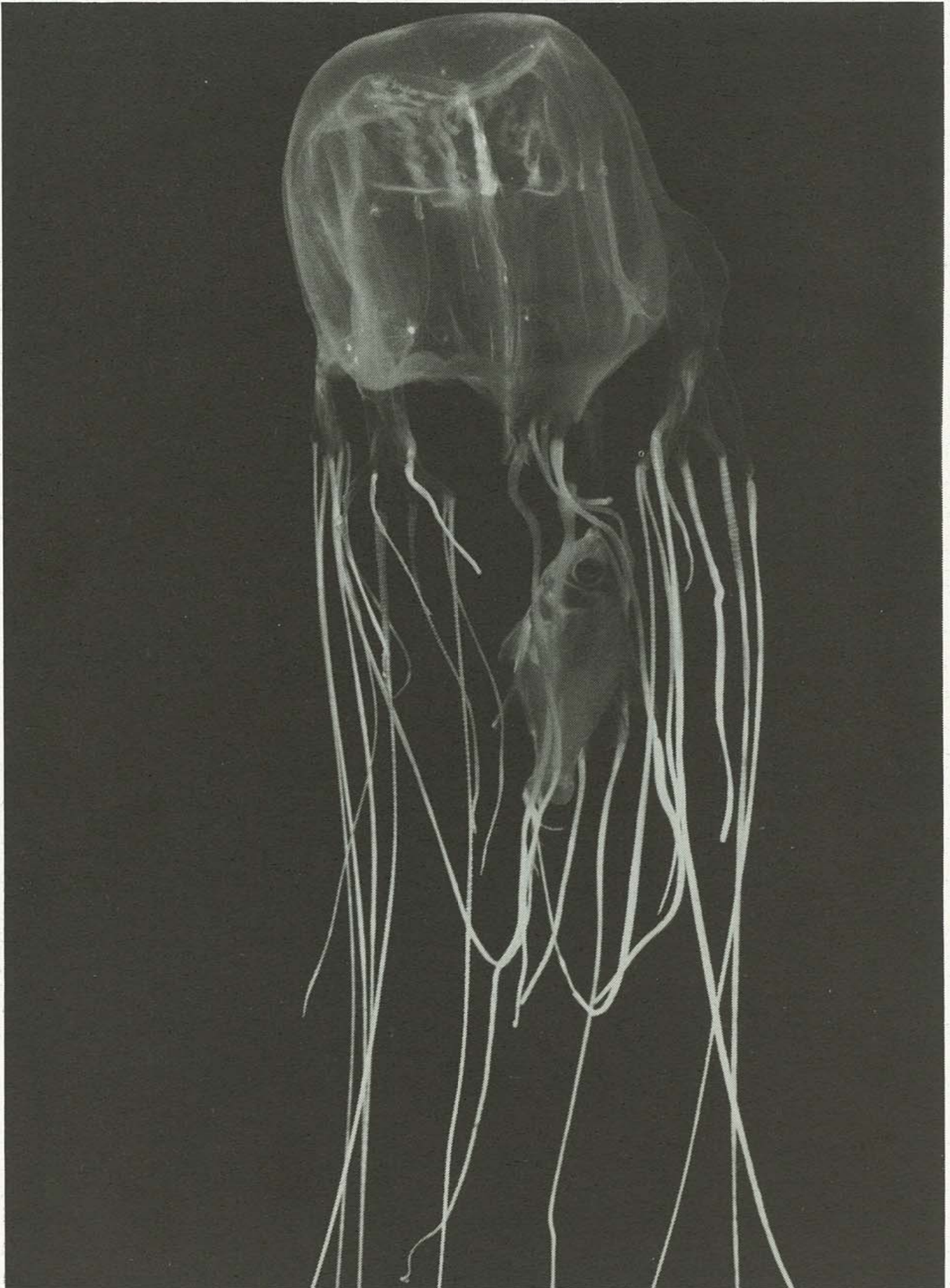


Corallines

MAGAZINE OF
THE GREAT BARRIER REEF AQUARIUM



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Coralines

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Great Barrier Reef Marine Park Authority

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EDITORIAL

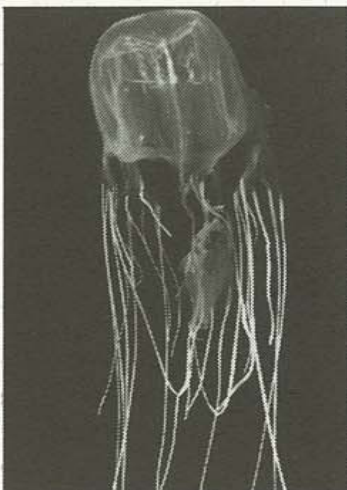
With the release of the fourth issue of *Coralines* many things have happened at the Aquarium. The last six months have seen the launch of a new coral cay display, a diver communication system, a student volunteer program and the commencement of the eighth volunteer course.

All of these things have only helped to further enhance the activities of the Aquarium. The technology used to allow communications between the public and divers has been exciting to see installed and operational. It's amazing to see the expressions on children's faces when a bubbled voice acknowledges their questions. The next six months will allow more of the public to appreciate the reef environment with the help of the Aquarium staff and volunteers.

Each year finds us learning more about the marine environment. It is hard to imagine that only ten years ago staff from James Cook University discovered coral spawning. Congratulations to Doctors Carden Wallace, Bette Willis, Russell Babcock, Peter Harrison and Jamie Oliver for winning the prestigious Eureka Award for excellence in the field of environmental research with their work on coral spawning. It is hoped that *Coralines* can keep you informed about new advances in science and provide glimpses of the marine world from all angles. This issue is no exception. To commemorate the loss of the S.S. *Yongala*, one of Australia's most famous shipwrecks, we have two stories providing differing points of view. Maureen Hatherly provides an insight into the history of the sinking and the Aquarium's relationship to the wreck in 'Aquarium shares a link with historic shipwreck'. Steve Price reveals a diver's point of view. Both stories offer something different on the *Yongala*. The exciting research that has been occurring at the Aquarium is revealed with the story on box jellyfish by Professor Bill Hamner, Peggy Hamner and Martin Jones. For the second year we were privileged to have Bill and Peggy conduct research in the Aquarium. Their story entitled 'Stories of Stingers' dispels some of the myths about this amazing animal.

The year 1993 will also see a number of events being run by the volunteers, including a national conference on volunteering. To coincide with the International Year of Indigenous Peoples the Aquarium is redeveloping the Aboriginal and Torres Strait Islander exhibit. We will be working with various communities to tell the story of past and present associations with the Reef. I hope that you find this issue enjoyable and look forward to any comments you may have.

Anna Harreboomee
Editor



Our Front Cover shows the Box jellyfish, *Chironex fleckeri* which can eat prey almost as large as themselves. Photo: Martin Jones

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DIRECTOR'S MESSAGE

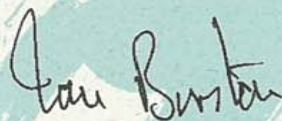
The reef at the Great Barrier Reef Aquarium is as much under threat as any other coral reef. Not from too many people visiting it, but from not enough visitors!

While the Aquarium itself is going from strength to strength with new and improved displays, a growing volunteer group, improved school programs, and increasing community involvement, the continuing depressed state of tourist numbers to the Townsville region is making financial survival very difficult. Did you know that the operational costs of a living coral reef aquarium are almost double those of the 'fish tanks' you will see elsewhere?

We are doing everything possible to cut our running costs without threatening our biological systems or reducing our level of service to our clients. We could make substantial savings by eliminating school programs, members programs and this magazine - but we won't because that would defeat the purpose of our existence! Instead staff numbers have been reduced to a minimum, remaining staff are working longer unpaid hours, and no funds are being spent on staff training and development.

On the good news side, there are some encouraging developments which should improve visitation to Townsville. These include the new Entertainment Centre, the arrival of Garuda International and an aggressive marketing campaign by Townsville Enterprise Limited. Let's hope these initiatives are underpinned by a recovery in the broader economy.

If you are not already a Friend of the Great Barrier Reef Aquarium please consider supporting us by becoming a Supporter, Member, Patron or Sponsor. Details can be found in the enclosed brochure. Believe me we need your support.



