanic birds forced close inshore.

Large numbers of Bridled terns, *Sterna anaethetus* (over 600 in one day), were recorded on both occasions, as well as several hundred Aleutian terns, *S. aleutica*, and Common terns, *S. hirundo*. One Sooty tern, *S. fuscata*, during Typhoon Dot, was the first record for Hong Kong.

Equally interesting, but occurring in smaller numbers, were several species of petrels and shearwaters. Streaked shearwaters, *Calonectris leucomelas*, were seen and probable Bulwer's petrel, *Bulweria bulweri*, and Swinhoe's storm petrels, *Oceanodroma monorhis*, although distant views in driving rain prevented confirmed identifications. A 'medium-sized' auk provided tantalising views, but also could not be identified. It was not, however, an Ancient auk, *Synthliboramphus antiquus*, the only auk hitherto recorded from southern China.

Associated with the term flocks were kleptoparasitic skuas, with Long-tailed, *Stercorarius longicaudus*, Pomarine, *S. pomarinus*, and Arctic, *S. parasticus*, all being recorded, the latter being a new record for Hong Kong.

Other birds driven inshore were hundreds of the ocean-wandering wader, the Red-necked Phalarope, *Phalaropus lobatus*, and several flocks of egrets.

## CORAL SPAWNING

From the 2 to 11 June 1993, spawning of the staghorn coral *Acropora humilis* was observed and recorded by Mr. Peter R.J. Collinson and volunteer helpers at The Swire Marine Laboratory. Coral colonies spawned over a

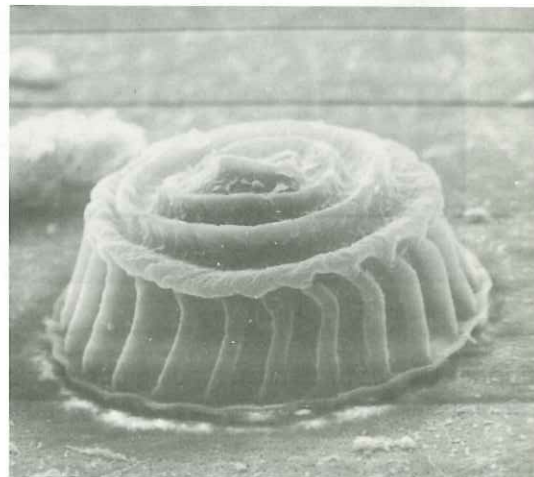
number of nights, with the greatest numbers of gametes released on the 8 June from 2100 to 2120 hr. Fertilization experiments were conducted to test self and cross fertilization rates amongst colonies. This is the first time a coral has been seen to spawn and the first time any experimental work has been conducted to effect fertilization and laval rearing in Hong Kong.



Mr. Sven Kaehler, Mr. Peter Collinson and Dr. Liu Jianhua collecting coral spawn on the night of the 8 June 1993.

## LITTORINA BREEDING

Studies on the breeding and larval rearing of different species of littorinid (winkles) have been undertaken at the laboratory this year by Mr. Y.M. Mak. These species lay eggs which vary greatly in morphology and in the case of *Nodilittorina* spp. never exceed 205 $\mu$ . Veligers hatch from the eggs within two days after spawning and swim in the water column. After 46 days development in the plankton the veligers of *Nodilittorina vidua* settle onto the substratum and become juvenile snails. This is only the second time that this process has been described and is another first for The Swire Marine Laboratory.



A scanning electronmicrograph of the egg capsule of *Nodilittorina vidua*.

## HOW CAN I UNDERTAKE RESEARCH AT THE SWIRE MARINE LABORATORY?

### FUNDING OPPORTUNITIES<sup>+</sup>

- A. If you have a good honours degree from a recognized tertiary institution, you will be eligible for award of a Scholarship by The University of Hong Kong which will allow you to undertake research for either an M.Phil or a Ph.D degree at The Swire Marine Laboratory. Application forms are available from The Registrar, The University of Hong Kong, Hong Kong.
- B. Overseas students and scientists can apply to the laboratory for award of a Short-Term Visitorship which offers free residence at the laboratory and a modest *per diem* allowance. Such visits are normally for less than one month.
- C. Postgraduate students who are members of The Marine Biological Association of Hong Kong can apply for award of a research grant that would help them either undertake research at the laboratory or attend local and overseas conferences.\*
- D. The Director can, at his discretion, make a single annual award from an "Intertidal Trust Fund" to a post-doctoral overseas applicant who writes with details of a research project that would enhance understanding of Hong Kong's intertidal ecology by using the facilities of The Swire Marine Laboratory.
- E. Established in 1992, the Laurence Caplin Scholarship in Marine Biology, offers a grant which allows young overseas scientists to undertake research at The Swire Marine Laboratory for periods of up to 3 months.



Photo: E. Stokes

The Residence

<sup>+</sup> Further Details of all such funding possibilities can be obtained from The Director, The Swire Marine Laboratory, The University of Hong Kong, Hong Kong.

\* Details of this grant can be obtained from: The Secretary, The Marine Biological Association of Hong Kong, c/o The Swire Marine Laboratory, The University of Hong Kong, Hong Kong.

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