Shells and Red Ochre – clues to Human Evolution?

An invitation to present a public lecture on the role of the ocean in human evolution and health set UWA Oceans Institute's Director, Professor Carlos Duarte on a quest to resolve why humans have unfailingly used shells and red ochre for symbolic purposes for thousands of years.

Recent discoveries show an ancient bond between shells, red ochre, and human evolution dating back to 250,000 years ago and excavations in caves inhabited by so-called modern humans and Neanderthals have revealed a consistent use of shells and red ochre for symbolic use. Shells were used to build personal ornaments, such as necklaces, and red ochre was used to decorate walls, as well as their own bodies.

Professor Duarte collated evidence that clearly demonstrated the combined ancient use of shells and red ochre that continues to be embedded in the traditions and cultures of many groups today, particularly Indigenous Australians. Red ochre remains the basic ingredient of red-coloured cosmetics and shells, and pearls continue to ornament the necks, ears and wrists of western women.

When confronted with the evidence of the 250,000-year-old bond, Professor Duarte concluded that these elements must have some evolutionary significance for humans that was not only symbolic.

It is widely known that humans collected molluscs as a source of food, which triggers the growth of the human brain through the supply of DHA and Omega 3 fatty acids, essential for brain development. Similarly, red ochre can also provide a source of iron that is vital for brain and reproductive health, particularly for women reaching reproductive age. However humans could not have been aware of these benefits and their interest and use of red ochre must have been driven by symbolic and artistic inclinations. Professor Duarte argued that women accidentally ingesting red ochre, manipulated for artistic expression, saw improvement in their reproductive health as a result.

Global health syndromes indicate that an adequate supply of seafood and iron continues to play a fundamental role in human health and Professor Duarte highlights the importance of understanding the connection between the combined use of red ochre and shells as a pathway to a healthy future. This comes at a time when diets poor in seafood and iron supply underpin the recent exponential rise in costs of mental disorders to public health systems.

Addressing these linkages is critical to understanding our past evolution and addressing our future health challenges. These results were published in the journal, Trends in Ecology and Evolution.

**Director’s welcome**

This is my last message as Director of the UWA Oceans Institute, after almost four years of service since my appointment in March 2011.

It has been a privilege and an honour to join one of the world’s top academic institutions to serve in this role. I depart, leaving the UWA Oceans Institute accomplishing excellent results, with a solid foundation of committed members, programs and processes converging to deliver the Institute’s vision.

The UWA Oceans Institute continues to build on solid partnerships with its Indian Ocean Marine Research Centre members, including AIMS, CSIRO and the WA Department of Fisheries, as well as with its industry partners, a growing slate of international partners and an enthusiastic Oceans Community that provides engagement with the general public.

This is a history of collective successes, initiated by the vision and continued support of the UWA leadership team, particularly that of Professor Robyn Owens, Deputy Vice-Chancellor of Research and Chair of the Ocean Institute’s Executive Board. The capacity and reputation of the core academics participating in the Institute, the enthusiasm of a new generation of scientists, each an emerging leader in his or her field, and the hard work and commitment of a small, but extremely capable team of professionals, led by the Institute’s General Manager Tracy Parker, produces ongoing triumphs and significant outcomes, contributing to this success. To all, staff, colleagues, friends and collaborators I wish to convey my gratitude for your help and support.

The alignment of such excellent human resources with the Institute’s vision provides all guarantees of success in future initiatives, and I am confident that the forthcoming leadership team will continue to lead the UWA Oceans Institute along a path of success. I too will continue to support the UWA Oceans Institute as an Adjunct Professor to UWA and look forward to celebrating the forthcoming successes to be reported in future editions of the Newsletter.

Professor Duarte was recently named one of the world’s most influential scientists by Thompson Reuters for his work in the field of Environment and Ecology.

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**Welcome to new OI members**

The OI is pleased to welcome the appointment of four new members to the Oceans Institute.

