THE BRIDGE

LINKING
PAST AND PRESENT
WITH THE FUTURE

July 2014

SCHOOL OF OCEAN SCIENCES ASSOCIATION

EDITORIAL

Welcome to our 2014 edition of THE BRIDGE. Once again, we have a variety of contributions: some full articles, some news, and some snippets of personal information.

It never ceases to amaze me how the alumni of the School of Ocean Sciences are found throughout the world. They represent so many strands of marine science and make such a valuable contribution to their societies. As the SOS goes from strength-to-strength, I have no doubt that the class of 2014 -- and those to come in the future -- will play an equally important role.

Enjoy!

Kevin Deeming, Editor

GOLYGYDDOL

Croeso i'n rhifyn 2014 o THE BRIDGE. Unwaith eto mae gennym amrywiaeth o gyfraniadau: rhai erthyglau llawn, peth newyddion a rhai tameidiau o wybodaeth bersonol. Rwy'n dal i synnu a rhyfeddu sut mae alumni'r Ysgol Gwyddorau Eigion i'w cael ledled y byd. Maent yn cynrychioli cymaint o wahanol elfennau o wyddor môr ac yn gwneud cyfraniad mor werthfawr i'w cymdeithasau. Wrth i'r Ysgol Gwyddorau Eigion fynd o nerth i nerth, nid oes gennyf unrhyw amheuaeth y bydd dosbarth 2014 - a'r rhai sydd i ddod yn y dyfodol - yn chwarae rhan yr un mor bwysig.

Mwynhewch!

Kevin Deeming, Golygydd

The School of Ocean Sciences Association (SOSA) was founded in 1994 by Sinclair Buchan and George Floodgate. Its aim is to foster close links with all those who have passed through the SOS in Menai Bridge over the years. It carries out a number of social and networking activities, such as re-union dinners and career fairs. It also maintains CIMS (Careers in Marine Sciences), a data base of alumni, who act as volunteer career advisers, with some offering possibilities for internships. Membership of SOSA is free and is automatic upon graduation - unless you opt-out.

For further information:
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or contacting

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It is always refreshing to receive an e-mail with an idea for an article or some personal news. So next time you have something to share, remember THE BRIDGE!

THE BRIDGE is a SOSA publication, free of charge to undergraduates, graduates and staff of the School of Ocean Sciences (SOS) and available to others through registration with the Secretary. Advertisements are carefully vetted but neither Bangor University nor SOS can take responsibility for them. The articles printed here, to the best of our knowledge, were correct at the time of going to press. The opinions expressed in the THE BRIDGE are those of the contributors and are not necessarily shared by Bangor University, the SOS, the SOSA committee or the Editor.

Cover Photograph
by
David John Roberts
School of Ocean Sciences

Chairman's Note

Looking back through my records, I note that it has been four years since I took over as Chairman and it is twelve months since my last Chairman's note. I often hear it said that time accelerates as you get older and despite my knowledge of physics, I am beginning to subscribe to this apocryphal theory. We were saddened to learn that my predecessor as Chairman of SOSA, Pat Boaden, passed away in 2013. His bonhomie, musical entertainment and impeccable dress code will be sadly missed at future re-unions.

The past year for SOSA has been one of quiet application and consolidation. The new members of our committee have 'bedded in' and significant progress has been made in improving the integrity of the SOS alumni database; for which thanks are due to the University Development and Alumni Relations Office and, in particular, Bethan Perkins. We have a new Director of Development, Sheila O'Neal. Sheila has been very supportive of SOSA and has helped secure a grant to part fund this issue of The Bridge. I would like to take the opportunity to thank Sheila's predecessor, Kristen Gallagher, for all the help she gave SOSA and wish her well in her new ventures.

Kevin Deeming's e-mail initiative to solicit snippets of news from alumni has been successful and we would urge you to keep the news coming. From the feedback I have received from readers of The Bridge, it is these items of news that stimulate most people's interest.

The inaugural Menai Bridge Seafood Festival was held in the late summer of last year. It was a great success and the SOS played an integral part in proceedings. Even bigger and better plans are afoot for this year's festival (see page 28) and my wife, Christine, and I plan to visit this year's event.

