



Fiji Training Course Success

Geoff Jensen Reports

UNESCO, Wet Paper and the Qld Dept of Education helped sponsor attendance by Geoff to a South Pacific training workshop in December last year at Dravauni Island in the South Pacific near Fiji. Travelling by Air Pacific and then by the University of the South Pacific's research vessel the Apharius, 15 representatives from 8 South Pacific nations attended this two week workshop.

The format was completely 'hands on' with teachers learning classroom activities.

Geoff Jensen represented Bob Mofatt from Wet Paper in this seminar and it is with pleasure that his report is printed below.



Fig 1 The participants were (back row from the left) Peter; Western Samoa curriculum branch, Gideon; Principal from Vanuatu, Kolose; Teachers College lecturer Western Samoa, Etimani; Tonga, James New Guinea, Trevor; science advisor for the Pacific UNESCO, Dr Robin Harger; course organiser UNESCO. (Bottom Row from left) Dr Ann Coopersmith; University of Hawaii, Arnold; Papua New Guinea, Merino; Chuuk High School Micronesia.

The trip over

"What a challenge I was faced with, head off to Fiji for two weeks and be a resource person for Wet Paper in a U.N.E.S.C.O. run South Pacific Marine Teachers conference. Life is full of challenges and so I accepted this one, full of trepidation. I had

previously taught in New Guinea for three years and so I was confident I had some understanding of the Pacific mentality. I was ready for the change in culture and after living in North Queensland for ten years I thought I was ready for the slower lifestyle.

tle longer to sort themselves out in the Pacific.

Participants

All the participants arrived on the Saturday and we met for a planning meeting Saturday afternoon.

It was a real mixture of cultures and experiences drawn together for a unique experience. Experiences which none of us really expected on a course primarily devoted to changing attitudes about the preservation of their marine environment.

How you might well ask does one change attitudes in two weeks. Not possible you say, and of course you would be right. Therefore you must understand that this is the second course over a two year period. These

What a shock I received when I arrived at the University of South Pacific by taxi in pouring rain only to find that nobody knew I was arriving that night. However as I was to discover it just takes things a lit-



Fig 2 The Apharius



Fig 3 Coral species diversity, density count

participants come from education systems which are struggling to come to grips with education in the Twentieth Century. They are dealing with students and other teachers who have little concept of long term affects of today's actions. We had a difficult task indeed.

Knowing this, we all boarded our small boat for the 70 km journey to the USP experiment base on the Island of Dravuni. I did mention earlier unique experiences would occur. The boat ride of six hours without food or water was one of them. Consequently when we did arrive we were bonded together immediately by our com-

mon thirst and hunger. The thirst was relieved by raiding the locals coconuts even before we had taken Karva. This we did shortly after arriving.

Local customs

For this ceremony which involves the exchange of gifts and the drinking of Karva (a root which is crushed and soaked in water) we sat around the communal hut. After a number glasses of Karva (grog) and much ceremony (during which we were given permission to use the Island and fish its waters) we managed to excuse ourselves and race back for

something to eat. The locals stayed on drinking for hours (what doesn't get done today gets done tomorrow, or so it seemed).

Activities

Waking up at sunrise on a pristine tropical Island to the sound of the local village roosters is something to experience. Sunday the 6th was a glorious day, no clouds and crystal clear water. After breakfast we started work in earnest. It was going to be tough to show these teachers how to put transect lines and record data on a slate in warm tropical

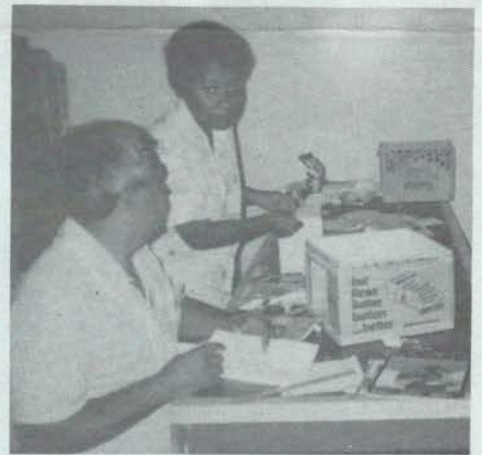


Fig 5 Kolose and Ana are learning to make an aquarium out of a cardboard box, plastic and a small sheet of glass.

waters however somebody had to do it. All jokes aside this kind of exercise was extremely important one because real data could be collected which would enable a simple means of monitoring the health of a reef. The type of data which we collected was simply a coral species diversity, density count (Figure 3).

Having collected the data we then graphed and analysed it (Figure 4).

Transect lines were also used to record Butterfly fish numbers and species. A large number of these species is generally regarded as an indicator of a healthy reef. Chaetodons appeared numerously on the fringing reefs around Dravuni."

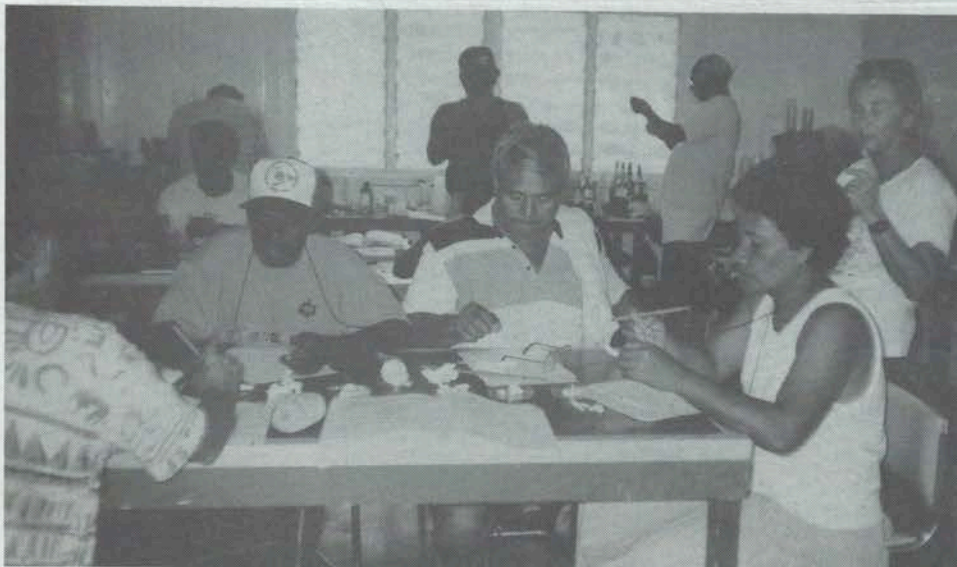


Fig 4 Analysing coral species diversity and density data

(Continued February News...)



Fiji report continues..



Fig 6 Beach cleanup and litter survey



Fig 7 The wave tank made out of some old timber and sheets of plastic

WaterWise!!!

I mentioned last newsletter that it was a unique experience and that it proved to be after two days on the Island we ran out of fresh water.

Ever woken up in the middle of the night dying of thirst turned on the tap and nothing comes out, talk about water conservation, I became a convert overnight. It has to be explained that these tropical Islands have only a small water lens which during the dry and times of increased population has difficulty in supplying the whole village, as well as this they had just emptied their reservoir tank for cleaning (Tropical Village Logic). Our activities continued throughout the day and into the night. One such activity is shown in Figure 5. Here Kolose and Ana are learning to make an aquarium out of a cardboard box, plastic and a small sheet of glass.

Cyclones

On Thursday 10th we were hit by cyclone Joannie and she effectively put an end to our outside activities for a couple of days. All was not lost as it gave me the opportunity to teach some splicing and knots. It was an activity that for once I had a captive audience. Construction of density meters (Figure 6) and sand sorting occupied us for the rest of the time.

Joannie gave us the opportunity to gather data on a reef the day immediately before and after a cyclone. We noticed that large staghorn coral beds had been severely damaged on one side of the island and yet damage on the other was virtually nil. Robin Harger (Ecologist) was extremely pleased when James Ume (New Guinea) proposed a hypothesis for the difference. To Robin this meant that the program was a success as the teachers of the Pacific were starting to think on a lateral plain. The data gathered and subsequent hypothesis should be published later.

Constraints

One of the problems facing the Western world is pollution of all kinds. It seems as if the pristine areas of the Pacific are not immune to this disease if the 11 bags of garbage we collected off the beaches is any indication. Can you guess what was the most common form of rubbish? Yes, you are right, "plastic" (Figure 6).



Fig 8 Arnie from New Guinea catching his first ever fish.

It appears as if this pollutant is world wide, a real problem to contend with. The teachers on this course were able to see what a problem this substance is when we found a slipper crab caught in an old net up on the reef.

One of the main objectives of the course was to demonstrate how the principles of Marine Education were taught without the aid of expensive equipment. This was well illustrated by the wave tank made out of some old timber and sheets of plastic (Figure 7). One would think that Pacific Islanders would know all about fishing. It was left to me to discover that this was not always the case as Figure 8 shows Arnie from New Guinea catching his first ever fish.

Local management

Dravuni is known amongst the Islands as one of the few that has a local management plan. In an endeavour to find out what this plan was, we invited one of the local villagers to talk to us. It transpired that the plan was a simple division of fishing rights amongst the various tribes.

Our guest lecturer turned out to be a very successful fisherman who had only that week purchased the villages first T.V. video.

When closely questioned by our group, he admitted that the catch close to shore had dramatically decreased over the last ten years and that he now had to fish outside in very deep water for different species and that soon he would have to purchase a larger boat and so round and round they go.

It was a very important lesson for our teachers who now really understood the need for management at their own local level. Achieving this goal is not easy as was pointed out by Marino from Micronesia when he stated that on his Island some people still dynamite the reef for fish.

We all agreed that making the rules is not the difficult part but managing those rules is. If the course only succeeded in convincing this hand full of teachers of the need for careful management of the world environment then it was a huge success. UNESCO are to be congratulated for their far sighted initiatives in this area.

Resources

My tasks were made very easy by the use of the Marine Studies book provided by Wet Paper Publications. This book proved to be very popular with the teachers and I am sure it will take pride of place on their bookshelves.

I am indebted to Bob Moffatt for giving me the opportunity to participate and the wealth of experience that I gained will, I hope, make me a better teacher. Through Wet Paper I should be able to share with you some of the things that I have learnt.

Geoff Jensen, February 1993



Fig 9 Island life

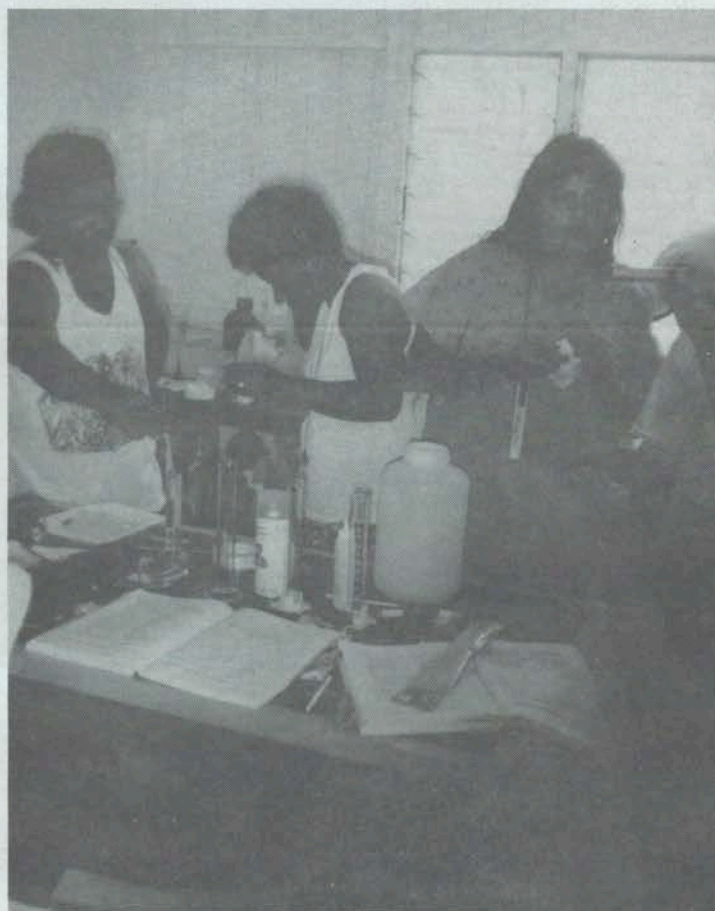


Fig 10 Working in the lab



WaterWise book now published

Be WaterWise - its worth it

Distribution of the new publication on water conservation began this month with over 200 pre-publication sales received.