> **Professor Andrea Gaynor**, Centre for WA History and Arts

> **Dr Lara Silvia Garcia-Corral**, Research Associate, Oceans Institute and the School of Plant Biology

> **Dr Verena Schoef**, Research Associate, School of Earth and Environment

> **Dr Pere Masque**, Research Associate, Oceans Institute

These new members will contribute to OI programs and initiatives through interdisciplinary marine-related research across traditional science, history, social and policy boundaries.
Indian Ocean on the agenda

UWA enhances Indian Ocean research in new Memorandum of Understanding with Mauritius

The OI has made significant advances to generate opportunities to promote research to support the development of an ocean-based economy. A recent suite of visits organised by the Department of Foreign Affairs and Trade, and including the Executive Director of the Mauritius Research Council, Dr Arjoon Suddhoo and the Vice-Chancellor of the University of Mauritius (UoM), quickly led to the signing of a Memorandum of Understanding for the development of joint research and training opportunities between the two institutions in the areas of Marine Energy, Ocean Engineering, Aquaculture, Ocean Forecasting and Marine Ecology.

The agreement was signed at the Ocean Economy Event in Mauritius in September, to an audience of over 100 Ministers, Ambassadors, Government officials and university executives. Present to witness the signing was The Honourable Julie Bishop MP, Foreign Minister of Australia in her role as Representative of Australia as Chair of the Indian Ocean Rim Association (IORA), and her Mauritius Foreign Minister counterpart, Hon Dr Arvin Bolell.

During this visit by the OI’s Deputy Director, Professor Shaun Collin and General Manager, Tracy Parker, the Indian Ocean on the agenda

UWA enhances Indian Ocean research in new Memorandum of Understanding with Mauritius

The alliance is formed by UWA and seven other not-for-profit partners:
- AACCI – Australia Arab Chamber of Commerce and Industry
- AAMIG – Australia-Africa Mining Industry Group
- ACCI – Australian Chamber of Commerce and Industry
- AIBC – Australia Indonesia Business Council
- AIDN-WA – Australian Industry and Defence Network (WA)
- COIWA – Chamber of Commerce and Industry WA
- WAFIC – Western Australian Fishing Industry Council

As a founding member of the IOBA, the OI will support developments and explore opportunities in the Blue Economy, strengthening collaborations with its Indian Ocean partners.

The OI’s Deputy Director, Professor Shaun Collin, said the interdisciplinary partnership provided a unique opportunity to further our understanding of the region and address pressing challenges.

“The IOBA is an important platform to facilitate Australia’s shared interests in the region,” Professor Collin said.

“The IOBA is an important platform to facilitate Australia’s shared interests in the region,” Professor Collin said. “As a member of the IOBA, the UWA Oceans Institute will seek opportunities for integrated research and development in the Indian Ocean in emerging areas such as aquaculture, ocean energy and food security.”

During the week, conference delegates also had the opportunity to hear from OI members’ Professor Anas Ghoudani on Water Sensitive Cities, Professor Michael Burton on the Blue Economy and Professor Christoph Gaudin on Energy Security.

The formation of the IOBA recognises the wide scope of business in the region and the need for focus, attention and a common voice from industry. The IOBA aims to achieve a collaborative means to bring industry together to create and identify opportunities through open dialogue and exchange.
Innovations in Marine Science

It was a display of innovation at the joint KPMG/UWA breakfast organised during UWA’s research week in November.

KPMG and UWA teamed up to provide the business community the opportunity to network and find out what’s new in the ‘Innovation Space’ with a focus on marine science and oceanography.

KPMG may seem like an unusual collaborator, but with its own Research and Development team, the organisation provides a unique link to industry, an area of increasing importance for the University.

In the marine innovation space, OI Deputy Director, Professor Shaun Collin outlined his team’s research developing and testing shark deterrents for the WA State Government. Focusing on sensory deterrents, Professor Collin highlighted the need for collaboration with industry to move these into a public market.