After a faltering start, the re-development of Westbury Mount (the old SOS labs) is now well underway (see page 4). SOSA is planning a major reunion in the late spring of 2015 to celebrate the opening of the new facility. Details will be issued after the August committee meeting. I am hoping to arrange a table at the reunion for my cohort to get everyone together for the first time since we left in 1979. You may be tempted to do likewise.

Before I sign off, I would like to thank our advertisers for their continued support of The Bridge. Without their support, we would not be able to publish and circulate in its current form.

Best wishes Mich

Phoenix from the Rubble

Back in 2011, staff in offices overlooking the old Victorian house —"Westbury Mount"— were offered ear defenders as a prelude to the demolition of the building and associated flat roof late sixties/early seventies teaching laboratories. Little were staff to know what lay ahead! The re-routing of the gas and water pipes was the first indication that there would be "a little noise". The old and very hard Precambrian green Schist could not be excavated easily without a lot of effort and to make matters worse a large drill could not be used to excavate a trench alongside the NERC building for fear of disturbing the foundations of the existing building. This meant a small drill was used and the whole process took more than 6 months.

Despite the quality of the Victorian workmanship the Westbury Mount crumbled like a pack of cards under pressure from the bucket of a large JCB. All the materials, wooden beams, slates etc. were recycled even down to the very last bits of wiring and plastic pipes. Everything was taken off site and a large gaping hole remained –a reminder of the basement aquarium where many an alumnus had worked late into the night on an experiment that benefited from the cool stable air temperatures that existed.

Many months later, after a small pond had formed in the basement hole and concerns were expressed about red crested newts taking up residence, the drilling recommenced with a vengeance and a large drill was used to break up the underlying bedrock. Regular as clockwork at 08.00 the noise would begin and was unremitting, until coffee (a brief respite), lunch (peace at last), afternoon tea (another brief respite) and would stop at 17.30. All this lasted for six months! Like the staff, the villagers were becoming restless and concerned that there would never be peace in SOS and the village again. Well not quite yet.

Like a phoenix from the ashes the new Ocean Sciences building - **Marine Centre Wales** – began to rapidly rise once the foundations had been poured. A large crane arrived in March this year followed by a caravan of lorries. There was congestion in the high street. Vehicles arrived bearing the "flat-pack" wooden sections of the building that were erected like a Lego set in a matter of months.

While there has been a little slippage in the completion date the new building is expected to be complete by late October this year. Fingers crossed! When everything is finished we hope to be able to have an alumni event to celebrate its opening. (Watch this space).

The demolition of Westbury Mount and the decanting of staff into the other buildings together with an increase in academic staff, research staff and students have put pressure on space on the SOS site. Over on the island, Ynys Faelog, the former headquarters of the Unit of Coastal and Estuarine Studies (**UCES**) and rebranded as **CAMS** (Centre for Applied Marine Sciences) and with additions of **SEACAMS** (Sustainable Expansion of Applied Coastal and Marine Sectors) staff, pressure on space has become critical. The opening of **Marine Centre Wales** will accommodate all the staff from Ynys Faelog and some staff from SOS offices.

SEACAMS is a new development to integrate research and business opportunities in the marine sector in Wales. SOS is in a partnership between Bangor, Swansea and Aberystwyth Universities. The main objective is to help expand the coastal and marine sector in Wales and is funded by the Welsh European Funding Office (https://www.seacams.ac.uk).

Artist's impression of the new building as seen from the Menai Strait

Vim and Vigour

Since 2002, the SOS, through generous funding from the Drapers, has been running a two-week field course to the Virginia Institute of Marine Sciences, (VIMS), at the Eastern Shore Laboratory at Wachapreague on the Atlantic coast of Virginia, USA. Following a decade of successfully running the field course, in which a small group of ten students participated at the start, we have expanded the course and in September 2013, 28 students and staff made the trip.

The work was tough at times – as is evidenced in the photo below, when Goncalo Lourenco, Melissa Dickenson, and Anne Taylor became stuck in the mud during a survey of Wachapreague salt marsh.

An essential element of the field course is the collection of material by the students from the field and identified and studied back in the laboratory. But it was not all vim and vigour. After a wash and brush-up, they were ready to hit the town, as can be seen in the group photo below.

