



September 2005

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A NOTE FROM THE EDITOR

Jacqui Foster

As some of you may be aware, I have recently had a somewhat large shift in career! I am no longer based at the Marine Discovery Centre, Woodbridge, but have just embarked on the daunting task of a PhD with the Antarctic Climate Ecosystems (ACE) CRC and the Institute for Antarctic and Southern Ocean Studies (IASOS), at the University of Tasmania. My topic will be "The development and management of the Southern Ocean krill fishery".

I was sad to leave the MDC which I worked at for over two and a half years but decided that it was time to return to my Antarctic roots once more. I am looking forward to three (or more!!) years of research into a topic very much at the heart of the Antarctic ecosystem.

To the issue at hand.....I was absolutely astounded by the response I got when I asked for submissions for this issue. As you will see as you read on, submissions have come from right across the country (and also across the Pacific), all relating to the stewardship Australians of all ages currently have and display for our oceans and the work that people are doing to encourage this quality in our fellow community members.

Thanks to all who contributed articles and ideas, it was heartening to see all the great work you have been doing.

So read on and be inspired by those who really are making a difference!

Regards
Jacqui

P.S I can now be reached on the following email address:
jacqueline.foster@utas.edu.au

PRESIDENTS REPORT

Angela Colliver

Marine education is alive and well in the Pacific and Americas.

Recently, marine educators from in and around the Pacific and Americas met in Maui, Hawaii as part of the National Marine Education Association Conference and One Oceans Congress. As part of these two gatherings, much was learned and shared.

One clear outcome was the fact that Australia and New Zealand offer quality marine education programs that are world class and in fact, many lead the way.

I urge all marine educators to consider sharing their work in forums overseas to enable others to learn about what we do and how we do it as we really offer something exceptional in our schools, marine discovery centres, aquaria and the like.

As MESA President, I have put forward the development of a 5-year plan for how we can embrace the UNESCO Decade of Education for Sustainability. Welcome any members thoughts and ideas, in fact if you would like to be part of this Working Group please feel free to contact me by email at angelac@qbrmpa.gov.au

We soon have our AGM upon us and I urge all members to consider the becoming more actively involved in your association. All positions will be vacant and I urge you all to think about taking an active role on the 2005-2006 year.

I would also like to thank all Council members who currently volunteer much of their time to the operations and successful day-to-day activities of the associations. Without you all, MESA would not be in existence.

For more information about the AGM and Council, positions please feel free to contact Kerrie Trees.

Regards
Angela



One Ocean Marine Forum

Harry Breidahl

The One Ocean Marine Forum (OOMF) has been and gone and was a great success. What's OOMF you say? It was the first international meeting of marine educators and it occurred on the Hawaiian island of Maui in July 2005. The forum was the result of long-time associations between a small group of MESA members and our North American counterpart - the National Marine Educators Association (NMEA).

OOMF was planned to link with the annual NMEA conference that was held on Maui. However, the forum was a separate meeting that followed the NMEA conference and was attended by 27 international delegates from around the Pacific Basin. The five Australian OOMF delegates in 2005 were Jody Plecas, Harry Breidahl, Angela Colliver, Andrew Vance and Shekar Bose.

The two day forum was a great success and run brilliantly by Lisa Heft, an experienced Open Space facilitator. As part of my on-going job of running the OOMF office, I'm currently working through the 87 page Book of Proceedings produced by forum participants and compiled by Lisa. The exciting news is that the Action Plans that were part of this Book of Proceedings are starting to achieve results already and the MESA web site will be the initial site where the Book of Proceedings and Action Plans will be published.

The following statement is cover page for the Book of Proceedings:

Time is running out for our oceans. Pressures from a rapidly growing world population changing oceans at an unprecedented rate. From CO₂ concentrations that accelerates global climate change to global depletion of fishery stocks, the problems are unprecedented and will require innovative

solutions. A world wide network of educators and efforts to focus on these problems is essential.

Designing a network of marine, environmental and science educators for sustainable oceans was the goal of the One Ocean Marine Forum held in Maui in July 2005. Twenty seven educators from around the Pacific Rim and beyond came together for the Forum, held in conjunction with the US National Marine Educators Association Annual Conference. Participants from the US, Canada, Australia, New Zealand, Marianas Islands, South Africa and England met to create a network. Other educators with an interest in the network but without funding to attend represented South and Central America, American Samoa and other parts of the world.

Marine environmental education for sustainable oceans is fundamentally a world wide effort and must engage a wide variety of institutions, professional associations, and individual educators. The effectiveness of the One Ocean network will depend on the strength and inclusiveness of partnerships, networks and alliances which is able to involve stake holders at all levels.

The network will foster:

- *ways to identify key local ocean issues;*
- *links among international groups to explore the existing variety of successful programs;*
- *ways of integrating local knowledge and culture; and,*
- *foster the believe that each person has the power and responsibility to effect positive change.*

The 2005 forum documents explore the work and accomplishments of the first One World Marine Forum. These formulate the first steps in organizing the One Ocean Network.

As far as the next 12 to 24 months goes, I have volunteered to stay on to stay on as OOMF office manager and the delegates agreed to use me as a project coordinator. The next meeting has yet to be finalised but there was talk of holding it here in Australia.

In the mean time, there will be some form of follow-up OOMF or One Ocean Network meeting associated with the next NMEA conference which will be held in New York from July 15 to 21, 2006. Having been to three NMEA conferences I can't recommend them highly enough and the New York conference looks to be "one out of the box". More of that in later *Undercurrents* and on the international section of the MESA web site.

Links

OOMF Maui 2005

www.mesa.edu.au/inter/oomf01.asp (Book of Proceedings posted soon)

National Marine Educators Association (NMEA) www.marine-ed.org/

NMEA Maui 2005 conference

www.hawaii.edu/mcc/oceania/NMEA05TS.html

OOMF international coordinator - Harry Bredahl nautilused@optusnet.com.au

Acknowledgements

The OOMF conveners gratefully acknowledge the sponsorship provided by the Department of the Environment and Heritage and the Australian Maritime College. We also thank the Maui Community College for provision of meeting facilities, Lisa Heft for her pro bono role as forum facilitator, BriTer Solutions for web design and Trish Hart for the OOMF logo.



The OOMF 2005 crew "27 people who flew to Hawaii to sit in a room for two days and talk about the ocean"



Andrew Vance and Kathy Hoile at the NMEA conference celebrating the NMEA New York 2006 conference

Future Leaders Share their ideas on World Oceans Day

Jane McAuliffe - Reef Guardian Project Officer, Great Barrier Reef Marine Park Authority

Students from schools throughout Townsville and Thuringowa gathered on June 8th to celebrate World Oceans Day at a Future Leaders Congress for 'Sustainable Oceans'.

The Future Leaders Congress has been run by the Great Barrier Reef Marine Park Authority (GBRMPA) in collaboration with the Townsville and Thuringowa City Councils for the past four years, celebrating a different theme each year.

This year students from Belgian Gardens State School, Heatley Secondary College, Townsville State High School, Holy Spirit School, Vincent State School, The Willows State School and Thuringowa State High School all participated in the congress.



Heatley Secondary College students receive recognition for their participation in the Townsville/Thuringowa Future Leaders Congress

The Great Barrier Reef Marine Park Authority's National Education Programs Manager, Angela Colliver was amazed at the ideas the students presented and the care they showed for the Great Barrier Reef and its sustainability.

"Students knowledge and understanding about water quality as an issue and what they can do to improve the quality of water that leaves their school or home gave me enormous hope for the Reef's future," said Ms Colliver.

Students gathered at the Townsville City Council Chambers where they were first spoken to by representatives from the GBRMPA, the Townsville City Council Creek-to-Coral program, the Townsville Port Authority and the Natural Resources and Environment Forum.

The students then educated their peers with their own presentations covering certain key questions, including how declining water quality can affect the Reef and the impact it has on industries that rely on the Reef, what can be done to look after our catchment areas and how their school is helping to improve water quality.

The students then developed their own charter of shared beliefs to address the issue of water quality and look at how they and their peers could take action to improve the problem of declining water quality.

Alexandria Williams of Willows State School was glad to be able to have her say.

"We need to act to improve picking up litter and putting it in the bin, being consistent in our actions, always being aware of our environment and never being afraid of maintaining the Reef Guardian Charter," said Miss Williams.

COMING EVENTS

Yeppoon State High School are looking forward to hosting the event in the Rockhampton/Yeppoon region on the 31st August and are counting on a successful day

with plenty of schools getting involved in the region.

A Sample of the Outcomes from the Youth (Future Leaders) of Townsville

Student Delegates from the Future Leaders Congress in Townsville 8th June 2005, "Sustainable Oceans"

We believe that:

- Every living breathing thing under the ocean and Reef should have clean water
- We should educate the community about good water quality that's needed for the Reef
- Everyone is responsible for good water quality and for caring for the Reef
- All schools can do their bit for water quality
- Children can be more active about protecting water quality in their community
- Reef Guardian Schools are taking real steps in safe-guarding their environment
- All humans should recycle plastic bags, cans, etc.
- If you see rubbish you should remove it from the water
- We should not waste the water we have
- Water quality affects water quantity
- We should not let water quality problems build up but address it now while we still can
- We will benefit greatly if the Reef is preserved

Our Commitment to Action

We will act to improve:

- The way we educate others about the importance of good water quality
- Our recycling abilities in our schools and at home
- Our lifestyle to better suit the Reef's needs
- The amount of rubbish and pollution that enters our ocean and Reef
- The cleanliness of our waters and land

- Our perception on waste as a resource rather than a 'throw away'
- Our choices of how we use water
- Our awareness of chemicals going down the drain

Our Vision for Future Action

We call upon:

Youth in Townsville and Thuringowa to work together to protect and conserve our water quality by:

- Students teaching students on what will happen in the future if we don't protect our Reef
- Being litter free
- School leaders making statements about the protection of water quality in their school
- Minimising waste wherever possible
- Participating in greening their schools and homes
- Asking government to ban all plastic bags
- Lobbying Government to offer a refund when cans are recycled
- Stopping to use plastics
- Communities and schools doing things that are more active like planting trees and protecting our river ways so it doesn't get to the Reef
- Using more environmentally friendly materials that could benefit the wildlife and plants in the ocean

Local Businesses to:

- Offer a choice of packaging other than plastic or other non-biodegradable materials
- Sponsor local clean-ups
- Support the use of reusable and recyclable bags and packaging
- Take responsibility of the litter of their product packaging
- Become involved in 'Green Purchasing' i.e. Buying recycled products

The government at all levels to:

- Put up signs encouraging their involvement in green initiatives
- Enforce stricter guidelines as to the packaging of foods within school canteens

- Make new schools become green schools and be built on principles of sustainability
- Provide free recycling resources, especially to schools
- Support green products to make it cheaper than an equivalent product
- Assign more national cleanup days
- Support green exporting and importing
- Understand that schools need free recycling resources to help them reach their environmental outcomes
- Provide money for alternative sources of power such as solar and wind power and recycle water i.e. grey water and water tanks
- Financial support for a refund and recycle system
- Promote the message about good water quality

Reef education evaluation: environmental knowledge and reef experience

by Carl M. Stepath, Schools of Education, and Tropical Environment Studies & Geography; James Cook University, Cairns, Australia; and Save Our Seas, Hanalei, Hawai'i; carl@saveourseas.org.
Presentation to the National Marine Education Association Conference 2005, Maui, Hawaii, USA, Friday, July 15. A complete copy of this article can be found at saveourseas.org/CarlStepath/CarlStepath.htm.