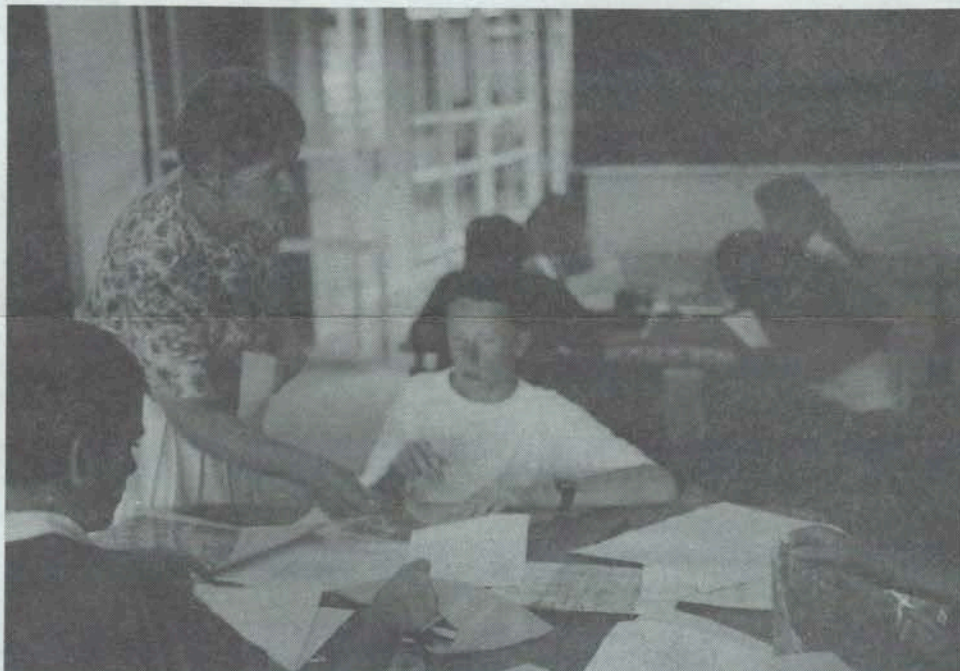
Orders for the WaterWise \$50 teachers guide continue to roll in with eighty received to date. The teachers guide which should be available mid-May will contain a promotional video showing news segments and TV adds as well as a Rap song which is an excellent way to introduce a unit on WaterWise.

School trial underway

School trials are being conducted in 1993 to develop the teachers guide and look at ways to revise and upgrade the book.

Beenleigh SHS Geography teachers Sue Mark and Chris Corney volunteered to be part of the trial. They chose the topic: Can we make more efficient use of our water supply as a model Australian Geographical Enquiry mentioned on Page 36.

From this single question a 5-7 week unit evolved. I went to teach with Sue and found working side by side a Geography teacher a great experience.



Sue Marks — Geography teacher Beenleigh SHS working with her students on the catchment poster activity for the teachers Guide to WaterWise

The Geography approach looks at asking key questions to provide a focus. These questions are summarised in the section on evaluation which gives a sample excursion, and enquiry layout.

At the conclusion of the section a model report is given of how the students are to write the report up.

Other sections include the answers to all the questions asked in the book with further suggestions on more challenging tasks, an equipment guide and diagnostics tests and revision sheets to each chapter.

A syllabus match is given with references to the new national curriculum guidelines.

Gold Coast launch

Plans are well underway to launch the Albert Shire and Gold Coast education program Wednesday 31 March at Pacific Fair.

TV and Newspaper advertising campaigns will precede and follow up the launch. Speakers will include the Mayors and Chairman from the local authorities and Somerset College has volunteered 12 year 6 students to demonstrate the waterwise game

Seaweed plans

Wet Paper is co-ordinating the program for the Marine Educators Society of Australasia. A marketing brochure is being produced and will include details of a Educators kit.

The kit is aimed at you setting up a display so that you can draw attention to the week. It is envisaged that the display be in a school classroom or library and gives examples of what can be done. A paper fish net and model fish are included and it is hoped that these can be used to construct drift nets of legal sized nets to show we care for our coast. Posters are planned as are classroom activities.

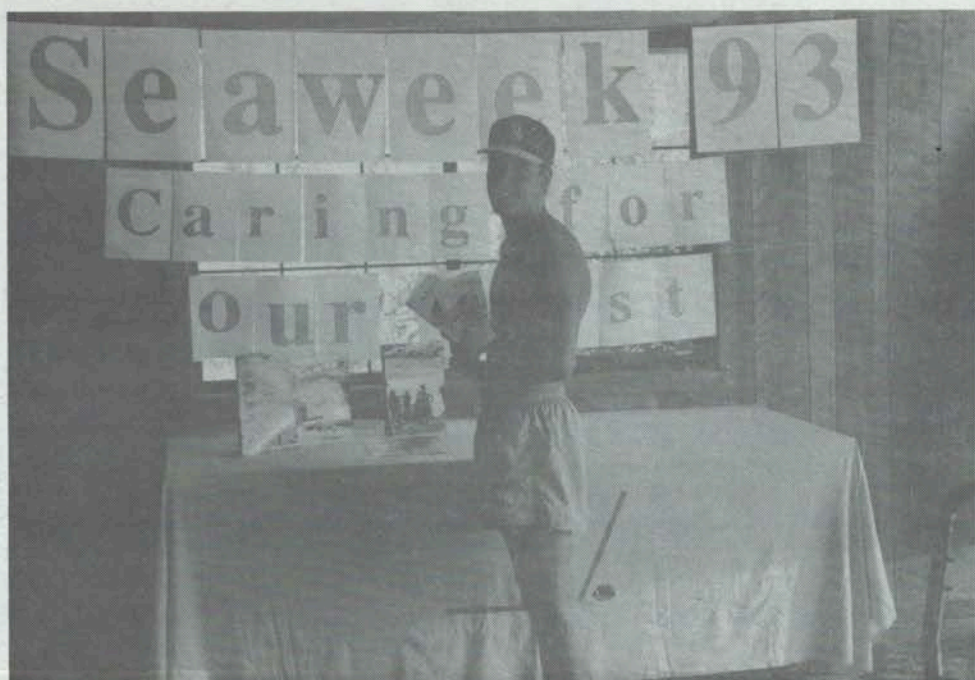


You can make a difference by becoming involved in Seaweed 93'

Australia's coastline is a ribbon of gold to be treasured for Australia's long-term survival.



A sample catchment excursion forms part of the Teachers Guide — students from Beenleigh trial aspects of the booklet



Mark Moffatt from Wet paper prepares materials for the display kit

The Marine Education Society of Australasia (MESA) with funds supplied from the Ocean Rescue 2000 grant as well as other organisations, is spearheading the 1993 Seaweeek activities which will focus on ways to care for our coast.

The Sea week kit advertised here gives many ideas to help you start to become involved.

Dates & Theme

March 28 to April 4 1993, Caring for our Coast

Activities

- ★ School displays
- ★ Aquarium presentations
- ★ Public forums
- ★ Community events
- ★ Media releases
- ★ Advertising

National contact

- ★ Bob Moffatt 14 Milbong Terrace Ashmore 4214 Telephone or Fax (075) 39 4187

Proposed Seaweeek kit

We are asking you to set up a display or focal point in your office, school library, classroom with literature, stickers, ideas on how we can all care a bit more for our coast.

- ★ 5, A3 full colour posters with student activities

- ★ 1 set of display lettering
- ★ 60 'Twenty ways to Care for our Coast' brochures + master
- ★ 3 A4 posters that can be enlarged to A3
- ★ 20 of these advertising brochures to pass on to others
- ★ 6, Care for our coast worksheets
- ★ 2 green paper fish nets, to pull apart to brighten up your display
- ★ 10 past newspaper cuttings
- ★ 4 'Respect the Beach' Surfrider stickers
- ★ A4 reusable plastic wallet
- ★ 1 media release and fact sheet
- ★ 4 cut out fish to put in crepe fish nets
- ★ Sea Treasure Hunt Game
- ★ Great Barrier Reef World Heritage Site pamphlet
- ★ AMSA stickers and brochure on "Stow it don't throw it"
- ★ NAUI Education package information

Proposed pamphlet

1. Recycle, Re-Use, Reduce
Reduce the amount of material that has to be treated at sewage plants. Cooking oils can be poured into a container, food scraps into a compost bin. Chemicals, paint, pesticides can be collected by local councils.
2. Pull your own weeds!
The less herbicides and pesticides you spray, the less you will swim in on the weekend! It eventually runs down to the beach.
3. Plant don't pave
Let run-off water soak into the ground. Landscaping is smarter and creates oxygen.

4. Don't water the driveway, it won't grow
All that water washes to the beach taking with it chemicals and oil.
5. Scoop the poop!
Unless you like to swim in animal poop, make sure you and your neighbour pick up the droppings.
6. Use walking tracks
These protect sensitive dune plants and help stop beach erosion.
7. Fix your car leaks
More oil enters the beach from urban run-off than from tanker spills! If your car drips, the oil will find its way to the ocean.
8. Use non toxic
Drain cleaner, oven cleaners, nail remover, paint thinners etc. are chemical poisons. Vinegar and baking soda can clean very well.
9. Slow the flow
Low flow shower heads, drip irrigators and half flush toilets conserve water. Reduced water use means less to treat at sewage plants.
10. Beware the buggie
Keep four wheel drives and trail bikes off sensitive beach areas.
11. Don't use your toilet as a rubbish bin
String, tooth brushes, tissues, plastics and hair are hard on the sewerage system.
12. Water in the morning and evening
This lets water soak in and minimises evaporation.
13. Oil's well that ends well
Recycle your motor oil at a garage. Don't dump it in the storm drain
14. Take care with hazardous wastes
Drop off household hazardous wastes at an authorized dump site.
15. Reduce your waste
Buy jumbo sized packages. Shop for products with the least amount of packaging.
16. Bring your own mug
The coffee generation brings their own mug. Help stamp out styrofoam — it floats and lasts forever!
17. Fishing line kills marine life
Encourage your local fishing club to come up with ways to reduce the amount of line that ends up in the sea. Design a biodegradable fishing line.
17. B.Y.O.B.
Bring your own (canvas) bag for shopping trips.
19. Get your mind out of the gutter
Clean your driveways and footpaths. Put rubbish in the can instead of the gutter. Use lawn clipping to fertilise your lawn.
20. Join MESA or Surfrider
Fill out the form below and tick the boxes.



SeaweeK 1993 — Caring for our Coast



The marine Olympics in Qld saw over 1000 students participate in water safety activities

SeaweeK 93

I just got back from talking to the guys from Sydney at Manly and if I ever heard of an extravaganza then that was it.

Richard Fitzpatrick, Manly Ocean World, had a pile of colour photos over 1 foot high and there was a orchestra in a floating shell, navy boats, divers, a massive tent, displays, ferry cruises....., I was impressed.

The committee raised over \$100,000 for the day unreal - well done - go for it next year.

In Victoria a small but enthusiastic group were enthralled by Neville Coleman, Reg Lipson and Peter Bridgewater, while John Smith from SA faxed me glowing reports of their successful conference.

In Queensland centres from Thursday Is to Coolangatta ran events, displays and celebrated on the theme 'Caring for our coast'

Ocean Rescue 2000 sponsored the national push which we organised very quickly here from Wet Paper. We envisaged schools with their students, putting up a display in their classroom and taking home pamphlets and talking with their parents about caring.

The display kit was helped with posters from Lineup and Troll books in Sydney as well as materials from the Great Barrier Reef Marine Park Authority, AMSA, National Parks and Wildlife, Sea World, Wet Paper, Ed Fish and Surfrider foundation who supplied FOC or at cost materials for the kit.