The group also had a fantastic experience on the 7th September: *"At night, gathering under a jet black sky, sparkling with twinkling stars and distant constellations, we witnessed a Minotaur V rocket launch from NASA's Mid-Atlantic Regional Spaceport at Wallops Island, north of Wachapreague. It catapulted a robotic science observatory towards the moon. Gathered in the pitch black, surrounded by the chatter of expectant voices and the intermittent drone and buzz of biting insects feasting on British students, we waited for the space launch to begin. Precisely on time the night sky was suddenly illuminated by an intense bright orange glow and a bright speck of light was seen hurtling skywards. A few minutes later a deep rumbling roar reached our ears, confirming that the 80-foot, five-stage rocket had exploded off the launch pad. It was then that we knew we had witnessed our first American space launch. "*

See the launch and highlights from the VIMS 2013field course at: http://www.youtube.com/watch?v=Es_uMT1mZfM

A Moment in Time

Dr Paul Butler, research lecturer in SOS has been given a prestigious award. The Geological Society of London, has awarded Paul the award of the 2014 Lyell Fund. This is awarded to researchers in the Earth Sciences to recognize noteworthy research published within ten years after graduation. In work carried out during his PhD and subsequently, Dr Butler has played a major part in the development of the science of shell-ring research, and has co-authored a number of notable papers on the history of marine climate change over the past millennium. He works as part of a team of world leading experts in SOS who have been developing sophisticated techniques of measuring and analysing the annual growth rings preserved in the shells of long-lived bivalve molluscs.

Paul came to SOS to pursue a degree in Ocean Science at the age of 47, after a 25-year career as an IT consultant in London. He was awarded a First Class Honour's degree in 2004 and began his PhD, (supervised by Professors James Scourse and Chris Richardson), immediately afterwards. Paul gained his doctorate in 2009 and in 2010 Paul was awarded the Lewis Penny medal by the Quaternary Research Association for his research work.

Paul Butler is far left

Beam me up, Scotty

During a visit to the College of William and Mary at Williamsburg, USA, Professor John Hughes, Vice-Chancellor, visited VIMS at Wachapreague to learn at first-hand what SOS Marine Biology students experience during their annual field course. The visit and field trip were combined with a meeting and a meal with a small group of Bangor University's alumni, who live on the East coast of the USA, including alumnus Alan Burch who studied for a BSc in Marine Biology and Oceanography and an MSc in Shell Fisheries and Aquaculture at SOS.

All aboard a Carolina skiff! Our intrepid hydronauts are: Centre – Professor John Hughes (Vice-Chancellor), flanked left by Professor Colin Jago (Dean of College of Natural Sciences) and right by Professor Chris Richardson (Head of School).

Crystal Balls

The SOS held an 'Away Day' on Friday 11th April to discuss the research strategy for the next 10 or so years. The day was spent in Neuadd Reichel, now the University's conference centre and formerly the mens' hall of residence. The main conclusion from the 45 staff who attended, amongst many ideas, was that SOS should keep the Prince Madog!

Socialising on the terrace in warm April sunshine

Small 'breakout' sessions and rapporteurs fed back their findings and opinions to the whole group

I'm your man!

Final year BSc Marine Biology undergraduate student, Leo Johnson, receiving his Bangor Employability Award (BEA) from Professor Carol Tully, Pro-Vice Chancellor (students) at a recent awards ceremony.

The Bangor Employability Award was developed in 2010, and offers free opportunities to gain the skills and experiences employers want and need based on up-to-date research. BEA graduates get a certificate, a transcript and formal verification of their extracurricular activities from Bangor University, so they can offer solid evidence of their accomplishments to prospective employers.

In Memory of Dr Eilir Hedd Morgan

The Coleg Cymraeg Cenedlaethol has established an award in memory of Eilir, who was killed in an accident on April 1st last year, and who is still dearly missed by us all at the Labs.