(Ian Burston)
Director

Stories of

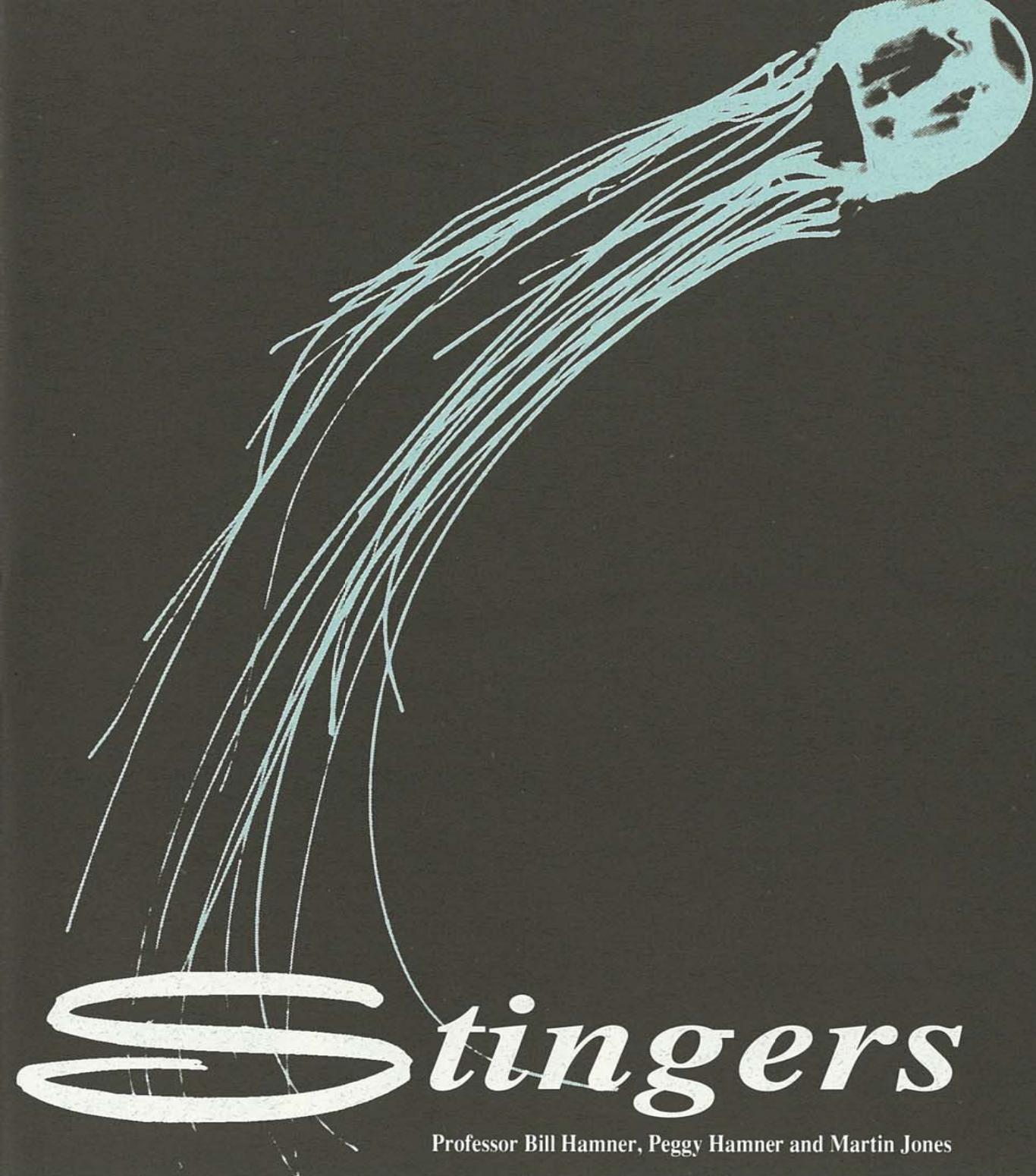
Beneath the clear blue sky, locals and visitors alike are enjoying another warm North Queensland summer day. Many are on the beach but nobody is swimming in the sea. Why?

During the summer of 1976, we picked up several small jellyfish in the surf off Cape Pallarenda, a northern beach suburb of Townsville. On putting them into a small aquarium at the then beachside laboratory of the Australian Institute of Marine Science, their cube-shaped bodies revealed their identity - the box jellyfish,

Chironex fleckeri. This deadly stinger prefers the habitat favoured by many people during the hot Australian summer, that of calm sandy beaches in the tropics. Our fascination for these animals was kindled.

No ordinary jelly

Research on the box jellyfish geared up in Australia in the 1980s. Important work on the stinging cells (called nematocysts) and their toxicology was conducted by



*S*tingers

Professor Bill Hamner, Peggy Hamner and Martin Jones

Photo: Peggy Hamner

Robert Endean at the University of Queensland. Bob Hartwick at Townsville's James Cook University collected critical information on the complete life cycle of the animal. Box jellyfish have been responsible for more than 70 deaths in coastal areas of northern Australia since 1900. The larger animals are the ones that have enough armament and venom to kill a human. Years ago Cairns physician Dr Jack Barnes estimated that some 4 linear metres of tentacles had to be in contact with human skin before the victim died.

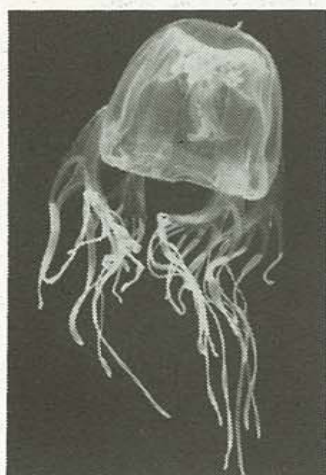
Only the larger box jellyfish have tentacles of this collective length. But the very largest animals have more than enough to kill, with four bundles of tentacles, each with more than 10 tentacles per bundle. Each tentacle can be some 5 metres long when extended; this would provide some 200 metres of tentacle, enough to kill 50 swimmers at one time!

Humans and normal prey animals are killed by a complex of venoms injected into the body through piercing hollow

threads ejected from stinging cells on the tentacles of the jellyfish. These explosive capsules (called nematocysts) are extremely small. Box jellyfish possess 4 kinds of nematocysts and each presumably produces a different type of toxin. Because of the variety of toxins, it has been difficult for toxicologists to isolate and identify those poisons most dangerous to humans. The venom is toxic to the heart and nervous system. Many victims have died by drowning. For those that do not die, there is scarring in cross-lashed patterns that lasts for the rest of their lives.

Tentacles of death

In January 1992 we began some new behavioural studies of box jellyfish at the Great Barrier Reef Aquarium. The Aquarium had developed a special exhibit which successfully maintained stingers in captivity. A new tank called a 'planktonkreisel' (a German word meaning plankton carousel) was built in the Aquarium workshop. This circular aquarium spins the water so that delicate animals like jellyfish do not get damaged by contact with the sides of the aquarium.



The planktonkreisel proved perfect for behavioural studies of the box jellies. The circular motion of the water stretched the tentacles of the jellyfish out to their proper length for catching prey and we were able to observe the full sequence of prey capture and ingestion for the first time.

Box jellyfish can easily kill large prawns and fish, being limited only by the tensile strength of the tentacles and the size of the prey. If the fish or prawn is too large for the stomach, the jellyfish will reject the food. When we put a large tiger prawn into the planktonkreisel with a box jellyfish of equal size, the prawn was killed instantly after contact with only a tiny portion of tentacle. We were astonished at the instantaneous death of the prawn, but on reflection it seems quite adaptive. The nematocysts of box jellyfish have to be incredibly toxic if large, spiny animals like tiger prawns are to be subdued prior to ingestion. In spite of its well justified reputation as the world's most lethal marine animal, box jellyfish are quite delicate creatures, easily torn and damaged. We presume that if box jellyfish fed primarily on small soft animals they would not need to be so heavily armed.

See and not be seen

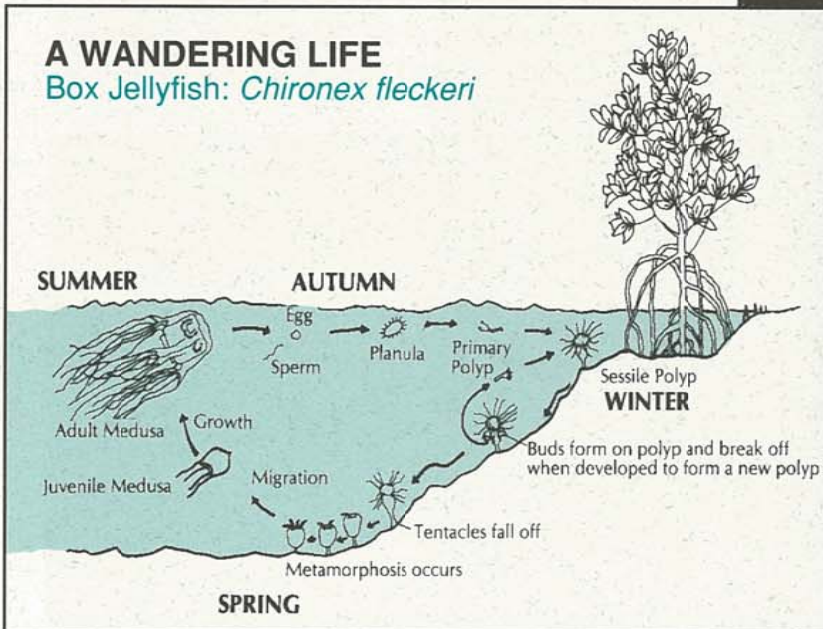
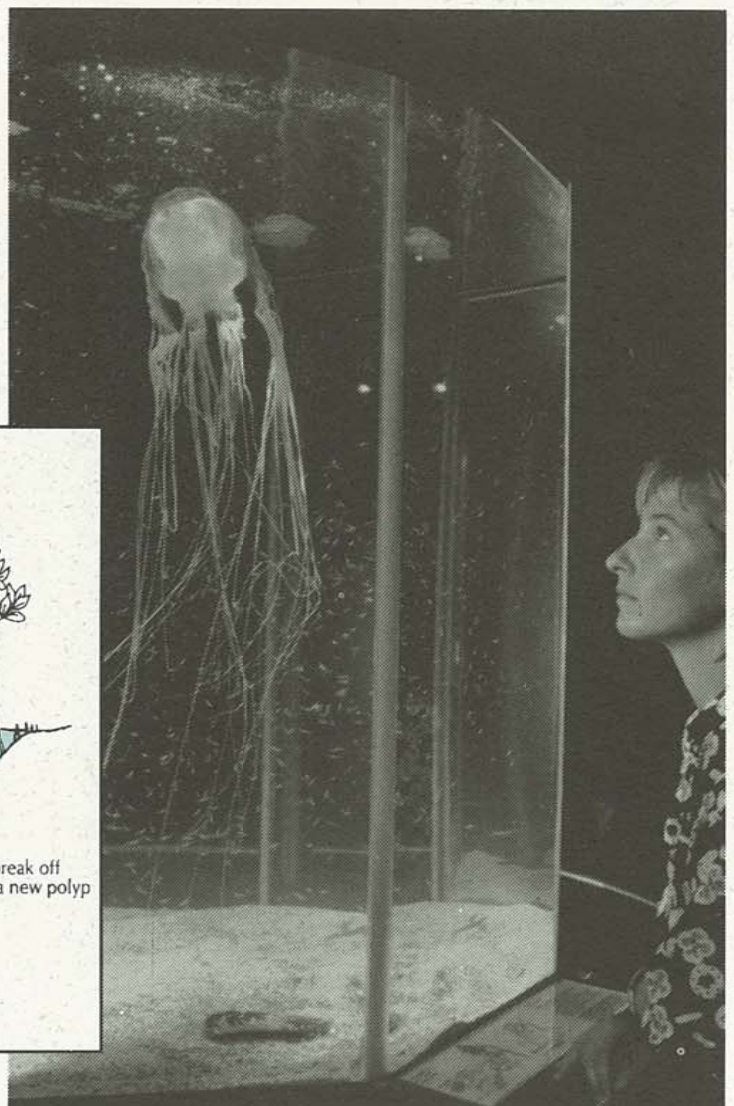
It has been known for about 100 years that box jellyfish have four quite complex sensory structures situated on the each side of the cubical bodies. These sensory structures each have two eyes with such