Keywords: marine education evaluation, awareness, environmental knowledge, reef experience

Abstract: This paper reports on portions of a marine education PhD research project that investigated learning with high school students and coral reef marine experiential education interventions. In this paper, I evaluate changes in Queensland Year 11 and 12 students' environmental learning outcomes when visits to the reef are added to their classroom curriculum. Marine education aims to educate a citizenry capable of making astute decisions about the impact of human activities on the environment as well as altering fundamental societal practices. However, I was not seeing positive results as a classroom teacher or researcher in the field and this research followed. The study

also explored links between coral reef ecological knowledge (awareness) and direct coral reef experience. The educational research took place at offshore sites in the Great Barrier Reef, and it investigated questions of whether experiential marine education changed the reported environmental knowledge of student participants. Education outcome evaluations are presented and implications for effective marine education strategies discussed. Research findings strongly indicate field trips should be included as part of marine education programs in order to improve environmental knowledge (awareness).

Introduction

My initial motivation to undertake this doctoral research came after I observed a group of Grade 8 students on their encounters with a fringing coral reef in Kaua'i, Hawai'i. On the first visit, the students while walking along the reef were picking up bits of algae and coral and were throwing them at each other. On the second visit two weeks later, I noticed a change as some students were looking at various seaweeds and calling to their friends to look. One of the previously more distracted students showed his find to another student and said, "Look at this *Padina* [genus of brown algae, seaweed], it is just like the picture we saw in the book. Look at how the leaves come out like plants at home, and the base is fastened like roots of a tree." Both nodded, and placed it back into the water before continuing their reef walk. On their second visit to this reef, instead of just enjoying themselves, the Grade 8 students were less boisterous and more interested in examining the living plants and sea creatures. It seemed to me that the students' way of relating to the reef and its ecosystem was different, or had been transformed (O'Sullivan, 1999), as they were having "real life" experiences of the reef. Similar observations of changes in students' interactions with plants and animals have been noted by other outdoor education studies such as Bogner (1998) as well as Kruse and Card (2004). Further visits by the eighth grade students to the same reef confirmed that they were beginning to understand that the reef was a living entity rather than just a playground.

While I was moved and inspired by students' behaviour on the reef, I am also aware that environmental education is presently at a crossroads to determine whether its future should be based on more of the same, or actively working in the formal education system to improve implementation of environmentally based concepts and practices (Fien, 2004; Finger, 1994; Robottom, 1991). Fein (2004) argues that education could "play an important role in motivating and empowering people to participate" (p. 185) in working to preserve, and conserve environments for the future.

This paper provides results of a PhD project that explored learning relationships and marine educational outcomes. The research explored a number of learning constructs, and the variables considered are environmental knowledge and previous reef experience. The research question addresses whether experiential reef education and direct reef experience enhances student learning. This question was examined by measuring changes in student responses relating to environmental knowledge between a pre-test and post-test, as well as through student interviews. The experimental design was structured to determine if actual reef visits produced the greatest positive change in self-reported environmental knowledge responses for student participants.

This education research focused on the developing field of marine education that has very few formalised objectives and outcomes. Hence, it was necessary to establish a set of criteria with which to evaluate student participants' changes with respect to achievable learning outcomes. The Marine Education Society of Australasia's (MESA) three A's of Coastal and Marine Studies are awareness, attitude and action (MESA, 2004). In this paper, awareness (knowledge) is discussed. Environmental awareness (knowledge) was understood to relate to something we know, as incorporated in an act of knowing or being aware of issues and action skills related to the coastal and marine environments.

This story discusses taking senior high school students out to coral reefs, and

investigates educational effects of coral reef environmental experiences in relation to a specific learning outcome. Students from five Queensland high schools worked with the researcher both in the classroom and at coral reef sites. Once in the water students snorkeled along a 50 m transect line and collected data about marine species such as fish and invertebrates. The research project described in this paper investigated these factors and was carried out in Queensland during 2002 and 2003.

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Fishcare Partnership a Winner for the Education System

Damian Heran, Tas MESA Member

A collaborative project between the Department's Fishcare Volunteer Program and the Woodbridge Marine Discovery Centre was recently commended at the Awards for Educational Excellence

announced by the Minister for Education, Paula Wriedt as part of the Learning Together Awards on 21 June 2005.

The Learning Together awards are presented on an annual basis and recognise the inspirational people and programs that make the education system a success. Ms Wriedt said that the award recipients have had an important role to play in fostering a love of learning.

The Fishcare Volunteer Program and the Woodbridge Marine Discovery Centre first embarked on a collaborative program to take the 'sustainable fisheries' message to primary school classrooms in 1999. The program was originally designed as a trial, but feedback from both the schools and the volunteers supported the continuation of the program. In 2002, a linked project 'Completing the Marine Studies Link' was introduced and another level of training started with Woodbridge Marine Discovery Centre as the major training and assessment provider.

This project has received numerous accolades over the past five years including the many responses from the schools where the Fishcare Volunteers are assisting. One of the most longterm benefits directly attributable to the project is the increasing level of communication skills and personal development for the Fishcare Volunteers involved in the program. This has been as a direct consequence of the training and ongoing support provided by the Woodbridge School and the Marine Study Centre.

To date, there are 45 trained Volunteers with a further intake of 8 currently involved in the training. Over the last five years the volunteers have dedicated over 200 hours to schools around the State to deliver the *Fish for the Future* message.



Mike Cawthorn (FCV), David Ross (FCV), Quentin Higgs (Northern FCV Coordinator), Minister Wriedt, Kurt Memish (Woodbridge Marine Discovery Centre), Mark Heran (FCV), and Avril Brown (Southern FCV Coordinator) celebrate the award.

Fish for the future

IMO helps children speak out on marine environment at world summit

As a result of an initiative from the International Maritime Organization and a number of Marine Environment Protection Agencies (MEPAs), four IMO child ambassadors have presented messages on behalf of these organizations to the Children's World Summit for the Environment in Aichi, Japan. The Children's Summit was organized by the United Nations Environment Programme (UNEP) to run concurrently with the World Exposition 2005 (26 to 29 July 2005), the theme of which was "Nature's Wisdom."

The four children were Nikolaos Theofilidis from Greece, sponsored by HELMEPA Junior; Çagla Gamze Seten and Beril Esen from Turkey, sponsored by TURMEPA Junior and Nikolas Adami, sponsored by CYMEPA Junior.

At the Summit, the children read out a short message about MEPA Junior activities and the relationship between IMO's marine environment protection activities and the overall themes of the Summit. They also expanded on the practical ways that MEPAs are helping to protect the marine environment.

The participation of the four children in the Summit will help boost public awareness of IMO's role in protecting the marine environment from pollution by ships and, in particular, will help get the message across to younger generations.

Overall, the summit gave the children attending the conference, as well as all children around the world, an opportunity to consider environmental issues. Through the Internet and by other means, the children worked with the Japanese organizing

committee in promoting discussion about the conference's themes and details in advance of the summit.

The goals of the Summit itself were to increase children's understanding of environmental issues through the sharing of experiences and opinions; to improve the environment by sharing best practices and encouraging new initiatives; to give the children of the world a chance to forge lifelong friendships; to provide opportunities for children to collectively voice their concerns for the environment and to inspire children to think globally and act locally.

It is expected that the four IMO child ambassadors will report the outcomes of the Summit to the IMO's Marine Environment Protection Committee (MEPC) in the near future. The initiative has already generated much interest in the MEPA Junior concept and it is hoped that it will encourage the establishment of more Junior MEPAs in the future, in other regions of the world.

More details on the summit can be found at www.children-summit.jp

IMO - the International Maritime Organization - is the United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships.

Web site: www.imo.org

For further information please contact:
Lee Adamson, Head, Public Information Services on 020 7587 3153 (media@imo.org) or

Natasha Brown, External Relations Officer on 020 7587 3274 (media@imo.org).

Commonwealth Marine Education Developments

Recently the Federal Government announced funding for science, technology and maths education innovation in schools via the *Australian School Innovation in Science, Technology and Mathematics Project* grants. The aim of these grants is to 'bring schools together with industry, science organisations, universities and the broader community to foster a culture of innovation

in schools, better coordinate primary and high school curricula, provide positive role models for science, mathematics and technology students, and longer term, to attract greater numbers of quality students into teaching in these fields.'

Round One of the funding saw 103 projects receive funding, including one with which I was closely involved. Six projects in South Australia received funding through these grants, two of which were based on coast and marine education - a positive step forward.,

Via the leading organisation, the Australian Science and Mathematics School, a cluster of schools and organisations including the Marine Education Society of Australasia (MESA) and my school, Ocean View College applied for almost the full amount of the funding available for a project based on marine science. The project title is 'Leading Edge Marine and Environmental Science Development'. Other partner organisations involved in this project are Flinders University (both the Lincoln Marine Science Centre and the Faculty of Science and Engineering), Flinders Ports (the South Australian ports authority), the Cooperative Research Centre for the Sustainable Aquaculture of Finfish, the SA Maritime Museum and Tauondi College (an Aboriginal tertiary college).

The project has three 'prongs':

1. Aquaculture projects with Eyre Peninsula schools via the Flinders Uni Lincoln Marine Science Centre.
2. Wastewater bioremediation with Aberfoyle Park High School.
3. Marine science trail on the Le Fevre Peninsula via the schools on the peninsula.

Each of these projects will involve a marine science PhD student from Flinders University to work with the school students and staff to develop real science learning experiences.

There will be a high degree of teacher professional development associated with this project, as well as a website and the

development of a Le Fevre Peninsula Marine Studies newsletter. There are at least five schools associated with the peninsula who have each taken a different aspect of marine science such as dunes, recreational fishing and mangroves.