Dr Huw Morgan, lecturer in Physics at Aberystwyth University has received the award this year during the Coleg's Annual Congregation held in Carmarthen on Tuesday 18 February. Born and bred in Llanbrynmair, mid Wales, Huw's main expertise is in the field of astronomy and the solar system. He worked as a Scientific Researcher at Hawaii University before being appointed to a lecturing post funded by the Coleg at Aberystwyth University in 2011. Dr Huw Morgan said: ''I consider accepting this award to be a great honour. I am very grateful to Eilir's Family for establishing the award as it is an important step in encouraging young Welsh speakers to embark upon a career in science. I would also like to thank the Coleg Cymraeg for providing me with an opportunity to pursue a career in science and to teach young people through the medium of Welsh.''

Size Matters!

Chris Richardson showing Adam Walton from BBC Radio Wales Science Café a large razor clam collected from the shores of Anglesey. The programme about seashells from Anglesey was aired on Tuesday 13th May.

Clear as Mud

A new record for SOS?

Many former students of SOS will be familiar with the Secchi disk, a simple and robust instrument for measuring the clarity of the sea. The disk is lowered into the ocean on a marked rope and the depth at which it is no longer visible – the Secchi depth – is noted. This depth imparts useful ecological information – for example, the maximum depth of benthic algae (which rely on sunlight) is thought to be about three times the Secchi depth. Because the measurement is easy and requires only cheap, easily constructed equipment, there are thousands of recorded examples of Secchi depth measurements throughout the world's oceans including some long time series. It is natural that there should be an interest in extreme measurements made with the disk and we think that Bangor can now make a reasonable claim to a new record for a Secchi depth.

Most of the scientific interest in extreme Secchi depths is in the maximum possible value – just how clear can seawater get? The maximum depth recorded in modern times is 80 metres in the Weddell Sea near Antarctica. Seeing a small white disk at this distance is no mean feat. (I once measured a Secchi depth over 30 metres in the Indian Ocean and even at that moderate distance the disk appeared very small).

There are several claims for the shallowest ever Secchi depth. In fresh water puddles and turbid lakes, Secchi depths of just a few centimetres have been reported.

However, during a recent trip to Mozambique, we measured what may be the shallowest recorded Secchi depth in salty water. The disk disappeared at a depth of just 15cm. Measuring such shallow Secchi depths also has its problems: the effect of waves can make it difficult to be sure of the exact depth and, as with all Secchi depth measurements, the eyesight of the observer can cause some variability. On this occasion, however, the water surface was flat and several observers confirmed the readings. The disk itself was 30 cm in diameter and painted matt white. It was lowered into the water on the end of a steel bar with 5cm markings.

The measurements were made in the Bon Sinais estuary near the city of Quelimane on this south-eastern coast of Africa. It is the site of a university department – The School of Coastal Marine Sciences, of the University Eduardo Mondlane. Regular readers of THE BRIDGE will not be surprised to read that Bangor has left its mark here. The director of the School is Antonio Hoguane, who studied Physical Oceanography and Mathematics for his first degree at Bangor and then undertook a PhD supervised by Ed Hill. Another important member of staff is Fialho Nehama, who took the MSc in Applied Physical Oceanography at Menai Bridge. The School was visited by Martyn Roberts (BSc in Ocean Sciences from Bangor, currently studying for his PhD) and Dave Bowers and they used the School's new boat to conduct a survey of the Bon Sinais.

The water was very murky – filtered water samples contained several hundred milligrams of sediment per litre of water. The estuary waters would be completely dark away from the very near surface even at mid-day. Despite this apparent difficulty to marine life, the river seemed to be teeming with fish, judging by the fishing boats and fishing nets we saw deployed at frequent intervals.

Dave Bowers
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The picture shows Martyn Roberts and a Mozambican student working in the boat during the survey. The tube behind them was used for taking pictures of the water colour.

American students visit the School of Ocean Sciences

In August 2013 a group of ten College of William and Mary students, accompanied by Professors Mark Luckenbach and Jim Perry, visited the School of Ocean Sciences for a two week field course. SOS staff participated in the field course teaching them about the geology of the Snowdonia area and marine biology of several coastal habitats. Students posing for photographs at Llanddwyn Island.

Summer Bursaries

2014

Each year, the School of Ocean Sciences offers a series of summer bursaries to 2nd year undergraduates to enable committed and able students to work alongside and assist members of staff undertaking research or outreach activities. This can be for a period of 5-8 weeks.

On the right are some of this year's students. Below are the names of all the successful candidates for 2014.