Ben Brayford, Director of Geo Oceans, a marine survey consultancy, discussed the move towards diverless solutions to monitor and map marine habitats. Using remotely operated vehicles and towed cameras, Geo Oceans can map and generate 3D models of seafloor habitat, a capability that could be highly attractive to OI researchers.

Simon Handford from UWA’s Research Development and Innovation Office said the event was very well attended and provided a unique opportunity for industry and UWA researchers and professionals to network.

“It was fascinating to hear from Shaun and Ben about their innovations and how they are putting them to use,” Mr Handford said. “Events like this are so important for showcasing what universities can do and looking for synergies with local businesses.”

This is the second year running in a successful breakfast series which focuses on research innovation across various industries.

Diving from a new angle

Congratulations to OI members, Professor Thomas Wernberg and Dr Thibaut de Bettignies for completing the inaugural Marine Research Diver Training held nationally in August. UWA’s Diving and Boating Safety Officer, Warren (Starry) Starr provided significant input into the development of O.R.C.A Training’s new qualification which is designed to meet the Australian Standard 2299.2 as an occupational diver for scientific diving. Starry was both an instructor and trainer on the course.

The training course produces both diving and VOC qualifications and is recognised nationally by a number of government departments and universities, including the Department of Parks and Wildlife and James Cook University.

The qualification will prepare OI researchers for incoming harmonised safety laws, providing divers with a comprehensive experience of new techniques and equipment while endorsing a structure that promotes team safety.

Starry can be contacted for further information on 6488 5800 or via email warren.starr@uwa.edu.au orcatraining.com.au/marine-research-diver
Finfish and sharks of the Pilbara

By Dianne McLean
Marine Ecology Group
– Fish Research, UWA

UWA researchers Dr Dianne McLean and Dr Tim Langlois are undertaking the first regional-scale assessment of finfish and shark biodiversity in northern Western Australia.

The assessment is a key component of the Pilbara Marine Conservation Partnership (PMCP) – a joint research project by CSIRO, UWA and other peak government, research and industry bodies. The partnership provides benchmark information on the natural dynamics of the region’s ecosystems and potential thresholds that precede a switch to an undesirable state. It’s hoped that the project will enhance the net conservation benefits of the globally significant coral reef ecosystems of the Pilbara by providing an assessment of the condition and trajectory of key ecological values.

The fish and sharks component of PMCP utilises two complementary survey methods: baited remote underwater stereo-video systems (stereo-BRUVs) and diver-operated stereo-video systems (stereo-DOVs; pictured). Since the project commenced in 2013, the fish and sharks team have conducted 605 stereo-BRUV deployments (Figure 1) and 1320 stereo-DOV transects from Ningaloo to Dampier.

An experienced team of fish researchers within the Marine Ecology Group are currently immersed in video analysis from which they have recorded nearly 400 fish species from more than 60 families so far. For inshore regions, species richness is highest in the south of the region from Ningaloo to Onslow. There also appear to be strong links between fish and habitat, which the team are now investigating further by conducting some fine-scale habitat assessments from videos collected. In particular, juvenile emperor have been observed in high abundances in nearshore macroalgae fields, highlighting the potentially important role of this habitat as a nursery area for fishery targeted species.

The fish and shark component of PMCP will add value to existing monitoring conducted by the Department of Parks and Wildlife and the Department of Fisheries in the region and assist in understanding the threats to these ecosystems. The results will inform management of the Pilbara by improving metrics for assessing key performance indicators in addition to determining appropriate spatial management options at a scale relevant to fish populations.

Dr Dianne Mclean is a Research Assistant Professor with the UWA Oceans Institute and the School of Plant Biology.

Her research with the Marine Ecology Group examines changes to the structure of fish assemblages in response to anthropogenic impacts associated with industry development, climate change and fishing. Dianne also investigates the distribution of fish assemblages with respect to a range of biological, physical and environmental parameters. Dianne specialises in the use of non-destructive video sampling techniques, such as baited remote underwater stereo-video systems and diver-operated stereo-video, and works closely with various agencies to design and conduct fish monitoring programs, providing advice and assistance with the analysis of stereo-video imagery.
What the public think about marine biodiversity offsets: the case of migratory shorebirds

By Michael Burton and Abbie Rogers

Centre for Environmental Economics and Policy, UWA

UWA Oceans Institute researchers, Michael Burton and Abbie Rogers, are investigating how the community values different biodiversity offsets for migratory shorebirds.