These projects provide an exciting platform for the development of further marine and coastal science programs and resources in schools around Australia. If there are any schools that have successfully received one of these grants for marine and coastal projects and are not already aware of MESA, I suggest that you check out our website: www.mesa.edu.au and think about becoming a member. We can support you in a number of ways, in particular, through our website and the State representatives who can provide you with contacts and resources that may assist your school to develop its marine and coastal studies program. To find out more about these grants, go to: www.asistm.edu.au

Junior Dolphin Guardians

Verity Bone

The long awaited *Adelaide Dolphin Sanctuary Act 2005* was announced on the Port River, Saturday June 4, 2005. The Adelaide Dolphin Sanctuary Education Resource and the Junior Dolphin Guardian program were launched at this event too.

The *Adelaide Dolphin Sanctuary Act 2005* will protect the resident dolphin population of the Port Adelaide River and Barker Inlet Estuary and ecosystems throughout the region. Accompanying the Adelaide Dolphin Sanctuary is the Junior Dolphin Guardian program which provides a framework for school-aged students in South Australia to learn about the environment of the Port Adelaide River and Barker Inlet Estuary and the urban population of dolphins living on their doorstep.



Brett Pendlebury, Adelaide Dolphin Sanctuary,
DEH

Students become Junior Dolphin Guardians by working through the Adelaide Dolphin Sanctuary Education Resource and completing at least three environmental actions where they learn about dolphins and the complexities of sustainably managing their Port Adelaide River and Barker Inlet Estuary environment. Participating in a range of environmental actions actively assists students in understanding how catchments function, the Kaurna and European history, human impacts upon ecological habitats and how the *Adelaide Dolphin Sanctuary Act 2005* will improve environmental management across the region.

The Junior Dolphin Guardian program has a strong emphasis on learning through active involvement in environmental actions. With teacher and adult mentor support, the Junior Dolphin Guardians become active ambassadors for dolphins and the protection of dolphin habitat. The Guardians are able to communicate dolphin and environmental issues, particularly associated around the Adelaide Dolphin Sanctuary, to varied audiences including schools, the community, politicians, family and friends. The Guardians also grow and initiate environmental action by becoming pro-active in dealing with these issues they have identified in their school or local area.

Importantly, being involved in this program becomes a powerful tool for learning and enables Guardians to confidently communicate to others how individuals can make changes in their own lives to protect dolphins and their habitats.



North Haven Rangers

North Haven Primary School is a great example of what can be achieved by Junior Dolphin Guardians. Already there are over 40 active Junior Dolphin Guardians, or Dolphin Rangers, as they like to be called, who meet once a week to discuss what they can do to help the dolphins.

In 2003 students from their school attended a Dolphin Education Day, where the aim was to educate local students about some of the most pertinent issues affecting the local pod of dolphins, their habitat, the importance of their protection through the introduction of the Adelaide Dolphin Sanctuary and the personal actions people can take to protect them.

As trained Dolphin Rangers their role is to advocate within their school and community for the protection of dolphins and their environment. Already North Haven Primary School students have set a high standard of environmental involvement. They are involved in a range of environmental programs including dune revegetation, fundraising for dolphin research organisations, school recycling programs, creating indigenous gardens, Frog Census, Waterwatch and Roadwatch.

Fundraising for sponsorship of local dolphins is achieved by holding ice cream days, pancake days, runnathons and garage sales while the decision to eliminate some favourite products from their school canteen has significantly reduced the litter in the schoolyard. The school's Youth Environment Council also manages the school's recycling program and organises litter free lunches on a regular basis.

The North Haven Primary School students' desire to help the dolphins hasn't been confined to their school. They have now joined forces with local community groups to tackle another issue - the number of plastic bags used at the Torrens Island Sunday Market! It's estimated that market use 5,480,000 plastic bags each year. With the concern that dolphins can mistake plastic bags for squid and jellyfish this has now become North Haven's Dolphin Rangers major project.

"Plastic bags are a problem there. The wind blows them into the water. No-one wants this to happen, it just does" Bradley Wall, North Haven Junior Dolphin Guardian.

On World Environment Day they began selling paper bags and multi-use bags at the entrances to the market. Hoping that people will make the change from plastic bags, they also put up posters and banners with the slogan "Please help us to help the dolphins".

Junior Dolphin Rangers have been actively working to protect the dolphins and their environment through school and community programs. The launch of the Adelaide Dolphin Sanctuary, the Adelaide Dolphin Sanctuary Education Resource and the Junior Dolphin Guardian program marks a turning point in the protection of not only the dolphins but the Port River and Barker Inlet Estuary and will encourage more young people to engage in environmental action to protect the dolphins and their habitat.

For further information about the Junior Dolphin Guardian program you can visit the website http://www.environment.sa.gov.au/coasts/dolphin_sanctuary/ or contact me on the details below.

Verity Bone
Environmental Education Officer
Department for Environment and Heritage,
South Australia
P: (08) 8463 3912
E: bone.verity@sau.gov.au

Byron Marine Wildlife Series

Barb Jensen, MESA.

An initiative sparked by Seaweed is building local interest in the marine environment of Cape Byron Marine Park. Information evenings have been very well attended and the Byron Underwater Research Group has formed. Through slides, (some amazing audio and images) and discussion the local community has the opportunity to learn more about the marine life, the local research projects and other programs linked to our marine environments. And for those with the time and skills, the Research Group is

planning to get wet, explore and study the area.

An incredible sequence of the white humpback whale breaching instantly connected everyone in the audience positively to the marine environment, a powerful first step towards taking action to protect and conserve. Congratulations to the work and enthusiasm of Brian of Coastcare and Jackie of the MPA.

Marine Discovery Centres....

Schoolkids getting dune and dirty for the environment

Media Release
July 2005

Volunteers from primary and secondary schools and others from community groups are again heading for the beach this year, to help save the fragile dune systems along the surf coast.

The Department of Primary Industries Marine Discovery Centre at Queenscliff began the restoration program 21 years ago.

The program coordinator, Tara Ellard, said volunteers would be laying down native tree prunings to stabilise areas of bare or damaged sand dunes.

"The brush helps trap sand and windblown seed and, as it breaks down, it provides nutrients to the growing plants," Ms Ellard said.

"Locally indigenous plant species are then planted among the brush to help stem further erosion."

Without restoration of these primary dunes the areas of erosion or 'blowouts' would increase. This erosion may lead to loss of valuable habitat further into the dunes.

This year's program runs from the 18th of July until August the 12th at the following sites:

Torquay

18th July - 22nd July

Breamlea and Barwon Heads

25th July - 29th July

Queenscliff and Torquay

1st August - 5th August

Barwon Heads and Queenscliff

8th August - 12th August

This program has been made possible due to the generous support of the Natural Heritage Trust, Coast Action /Coastcare, Borough of Queenscliffe, Great Ocean Road Committee, Barwon Coast and the City of Greater Geelong.

Students will be working on site between 10am and 2pm on the designated days and Tara Ellard can be contacted on 5258 3344 for specific site locations, school groups involved and work times.



Phil Coulthard

The Dolphin Discovery Centre (DDC) is a non-profit, community based organisation dedicated to dolphin education, conservation, research and tourism. Located in Bunbury on the south west coast of Western Australia, the centre plays a very dominant role in promoting an understanding and appreciation for the marine environment for the entire community.

One major project during the winter months over the past 4 years has been the rehabilitation of stranded baby Loggerhead Turtles. Preferring the warmer tropical waters further north, the newly hatched juveniles ride the warm ocean currents for up to 12 months feeding on plankton. Along

the west coast, this is known as the Leeuwin current and can extend a long way south and often close to the coast. Trouble strikes for the hatchlings when a number of cold fronts from the Antarctic blow them off course and into the colder waters of the SW region. Weak and unable to catch food, the turtles eventually wash ashore on the beaches where they are found and brought to the specialised tanks at the Centre. They then require 3-6 months of dedicated care to reach a satisfactory condition before they are returned back into the ocean near Shark Bay, almost 1000km to the north.



About the Loggerhead Turtle?

The loggerhead turtle can be identified by the shape and markings on the shell and head. The loggerhead turtle was actually given its name due to its proportionately large head, and the beak-like mouth used to shear and crush food.



Adult loggerheads can grow up to 1.5m long and weigh over 150kg making them one of the largest turtle species in the world. And to reach these proportions, it may take 60-80 years with a maximum age of 100 years a possibility; and for a turtle to reach sexual maturity, they need to live at least 35-40 years and be 90cm in length. That's a long time to mature into a reproductive adult,

raising concerns for the survival of the species.

All marine turtles are experiencing serious threats to their survival. Based on information collected along the East coast, the loggerhead turtle has lost 50-80% of its annual nesting population in the last 10 years. This information has raised severe concerns for the survival of the species worldwide.

The main threats are pollution and changes to their habitats, particularly their nesting sights, sea grass beds, coral reefs and mangrove forests. Other threats include accidental drowning in fishing gear, over harvesting of turtles and eggs; and predation of eggs and hatchlings by foxes, feral pigs, dogs and goannas.

In Australia, all species are protected under various State and Territory legislation and the Commonwealth *National Parks and Wildlife Conservation Act 1975*. And due to the increasing threats, five of the six Australian water species are listed under the *Commonwealth's Endangered Species Protection Act, 1992*. The Loggerhead turtle is currently listed as Endangered under this act meaning it may become extinct if the threats to its survival continue.

The turtle project has become a very popular display within the Centre and has proven that education and public awareness play a significant role in understanding and appreciation of our marine environment for the local community.

For more information, please contact Phil Coulthard phoning: (08) 9791 3088 or m 0439 972 632
e-mail: phil@dolphindiscovery.com.au
Web Page: www.dolphindiscovery.com.au

Unique education programme inspiring a new generation of marine scientists

Pam Elliott, Marine Discovery Centre, Woodbridge

In an Australian first, an innovative new program is providing high school students from Tasmanian schools the unique opportunity to work with world-renowned

marine scientists, live marine animals, aboard a research vessel at the Woodbridge Marine Discovery Centre. The successful programme has already seen graduates entering marine and environmental science careers.

Set on the shores of Tasmania's D'Entrecasteaux Channel the WMDC is part of Woodbridge School, owned by the Department of Education, and houses fully equipped teaching areas, an aquarium room, marine pond, touch tanks and lots of displays as well as the largest collection of cool temperate marine species in Tasmania. It challenges students of all ages to learn about, discover and care for the marine environment through diverse shore and sea-based programmes.

A new initiative involving Grade 9/10 students allows students to swap the classroom for a unique 'authentic learning' opportunity spending a week studying live sharks, seahorses and giant crabs.



Examining sharks around the pond with teacher, Pam Elliott

Students spend the week working in research teams out on the water every day aboard the 13.5m research vessel, *Penghana*, contributing to scientific research. They collect environmental data while studying the biodiversity of four sites in the Channel, ranging from shallow sheltered bays to 30 m deep sites with strong current flow.

