Australian Marine Sciences Association

and

New Zealand Marine Sciences Society

Joint Conference

AMSA-NZMSS 2012

Program and Abstract Handbook

MARINE & EVERYTHING IN BETWEEN EXTREMES

AMSA NZMSS 2012 HOBART

1 - 5 July 2012

Wrest Point Hotel

Hobart, Tasmania

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WELCOME FROM AMSA PRESIDENT (LYNNATH BECKLEY)

Welcome to Hobart! This year, the Australian Marine Sciences Association is holding its conference jointly with our New Zealand colleagues, thereby continuing a well-established, trans-Tasman tradition. I would like to extend a very warm welcome to all AMSA and New Zealand Marine Sciences Society members, presenters, sponsors, exhibitors, guests and other participants in the 49th annual AMSA conference. Thank you for travelling across the Tasman Sea or Bass Strait to Hobart, Australia's maritime gateway to Antarctica.

A special welcome to Dr Susan Wijffels (CSIRO) who will officially open the conference and our keynote speakers, Dr David Griffin (CSIRO), Dr Scott Nodder (NIWA), Prof Michael Coffin (University of Tasmania) and Dr Dennis Gordon (NIWA). In keeping with our conference theme of "marine extremes", their topics range from oceanographic extremes to the Southern Ocean, tsunamis and marine biodiversity. In addition, the annual conference allows AMSA to honour our 2012 Jubilee and Technical Award winners. A particular welcome to our student members; this may be your first scientific conference but, no doubt, it will be the start of many friendships and collaborations.

It is nearly fifty years since a small group of marine scientists met to establish the Australian Marine Sciences Association. They arranged the inaugural AMSA conference which was held in May 1963 in Cronulla, New South Wales. Since then, AMSA has grown into the major professional body in Australia for marine scientists from all disciplines. We strive to advance marine science and have active branches throughout the country. The annual conference is the major feature on the calendar with the venue rotating between the various state branches – the last time the AMSA conference was hosted in Tasmania was in 2004.

The Tasmanian organizing and scientific committees have been working hard for many months to arrange this conference and were somewhat overwhelmed by the number of people wishing to convene symposia and submit abstracts for talks and posters. Indeed, with five concurrent sessions each day, and a huge poster session, there is definitely something for everyone. The social programme is also extensive with an event scheduled for each evening, culminating in the conference dinner on Thursday night when the student prizes and the Sherwood award (for the best dance moves!) will be announced.

I trust that you will enjoy the conference, soak up the maritime ambience of Hobart and be engrossed with the latest scientific findings presented during the week.

Professor Lynnath Beckley, AMSA President

WELCOME FROM NZMSS PRESIDENT (COLIN MCLAY)

I would like to extend a warm welcome to both AMSA and NZMSS members to the fourth joint meeting of the two marine societies. The first meeting was held at Auckland in 1997 and the last time that we met was in New Zealand in 2008 in Christchurch. All of the joint meetings have been well supported by members and have attracted contributions from outside Australasia. Attendance at this year's meeting in Hobart also shows that marine scientists place a high value on such gatherings, which are opportunities to meet and discuss marine research and management in New Zealand and Australia.

Many of you will have travelled considerable distances to get to Hobart, but I am sure that you will all be rewarded by what you take away from this meeting. CSIRO has a branch just down the road from our venue and I recommend that you take the opportunity to look over their facilities should opportunities arise. We will also hear talks given by several of the scientists from CSIRO.

I would like to acknowledge all the hard work put in by the AMSA organizing committee and also recognize and thank two NZMSS Council members in particular – Kathy Walls and Bob Hickman for their contributions. Both are here today so I suggest that you take Bob by the hand and say that you are greatly indebted to him and then download a copy of his "50 Years of NZMSS: A History of NZMSS" from our web site at http://www.nzmss.org/documents/newsletters-and-society-business and while you're at it, I suggest that you also thank Kathy, give her a hug and buy each of them a drink! NZMSS would also like to thank all the sponsors for their contributions to the conference, whose generosity has contributed to this occasion.

NZMSS places particular emphasis on student support by investing any surplus funds into their research and attendance at domestic and international marine conferences. By careful planning, conference budgets normally aim to produce a surplus that can be directed into fostering marine science at the student level. Like any science, recruitment of young people is the life-blood for the future. When it comes to Conference prizes the spoils all go to the students who can then add this success to their CV. Competition for prizes this year is going to be intense. I would like to thank all the anonymous judges upon whose opinions these prizes are awarded. There are never enough to go to all the deserving papers and posters.

NZMSS was founded at the NZ Oceanographic Institute (now part of NIWA), Wellington in 1960 and we celebrated the first 50 years at the Annual Conference again in Wellington 2010. I understand that AMSA will also celebrate their first 50 years next year in 2013 and NZMSS wishes them well and looks forward to future joint conferences on themes of mutual interest.

Colin McLay, NZMSS President

NEW ZEALAND MARINE SCIENCES SOCIETY

TE HUNGA MĀTAI MOANA O AOTEAROA

AMSA-NZMSS 2012 ORGANISING COMMITTEE

On behalf of the organising committee, I would like to welcome all delegates to the Australian Marine Science Association (AMSA) and New Zealand Marine Science Societies (NZMSS) 2012 Hobart conference 'Marine Extremes and Everything in Between'. In particular, I would like to welcome our New Zealand colleagues who have travelled across the Tasman to join us in our discussions. This will be the fourth such joint conference with previous meetings held in Auckland 1997, Townsville 2001 and Christchurch 2008.

The conference theme is timely with recent evidence and climate scale predictions pointing to an increase in extreme events across local, regional and global scales. Members of AMSA and NZMSS are also often engaged in scientific studies across extreme environments from the Southern Ocean and Antarctica through to the challenges of operating in the tidal and bio-fouling conditions of coastal seas and estuaries.

This year the conference attracted considerable interest from scientists and science educators leading to an oversubscription for oral presentations. As organisers we welcomed this as it demonstrated the growing attraction of the conference. This also signals the need for delegates to compete for places. I would like to congratulate the members of the scientific committee for the rigour they took in assessing submissions, undertaking multiple peer review of each abstract.

The conference program illustrates the wide scope of our members' scientific interests and, unlike more specialised gatherings, allows for the viewing of talks and posters outside of individual areas of expertise. I encourage delegates to sample this diverse offering as this is one route toward a multidisciplinary approach and insights that would be previously unimagined.

Together, please also take time to enjoy the venue and the sights, sounds and especially tastes that Hobart has to offer. It is these informal meetings that often prove to be the most productive in the long term. I would also like to extend an invitation for all delegates to join us next year for the 50th AMSA conference at the Gold Coast in Queensland.

Warmest regards from our chilly capital,

Tim Lynch, Organising committee chair.

Organising Committee

Tim Lynch (Chair), CSIRO

Troy Gaston, University of Newcastle (formerly Australian Maritime College)

Mark Baird (University of Technology, Sydney)

Annie Ford (University of Tasmania) (Student rep)

Robert Hickman (New Zealand Marine Sciences Society)

Christopher Mabin (Australian Maritime College)

Kimberley Millers (Melbourne University) (Student rep)

Sarah Naylor (University of Tasmania) (Student rep)

Marie Sinoir (CSIRO) (Student rep)

AMSA-NZMSS 2012 SCIENTIFIC COMMITTEE

The theme of our conference *Marine Extremes - And Everything In Between* is a creative reflection of the environmental events of recent years, and covers extreme events such as cyclones, floods, tsunamis, dust storms, thermally-induced bleaching, hypoxia, ocean acidification, biological invasions or ecosystem shifts, to name a few, which can periodically dominate a marine environment. Extreme events provide opportunities to expand our knowledge and to test our understanding of environmental response to a single, pervasive force. Similarly, extreme environments, such as polar seas, deep-sea habitats or biodiversity hotspots, can challenge the paradigms developed in more moderate settings.

The 2012 AMSA-NZMSS conference will provide a forum to discuss the latest findings from these extreme events and extreme environments, covering all manner of extremities, from the deep ocean abyss to anthropogenic impacts in the intertidal. The wealth of research that will be presented at the conference will showcase how marine science is helping to improve our understanding of how to manage, adapt and mitigate the outcomes from extreme events, and to understand processes in extreme environments. This information is critical to policymakers and stakeholders, both now and into the future, as we struggle to understand and predict changes in the marine environment.

We had a phenomenal amount of interest in the conference this year, with abstract submissions far in excess of the number of talks we could accommodate. The scientific committee worked tirelessly to put together what is a very exciting programme and I am grateful for their hard work and efforts. Excitingly, the 2012 conference represents a fantastic opportunity for marine scientists on both sides of the Tasman to come together and discuss their research and develop new initiatives, and we warmly welcome our Kiwi colleagues to Hobart, and the chance to explore synergies in the science from both countries.

We hope that you have a wonderful time at the 2012 AMSA-NZMSS conference, learn something new and, importantly, make some new friends!

Karen Miller

on behalf of the AMSA-NZMSS 2012 Scientific Committee

SCIENTIFIC PROGRAM COMMITTEE

Karen Miller (Chair), (IMAS, University of Tasmania)

Mark Baird (University of Technology, Sydney)

Graham Edgar (IMAS, University of Tasmania)

Troy Gaston (University of Newcastle, formerly Australian Maritime College)

Nicole Hill (IMAS, University of Tasmania)

Scott Ling (IMAS, University of Tasmania)

Kathy Walls (Ministry for Primary Industries (MPI, Wellington, New Zealand)

Jeff Wright (NCMCRS, Australian Maritime College)

GENERAL INFORMATION

Registration

The Registration Office will be located in the Exhibition Foyer of Wrest Point Hotel and will be staffed from 1500 - 1730 on Sunday 1st July and 0800 - 1730 Monday - Thursday.

Social Functions (more information later in this book)

Cawthron Welcome Reception	Sunday 1 July	Boardwalk Gallery	1800 – 2000
NERP Poster Cocktail Session	Monday 2 July	Boardwalk Gallery	1800 – 2000
AMSA-NZMSS Student Night	Tuesday 3 July	The Metz	1830 – late
A Night in the Southern Ocean	Wednesday 4 July	Plenary Hall	1800 – 2200
CSIRO Gala Conference Dinner	Thursday 5 July	Tasman Room	1830 – 2400

The Cawthron Welcome Reception, NERP Poster Cocktail Session and CSIRO Gala Conference Dinner are included in all full registrations. Entry will be with your delegate name tag - please ensure you wear it at all times during the conference.

Additional Tickets for all functions (if available) can be purchased from the Registration Desk.

Morning / Afternoon Teas and Lunches will be served in the Boardwalk Gallery (with the Exhibition Stands and Poster Displays)

Catering

All catering will be in the Boardwalk Gallery. Special Dietary Requirements as advised on the registration form will be catered for separately if a suitable selection is not available with the catering for that break.

Speaker Preparation Room & PowerPoint Presentations

The Speaker Prep Room is located on the right as you enter the Exhibition Gallery from the foyer. This room wiill be manned from 1500 - 1730 on Sunday afternoon, and opening at 0730 on Monday morning and 0800 other days - it will not be open continuously, but will be open during all breaks.

All presentations are to be loaded onto Wrest Point computers in advance - you cannot use your own laptop. Please ensure that you take your CD / USB to the Speakers Prep Room to be loaded well before your session and to enable you to check it during a break prior to your presentation. Please endeavour to have your talk uploaded the day before your presentation - do not leave this until the last moment.

Dress for the Conference

Dress for the conference is business-casual comfortable clothing. Ties and jackets are not necessary. Dress for the CSIRO Gala Dinner on Thursday 5 July is smart casual.

Name Badges

Delegates are requested to wear their name badge at all times during the conference. This badge is also your ticket to included functions.

Messages

Please check the notice board by the Registration Desk regularly for messages.
During conference hours: Secretariat Telephone is: 0400 358 302

Public Transport and Taxis

Please check with the Hotel Reception.

ATM and Banking

Please check with the Hotel Reception.

Conference Secretariat

Narelle Hall, RealEvents Pty Ltd, 358 Bular Road, Kilkivan Qld 4600. realevents@bigpond.com

CONFERENCE - VENUE AND STRUCTURE

Conference Venue – Wrest Point Hotel

AMSA-NZMSS 2012 conference will be held at Wrest Point Hotel in Sandy Bay, just a few kilometres from the centre of Hobart.

Registration

The Registration Desk will be open from 1500 on Sunday 1st July until 1730 just prior to the commencement of the Welcome Function.

The main plenary of the conference will be held in the Plenary Hall and the program will commence there at 9am each morning. The breakout sessions will be in Tasman Room A, Tasman Room B&C, Wellington 1 and Wellington 2, as marked on the timetables.

Conference Structure

For detail, refer to the Timetable pages (printed on blue)

Each morning, there is a plenary session with a keynote speaker, followed by symposia plenary talks until morning tea. Following this, concurrent sessions will run all day.

Most talks are 20 minutes - 15 minute presentations with 5 minutes for questions. Times will be strictly adhered to, please do not get upset with your session chairs when they ask you to stop! As sessions are concurrent, this allows delegates to move between rooms and presentations.

The Monday morning plenary session will include presentation of the 2012 AMSA Jubilee Award.

The Tuesday morning plenary session will include a presentation by Toni Moate about the progress of the building of the *RV Investigator*, and an overview of the new Paciic Ocean Initiative by Chris Cornelisen from Cawthron Institute. These will be followed by presentations of the 2012 AMSA Allen Award, the 2012 AMSA Technical Award and recognition of new 40-year Honorary Life Members:

Dr Rob Day, University of Melbourne, Melbourne
Dr Neville Exon, Australian National University, Canberra
Dr Ross Quinn, Queensland Government, Agriculture, Fisheries and Forestry, Brisbane.

The AMSA Annual General Meeting (Plenary Hall) and the NZMSS Annual General Meeting (Tasman A) are both on Thursday at 1010. All members are encouraged to attend their relevant AGM. The new Councils will be nominated at these meetings.

The scientific program finishes at 1730 on Thursday, with the Gala Conference Dinner in the Tasman Room commencing with pre-dinner drinks in the foyer at 1830. Student Awards will be presented at the Conference Dinner.

Posters

Posters will be on display for the entire conference in the Boardwalk Gallery, where lunch and morning/ afternoon teas will be served. The Poster Cocktail Session will be held on Monday evening from 1800 - 2000. Poster presenters are required to stand with their posters during this session to answer any questions. Student posters will be judged during this Poster Session. A selection of Canapés and drinks will be served.