From left to right: Helen O'Neil, Joe Ellis (back left), Francis Leigh (front left), Charles Key, Julie Wright, Helen Bonici, David Price, Stacey Carless, Ben Allinson

NAME	BURSARY	TITLE	SUPERVISOR
Helen Bonici	Barry Paine	Effects of ocean acidification on feeding and growth in *Carcinus maenas*	Ian McCarthy
Anna Selbmann	Barry Paine	Investigating the population dynamics of exploited European sea bass (*Dicentrarchus labrax*) in Welsh waters	Ian McCarthy
Charlie Key	Barry Paine	The use of Welsh estuaries as nursery grounds for European sea bass	Ian McCarthy
David Price	Barry Paine	Biodiversity of intertidal *Sabellaria* reefs	Andrew davies
Ben Allinson	Deeming	Is there a climate signal in the growth of *Arctica Islandica* and *Glycymeris glycymeris* shells from the Shetland Islands	Paul Butler
Stacey Carless	Deeming	Tides and Sea-level rise on the Patagonian Shelf	Mattias green
Julie Wright	Deeming	Two Projects i) Role of debris fields on an established saltmarsh and ii) Population dynamics of *Carcinus maenas* and other decapod species and their reaction to different environmental conditions on a typical salt marsh.	Martin Skov
Francis Leigh	Gavin Winsborrow	Simulating the erosion of Bangladesh coastal defences during an extreme cyclone event	Simon Neill
Helen O'Neill	Leslie Cooper	Population biology of the thornback ray in North Wales coastal waters	Ian McCarthy
Alice Cardy	Leslie Cooper	Use of fossil shells of the bivalve mollusc *Arctica islandica* from Lochgilphead, Scotland: an investigation of the Late-glacial (14K to 11.5K BP) marine environment of west Scotland	Paul Butler
Joel Ellis	Anglesey Sea Zoo (in memory of Dr Eilir Hedd Morgan)	Effects of ocean acidification on feeding and growth rates in *Carcinus maenas*	Ian McCarthy

Prizes 2013

The **Final Year Darbyshire Prize** was won by **Megan Baker**. The prize is awarded annually to a student whose academic performance is judged to have been particularly meritorious that year.

The **Postgraduate Darbyshire Prize** was awarded to **Brian Scannell.**

The **Gavin Borthwick Memorial Prize**, which is awarded to a first-year mature student who shows the most promise in Marine Biology, was won by **Jessica Simmons.**

The **Ray Delahunty Memorial Prize** was won by **Matida Painter-Jones.** This prize, in memory of a former student in the School, takes the form of book tokens and is awarded to the best first-year student taking the Joint Honours Degree in Marine Biology and Oceanography.

The **Jeremy Jones Memorial Prize,** which is awarded to a student who has recently completed the MSc in Marine Biology, went to **Adam Suchley.**

Christina Thiele was the recipient of the **Fishmongers' Award.**

Rhys McCarthy (MSc Applied Marine Geotechnics) was awarded the **British Sedimentological Research group (BSRG) Award** for the best Masters Course Sedimentological project.

Student led teaching awards ceremony on the 30th April 2014. Dr Martin Skov striding towards the podium in PJ Hall to receive his certificate for nomination for the "Overseas award"

At the ceremony, four SOS students were nominated for "Peer Guide" of the year. Pictured from left to right student peer guides: Maria Hayden-Hughes, Matilda Painter-Jones, Daniel Williams and Jack Curry with Dr Andrew Davies (left), Dr Martin Skov and Head of School (right)

Kirby Laing Foundation Scholarships worth £5000 each were presented to Connor James McCarron (MSc Applied Marine Geoscience), Harriet Elizabeth Rushton (MSc Marine Environmental Protection) and Robin James Love (MSc Marine Biology), pictured with Head of School.