structural complexity that they should be capable of forming images. This seems strange because jellyfish, of course, have no brains. If they have no brains, how could they see anything? The answer must be that the nerve net which is spread across the entire body is capable of evaluating optical information. If it were not able to do so, the eyes could not have evolved.

A series of experiments were carried out in a large flat-bottomed tank to find out if and what box jellyfish can see. The sides and the bottom of the tank were white, and we tested the visual ability of box jellyfish with a series of black targets. The animals can see a 10 cm wide black target up to 2 metres away, as evidenced by their avoidance behaviour of the target. Indeed, box jellyfish can see a 1 cm wide black target when it is 50 cm in front of them, giving them plenty of time to manoeuvre around it. This is a lovely adaptation for a delicate animal that grows up near mangroves. Box jellyfish can see the encrusted mangrove roots, and they can avoid being torn apart by the barnacles and oysters that encrust those roots.

We have been asked on occasion if box jellyfish use their eyes in order to find and attack prey. We do not believe that they do this at all. We have seen no evidence that box jellyfish perceive and then move toward potential prey. All of our observations suggest that, like all other species of jellyfish, they fish passively,

By the time this article is printed, we will have another several months worth of research finished on the behaviour and biology of these marvellous animals. With this new information Aquarium aquarists will continue to develop the live jellyfish display. So if you visit the Great Barrier Reef Aquarium in summer or autumn, don't forget to have a close encounter with the box jellyfish.



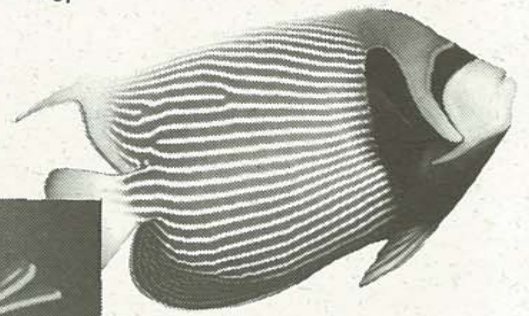
trailing their tentacles behind to ensnare their prey. Given the chance, these jellyfish will avoid people. Humans that get stung usually do so when jumping off a boat onto a fishing jellyfish or blundering into the tentacles while wading in shallow water. Box jellyfish are lethal, but they are not mean!

Tentacles extended, this swimming box jellyfish captures the attention of an Aquarium visitor. Photo: Andrew Elliott

The Living Reef

AT THE GREAT BARRIER REEF AQUARIUM

A unique view of your Aquarium is presented in the new Great Barrier Reef Aquarium souvenir book "The Living Reef". This book contains a compilation of our photographers' best works, the type of shots that everyone hopes to be able to take but are all to elusive! It's gives a wonderful insight into this unique "reef on land" and is the perfect gift for friends, or to grace your coffee table at home.



PRICE \$5.95

Plus postage and handling Australia \$2.50/Overseas \$6.50



FRIENDS NEWS

Anna Harrebomee

World recognition for Aquarium

The month of December was an exciting time for the Aquarium with the visit of the Director-General Dr Frederico Mayor from UNESCO. During the Director-General's visit, he awarded the distinguished Einstein Gold Medal to the GBRMPA as recognition of the efforts of the Aquarium in combining tourism, education and environmental protection. The Einstein Gold Medal is awarded to only a few institutions in the world and this is the first time that any Australian institution has received such a medal. The gold medal brings world recognition to the Aquarium and its unique role in educating people about the Great Barrier Reef.

Gala Evening

The Gala Evening in December provided an opportunity for 150 sponsors, patrons and media personalities to enjoy an evening of champagne and fine foods. Sponsors had a chance to view the new coral cay exhibit opened by the Prime Minister Paul Keating in November. Guests learnt about how they could keep in touch with hatchlings' progress records of weight gain and food intake. The highlight of the evening was the launch of the new underwater communication equipment. Divers surprised guests by appearing at the ANZ Theatre window to announce supper was served. Later guests had the opportunity to talk to divers Chic Nelson and Jenny Barnes.

Spooky sleepout

Children enjoyed a sleepout with a difference when the Aquarium skeletons came out of the closet. The sleepout coincided with Halloween and staff and volunteers got into the spirit of it all. Pinata in the shape of fish and jellyfish were hit until the magical surprise of sweets and streamers was showered upon the children. Some children showed remarkable form in apple dunking, catching apples within 5 seconds. Children were involved in mask making, games and ghost stories. The evening ended with supper and a video. The children rose early the next morning to watch animals waking from their own slumber. All children received certificates proving they had survived a Halloween Night Stalkers.



Ghost alias Margaret Collins tells ghostly tales to Aquarium Members at the Night Stalkers Halloween Sleepover.
Photo: Lyn Hastings



Santa dives in the Aquarium

The Friends' Christmas Party saw Santa Claus splash down in the tank with style. Rudolf the red-nosed seahorse announced Santa's arrival with the use of a sophisticated radio system in which the Aquarium kept track of his movement at every moment. Santa's splashdown saw him diving in the tank with the advantage of being able to talk to the children via the new underwater communication system. Once out of the tank and dry Santa travelled to the Aquarium ANZ Theatrette on a sleigh drawn by Sidney Seahorse and his friends. Santa never ceases to surprise us. I wonder what Santa has in store for us next year.



Andrea the Clown entices a shy Paul Mahlouzarides to join in Aquarium Members Christmas party activities. Photo: Lyn Hastings

Aquarium Theatrette changes name

You may have noticed something different about the Aquarium Theatrette lately. The name has changed to recognise a new major sponsor. The Aquarium's new major sponsor is the ANZ Bank. It is exciting to have a banking organisation like the ANZ acknowledge both the importance of the reef environment and education. This will ensure the Reef's survival for future generations. The ANZ Bank is a progressive organisation that cares about the environment.

Looking at Fringe Dwellers (Story by Grace Brice)

Hats, shoes, sunscreen and gardening gloves were the order of the day when members gathered at Rowes Bay on an afternoon last September to take advantage of the very low tide being experienced that day.

This program, free of charge to members, was led by Richard Fitzpatrick who illustrated to the members and their very enthusiastic youngsters the way to enjoy the experience of turning over rocks and examining the creatures found and their habitats (always returning the rock to its original resting place of course!).

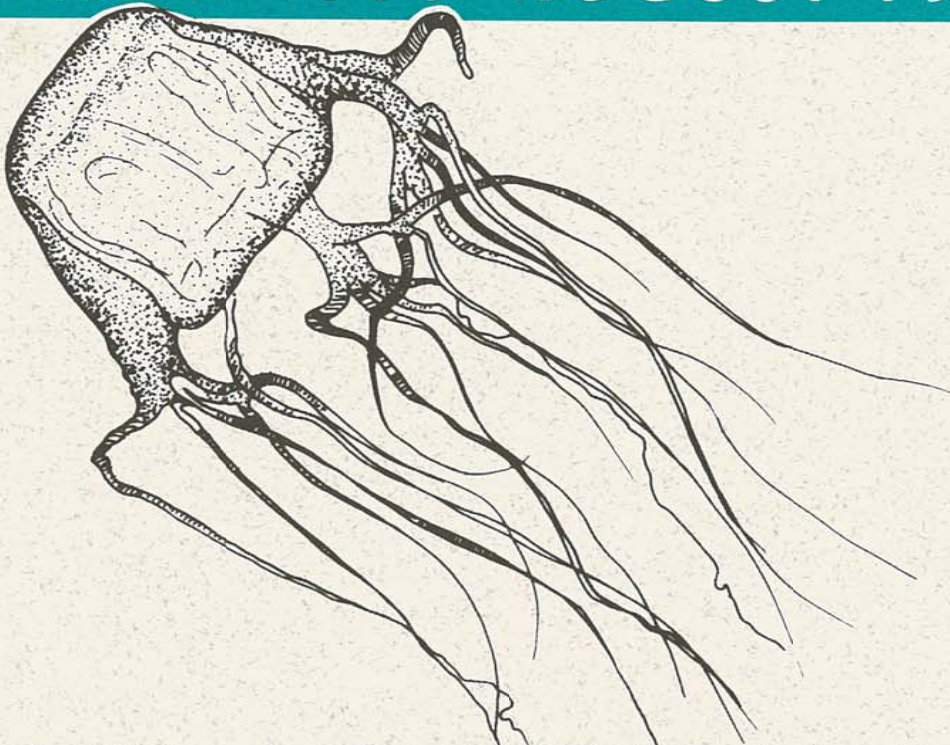
We wandered around the area casually enjoying the exploration, gathering together when something exciting was found. We were given information about the find and its home by Richard or the volunteers who were with us.