After two weeks of marketing and two weeks manufacturing everyone who ordered a kit before SeaweeK got one.

During the last week of April, the remainder of the kits went out so if you did not get one and ordered one, there is a slim chance their may be one left.

Marine Olympics

Caring for our coast to us on the Gold Coast meant using the water safely.

In this event, 12 local schools participated with teams, for an overall prize of a out-board motor.



"In NSW over 100,000 people participated during the week."

"South Australia had a record number attend the caring for our coast conference"

"Vic organises three great speakers for Marine Matters and WA celebrates in their own special way"

"All Qld centres participate"

"SeaweeK co-ordinator resigns and advertises position for 1993"

A navigation, boat handling, knot tying and capsizing skills were part of the days activities.

Brainchild of David Olreichs from Queensland Transport the day went off extremely well.

Dave can be contacted on Floor 25 Mineral House, 41 George St, Brisbane, 4000 or (07) 224 8832.

The session will be repeated at our National Conference - see dates this newsletter.



Navigation skills test as part of the Olympics



Dan Cross co-ordinates the knot tying event at the Olympics

Marine Studies lecture series at Q.U.T.

Marine Studies LSB312 began in February 18 for a course in Marine Studies organised by Dr. Jack Marsh. Lecturers Bob Moffatt, Jack Marsh, Tony Edwardson and Mike Capra will cover Chapters 11 - 20.

Ward Nicholas also lectures Navigation and Marine communications to graduate teachers in training at QUT this month from Cam McRobbies group. Four practical sessions see teachers trained in Chapters 6, 7 and 8. The lectures are also supplemented with practical 'hands on' methods. The Cape Hillsborough Channel charts and exercises form an integral part of the activities as well as simple models students can make to illustrate points such as tides.

Although down on last years record 75 enrolments, the Marine Studies class of 24 shared a keen interest in Seaweeek. Mind you when an exam question was looming on Caring for our Coast and WaterWise, it was expected!! All experiments from Chapter 13 on Water Quality were done and it was a great feeling to see University Students working on content that for so long we had struggled with in years 11 and 12. Maybe there is a message here.

Objective of course

At the end of the four lectures and prac sessions, you should be able to define the important non-living aspects of the marine environment and apply this knowledge into the local South East Queensland environment.

Weeks - 2 hours per week

Week 1. The Earth and its Oceans

Topics The origins of water, continental structure, rock types, ocean shapes, ocean plates,

the shaping of Australia, reefs of the east coast, ocean currents

Chapter 11 Oceans, pages 283-301, Chapter 7 Tides and weather, Pages 163-181

Week 2: Coastlines

Topics Coastal landforms, rocks and sand, wind and water, non-carbonate and carbonate sands, wave and beach interactions, waves and their characteristics, sand movement onto and off a beach, dunes and management.

Chapter 12 Pages 311 - 338

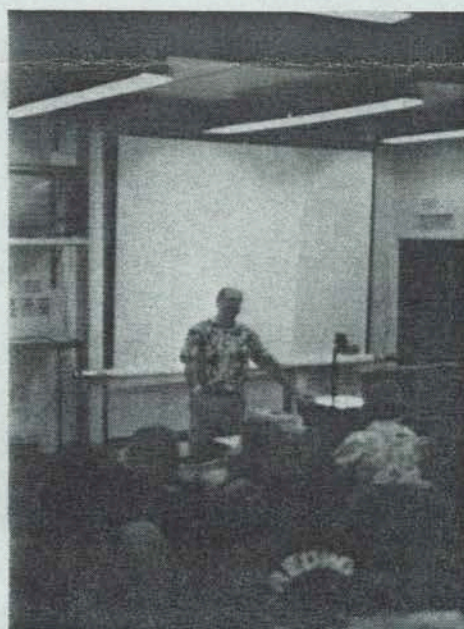
Week 3. Sea water quality and pollution

Topics Composition of sea water, making sea water, establishing a test, water pollution, sampling methods, water quality, dissolved oxygen, faecal coliforms, pH, biological oxygen demand.

Chapter 13. 351 - 376

Week 4. The effects of the land on the sea

Topics Nitrates, phosphates, currents, sewage



QUT Marine Studies classes 1993

treatment and water conservation strategies Chapter 13. 377 - 395, Notes - WaterWise book Chapter 3.

Practical sessions

Session 1: Water Movement and Ocean Shapes

Video: Volcanoes Ocean plates and tectonics Activity 1: Model coasts, tides and their interaction. Investigation of spring and neap tides from second hand data. Tide heights at secondary ports.

Activity 2: Wave tank experiment, observation and collection of data

Session 2: Coastlines and management

Video: Waves in the ocean

Video: Great Barrier Reef Evolution and management

Activity 3: The energy of a cyclone

Expt 1: Sand analysis and composition

Session 3: Water Quality

Video: Sewage treatment

Expt 2: Seawater salinity determination

Expt 3: Dissolved oxygen determination

Expt 4: Biological oxygen demand

Expt 5: Faecal coliforms and water

Session 4: Effluent and reclaimed water

Video: Effluent treatment and analysis

Expt 6: Nitrates in sewage effluent

Expt 7: Phosphates and effluent

Expt 8: Water and coliform bacteria

Expt 9: Other factors: pH, turbidity, BOD

Activity 4: Caring for our coast

Nudgee Beach Seminar

Our other involvement with Sea Week was with Penny Genrich at Nudgee beach.

This seminar, sponsored by the Brisbane City Council and DPI - Water Resources focused on Seawater Quality and Catchment Care.

Sea World Marine Biologists course

As part of Seaweeek Wet Paper ran a Oceanographer for the day course. Other events Jan Thornton organised were mangrove and beach lectures as well as a beach cleanup.



For Seaweeek Nudgee Beach EEC Qld ran a Water Quality Skills Course

April



Marketing/Research trip NSW-Vic April

During April-May I travelled through Coffs Harbour, Port Macquarie, Tuncurry, Orana and Moriset High Schools meeting with teachers of NSW to see how close the Book Marine Studies is to the new syllabus.

Met with Phil King, Steve Tucker and some of the MESA members from Coffs Harbour MESA and spent some time looking and photographing the Solitary Is Marine national Park.

Marine Park Education Activities

Phil is keen to write on National Parks of NSW and we will follow this up as a project for 1994. Many years ago Phil was on the same Reef Ed team as I was and we hope to do something similar in conjunction with other Government Agencies. Getting a handle on Marine conservation education is very tricky and valued input and co-operation will play a key role in all of us getting better curriculum materials.

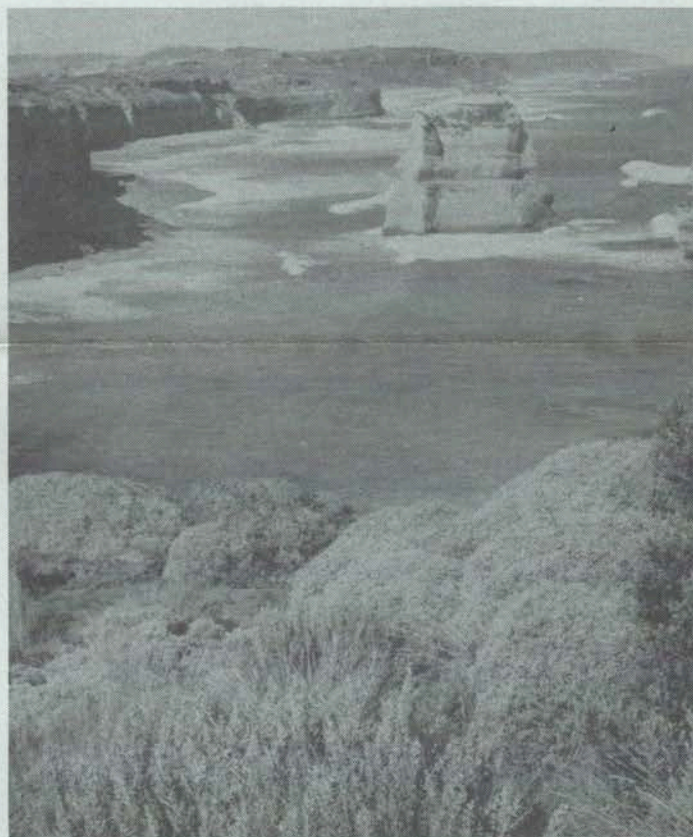
Seafood cooking education

Well done NSW for putting this in your syllabus — its definitely one area that a lot of us have done in the past but you have formalised it.

Had a long chat with Graham Rollston from Moriset SHS and we have a Seafood module underway. Does anyone want some consultancy pocket money to help?



Dropping in was never meant to be like this, however from a hot Easter day of 26 degrees into water of 14 degrees and surfing through long kelp beds was an eye opener. The surf spot was Port Campbell after Bells contest was moved due to lack of surf.



Some of our magnificent Australia from Port Campbell National Park. The Chapter on Coastlines will be greatly upgraded from our experiences in Southern Australia. Some of the diagrams in this chapter are hopelessly incorrect if you hadn't noticed yet.

We also looked at Marine Education in the Science for life course and discussed in detail the needs of students. graham has been working for a long time in marine education and is involved with a group of about 13 schools from Newcastle - Gosford - The Entrance. Met also with Bob Kayton from Erina HS who is part of the organising team.

Missed everyone at Queenscliff

Lovely day on Easter Sunday and apologies for not seeing the VIMS people. Did you know that Laurie Hammond VIMS, now in New Zealand, held the first MESA conference at Queenscliff Marine Studies Centre? Well the improvements since then are outstanding. The centre runs courses during the holidays for the community such as their Marine Biologists cruise and ocean discovery tour.

Queenscliffe Marine Discovery Centre

Patrick O'Callaghan Queenscliffe Marine Discovery Centre PO
Box 138 Queenscliffe 3255 (052) 523344

Hanna Test Kit Information for Chapter 13

I've been promising this for a long time now. Thanks to John Burnett, the following should suffice. They completely can replace the HACH kits and great savings.

Prices from:

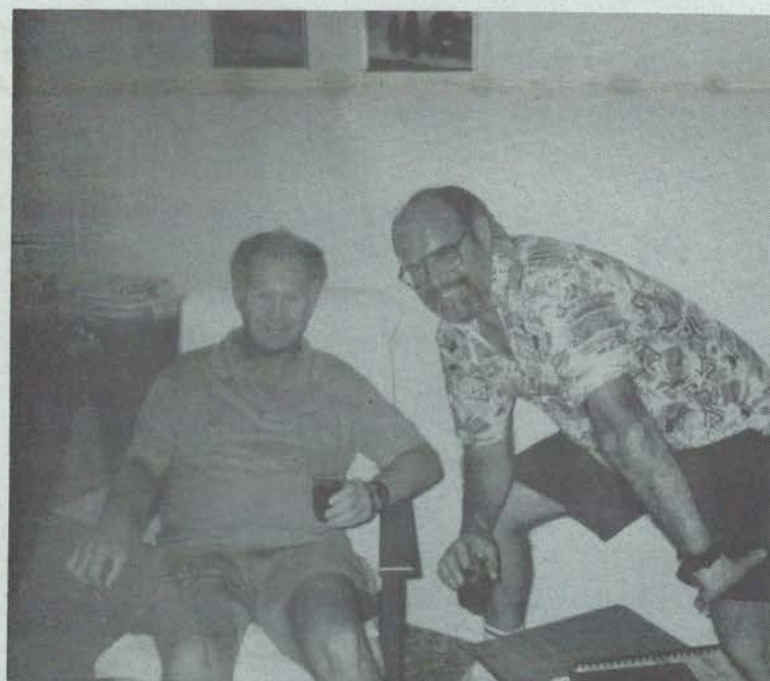
Lab Supply (Qld)

P.O.Box 244, Coorparoo, Qld 4151 Telephone (07) 394 2000, FAX (07) 397 0568

Haines Educational

1717 Dandenong Rd, Oalkeigh Vic 3166 Phone: (03) 562 7717 FAX (03) 543 7119

Code	Test	Cost	Type of test	Vols tested
H1 4810	Dissolved Oxygen	\$75	Titrametric	0-100 ppm
H1 4818	Carbon Dioxide	\$40	Titrametric	0-100 mg/L
H1 4820	Acidity	\$55	Titrametric	
H1 4822	Sulphite	\$60 -	Titrametric	0-200 mg/L
H1 4829	Ammonia	\$50	Colorimetric	0-2.5 mg/L
H1 4833	Phosphate	\$75	Colorimetric	0-5mg/L
H1 4834	Iron	\$40	Colorimetric	0-5 mg/L
H1 4835	Salinity	\$70	Titrametric	0-40 g/kg (ppt)
H1 4823	Marine Science Kit	\$340	Alkalinity Carbon Dioxide Dissolved Oxygen Hardness Salinity pH (meter)	
H1 4817	General Water Kit	\$200	Alkalinity Chloride Hardness Sulphite Iron pH	
H1 4814	Ecology Test Kit	\$295	Alkalinity Acidity Carbon Dioxide Dissolved Oxygen Hardness pH	
H1 8734	T.D.S. Meter (Salinity & others)	\$515		
LC 84	Meter - Salinity & Temperatures	\$495		
	Hanna Salintest (Salinity meter)	\$92 Range 5.85 - 58.5 gm/L		



Dave Claridge with publisher Bob Moffatt discussing the new book

Mangroves Ecosystems in Crisis



Draft

Dave Claridge
John Burnett

PAPER WET PAPER WET PAPER WET PAPER WET PAPER WET PAPER WET PAPER WET

This will focus on description of species as well as ecology.