Companies use biodiversity offsets as a mechanism to ensure there is no-net-loss in environmental assets as a result of a development. Although there is considerable debate on how best to implement offsets to achieve no-net-loss, and even whether they can be relied on to work at all, there is relatively little work that explores how the broader community perceives offsets.

It’s important to understand this perspective as it provides a useful insight as to how the public may respond to changes in policy as well as the sensitivity surrounding a company’s activities.

Professor Burton and Dr Rogers investigated how the community values different policy characteristics of marine biodiversity offset packages by conducting a choice experiment – an economic approach used to value the intangible aspects of the environment. A questionnaire was presented to respondents which described a hypothetical development on the WA Kimberley coast that had a

Arctic UV boosts plankton production

By Rob Payne

INCREASING ozone depletion in the Arctic and the 24-hour sunlight of its summer days have a surprising effect on plankton activity, new research suggests.

Instead of reducing plankton photosynthesis, as in the Atlantic, Mediterranean and Southern Ocean regions, researchers have found that UV-B solar radiation in the Arctic gives plankton communities a boost.

This means greater CO₂ uptake and a potential offset against the effects of warming Arctic waters on climate change in future.

The University of Western Australia Oceans Institute Professor Susana Agusti says night is the key to this process.

“In other environments, UV-B reduces plankton photosynthesis more than the activity of bacteria,” she says.

“But our work has shown that without darkness, Arctic bacteria do not have time to recover from the damage they suffer from solar radiation.

“This decreases heterotrophic [carbon-emitting] activity, namely respiration, while allowing for the greater production of plankton, which serves to sequester carbon.”

The predominant Arctic plankton species, Phaeocystis pouchetti, doesn’t suffer the same UV-B damage as bacteria thanks to a mucus-like secretion that acts as a natural sunscreen.

Lead author Dr Lara Silvia Garcia-Corrals says the findings could impact the five-degree threshold.

“When water temperatures reach five degrees Celsius, bacterial and biological activities in plankton alter, leading to communities switching from being CO₂ sinks to CO₂ sources,” she says.

“But the possible effect of increased UV-B radiation has not been considered as yet and may partially compensate for the negative effects of warming on plankton communities in waters where significant levels of UV-B penetrate.”

The study’s surprising results support the value of in-situ testing.

“Previous research has been experimental in that it was hampered by the use of plastics or glass, which blocks UV-B radiation, or was conducted in laboratories using artificially-added UV,” Prof Agusti says.

“Our research is the real product of the Arctic – of authentic conditions.”

UV-B radiation in the Arctic has become an area of increasing interest in recent years due to a 11 per cent/decade decrease in the region’s stratospheric ozone over the past two decades.

This peaked in the spring of 2011 when data suggested the first signs of a hole in the ozone layer.

Professor Agusti will be departing the UWA Oceans Institute, together with OI Director Carlos Duarte at the end of the year to continue her research at the King Abdullah University of Science and Technology (KAUST) in Saudi Arabia.

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Keeping watch over our seas

By Dr Agi Gedeon, Manager, WA node of IMOS

The Integrated Marine Observing System (IMOS) ocean radar facility uses coastally located high frequency radar systems to map the real-time dynamics of sea-surface currents. Established at James Cook University in 2006, this IMOS facility relocated to UWA in October 2014. On 21 November the UWA DVCR, Robyn Owens, relaunched the IMOS Coastal Ocean Radar Facility at UWA at a well-attended workshop event. Topics covered included the applications of radar data for particle tracking, eddy formation, shipping traffic, invasive species, movement of nutrients, trajectory modelling for emergency response including oil and chemical spills and examples of radar systems elsewhere in the world.