MSc Scholarships

Our close marine commercial organisations continue to contribute generously to three MSc scholarships. Recipients of the 2013/14 awards and their research projects this summer are:

Dan Potter (Gardline Scholarship)
The impact of coastal dredging and deposition on tidal energy sites. (Supervisors: Dr Peter Robins & Dr Simon Neill)

Bror Prehn (Fugro Scholarship)
The evolution of the Cardigan Bay Special Area of Conservation. (Supervisors: Dr Katrien van Landeghem, Dr Gwladys Lambert & Dr Jim Bennell)

James Killingbeck (RPS Scholarship)
Analysis of sub-bottom geoacoustic, swathe bathymetry and core data from the Loch of Stenness in Orkney, with a view to understanding the environment during the Mesolithic and Neolithic Periods. (Supervisors: Dr Dei Huws & Dr Richard Bates, University of St Andrews).

What's your favourite colour, True Blue?

One of my fondest (and earliest recollections) of working in the West Australian (WA) Oil and Gas Industry was gazing out to sea from the back deck of the MV "Shelf Supporter", which was standing by the North Rankin "A" (NRA) oil and gas platform. It was my first visit offshore, the sea was calm and blue under an impossibly blue sky, and flying fish were firing off in all directions around us. It was 1992 and I was working for Steedman Science and Engineering (now RPS MetOcean).

This was paradise! The weather on the NW Shelf was a far cry from the rain, wind and fog I had often experienced in the North Sea. The extra-tropical cyclone of October 1987, with gusts equivalent to a 1 in 200 year storm, which had devastated most of SE England (including reducing Sevenoaks to just one), was still fresh in my mind.

So how had I come to be in Australia? After completing my Masters degree in physical oceanography at Menai Bridge in 1980, I worked for several commercial oceanographic companies before emigrating to Perth, Western Australia in 1988.

Adjusting to life in Perth back then wasn't without its challenges. Apart from the sheer isolation and remoteness of Perth, the Austral seasons were of course the reverse of those in the Northern Hemisphere and the Coriolis force, which sent storms rotating in the opposite direction to those in the Northern Hemisphere, also caused geostrophic, inertial and Ekman currents to spiral to the left instead of the right. Worst of all, there was no English ale, only bottled or canned lager. Nowadays, of course, we can buy almost any type of beer here, and there are some very fine local boutique breweries in WA - but the Coriolis annoyingly remains the same!

Over the years I have worked here, I have been fascinated by the differing oceanography of WA to Britain. We have an interesting range of tidal phenomena; one of the world's longest continuous currents, the Leeuwin – over 5,500 km; and – most importantly – strong tidal currents, internal waves and solitons, and tropical cyclones, which can have a significant impact on the three major oil and gas basins in WA. Tidal currents may be comparable to the spring tidal streams experienced in the Menai Strait "Swellies" where speeds of up to 2.5 m s^{-1} (5 knots) can occur. Internal waves with wavelengths of approximately 20 km can create strong surface and near-seabed currents of up to 1 m s^{-1} (2 knots).

The tragedy of the massive 2004 Boxing Day tsunami in Banda Aceh, which killed so many people around the Indian Ocean perimeter, fortunately for Australia, had little impact. But the oil and gas industry encountered a very different tsunami experience in June 1994. A tanker had been taking on oil from a Floating Production, Storage and Offloading vessel (FPSO) when the flexible pipe snapped, resulting in an oil spill. Bad press and accusations of incompetency on the part of the skippers of the tanker and the FPSO instigated the analysis by us of contemporaneous data from coastal tide gauges, and tide and current data from around the NW Shelf. The results showed the underlying cause to be a tsunami originating in Java. Though unseen by the tanker, the small tsunami -- only a few centimetres in height -- had led to unexpected fluctuating currents (of up to 0.4 m s^{-1}, almost a knot) over a period of an hour or so, on top of the ambient currents. Over-correction by the tanker's automatic station-holding system had caused the flexible pipe to stretch and break.

Fortunately, as a result of the investigation, everyone was happily vindicated!

Perhaps my company's greatest claim to fame resulted from the passage of Tropical Cyclone Olivia which struck Barrow Island in April 1996. This cyclone, a 100 year event, produced a world extreme wind gust record of 113.3 m s^{-1} (over 220 knots) which was recorded by one of our meteorological stations.

Despite first oil being discovered in WA in 1953, when I first arrived in WA in 1988 there was just a single offshore platform. Now, 26 years later, existing facilities have been substantially expanded, and there are over 10 platforms, about a dozen FPSOs, more than 20 monopods, and many

more subsea completions and pipelines.