Mangrove book writing complete

Wet Paper is set to release a new book on Mangroves in June. Authors Dave Claridge — Maryborough State High School and John Burnett — Emanuel College have been burning the midnight oils to have the copy deadline ready.

Contents

Preface

Introduction

Ch 1 The Mangrove Environment

- mangrove distribution
- adaptations
- zonation
- the environment of mangroves

Ch 2 Ecosystems in Crisis

- economic value of mangroves
- threats to mangroves
- the future of mangrove ecosystems/

management

issues

Ch 3 Identification Keys

Ch 4 Species Descriptions

Ch 5. Activities for students/educators/community

groups

Bibliography and Further Reading

Glossary, Index

Price: Approx \$30

Full colour plates of mangroves and illustrations, approx 140 pages, fully illustrated



WaterWise Week

Brisbane City Council, Gold Coast and Albert Shire councils all launched their water conservation programs with a variety of activities.

Wet Paper was involved in demonstrations in the Brisbane City Mall in catchment care and water quality. Bill Rizel chief chemist from BCC showed students a chlorine test for water (something I had not seen before) and students then conducted the students survey from page 79 and 83.

In this survey students asked the following questions to people in the mall.

1. How much does an average household bucket hold?
2. In one hour a garden sprinkler uses
3. Do you approve of water meters?
4. Should we have to pay for water like we pay for electricity?
5. When using water do you turn the tap off when you brush your teeth?
6. When watering the garden, do you forget to turn off the sprinkler?

Results were then presented on 4QR afternoon talk-back radio as well as discussing the issues of water conservation. Organised by Water Resources DPI Qld, this proved a very successful way of creating attention as well as communicating awareness with the public. Schools attending were Beenleigh SHS and Ipswich Girls Grammar.

The Gold Coast City and Albert Shires launched their water conservation programs at a function in the new



In the Brisbane City Mall for the launch of WaterWise week was Claudia Lopes and Kyla Devitt from Beenleigh SHS interviewing passers-by.



The Mayor and Chairman officially launch the WaterWise Educational Program

stage at Pacific Fair. Students from year 6 at Somerset College this time formed part of a water conservation game where they role played a water wasting suburb. After seeing the effects of a dam running dry, the Mayor and Alderman were asked if they should spend the ratepayers money on building a new dam and at raising the rates to pay for it. The students all vowed to become waterwise to save their suburb money and told the audience of the ways they were going save water. Wet paper has details of the game which forms part of the WaterWise Teachers Guide advertised in this mailout.

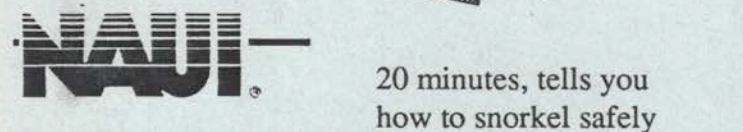
MESA National Conference — Call for papers

The MESA conference committee is calling for papers and registrations:

Jan Thornton
Sea World
PO Box 190 Surfers Paradise 4217
Telephone (075) 88 2222
Fascimile: (075) 911



NAUI Snorkelling Instructional Video



20 minutes, tells you how to snorkel safely

Newsletter Achievements 1992

As a result of people subscribing to our newsletter we have been able to:

- * Produce some worksheets to some of the chapters thanks to Dave Dawson, Bob Griffin, Tim Pickford, Geoff Jensen and Sea Week the Gold Coast MESA
- * Contract out and produce Diagnostic tests to 90% of the book thanks to Tim Ryan, Ward Nicholas, Tony Failes.
- * Answers to many questions in the Chapters on Marine Communication and Navigation by Bob Critchley and Dave Dawson
- * Produce articles on safety from NAUI
- * Network people. Marine Studies is in its infancy — I've been going at it now for 20 years and only feel as though I've scratched the surface. In 50 years we will come of age but what we all do now is lay the foundation for this intergenerational equity thing where hopefully we won't stuff up the environment as much as our parents did by ignorance — our job is to create the awareness event if half the time we don't have a good handle on what we are educating about - that's deep and I'm at the end of the page.

Bold new plan to produce up to 10 videos by 1995 to accompany Chapters 1 - 20

Market research has started on the idea of producing Marine Studies Videos to selected Chapters of the book. Before committing large sums of money, we are undertaking a market research to see if:

- (a) this is a good idea at all. If you know of existing videos please let us know so we don't waste time
- (b) what quality you as clients will accept. We all know there are inexpensive ways of doing things and these are acceptable we may go with these BUT.. I've watched my own students go to sleep in the first five minutes and the purpose of a video is lost. If professional presenters are required and you are prepared to pay for this, then that's what we will do — if there enough out there to support such an expenditure.
- (c) The content required in the videos. Enclosed in this Newsletter is a survey form plus the chance to preview a really neat video on Snorkelling for Kids. The video is aimed at the 8 - 11 years old market and there in lies a problem I know, but for the purposes of research I want to put this one up as an example of what we could do. A couple of semi-professional paid presenters with paid models using rented equipment and a skilled audio producer and editor is what I have in mind.

The Chapters I see as needing videos with possible titles are: (What are your ideas???)

- Ch 1 Boats and equipment
- Ch 2 How to start and operate an outboard engine
- Ch 3 simple safety and the small boat
- Chs 4/6 Navigation and chartwork
- Ch 5 Getting your boat licence
- Ch 8 Marine Communications
- Ch 9/10 Skindiving
- Ch 13 Water Quality Monitoring
- Ch 14 Plantain
- Ch 15 Fishing

Please complete the survey on the form enclosed



Out and about

As part of our on going commitment to Chapter 13, staff from Wet Paper have been conducting teacher and student workshops in New South Wales and Queensland schools.

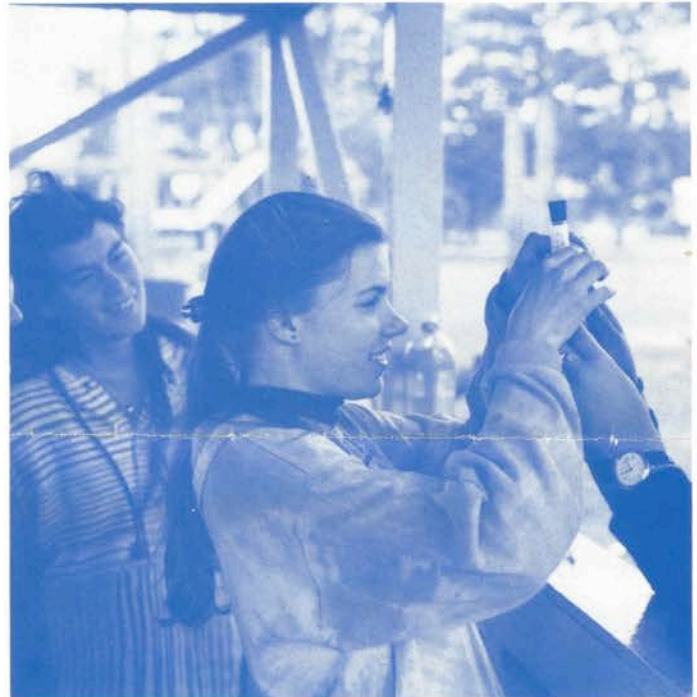
Most school visited lack class sets of water testing equipment and we are finding that a day excursion where all students can participate in hands on lab testing, provides a valuable adjunct to classroom demonstrations or round robin activities.

Winston Brown and Mick O'Connor from Ballina High helped organise such a field day at their local creek. Twenty students from their Marine Studies class investigated many parameters of the creek including the formation of a salt wedge with the incoming tide as well as plankton sampling.

We road tested the new TPS dissolved oxygen probe and salinity/temperature meters that Michael Shrimpton from TPS lent us. Having been skeptical for a long time now about the value of probes, I was immediately impressed with the ease of use especially the salinity probe.

I'm going to keep my silver nitrate titration for the lab at school and now use the probe every time. Coming in at around \$600, we will be buying a few at a time till we get 6 because this seems to be the best number to handle at any one time.

Students worked from under a shelter shed and the



Ballina High School students test their local drains for nitrates and phosphates as part of Oceanographer for the Day program

school supplied a boat which all students seemed to be able to handle with great confidence and safety.

Drains tested

Testing nitrates and phosphates in the field is difficult with marine waters, so our program concentrates on testing the surrounding drains. Samples are taken and with our eight sets of nitrate and phosphate kits the students were able to work out levels for each parameter.

We use the HACH kits as they seem to be more durable. More expensive though, especially when a colour wheel is \$75 each and we bought 16 of them. Still we have found that the students use them with respect, especially when they know they have been bought from the class set sales of the books they are using.

Surfrider data

Surfrider Foundation
Conservation Activism
Research Education



The day is full so we make use of second hand data where necessary. Last Christmas we helped Surfrider foundation collect coliform count data from Qld Gold Coast beaches at 10 sites twice a week for six weeks. The data collected forms part of the second-hand information available for student use.

Other second hand data includes total solids and BOD to complete the Mitchell and Stapp research methods discussed in Chapter 13 of Marine Studies



Surfrider Foundation, Wet Paper and Department of Environment and Heritage collect Faecal coliform data from Gold Coast beaches



Oceanographers for the day at Ballina High School

Kingscliff High School visit

Always wanted to go and glad I did. Thanks Peter Langley for inviting me to meet your students and see your program.

There must be many more of you out there so I'd love to come and see your school and share with others so we can all learn.

Peter has a satellite dish which gives up to date weather patterns each day as well as other remote sensing data.

His school also built a wave tank, photo below to show how waves can move sand back onto the beach.

The school is situated near a coastal littoral rainforest out of which was carved their school oval. This exposed the inner floor to increased sunlight and introduced plants were a real eyesore until Peter and his band of helpers cleared the lantanna and weeds to make way for the natural vegetation to recover.

Introducing native snakes and trees which attract butterflies is also part of this landcare program something which was quite new to me anyway. Also his envirocare group have done remarkable work restoring the local beach. Fences were erected and coastal spinnifex replanted at one end. When this was successful the community got right behind the project and planted the rest of the beach right up to an including parts in front of the town caravan park. In the beginning the locals were skeptical about Peter and his strange landcare ways but now seem to accept that this type of management practice may be useful.

The Kingscliff group has won many awards for their efforts and will be presenting a session at the MESA conference which is on this September.