At the completion of the walk volunteer Marina Ullrich shared some of her knowledge of mangroves with us. These were found fringing the walk area.

Upon arrival at the parking area, all gladly partook of oranges and cold water supplied to slake the thirst worked up during the walk.

ACTIVITIES

MARCH 1993 - AUGUST 1993



The following activities are free with membership or Aquarium admission.

***Theatrette Presentation
on the Great Barrier Reef:**

10.00 & 11.00 am & 12.00 noon, 1.00,
2.00, 3.00 & 4.00 pm (Daily)

***Guided Tours:**

11.20 am & 2.20 pm (Daily)

***Diver Talkback:**

Facts and answers to your questions from a diver in the Coral Reef Exhibit: Monday, Thursday, and Saturday OR Sunday 10.30 am

***Turtle Feeding:**

12.20 pm (Daily)

***Marine Cruisine:**

See how and what some of the Aquarium animals eat: Wednesday, and Saturday OR Sunday 3.20 pm

***Shark Talk**

followed by shark feeding:

Tuesday and Friday 3.20 pm

Craft Sessions:

Saturday 2.00 - 3.00 pm

Sunday 11.00 am - 12.00 noon

April and June School Holidays

11.00 am - 12.00 noon (Daily)

Discovery Sessions:

2nd and 4th Sunday of the month

1.30 - 2.30 pm

Discovery Sessions offer a relaxed and informal atmosphere where Aquarium guides and volunteers present workshops on various marine topics. The aim is to help members gain a greater appreciation of the marine environment and its inhabitants. Come along and join in.

Other activities may be scheduled during the day, please phone to confirm times.

*The Aquarium reserves the right to cancel or change program times. To confirm daily events please telephone the Aquarium on (077) 818 886 Monday to Friday and (077) 818 891 weekends only.



**GREAT BARRIER REEF
AQUARIUM**

PROGRAM

NIGHT STALKERS

An Aquarium sleepout just for Kids!

Kids, have you ever wanted to sleep with the sharks or curl up with a coral? Then join us and all your favourite fishy friends for a night of art, craft and games. See the parrotfish make its own sleeping bag. Watch the day creatures go to sleep as the night stalkers reveal themselves. Bring your own sleeping bag and torch. Light supper and breakfast provided. **NO PARENTS ALLOWED!**

Ages:	6 - 12 years
Date:	Friday, 21 May 1993
Time:	7.00 pm - 8.00 am
Cost:	1st child \$27.00
	2nd child \$23.00
	3rd child \$21.00
Members	1st child \$22.00
	2nd child \$18.00
	3rd child \$16.00

Bookings Close: Friday, 14 May 1993

Minimum: 20 **Maximum:** 30

FRINGE DWELLERS

The intertidal area of our beaches is home to an amazing variety of plants and animals. The low tide on Thursday, July 1 will give us an opportunity to fossick around the rocks at Rowes Bay. Bring the whole family and look at life on the edge of the sea. Remember sunscreens, hats and sandals! All children must be accompanied by an adult.

Date:	Thursday, 1 July, 1993
Time:	1.00 pm
Cost:	Members Only FREE
Bookings Close:	Friday, 25 June, 1993
Minimum:	20 Maximum: 80

OCEAN ED CAMP '93 FOR TEACHERS

Coral reefs, mangroves, national parks and marine parks...we've got you covered in Ocean Edcamp '93!

Discover the best spots on Magnetic Island for school field trips.

Learn some innovative techniques for teaching about the environment.

Find out the latest information on marine park management.

Be a part of the living classroom experience at the Great Barrier Reef Aquarium.

Thursday, 13th and Friday 14th of May.

Cost \$60 includes ferry tickets, food, accommodation and teaching notes.

Suitable for Primary and Secondary Teachers.

Contact the Education Officer on 818886 for more details.

VOLUNTEERS IN STEP

A national conference for volunteers in Tourism, Heritage, the Arts and the Environment.

The aims of the conference are to achieve excellence in volunteer programs, to share the experience of volunteering and to assist all those wishing to implement or upgrade a volunteer program.

Date: 8, 9, 10 September 1993

Where: Sheraton Breakwater Casino-Hotel.

For more information phone or write to:

Rosemary Payet

Secretary, Conference Committee

Great Barrier Reef Aquarium

Volunteers Association Inc

PO Box 1379

Townsville QLD 4810

Phone: (077) 818712



Book and pay early to avoid disappointment! Use the booking form when you book at the Aquarium Office or Shop. For further information or additional booking forms, please contact GBR Aquarium Office, P.O. Box 1379, Townsville OR Phone (077) 81 8886 Mon- Fri 9 am - 4 pm.

STUDENT VOLUNTEERS INTAKE

1992 saw the trial of student volunteers in the Aquarium. The students donate their time and effort to help the Aquarium expand and improve its services to the public. The students also gain experience in a wide range of areas, including guiding, assisting with Friends programs, craft activities, programs, clerical work and some animal husbandry.

The program is open to students in Grade 10. Application forms will be available from August 1, 1993.

An Open Day for potential student volunteers will be held Sunday August 22, 1993. Application close August 22. Training will be held on from the 18th to the 22nd of September, during the school holidays.

E D U C A T I O N N E W S

Loretta Saunders

Aquariums have the opportunity to play a major role in marine conservation and education. We have witnessed in the last decade the age of aquaria and the dedication of these facilities to education and research is strengthening. Think back to an aquarium which you might have visited as a child or some of the older and smaller aquariums built around the 1950s or 1960s which still exist. These places displayed all types of marine animals. They showed the weird and wonderful, the amazing and absurd. Almost like a freak show in their approach, these aquariums rarely spoke of the interesting aspects of marine animals for interest sake alone nor did they explore the animal's place in its community, or the need for natural resource management. Rather they concentrated on how humans made use of marine animals. What type of equipment was needed to catch them? Did they put up a good fight? How many were killed, caught, found dead each year? Did these creatures sting, attack or maim people? How could we eradicate the nasties? They capitalised on the unusual and the ugly and undersold life for life's sake. Some of these aquariums are still around and they have a lot to answer for.

The role which aquariums play in marine and environmental education is a rapidly growing one as they strive to increase their level of contact with people. Outreach programs, membership schemes, being active in community events, school programs, activity and exhibit programs

which aim to encourage strong and positive attitudes to the management of our marine resources are all part of the growth in marine education.

The Great Barrier Reef Aquarium contributes substantially to this growth. Already 1993 has been a big year for education programs and particularly for schools. We have run programs for Primary and Secondary Principals, for the Science Teachers Association, the Australian Association of Environmental Education and during February held two very successful Open House for Educators afternoons. We combined these afternoons with the Museum of Tropical Queensland and the Omnimax theatre. As these facilities all complement each other in their programs, we were able to offer teachers a fantastic range of educational opportunities for their students. There were resource displays, special tours and demonstrations of some of the programs in action. The Aquarium Shop has an ever increasing range of books for teachers who lost no time in adding to their professional libraries. We were able to outline to teachers when our professional development programs would be this year and many have signed up right then and there.

A special feature of the Secondary Teachers' Open House was a presentation by Professor Bill Hamner. Professor Hamner was invited to



Graeme Kelleher officially opens Reduce, Reuse, Recycle Reef by the Year Eight students of St Margaret Mary's College.
Photo: Andrew Elliott

return and continue his research at the Aquarium having been here last year. His presentation, entitled *Moon Jellies Navigate by the Sun* was enjoyed by a full house. Of special interest to teachers was the marine education program for teachers which Professor Hamner has been holding in California.

The Aquarium has a close association with Davies Laboratory of CSIRO through their Helix Science Club and their Student Research Scheme. Through these programs, many students have experienced aspects of the Aquarium unavailable to the general public. During the last summer holiday period we were able to offer an undergraduate science student an internship at the Aquarium. The Rotary-sponsored Student Researcher Program provides the opportunity for a student to be involved in a research project for three months, being able to put their theoretical studies to date to practical use in a working environment. Further to this, the Aquarium is closely linked with the new North Queensland Science Centre, due to open in Townsville later this year. The relationship will only strengthen our capabilities in being able to provide inservice programs for teachers and extra activities in the area of marine science.

Aquarium education encompasses far more than just science. Once again we were able to exhibit student work of a very high calibre. Of particular note was the *Reduce, Reuse, Recycle Reef* by the Year Eight students of St Margaret Mary's College. This was a massive display of papier mache' sea creatures which the GBRMPA Chairman Graeme Kelleher officially opened, much to the delight of the students. We strongly encourage teachers to approach us regarding exhibiting student work. Our visitors enjoy it immensely and students love to see their work exhibited in a public place such as this.