The students meet and work with marine scientists from some of Australia's premier research facilities including CSIRO Marine & Atmospheric Research, the Australian Antarctic Division, the Tasmanian Aquaculture and Fisheries Institute and the

Institute of Antarctic & Southern Ocean Studies.

As a culminating performance each team prepares a report presenting and analysing the data collected. They also participate in role-play exercises and undertake case studies, which enable them to develop an appreciation of the roles different stakeholders play in the stewardship of the ocean.

One of the most exciting future developments will see students having an input into an ongoing scientific monitoring programme of the Channel. This data will then be available on the web for other students and scientists.



Students collecting data on board the *R.V. Penghana*

Australia has one of the world's largest and most biologically rich ocean territories. With increasing human pressures we have a responsibility to explore and develop sustainable management plans for each region. That said, there's a growing demand for competent, and passionate marine scientists. It is believed that the programme is an ideal platform for creating such scientists for the future.

Aquarium's



Sea World's **Animal Adventures** provide an exclusive opportunity to join Sea World's

Marine Mammal Trainers in a unique interaction with some of the ocean's most wonderful marine creatures.

These once-in-a-lifetime experiences include an opportunity to get up close and personal with sharks and marine life at Shark Bay, deep and shallow water dolphin encounters, open helmet dolphin dives, wet and dry interactions with our fun loving seals and learning how the trainers care for and train the dolphins.

Animal Adventures lead participants on a rare journey in a controlled environment where they come face to face with amazing and intelligent animals gaining an insight into their precious world.

Learning about these beautiful marine animals and their natural environment is the key to helping preserve their world, our oceans, and ultimately the conservation of their species.

Places on **Animal Adventures** programs are limited. Bookings can be made online at www.seaworld.com.au or by calling the booking office on 07 5588 2400.

Specific **Animal Adventures** programs have been designed for adults, children or family groups and participants must meet criteria for each. For further information and full terms and conditions, visit the website.

Sea World has introduced **two new fantastic interactive Animal Adventures** programs for guests to get up close and personal to marine life with family and friends.

The Dolphin Family Adventure and Shark Encounter are additions to the already popular stable of interactions available to Sea World, including the popular Dolphin Aqua Adventure, Shark Snorkel and Seal Aqua Adventure programs.

The Dolphin Family Adventure program offers families a once in a lifetime experience to share an intimate encounter with Sea World's amazing dolphins.

During this program, families have the exclusive opportunity to join Sea World's

Marine Mammal Trainers in a unique, shallow water interaction that is fun and educational with some of the park's dolphins.

The Dolphin Family Adventure program is available to family groups with a maximum of 6 participants with a minimum of one adult and one child (up to 13 years of age and a minimum height of 110 cm) at a cost of \$495.00 per group. The group also receives a family portrait photograph capturing the memorable experience.

The Shark Encounter is Sea World's most thrilling Animal Adventures program yet, which brings guests face to face with some of the world's largest shark species at the awesome new Shark Bay.

Participants join a qualified Shark Bay diver for the ultimate Shark Encounter in an exhilarating shark feeding session with the world's most feared predators.

During this unique program, guests enter the acrylic cage in the Shark Lagoon where they see these amazing creatures fed up close and personal.

Guests have the choice of participating in the program either as a certified SCUBA diver or aided with basic snorkel equipment. Limited programs are available on Mondays, Wednesdays and Saturdays only. The program duration is approximately 120 minutes with approximately 30 minutes in the water.

The Shark Encounter program is available to guests 14 years of age and over at a cost of \$250.00 per person.

During all of Sea World's Animal Adventures family and friends are able to watch their loved ones taking part in the programs either from the water's edge or at spectacular underwater viewing windows.

For more information about these and other Animal Adventures, including program costs and criteria, visit the Sea World website www.seaworld.com.au.

Contact:

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Sea World Research and Rescue Foundation and NSW Department of Primary Industries Join Forces to Protect the Endangered Grey Nurse Shark

The Sea World Research and Rescue Foundation Incorporated (SWRRFI) and scientists from NSW Department of Primary Industries (DPI) recently joined forces in a tagging study of the endangered grey nurse shark.

This latest grey nurse shark conservation effort provides researchers with valuable information on the sharks' migratory habits and the protective rocky areas in which they live.

The grey nurse shark is critically endangered in local waters, with less than 500 estimated to remain in the wild. Experts believe it could be extinct within 20 years if strong measures are not taken to protect the species.

The tagging program carried out by SWRRFI and the DPI is part of our ongoing research into the sharks' movements and habits, information which helps manage the critical habitat sites and provide protection for the sharks.

SWRRFI has provided funding, staff and equipment for the latest tagging project, and has been a strong supporter of the efforts of the NSW Government to protect the species

BABY DUGONG DEVELOPMENT

On Australia Day this year, Sea World rescued a stranded female dugong found at Fisherman's Beach near Yeppon in Queensland.

Her arrival length was 122.25cm and she weighed in at a cute 30.2kgs.

It has taken daily around the clock shifts to manage the care of the dugong, and she is continuing to improve and flourish thanks to the dedicated Marine Sciences vets and carers.

Every 2 hours a Marine Sciences staff member mixes up her specialised formula and heads out to the vet pool to bottle feed her. That's right! Every 2 hours, day and night, rain or shine.



She is now 151cm long and weighs around 85 kilos indicating good growth and general health.

The baby dugong has been introduced to a few toys as enrichment and likes being scratched with a soft brush by her carers.

Sea World still holds hope that the dugong will one day be released back into the wild, however the park has committed to care for the animal permanently if releasing is not an option.



Lai Dancer, Education Officer

The Melbourne Aquarium is Victoria's premier showcase of both marine and freshwater species and promotes a powerful conservation message to the community. The focus of the experience is the Southern Ocean - through a variety of themed displays, interactive experiences and face-to-face learning programs. However the Aquarium also maintains many freshwater species which on occasion are overshadowed.

In the past year, over 65,000 students have experienced programs delivered at the Melbourne Aquarium. Education programs cater for a variety of ages, learning levels and backgrounds. With programs for early childhood, middle and later years, VCE, tertiary and special needs groups, the

Melbourne Aquarium aims to develop positive approaches to understanding, enjoying and preserving both freshwater and marine environments. Teacher professional development programs (including free teacher entry to V.I.T. registered teachers) and adult groups are also warmly invited to experience the aquarium environment.

The diversity of life at the Aquarium is sometimes overlooked. There is more to the Aquarium than the sharks - although it is true to say that sharks in excess of 3 metres are capable of drawing an excellent crowd. Marine species include a variety of rays, many types of fish, sea turtles (as part of a release to the wild program), invertebrates (sea stars cuttlefish and octopus etc.), crustaceans as well as several varieties of shark.



Cutting edge research with GNS and Turtle recovery programs

Importantly, many freshwater species are also on display at the Aquarium. As well as Murray Cod, Long-finned Eels and Brown Tree Frogs, the Melbourne Aquarium has developed habitats for Water Dragons, Long-necked Turtles and Upper Yarra Freshwater Crayfish. Education staff continually remind students and teachers of the amazing variety of species in various habitats that are on their doorsteps in rivers, creeks, ponds and estuaries and provide ways in which habitats and species can be preserved.

The Melbourne Aquarium is providing a new generation of students with unique opportunities to increase their appreciation, awareness and understanding various environments. Our work experience program is hugely popular and generally provides an unforgettable experience for participants.

Careers Days target Years 9 - 12 students with an interest in Marine Science, Biology or the zoo or aquarium industry. Our most recent Careers Day on July 15 was a huge success with several high-profile guest speakers including *Reefwatch* Co-ordinator Wendy Roberts and Brett Tunstall from Australian Customs.

Recent comments from Careers Day attendees have included:

'I thought it was fantastic. It was the best day, well done to all the staff.'

'Careers day covered every aspect of marine science that I was interested in.'

'The staff were very pleasant. I enjoyed the day and this has helped me choose what I want.'



Hands on Education with our Snake Neck turtle

Visitors to the Aquarium are strongly encouraged to engage in activities and experiences that enable a greater understanding of marine diversity and various ecosystems. Interpretations staff are specially trained to deliver educative presentations such as supervised feed talks, diver talks, hands-on rockpool sessions. Interacting with the staff positioned throughout the aquarium provides the visitor with an enhanced experience. It also enables staff to relay their extensive knowledge of habitats and species - a task they enjoy immensely. Student groups have the additional support of an Education Officer to guide them through these experiences.

In addition to all of this, the Melbourne Aquarium uses its expertise to research endangered animals and rehabilitate those

that have run into trouble in the wild. In partnership with BHP Billiton and Monash University, we recently embarked on a project examining the critically endangered Grey Nurse Shark. This world-first research investigates whether reproductive techniques can be used to breed Grey Nurse Sharks and preserve the genetic diversity of captive and wild populations. At present, we also house two Green Turtles and a Flatback Turtle (one of only two Flatbacks in captivity worldwide), which are held temporarily and nursed back to good health.

The Melbourne Aquarium is an integral part of Victoria - both as a premier tourist attraction and a protector of the marine environments it showcases. Our aim is highlight the amazing diversity and interconnectedness of extraordinary aquatic environments while at the same time provide an unforgettable learning experience.

Seanet

Emma Bradshaw - SeaNet Program Manager,
Ocean Watch Australia.

One has only to visit the Sydney Fish Market on any given day to see how Australian's and international visitors' alike love fresh Australian seafood, but as with so many things to do with the ocean, it's often a case of "out of sight, out of mind". Few of us give any consideration to commercial fishers who supply our Christmas and Easter table with what is arguable the best quality seafood in the world. Commercial fishers are often seen in the light of yesteryear, taking no responsibility for their actions or the impacts they have on the marine environment and the life within it.

The case today could not be further from the truth.

The commercial fishing industry funds a non-government organisation to be their environmental guide: to represent them, provide advice and education to government and other stakeholders on coastal and marine issues of concern; to act on environmental matters relating to aquatic habitat and water quality; and to also ensure that the industry is taking ownership of its environmental issues to improve its

sustainability and continue to reduce environmental impacts. A key program Ocean Watch manages is the SeaNet Environmental Extension Service. SeaNet works with “grass-roots” fishers to develop new improved fishing gears, practices and technologies. Benefits of this cooperative approach are three-fold: improvement of the environmental integrity of the oceans, maintaining the ecological balance and ensuring the industry, their families and communities who depend on fishing for their livelihood have a sustainable future.

SeaNet works with many different fisheries, from the tuna longliners off the east and west coast, to prawn trawlers in North Queensland, rock lobster fishers in South and Western Australia, and smaller, but equally important estuary based fisheries such as the estuary prawn trawlers in NSW.