Oceanographer for the day — Happy customers

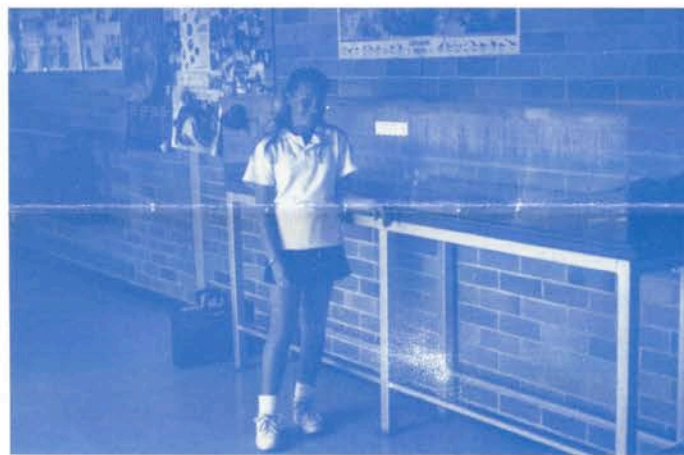
We hope to please but its nice when we do get feedback . Thanks to Ballina, AB Patterson, Aquinas, Clairvaux McKillop and Helensvale for the nice letters of support for our program.

Book now for term 4

Booking are being taken now for term 4 and are closing fast. Cost is \$20 per person with a minimum of \$400 for the day, booking through Sea World (075) 88 2222 and ask for Jan Thornton or Alex Rossi.



The computer setup that tracks the satellite as mentioned in the text



Wave tank at Kingscliffe High School

River of sand revised video

Encyclopedia Britannica has updated the video - River of sand which is a classic in beach and coastal dynamic. Unparalleled vision of a wave tank and how sand moves along a beach as well as time lapse photography of wave beach interactions

Totally Wild and World Environment Day

Wet Paper and Sea World combined to help celebrate world environment day on the Brisbane River this year.

With crew Mark Hoult, Jan Thornton, Trevor Long, Alex Rossi and videos and camera team from Channel 10, we filmed a series of activities aimed at teaching students to care for our coast.

Activities included a plankton trawl through the murky waters of the Brisbane River outside the cultural centre and to our surprise quite a range of plankters were caught.

Jack Marsh from QUT joined the group briefly to show us how to stain plankton a beautiful bright red and an assortment of personalities dropped in to see what was going on.

Wet Paper and Sea World donated their time and equipment for the day and over 100 students participated in a marine experience.

Water was sampled from a variety of depths and tested for the usual water quality parameters.

MESA conference program nears completion

Sunday	Registration
Monday	Opening ceremony, activities, workshops
Tuesday	Paper presentations
Wednesday	Field Work
Thursday	Paper Presentations
Friday	Closing ceremony, activities

Jan Thornton Sea World (075) 88 2222 is contact.



Sea World One in the Brisbane River for World Environment Day



Cast and crew from Channel 10 do a segment on Totally Wild



Peter Langley from Kingscliff SHS with his envirocare club and satellite dish ..see page 2



Jan Thornton shows Comb Jellyfish for cameras while giving talk to class. Not bad Jan!

Available at the MESA conference - September 27 - October 1 1993.

"The activities and information in this book are excellent"

Tim Ryan, Gympie State High School.

\$30

plus \$6 packing and post

Contents

Species list
Preface
Introduction
Glossary of terms

Chapter 1	The mangrove environment	17	Chapter 3	Species descriptions	59
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Mangroves in Focus

by
Dave Claridge
Marine Studies Teacher
Maryborough State High School

John Burnett
Science Teacher
Emmanuel College

Educational Consultants

Michael Michie
Channel Island Field Study Centre
Geoff Jensen
Innisfail State High School
Bob Moffatt
Wet Paper

Jim Rebgetz, Ann Stone and Glenn Leiper
Jacobs Well Environmental Education Centre
Dawn Couchman, John Beumer and Kim McKague
Department of Primary Industries

"This book will be an invaluable school text",

"A great combination of factual information and educational activities"

Alan Perry, Hervey Bay Senior College.

Order your copy now to avoid delays but do not send any money*

Mangroves in focus order form

Do not send any money, we will bill you,
*however please use an official school order form.



Return to
Wet Paper 14 Milbong Tce
Ashmore 4214
Telephone or Fax (075) 39 4187

Please send me _____ copies of the book Mangroves in Focus as soon as it is printed for \$36 which includes postage and handling.

Name: _____

School: _____

Address: _____

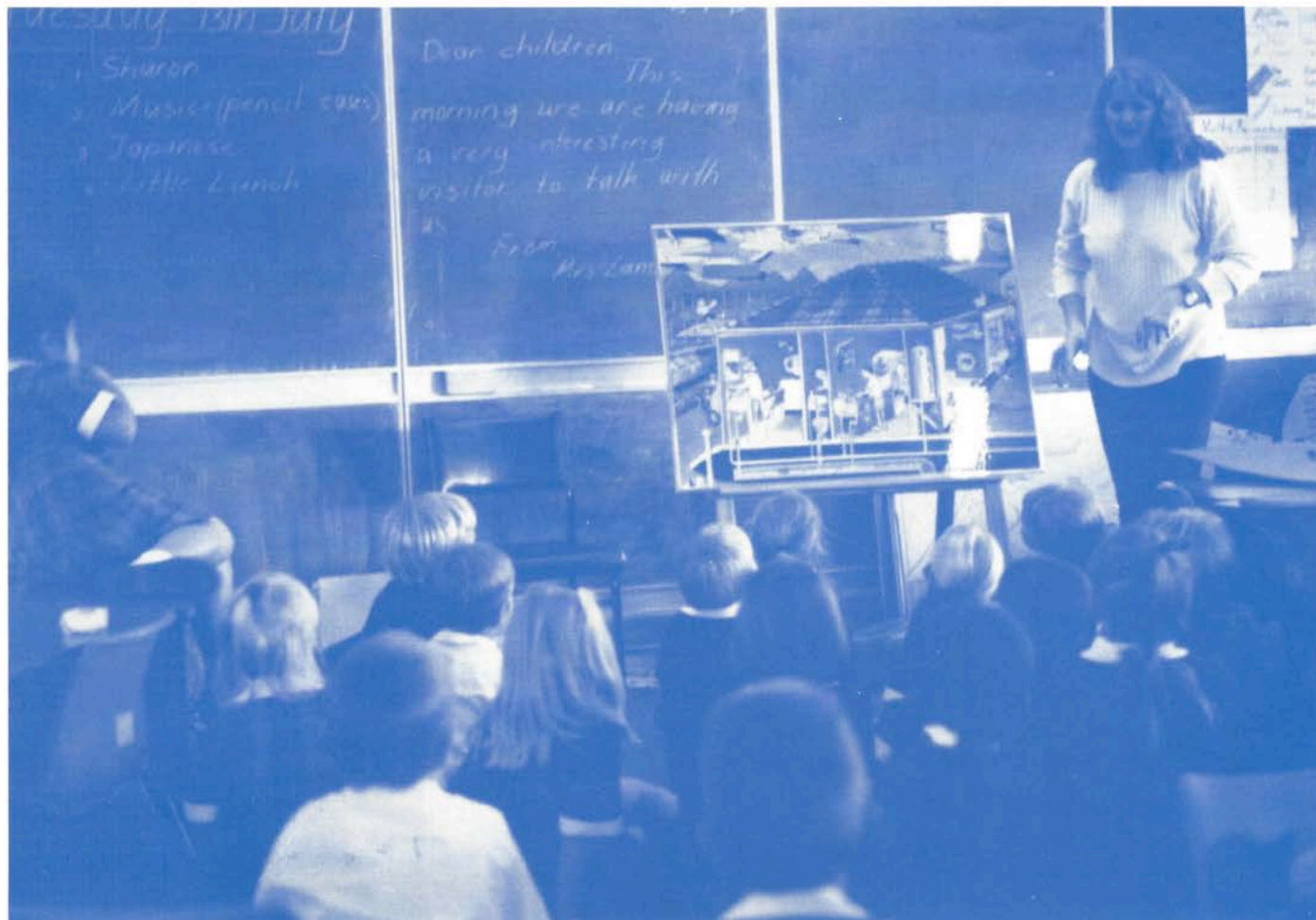
Post Code _____ School Order No: _____

Signature

Conditions of sale: Items ticked will be supplied. Payment to accompany order unless official school order is used. Prices and availability subject to change. Inspection copies for 7 days and items to be returned in condition that allows resale. Terms of trading 14 days. Postage and packing: \$6 orders under \$60, 10% orders \$60-\$500, POA >\$500.



WET PAPER WELCOMES SHARON



Sharon Dalglish Educational Consultant and professional story teller with Somerset College year one students on the Gold Coast..

New teacher appointed assists 1-12 program

Welcome to new staff member, Sharon Dalglish a professional story teller and teacher from New South Wales. Sharon wrote us a story about Wally the water Waster and Whizzcat the super hero who teaches Wally about water conservation which has complimented our Primary School program perfectly.

The program is available from Year 1 - 4 with storytelling session lasting about 30 minutes.

During the program Sharon uses a felt board with props to involve younger students and with the older ones, introduces the concept of the water cycle.

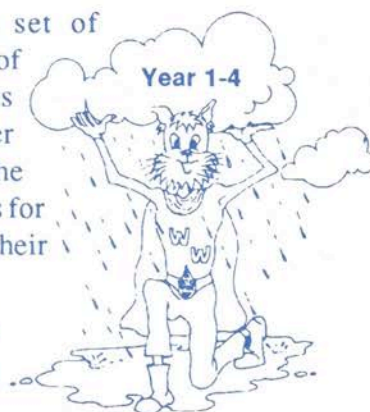
Over 700 students have participated so far in what is proving to be a very popular part of our schools educational consultancy program.

This follows on from our very successful, Oceanographer for the Day run in conjunction with Sea World.

Schools education kit

Each teacher receives a set of classroom materials as part of the program which students can complete before and after the storytelling session. The students also receive stickers for their bags and a poster for their classroom.

A teachers information book is also provided. Details on how to order these are on the back of this newsletter.



Whizzcat drawn by Brady Moffatt art services



These keen young year 6 students learn about water wasting habitats in the upper primary school education program

Years 5-7 play the WaterWise game

The year 5-7 WaterWise program involves a one and a half hour lesson with all equipment supplied apart from a video.

The lesson starts with a short introduction followed by a video called Brads Rad Adventure.

Aims

The Water Wise lesson will encourage students to:

- be aware of the water cycle, the catchment, storm water and waste water systems.
- be aware of water wasting and water wise habits.
- understand the impact of these habits on the water supply.
- understand why we need to save water.

A 20 minute video is shown called Brads rad adventure - an excellent video from the Sydney Water Board about a catchment and how everything is connected. The video finishes with the concept introduced about our water supply and how it gets to our house.

The students then form a group household and go outside to play the WaterWise game.

In this game the students role play water wasting and water saving households

situations to see which uses water the greatest. (See photo above).

The students then return to the classroom and play super spotter, with a large photograph of a WaterWise household. The school gets a poster of this when the teacher leaves

Finally a video is shown called " the case of the disappearing water", from the Sydney Water Board and conclude the lesson with a Water just isn't water sum up and sticker handout.

Worksheets are still being developed and will be an extension of the kit advertised on the back page in the near future.

Bob and Sharon hope to have the story of Wally the WaterWise fully trialled by December so that a story book can be published for the program next year.

We are researching very carefully the educational concept maps students have of water use as well as their perceptions of water conservation as an environmental issue.

Specifically we are interested to see if students are 'buying this adult agenda'

Hi.. I'm Whizzcat

All programs have a central core component of Water Conservation Tips



Videos and catchment water watch videos

The videos described below are available from the

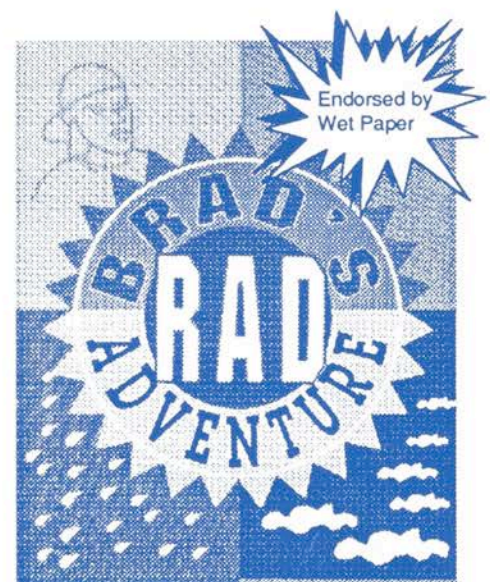
Sydney Water Board
Community Education team
PO Box A53
Sydney South

There are two kits on water care:

Years 5-6 Water Care

Years 7-8 Water in the Natural Environment

Both videos deal with Total Catchment Management which in turn looks after our seas. Prices and availability available on request.