Community involvement strengthens and extends our possibilities in all sorts of creative directions. The Hugapolyp Reef project is a prime example. Located on the Observation Deck is a coral reef made by the Fibres and Fabrics Association, entirely from, you guessed it, fabric. Huge rocks as soft as bean bags, sea stars and hermit crabs, corals of all shapes and



The official opening of the Fibres and Fabrics Association's exhibit Hugapolyp by Edna Saunders President Fibres and Fabrics, Ian Burston, Director Aquarium and Alderman Toni Kirkpatrick, Townsville City Council. Photo: Andrew Elliott

sizes. About 800 hours worth of stitching and stuffing was donated by a team of enthusiastic fabric and fibre artists. Visiting school groups have made good use of the display. Each piece is detachable so students can build up the reef themselves and learn about what likes to live where in the process.

Learning what lives where has taken on a new dimension with the diver talk shows as well. The sheer delight on a preschooler's face when it comes to question time with the diver tells the story. Students love being able to talk to the divers and this program has added a whole new dimension to interpretation. The program is tightly scheduled and therefore not available to every school group, however, check the times of the shows in the activity section of *Coralines* and keep it in mind if you plan to bring your class to the Aquarium.

The new coral cay exhibit is also of particular interest to geography, marine studies and tourism studies students. There is a large interactive component and strips of single lined text which make the exhibit very easy to design activities around for students. Many teachers have done so already and it's proving to be very successful.

Remember to call us on any matter regarding marine education. We have the resources to help you at our fingertips and are only too pleased to do so.

EXHIBIT NEWS

A living exhibit is constantly changing (a good reason to visit again and again) and recent behind-the-scenes improvements by curatorial staff will go a long way towards enhancing the appearance and biological maintenance of the Coral Reef Exhibit. Pioneering technology necessitates invention and the latest in labour saving contraptions is the new, improved 'turbo charged' model of the algal turf scrubber. Now that they are 'on line' with the Coral Reef Exhibit we are more assured of sparkling, low-nutrient seawater. For more details about this innovative filter see Mike Townsend's article in this issue.

Have you noticed how blue the water in the Coral Reef Exhibit looks nowadays? We are treating the water with very low concentrations of ozone. The ozone effectively removes the green/yellow colour and improves the aesthetic qualities of the exhibit without affecting the inhabitants. The treatment has been used successfully on the Predator Exhibit for the last 2 years.

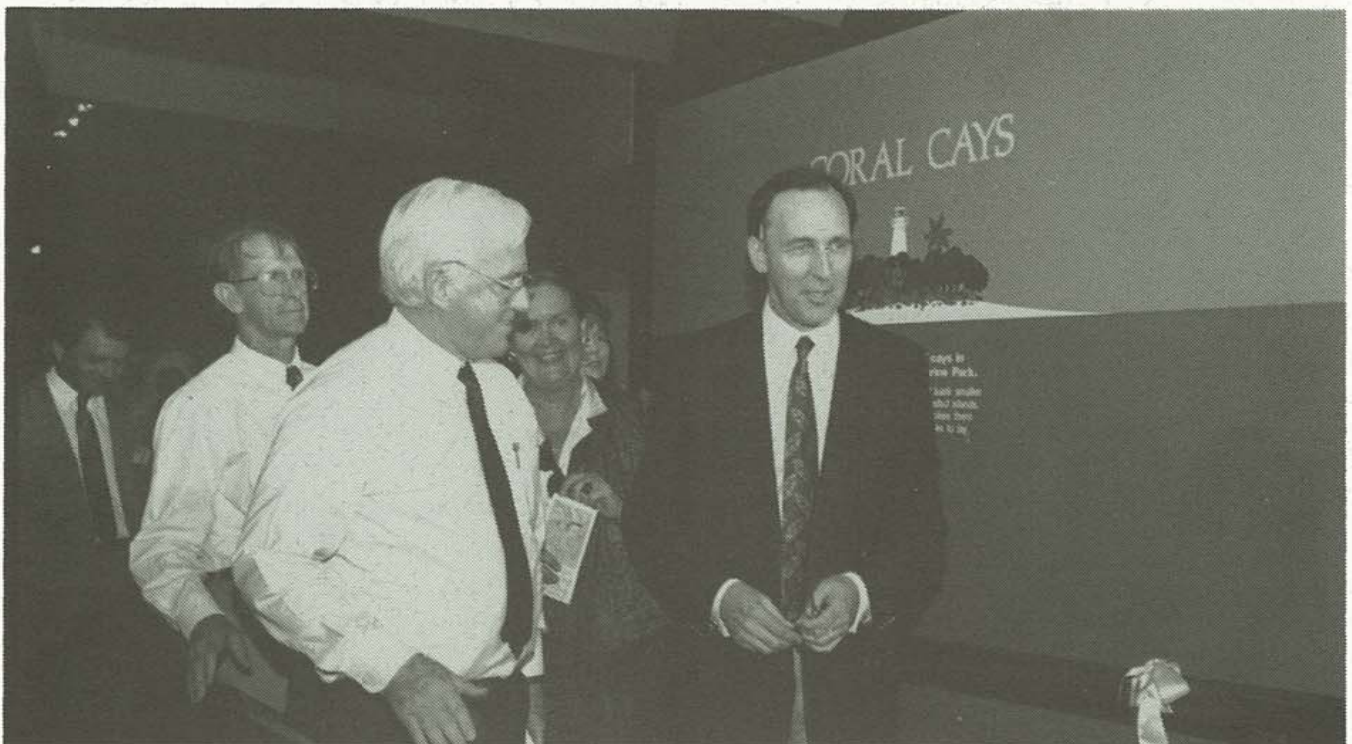
One of the new additions to the Predator Exhibit is a coral trout caught at Lodestone Reef by hand line on a collecting trip last October. Introducing new animals to an established hierarchy is not easy but the coral trout settled in well, expertly avoiding the sharp teeth of the other predators. New additions often come from other sources. Did you see the magnificent 5 kilo ornate crayfish collected in a prawn trawl last September? A local trawlerman with a bucket at our back door always means a possible exciting new addition to our reef family! We are fortunate to have their support.

On the subject of collecting - once again Aquarium volunteers, with the assistance of staff from the Queensland Department of Environment and Heritage Turtle Research Project collected flatback turtle eggs from Cape Cleveland and incubated them here at the Aquarium. This time the hatchlings have a very special home with the opening of the new coral cay exhibit. The exhibit was opened on the 15th November by the Prime Minister, the Honourable Paul Keating. Young and old are amused by the colourful mural by local artist Gavin Ryan and delighted in discovering life on a reef island. The evocative poetry of Mark O'Connor encourages visitors to pause awhile and conjure up their own visions of coral cays and turtle hatchlings racing for the sea.

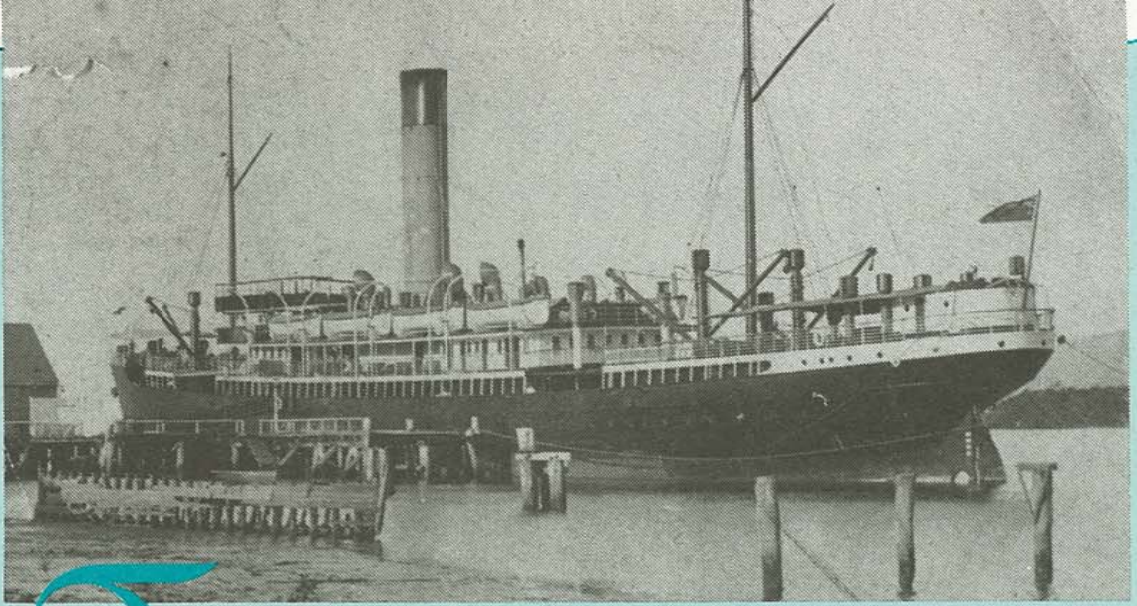
More changes - wet and dry! Unfortunately, we had to remove the original transparencies from the light tunnel as they were deteriorating rapidly due to water damage. The concrete walls had cracked, allowing rainwater to seep through.

Watch this space for a new exhibit on Aquarium technology. Other displays planned include a fisheries exhibit and a special exhibit on traditional use of the Great Barrier Reef to be produced in consultation with local Australian Aboriginal and Torres Strait Islanders in celebration of the International Year of Indigenous Peoples.

(The book and cassette - Firestick Farming by Mark O'Connor, which includes the two poems in the coral cay exhibit, is now available in the Aquarium Shop.)