Research and management organisations play a large part in achieving these improved practices, but it is the individual fisher that makes it a reality. Fishers from all sectors of the industry voluntarily donate their vessels to trial new fishing gears and practices and their time to develop and modify gears to ensure they are effective in their specific situation. These efforts prove that today's commercial fishers understand their responsibility to the marine environment and are pro-active in their search for solutions.

A few examples of today's commercial fishers commitment to maintaining the integrity of the oceans resources include:

- The mothership *Roper K*, services the trawlers of the Northern Prawn Fishery. A “mothership” provides prawn trawlers who are often out at sea for extended periods, with supplies, fuel and storage for their catch. Since 1995, the *“Roper K”* has been collecting all aluminium cans from the trawlers for recycling. Money they raise is donated to charities such as the Darwin branch of the St Johns Ambulance.



A collection of aluminium cans from northern prawn trawlers aboard the *“Roper K”* mothership.

- “Popeye” is an independent fishing-net maker from Cairns who has spent years voluntarily developing and improving a fish excluder for use in the Queensland prawn trawl fishery. The fish excluder does just that, allowing fish to escape from a trawl net unharmed. Trials have shown a 29% reduction in the catch of unwanted species (bycatch), and yet “Popeye” continues to work on the excluder to improve it’s effectiveness. The fish excluder is an internationally recognised practical tool to improve the sustainability of the industry, having received an Honourable Mention at the international “SmartGear” competition to reduce bycatch in the U.S. earlier this year.
- Bait cartons in the rock lobster fishery are held together with blue plastic strapping, which when carelessly discarded entangle marine life such as protected seals, dolphins and whales, often resulting in mutilation and death. A recently initiated SeaNet project has seen the South Australian industry enthusiastically adopt a strapless bait carton, which has already

reduced the number of entangled animals recorded.

- Fishers of the South East Trawl Fishery in Victoria and NSW are voluntarily trialing a modified trawl net which research shows allows small non-commercial fish and juvenile commercial fish to escape the net. This reduces the amount of small fish in the catch, thereby ensuring future populations. Yet it also benefits fishers, as the net retains larger, better quality fish and reduces the amount of deck work needed to sort the catch.
- A local Cairns fisher informed SeaNet to the presence of an exotic triggerfish species in the Cairns Inlet. This action alerted researchers, enabling them to investigate reasons for its occurrence in an otherwise foreign environment. Without the foresight of this individual fisher, the problem would have gone unnoticed and uncontrolled. Just think of the damage caused by cane toads, rabbits and foxes in our terrestrial environment!
- A group of fishers in the Hawkesbury River is working side by side with Ocean Watch to lobby government and others in relation to poor water quality and water quantity issues due to the presence of a large number of sewage treatment outfalls and Warragamba dam (the main water supply for Sydney) at the top of the catchment. Water quality and quantity are fundamental for healthy marine and estuarine ecosystems, in particular prawn migration.



Fishers from the South East Trawl Fishery with a modified net for trialling.

These are but a few of the many examples of how everyday fishers are working to ensure the integrity of our oceans and its inhabitants. As stewards of the sea, there really is no better champion. These fishers are out at sea or on our estuaries almost every day, and many have been for years. They have seen the changes to the environment and the impacts of past activities on the size, number and quality of our marine life.

They are the one's with extensive first hand experience and the one's who will be most severely affected if the oceans are left to deteriorate further. They are the canaries of the estuaries and our coastal waters. As such, they have a double incentive to do the right thing, which as part of the SeaNet team, we can say they are doing wholeheartedly. Here's to the true stewards of the ocean ...the commercial fishers of Australia!

Do we really need shark nets on our beaches?

Ingrid Neilson, Australian Marine Conservation Society

The most tragic aspect of the recent death of a juvenile humpback whale off a Queensland Gold Coast beach is the predictability of it. This incident comes one year after an identical occurrence in which a juvenile humpback suffered the same fate in the same vicinity. Just as with this death, when the team arrived to conduct a rescue operation, the juvenile humpback had already drowned as its deeply distressed mother looked on. Once again, the local community is left distraught and Australians around the nation are questioning why these ocean giants are dying at our own hands.

Back from the brink of extinction in the 1960s, the mighty humpback whale is making an amazing recovery. These remarkable mammals evoke an outpouring of community admiration and awe as they travel along the eastern coastline each winter, migrating north to warmer waters to breed.

But as whale numbers increase, so does the likelihood of them coming into contact with lethal shark nets along our coastline. The entanglements are all the more frustrating because the shark nets are unnecessary, illusory and a relic of a bygone management era.

Shark nets were erected in NSW in 1937 and in Queensland in 1962 with the specific aim of culling sharks and thus reducing their populations to lower the likelihood of shark attack. In some areas baited drum lines are used instead of the nets to lure in and hook the sharks. Authorities say that they won't remove the nets or drumlines because one human life is worth more than that of any marine animal, no matter how much we might admire it. We do not kill snakes and spiders in national parks because of their potential threat to humans, so why do we accept this barbaric practice in the sea? AMCS deplores the death of any human being, but believes that it is important for this issue to be considered on the basis of fact and not irrational, ill-informed fear.

Fact 1: Queensland, New South Wales and KwaZulu-Natal in South Africa are *the only places* in the world where shark nets or drum lines are used. They are not common management practice. The rest of the world's population goes swimming throughout the year, and still shark attacks are extremely rare.

Fact 2: Contrary to the common perception, shark nets don't provide a barrier along the beach. They are set on the bottom and are open at both ends, so sharks can swim over or around them. The sharks that do try to swim through the net are trapped and drowned, often on the beach-side of the nets.

Fact 3: A wide array of marine life is killed each year due to our over-reaction to

sharks. When a whale dies in shark nets, it is very traumatic and very visible. What we don't see from above the surface is the myriad of sharks, turtles, rays, and (less frequently) dugongs and dolphins that are killed by these walls of destruction. Shark nets are not an acceptable management tool in our modern society.

Fact 4: Sharks and rays (elasmobranchs) are in decline throughout the world. Australia has seven threatened shark species, including the great white and critically endangered grey nurse shark (two of which were killed by shark nets last year). When shark nets were first erected in NSW, they killed 1 500 sharks in one year. In 2003-04, the death toll was just 82. This reflects the alarming decline of these incredible animals that have been around since the age of the dinosaurs. There are 370 species of shark in the world, 166 in Australia and less than 3% of these are considered dangerous to humans. One of these, the great white shark, is endangered. Sharks are in such trouble that Australia is signatory to the International Plan of Actions on Sharks. Yet we deliberately kill millions of them every year.

Australians were proud of our federal government's efforts lobbying the pacific nations to oppose 'scientific' whaling in the International Whaling Commission this year. We are now collectively dismayed that we would go to such efforts when they are dying in our own waters. What good is all the diplomatic effort in the world when humpbacks are effectively culled every year as they migrate along our own coastline?

Sustainable Seafood @ Melbourne Girls' College

Andrew Vance Marine Biology Teacher
Melbourne Girls' College

To celebrate World Oceans day at Melbourne Girls' College we ate fish. Not just any fish, but sustainably caught New Zealand Hokki endorsed by the Marine Stewardship Council.

The idea for a sustainable seafood lunch was floated in a Year 9 Marine Biology class one day and taken up by four enthusiastic

students who developed the program and ran the day for their communication project. Marine Biology is one of 30 elective subjects offered to year nines, who select 4 of these for their year. Students who undertake Marine Biology attend a 3 day camp in Queenscliff utilising the resources of the Marine Discovery centre, attend fortnightly self guided excursions to the Melbourne Aquarium, and this year were fortunate enough to be invited along to the AMC Blue Fin on the School's at Sea program. They certainly experience a rich and varied sample of the marine environment.



The idea behind the communication project is that students are given broad guidelines and told that they had to identify an important marine issue or topic and communicate this effectively to their peers. Students are encouraged to focus on their skills and strengths and as a result a wide range of presentations were submitted last term, ranging from a working echinoderm water vascular system model, pollution dioramas, whale biology posters, a report on dredging and a sustainable seafood lunch!



The seafood lunch was promoted at school assemblies and through posters around the school. A letter was sent home to parents to

explain the concept behind the day (why on earth we would be celebrating world Oceans Day by eating fish!) and orders were taken. The girls contacted Kallis and France, distributors of Seaways products and were kindly donated 270 crumbed NZ Hoki Fillets. We were also donated 500 crumbed squid rings through Seagnet, but were unable to accept these as our canteen does not have the facilities to cook these.

The Lunch took place on World Oceans Day, Wednesday the 8th of June. Our canteen prepared "Sustainable Seafood packs" with 1 fillet of fish, wedges and a MSC postcard. Seaways oven fillets were promoted in the school community and we raised over \$100 for our marine labs. We hope to increase our activities next year.

The students did a fantastic job at drawing attention to overfishing and I thought gave quite a balanced perspective on the sustainable seafood issue.

I llegal Fishing.....

Australia leads cooperation to stamp out illegal toothfish trade

18th July 2005

Fisheries experts from the Australian Fisheries Management Authority (AFMA) today began working with officials in Mauritius to strengthen their ability to stop the movement of illegally caught Patagonian toothfish through key trading link, Port Louis.

Australian officials, and an official from the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) Secretariat, have begun a week long training program in Mauritius. I am delighted that this exercise again clearly demonstrates the determination of Mauritius to become a responsible member of the world fishing community through its involvement with CCAMLR.

In the past, it has been suggested that Port Louis was sometimes used by illegal operators to land and tranship illegally

caught toothfish; but, following my discussions with the Mauritian Prime Minister Paul Berenger, and Fisheries Minister Sylvio Michel in January last year, Mauritius had agreed to tighten its controls and play its part in the fight against illegal fishing cartels.

The training this week focuses on the proper use of the CCAMLR Catch Documentation Scheme (CDS) for toothfish. The CDS is designed to help responsible nations track and control trade in toothfish - from harvest in sub-Antarctic waters through to arrival in the ports of market states such as the United States and Japan. The CDS aims to prevent illegal, unreported and unregulated (IUU) fishing by ensuring that illegally caught toothfish cannot be traded.

Australia, Mauritius and the CCAMLR Secretariat are working together to see the CDS fully implemented in Mauritian ports, which are frequented by toothfish vessels. Widespread adoption of the CDS is a key step in clamping down on trade in illegally caught toothfish and winning the war against illegal fishing operators.

Mauritius' cooperation with CCAMLR will also allow Australian toothfish operators to use Mauritian ports to land their catches and have their toothfish certified in accordance with CCAMLR requirements.

Part of the training will involve offloading toothfish caught by the Australian fishing vessel *Southern Champion* in Port Louis by Mauritian officials. The involvement and cooperation of Australian industry in the training program will provide Mauritian officials with real time, hands-on experience in using the CDS.

It is hoped this training program can be used in the future by other CCAMLR members, and the Secretariat as a model for capacity building with other nations that are not yet fully implementing the CDS.