One of the games originators, Kerry Kitzelman, volunteers his time at Nerang World Environment Day to Year 5 students

Year 8 program to focus on dam study

Starting with Coombabah State High School Dave Maguire, Year 8 Science in term 4, we want to develop a program that takes students to the local dam and treatment works for a half day trip. Pre and post excursion materials will focus on how water gets to the house and how to save it when it gets there. A week long unit is being written.

Year 9 program follows wastewater

Year 9 students in the WaterWise education program follow the path of water from the sink to the sewage treatment plant. During an excursion through the plant they learn how water is cleaned and conduct tests to establish levels of nutrients remaining.



Year 9 students from Southport SHS experiment with dissolved oxygen kits from the Wet Paper Lab. This lesson followed the visit to the local treatment plant.

Water conservation tips are again discussed. Thanks to Bill Cotman, Ken Lister and Bruce Clarke as well as the year 9 teachers from Southport, Coombabah and Helensvale Schools. I must admit to being taken back to the stark reality of year 9 (something I would commend ivory tower educators to do once in a while to gain a renewed perspective on education)

Year 10 WaterWise house

On the drawing boards is a program to take students to a house under construction so that a plumber can explain how the various fitting in a house work and the materials that are used. It is hoped to build in here the various devices that can be used to reduce water use in both outside and inside the house.

We need a volunteer school and builder for this. Alternatively, Gold Coast TAFE, plumbing section is about to start a pre-vocational program and hopes are for a waterwise house in the not too distant future. I hear Sunshine Coast is building one??

Years 11-12 program focus on independent water report

Wet Paper has been running senior WaterWise programs for select Gold Coast and Brisbane schools over the past month. Some schools such as Beenleigh and Toowong (Ann Lowden) have adapted for a complete study using the materials as mentioned on the back page. Ann has now run the complete excursion and completed the Unit with her Year 12's.

Debbie Heck from Cleveland has here own interpretation and assisted us greatly with the kit advertised on the back page.

Other schools such as Aquinas, Clairvaux MacKillop and AB Patterson Colleges have been trialling a short one day excursion focusing on water conservation and quality issues. Thanks Dianne MacKenzie and Katie Perkins. Here the Wet Paper lab is used to provide materials for 'hands on' experiences so students can write their report in Multi-step processes.

TAFE pre-vocational course

A very early program is being piloted here with the Gold Coast Institute of TAFE with this years pre-vocational group.

If this is successful we hope to extend this further in the years to come to be part of the plumbing apprenticeship scheme, working

Contents of fieldwork booklet

Itinerary	...	...	1
Objectives	...	...	2
Plankton sampling	...	...	4
pH	...	...	5
Turbidity	...	...	6
Change in temperature	...	...	7
Temperature/salinity	...	...	8
Dissolved oxygen	...	...	9
Nitrates in water	...	...	11
Total phosphate in water	...	...
Field data sheet...	...	...
Water quality tables	...	...



Assessment criteria

Knowledge

- To recall
- To apply in simple situations

Scientific processes

- To collect and analyse data
- To process information
- To communicate information
- To make simple judgements
- To devise and design simple/single step investigations

Complex reasoning

- To solve problems
- To make decisions
- To use scientific theories critically and creatively

Skills

- To operate safely and proficiently

closely with TAFE teachers and industry representatives who supply water conserving appliances and their installation.

WaterWise school visits hot up

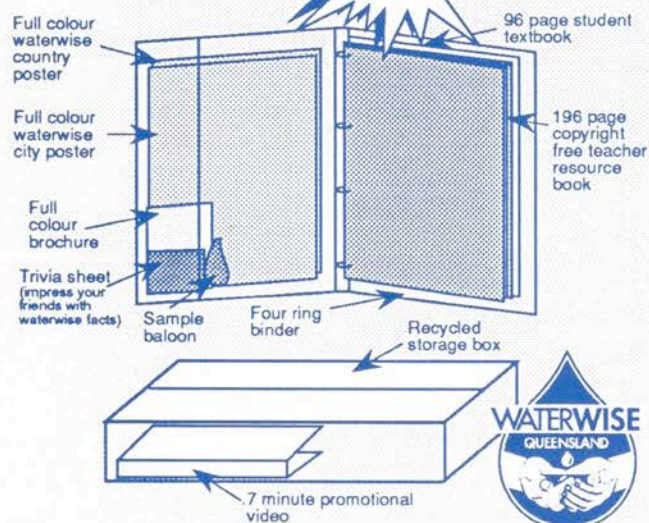
Secondary schools participating in the program to this term have been Somerset, Aquinas, AB Patterson, Clairvaux McKillop Colleges, Toowong, Keebra Park, Beenleigh, Southport, Coombabah and Helensvale State Highs, Ashmore, Surfers Paradise, Belview Park, Girls Guides Southport, Nerang and Biggerra Waters.

Term four has been set aside to visit as many schools as is possible thanks to our sponsors Gold Coast City and Albert Shire Council.



TEACHERS RESOURCE KIT for years 10-12

\$56



Teachers from Toowong High School discussing contents of teachers kit



An integral part of the senior programs the involvement of students in field work and the collection of primary data. Here teachers from Toowong High School plan their school excursion.



The sample excursion in the teachers book considers the total catchment and water cycle. Teachers should involve students in excursions to wastewater treatment plants to investigate regulations regarding sewage disposal and the possibility of using this reclaimed water is a more productive way. The senior program challenges students to an independent study with the emphasis on the collection and analysis of primary data.

This photograph is of a sewage clarifier where reclaimed water can be viewed at first hand from behind the new handrails in the background.

To allow teachers to preview WaterWise educational materials, this inspection kit has been prepared. This kit has enough materials for you to run a Senior School unit in Water Conservation for years 10, 11 or 12.

The kit contains:

Qty	Description	Value
1	WaterWise Students Textbook	\$10.00
1	WaterWise Teacher Resource Book (Copyright free)	\$22.00
1	Promotional video	\$5.00
2	Posters (1 WaterWise City, 1 WaterWise Country)	\$5.00
1	Balloon	\$0.17
4	Stickers (1 rap, 1 flow, 1 drop, 1 miser)	\$2.00
1	Brochure (If water came in buckets)	\$0.12
1	Trivia sheet (BBQ notes)	\$0.71
1	Folder	\$5.00
Total		\$50.00

These materials are available in bulk as a campaign package, the details of which are contained in an order form within. Thank you for getting involved.

Video

- The video is designed to be shown at the start of a unit of work on water conservation as an introduction to the unit. It contains media advertisements, a rap song and a new item.

Posters

- Posters can go up in the room and can be used in conjunction with the activities mentioned in the book.

Balloons and stickers

- Balloons can be used to promote the campaign feeling. The stickers are designed for school ports or car bumpers.

Brochures

- The WaterWise brochure can be used in conjunction with the WaterWise surveys as outlined in the students book.

Trivia sheets

- Trivia sheets are designed to be used as "classroom time soakers" where students can revise facts while waiting for a period to end or begin.

Folder and Teacher Resource Book

- The Teacher Resource Book is copyright free for educators to make worksheets, overhead transparencies, design activities or plan units of work in water conservation
- The book is perfect bound so you can tear pages out and put them back in the order you want.

Students book

- The students textbook is designed for classroom use as either a source book for information or a text from which a formal course can be taught.

This kit is published by DPI Water Resources and distributed by:

Wet Paper Publications 14 Milbong Tce Ashmore 4214
Telephone (075) 972 806 Phone or Fax (075) 39 4187

Marine Studies News

Newsletter of Wet Paper Publications 14 Milbong Terrace Ashmore 4214 (075) 39 4187
Volume 2 Numbers 9&10 Sept/October 1993 Copyright free.



WET PAPER
MARINE EDUCATION

Mangroves in Focus

Our best team effort yet

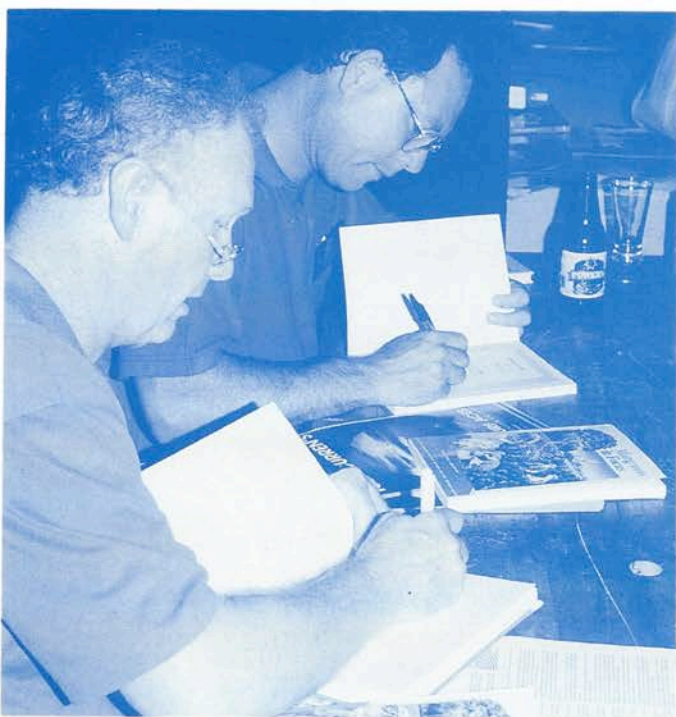
Its nice to do it right! From start to finish, the Mangroves book project went off without a hitch, and to top this off, sales of the book have generated \$25,000 in the September, October period, well on the way to paying for our printing bill and providing us with immediate capital for our next project.

Congratulations to the consultancy team and special mention of the troops at Merino Lithographics who made up gallery proofs, dyelines, printed and bound the book in exactly three weeks.

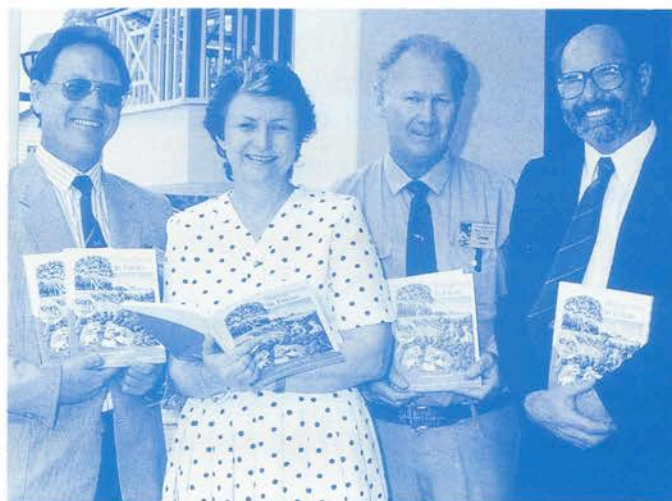


The book has received great support from the Marine Community and is at present being reviewed. If sales however are an indication, especially in firm order sales generated by the "on approval" sector, we have a really good product here. People seem to value the hard cover book combined with full colour photographs, exercise and project work.

Our marketing and distribution team deserves high praise also for the 60,000 brochures that accompanied the launch. Ever tried sticking those many brochures and flyers into envelopes? Well done team!



Authors Dave Claridge and John Burnett sign the many copies purchased at the book launch at MESA conference this month



Minister for the Environment, Molly Robson congratulates publishers (Wet Paper- far right) and authors John Burnett (left) and Dave Claridge (Right) on the Australian Made Publication- "Mangroves in Focus"

Mesa Conference Gold Coast '93

Well if you didn't go, you really missed it. Over 120 delegates from Australia and New Zealand attended the bi-annual Marine Educators Society of Australasia's National Conference last month held at the magnificent Southport School.