Over the years we have seen data analysis techniques progress in leaps and bounds. Analysis of wave records by hand back in the 1970's and early 80's using pencil and ruler (yes we actually did this!) has given way to sophisticated digital analysis to produce full 3D directional wave spectra. Techniques for estimating extreme 100 to 10,000 engineering design criteria have improved substantially with the availability of exponentially increasing computer power, vastly improved 3D numerical models, and growing measured and modelled databases. Likewise, the development of instrument technology, for example, from simple point measuring current meters to Acoustic Doppler Current Profilers (ADCPs), radars and satellite sensors has significantly improved the spatial coverage and sheer quantity of oceanographic data now available.

However, what truly amazes me is that we, as commercial oceanographers, have been able to service the oil and gas industry for all these years with a reasonable measure of success, and earn an honest crust doing it. Deploying expensive instruments for long unattended periods in an unknown, stormy and corrosive environment (where there can be shipping hazards, fishing, theft, and a strong possibility of instrument or mooring failure), with payment on a pro-rated data return basis, seems like a crazy way to make money – but we did it (and continue to do so), and had a lot of fun along the way. And the sea and sky are still as blue as ever!

Thank you to the guys from Menai Bridge with whom I have worked with over the years: Ian Bellamy, Nick Collins, Mick Cook, Kevin Deeming, Nick Emerson, Richard Hoare, John Hunter, Arthur Shrimpton, and Adrian Smith.

Rick Lailey (1970s) is now retired and lives in Perth, WA, with his wife, Karen, and their three children.
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An Antarctic Tale

A century has passed since the 'golden age' of Antarctic exploration, but one of the finest examples of scientific discovery from this time was the Australasian Antarctic Expedition of 1911-1914, led by the great scientist and explorer Sir Douglas Mawson. Ignoring Scott of the Antarctic's passion to be the first to reach the South Geographic Pole, Mawson was intent on discovering what lay polewards of Australia; a vast region that effectively lay off the map. Privately funded, three bases and one research ship supported a science team working across a region the size of the USA. But a sudden turn of events led to tragedy on the ice, the death of two men, allegations of cannibalism and, with the return of winter, sea ice and an extended stay in Antarctica. The resulting three years of work scientifically described an unknown continent and excited the public using the very latest technology -- including the first plane and radio system in the south. It was a ground-breaking endeavour that set the standard for future efforts.

Fast forward a hundred years and the region explored by Mawson poses critical scientific questions with no permanent government research station. In 2010, an iceberg the size of Rhode Island, known as B09B, dramatically knocked a 60-mile long tongue of ice off the Mertz Glacier into the Southern Ocean, setting off a cascade of change. Unfortunately, no government Antarctic program was planning to visit the area to make sense of what was happening. The only alternative for Professor Chris Turney and I was to take a privately-owned ship. We contacted numerous businesses for support. Inspired by the expeditions of the past, we also advertised berths for sale to take science volunteers south with us. People responded far and wide. We were oversubscribed, and the Australasian Antarctic Expedition 2013-2014 was born.

With the Russian-owned ice breaker *MV Akademik Shokalskiy* as the expedition vessel, we set out south from the New Zealand port of Bluff in late November 2013. Fighting our way across the Southern Ocean we worked our way across the wildlife havens of the sub-Antarctic islands before pushing on to Antarctica, successfully pioneering a 65-kilometre route across sea ice to reach Mawson's original base at 67˚S – a time capsule from the Edwardian age. During our journey south and on the ice we undertook a number of scientific firsts for the region. We investigated what impact B09B was having on ocean circulation; what effect this was having on the climate and ice sheet; and explored how the local wildlife was responding. The data is now being prepared for publication but promises a rich scientific trawl. Unfortunately, homeward bound we were trapped by a massive breakout of old sea ice from the east, a very real risk in Antarctic waters. With the arrival of sea ice came the threat of icebergs and the captain pressed the distress button.

Before we ran into trouble, we posted daily online reports of our research and aspects of life on the vessel and in the field. When caught in the ice, this extended to reassuring those at home about the well-being of all on board. During the

six weeks of the expedition, the website www.spiritofmawson.com received more than 60,000 visits, driving traffic to our social media sites on G+, YouTube, Twitter, Vine and Facebook. When the number of television and radio interviews increased, so did discussion about the science. The support was brilliant and the public became engaged in a way that we never imagined possible.