Exhibition Booth Displays

Exhibition booth displays from our sponsors and exhibitors will be in the Boardwalk Gallery for the duration of the conference and can be accessed at any time, Monday to Thursday. All refreshments will be served in this area during the conference.

Sometime during the conference you will find it of interest to have a look at these stands and talk to the representatives occupying the displays. Many are small companies who have put in an enormous amount of effort to exhibit to the marine science audience. Please make them feel welcome.

CONFERENCE SOCIAL FUNCTIONS

CAWTHRON WELCOME FUNCTION - SUNDAY

A **Welcome Function** will be held on Sunday 1 July from 1800 - 2000 in the Boardwalk Gallery of Wrest Point Hotel.

The Welcome Function is a cocktail function, with a short formal component. It is included with all full registrations.

MORNING AND AFTERNOON TEAS AND LUNCHES - EACH DAY

All catering will be in the Boardwalk Gallery at the times indicated on the timetable.

NERP POSTER COCKTAIL EVENING - MONDAY

A two-hour poster session will be held on Monday evening, 2 July from 1800 - 2000. Canapés and drinks will be served during this time. The NERP Poster Evening is designed to give poster presenters the opportunity to discuss their work with conference participants. Authors must attend at their posters for discussions. Registrants only please - extra tickets can be purchased from the Registration desk until 1700 Monday. Student posters are judged at this time.

STUDENT NIGHT - THE METZ ON THE BAY - TUESDAY

The Student Committee will be hosting a Student Contact Night on Tuesday, 3 July from 1830 at the Metz on the Bay. There will be advice for undergrads, postgrads and recent graduates tackling the job market. This will also provide an informal opportunity to meet with some of the leading scientists in your research area. Invite a researcher and come with your questions - answers will be provided! Catering, sponsored by AMSA National, will be provided.

WEDNESDAY EVENING

A NIGHT IN THE SOUTHERN OCEAN

Arranged by AMSA and the NZMSS, Wednesday evening will provide a few hours of fantastic Antarctic stories. Open to the public (bring your friends!), these two shows - ***60 Minutes West of Yesterday***, and the World Premiere of ***Hunting the Ice Whales***, - promise to be wonderful entertainment with amazing photography and scenery. The Program concludes at 10pm, with the chance of winning the Lucky Door prize!

CSIRO GALA CONFERENCE DINNER - THURSDAY

The **CSIRO Gala Conference Dinner**, with music and dancing to follow the three-course table-service meal, will be held in the Tasman Room on Thursday 5 July. The function commences with Canapés served in the Exhibition Foyer from 1830 and will conclude at midnight.

The 5-piece popular Hobart band, ***Rektango***, will provide the music for the evening. This function is included with full AMSA registrations. Additional tickets are available from the Registration desk until 1700 Monday.

A NIGHT IN THE SOUTHERN OCEAN

Free entertainment in support of "AMSA-NZMSS 2012", the joint conference of the Australian Marine Sciences Association and the New Zealand Marine Sciences Society

Dive the islands and follow the whales!

Wrest Point Plenary Hall | Wednesday 4 July 2012 | Free entry - Guests Welcome!

Lucky Door Prize - Donated by **Pennicott Wilderness Journeys**
Voucher for 2 adults on the Full Day Bruny Island Tour (valued at $360.00)

1830 - 1930 : Don Neale – *The Red Moki from Hoki* – presents *60 Minutes West of Yesterday*

A subantarctic plunge to the Antipodes and Bounty Islands - a narrated slide show about a 2009 scientific diving trip to New Zealand's subantarctic Islands.

Trouser-elastic technology, sushi sensations and vegetarian vessels all feature in this entertaining and informative talk about some seldom-dived subantarctic islands. From tropical parrots to polar penguins, the islands are a haven for marine wildlife and they harbour thrilling legends of daring adventure.

In 2009, the New Zealand Department of Conservation sent a team of scientific divers to the islands to find out more as part of a move to establish marine reserves in the seas surrounding these World Heritage islands.

Sit back and relax as Don gives his view of the trip in this pre-dinner slide show.

1930 - 2100 : Restaurant time! Onsite at Wrest Point are several restaurants - Loft and Coffee Shop - and nearby are several local eating places.... and the Onyx and BirdCage bars. But make sure you are back by 2100 for the not to be missed ...

2100 - 2200 : NHNZ presents the WORLD PREMIERE of *Hunting the Ice Whales*

Bob Hickman, NZMSS, will give a brief overview on the showing of the film at our conference, before introducing Dr Tony Fleming, Director of AAD, and Dr Rochelle Constantine from the University of Auckland.

The Australian premiere showing of the latest production from Natural History New Zealand about the 2010 Antarctic Whale Expedition, showcasing cutting-edge marine research in documentary form.

Hunting The Ice Whales is the remarkable story of the 2010 Antarctic Whale Expedition which set out to prove it's possible to undertake Antarctic whale research totally using non-lethal techniques. The expedition - a joint venture between Hobart based Australian Antarctic Division and New Zealand's key marine and Antarctic research agencies - is a dynamic roller coaster ride through the turbulent Southern Ocean depicting a team lead by top marine mammal researcher Nick Gales tackling the most horrendous conditions imaginable to implant satellite tags and retrieve whale biopsies.

Producer: Max Quinn. Max has worked as a camera operator, producer and director for over four decades in television production, and has specialised in natural history programming since the 1980s. Max is a veteran of filmmaking in the polar regions and has now made more than 15 programs in and around the frozen regions. *Hunting the Ice Whales* is his latest project.

2012 AMSA JUBILEE AWARDEE - DR DAVID GRIFFIN

David Griffin completed his PhD in physical oceanography at the University of New South Wales in 1986. He undertook postdoctoral research at Canada's University of British Columbia and Dalhousie University before returning to Australia in 1994 to join CSIRO in Hobart.

David's contributions to physical oceanography demonstrate a fundamental commitment to the idea that science should serve society. This ideal seems to galvanise him, and the benefits of his work have flowed to scientists, students, teachers, marine safety specialists, industry, marine archaeologists, recreational users of the marine environment and the Royal Australian Navy.

His contributions to Australian science are many and varied and have included:

- Research into the potential future of Australia's ocean renewable energy, including a high resolution analysis of the wave energy resource off southern Australia;
- Leading CSIRO's Ocean Remote Sensing and Hindcasting team, including a significant contribution to the development of BLUElink;
- Assisting in the successful and high-profile searches for the World War 2 wrecks, HMAS *Sydney* and AHS *Centaur*; and
- Research into the 1995 mass mortality of Australian pilchards and the transport of the larvae of southern and western rock lobsters.

Biological oceanography provided the impetus for what is arguably David's major contribution to marine science. In 2001, to complement his paper on the influence of ocean currents on the larval phase of the western rock lobster (Panulirus cygnus), he prepared an animation that showed the advection of the larvae by ocean currents. The power of this data visualization tool to communicate complex patterns and understanding of processes was a significant improvement over previous methods. He subsequently developed the OceanCurrent website which showed the near real-time, high-resolution, surface ocean currents for Australian regions derived from in situ instruments, satellite altimetry and sea surface temperatures.

For over a decade, the OceanCurrent web site has provided up-to-date information on ocean currents for users that include industry, individuals, government agencies, environmental protection agencies, transport departments, search and rescue operations, and marine scientists. It is accessed thousands of times for events such as the Sydney to Hobart yacht race and provides a crucial service to rescue operations when vessels or people are lost at sea. This dynamic understanding of ocean physics also supports considerable marine environmental research on ecological connectivity and biogeochemical cycling.

Maintaining and improving the web service has been a persistent challenge for David. Fortunately, funding obtained through the Integrated Marine Observing System (IMOS) in 2011 has enhanced the data availability and associated satellite imagery. This innovative tool continues to be a valuable resource for many thousands of people worldwide. It is testament to David Griffin's significant contribution to Australian marine science and his commitment to making science understandable and available to others.

AMSA is proud to welcome David to our exclusive AMSA Jubilee Awardee group.

AMSA JUBILEE AWARD

The Australian Marine Sciences Association Jubilee Award was inaugurated at the AMSA Silver Jubilee Conference in Sydney on 13 December 1988. The award is presented to a scientist who has made an outstanding contribution to marine research in Australia, and when awarded, is presented at the AMSA annual conference. Selection criteria include such aspects as the development of new insights into Australian marine environments and systems, the initiation of new fields of study or new applications, and the creation of techniques now regarded as standard methods.

2012 AMSA TECHNICAL AWARDEE - MATT SHERLOCK

Matt Sherlock leads CSIRO's Marine Instrumentation Group – a team of scientists, engineers and technical experts responsible for developing and maintaining a wide variety of sophisticated marine sampling tools, and providing electronics support to Australia's Marine National Facility. During a long career with CSIRO, he has strived to improve the way in which we collect information from the ocean, and has specialised in the integration of optical and acoustic systems with embedded electronics and electro-mechanical assemblages. Equipment built by Matt has been extensively used to quantify marine biomass, including for stock assessments of important fishery species, quantify marine biodiversity, particularly the habitats and benthic invertebrate fauna of deep continental margins, and measure key properties of water chemistry, especially in the context of ocean acidification.

Matt has had the single largest influence on the technical development of acoustic and image-based sampling tools in Australia. The sampling equipment he has developed includes the deep towed multi-frequency towed instrument (MUFTI); a net-attached Acoustic Optical System (AOS), and an instrument package for obtaining depth stratified sampling of micro-nekton from net catches (MIDOC). He has also developed a variety of towed instrumented camera platforms and other image-based tools including the SmartTrap (STrap), Deepwater Baited Remote Underwater Video System (DeepBRUVS), and the instrumented Benthic-Optical-Acoustic Sampler (BOAGS). His innovations have included the application of fibre-optic communication and data transmission, real-time system control, photographic exposure control, and integration of photographic, navigation and environmental data. The use of multi-frequency acoustics to identify species groups and to non-destructively sample deep water fish populations remains at the leading edge of science.

The Acoustic Optical System was adopted by Australia's integrated Marine Observing System (IMOS) as a sustained observing method in 2011. Other equipment designs developed by Matt have been adopted by a variety of national and international marine agencies including the Australian Antarctic Division, Geoscience Australia, Institute of Marine Research in Norway, *National Oceanic and Atmospheric Administration of* the United States of America and New Zealand's National Institute of Water and Atmospheric Research.

Matt's commitment to delivering the science does not stop at the workshop door. He has spent many long voyages nursing prototype devices through science missions enabling them to deliver the data required. And, over the years, Matt has mentored many other marine research engineers and technicians, instilling in them this same focus on delivery and same gift for "getting the job done", often in extremely difficult and resource-limited conditions. Everyone who has had the pleasure of going to sea with Matt knows the hallmarks of his work are reliability and delivery – combined with a keen sense of duty and a wicked humour.

AMSA TECHNICAL AWARD

The AMSA Technical Award is to recognise outstanding achievements in the field of technical support to marine science in Australia. This prize emphasises the valuable contribution to marine science made by those who provide the technical and logistical support services which make much research possible. The award was first awarded in 2009, and will be made under the auspices of the Australian Marine Sciences Association.

The following criteria were considered when awarding the prize although nominees need not necessarily meet all criteria:

- Development and application of techniques, equipment and/or systems, which represent advances in marine science and technology;
- Exceptional and innovative contributions to support those involved in marine research;
- Sustained, consistent and excellent technical support to a research group or agency over the preceding decade.

The award is made in a plenary session at the annual conference.

Full information regarding nomination is available on the AMSA web site.

KEYNOTE SPEAKERS - BRIEF BIOGRAPHIES

The plenary speakers at *Marine Extremes - and Everything In Between* are a wonderful mix of the finest researchers in marine science. Abstracts for each Keynote presentation are in the abstract section.

Dr Susan Wijffels
(Opening Address - Monday)

CSIRO oceanographer, Dr Susan Wijffels leads the Dynamic Oceans research theme in the Wealth from Oceans Flagship. Hobart-based, Susan completed her PhD at Flinders University before undertaking postgraduate studies at the Massachusetts Institute of Technology-Woods Hole Oceanographic Institution's Joint Program in oceanography and ocean engineering. A sea-going scientist, Susan has led several research voyages centred on tropical oceanography with a particular focus on the Indonesian through flow and Indian Ocean region. Susan established and leads the Australia's IMOS Argo Program, and was involved in the first deployments of Argo profilers in 1999 north-west of Australia. Today she is the co-Chair of the International Argo program.

Dr David Griffin
(Extreme Oceanic Events - Monday)

Dr David Griffin is a physical oceanographer at CSIRO Marine and Atmospheric Research, Hobart. His focus is on the ocean meso-scale - boundary currents like the East Australian and Leeuwin Currents, the eddies and fronts of the open ocean, and continental shelf circulation. He joined CSIRO in 1994 after several years in Canada (at UBC and Dalhousie). His PhD was at UNSW, studying the circulation of the southern Great Barrier Reef. His interest in ocean 'extreme events' dates from his investigations in 1995 into possible explanations for the mass mortality of pilchards that occurred that year. An attempt to explain the link between coastal sea level and recruitment of Western Rock lobster led him into the field of data-assimilative modeling of the ocean at eddy scales – the oceanographic equivalent of weather forecasting. His work now in Bluelink and IMOS OceanCurrent aims to bring ocean forecasting to maturity. His particular focus is on how the causes and consequences of ocean extreme events can be observed, forecast, and understood.

Dr Scott Nodder
(Southern Ocean - Tuesday)

Dr Scott Nodder is a marine geologist at the National Institute of Water & Atmospheric Research (NIWA), based in Wellington, New Zealand. Since 1993, Scott has been involved in research investigating carbon fluxes within marine ecosystems, Southern Ocean iron fertilisation, pelagic-benthic coupling and ocean time-series observations. Scott has participated in almost 50 research voyages and at various stages of his career has been the programme co-ordinator of NIWA's ocean ecosystems research, including involvement in the first meso-scale iron fertilisation experiment in the Southern Ocean (SOIREE). Over the last 10 years, he has focussed on the collection of time-series information from sub-Antarctic (and subtropical) water masses at the northern terminus of the Southern Ocean to look at potential linkages between surface processes and the export of organic material to the deep ocean interior.