The conference was undoubtedly the best to date with all sessions well attended and obviously enjoyed. It's hard to separate out any one event for special mention because all had their own special significance. Mondays *Perceptions of the Sea* enabled many of the scientific contingent to look at how artists, photographers, primary and secondary children view their ocean. We all learned the power of the arts in education something which Wet Paper now recognise as a crucial element in any marine program.

Tuesday and Thursday were dedicated to paper/workshop presentations from both scientific and non-scientific communities. Wednesday was devoted to hands on mini workshops with short courses in mangroves, rocky shores, oceanography, land and water care, snorkelling and aquaculture. Thursday nights conference dinner was a wow!!

Friday's *You can make a Difference* session was capped off again with an educational play presented by local primary school students.

Committee-the best

Congratulations to Jan Thornton, Alex Rossie (Sea World) Kym McKaige, Dawn Couchman and Brenda Stevenson (Department of Primary Industries - Ed Fish) and John and



Really proud to work with Brenda, Kym, Jan and Dawn pictured here with Molly Robson (& Alex-working hard elsewhere)

Kerry Mercel (Kirra Dive) who with staff from Wet Paper brought our Marine Educators together for the conference.

Wet Paper was proud to be a major sponsor along with Kirra Dive, Sea World, Department of Primary Industries, Ed Fish and Ocean Rescue 2000.

Newsletter supplement to be discontinued

Some ideas are great but prove financially not viable. Such was the case of the supplement to the newsletter. In the early stage I wanted to communicate errors to the book, answers to questions, ideas to each chapter as well as diagnostic tests. This seems to have achieved its goal and so no further supplements will be produced.

Instead the newsletter will take over and we hope to produce a Teachers Guide that will come out with the second edition of Marine Studies which will co-incide with the release of the final syllabus document. The second edition will be produced for the Queensland market, have a limited print run and then be updated and reprinted according to demand.

Marine Biology book on drawing boards

A two year project has been started to produce a Marine Biology book for use by Australian secondary students. Now that we have had experience in producing our mangroves



MESA conference delegates at the many displays

book with full colour and two colour settings combined with conducting market research in to how students and teachers reacted, we feel confident to go into a full colour production of a much larger book for a two year course in Marine Biology with topics suitable for students currently doing marine education type courses in Australia. The book could be A4 or B5 like the Marine Studies book and will be written and designed along the same style as Marine Studies.

I'm assembling a team like I did for the mangroves book but this time may look at sponsors for certain sections. The cost is enormous when all work will be prepaid on a contract-commission basis. In part that's the way we did the Mangrove book.

If you have a good idea that you want published, want to be recognised and be paid a fee for the work, why not contact me and then when we get to this stage, you can be reached and your idea published.

Dratts we missed one!!

Mangroves book Errata Page 85. Please substitute the following labels in Figure 4.24

The shell identified as *Cerithium cuminji* should be labelled as Speckled periwinkle (*Austracochlea concamerata*)

The shell identified as Speckled periwinkle (*Austracochlea concamerata*) should be labelled as *Cerithium cuminji*

The shell identified as Common striped periwinkle (*Austracochlea obtusa*) should be labelled as Australian mud whelk (*Velacumantis australis*)

The shell identified as Australian mud whelk (*Velacumantis australis*) should be labelled as Common striped periwinkle (*Austracochlea obtusa*). The page should now read:-



Salinator solida



Salinator fragilis



Speckled periwinkle
(*Austracochlea concamerata*)



Cerithium cuminji



Common striped periwinkle (*Austracochlea obtusa*)



Australian mud whelk (*Velacumantis australis*)



Hairy mussel (*Trichomya hirsuta*)

Thanks Neville Coleman for spotting this !

Working for Wet Paper

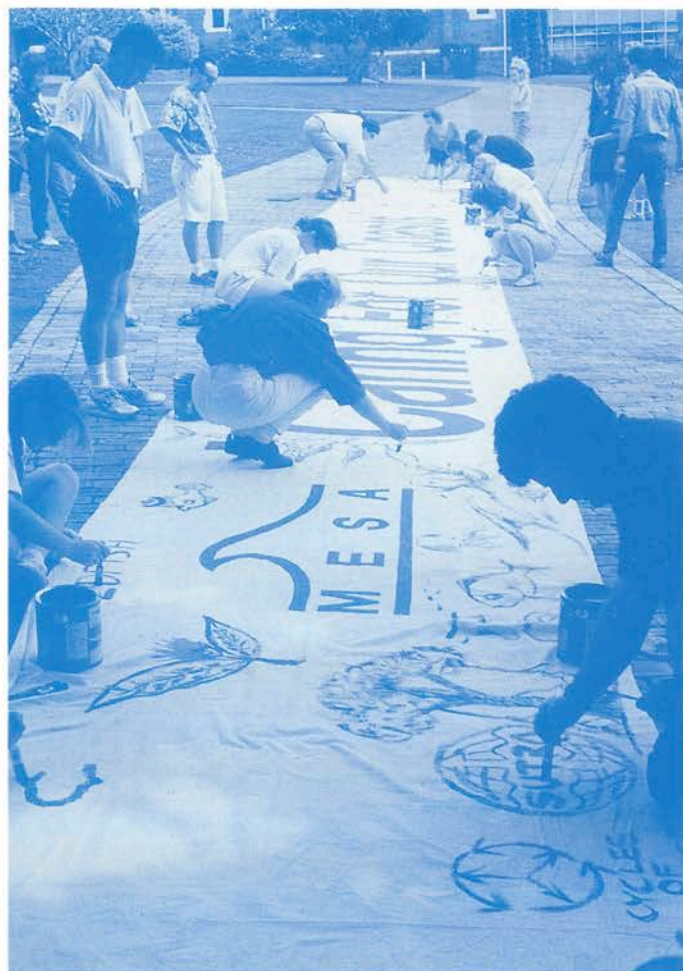
Since day one, anyone who has worked for Wet Paper has been paid in cash or in kind. There is nothing worse than working for an authority who neither recognises nor pays you for your creative work. What's worse is poor management that allows the system to rip out from under you your creative genius.

Well at Wet Paper we recognise your creative abilities and are prepared to nurture and guide them into what we hope is high quality education resources. We make sure that you are acknowledged and give credit for your ideas. Some of you may remember the early Science Teachers Association booklets in Navigation and Fisheries Biology.

Even then, our policy was to acknowledge and give back to the supporting group which in the early days was the Science Teachers Association. When I worked at my old school, all the sales of the Marine Studies notes went to the Parents and Citizens association which in one year was \$72,000.

Then there was that inspector who refused to acknowledge Marine Studies as a viable subject and as he walked past the building with the Deputy Principal who was going for promotion at the time, was heard to comment, "You'll have to close this Marine Education P and C account down".

That's the year I formed Wet Paper and now it supports three salaried officers and 10 publications.



Delegates sign the banner - Caring for our Coast.



Conference convenor Jan Thornton addressing delegates

Rates of pay at Wet Paper

With this "basic training" and now working with other teachers, commercial authors and artists we have been able to come up with a commission work approach to publishing. One of the hard facts of life is that rates of pay are self taught and that the rules you come up with are trial and error.

Our rates of pay and royalty contracts are standard commercial rates (which may shock a few, \$25 per hour or 10% standard authors royalties. Our own consultancy rate is \$40 per hour) and contra deals are always done as many teachers and professionals we deal with often refuse payment. Some of the deals we have struck have been payment of airfares and accommodation to conferences - such as the recent MESA conference, trips overseas to further your Marine Education career, your name published in lights for promotional purposes, class sets of books for your school, college or field study centre or just your favourite activity nicely typeset, published and acknowledged. There are endless contra deals, however we prefer straight payment on an invoice. We can help you with setting up your own consultancy service, provide tax advice and sort out with your principal employer ways to avoid conflict of interest.

You have the opportunity now to grow with Wet Paper now and I encourage you all to become part of this team and really accelerate Marine Education. If not stay in touch and be positive.

Marine Education Network on track

Di Tarte and her band of workers now have three copies of their newsletter out on the Marine Education Network. This newsletter provides great information about what people are doing. Thank you Di for advertising our Mangroves book.

You can contact Di at
Australian Littoral Society
PO Box 49 Moorooka 4105
Tel: 07 848 5253 or Fax 07 892 5814

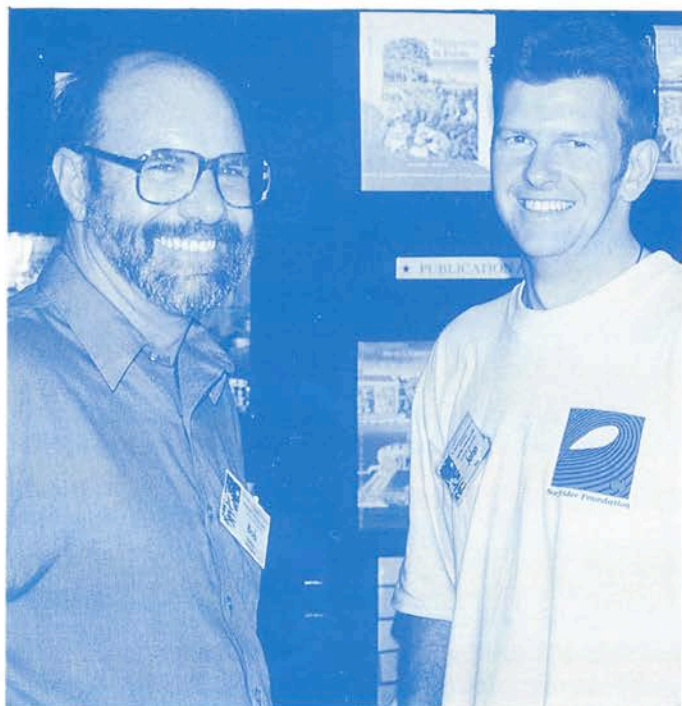


Ocean Care Day - Sponsored by Ocean Rescue 2000 and the Network

is organised by Brad Farmer
Surfrider Foundation
PO Box 44 Mermaid Beach 4218
Tel 075 350 999



Surfrider Foundation
Conservation Activism
Research Education



Bob Moffatt (Surfrider Qld) and John Foss (Surfrider Vic) discuss the Video Component of the Foundations Education Program



Surfrider Foundation
Conservation * Activism
Research * Education
 STORMWATER TASKFORCE

Apologies to the MESA conference delegates again for the cancellation of the Ocean Care Day presentation because this was the only time we could get to Brisbane to twist the arms of major sponsors. Proposed materials to be produced include:

- * Textbook for use in discussion
- * Supporting Videos
- * Teacher Resource Book
- * Educational Game
- * Model presenters lesson plan and props

Target groups and training program

We plan to trial materials on the Gold Coast, initially with Primary school children and local community groups. Then extend the model to all Surfrider branches in Australia. The program will comprise of a one to one and half hour presentation with video hands on educational games and small group discussion.

A group of surfers and registered teachers without jobs will be trained to visit schools and community groups. A training program based on the Gold Coast WaterWise PR team, method will be employed with the team working under the supervision of the local authority.

Proposed early aims of the project

To increase public awareness to the devastating effects stormwater can have on surfers health

To alter peoples attitudes to Urban Landcare so as to modify behaviour towards the care of our stormwaters

To provide basic knowledge about the difference between stormwater and sewerage systems

Want to become involved?

Well assuming we get the money, and stuff it if we don't, I'm going ahead anyway, I need to know if you are interested in trialling the materials. Fill out the form below.

Stormwater taskforce submission in

Wet Paper is closely associated with Surfrider providing office support, educational and managerial advice as well as promotion the cause. Next year Wet Paper wants to focus on education and leave the new Board of Directors to make the tough Environmental decisions that will see the foundation grow.

Wet Paper is part of the Surfrider education committee that has applied for \$200, 000 worth of sponsorship for its StormWater Taskforce Education program. This application is supported by WaterWise Qld and the Gold Coast City Council. The program will follow the successful Gold Coast WaterWise education model that is described in the next newsletter.