By design, these packages pushed the boundaries of offsets that would be permitted under current government policy. Professor Burton and Dr Rogers were interested in exploring how the public would react to these potential changes. Analysis of the choices people make allows identification of the tradeoffs they make between the different characteristics of the offset package, and their relative value.

In an initial pilot survey, 325 people drawn from the Perth metropolitan community in Western Australia were surveyed and these initial results found that people were strongly averse to locating the offset away from the region of the development. Respondents were generally indifferent about the proportion of direct versus indirect offsets that made up the offset package. Offset policies strongly favour direct offsets (for ecological reasons), but this result suggests it is not a big issue from the public perspective. Preferences for the species being protected were divided. Some preferred the offset to target the species impacted by the development, but others preferred to see the more endangered species being protected.

Dr Abbie Rogers joined the OI in May this year. Abbie is a postdoctoral researcher with the Centre for Environmental Economics and Policy, in the School of Agricultural and Resource Economics at UWA. Her research uses economic approaches to quantify community values and preferences for environmental conservation and management, with a strong focus on the marine environment.

Residual impact on the feeding grounds of a migratory shorebird (the Ruddy Turnstone). Respondents were told that there were a number of potential offset packages that would achieve no-net ecological loss, and asked to choose the package that they would prefer to see implemented.

The offset packages differed in terms of the proportion of direct and indirect offsets; the location of the direct offset, in the Kimberley, in Queensland, in New Zealand or in China; and, the shorebird species being protected, either the Ruddy Turnstone or the more endangered Eastern Curlew.
The appearance of smart-phones has allowed researchers to study human mobility at an unprecedented scale. The techniques applied by physicists to analyse the massive human tracking datasets produced by smart phones, are now being applied to animal tracking datasets, providing researchers new insights into animal migration.

A team of OI researchers, including Dr Michele Thums (Australian Institute of Marine Science (AIMS) Research Scientist and UWA Adjunct Assistant Professor), and Dr Ana M.M. Sequeira (UWA Research Associate), is now hoping to use the approaches derived from human mobility studies to make significant advances into understanding movement of marine megafauna.

In November, a group of renowned national and international multidisciplinary researchers, including physicists, ecologists and, spatial modelers came together to attend the ‘Marine Megafauna Synthesis’ meeting to share their data and work together to compare the movements and behaviours of these animals on a global scale. Dr’s Sequeira and Thums received an Oceans Institute Emerging Leaders Synthesis Projects Grant, with matching funds from AIMS to conduct the meeting.

The question was posed, ‘how can we apply these new approaches to studying human mobility to the monitoring of marine megafauna globally?’

Over the duration of the meeting, international physicists described the vast availability of human datasets and how these are being analysed to describe patterns of human movement and behaviour at a global scale. Such research is key to worldwide governance processes, including urban planning, traffic forecasting and understanding and managing the spread of epidemics.

Similarly, a large amount of tracking data also exists for marine megafauna and the interdisciplinary group worked to collate and synthesise their individual datasets from marine mammals, birds, reptiles and large fishes over the course of the week.

Dr Thums, said the meeting had presented an opportunity to understand universal patterns, collective behaviours and emerging properties of animal movement in marine ecosystems, an opportunity which would have been missed if researchers continued to focus on small numbers of tracks from single species.

“The equipment and logistics for tracking animals is expensive, limiting the number of animals that can be tracked in an individual project. Our approach of combining data from multiple species and applying new techniques is what will allow for new insights to be made.”

The synthesis group is now collectively preparing two research papers exploring this opportunity of using complex systems to studying animal movement. Key to the success of this approach, in the long term, will be the development of a freely available data storage facility for animal tracking data.

Dr Sequeira said this cross-disciplinary approach (between physicists and ecologists) will stimulate further studies of animal movement.

“One of the main outcomes of the meeting was that an initial network of international collaborators has been formed and a range of datasets of different marine megafauna species is already being analysed to support our new concept,” Dr Sequeira said.