KEYNOTE SPEAKERS - BRIEF BIOGRAPHIES

Prof. Mike Coffin
(Deep Sea - Wednesday)

Prof Mike Coffin, Executive Director of the Institute for Marine and Antarctic Studies at the University of Tasmania, is a marine geophysicist. His research expertise encompasses massive volcanism on the seafloor, environmental effects of massive volcanism, plate tectonics, and rifted continental margins. Educated at Dartmouth College (AB) and Columbia University (MA, MPhil, PhD) in the United States, he has pursued an international career that reflects the boundless nature of the global ocean. Following university studies, he has worked at Geoscience Australia (1985-1989), the University of Texas at Austin (1990-2001), the University of Tokyo (2001-2007), the Japan Agency for Marine-Earth Science and Technology (2002-2003), the UK's University of Southampton and National Oceanography Centre (2007-2010), and the University of Tasmania (2011-). He has also held visiting positions Dartmouth College (1982), the University of Oslo (1992, 1996), Geoscience Australia (2000), France's University of Strasbourg (2001), and the University of Hawaii (2002). From 2003-2005, he served as the inaugural chair of the Science Planning Committee of the Integrated Ocean Drilling Program, the largest international program in the earth and ocean sciences, and among the largest in any scientific discipline. Prof Coffin has lead or participated in 29 research expeditions at sea, focusing mainly in the Southern, Pacific, and Indian oceans. His approximately 100 publications in the peer-reviewed literature have garnered 2000+ citations.

Dr Dennis Gordon
(Biodiversity - Thursday)

Dr Dennis Gordon FLS is a Principal Scientist at the National Institute of Water & Atmospheric Research (NIWA) in Wellington, where he led a marine biodiversity research group for 11 years. He was trained as a marine biologist and his major research interest is the systematics, biology, and phylogeny of living and fossil Bryozoa. Beyond this group, Dennis has a broad interest in all of life, and serves on the international teams that are respectively co-ordinating the production of the Catalogue of Life and the World Register of Marine Species. He is a past chairman of the Royal Society of New Zealand Committee on Biodiversity. In 2005 he was recipient of the New Zealand Marine Sciences Society Award for his lifetime contribution to the advancement of marine science in New Zealand. During the past decade he coordinated a review and inventory of New Zealand's entire Phanerozoic biodiversity, involving 237 contributors in 19 countries. The final volume of a trilogy resulting from this work was published in January

AMSA
AUSTRALIAN MARINE SCIENCES ASSOCIATION

NEW ZEALAND MARINE SCIENCES SOCIETY
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THANK YOU TO OUR SPONSORS

The AMSA and NZMSS conferences could not happen each year without the very important sponsor support. This year has been no exception with generous support from our sponsors. The organising committee would like to thank each of these organisations for their generous contribution to our joint AMSA-NZMSS conference.

Both AMSA and NZMSS are non-profit organisations dedicated to promoting marine science and co-ordinating discussion and debate among researchers. Each of our annual conferences, and our four-yearly joint conference, are our major events of the year and attract marine researchers and students from many institutions, universities and private companies throughout Australia and New Zealand. AMSA-NZMSS 2012 will again provide the opportunity for interaction between scientists, technologists, industry and policy-makers, and will heighten national and international awareness of marine and coastal science.

Geosciences Australia has again supported as a Bronze Sponsor.

NERP Marine Biodiversity Hub, through a Bronze Sponsorship. has sponsored the Poster Cocktail Session on Monday evening and the Symposium: SS08: Australian Marine Environmental Monitoring: Establishing national standards and interoperability

CSIRO sponsored the Gala Conference Dinner.

The **Australian Institute of Marine Science** has supported Dr Scott Nodder, our keynote speaker on Tuesday morning.

The **New Zealand Department of Conservation - *Te Papa Atawhai*** has supported Dr Dennis Gordon, our keynote speaker on Thursday morning.

Cawthron Institute sponsored the Welcome Function.

Aquenal sponsored the Delegate Satchels.

Oceanica sponsored the Symposium: SS04: Bio-optics and remote sensing of estuarine, coastal and marine environments.

Blue Planet Marine sponsored the Symposium SS05: Marine Mammals: Extreme by Nature.

IMAS-ACECRC sponsored the Symposium: SS15: Southern Ocean Biogeochemistry.

Tasmanian Goverment (Department of Primary Industries, Parks, Water and Environment) sponsored the Symposium: SS16: Integrated Management of Mariculture.

Support for the Conference has been provided by the following **Exhibition Stand** holders, and we wish them every success during their discussions with conference delegates:

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***Lucky Door* prizes**

Pennicott Wilderness Journeys donated the Gift Voucher for two people on one of their Full Day Bruny Island Cruises for the Lucky Door prize at the *Night in the Southern Ocean*.

The Federal Group donated a voucher for use at any of their facilities for the draw at the end of the Conference Dinner.

On behalf of the members of the Australian Marine Sciences Association Inc., the New Zealand Marine Sciences Society and the organisers of the AMSA-NZMSS 2012 Conference, we thank all the sponsors for their support.

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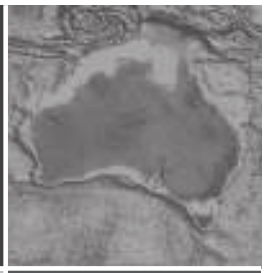

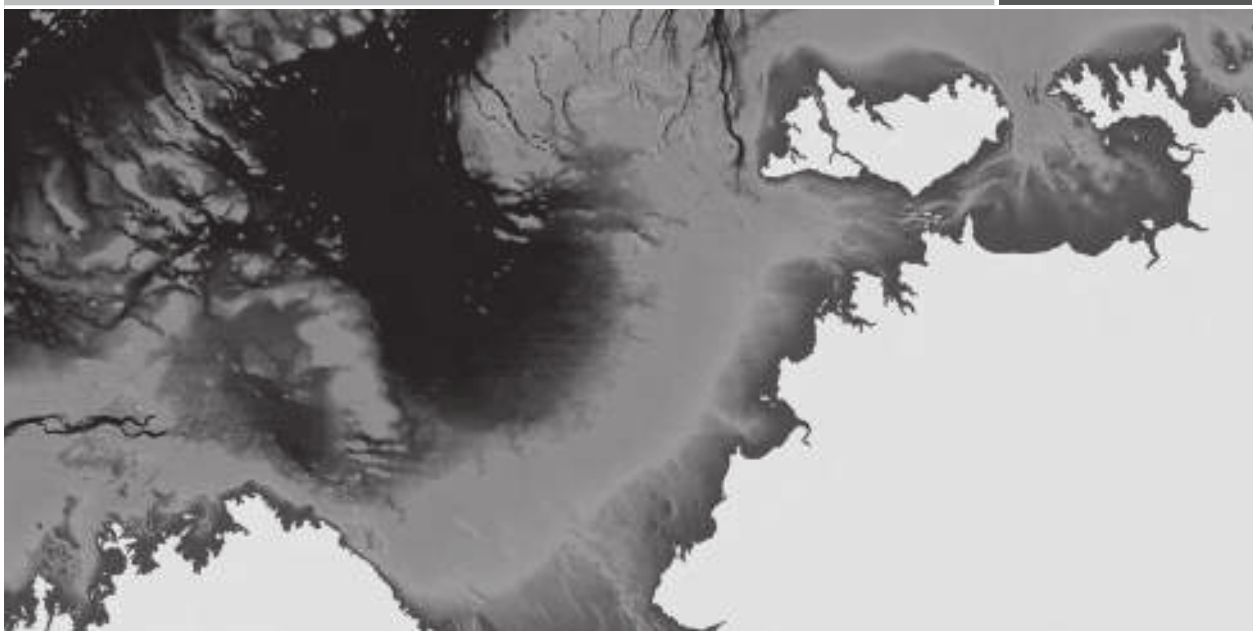

As Australia's national geoscience research agency, Geoscience Australia's mission is to use geoscientific information and knowledge for the economic, social and environmental benefit of Australia.

The Coastal, Marine and Climate Change Group (CMCCG) is part of the Environmental Geoscience Division and provides geoscientific advice and products as required by government to support its decision making across a range of natural resource and environmental programs and issues in the coastal zone, the offshore marine estate and the Australian Antarctic Territory.

The Group is also a key source of information for the Government and the community related to the impact and risk of natural hazards and adaptation to climate-change on the coast.

The Group's outputs include technical advice to government on marine, coastal and natural hazard issues, as well as scientifically rigorous spatial data, maps, models and modelled predictions of:

- marine geomorphology and geology
- seabed sediments and geochemistry
- patterns of seabed habitats and biodiversity and
- the impact and risk associated with natural hazards including: winds generated by cyclones and storms— shoreline inundation and erosion— and bushfires.

Further information about the Group's activities can be found on our webpage

www.ga.gov.au/marine

A list of publications can be found at

www.ga.gov.au/cedda/publications/143

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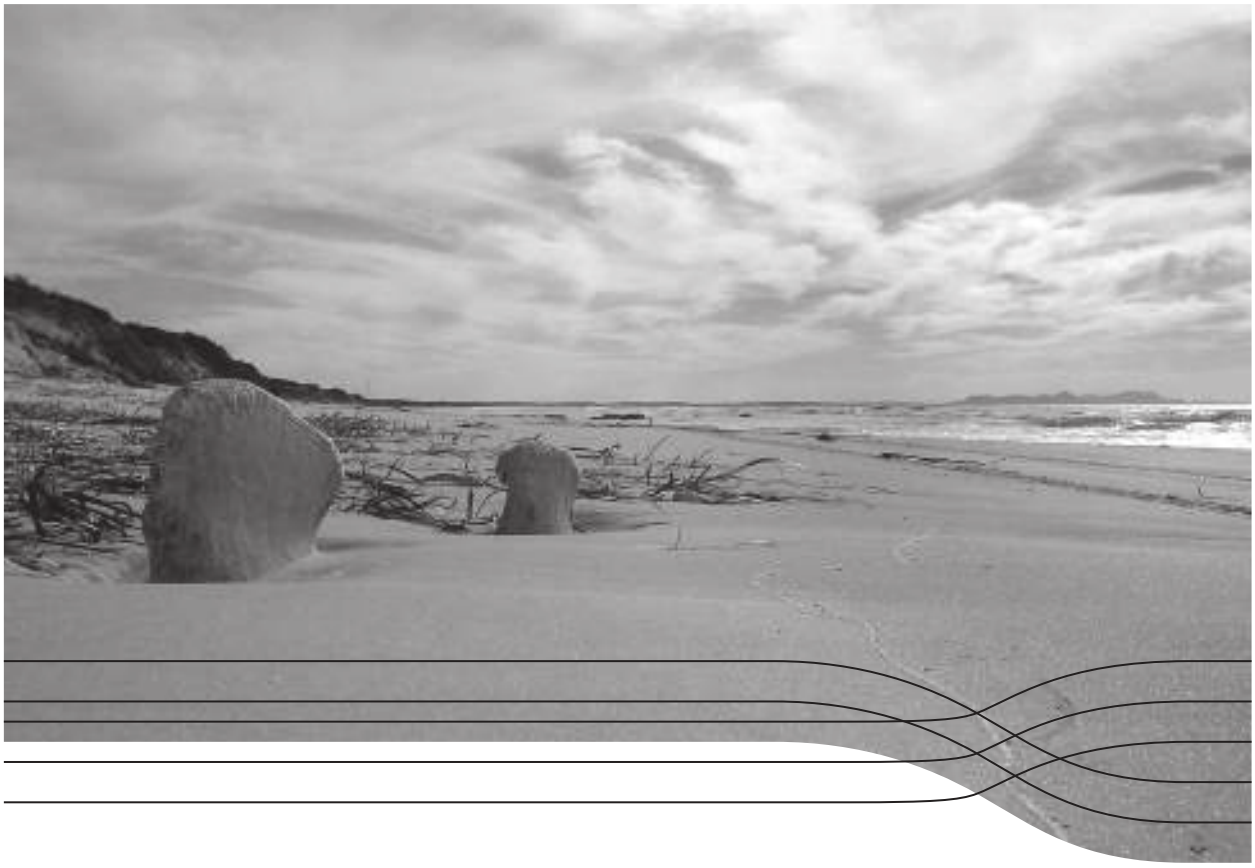


Understanding our oceans

CSIRO's marine research – delivered through the Wealth from Oceans National Research Flagship and by the Marine and Atmospheric Division – focuses on understanding our oceans and their biodiversity, resources and relationships with the climate system.

The Flagship delivers practical science that enables governments, industries and communities to make informed decisions about the sustainable management of ocean and coastal resources. The Flagship contributes to national and international challenges where oceans play a central role, taking a whole-of-system approach to marine science.

CSIRO Marine and Atmospheric (CMAR) comprises about 800 staff and students, Fellows and long-term visitors across sites located in the ACT, Queensland, Victoria, Western Australia and its headquarters in Tasmania. CMAR also manages the Marine National Facility – Research Vessel *Southern Surveyor*, and a number of marine and atmospheric collections.

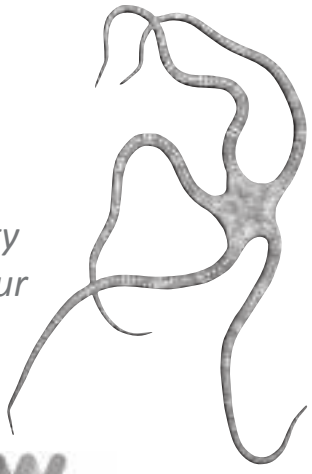
www.csiro.au

NERP MARINE BIODIVERSITY HUB

National Environmental Research Program

MARINE BIODIVERSITY *hub*

A national collaboration to meet Australia's priority research needs for marine biodiversity conservation and to build capacity to meet our future research and management needs.