Initially the committee comprising of Brad Farmer, John Foss, Carol Seddon and myself, met with Water Resources DPI in Queensland and the Gold Coast City Council who have supported the project with seed funding.

Surfrider Foundation Stormwater Taskforce

Please send me information about the Surfrider Foundation Stormwater Taskforce educational program.

I realise I may hear nothing for six months, but am still keen to stay in touch.

Name: _____

School/Organisation: _____

Address: _____

Post Code _____

Signature _____



Surfrider Foundation
 Conservation * Activism
 Research * Education



WET PAPER
 MARINE EDUCATION

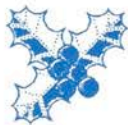
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Marine Studies News

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WET PAPER
MARINE EDUCATION



MERRY CHRISTMAS



From the Staff and consultants of Wet Paper, we wish you a Merry Christmas and a prosperous New Year. Our office will be closed from December 25 and will re-open January 3.

Achievements for 1993

This is a time for thanks and praise, so to all of my consultants and friends who have made this year one of our best here are some of the major achievements we have accomplished.

- (a) Publication and distribution of WaterWise Senior Textbook with the staff at DPI, Gold Coast City and Albert Shire Councils.
- (b) Training of Gold Coast WaterWise PR team and inservicing over 300 teachers.
- (c) Teaching nearly 8000 students water conservation lessons and over 500 Beach Education lessons with Sharon Dalgleish, Angus Jackson and his team.
- (c) Publication and distribution of WaterWise Teachers Guide with Sue Marks and her team at Beenleigh SHS with help from Toowong SHS.
- (d) Development of Primary school year 1-3 story program written and developed by Sharon.
- (e) Publication of Mangroves in Focus with Dave Claridge and John Burnett with a team from QUT, Jacobs Well Innisfail and Darwin.
- (f) Expansion of the Wet Paper water quality lab at Sea World with Jan Thornton and Alex Rossi and in S/E QLD schools.
- (g) Surfrider foundation national conference, re-structuring and application for major educational initiatives with Brad Farmer and Greg Howell.



A major achievement this year has been the success in Primary school WaterWise education. Presenters, paid for by a sponsor, teach hour to hour and a half lessons in schools for the client.

- (h) Organisation of Seaweed 93 for MESA with Don Alcock and interstate reps. Co-sponsor and organisation of MESA national conference.
- (i) Marketing and research in NSW and Vic and meeting new faces down the coast.
- (j) Expanding the Wet Paper lab to coliform testing and the office to take in more typesetting gear and expand into colour work.
- (k) Getting our Marine Education University units off the ground at QUT with Jack Marsh and Dave Tulip. A humble start but with great scope for future development.

This has been a team effort and thanks to son Mark who now runs most of the office allowing for senior staff to get on with curriculum development.

Welcome to new readers

If you wonder why you get this newsletter and just who are these crazy people who work here at Wet Paper, here are some answers-

- (a) Our mission statement is to network Marine Educators to let them know, as best we can, what is happening. Also to provide high quality teaching resources based on the needs of the network group.

To do this we have to let you know what we are capable of and how we operate. Australia is faced with the tyranny of distance and we hope this newsletter breaks down some of this.



The Wet Paper lab now has been used by over 30 schools on a user pays basis and to teach care of our oceans

From Third year Uni



Third year QUT students from David Tulips class learn about catchment care and water quality in their rainforest stream

- (b) If you buy a Wet Paper product, then your name comes from the invoices file into the Newsletter Data Base file. This lets us tell you what new products we have.

So you may get a marketing brochures on Mangroves and say, "but I just bought that." Well that's fine but when Marine Archeology or Marine Biology comes out and I miss you in the National Mailouts, then I can at least pick you up from the Invoice Database.

- (c) Some people in important places new to stay in touch with people who work in the industry at the workplace.

I feel that Publishers and Private enterprise have an important role to play in Education. We usually turn the dreams of teacher/authors into reality and provide important resources for educators to use. Private enterprise also sponsors many educational projects and provides assistance to teachers.

If you are one of my readers, then stay in touch and watch our projects and developments and if you would like to have us on your team, we would love to hear from you.

Over 3000 newsletters now

I've just been through the database and its great to see the old names still there. We started at 40 newsletters just two years ago and now have 3000. We must have printed over 1 million

"For your next curriculum project why not give us a call at Wet Paper and talk about ways to make your curriculum ideas come to realty.

We don't know all the answers, but we sure can make them happen for you.

Wet Paper means that the ink is barley dry on the paper before its in use in the class-room"

brochures by now and if you were one of the original 40 your files must be full!

Gold Coast WaterWise Update

The following is a report for Gold Coast WaterWise Schools. The majority of schools were lined up as a direct result of the efforts of the PR Teams visit to schools. In the main the Deputy Principal asked teachers who wanted the program and then organised Sharon and myself to come and teach. Not every class in the school has been taught and it has not been possible due to lack of time, to produce data which identifies which classes in that school have not yet been taught.

School figures

Thirty two classes or presentations have been taught and based on an average of 20 students per group, 32 teachers or community members have been educated with 640 children involved.

In June - Nov, 7927 school children have been involved in the program with approximately 299 teachers. Decembers booking will take this over the 8,000 mark for students and close to 350 teachers educated in their own classroom with their own teachers at no cost to the school.

..... to Year 1



Sharon Dalgleish teaching year 1 at Beenleigh Primary School

23,000 students in poster competition

To celebrate National Water Week, all primary schools on the Gold Coast participated in a poster competition with book prizes and DreamWorld passes for students and three apple Macintosh Computers for schools as well as Nintendo Games.

Great effort by Good Coast WaterWise team member Margo Canning which will be a feature of next years schools program.

What's new for 1994

1. Captain Aqua and the sewer patrol

Trials begin soon in Brady Moffatt's classes at A.B. Patterson college. The aim of the pipe game is to have students flushed down a pipe in the classroom which leads to the sewage treatment plant.



Characters under development are thirty minute shower, tissue paper, the sewer patrol and Captain Marvo, the chief operator at the Sewage Plant. Brady is screen printing the bibs and helping us build the pipeline.

The moral of the story is that unfriendly habits lead to problems at the sewage plant and if we change to water saving habits, Captain Marvo and the sewer patrol can concentrate on the bad guys like toxic waste and heavy metal.

So look out for this next year in our advertising brochures.

2. Marine Biology project team

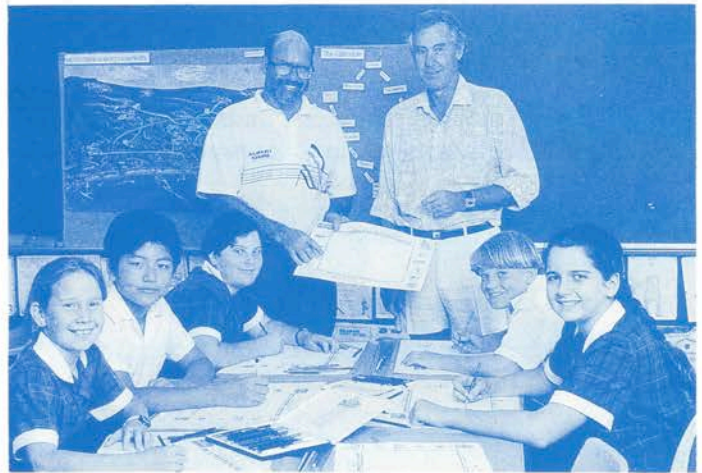
Concepts, chapters and activities should be ready for trialling by June with teaching taking the rest of the year. Rewriting and editing over Christmas should see publication by June 1995 in time for the new Marine Studies syllabus in most Australian States. Heaven knows we could have a national syllabus. Any takers??

3. Storm water Taskforce

This major curriculum project will seek to educate people of all ages about the dangers of storm water and how we can find



Loyalty to our client is crucial to our consultancy work. We help identify the education program and then focus on the exact message our client wants.



Students from Somerset College get ready with their teacher Ross Crilley for the poster competition



Educational games and activities are now our speciality for clients. We start from scratch and then conduct many trials. As a result changes are made. Whizzcat has now become Whizzaroo and the yr 6/7 sprinkler activity has now been moved back to years 4&5.

solutions by changing habits and attitudes. A publication is likely and Wet Paper is keen to hear from anyone working in this area.

In the grant application is significant funding for consultancy work so there is the opportunity for commissioned work.

4. TAFE pre-vocational WaterWise Units

New curriculum materials for TAFE prevocational plumbers course will assist colleges introduce water conservation into their curriculum.

Storm water Taskforce materials also should be able to be developed to concentrate on the building industry with environmental habits being developed with adult workers.

Targets for Surfrider foundation will be the education of all industry who discharge into storm water by accident.

Examples are brickies who wash out into gutters, painters who wash brushes into gutters, gardeners who use far too much fertilizers.

The Surfrider foundation needs you

Surfrider is seeking to raise funds for its environmental activist program.

For \$50, you get a T shirt, sticker, periodic newsletter and the feeling that something was done with your money when you see environmental issues raised by Surfrider in the newspaper.

AND I WOULDN'T MIND ONE OF THOSE T-SHIRTS EITHER



- ☐ \$29.95 MEMBER
- ☐ \$35.95 NON MEMBER
- * FREE POSTAGE & HANDLING
- ☐ SPECIAL OFFER MEMBERSHIP AND T-SHIRT ONLY \$50.00!
- S M L XL
- ☐ UNBLEACHED NATURAL
- ☐ SILVER MARBLE

☐ YES! I'M WILLING TO ASSIST SURFRIDER IN MY AREA

☐ MY SUGGESTIONS

☐ \$15 STUDENT/PENSIONER/UNDER 16

☐ \$25 REGULAR

☐ \$40 FAMILY

☐ \$250 LIFE MEMBER

☐ \$100 NON PROFIT ORGANISATION

☐ \$100 RETAIL SHOP / FRIEND

☐ GUILTY CONSCIENCE DONATION

☐ CORPORATE MEMBER INFO

POLLUTE...

If dirty beaches and dirty oceans, coastal exploitation and injustices of beach-user rights make you angry...

Then like us, you've probably realised simply wishing things would get better is not going to be enough.

Working alone can be an uphill battle, working together with others, you can change the world.

Do something for yourself... Do it selflessly. Join The Surfrider Foundation. Just do it!

or PROTECT

The heart and soul of our Australian ocean lifestyle...

It's our 7,000 glorious beaches... some threatened - some dying. They need rescue.

If not us... who? If not now... when?

The Surfrider Foundation was created for every Australian to help protect our coastal environment.

If you have the talents, or money to support our mission, bring them to our organisation that represents you.

Call
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f o r
i n f o
016 785 277

SAVING THE COAST IS NOT A SPECTATOR SPORT

Nonprofit, nondiscriminatory, nonpolitical Host organisation - National Ocean Care Day

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ADDRESS:

PHONE: DATE OF BIRTH

OCCUPATION:

..... P/C

MY CHEQUE/MONEY ORDER \$ IS ENCLOSED.

OR BILL MY BANKCARD ☐ MASTERCARD ☐ VISA ☐

CARD NUMBER:

EXPIRY DATE:

SIGNATURE:

When joining you will receive a member sticker, a member's discount card, and a periodic newsletter. But most importantly you will be making a statement against the misuse of the Coast and standing up for your rights.



By POST ENCLOSE YOUR CHEQUE/MONEY ORDER MADE PAYABLE TO THE SURFRIDER FOUNDATION, TAPE THE EDGES AND FREE POST THIS ENVELOPE.



By FAX FAX YOUR DETAILS TO OUR NATIONAL OFFICE - (075) 767 157



By PHONE DIAL 'N' CHARGE ON (075) 350 999 OR LEAVE FULL DETAILS ON OUR TOLL-FREE NUMBER 016-785 277

Thanks for the support. Quiksilver. Billabong. Rip Curl. Hot Tuna. Oakley. Finch. Thin Air. Ocean & Earth. Cheetah. City Beach. Surf Dive & Ski. Rusty. Stussy.