Century up in the Fight against Illegal Fishing (Australia)

Source:

<http://www.mffc.gov.au/releases/2005/05111m.html>

12 June 2005

The crackdown on illegal fishing in Australia's northern waters has reached a major milestone with a century of arrests recorded this calendar year.

Australian Fisheries and Conservation Minister Senator Ian Macdonald said an Indonesian vessel was apprehended by HMAS Geraldton on Thursday afternoon north of Mornington Island.

"Reaching the century is a credit to the constant and professional work undertaken by Customs Coastwatch, the Navy and Fisheries officers in patrolling Australia's northern waters," Senator Macdonald said.

"While I would love to be in a position where there are no boats to arrest, the reality is, while Indonesian fishermen are prepared to run the gauntlet and target our well managed fisheries, we have a duty to intercept them.

"This is not just an issue of protecting our fish stocks and our environment, but our borders as well."

Nine people were on board Hesti 2 when they were intercepted about 300 nautical miles inside the Australian Fishing Zone approximately 21 nautical miles off Mornington Island.

The boat is being escorted back to Gove, where Australian Fisheries Management Authority officers will begin investigations. The 100 vessels have been captured across Australia's top end off the coast of Queensland, Western Australia and the Northern Territory, while authorities have also seized the gear of 80 other vessels.

The 100 apprehensions have been bolstered by Operation Clearwater last month which saw the arrest of 29 boats over an 11 day period.

Industry Looks to Tracing Tags in Fight against Illegal Fishing (Australia)

Source:

<http://www.abc.net.au/rural/content/2005/s1413307.htm>

13 July 2005

Tracing tags could be used to combat the growing threat of illegally caught fish being sold in Australian markets.

The Australian Seafood Industry Council is discussing the issue in Darwin today. Industry and wholesalers are yet to adopt a uniform traceability standard, but council chairman Bob Pennington says radio frequency tags, similar to those used for livestock, are being investigated. "Actually stopping the illegal fishing, is probably the hardest thing to do," Mr Pennington said.

"If we can somehow stop the sale of that product then it becomes totally unnecessary of unworkable to go fishing.

"It's all about traceability, being able to identify legal product in a way that can't be duplicated. I believe if this is accepted worldwide, then illegal product can be eliminated from circulation."

Coastwatch Rethinks Approach to Illegal Fishing (Northern Australia)

Source:

<http://www.abc.net.au/news/newsitems/200507/s1412598.htm>

12 July 2005

Darwin's Coastwatch says it needs a different approach to deal effectively with illegal fishing in Australia's northern waters. Darwin Coastwatch manager Jenny Anderson told the Australian Marine Sciences Association Conference today that while it would be easy to say that Coastwatch is under-resourced, it must work smarter with the money it has.

She asked scientists at the Darwin conference for their suggestions on how to stop foreign fishermen from entering Australian waters.

Coastwatch has recorded a big rise in the number of incursions in recent years, with one operation in April apprehending 29 fishing boats during a two-week period. Ms Anderson says it is also concerning that some shark fishermen are coming ashore to dry and store their catch.

Hand Blows Whistle on Shark Finning (NT)

Source:

http://townsvillebulletin.news.com.au/common/story_page/0,7034,15887444%5E421,00.html

11 July 2005

A former deck hand who blew the whistle on illegal shark finning by commercial fishermen in the Northern Territory says he has received death threats.

The Darwin man, who did not want to be identified and who has gone into hiding, said he received an anonymous phone call an hour after speaking to the Northern Territory News.

He said he was told by an unidentified caller: "Keep your mouth shut or you'll end up as croc bait."

Later that night, as he walked to catch a taxi in Darwin city, a man bumped into him and said: "Give it up, you have been told what will happen."

The disgruntled deckie spoke out after reading reports about Indonesians plundering northern Australia's waters for shark fins.

Further investigations by the Northern Territory News has revealed an organised shark finning network involving commercial fishermen and agents in Darwin who supply the black market in Asia.

"Don't worry about the Indonesians - it's happening right here in the Territory," the man said.

"It's a bit like the pot calling the kettle black to complain about the Indonesians." Fins can be sold for as much as \$600/kg on the black market. The man said he witnessed

the sister boat's skipper cut the fins off up to a dozen sharks, and that he also saw two large tiger shark fins about 70cm in diameter in his boat's freezer. "When I asked my skipper what he was going to do with them, he said he was taking them back to Darwin to sell on the black market," the man said.

"It wasn't just our boat that was shark finning illegally," he said. "I knew of at least two others doing it in the bay we were fishing."

When the Northern Territory News contacted a commercial fisherman and put the allegations to him, he denied all knowledge of it happening on his boats. "It's against our company policy to do that," he said, adding the only fins taken off his boat were legal by catch, which is documented and sold to a Queensland agent.

He said he sacked four workers earlier this year when they were caught trying to sell fins illegally in Nhulunbuy.

Australian Fishers Accused of Helping Cut Shark Numbers (NT)

Source:

<http://www.abc.net.au/news/newsitems/200507/s1411532.htm>

11 July 2005

The Australian Marine Conservation Authority says Northern Territory fishermen cannot escape blame for depleting shark numbers off the north Australian coast.

The authority says the introduction of laws which force fishermen to bring the whole shark ashore rather than just filling boats with fins has helped reduce catches. But the authority's Adele Pedder says the shark population has dipped to dangerously low levels.

She says both Indonesian and Australian fishermen have been spurred on by the high prices for shark fin.

"It's fuelling a huge amount of fishing of the Arafura and the Timor seas where there is a

higher biodiversity value in those sharks," she said.

"But of course it's not just the Indonesian fishers that are fishing them, it's the Australian fishers."

Scientists Enlisted to Fight Illegal Fishing (Australia)

Source:

<http://www.mffc.gov.au/releases/2005/05130m.html>

11 July 2005

Australian Fisheries Minister Senator Ian Macdonald has called on the world's scientists to help find a solution to illegal fishing.

Speaking at the 16th Convocation of the International Council of Academies of Engineering and Technological Scientists in Cairns today (Monday July 11), Senator Macdonald said the Australian Government spent nearly \$100 million a year in direct costs to combat illegal fishing.

"Australia makes no apologies for our tough stance against illegal fishing," Senator Macdonald said.

"But it would be great to think that scientific efforts off the water could also play a role in improving the way we tackle these criminal cartels.

"Illegal fishing is often organised trans-national crime. We are dealing with national and international criminals who have their sights set on making big dollars." Senator Macdonald said illegal fishermen ignored the detrimental cost to the environment, the fish stocks and human safety.

"The 'countries' at fault are those that provide these illegal fishers with a flag of convenience," Senator Macdonald said. "They ignore their port and flag state responsibilities, and continue to refuse to control their nationals and companies that are active in these fisheries.

"Technology like a Central Vessel Monitoring System is an example of how important science can be in helping to win this war.

"But we do need to stay ahead of the game if we are to ensure our fish stocks remain in tact."

Senator Macdonald also read a letter to the Convocation from the Prime Minister, John Howard, which focused on the need to better understand the working of the global oceans and predict their behavior.

The Great Whale Debate.....

Whale Conservation Communiqué

Federal Shadow Environment Minister
State and Territory Environment Ministers

Anthony Albanese MP (Federal Shadow), Hon. John Thwaites (Vic), Hon. Bob Debus (NSW), Hon John Hill (SA), Hon Dr Judy Edwards (WA), Hon Jon Stanhope (ACT), Hon Desley Boyle (QLD), Hon Judy Jackson (Tas), Hon Marion Scrymgour (NT)

Whaling in Australian Waters was banned in 1981 when the *Whale Protection Act 1980* came into effect.

Australia has traditionally led international efforts to protect whales.

Australia played a key role in the declaration of the Southern Ocean Whale Sanctuary in 1994.

Given the proud record that Australia has had in the past in international whale conservation, current moves by Japan to increase it's killing of whales must be strongly opposed.

The States and Territories of Australia join with the Federal Opposition in condemning the Howard Government for its failure to effectively oppose the proposed slaughter of Humpback Whales and the proposed increase in the slaughter of Minke Whales.

All the States and Territories and the Federal Labor Opposition demand that

- Whaling activity is stopped from occurring by the Commonwealth

Government in all Australian Territorial waters.

- Immediate steps be taken to prosecute boats detected slaughtering whales within Australian Territorial Waters under the *Environment Protection and Biodiversity Conservation Act 1999*.
- The Foreign Minister apply diplomatic pressure to Japan to stop it from expanding its whale killing activity.
- The Howard Government take immediate action to ensure that Australia's opposition to the proposed expansion of whale killing is clearly conveyed to all International Whaling Commission members.
- That the Howard Government reaffirm its commitment to the establishment of a South Pacific Whale Sanctuary.

The social, environmental and economic benefits of protecting whales is recognised by all the Australian State and Territory Governments and the Federal Opposition.

Whale watching is a major eco tourism industry in Australia.

The Humpback Whale is listed as a vulnerable species under the *Environment Protection and Biodiversity Conservation Act 1999*, and deserves full protection.

We will continue to work together to pressure the Howard Government to protect Whale populations.

Whale protection: Australia leads the way

Australian Minister for the Environment and Heritage

Senator the Hon. Ian Campbell 20 May 2005

The Australian Government is taking strong action to enforce whale protection with the release today of a comprehensive strategy to preserve Australia's five threatened whale species.

The recovery plans outline key strategies for the protection of five of Australia's great whales - the humpback, southern right, blue, fin and sei whales - and aim to recover their population levels back to the levels that existed prior to the 19th century when they were hunted extensively throughout the world's oceans.

The plans:

- provide protection for whales within 200 nautical miles from Australia's coastline (see attached map). This area - the Australian Whale Sanctuary - encompasses the area of the Exclusive Economic Zone (EEZ) outside state waters and extends further than 200 nautical miles in some areas to cover the continental shelf and slope;



- give whales a high level of protection under the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999*; and

- spell out that it is an offence to kill, injure, take, trade, keep, move or interfere with these whales within the designated Australian Whale Sanctuary zone.

The recovery plans have involved extensive consultation with the States and Territories, key researchers, non-government organisations and industry.

"These whale species were decimated by commercial whaling during much of the last century and Australia is strongly committed to their long-term recovery and protection," Senator Campbell said.

Australia has a number of long-standing programs to monitor populations of these whales and preserve their survival. The release of these whale protection plans will enable all governments and stakeholders to implement and fund activities for the recovery of these whale species.

One of the key threats to these whales identified in the plans is any recommencement of commercial whaling.

"The Australian Government is strongly opposed to any resumption of whaling and will continue fighting for a permanent ban on commercial whaling and an end to whaling for so-called 'scientific' purposes," Senator Campbell said.