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The NERP Marine Biodiversity Hub is supported through funding from the Australian Government's National Environmental Research Program, administered by the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). Our goal is to support marine stakeholders in evidence-based decision making for marine biodiversity management. Stakeholders include DSEWPaC, the Australian Fisheries Management Authority (AFMA), the Australian Petroleum Production and Exploration Association (APPEA) and the Integrated Marine Observing System (IMOS).

www.nerpmarine.edu.au

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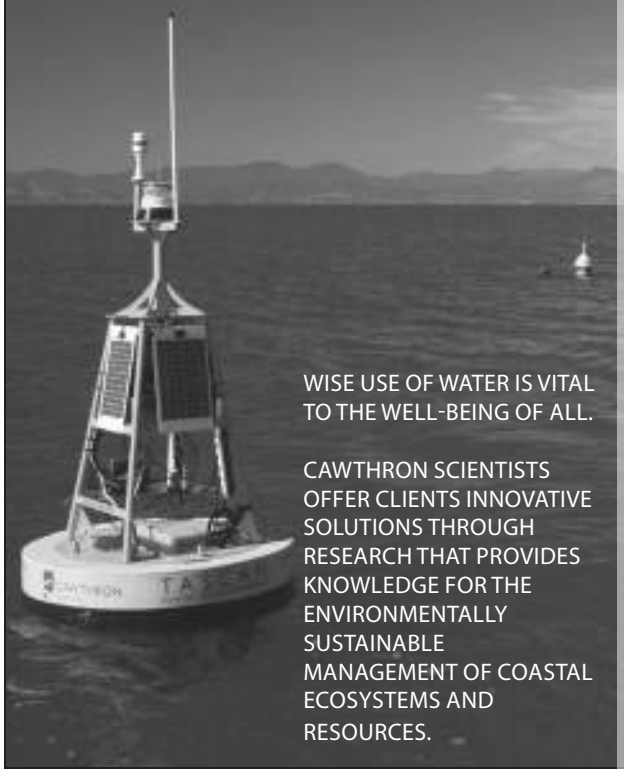

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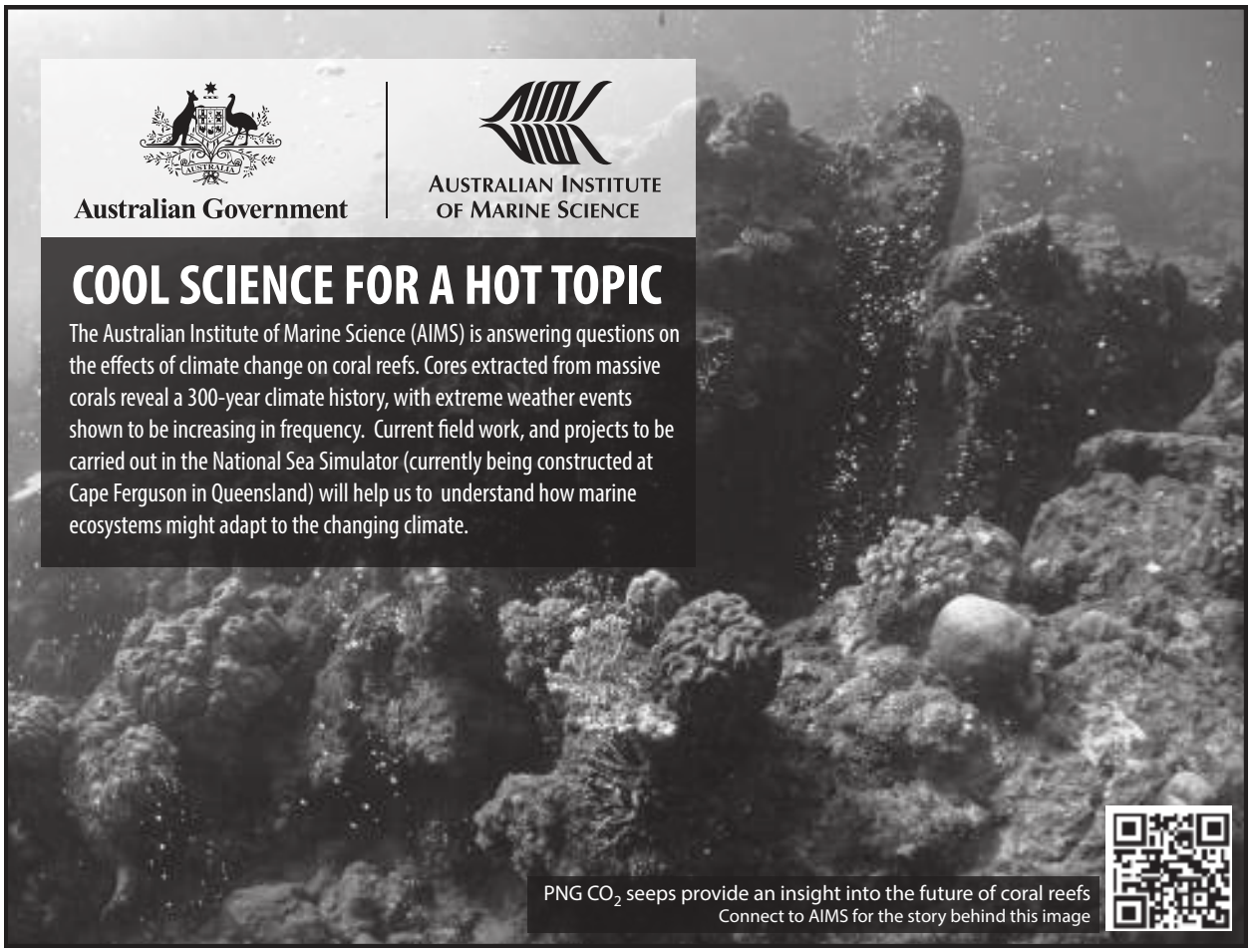

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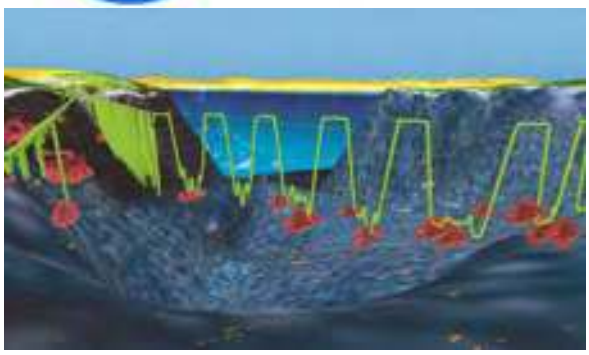

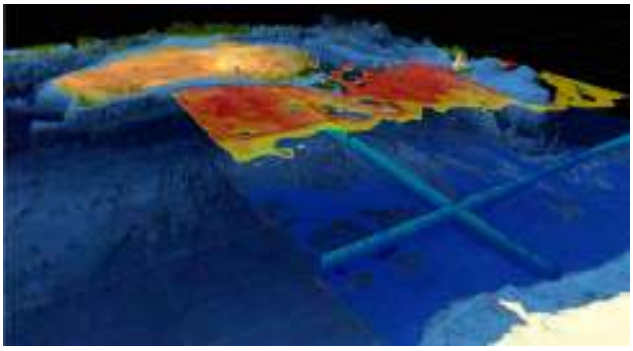

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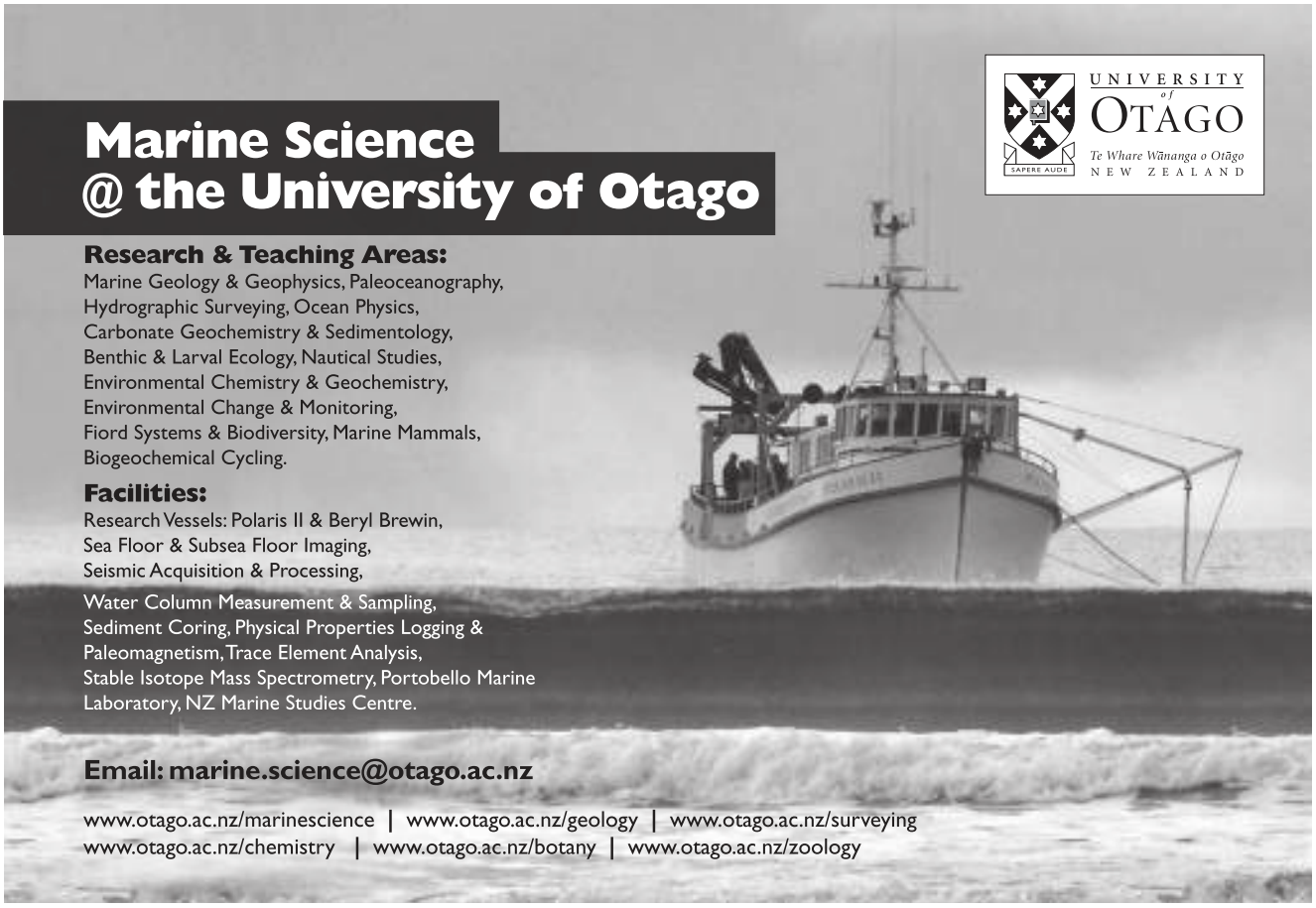

IMAS - INSTITUTE FOR MARINE AND ANTARCTIC STUDIES

OCEANICA

BLUE PLANET MARINE

AMSA STUDENT AWARDS

AMSA-NZMSS 2012 STUDENT PRIZES

Full details - see AMSA and NZMSS web sites.

Ron Kenny (Oral and Poster Prize)

The Council of AMSA awards two prizes at each Annual Conference. The Ron Kenny Student Presentation Prize for the best oral presentation of research results and the Ron Kenny Student Poster Prize for the best poster display of research results. The prizes are named in honour of Assoc. Prof. Ron Kenny, a foundation member of the Association & editor of its *Bulletin* for nine years until his death in August 1987. The purpose of the prizes is to reward excellence in scientific work by students in any field of marine science, and to encourage a high standard of scientific communication.

Peter Holloway Oceanography Prize

This prize is sourced from interest on funds donated to AMSA by the Australian Physical Oceanography Division of AMSA when it ceased to function as a separate entity in mid 2002. The prize, first awarded in 2002, is awarded to the best student presentation related to Oceanography. The prize in named in honour of Dr Peter Holloway (https://www.amsa.asn.au/students/holloway.php).

Fisheries Research and Development Corporation Prizes

Australian Government
Fisheries Research and Development Corporation

The Fisheries Research and Development Corporation (FRDC), first awarded in 2002, for the best student talk as judged by the Conference Judging Committee in accordance with the criteria below:

- The prize is to be given to any category of student (i.e. honours, MPhil, PhD, GDip etc., full time or part time) who is presenting within one year of completing their respective study course.
- The subject matter to be consistent with Programs 1 or 2 of FRDC's Research and Development Plan, namely Natural Resources Sustainability and Industry Development.

As a condition of acceptance of this prize, the FRDC is to be be provided with a profile, photo and write-up of the prize winner and their research for publication in FRDC's regular newsletter.

The Sea World Research and Rescue Foundation (SWRRFI)

The Sea World Research and Rescue Foundation (SWRRFI) has donated a prize for the **Best Student Poster in the area of Science and Conservation of Marine Vertebrates**. The winning poster will be included as an insert in the annual SWRRFI newsletter which is distributed to the scientific, zoological, education, corporate and general communities both nationally and internationally.

SEA WORLD RESEARCH & RESCUE FOUNDATION

The SWRRFI Committee and Sea World are pleased to be able to offer financial support to students through this forum and look forward to a rewarding association with AMSA and its members.

Ernest Hodgkin Estuary Research Award

National Trust

Best student presentation on **research that will facilitate a greater understanding of estuarine processes and management**. The prize includes a copy of the book by Dr Anne Brearley (previous AMSA Secretary) titled *Ernest Hodgkin's SWANLAND Estuaries and Coastal Lagoons of South-western Australia*.

Victorian Marine Science Consortium (VMSC)

The Victorian Marine Science Consortium (VMSC) award is for the best presentation with a **focus on temperate marine science**.

CSIRO Publishing and Marine and Freshwater Research

CSIRO Publishing and Marine and Freshwater Research have donated two copies of ***Australasian Nature Photography*** for awards at judges discretion.

NZMSS STUDENT AWARDS

In recognition of the special nature of this year's annual conference, as a joint conference with the Australian Marine Sciences Association, NZMSS has resourced funding from two long-time supporters of the Society's efforts in "nurturing marine science students" and "encouraging communication among scientists".

NIWA
Taihoro Nukurangi

The National Institute of Water and Atmospheric Research (NIWA) is sponsoring a winner and a runner-up prize for both oral and poster presentations, namely

- the Best Student Oral Presentation at *AMSA-NZMSS 2012*"
- the Best Student Poster Presentation at *AMSA-NZMSS 2012*"

Ministry for Primary Industries
Manatū Ahu Matua

The newly created Ministry for Primary Industries (MPI) is sponsoring the two prizes (formerly sponsored by the Ministry of Fisheries), namely

- the Student Oral Presentation Making Best Use of Quantitative Methodology
- the Student Poster Presentation Making Best Use of Quantitative Methodology

MPI has also generously donated funds which, together with funding from the Royal Society of New Zealand, Antarctica New Zealand, Natural History New Zealand, and from the Society's own resources, have been used to support New Zealand university students to travel to Hobart and participate in the conference.