Prime Minister Paul Keating accompanied by Ted Lindsay, Graeme Kelleher and Senator Margaret Reynolds at the opening the Coral Cay exhibit on 15/11/92. Photo: Andrew Elliott



SS Yongala in berth. Photo courtesy: The Maritime Museum of Townsville

The following articles commemorate the sinking of the *SS Yongala* on 23 March 1911. They provide the reader with two points of view. Steve Price, local Townsville identity and radio announcer for Radio 4RR provides us with a glimpse of the ship from both a diver's perspective and the ship's view. Maureen Hatherly nee Nettle, author of *The Yongala Mystery* gives us the historic viewpoint and links the past with the present. We hope you enjoy the two stories.

Aquarium shares a link with historic shipwreck

Maureen Hatherly

As the intense tropical darkness spread over land and sea, it drew a curtain over the final desperate struggle of a ship. Mountain-high cliffs of angry, green water were collapsing like foaming waterfalls onto the decks, stripping them clean of hatch covers and deck cargo.

The date was 23 March 1911 and *Yongala*, with one hundred and twenty-one passengers and crew, was steaming into history. It was a journey from which she was not to emerge for nearly fifty years.

Yongala was built at Newcastle-on-Tyne in 1903 for the Adelaide Steam Ship Company and with a length of three hundred and sixty-three feet and breadth of forty-six feet, she was to provide fast, efficient and comfortable service. Passenger accommodation was luxurious for those days and its popularity with holiday-makers and newly-weds earned it the nickname of the 'honeymoon ship'. After being transferred from the Western Australian run, *Yongala* soon became a popular sight at many east coast ports and played an important role in the development of North Queensland.

Competition between rival shipping companies was intense but there were some lighter moments. *Yongala* and the Howard Smith steamer *Bombala*

once competed in an impromptu race from Sydney to Brisbane. *Yongala* left Sydney sixteen minutes after *Bombala* and despite a strong southerly swell, averaged 15.3 knots to arrive at Cape Moreton seven minutes ahead. The race apparently caused a great deal of excitement and speculation on board both ships.

Yongala was no stranger to violent storms, having encountered many on its crossings of the Great Australian Bight. But a cyclone is no ordinary storm and it has been estimated that wind gusts of up to two hundred kilometres per hour lashed the ship as it left the protection of the Whitsunday Passage.

On Dent Island, the lighthouse keeper's daughter reported watching the ship as it steamed into the distance before disappearing in the mist and slashing rain. The time was 6.30pm and *Yongala* was never seen again afloat.

Neither the ship nor the lighthouse was equipped with radio, a circumstance that possibly could have contributed to the disaster. Had Captain Knight been aware of the weather conditions that lay ahead, he almost certainly would have sought the protection of more sheltered waters. No one knows the exact conditions that existed that night, but with the seas increasing rapidly, passengers huddled fearfully in their cabins.


Many theories exist as to why the *Yongala* sank. They range from the bizarre to the plausible. The violence of the sea may have prevented coal being kept up to the boilers resulting in loss of power and loss of steerage. The ship would have had no defence against the mountainous waves and cross seas whipped up by the cyclone. With hatch covers torn away, water could have flooded the holds. Possibly *Yongala* rode down the crest of a gigantic wave, failed to recover and continued to the bottom. No one will ever know for sure.

In the following weeks, wreckage was recovered over a huge area from Cape Bowling Green to Cairns. A part of No. 1 lifeboat was recovered from the eastern side of Hinchinbrook Island. But the first piece of debris to be identified positively as coming from the *Yongala* was a door with a broken glass panel. This door was known to have opened into the music room from the promenade deck and carried the words 'Festina Lente' or 'Hasten Slowly', the Adelaide Steam Ship Company motto.

Prominent amongst the passengers on that fatal voyage were a number of Townsville citizens including Matron Uhr from the Townsville General Hospital and members of the Rooney family who had considerable business interests in the city.

It is through the Rooney family's business interests that the Aquarium has its links with the *Yongala* as the land where the Aquarium now stands was once the site of the Rooney's timber mill.

Two living reefs connected by history.



Yongala: a living Atlantis

Steve Price

Proudly I faced her with my master knight
together we'll take on this cyclonic fight.

But her fury was endless, she crushed my soul
my children lost in this watery hole.

For years I lay hidden from your scathing eyes
the truth of my loss you'd smother with lies.

Now I live once more you've come to discover
my companions surround me and the sea is my mother.

I had been at rest for what seemed only moments when I could feel life all around, grasping me, entering my forbidden cabins, settling on my mighty hull. These creatures of my new domain multiplied to such an extent that I looked nothing like my former self. Proud as I am of my past glory created by you masters of the land, I've become a haven for a myriad of life forms that have made me their home. What beauty they've created! My new found charges have turned my scarred remains into a universe of colour and life. Then you came.

Waves pushed aside by monsters above, brought back sad memories of a stormy night so long ago. Then you who was once my master visited my world. You wrenched off my long silent propeller, dived into my soul for treasures you once owned. Some even desecrated the memories of those who were with me when I left you. One even came with tools to take my heart, the name given to me and placed on my bow. Then all was silent and you let me be, the swirling life painting the most beautiful of pictures.

You came once more with new devices but not for destruction, for recording my beauty. You

treated me with praise and wonder. More and more came, marvelling at my constant companions and looking with love at what was left of human design. I wanted to show more but somehow I knew all would be revealed once you joined me beneath the waves.

There is no shelter around me to hide from Nature's fury, so you must come to my resting place when the weather is kind. Your vessel is secure near me, not like in the past when you threw the ripping anchor into my bowels, ruining much that was fine. On a calm day you can see me lying beneath you, waiting to show my unique world.

I saw one standing looking into the depths, marvelling at the old man turtle who reveals my place to all. He began to feed my ever present jesters, the bat fish, who have become as used to the arrival as I have. A couple of banded sea snakes passed by so quickly he nearly misses them. No matter. When he comes to me he'll see more than he has ever seen before. Its been so long since I have heard human voices. The last were filled with torment and pain. I know the voices on the surface will be filled with the wonder of visiting me.

Ok Steve,
who's unlucky enough
to get you as a buddy?' mumbled
the cynical skipper.
'You are! Remember?' I added quickly.
'Tailor-made mask to fit your nose and
the sharks will dip their fins with
respect when you hit the water, Steve.
This will be an interesting dive!'
It was a calm morning in April, the
excitement of having perfect weather on
the *Yongala* became too much. The last
time I had visited her it had been rough
and although the dive was magnificent,
many friends had told me the pleasure
of a calm day on her. Now it was my
turn.

The shadow of the *Yongala* was visible
below, and I couldn't help thinking, as
I gazed at her shimmering outline, of
the proud steamer battling that wild,
tropical storm all those years ago. A
couple of banded sea snakes passed by
in the current, but I knew once I was
below I would see many of the ever
present olive sea snakes. It was almost
an unwritten law to spend some time
sitting on the back of the boat, feed the
bat fish, remember and respect what
happened on this very spot on that
March evening eighty-two years ago.

It was time to open the door into a
whole new realm. After the very
important dive brief, I stood geared up
at the entry point. I was poised, ready
to open that door into a world that a
delorian or tardis could never equal.
The water bubbled around me. 'Ok,
buddy in check.' We found the line and
with only a slight current, we
descended.

A cauldron of life swirled around her
mighty hull. The cloak of hard and soft
corals that cover the lady looked
impregnable.

This
day with the
visibility being so good a school of
turrum in front of us was a shimmering
silver curtain that parted slowly as we
neared. It's as if you're diving in a giant
aquarium specially stocked with nearly
every species of fish in the Coral Sea.
The fish circle her constantly. Not
having my 'Fisherman's Companion'
with me at the time or passed my Ph D
in 'fishology', I can not give you the
exact names of those I met.

It was eerie as I first touched the side of
her, remembering the proud steamer I
had seen in so many books and the old
staircase inside. All gone. As I grasp
the rails of the once fine promenade
deck I'm lurched out of my thoughts by
the presence of a rather large hump
headed wrasse. My buddy Peter
touched my shoulder and pointed
inside the promenade. With a slight
push of the oyster encrusted metal we
entered this well known area. Many
documentaries have been made in this
section for there is an immense amount
of coral in here and just enough light to
give an uncanny sensation. The
beautiful, bright, yellow, daisy coral
covered the ceiling with the many
coloured soft corals battling for surface
space on which to survive. Brushing
past the whip corals, we shone our
torches into holes in the structure. We
reveal more twisted metal and odd
shapes covered with the fine silt that
would cloud instantly with the
movement. Strange as it may be it was
almost as if she was showing us her
living beauty and indeed it would be
hard to find a place on earth with life as
abundant. Into what I suppose is one of

the front holds we looked to see rays of sunlight piercing the void. This light came from portholes that had actually been cleaned by the other divers. It's a sight I shall never forget. I can't help wondering if those portholes are there today.

The next part of our journey was to the bow. Here we lay on the sand and watched the giant gropers. The size of these creatures, when they open their mouths, is quite awesome. There were about six of them when we got there, languishing in the current, one getting very close. Harmless as they may be, something about this big fish pushing you around is scary! He probably wanted to check the new species, *Nosus gigantis*, that had suddenly appeared at his front door. After my friend had retired from being affectionate I noticed an unbelievable number of red emperor all around the bow, only to be suddenly replaced by the turrum and if that wasn't quite enough, a school of oceanic barracuda came past to complete the scene.

It was time to move. I wanted to see the famous round toilets before leaving this wonderful world. A quick visit to the dedication plaque, a meeting with other divers who had found what looked like a barbers' chair and a bed and it was off to find the toilets. When we found them, there were two other divers sitting on them getting their photos taken. This was much to the delight of an extremely large olive sea snake who would not leave the camera alone.