"I will represent Australia at the next meeting of the International Whaling Commission in June and will be working to remove any loopholes that allow commercial whaling, under the smokescreen of science or anything else."

Australia was a founding member of the International Whaling Commission (IWC), is the host country of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), and a key player in Antarctic Treaty Consultative Meetings (ATCM).

Australia is also working with other South Pacific countries to establish a Memorandum of Understanding for the conservation and

management of marine mammals in the South Pacific region, under the Convention on Migratory Species.

The recovery plans are available on the website at: <http://www.deh.gov.au/epbc/news.html>

Further background information on the biology and population status of each species is available on the Species Profile and Threats (SPRAT) database accessed at www.deh.gov.au/sprat.

Japan loses whaling bid

[This is the print version of story <http://www.abc.net.au/news/newsitems/200506/s1397268.htm>]

Japan has failed in its bid to resume commercial whaling during a vote at the International Whaling Commission (IWC) meeting in Ulsan, South Korea.

Twenty-nine countries voted against, with 23 supporting the plan.

Japan had presented a proposal to the IWC for an eventual return to commercial catches.

The whaling lobby had failed to garner a simple majority to introduce secret ballots, which conservationists feared would favour the pro-whaling countries.

The Japanese plan had hinged on a so-called revised management scheme, on which the commission has been trying to agree for more than a decade.

It outlines how whaling should be managed, if a 19-year ban is lifted.

Japan kills around 650 whales annually under its so-called scientific program, which is allowed despite the moratorium on commercial catches.

Federal Environment Minister Senator Ian Campbell has welcomed the Commission's decision.

He has told ABC Radio he plans to use the momentum from today's decision to move a motion at the Commission tomorrow to stop Japan from commercial whaling under the guise of science.

"To basically say to Japan in very clear terms that blowing up whales, destroying them with explosives and slicing them up and selling them in Japanese whale restaurants, is not science," he said.

"We would hope that if we can get the sort of vote we've had today hopefully even better that will send a strong signal to Japan."

Prime Minister John Howard says the vote against commercial whaling is welcome but is only the first round in the campaign.

"We'll continue to argue our case trenchantly and I hope we can be successful, but I do caution against assuming that the vote on scientific whaling will be exactly the same as the vote on commercial whaling - you can't be certain of that," he said.

Federal Opposition spokesman Anthony Albanese says the real outcome of Australia's efforts will not be known until the vote on scientific whaling.

He says the Federal Government could do more by taking legal action against the main whaling countries.

"We know that they are not killing whales for science - they are killing them for lunch," he said.

"Australia needs to be at the forefront of legal action to make sure that is stopped once and for all."

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The Whale Wars

Reporter: Matthew Carney Broadcast:
18/07/2005

It was billed as a "victory for the whales". Last month's International Whaling Commission meeting in Korea had fended off Japan's push for a return to commercial whaling. A triumphant Australia had led the opposition.

But Japan has warned that it is far from beaten. It insists that it will press ahead with plans to dramatically increase the number and species of whales it kills under the loophole of "scientific research".

And in the fading minutes of the forum, Japanese representatives declared defiantly that they would not back off on commercial whaling. They would be back in greater force next year - with more votes from more pro-whaling countries. "The reversal of history, the turning point, is soon to come," one delegate told the meeting.

The warning underlined Japan's determination to grind out victory in a long-term campaign to return to full commercial whaling - even if that means coping with embarrassing setbacks and international odium along the way.

At the heart of Japan's strategy is its courting of small, impoverished nations - mainly in the Pacific, the Caribbean and Africa - to win their support at the IWC.

For years Japan has been accused by conservationists of bribing these minnow states for their pro-whaling votes. Rarely, however, have these accusations been backed by solid evidence. Japan has denied the charge.

Now Four Corners can reveal the specific detail of some of the favours handed out to countries to sign up for IWC membership and to support Japan.

In one case, an official letter has surfaced to show that Japan has been making

payments to the IWC on one country's behalf.

In another case, a former IWC commissioner confirms that Japan has been paying all his country's IWC costs and associated expenses. In yet another, a disgusted politician tells how his country was bought off.

"I don't think the international legal community has yet come up with a term to describe this blatant purchasing of small country governments by Japan," he tells Four Corners.

In this report, filmed in the Pacific, the Caribbean and the lobbies of the IWC meeting in Korea, Four Corners also exposes the farcical rules of the IWC and how it is open to manipulation and abuse.

Matthew Carney reported on "The Whale Wars" - Four Corners, 8.30pm, Monday 18 July, ABC TV

Conferences and Grants.....

MESA at AMSA

Alex Gaut

Earlier this year I joined the Australian Marine Sciences Association in an attempt to grow stronger ties with the marine science community. I was very excited to learn about their annual conference and managed to organise to attend in Darwin in mid-July. I must thank the Australian Marine Environmental Protection Association for providing some financial support to assist me to attend the conference.

AMSA has been in existence for over 40 years and has around 750-800 members all of whom are involved in some form of marine science from fisheries to oceanography to biogeochemistry and ecology. There is a strong university student component to AMSA who provide various awards for poster and oral presentations by both honours and PhD students at the conference each year.

It was very exciting to meet some of the scientists whose work I had heard about and to hear about some of the amazing projects that are underway all around Australia. Below are summaries of some of the presentations.

Ocean Acidification

Dr Steve Widdicombe, Plymouth Marine Lab, UK

During pre-industrial times, the oceans and the organisms within them contained approximately 38,000 gigatonnes (Gt) of CO₂. In the last 200 years of industrialisation human activities have released 6 Gt of CO₂ into the atmosphere, about 48% of which has been absorbed by the oceans.

CO₂ dissolves into seawater to form dissolved inorganic carbon, consisting of:

- Aqueous CO₂ (including carbonic acid) - 1%
- Bicarbonate (HCO₃) - 91%
- Carbonate CO₃ - 8%

Currently the oceans are slightly alkaline, with a pH of 8.1 ± 0.3. Oceanic pH has decreased by 0.1 pH units since pre-industrial times, this is equivalent to a 30% increase in hydrogen ions in the last 200 years.

A decrease in pH causes:

- A decrease in carbonate ions;
- An increase in carbonic acid; and
- An increase in bicarbonate.

Calcium carbonate (which many sea creatures use for building shells, etc.) will dissolve unless there is a sufficiently high concentration of carbonate ions in the water. Calcium carbonate becomes more soluble with a decrease in temperature and an increase in pressure - so the deeper the water the more likely calcium carbonate is to become soluble.

50% of the global primary production is carried out by plankton that is less than 10 micrometres in size. It was once proposed that an increase in CO₂ would assist global primary production, especially in the oceans,

however it is now known that CO₂ is not a limiting factor for most marine algae.

Effects on larger organisms include a decrease in both motility and fertility. The impacts on fish and squid includes hypercapnia - this is a condition of too much CO₂ in the blood. A decrease in oceanic pH will affect their ability to assimilate oxygen and they will have problems getting rid of excess CO₂, which will build up in their blood to cause hypercapnia.

Coccolithophores are a beautiful single-celled form of microscopic seafife that use calcium carbonate to build shells (called 'liths') around their cell. The effects of a decrease in pH under experimental conditions produced reduced numbers of coccolithophores, reduced quality of liths and a reduction in the number of liths per cell.

The impacts will also reach down to cold/deep water corals. Some of these colonies are up to 8000 years old!

The economic impacts of reduced pH are huge. It has been estimated that since the 1980s, approximately 30% of tropical corals have disappeared and more are to go. Coral loss equals financial loss. In the most dependent region of north Queensland, of \$900 mIn revenue, \$800 mIn is associated with healthy coral reefs. Degradation of those reefs will cost the local economies about \$2.5 billion over the 19 years from 2001 to 2020.

The oceans currently take up to 1 tonne of human-derived CO₂ per year for each person on the planet. Ocean acidification is a predictable response and one about which we can do nothing. Even if we were to stop producing CO₂ right now, ocean pH will continue to decrease for several decades yet.

Customs

In southern Australian waters, the vessel *Southern Supporter* is a joint fisheries/customs ship that targets illegal fishers taking Patagonian and Antarctic toothfish. These are deepwater fish, living up to 50 years and fetching up to US

\$10/kg. The extreme weather conditions under which these ships and their crew have to work were highlighted when the media followed the longest vessel chase in Australian history – following the *Viasa* from Australia across the Southern Ocean to South Africa. They went through Antarctic ice conditions to the raging storms of the Southern Ocean with waves higher than their ship. The *Southern Supporter* has an annual budget of about \$200 million.

In the northern part of Australia, Customs officers are the 'muscle' in fisheries law enforcement. Foreign Fishing Vessel (FFV) incursions have increased massively from 2000 – 2004, especially into the Gulf of Carpentaria. Most of the vessels observed are taking shark fin, from which there is massive waste, hundreds of bodies litter the sea after a vessel has been through. There is also a high proportion of bycatch including dugongs, turtles and dolphins.

The personnel from these vessels come onto the land illegally to collect freshwater (for which they have dug wells), dry out their shark fin haul or simply to take a break. Some of the illegal fishers coming ashore have tuberculosis, to which Aboriginal people are particularly susceptible. The animals from these boats, including rats, chickens, dogs and others, also often disembark, bringing with them all sorts of diseases. The boats themselves carry a species of termite that could seriously threaten Australian forests. Illegal vessels have been found right into inland waterways and especially deep into mangroves.

Many of these vessels are now well-equipped with radar, radio, high-value nets, winches and other expensive commercial equipment.

In the first part of this year 29 vessels and 250 people were caught with 195 kg of shark fin and much more of other fish including many reef fish species, running into the thousands of kilograms.

This talk was a real eye-opener into the problems that Fisheries, Customs and Quarantine all face everyday.

Aliens on Ice

Patrick Lewis – Hons student

Surprisingly, there are more than 200 species of introduced plants and animals in the Southern Ocean islands. There has been over 200 years for these species to make their way to the islands through vectors such as sealing (from 1810 onwards) and tourism.

Viable communities of marine species are carried in ballast in vessels travelling from the south to the north, carrying a risk for temperate marine communities. However, this is not a risk when travelling south.

Hull fouling is more of a problem as ice breaking ships do not use antifouling paints because they get stripped off by the ice. These ships have long port residence and travel slowly, producing less sheer stress. Up to 50% of the invasive species are carried on the hull. Fortunately because the ice strips the hull it acts as a barrier for most species to get all the way to some areas.

Invasive species tend to have a high tolerance for large temperature differences, so we cannot rely on temperature differences between Australia, New Zealand and the sub-Antarctic islands to prevent introduced pest incursions.

Introduced Marine Pests

This was a major theme at the conference, so I picked up some statistics:

- Australia has currently over 200 introduced species in marine and estuarine systems.
- One ship can have up to 250 species fouling the hull!