Antarctica New Zealand

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SS01 : Hidden species in the Oceans: environmental extremes, rapid cladogenesis and morphological stasis

Convenors: Nikos Andreakis & Daniel Gledhill

Many so-called marine cosmopolitan morpho-species are highly structured at several spatial scales suggesting that geographical isolation of populations followed by the accumulation of genetic differences promotes gradually, but constantly, the formation of new species or evolutionarily distinct lineages, independently of changes in gross morphology. In the light of climate change, global patterns of biodiversity fluctuate by the relocation of organisms at the species and sub-species levels, with the latter often remaining cryptic.

We are inviting presentations providing research findings of extreme cases of:

a) biogeographical barriers and large scale geological or climatic events responsible for phylogeographic patterns, population fragmentation and genetic differentiation;

b) genetic divergence associated with morphological stasis within species and vice versa and

c) instances of cryptic speciation with emphasis on the conservation challenges, biodiversity estimates and evolutionary consequences.

We seek to conclude this symposium with a discussion on the reported rates, patterns and timing of diversification snapshots that may advance our understanding of micro-evolutionary processes governing macro-ecological patterns.

SS03 : Marine Protected Areas and Fisheries Management: Recent Research and Thinking from the Australia - New Zealand Region

Convenors: Neville Barrett, Bec Hubbard, Kathy Walls & Simon Branigan

The AMSA Symposium is aimed at profiling recent research on Marine Protected Areas and Reserves from the Australia New Zealand region, and exploring how reserve management co-exists and interacts with fisheries management.

Papers are sought on:

- Understanding the environmental contributions of:
- Highly protected zones (IUCN categories Ia, Ib and II)
- multiple use areas within marine protected areas (IUCN categories III, IV, V and VI)
- Commercial, recreational or indigenous fisheries adjacent to MPAs
- The role of MPA research and management in understanding and managing environmental change associated with marine pests, species range expansions, climate change and maritime activity such as fishing, petroleum exploration and production, tourism and defence
- The role of marine reserves in the broader planning and management of oceans
- Preliminary results from studies of the new large-scale reserve networks and how these systems are to be monitored and performance assessed.
- What is required for an effective management of a marine reserve network
- Comparisons of multiple use within and outside marine reserve networks

A summary of the workshop would be published for reference and use by scientists, managers, and interested marine stakeholders. Publication of contributed papers will be considered at the workshop.

SS04 : Bio-optics and remote sensing of estuarine, coastal and marine environments

Convenors: Peter Davies & Lesley Clementson

Australian continent has a vast coastline which is influenced by different climate regimes, ranging from tropical climate in the north to the temperate climate in the south. Major rivers discharge water into the coastal regions and as the related catchments vary in size, topography and landuse they deliver a variety of optically active particulate and coloured dissolved organic matter (CDOM) to the coastal waters. At times of low flow, possibly under the influence of climate variability as well as interception for human use, some of these rivers fail to reach the sea. But during the wet season, the tropical and sub-tropical rivers can flood the coastal waters with high loads of sediments creating plumes that can stretch all the way to the open ocean. Two major ocean currents the Eastern Australian Current (EAC) in the east and the Leeuwin Current (LC) in the west, also significantly influence the bio-optical characteristics of the coastal waters of Australia. Both these currents play an important role in nutrient and dissolved substances dynamics in the water column and thereby influencing the phytoplankton and benthic community structures. All these factors contribute to the variability in the composition and bio-optical nature of the waters surrounding Australian continent. Keeping in line with the theme of the conference, 'marine extremes and everything in between' we invite bio-optical and remote sensing research and operational studies that cover the variety waters surrounding the Australian continent.

SS05: Marine mammals: Extreme by nature

Convenors: Simon Childerhouse, Rochelle Constantine, Mary-Anne Lea, Mark Hindell

Marine mammals live extreme lives in many and varied ways stemming from the physiological challenges they face through deep-diving behaviour and extensive fasting during long migrations, through to extreme population declines due to anthropogenic impacts and complex breeding strategies linked to extreme oceanographic events. Australia and New Zealand waters are home to a wide variety of marine mammal species highlighting the theme of the AMSA-NZMSS conference – Marine Extremes. With advances in research techniques, technology, long-term datasets and collaborations, this symposium will gathering the local marine mammal scientists to present their findings and exchange ideas.

SS06: From pico to peta: The role of trace elements in global marine cycles

Convenors: Michael Ellwood, Zanna Chase, Andrew Bowle

Symposium Keynote: Prof. Keith Hunter, University of Otago

Though present in extremely low concentrations in the ocean, trace elements play an important role in regulating oceanic processes at the largest scale: some are pivotal in defining marine primary production, ecosystem dynamics and the ocean carbon cycle (e.g. Fe, Zn, Cu) while others can be toxic (e.g. As, Pb) and influenced by global-scale anthropogenic emissions (Hg). Trace elements and their isotopes (TEI), including radiogenic elements (e.g. U, Th, Pa), can also be used to elucidate biogeochemical connections between the surface ocean, the deep ocean and the sediments below (e.g. organic carbon export and sedimentation). In this session we welcome papers aimed at exploring the biogeochemical cycling and connections of TEIs in the coastal and open ocean environment. We particularly welcome papers that link trace elements to large-scale biogeochemical processes. Papers detailing the application of TEI-based palaeo-proxies (Mg/Ca, Si, Nd), or changes in the biogeochemical cycling of TEIs through time are also welcomed.

SS07: The deep-sea pelagic zone: Biology in the extremes of the largest ecosystem on earth

Convenor: Adrian Flynn

Symposium Keynote: Dr Bruce Robison, Monterey Bay Aquarium Research Institute

The deep-sea meso- and bathypelagic zones represent that largest ecosystem on the planet. Organisms here have a diverse array of specialisations for life in extremes of pressure, temperature, light and resources. The role of meso- and bathypelagic species and ecological processes in foodwebs and functioning of epipelagic and benthic systems is becoming increasingly appreciated.

However, species-level biological knowledge is rudimentary for many groups in the deep-sea pelagic zone, even those that are presumed to be ecologically important. Knowledge of ecological interactions generally comes from studies on few groups in limited geographic areas. Ecophysical factors influencing distribution and biomass of midwater species are not well understood.

The ability to model pelagic ecosystems, to evaluate potential high-order indicators, and to predict vulnerability to climate change, is limited by these knowledge gaps. This symposium aims to synthesise current research at the molecular-, organism-, species-, population-, community-, and biogeographic levels. By fostering communication among people working in these different levels of organisation, the symposium aims to identify opportunities for integration, barriers to better understanding, priority areas for future research, new technologies and platforms, and potential future collaborations.

SS08: Australian Marine Environmental Monitoring: Establishing national standards and interoperability

Convenors: Keith Hayes (NERP Marine Biodiversity Hub and Integrated Marine Observing System)

National Environmental Research Program

MARINE BIODIVERSITY hub

The symposium has three objectives:

1. Discover national long-term marine environment monitoring data-sets
2. Hold a facilitated discussion regarding the standardisation of national marine environment monitoring regimes
3. Contribute to the development of a national standard for habitat classification and scoring of image-based census methods with reference to AUV's, towed video and BRUVs

The morning session will address objectives 1 and 2, the afternoon session will address objective 3.

Following a keynote address, IMOS will provide a presentation on the availability of resources, and requirements, for supporting national environmental data/products. Invited speakers will be asked to provide presentations that cover the following topics:

1. where are observations currently being collected?
2. how long have they been collected for?
3. what is the ongoing support for their collection?
4. what are the data being used for and by whom?
5. details of the survey design

The afternoon session will address objective 3. Following an opening address, scientists running (stereo and mono) image-based census methods are invited to make presentations on current methods for habitat classification and scoring of video imagery, including AUVs, towed video and BRUVs. The presentations will be followed by a facilitated discussion on the commencement or completion of draft national standard.

SS09: Southwest Pacific boundary currents, continental shelf processes and ecosystem responses.

Convenors: Katy Hill (IMOS), Ken Ridgway (CSIRO), Phil Sutton (NIWA), Steve Chiswell (NIWA), Russ Babcock (CSIRO)

The East Australian Current (EAC), Tasman Front, and East Auckland Current (EAUC) form the western boundary current system of the South Pacific along the Australian and New Zealand coasts. These currents connect the pelagic ecosystems of the South Pacific, Coral and Tasman Seas. They also connect coastal ecosystems along the east coast of Australia and connect Australia to New Zealand.

Observations show the East Australian current is getting stronger, leading to species range extensions and, this is having a profound impact on Australian coastal ecosystems. In addition, the EAC also has a strong decadal signal in the relative strengths of the EAC Extension and Tasman Front; which is also likely impact on ecosystem processes such as larval transport and species distributions.

Increased strength of the EAC, Tasman Front and EAUC increases the likelihood of new species to New Zealand. Along with any temperature increases, this raises the potential for introduction of new harmful invasive species.

We invite abstracts focussed on variability and change in the Australian and New Zealand boundary and regional current system; how this relates to continental shelf processes such as intrusions and upwellings; and ecosystem responses to these changes including range extensions from changing connectivity, larval transport, recruitment, and temperature. We invite contributions focusing on interdisciplinary techniques, comparisons of models with observations, and specific case-studies.

SS10: Extreme marine technology – collecting data in hostile environments

Convenor: Tim Lynch

The symposium will canvas abstracts regarding systems to collect data at great depth, in extreme weather conditions such as the Southern Ocean or in areas of high bio-fouling such as coastal seas. In an increasingly technically and sensor focused professional environment this will provide an ideal forum for both scientists and engineers - who are both necessary for development of such systems - to exchange knowledge and ideas.

SS11: Extremely deep: ecological processes in deep sea benthic ecosystems

Convenors: Karen Miller (UTas), Di Tracey, Malcolm Clark, Alan Williams

Symposium Keynote: Dr Ashley Rowden, NIWA

This symposium will provide a forum for scientific research and results that explore all aspects of benthic ecosystems in the deep sea, including the abyss, trenches, seamounts, seeps and hydrothermal vents. We will focus on current science, identifying gaps and future directions for research, and facilitating collaborative research initiatives in the deep sea.

SS12: Early life stages and environmental extremes

Convenor: Rachel Przeslawski

Symposium Keynote: Prof. Maria Byrne, University of Sydney

Marine organisms are often exposed to a range of environmental conditions during their embryonic and larval stages, including changes in temperature, salinity, food quantify and quality, and habitat availability. Although many species are well-adapted to environmental fluctuations, others may be vulnerable to anthropogenic and natural events associated with ocean acidification, run-off, warming waters, or trophic mis-match. This symposium will include recent research investigating the effects of different environmental conditions on the early development of marine organisms.

SS13: The Sea Brings Forth – marine biotechnology and bioproducts

Convenors: Shirley Sorokin, Chris Battershill, Wei Zhang, Joe Baker

This symposium includes presentations and discussion about current research in marine biotechnology. These include the use of marine animals, plants or microorganisms in industry, medicine and agriculture, for the discovery and production of foods or nutriceuticals, medicines/pharmaceuticals, cosmeceuticals and fine chemicals. Research areas also include marine bioproducts processing, microalgal biofuels and marine environmental biotechnology. Please join us for a discussion of the diverse opportunities and challenges for marine biotechnology in the future, and contact us if you would like to be part of an active network of marine biotechnologists in Australia and New Zealand. A summary of the symposium discussion will be made available to relevant research and development agencies in both Australia and New Zealand governments.

SS15: Southern Ocean biogeochemistry

Convenors: Peter Strutton, Tom Trull

The Southern Ocean is a vast, variable and globally significant ocean province with respect to biogeochemical cycles. It is also the most poorly-observed and understood part of the global ocean, where observations and models of carbon cycling disagree most dramatically. This session solicits contributions spanning all aspects of Southern Ocean biogeochemistry, including primary productivity, elemental cycling, air-sea gas exchange, ecosystem processes, ocean acidification and connections to climate

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SS16: Integrated management of mariculture

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Convenors: Neil Hartstein & Catriona MacLeod

Symposium Keynote: Catriona Macleod

Coastal and marine farming of fish for human consumption has increased rapidly in the last couple of decades contributing significantly to global food supply and security. Increased pressure on marine environments adjacent to densely stocked farms has sparked concern over their environmental impacts and raised awareness of a need for ecologically sound industry practices and sustainable resource management.

Typical impacts identified from marine farms include increased nutrient and waste levels, increased risk of genetic pollution of wild fish stocks, disease and parasite transfer as well as changes to habitats critical for other marine organisms.

This symposium focusses on the integration of environmental data with predictive models that allow coupling of hydrodynamic and ecological processes. Such deterministic numerical tools combined with empirical multidisciplinary data are ideal for assessing effects of mariculture practices at local and regional scales and may provide new knowledge for integration of research and management objectives. By increasing ecological process understanding and facilitating scenario testing of environmental changes, modelling approaches can help to improve the environmental management of these systems by identifying impacts and potential mitigation measures for reducing negative interactions as well as achieving cost and productivity objectives.

SS17: Marine invasive species - a case for extremes?

Convenors: Kathy Walls, Paul Gribben, Don Morrisey, Justin McDonald, Sabine Dittmann

Man-induced introductions of non-native marine species have intensified in recent decades, and a growing research effort has helped to elucidate dispersal pathways and effects of introduced species on recipient communities and economies. In this symposium, we seek to explore whether extreme events or extreme environmental conditions can favour the introduction and establishment of particular alien species, while leading to the loss of others, and how we can monitor and manage invasive species. Presentations will provide research findings on diverse aspects of marine invasions and stimulate discussion on emerging patterns that might advance our understanding of processes and responses to marine invasion, and whether extreme cases can provide clues on their possible management.

SS18: Cross-disciplinary studies in SE Tasmanian estuaries, coastal and shelf waters

Convenors: Karen Wild-Allen & Keith Sainsbury

South East Tasmania is the southern apex of the Australian continent where East- and West-coast boundary current systems meet in a temperate climate with strong seasonal and interannual variability. As such it has been the focus of a host of studies ranging from remote sensing and oceanography, nutrient and plankton studies, through to ecology of fish, mammals and sea birds and the management of diverse anthropogenic activities that impinge on these coastal waters. In this session we invite cross-disciplinary presentations that are geographically focussed in SE Tasmanian estuaries, coastal and shelf waters.