Time had run out. I had only a few more minutes and as we moved towards midship I decided to spend my remaining few moments holding on to a davit and surveying the whole scene. I could see almost all of her including the tell-tale bubbles of fellow divers also preparing to leave. Below me a Queensland groper hovered and a group of olive sea snakes moved through the whip corals. Schools of fish were everywhere. I thought I'd never forget this picture. Just as we were about to move to the deco line, three leopard rays moved swiftly in formation overhead.

After the essential decompression time on the line we were about to break the surface and return to our world, when I took one last look at the lady. She was almost alive, enshrouded with the myriad of sea creatures that depend on her. I wonder what she would say to us if she could. On the surface there was the usual flow of 'did you see' and 'bloody fantastic'. I removed my gear, moved to the side of the boat, said a soft thanks and joined the throngs of dive stories.

They are leaving now. More will come. May they marvel at me until the last memory of my existence drifts away with the eternal tide.



VOLUNTEER NEWS

Alison Ferry

Volunteering at the Aquarium has maintained its strong links with the community and the program continues to grow and new ideas and management practices are constantly implemented. It is encouraging to know that our Aquarium volunteers have achieved a high level of recognition in Australia. Requests for help in starting up new programs are received weekly and some have come from as far away as Alice Springs and Western Australia. With this in mind, and realising that the needs of volunteers in tourism, leisure, the arts and the environment are very different from those in welfare, the Volunteer Management Committee has undertaken to host a national conference in September this year.

The conference will be held at the Sheraton Breakwater Hotel and will run over three days with concurrent workshops. The aim of the conference is to achieve excellence in volunteer programs by sharing the experience of volunteering and to provide assistance in setting up, developing and maintaining volunteer schemes.

On a community note, the volunteers again entered a float in the 1992 Festival of Townsville Parade and worked alongside the Wonderland Complex staff. Their efforts were rewarded by taking first prize - a magnificent trophy and a cheque. Many of the spectators lining the parade route were heard to comment that the volunteers certainly looked as if they were enjoying themselves!

A new initiative came to fruition last September when our teenage volunteer program commenced. Now referred to as 'Student Volunteers' our sixteen new recruits have energy, willingness and an ability to learn as well as available free time and flexibility in new situations. They will be instrumental in the development of programs and activities for teenagers within the Aquarium - something that has not been addressed before. As well, they will assist on the front desk, give spot talks, help at craft sessions, educate at the Touch Pool and help with the collation of the monthly newsletter.

Our young turtles continue to be a focal point at the Aquarium and each day one is fed in the Discovery Room for the benefit of the public. Volunteers again went to the beach at the Australian Institute of Marine Science in November to watch for turtles nesting and were fortunate in being present on one night when the event occurred. Under supervision of Queensland Department of Environment and Heritage staff, some eggs were collected to be hatched at the Aquarium as in past years.

Turtles were not the only babies in the Discovery Room - tiny little anemonefish and minute seahorses were also on view. Baby seahorses like to feed on plankton and volunteers assisted with plankton tows.

In September every year the volunteers have the opportunity to attend a series of workshops held over two evenings. These are designed as an update session and are a wonderful way to revise as well as learn new techniques. The focus last year was 'Why Am I Here?' and the workshops held were for better interpretation. The final session was a facilitated discussion which resulted in many ideas being brought forward. Lots of issues were discussed and many will become realities during the year.



Ann Huth, Marine Park Ranger provides unusual transport for Aquarium Volunteers Maggie Eichenbrenner, Elspeth Twyman, Rosemary Burdeu, Judy Du Pont, Lyn Hastings, and Margaret Collins on their arrival to Heron Island. Photo: Mick Jackes

In this way, volunteers have a direct input into the Volunteer Program and thus it will continue to grow and play an important role in the Aquarium.

It is not all work and no play. Volunteers are able to go on various excursions which are organised by one of the Management Committee. Last November several went on a five day excursion to Heron Island. This presented not only a social opportunity but a first hand lesson on coral cays and nesting turtles. Future trips will be to the Reef, the Australian Institute of Marine Science, Hinchinbrook Island and the mangrove walks and to fossilised reefs west of Townsville.

CURATORIAL NOTES

Tanks But No Thanks

Recently the Aquarium was given two large female barramundi by Landrigans Aquaculture. Such large specimens were ideal for the Predator Exhibit. The collection was not going to be simple; a 25kg barramundi would measure between 1.3 and 1.5 metres long. Two large vats to transport the fish from Mourilyan Harbour were modified with aeration and anti-splash devices.

The journey home went smoothly. Both animals stayed very calm in the cramped surroundings. On arrival at the Aquarium the fish were transferred to their new but temporary home on the algal turf farm. For the next six weeks, the fish, Babs and Babette were allowed to settle in.

The day came to introduce one of the fish into the Predator Exhibit. Babs was placed into the introduction cage and lowered into her new surroundings. After three days she was released accompanied by two divers, to discourage any aggressive behaviour by the other inhabitants. At first all went well but some bullying tactics by five trevally soon excited the sharks and it was decided to remove Babs.

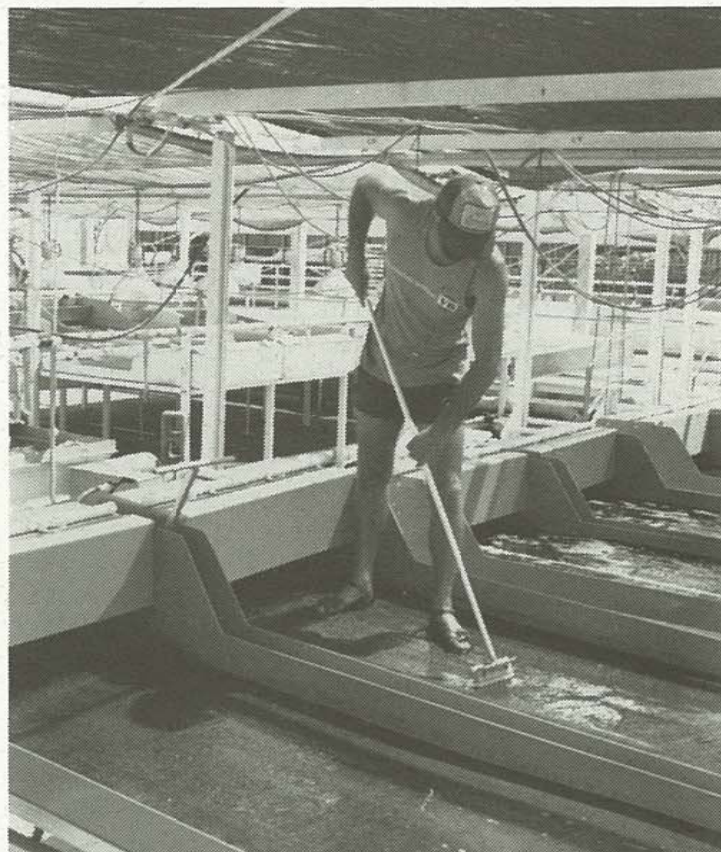
Three weeks later, after the removal of the dominant female shark which was causing the problem, the decision was made to try again. This time Babette was placed into the introduction cage. As the divers were lowering Babette into the tank she became anxious and burst through the cage lid becoming an irresistible attraction to the sharks. Introducing new animals into a predator environment is no easy task ...

Dominic Eggins

New Wave Turf Scrubber

Life on the Aquarium's algal turf farm has just become easier with the design and installation of a new generation in algal turf scrubber technology.

Algal turf scrubbers are the key to our success in maintaining a captive coral reef. The algae growing in the scrubbers remove unwanted nutrients from the seawater thus maintaining good water quality that is essential for healthy corals.



Mike Townsend, Water Quality Officer, harvesting algae on the new scrubbers. Photo: Lyn Hastings

The new scrubber design incorporates higher sides to the trays, larger tip buckets and the ability to increase substantially the volume of turbulent water flowing over the algal turf. This in turn should encourage an increase in algal growth, so removing more nutrients from the water. The new scrubbers are more user friendly and less labour intensive than their predecessors with a reduction in height and better spacing to improve access for cleaning and maintenance.

Screen scraping to remove the algal growth has undergone a radical change. The screens are scraped *in situ* with the harvested algae being washed down a collection pipe and caught in a filter bag. Because the screens are no longer removed from the trays, this system reduces wear and tear on the screens and water wastage. It is also substantially quicker and cleaner than the original operation.

So far 20 new scrubbers have been installed and are fulfilling expectations. We plan gradually to convert the remainder of the farm to the new design.