Census of Marine Life

This is a very exciting project. For more information, see www.coml.org Basically it is a 10-year (2000 – 2010) 'stocktake' of the oceans, with the aim of producing three 'maps':

1. HMAP – History of marine populations.
2. What does live in the oceans now? Ocean Realm Field Projects.

3. FMAP – Future of marine populations.

Although the project was started back in 2000, the Australian leg of the project is only just booting up now and being managed by the National Oceans Office, who held a whole day workshop with the marine scientists at the conference to identify gaps in knowledge and to discuss how the project will take shape in Australia.

Education and outreach are taking place via the website with respect to 'ocean literacy'.

While you are there check out (or Google) these other projects – 'Barcodes of Life', OBIS and the Global Ocean Observing System.

Antarctic Education

The Institute for Antarctic and Southern Ocean Science (IASOS), now the Antarctic Climate & Ecosystems Cooperative Research Centre (<http://www.acecrc.org.au/>), along with dozens of other institutions globally are proposing the formation of a new global institute with the interim name of the International Antarctic Institute.

While we are on the subject, the year 2007-08 will be the International Polar Year (see www.ipy.org), so I am proposing that Seaweed 2007 becomes 'Seaweed Antarctica 2007'. Antarctica is a major part of the Australian marine jurisdiction and Australia owns the largest portion of Antarctica so it is of great significance to us as a nation and a great responsibility.

Great Barrier Reef Seabed Biodiversity Project

<http://www.reef.crc.org.au/resprogram/programC/seabed/seabed.htm>

See the above website to download some short video segments from some of the sampling that was done for this major 3 year project. Many of the specimens collected in this project have yet to be identified because Australia is desperately short on specialist taxonomists in many marine groups.

National Oceans Office

The NOO had a major presence at the conference and while they did not present per se, I thought I should let you all know that if you email them via their website (www.oceans.gov.au) email: office@oceans.gov.au they have lots of lovely posters, stickers and magnets that are free for marine educators to use with their students. They also have some free CDs showing movie fly-throughs of Australia's underwater geography (called bathymetry). These are amazing to watch!

<http://www.oceans.gov.au/education/home.jsp> For the Education home page.
Just ask!

One of the highlights of my time at the conference was the opportunity to go aboard the CSIRO's research vessel, the *RV Southern Surveyor*. Take a virtual tour with these photographs –



The RV Southern Surveyor in dock in Darwin.



The onboard crane can load massive freight, such as this large truck container.

The RV Southern Surveyor has two sets of controls. One set is used for controlling the ship whilst travelling and the other set used to control the ship while it is stationary or undertaking dredging/trawling activities. This image shows the front controls (with Dr Sasi Nayar from SARDI looking out the front windows).



Looking out onto the back deck. You can see how the deck is cluttered with many different kinds of equipment.



This is a CTD sampler - conductivity (for salinity), temperature, depth. These samplers have been used for a long time by oceanographers and biologists alike, to find out the conditions at different depths of the oceans. In the background you can see the sampling bottles that can be computer-controlled to open and take a sample at pre-set depths.



This is the side of the fish lab. The RV Southern Surveyor is an ex-fishing ship from the North Sea, so this fish lab was originally the room where freshly caught fish were headed and gutted. This room did not have to be changed when the ship was changed for research purposes. At the far end of the rollers you can see a small hatch where the fish are pushed through.



These fish preparation tables are immediately next to the rollers in the previous picture so that the fish can be grabbed from the rollers and prepared for research and storage by scientists.



Much of the work that is done is undertaken by computers (for example, bathymetry). There is an incredible computer lab of which this is just a small part. When the bathymetric data logger is in full flow it creates terabytes of data each day, so the ships technicians and managers are constantly challenged by data storage problems.



I did not get pictures of the living quarters but the ship is fully equipped to take 12-15 scientists (depending on the number of technicians required) sharing a number of well-equipped bunk cabins. The Chief Scientist gets a large cabin suite. There is an excellent kitchen as well as two laundry rooms and a living area for R&R. There are many other rooms that I could not show you, unfortunately.

First International Congress on Marine Protected Areas (International)

Source:

http://www.oceans.gov.au/Oceans_action_bulletin.jsp

8 July 2005

The world's first International Marine Protected Areas Congress (IMPAC1) will be

held in Geelong from 23-27 October 2005. The Department of the Environment and Heritage (DEH) is playing a key role in IMPAC1. DEH is a major sponsor of the congress, and is also assisting with congress organisation and administration.

IMPAC1 was developed to progress resolutions arising from the IUCN 5th World Congress on Protected Areas held in Durban, South Africa in 2003 and to address the World Commission on Protected Areas Marine goal and primary themes. The World Congress on Protected Areas meets every 10 years to set the global agenda for protected areas.

IMPAC1 has been designed to be the first of an ongoing series of regular global conferences providing a forum for continuous improvement in methods of establishing and managing marine protected areas. The congress aims to involve government agencies, communities, non-government organisations, research organisations and people whose businesses are associated with MPAs.

The objectives of IMPAC1 are to:
 *embrace the entire global range of marine protected areas, including but not limited to in-shore (integrated coastal zone management), reef, deep water, high seas and remote locations;

*develop a blueprint for partnerships between MPA managers, fisheries managers, management agencies, Indigenous peoples, local communities and industries reliant on marine resources to ensure that marine ecosystems are sustained into the future;
 *provide examples or models of best practice approaches for biodiversity and ecological processes through the management of MPAs; and
 *address important or emerging issues affecting or likely to affect the future existence, values qualities and effectiveness of MPAs and to explore innovative approaches and possible solutions to enable effective management of these issues.

Five key themes have been selected:
 *Developing Networks - Developing comprehensive & representative MPA networks
 *Sustainability/Resilience -

Ensuring sustainability/maximising resilience
*Ecosystem Processes - Understanding ecosystem structure and processes
*Management Effectiveness - Ensuring management effectiveness of MPAs
*Shared Stewardship - Partnerships and benefits
*Indigenous, social and economic, fisheries, and regional issues have also been identified for consideration within each of the themes.

Under Australia's Oceans Policy, a national representative system of MPAs (NRSMPA) is being implemented through regional marine planning. The initial focus for the NRSMPA in Commonwealth waters has been the South-east Marine Region. More information about MPAs in Commonwealth waters is available at www.deh.gov.au/coasts/mpa.

The provisional IMPAC1 program of 160 speakers has been finalised and includes presentations from 38 countries. For more information, visit the congress website www.impaccongress.org/.

Join a Voyage of Discovery (Australia)

Source: Oceans Action Bulletin
http://www.oceans.gov.au/oab/OAB_100605.pdf
10 June 2005

Marine scientists are encouraged to register for a workshop aimed at planning a major biodiversity research voyage in Australian waters.

Census Australia is hosting a workshop as part of the Australian Marine Sciences Association (AMSA) national conference in Darwin in July. Participants in the workshop will have an opportunity to provide input on a potential new biodiversity research voyage, express interest in taking part and share ideas with other scientists about the gaps in knowledge of Australia's marine biodiversity. The workshop will be complemented by the morning plenary session of the AMSA conference, which will focus on biodiversity issues and current Australian activity related to the Census.

More information on the workshop is available on the Australian Census website - <http://www.coml.org.au:8080/amsa>.

To register your interest in the workshop contact the Australian Census Secretariat Alicja Mosbauer on (03) 6221 5038 or email coml@oceans.gov.au

Rainforest Meets Reef: Joint Rainforest and Reef CRC Conference

22-24 November (Queensland)
Southbank Hotel & Convention Centre, Townsville

Rainforest meets Reef is a joint conference of CRC Reef and Rainforest CRC. It will highlight collaborative research solutions to environmental challenges in the tropics. More than 60 papers over three days will highlight the following themes.

- Responding to climate change and building resilience
- Solutions for water quality issues
- Maintaining diversity in the face of change
- The role of science in conservation planning and management
- New era of environmental governance and institutional change

Early bird registration closes Friday 15 July
Standard registration closes Friday 2 September.

A flyer for the conference and registration form can be downloaded from the CRC Reef website at:
<http://www.reef.crc.org.au/about/events/jointconference.htm>

The First Round of Australian Government's Community Water Grants is Now Open (Australia)

*What are the Australian Government's
Community Water Grants?*

The Australian Government's Community Water Grants will deliver grants of up to \$50,000 (GST inclusive) to eligible community organisations to encourage wise water use.

Community Water Grants are the community component of the Australian Government Water Fund. The Australian Government Water Fund helps to support the aims of the National Water Initiative.

Community Water Grants will provide support for community activities that promote a culture of wise water use through community engagement and awareness in the areas of water use efficiency and conservation, reuse and recycling, and surface and groundwater health. Particular emphasis will be given to encouraging innovation and best practice measures and demonstrating a broad range of community solutions that are adapted to local needs.

Eligible recipients of Community Water Grants include community groups; schools; environmental groups; rural organisations; sporting associations; community-care sector such as hospitals, nursing homes, and childcare centres; Natural Resource Management (NRM) regional bodies; local governments and non-government organisations.

In some instances the grants can be combined to provide grants of a larger scale to community based Non-Government Organisations.

Applications close on 4 October 2005. Projects are allowed 15 months for completion.

The Application Guidelines and Application Form are available from <http://www.communitywatergrants.gov.au/round1/index.html>

Australasian Aquaculture 2006

(International)

Source:

<http://www.growfish.com.au/content.asp?contentid=4646>

27-30 August 2006, Adelaide Convention Centre,
South Australia

Australasian Aquaculture 2006, to be held in Adelaide, South Australia, will be the second in a series of international conferences, meetings, events and trade shows held biennially near the major aquaculture producing regions of Australia. Not only does South Australia provide the perfect venue and location for Australasian Aquaculture 2006, it leads the nation in aquaculture production. The diverse and active industry produces around 38 per cent of Australia's aquaculture product.

The theme for Australasian Aquaculture 2006 is "Innovation in Aquaculture". Innovation means more than just increasing production. Maintaining or increasing profit, entering new markets, obtaining skilled labour, in fact, all aspects of aquaculture require a level of innovation.

Australasian Aquaculture 2006 will provide a forum for aquaculture farmers, processors, business operators, equipments suppliers, scientists, educators, students, consultants and government representatives to meet and discuss the latest advances and innovations in the industry.

If you are interested in being involved in the conference (sponsorship, exhibiting at the Trade Show, presenting or attending), visit: www.australian-aquacultureportal.com
Or contact the Conference Coordinator:
Claudia Metti
GPO Box1625 Adelaide SA 5001 Australia
Tel: +61 (0)8 8226 2269
Fax: +61 (0)8 8226 0330
Email: metti.claudia@sau.gov.sa.gov.au