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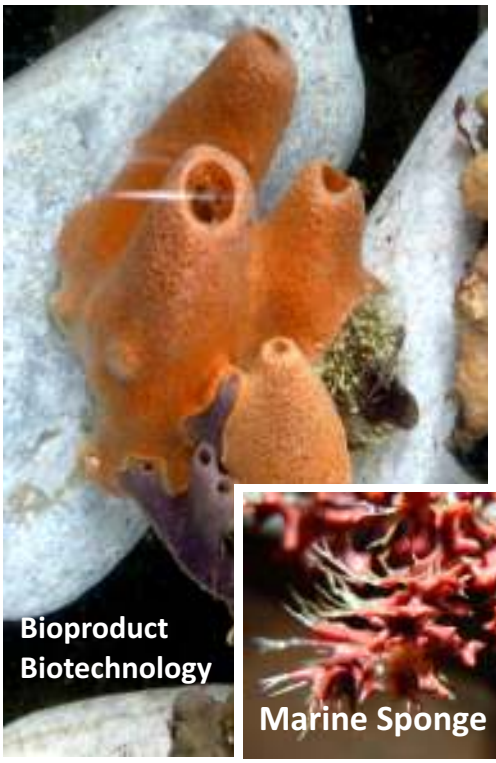
We develop marine bioprocesses and bioproducts for sustainable and profitable seafood, pharmaceutical and preventative nutrition, cosmetics, aquafeeds, agri-chemicals, biomaterials and biofuels industries.

The Centre has led collaborative projects in bioproduct discovery from marine sponges, macroalgae and other marine organisms, as well as multi-million dollar industry projects in microalgae biofuels and biorefinery that produce biofuels as well as high value co-products.

Fellowships and students - We are seeking candidates for Research Fellows through schemes such as the Endeavour Awards Australia, as well as postdoctoral researchers, honours, masters and PhD students.

Industry and Research Collaborations - the Centre has extensive international industry and research institution linkages and we welcome discussions on your research needs and partnerships.



Find out more at **AMSA-NZMSS 2012 Marine Biotechnology Symposium** (SS13)

Join us for the **8th Asia-Pacific Conference on Algal Biotechnology. 9-12 July 2012, Adelaide**
http://www.sapmea.asn.au/conventions/apcab2012/index.html

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Visit our website and contact us today!

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OVERALL CONFERENCE TIMETABLE AND PROGRAM EXPLANATION

Please refer to the Table of Contents on page 3 for page numbers of abstracts and posters.

The Daily Timetables , giving details of rooms, sessions and speakers, from Monday 2nd to Thursday 5th are on the following coloured pages.

The mornings commence in the Plenary Hall and continue until Morning Tea. before breaking into five concurrent sessions. As well as the Plenary Hall, we have four other breakout rooms - Tasman A, Tasman B&C, Wellington 1 and Wellington 2.

The abstracts follow, in alphabetical order by the last name of the first author, with the presenting author marked with an asterisk. For oral presentations, there is also a second entry under the presenter's last name.

Poster abstracts follow oral abstracts, with a list in author last name order with poster number. Posters are displayed in topic order (Symposia and Thematic Sessions), and a list with authors, titles and the assigned topic category follow the author name list.

Posters will be displayed in numerical order.

Authors will be beside their posters during the Poster Cocktail Session on Monday evening to discuss their work and answer questions.

Student judging of posters will be finalised during this session.

Information Disclaimer

The speakers, topics and times are correct at the time of publishing. In the event of unforeseen circumstances, the organisers reserve the right to alter or delete items from the Conference Program.

OVERVIEW : SYMPOSIA (SS) & THEMATIC SESSIONS (TS)

Session code	Full title	Mon	Tue	Wed	Thu
SS01	Hidden species in the Oceans: environmental extremes, rapid cladogenesis and morphological stasis				11:20-13:00
SS03	Marine Protected Areas and Fisheries Management: Recent Research and Thinking from the Australia - New Zealand Region	11:20-17:30			
SS04	Bio-optics and remote sensing of estuarine, coastal and marine environments				11:20-13:00
SS05	Marine Mammals: Extreme by Nature				11:20-17:30
SS06	From pico to peta: the role of trace elements in global marine cycles	11:20-17:30			
SS07	The Deep-Sea Pelagic Zone: Biology in the extremes of the largest ecosystem on earth			15:50-17:30	
SS08	Australian Marine Environmental Monitoring: Establishing national standards and interoperability				11:20-17:30
SS09	Southwest Pacific boundary currents, continental shelf processes and ecosystem responses			11:20-15:20	
SS10	Extreme marine technology – collecting data in hostile environments		15:50-17:10		
SS11	Extremely deep: ecological processes in deep sea benthic ecosystems			11:20-15:20	
SS12	Early Life Stages and Environmental Extremes	11:20-15:20			
SS13	The sea Brings Forth – marine biotechnology and bioproducts		11:20-15:20		
SS15	Southern Ocean Biogeochemistry		15:50-17:30		
SS17	Marine invasive species - a case for extremes?			11:20-17:30	
SS18	Cross-disciplinary studies in SE Tasmanian estuaries, coastal and shelf waters				14:00-17:30
TS01	Aquaculture and Mariculture			11:20-15:20	
TS02	Climate Change	11:20-17:30			
TS03	Ecosystem Services		11:20-17:10		
TS04	Education and Community			15:50-17:10	
TS05	Everything In-Between	11:20-13:00 15:50-17:30	15:50-17:30	15:50-17:30	
TS06	Extreme Events	14:00-17:30			
TS07	Extreme Habitats			11:20-15:20	
TS08	Fisheries		11:20-15:20		
TS09	Marine Policy				14:00-15:20
TS10	Ocean Acidification		11:20-14:20		
TS11	Oceanography		11:20-15:20		
TS12	Southern Ocean and Antarctica				11:20-17:30
Poster		18:00-20:00			

AMSA-NZMSS 2012

DAILY TIMETABLES

(MONDAY - THURSDAY)

Time	SUNDAY 1ST JULY 2012
14:00	**Registration (Wrest Point Casino)**
18:00	**Cawthron Welcome Function - Exhibition Foyer - Wrest Point**

Time	MONDAY 2ND JULY 2012				
8:15	**Registration**				
	Plenary Hall				
9:00	**Welcome to Country**				
9:10	**Official Opening**				
9:30	**Opening Address: Susan Wijffels**				
9:50	**AMSA Jubilee Award 2012**				
10:00	**Invited Keynote: David Griffin** *Extreme Oceanic Events*				
10:50	**Morning Tea**				
	Plenary Hall	**Tasman Room A**	**Tasman Room B&C**	**Wellington Room 1**	**Wellington Room 2**
	SS03: Marine Protected Areas	**TS02: Climate Change**	**SS06: Trace elements**	**TS05: Everything Inbetween**	**SS12: Larvae & Extremes**
	Chair: Neville Barrett	Chair: Alistair Hobday	Chair: Michael Ellwood	Chair: Mark Baird	Chair: Rachel Przeslawski
11:20	**Graham Edgar.** Changes in fish communities over a three year period following declaration of nine Australian and eastern Pacific MPAs	**Richard Matear.** Climate change projection of the Tasman Sea from an Eddy-Resolving Ocean Model	**Keith Hunter.** Advances in the Marine Biogeochemistry of Trace Metals - A Perspective	**Diane Purcell.** Early detection of harmful phytoplankton species in marine ecosystems using molecular tools	**Maria Byrne.** Impacts of ocean warming and acidification on echinoderm life histories from the poles to the tropics - the developmental domino effect
11:40	**Matt Edmunds.** Communities out of control - how do we know?	**Hugh Grenfell.** Foraminifera based tidal elevation estimates elucidate the Holocene origins of Lake Onoke, New Zealand.		**Ben Harris.** Stable isotope analysis of krill off eastern Australia: the effects of water types on three euphausiid genera.	
12:00	**Nathan Knott.** Detecting the impact of the short-term opening of a Marine Park Sanctuary Zone on rocky reef fishes	**Kelly Strzepek.** Compound specific isotope analyses of deep-sea coral reveal influence of changing East Australian Current on surface processes	**Edward Butler.** A Scheme for the oceanic Cycling of Cobalt in the upper Water Column of high to mid-Latitudes	**Natasha Henschke.** Pelagic-benthic coupling: The fate of moribund mega salps and their importance as food fall in the deep sea	**Nicola Pradella.** Impacts of multiple stressors on fertilisation success of *Heliocidaris tuberculata* : effects of climate change and pollution
12:20	**Scott Ling.** MPAs increase resilience against climate-driven phase shift: prevention is far better than cure	**Will Figueira.** Temperature-dependent predation can drive threshold mortality responses for tropical expatriate marine fishes in temperate habitats	**Andrew Bowie.** Trace Elements in the Australian Sector of the Southern Ocean: Meridional Distributions and Seasonality	**Paul Thomson.** Picoplankton abundance from IMOS stations mark seasonal changes and extreme weather events in Aust. coastal waters.	**Andrew Carroll.** Effects of coral bleaching events on gametogenesis and fecundity in Acropora reef corals at Moorea, French Polynesia
12:40	**Debbie Freeman.** New Zealand marine protected areas: overview, key trends and future directions for monitoring their ecological integrity	**Cathryn Wynn-Edwards.** CO2 effects on nutritional quality of Southern Ocean phytoplankton as food for Antarctic krill larvae	**Claire Thompson**. Using copper isotopes to investigate organic copper speciation in the Tasman Sea	**David McElroy.** The effect of copper and contamination history on micro-algal type and abundance	**Jeff Leis.** Pelagic Orientation by Larvae of a Reef Fish is Independent of Location and Year but Depends on Time of Day
13:00	**Lunch**				

13:00	**Lunch**				
	Plenary Hall	**Tasman Room A**	**Tasman Room B&C**	**Wellington Room 1**	**Wellington Room 2**
	SS03: Marine Protected Areas	**TS02: Climate Change**	**SS06: Trace elements**	**TS06: Extreme events**	**SS12: Larvae & Extremes**
	Chair: Neville Barrett	Chair: Richard Matear	Chair: Zanna Chase	Chair: Arani Chandrapavan	Chair: Andrew Carroll
14:00	**Nick Shears.** Regional-scale recruitment patterns determine reserve efficacy across a marine reserve network	**Gretta Pecl.** Redmap: an online database and mapping resource for observational marine species data	**Bill Maher.** Arsenic in marine systems: new species and new analytical approaches	**Chris Battershill.** The C V RENA Oil Spill event: we dodged a bullet but where did the bullet go?	**Nicole Phillips.** Sunburn, Saunas and Hangovers: Risks to benthic Embryos developing in Tidepools over Summer
14:20	**Steffan Howe.** The First Report Cards for Victoria's Marine National Parks.	**Ruth Casper.** Pre-adapting Tasmanian coastal reefs to climate change	**Oscar Serrano.** The Posidonia marine sedimentary record: a millenary archive of heavy	**Shevelle Hutt.** First Responders to cataclysmic upheaval: Earthquake driven effects on Microalgae in the Avon-Heathcote Estuary, Christchurch	**Zhongnan Jia.** Embryonic and larval development of Antarctic krill
14:40	**Bob Creese.** The NSW marine estate – revisiting marine protected area research priorities and future directions	**John Morrongiello.** Long-term otolith biochronologies reveal effects of environment and stock abundance on tiger flathead growth rates	**Louisa Norman.** Atmospheric dust oceanic iron enrichment: from chemistry to bioavailability	**Jennifer Skilton.** Estuarine Ecosystem Responses to massive earthquake-driven Change	**Brendon Dunphy.** Latitudinal comparison of thermotolerance in F2 larvae of the greenshell mussels
15:00	**Colin Buxton.** Do MPAs benefit well managed fisheries?	**Alastair Hirst.** Decadal shifts in demersal fish assemblages in Port Phillip Bay correspond with drought and the introduction of an exotic starfish	**Christel Hassler.** What are the key organic ligands for iron bioavailability to phytoplankton?	**Mike Herzfeld.** Monitoring extreme ocean events using near real-time ocean modelling systems	**Tommaso Alestra.** Experimental evaluation of local perturbations and global-scale changes on the early life history of *Hormosira banksii*
15:20	**Afternoon Tea**				
	Plenary Hall	**Tasman Room A**	**Tasman Room B&C**	**Wellington Room 1**	**Wellington Room 2**
	SS03: Marine Protected Areas	**TS02: Climate Change**	**SS06: Trace elements**	**TS06: Extreme events**	**TS05: Everything Inbetween**
	Chair: Nick Shears	Chair: Gretta Pecl	Chair: Andrew Bowie	Chair: David Griffin	Chair: Liz Slooten
15:50	**Neville Barrett.** Developing non-intrusive monitoring for describing deep water habitats and biodiversity within Australia's MPA network	**Sarah Graham.** Hot Pods: the importance of phenotypic plasticity and trans-generational effects on a marine crustacean in a warming environment	**Jonathon Rousseau**. A 30ka Sponge-Diatom Silicon Isotope Record of Subantarctic Mode Water Nutrients	**Ming Feng.** An extraordinary marine heat wave event off the west coast of Australia	**Ana Sequeira.** Models predicting whale shark occurrence over entire ocean basins
16:10	**Nicole Hill.** Designing flexible long-term monitoring programs	**Rebecca Neumann.** Environmental Stress, chemical Defences and Disease in the habitat-forming Kelp *Ecklonia radiata*	**Taryn Noble.** Nd isotope reconstruction of the glacial water mass structure in the SW Pacific sector of the Southern Ocean.	**Belinda Cannell.** Little Penguin breeding and survival in Western Australia compromised by a 'marine heat wave' in 2011	**Sacha Guggenheimer.** Battle of the sexes: reducing intra-species competition through sex-specific foraging in Australasian gannets
16:30	**Kirsty Howard.** The effect of the rezoning of the Great Barrier Reef Marine Park on commercial fisheries catch and effort	**Tamsin Peters.** Environmental change and latitudinal trends in condition and surface bacteria in a habitat-forming macroalga	**Julene Marr.** SW Pacific Ocean response to a warming world using Mg/Ca, Zn/Ca and Mn/Ca to track surface ocean water masses over the last 25 ka	**Arani Chandrapavan.** The extreme "marine heat wave" event of 2010/2011 and its effects on marine environment and Western Australian fisheries	**Heidi Ahonen.** Local Lads: dispersal and male mediated gene flow by Australian sea lions inferred by genetic and acoustic structure
16:50	**Amy Trenouth.** Stakeholder perception of hazards to marine and coastal World Heritage areas in Australia.	**Alistair Hobday.** Seabird and marine mammal management options in the face of climate change	**Michael Ellwood.** Dissolved and particulate metal cycling during the annual subtropical spring bloom, east of New Zealand	**Sabine Dittmann.** Resilience after extreme events - lessons from macrobenthic response to drought and flood in the Coorong	**Kate Charlton-Robb.** The newly described Burrunan dolphin, Tursiops australis, endemic to southern Australian coastal waters
17:10	**Prue Addison.** Control charts for environmental decision-making: A tool for improved Marine Protected Area management	**Craig Syms.** Biogeography and Climate Change: Spatial and Temporal Drivers of Fish Communities	**Symposium Discussion**	**Kylie Pitt.** Resilience of the coral reefs of Moreton Bay to flooding of the Brisbane River	**Katie Halliday.** Indicators of seasonal habitat use by dusky dolphins in Admiralty Bay, Marlborough Sounds, New Zealand
17:30				AMSA Student Judging Panel Meeting	
18:00	**NERP Marine Biodiversity Hub Poster Session - Boardwalk Gallery**				