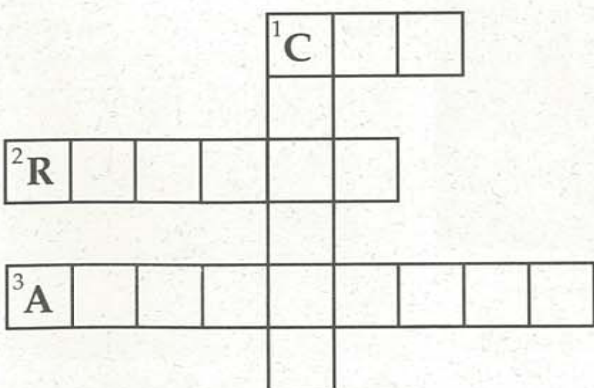
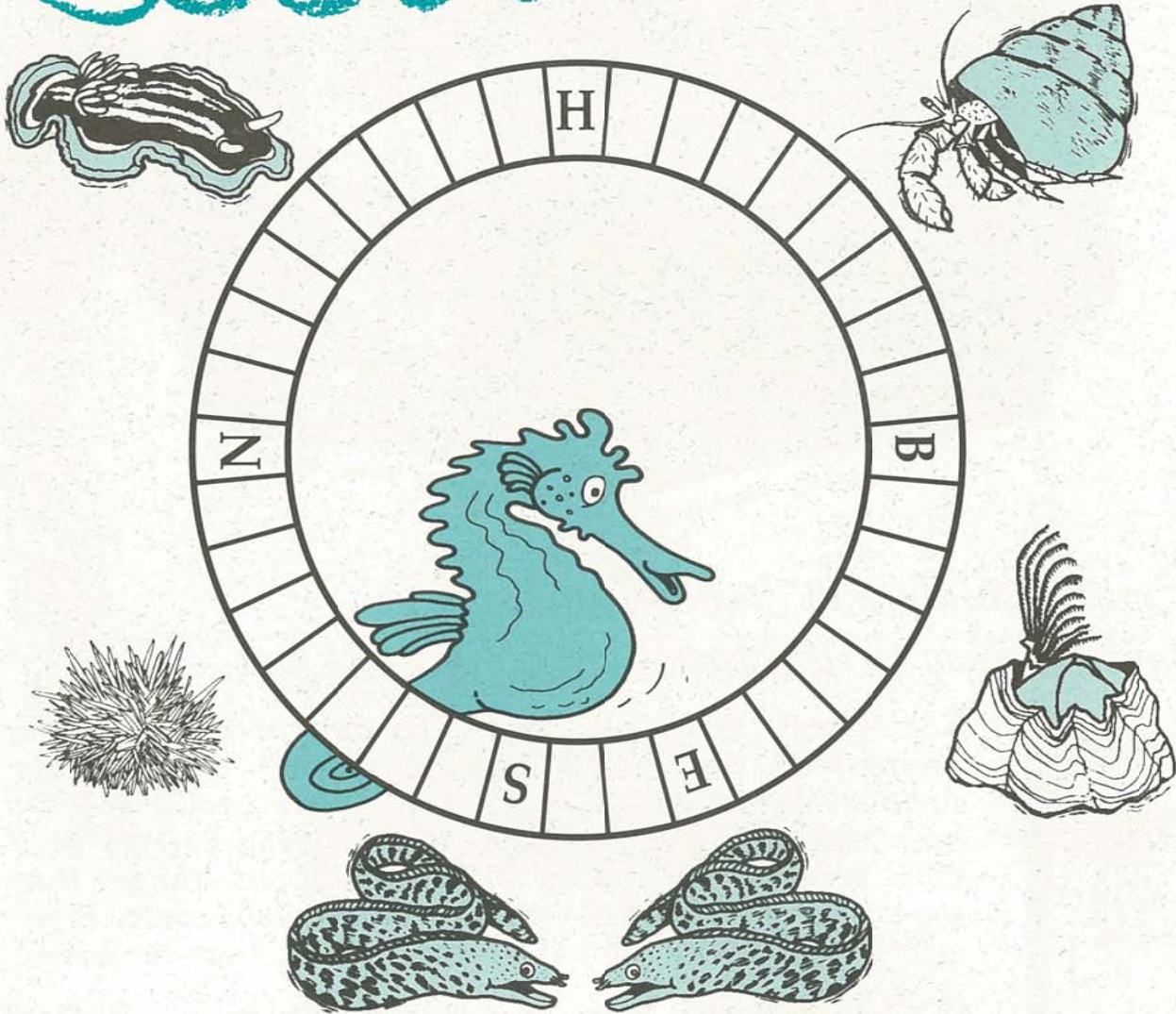
Mike Townsend

Kids Corner



Hi Kids! This time I have two puzzles for you to try. To start the first puzzle, find the animal that begins with "H". The last letter of the animal's name is the first letter of the next. Continue on until the circle is complete. Some of my friends are here to give you clues to help you solve this puzzle! The second puzzle is a cross-word and should be lots of fun too! See you next time you are in the Aquarium. Have fun!

Sidney



ACROSS

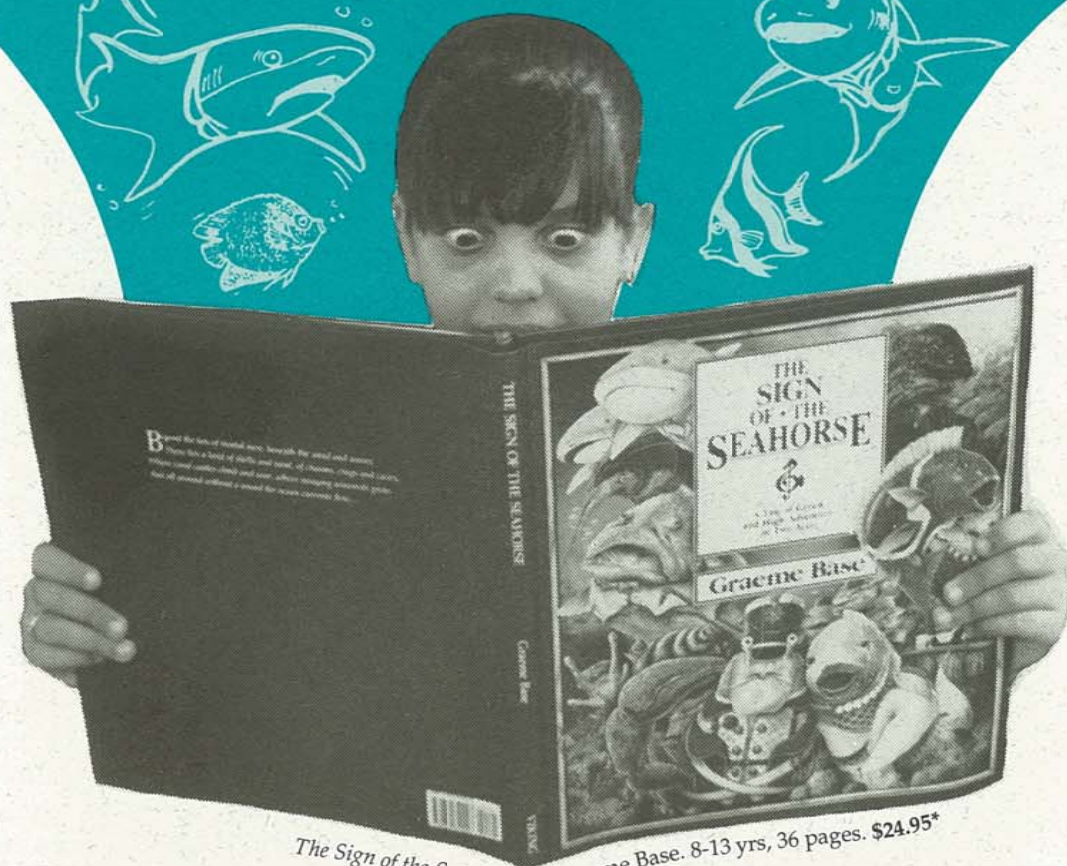
1. An Island. There is a new exhibit about me in the Aquarium.
2. I sometimes attach myself to Sharks.
3. You could say that I'm a "heavenly" fish.

DOWN

1. Reefs are made of this.

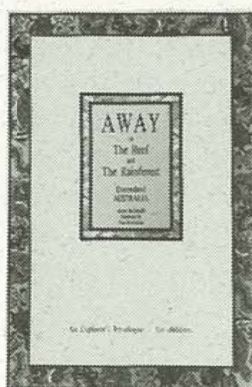


Let her mind soar
off into the wide blue under....



The Sign of the Seahorse by Graeme Base. 8-13 yrs, 36 pages. \$24.95*

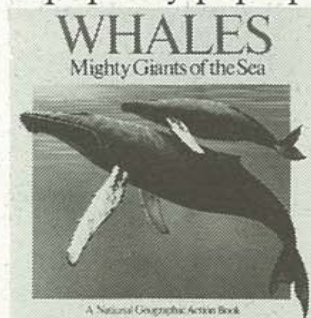
*Fact more wonderous than fiction....
spellbinding fiction based on wonderous fact....*



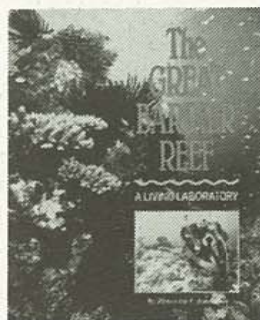
Away to the Reef and Rainforest
by Maree McDonald
49 pages, 3-12 yrs
\$19.95*



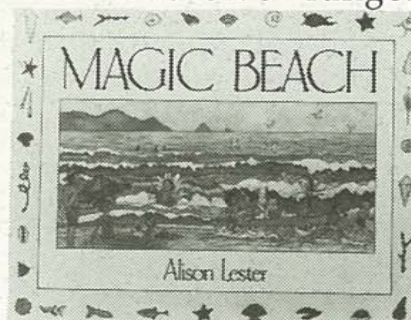
For the month of April the Aquarium Shop will offer a free Gavin Ryan book mark with every purchase of a childrens book.



Whales Mighty Giants of the Sea
A National Geographic Action Book
(this pop-up book includes a record of Whale songs)
12 pages, 6-11 yrs
\$24.95*



The Great Barrier Reef: a Living Laboratory
by Rebecca L. Johnson
Young Adults to Adults
96 pages
\$28.95*



Magic Beach by Alison Lester
32 pages, 6-8 yrs
\$16.95*