“Once completed, publication of this work will inspire not only new collaborations but also new questions and methods to understand marine megafauna movement patterns.”
OI’s 2nd Postgraduate Student Conference

The breadth of marine research being undertaken by PhD students at the OI was at the forefront of everyone’s minds during the 2nd UWA Oceans Institute Postgraduate Student Conference in October.

The conference presenters spanned nine schools and four faculties, with topics ranging from the tropics to the subtropics, from the ecology of the Swan River to marine archaeology and from offshore engineering to plastic pollution in the deep seas. UWA research and testing facilities were on show with presentations from the WA Biogeochemistry Centre, CMCA and iVEC highlighting the capabilities available for researchers on campus, such as the potential of molecular isotope probing.

Participants were able to quiz senior UWA researchers and postdocs at the “Speed Networking” session, and during a debate facilitated by Winthrop Professor Alan Dench on ‘Advocating for Science’.

Maria J. Gonzalez-Bernat, an OI PhD student representative and conference coordinator, said that it was really exciting to see so many experts from so many schools sharing their expertise and passion for their own research and work.

“It was really an amazing experience to have the opportunity to network with students all interested in marine research,” Maria said.

PhD candidate, Jordan Goetze was awarded with the Best Student Presentation Award that won him a trip to Rottnest Island. Jordan’s presentation captivated the audience and deepened the audience’s understanding about the management and the effectiveness of periodically harvested fisheries closures in Fiji. Runner up, PhD candidate Eduardo Garza-Gisholt’s presentation focused on the retinal adaptations to the light conditions where these animals live.

IMOS also awarded a $100 gift voucher to PhD candidate Moritz Wanders, who emphasised his use of IMOS data to validate his model outputs and gain insights in the hydrodynamic processes along the south-west Australian shelf.

Congratulations to Maria and fellow student representative and conference coordinator, Eric Raes for organising a professional and insightful student conference.
Shark behaviour on the menu at the shark science forum

OI Deputy Director, Professor Shaun Collin, together with OI researchers from the Neuroecology Group, Dr Ryan Kempster and Associate Professor Nathan Hart provided a fascinating insight into shark science to a full house at the UWA Club in September.

The Shark Science Forum showcased the range of exciting scientific research underpinning the UWA Neuroecology Group’s projects and provided members of the community, including UWA alumni, the opportunity to hear first-hand, the research projects on sharks that the Neuroecology Group has been involved in to date.

Opening the forum with an exert from the infamous film Jaws, the audience enjoyed captivating video footage and a history of research into shark deterrents which extends well over 70 years and originated from research by the US Navy.

Professor Collin went on to describe the focus of his team’s research. Striving to understand shark biology and the neural basis of their behaviour, the group is working to develop sensory deterrents to protect humans from the species responsible for a number of fatal shark attacks in WA.

The three shark experts alternated between describing the testing and the development of shark sensory deterrents across a range of electrical, chemical, acoustic and visual repellents to create both personal and beach-based protection for beach-goers.

Describing the shark’s inability to perceive colour, the group spoke of their development of visual deterrents, such as the popular banded and camouflaged shark wetsuits, which were originally developed with a grant from the WA State Government in association with Shark Attack Mitigation Systems (SAMS). The presentation of underwater sounds (both natural and unnatural) to deter sharks was also described.

However, the group concluded that it is likely that multi-sensory deterrents will be required to more effectively deter sharks under more conditions and predictably be used to protect humans.

“Our research reveals the importance of using basic knowledge to inform applied outcomes,” Professor Collin said. “While there has been a great deal of research to date, the next step is to refine and translate these findings into safe deterrents that will promote public confidence in enjoying our beaches.”

The research is funded by the WA State Government and the group will present their findings in a report to be submitted early next year.

Following the forum, an alumni event took place, allowing interested audience members an opportunity to discuss the results of this research with the experts directly.