Time	TUESDAY 3RD JULY 2012				
8:30	**Registration**				
	Plenary Hall				
9:00	**Introduction, Housekeeping**				
9:10	**Invited Keynote: Scott Nodder** *Squalls, swells and science: the ups and downs of Southern Ocean research from a New Zealand perspective*				
9:50	**Marine National Facility: Toni Moate**				
10:10	**Pacific Ocean Inititative: Chris Cornelisen**				
10:20	**AMSA Awards**				
10:30	**Symposium Keynote** : Chris Battershill - Drugs from the Sea, its Darwinian				
10:50	**Morning Tea**				
	Plenary Hall	**Tasman Room A**	**Tasman Room B&C**	**Wellington Room 1**	**Wellington Room 2**
	TS10: Ocean acidification	**TS11: Oceanography**	**TS03: Ecosystem Services**	**TS08: Fisheries**	**SS13: Biotechnology**
	Chair: Slobodanka Stojkovic	Chair: Steve Chiswell	Chair: Anthony Boxshall	Chair: Malcolm Clark	Chair: Shirley Sorokin
11:20	**Peter Schlegel.** Inter-Individual Variation and Ocean Acidification	**Peter Oke.** Validation of a near-global eddy-resolving ocean model	**Jaimie Potts.** Comparison of key ecological processes in intermittently closed and open lakes and lagoons in Victoria	**Asta Audzijonyte.** Ecosystem-level Implications of Fisheries-induced Evolution	**Wei Zhang.** Development of marine sponge and sponge cell biosensors of *Euryspongia* sp. as a potential early warning system of environmental change
11:40	**Lucas Koleits.** Interactive effects of temperature increase and ocean acidification on Antarctic Sea Urchin larvae, *Sterechinus neumayeri*	**Ana Redondo-Rodriguez.** Variability of the surface South Equatorial Current bifurcation against the East Coast of Australia	**Rebecca Gladston-Gallagher.** Determining the Linkages between Mangrove Detritus and Ecosystem Functioning in a Temperate NZ Estuary	**Phillip England.** Fish and Chips: what does Genome Diversity tell us about Orange Roughy Populations and help us manage the Fishery?	**Tanja Grkovic.** Dereplicating the drug-like natural product metabolome: isolation of iotrochotadines A – D from an Australian marine sponge *Iotrochota* sp.
12:00	**Abby Smith.** Bimineral Bryozoans in an acidifying Ocean	**Philip Gillibrand.** Wave- and wind-driven circulation over Heron Island lagoon in the southern Great Barrier Reef: A model study	**Andrew Olds.** Floods, connectivity and critical ecosystem functions: links with mangroves promote resilience on protected reefs	**Heather Constable.** Population Genetics and Connectivity of the endemic New Zealand Sand Flounder (*Rhombosolea plebeia*)	**Geza Berecki.** Analgesic Conotoxin Discovery from Marine Cone Snails
12:20	**Steve Eggins.** Trace metal sensors of inorganic carbon equilibrium during calcification of biogenic carbonate	**Madeleine Cahill.** Modelling the ocean response to Cyclone Yasi with ROAM	**Jason van de Merwe.** Spatial and temporal variation in estuarine carbon dynamics	**Jason Earl.** Habitat use, movement patterns and residency of greenback flounder in the Murray River Estuary and Coorong	**David Rudd.** A New Application of Surface Assisted Laser Desorption/ Ionization Mass Spectrometry for Detecting Biologically Active Compounds
12:40	**Yuanyuan Feng.** Long-term Effects of CO2 and Temperature on the coastal Diatom *Cylindortheca fusiformis*	**Moninya Roughan.** Mean circulation, inter-annual, seasonal and monthly variability on the Sydney shelf	**Peter Wilson.** Sources of sedimentary sulfides: Implications for monitoring the effects of organic enrichment	**Jacquomo Monk.** Transferability of Predictive Fish Distribution Models between two Coastal Systems	**Peter Nichols.** New Land Plants with Long-chain Omega-3 Oils: A Journey from Marine Gene Discovery to Sustainable Sources of Health-benefitting Oils
13:00	**Lunch**				

TIMETABLE - TUESDAY AFTERNOON

13:00	**Lunch**				
	Plenary Hall	**Tasman Room A**	**Tasman Room B&C**	**Wellington Room 1**	**Wellington Room 2**
	TS10: Ocean acidification	**TS11: Oceanography**	**TS03: Ecosystem Services**	**TS08: Fisheries**	**SS13: Biotechnology**
	Chair: Kerrie Swadling	Chair: Moninya Roughan	Chair: Jason Van de Merwe	Chair: Caleb Gardner	Chair: Chris Battershill
14:00	**Slobodanka Stojkovic.** Impacts of ocean acidification on physiological performance of various Coccolithophores	**Katherine Baer Jones.** Modelled biological and physico-chemical controls on pCO2 across the coastally-oriented Subtropical Frontal Zone	**Paul York.** Ratio dependence in estuarine habitats: modelling food-chain responses to nutrient enrichment	**Darcy Webber.** Broad Scale Management in Spatially Heterogeneous Fisheries. Does it Matter?	**Colin Barrow.** Marine Biotechnology: Omega-3 Functional Foods and Pharmaceuticals
14:20		**Joanne O'Callaghan.** Against the flow: seaward propagating internal waves from river plumes	**Daniel Pratt.** Increasing mud content on intertidal sandflats correlates with a loss of macrofauna diversity and ecosystem functionality	**Jack O'Connor.** A new look at growth and movement of the white shark in Australian waters	**Kim Jye Lee Chang.** New Australian Thraustochytrids: Candidates for Production of Biodiesel and Value-added Products
14:40		**Lynnath Beckley.** Phyllosoma, prey fields and patchiness in the pelagic ecosystem of the SE Indian Ocean	**Lara Ainley.** Climatic setting and coastal development interact to determine decomposition of *Zostera capricornii* and *Avicennia marina*	**Tim Emery.** Emergence of 'race to fish' behaviour in the Tasmanian Southern Rock Lobster Fishery when the TAC becomes non-binding	**Symposium Discussion:** The Future of Biotechnology in Australia and New Zealand - forming a Marine Biotech Network, and a vision statement for the future.
15:00		**Aimée Komugabe.** Chronicles from the Deep? Holocene Reservoir Ages from Black Corals in South Eastern Australia	**Audrey Cartraud.** The Role of Allochthonous Kelp in Providing Spatial Subsidies in a Seagrass Ecosystem	**Bob Hunt.** Costing recreational fishery surveys and the benefits of sampling from a license frame	
15:20	**Afternoon Tea**				
	SS15: Sthn Ocean Biogeochem	**TS11: Oceanography**	**TS03: Ecosystem Services**	**TS05: Everything Inbetween**	**TS05: Everything Inbetween**
	Chairs: Pete Strutton & Tom Trull	Chair: Moninya Roughan	Chair: Kylie Pitt	Chair: Dennis Gordon	Chair: Scott Ling
15:50	**Peter Strutton.** Physical and biological response of the Southern Ocean to the Southern Annular Mode: 1999 to 2011	**Nugzar Margvelashvili.** Towards "Intelligent" Data-assimilating Coastal Sediment Transport Model	**Kirsten Rodgers.** A novel system for measuring photosynthetic rates of kelp and its application to studying stressors on kelp forest ecosystems	**Suzanna Evans.** The importance of genotypic diversity in endangered seagrass populations.	**Adam Pope.** Predictive Mapping of Intertidal and Shallow Subtidal Habitats using ALOS Imagery and LiDAR Bathymetry
16:10	**Robert Strzepek.** Iron-light interactions differ in Southern Ocean phytoplankton	**SS10: Extreme Technology** Chair: Tim Lynch **Matthew Sherlock.** A Combined Acoustic and Optical Instrument for Fisheries Studies	**Paul Maxwell.** Modelling and testing feedbacks to predict shifts in seagrass ecosystems	**Jesse Kelly.** Systematics, phylogeny and ecology of the Octopoteuthidae	**Kathryn McMahon.** Bio-indicators of light stress in seagrasses
16:30	**Tom Trull.** Iron enrichment enhances phytoplankton biomass but not surface carbon export in the subantarctic Southern Ocean	**Tara Martin.** Enhancing knowledge of our continental shelf environments – the CMAR national swath mapping initiative	**Edwin Ainley.** Depositional effects of sediments on the ecological performance of subtidal seaweeds	**Aaron Evans.** Systematics and ecological role of the squid genus Teuthowenia in New Zealand waters	**Anna Berthelsen.** Is coralline turf a uniform habitat for small mobile invertebrates?
16:50	**Pier van der Merwe.** Quantification of the east Antarctic fast ice iron pool and its potential to control coastal biogeochemistry	**Mark Underwood.** Observations following a Decade of calibrating Oceanographic Instruments	**Angus Ferguson.** Elucidating sources and lability of organic detrital accumulations in the nearshore zone	**Heather Braid.** Systematic review of the squid family Mastigoteuthidae in New Zealand waters	**John Ford.** Predicting the consequences of biodiversity loss on prey: compensatory mortality by benthic predators on a temperate reef fish prey
17:10	**Zanna Chase.** Biogenic Silica Fluxes in the Southern Ocean	**Tim Lynch.** Systematic approach to reducing uncertainties in bio-optical data streams in a sustained observing system		**Hanieh Saeedi.** Global biodiversity and biogeography of razor clams	**Cat Davis.** The environmental cues that influence clock control of tidal movement in the New Zealand eagle ray
17:30				AMSA Student Judging Panel Meeting	
18:30	**Student Night - The Metz on the Bay**				

Time	WEDNESDAY 4TH JULY 2012				
8:30	**Registration**				
	Plenary Hall				
9:00	**Introduction, Housekeeping**				
9:10	**Invited Keynote: Mike Coffin** *The Great 2011 Tohoku-oki Earthquake and Tsunami*				
9:50	**Symposium Keynote**: Ashley Rowden - Living on the edge down under: deep-sea habitats and benthic communities off Australia and New Zealand				
10:10	**Symposium Keynote**: Bruce Robison - Vertical displacement of mesopelagic animals by an expanding oxygen minimum zone				
10:30	**Symposium Keynote**: Kathy Walls - Aussie invaders in New Zealand! Can we do anything about them?				
10:50	**Morning Tea**				
	Plenary Hall	**Tasman Room A**	**Tasman Room B&C**	**Wellington Room 1**	**Wellington Room 2**
	SS17: Invasive Species	**SS09: Pacific Currents**	**SS11: Deep Sea Benthos**	**TS01: Aquaculture & Mariculture**	**TS07: Extreme Habitats**
	Chair: Kathy Walls	Chair: Katy Hill	Chair: Karen Miller	Chair: Christine Crawford	Chair: Nicolas Spilmont
11:20	**Paul Sammarco.** A New Invasive Coral - Tubastraea micranthus - in the Western Atlantic: A Potential Threat	**Ken Ridgway.** The EAC system: mean flow and time-varying circulation	**Helen Neil.** New Zealand's dynamic seascape	**Celeste Knowles.** Understanding AGD host/parasite dynamics during freshwater bathing using quantitative real time PCR	**Patricia Corbett.** Application of a fish health index for the Antarctic Emerald Rock cod, Trematomus bernacchii from Davis Station, East Antarctica
11:40	**Shea Cameron.** Long term impacts? A survey of fouling communities on artificial reefs older than two decades, in South Australia	**Ron Thresher.** Inferred changes in the EAC since the mid-1800s: trans-Tasman coral proxy records and evidence of changing fish growth	**Karen Gowlett-Holmes.** Seamounts and beyond – deepsea reef communities off southeastern Tasmania	**Sharon Appleyard.** Testing the waters:- microbes, abalone and oysters	**Michael Hickford.** Slip, slop, splash: whitebait eggs in disturbed spawning habitats are susceptible to UVB radiation
12:00	**Paul Gribben.** The value of intraspecific biogeographic comparisons in elucidating mechanisms underlying invasion success	**Peter Oke.** A comparison of eddies in western boundary current regions	**Malcolm Clark.** A tale of two seamounts: life at abyssal depths	**Nigel Keeley.** Linking predicted deposition flux to observed ecological effects beneath salmon farms at highly dispersive sites	**Jess Hill.** Spawning migrations of *Galaxias maculatus* (inanga) in southern New Zealand
12:20	**Liam Gregory.** Biotic and abiotic factors affecting the Tasmanian distribution and density of the introduced New Zealand porcelain crab	**Steve Chiswell.** Eulerian and Lagrangian evaluation of numerical models	**David Bowden.** Cold seep communities on the Hikurangi Margin, New Zealand	**Javed Khan.** Optimum temperature for growth and feed conversion in juvenile Hapuku (*Polyprion oxygeneios*): links to aerobic metabolic scope?	**Tom Trnski.** An island oasis in an ocean desert: Kermadec Islands marine fauna and flora, biogeographic affinities and population maintenance
12:40	**Luke Hedge.** The intrinsic parameters of propagule pressure: implications for colonisation and bioinvasion	**Jason Everett.** Using satellite datasets to examine patterns in chlorophyll a and net primary productivity adjacent to the EAC	**Daniel Leduc.** Breaking down deep-sea biodiversity: a case study from the continental slope of New Zealand	**Samantha Bui.** Use of light and sound stimuli to influence behaviour and surface activity in Atlantic salmon	**Julien Claes.** The visual system of luminous deep-sea sharks
13:00	**Lunch**				

TIMETABLE - WEDNESDAY AFTERNOON

	Plenary Hall	Tasman Room A	Tasman Room B&C	Wellington Room 1	Wellington Room 2
13:00	**Lunch**				
	SS17: Invasive Species	**SS09: Pacific Currents**	**SS11: Deep Sea Benthos**	**TS01: Aquaculture & Mariculture**	**TS07: Extreme Habitats**
	Chair: Paul Gribben	Chair: Jason Everett	Chair: Ashley Rowden	Chair: Bob Hickman	Chair: Nicole Phillips
14:00	**Justin McDonald.** Warships, warm water, little green invaders and one tonne of biofouling	**David McLeod.** Climate-driven range expansion of the red-tide dinoflagellate Noctiluca scintillans into the Southern Ocean	**Mailie Gall.** Applying Rapoport's rule to deep-sea benthic communities: extrapolating prey diversity through niche width using stable isotopes	**Sheri Johnson.** Spawning behavior and parentage allocation in mass spawning tanks of hapuku	**Nicholas Spilmont.** The intertidal as an example of extreme marine environment
14:20	**Serena Wilkens.** Induction of settlement in mussel (*Perna canaliculus*) larvae by vessel noise	**Jon Waters.** Currents and Connectivity: Oceanographic Variability drives Rapid Temporal Change in Coastal Marine Biogeography	**Di Tracey.** Coral datasets and research focus: way down under	**Robert Day.** Models show High Density favours increased Virulence: implications for Mariculture	**Renee Gruber.** Seagrasses at their limits: The search for threshold habitat requirements in two coastal NSW lakes
14:40	**Fernanda Piraud.** Effect of different intensities of UVB radiation on zoospores of the invasive species *U. pinnatifida*	**Russ Babcock.** Submerged subtropical kelp habitat and the seasonal dynamics of the EAC.	**Skipton Woolley.** Fathom out: Ascertaining of bioregions based on multispecies modelling of benthic inverts along the WA continental margin.	**Michael Sievers.** Foul play: Are mussels being out-muscled?	**Sourav Paul.** Physiological tolerance of estuarine mysid shrimps (*Tenagomysis* spp.) to temperature and salinity variation
15:00	**Katja Schweikert.** Proposed Harvest Methods for *Undaria pinnatifida* in New Zealand	**Sebastien Mancini.** Towards interoperability between Australian and New Zealand marine data	**Piers Dunstan.** Characterising and predicting benthic biodiversity for conservation planning in deepwater environments	**Catriona MacLeod.** Environmental Management – How can modelling harmonise the needs and expectations of multiple stakeholders?	**Jason Beard.** Patterns in the distribution of estuarine macroinvertebrates and their relationship with the environment: Implications for management/monitoring
15:20	**Afternoon Tea**				
	SS17: Invasive Species	**TS04: Education & Community**	**SS07: Deep Sea Pelagic**	**TS05: Everything Inbetween**	**TS07: Extreme Habitats**
	Chair: Sabine Dittmann	Chair: Pam Elliott	Chair: Adrian Flynn	Chair: Graham Edgar	Chair: Tom Trnski
15:50	**Ana Bugnot.** Exploring effects of non-indigenous isopod on oyster-bed assemblages	**Pam Elliott.** Marine Discovery Centres-Engaging and challenging students to build ownership of our precious marine environment	**Justin Marshall.** Sensory biology in the Coral Sea and neighbouring waters	**Matt Pine.** Underwater Anthropogenic Noise: Sharing Waters with Underwater Tidal Turbines	**Randall Lee.** Western Port: scales of change in a sensitive marine environment
16:10	**Patrick Cahill.** Preventing Ascidian Fouling in Aquaculture: Utilizing Natural Products as Antifoulants Targeting Ascidian Metamorphosis	**Julian Harrington.** Working on water: An industry based work experience program for all marine sectors	**Fanny de Busserolles.** Approaching the extremes of vision: Retinal specializations in lanternfishes (Myctophidae)	**Chris Cornelisen.** Source tracking land-derived contaminants in coastal waters	**Tim Ingleton.** Hotter and saltier: Can benthic diatoms be used to infer a baseline condition of an embayment exposed to a power station discharge?
16:30	**Jan Carey.** Optimizing the Allocation of Surveillance Effort for Introduced Species in MPAs	**Gary Wilson.** Opening the Freezer Door and gauging public awareness of "Our Far South"	**Brian Hunt.** Epipelagic / mesopelagic trophic linkages in the south Pacific: insights from size-structured stable isotope analysis	**Jeffrey Dambacher.** Identifying indicators and predicting change in Australia's Exclusive Economic Zone	**Lynda Radke.** A process-orientated framework for contiguous 'extreme and in-between' benthic habitats from decision-tree models and habitat mapping
16:50	**Kimberley Millers.** Identifying false-positive records during monitoring for an invasive seastar, *Asterias amurensis*	**Mary Gardner.** Writing Science in Media for Coastal Communities: Extending the Engagement Model of Science Communication	**Adrian Flynn.** A Spawning Aggregation of the Dana lanternfish in the Northwestern Coral Sea and Associations with Tuna Aggregations	**Piers Dunstan.** Conservation on the High Seas – Defining Ecologically and Biologically Significant Areas (EBSAs) in the South Pacific	**Andreas Marouchos.** Challenges in the acquisition of video and still imagery at depth
17:10	**Symposium Discussion**	**Peter Starkey.** Development of an iPad Application for Coastal Studies	**Rudy Kloser.** Sampling micronekton at basin scales potential and challenges	**Gina Newton.** Conservation of marine and coastal communities under national environment law	**William Rayment.** Fine-scale habitat preferences of southern right whales at the Auckland Islands calving grounds
17:30				AMSA Student Judging Panel Meeting	
18:30	**A Night in the Southern Ocean**				

Time	THURSDAY 5th JULY 2012				
8:30	**Registration**				
9:00	**Introduction, Housekeeping**				
	Plenary Hall				
9:10	**Invited Keynote: Dennis Gordon** *New Zealand's marine Biodiversity — extreme, or just normal for a temperate region of the World?*				
9:50	**Symposium Keynote**: Mark Hindell - Three dimensional habitat structure in southern elephant seals				
10:10	**AMSA AGM - Plenary Hall**	**NZMSS AGM- Tasman Room A**			
10:50	**Morning Tea**				
	Plenary Hall	**Tasman Room A**	**Tasman Room B&C**	**Wellington Room 1**	**Wellington Room 2**
	SS05: Marine Mammals	**SS04: Bio-optics**	**SS01: Cryptic speciations**	**TS12: Southern Ocean/Antarctica**	**SS08: Marine Monitoring**
	Chair: Simon Childerhouse	Chair: Lesley Clementson	Chairs: Nikos Andreakis & Daniel Gledhill	Chair: Dave Bowden	Chair: Keith Hayes & Nicole Hill
11:20	**Benjamin Arthur.** Site fidelity in the winter foraging patterns of Antarctic fur seals	**Arnold Dekker.** Shallow Water Bathymetry, Bio-Optics, and Benthos Mapping from High Spatial Resolution Satellites	**Nikos Andreakis**. Disentangling the *Agononida incerta* Species Complex	**Amelie Meyer.** Mixing intensity and sources in the Southern Ocean: an observational study surrounding the Kerguelen Plateau.	**John Gunn**. Observation systems for ocean biology and marine ecosystems : evolving from experimental observations to sustained global observing
11:40	**Andrew Lowther.** "The Knowledge": male Australian sea lions and Hackney Cab Drivers share common attributes knowing where to go	**Richard Zavalas.** Benthic characterisation of temperate marine habitats using bathymetric LiDAR and video observations	**Kirrily Moore**. Southern Ocean octocorals and Norwegian taxonomic riddles	**Chris Gillies.** Towards a stable isotope food web model for coastal Antarctic benthic communities: a case study from the Vestfold Hills	**Katy Hill.** Oceans of data : the Integrated Marine Observing System and the Australian Ocean Data Network
12:00	**Vicki Hamilton.** Environmental influences on tooth growth in sperm whales from the southern Australian region	**Peter Davies.** A bio-optical characterisation of NSW coastal waters	**Melody Puckridge.** Phylogeny and phylogeography of Indo-Pacific flathead fishes (Platycephalidae)	**Sarah Payne.** Temporal changes in the coastal zooplankton community off Davis Station, East Antarctica, and its response to diesel fuel contamination	**Kim Friedman.** Western Australian Outlook for Marine Monitoring, Evaluation and Reporting: A Dept. of Environment and Conservation Perspective
12:20	**Jane Younger.** Past interglacial refugia and population connectivity of East Antarctic Weddell seals	**Charlotte Robinson.** Phytoplankton light absorption properties, photosynthetic efficiency and carbon fixation in a turbid estuarine environment	**Sebastian Schmidt-Roach.** Applying the unified species concept to *P. damicornis* ecomorphs	**Lara Marcus.** Sensitivities and response time of three Antarctic marine copepods to metal exposure.	**Alan Jordan.** Marine environmental monitoring in NSW - past, present and future
12:40	**Simon Childerhouse.** Estimating abundance of the NZ southern right whale: accounting for the effect of calving cycle in a super-population framework	**Lesley Clementson.** New Remote Sensing Products with National Coverage from IMOS	**Craig Styan.** Complex Patterns of Sympatry among Cryptic Species in Southern Australia: Natural or a Result of Translocations?	**Zeenatul Basher.** Predicting present and past distributions of Decapod Shrimps in the Southern Ocean	**Steffan Howe.** Selecting ecological Monitoring Indicators and Thresholds for Victoria's Marine Protected Areas
13:00	**Lunch**				

TIMETABLE - THURSDAY AFTERNOON

13:00	**Lunch**				
	SS05: Marine Mammals	**SS18: SE Tas waters**	**TS09: Marine Policy**	**TS12: Southern Ocean/Antarctica**	**SS08: Marine Monitoring**
	Chair: Simon Childerhouse	Chair: Karen Wild-Allen	Chair: Alan Jordan	Chair: Scott Nodder	Chair: Keith Hayes & Nicole Hill
14:00	**Rochelle Constantine.** Sharing the Waters: Bryde's Whales and Ship-strike	**Pearse Buchanan.** Interaction of subtropical and subantarctic water masses in Recherche Bay and influence on primary productivity	**Ian Cresswell.** Reviewing progress in Australian Government Marine Bioregional Planning: are we on track?	**Jürgen Kolb.** Short Circuit Co-Evolution by the perfect Parasite? Antifreeze Glycoproteins of Fish Leeches in Antarctica	**Neil Smit**. An overview of marine environmental monitoring in the Northern Territory
14:20	**Rohan Currey.** Estimating cryptic mortality for New Zealand sea lions via crash tests and camera trials: lessons from Australia	**Mark Baird.** Numerical model predictions of carbon-to-chlorophyll ratios in Storm Bay, Southeast Tasmania.	**Mizue Iijima.** Implementing Japan's Ocean Policy: Challenges of Marine Science and Technology	**Michael Oellermann.** Genetic, structural and functional traits driving haemocyanin evolution and thermal adaptation in octopods	**Yvette Eglinton.** Preliminary collection of baseline data to support the design and management of Marine Parks in South Australia
14:40	**Simon Goldsworthy.** Impact and mitigation of Australian sea lion bycatch in the shark gillnet fishery off South Australia	**Lesley Clementson.** Bio-optical parameters measured in southern Tasmanian waters.	**Lou Hunt.** Marine biosecurity policy into action – stakeholder collaboration	**James Tickner.** Testing local dispersal: is genetic diversity in the Antarctic bivalve Lissarca notorcadensis reduced on host cidaroid spines?	**Robyn Morcom.** The development of a monitoring, evaluation and reporting program for effectiveness of SA's network of multiple-use marine parks
15:00	**Elisabeth Slooten.** First Evidence that Marine Protected Areas can work for Marine Mammals	**Scott Condie.** Coastal zone management tools based on Lagrangian modelling approaches	**Paul Hedge.** Adaptations of *Policymaka scientificus* for life in the science-policy interface	**Helena Baird.** Genetic Connectivity and Diversity of Antarctic Benthic Amphipods	**Jonny Stark.** Monitoring coastal ecosystems in Antarctica
15:20	**Afternoon Tea**				
	SS05: Marine Mammals	**SS18: SE Tas waters (**Showroom)**		**TS12: Southern Ocean/Antarctica**	**SS08: Marine Monitoring**
	Chair: Simon Childerhouse	Chair: Keith Sainsbury		Chair: Di Tracey	Chair: Keith Hayes & Nicole Hill
15:50	**Mike Noad.** I heard it through the grapevine: Unravelling extreme vocal behavioural adaptation and complexity in a harsh environment	**Christine Crawford.** Productivity and Water Quality Changes in Coastal Waters in Southeastern Tasmania, Australia, a Climate Change 'Hotspot'	Room closed	**Nerida Wilson.** Does the Scotia Arc act as a corridor for benthic marine invertebrates between South America and Antarctica?	**Christine Lamont.** Environmental regulation of the offshore petroleum industry: challenges and opportunities
16:10		**Raymond Williams.** Hydrodynamic Model Outputs characterising the SE Tasmanian Coastal Region using a Self-Organizing Feature Map		**Raisa Nikula.** Subantarctic island populations of bull-kelp epifauna are tightly linked by trans-oceanic rafting	**Grahan Hosie.** Global Alliance of Continuous Plankton Recorder Surveys (GACS): placing local/regional monitoring in a global context
16:30	**Steve Dawson.** Effects of Location, Season, Time and Tide on Hector's dolphins within the Banks Peninsula Marine Mammal Sanctuary	**Jennifer Skerratt.** Using Fine–scale 3D Biogeochemical Models to address Coastal Management Issues		**Terry O'Kane.** Mechanisms of decadal predictability in simulated southern ocean - sea ice dynamics	**Ezequiel Marzinelli.** AUV surveys of deep-water kelp across Australia
16:50	**Robert McCauley.** Migratory habits of pygmy and Antarctic blue whales in Australian waters	**Levente Bodrossy.** Nitrification by Microbial Communities as an Indicator of Estuarine Health		**Ben Raymond.** Integration and synthesis of Antarctic predator tracking data	**Rachel Przeslawski.** Comparison of sampling methods to assess benthic marine biodiversity
17:10	**Brian Miller.** Real-time passive acoustic monitoring and tracking of blue whales	**Jeff Ross.** Key ecosystem processes respond to a resultant large-scale reduction in organic inputs			**Luke Edwards.** Collaborative and Automated Tools for Analysis of Marine Imagery and Video (CATAMI)
17:30				AMSA Student Judging Panel Meeting	
18:30	**CSIRO GALA CONFERENCE DINNER Wrest Point Tasman Room**				