The forum was part of the ‘On the Edge’ series, sponsored by the UWA Institute of Advanced Studies. The series provides lectures, forums and debates on a variety of edgy topics.

ias.uwa.edu.au
Congratulations to OI Advisory Board Member and IAS Distinguished Fellow, Professor Lyn Beazley, WA’s Australian of the Year.

Professor Beazley has spent more than 30 years in the field of neuroscience, researching brain damage recovery. She was also WA’s chief scientist from 2006 to 2013, advising the State Government on science, innovation and technology.

“This award can only spur me on,” Professor Beazley said about the acknowledgment.

A lone seagrass champion from Albany was recognised for his efforts in seagrass restoration and community collaboration at the OI’s Oceans Community 2014.

Geoff Bastyan was awarded the 2014 Southseas Oceans Hero Award at for his dedication to the study and restoration of seagrass in WA. Working alone over several years, Geoff pioneered the successful transplantation of seagrass in badly degraded environments within Oyster Harbour in Albany. He then contributed his knowledge and passion to the local community, teaching high-school students how to transplant seagrass. This motivated the local community to play an active role in helping to repair Oyster Harbour’s marine environment.

The OI and Southseas Abalone Limited, an international leader in sustainable abalone aquaculture, established the award to recognise the achievements of individuals and community groups in promoting the stewardship, understanding and conservation of the ocean.

OI Director, Professor Carlos Duarte said the seagrass restoration project Geoff initiated, with his own time and resources, has grown to be the most successful seagrass restoration project anywhere in the world.

“Geoff’s tenacity, determination and appreciation for scientific advice are the key to his success,” Professor Duarte said. “His achievement is of global, not only state or national, significance, and an example to all.”

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Research Excellence and Innovation Awards

Discovery and inspiration are fundamental to the vision of the University and the reason why the new UWA Research and Innovation Awards were established.

OI members, Professors Chari Pattiaratchi and David Pannell were named recipients of the UWA Vice-Chancellor’s Senior Research Awards, while Professors Ryan Lowe, Susan Gourvenec, Alistair Paterson and Thomas Wernberg are also to be congratulated as recipients of the Vice-Chancellor’s Mid-Career Research Award.

The recipients were recognised for their innovation in research during the University’s inaugural research week in early November. Research week is designed to provide researchers, industry professionals, alumni, and members of the community an experience of our research on offer.

WA’s Australian of the Year

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Involving the community in our research

Deep Sea Debris App

The deep sea is considered any area of the ocean deeper than 200 meters, which, as it turns out, makes up nearly 70% of the ocean.

The Deep Sea Debris app crowdsources data on the type and location of debris in the deep sea. Created by Meredith Ann Epp (MAS Scripps Institution of Oceanography, USA), in partnership with Arda Varilshua, (MBA Rady School of Management, USA) the app allows users to photograph, describe and upload pictures to a network and map to visually display the types and distribution of debris.

In March of 2015 a team of UWA researchers, will conduct an exploratory expedition to the depths of the Perth Canyon with the Schmidt Ocean Institute aboard the R/V Falkor. Led by OI member Professor Malcolm McCulloch, the team will use a remotely operated vehicle (ROV) to assess the species, pH and potential climate change impacts in the canyon. Ms Epp plans to use the Deep Sea Debris app if the team encounters any debris during the research cruise.

One of the biggest goals of this application is to support international data sharing in an effort to create a better-known map of the deep sea floor. As the potential for increased industry activities, such as mining and bioprospecting, in the deep sea expands it is important to know what are the most important biological interactions in the area and how they are influenced by human impacts.

The Deep Sea Debris app is available for download from iTunes at iTunes.apple.com/us/app/deep-sea-debris/id876570789?mt=8

OI News Online

The OI is taking its news online, which means this will be the final printed issue of the newsletter.

By moving to an online news format we will be able to deliver regular, interesting content about OI research and events as it happens and reach a wider national and international audience.

Visit the OI website for more information and let us know if you have any ideas about what you would like to see in an online newsletter.

oceans@uwa.edu.au