Although it was frustrating to be caught by sea ice, the expedition showed that private-funding provides a very real opportunity to support targeted, programmes of research. Small-science research that captures the public's imagination, which also reaps real scientific outputs. Although it is a funding model developed in the Antarctic a hundred years ago, the beauty is it can be applied anywhere in the world. The crucial thing is to excite the public about the science; something we should be endeavouring to do regardless of the funding.

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The Sharks of Fiji

White-Tip Reef Sharks

Sharks play a vital role in keeping our oceans healthy. As apex predators, they keep other marine species in a healthy balance by controlling and regulating the populations of their prey species. However, shark populations face major threats worldwide, and many shark species are now facing extinction as a result of overfishing.

I am extremely passionate about marine conservation and, since graduating from Menai Bridge in 2012 with a Masters in Marine Biology, I've been desperate to gain some practical experience in marine conservation. Therefore, in April 2014, I decided to leave my job at a public aquarium and join a shark conservation project out in Fiji. This project only started in January 2014, and is literally a brand new shark conservation initiative.

I arrived in Fiji at the end of April and spent the month of May working on the project. The overall aim of the Fiji shark conservation project is to gather as much information as possible on the shark species found in Fiji, so that eventually we can set up and expand Marine Protected Areas to conserve these sharks, as well as other marine species. During my time in Fiji, I worked alongside shark experts on a variety of individual research projects, including shark surveying, shark tagging, and mangrove forest restoration work.

We did on average 4 shark survey dives per week, recording on various reefs around the Fijian Islands, the shark, ray and turtle species seen, and noting the health of the reefs. As sharks are top predators, we would generally expect to see them on reefs that were healthy and could support them. Diving on damaged reefs, we would not see a single shark.

The shark tagging project involved us going out on various rivers in Fiji to catch and tag juvenile bull sharks *Carcharhinus leucas*. This species is famous for its ability to survive in freshwater, and we wanted to determine which rivers in Fiji the sharks use, and roughly how many are actually in the rivers. This kind of information is crucial if we are to determine which areas of river we need to protect.

We also worked on a mangrove forest restoration project. Mangrove forests are extremely important ecosystems for many aquatic species, which may use them as nursery or feeding grounds. We would go into local Fijian villages and, working with the Fijian people, set up mangrove tree nurseries. After about 1 month the mangrove plants could then be planted in the wild. This project was a great way of getting the local Fijian people involved in conservation, and it allowed us to educate them about the importance of mangrove ecosystems.

The Research project I was working on is run by Projects Abroad; a global volunteering organisation that allows people from all over the world to join projects in different countries, and help make a difference in the developing world. I would certainly recommend this organisation, and anyone interested should definitely check out www.projects-abroad.co.uk

Mark McMillan (2010s)
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Magnetic Poles

Three years at Menai Bridge in the mid-sixties instilled in me an enduring fascination for the sea. Combine this with a love of being under water and an adventurous spirit, add a modicum of luck and good fortune and 45 years later a globe scattered with red dots emerges. Amongst the warm and tropical are a few more remote and chilly locations.

The Arctic

When a friend phones to ask if you would take his place on a diving expedition, images of coral reefs and waving palm trees flash across the mind. But when the location turns out to be Greenland, what do you say? It sounds a bit extreme, but you can't say 'No', and if you say 'I'll think about it', someone else might jump at the opportunity. So you say 'Yes', put the phone down and wonder if you have lost the plot completely. My remit was to take photos of marine life and anything else of interest and I was to dive with a guy called Sven. This was all I knew. I consoled myself by looking at the map and discovering that the southern part of Greenland is at 60 N and is bathed by Atlantic water. Surely this was where we would be going.

I first met Sven at the airport in Copenhagen and, still not knowing our destination, we went to collect our tickets onward to Greenland. We were to fly to Sisimiut, a small harbour town just north of the Arctic Circle, on the west coast of Greenland. Here we were to board a live-aboard boat. I knew that in May the coastal seas would be inundated by glacial melt water but when the skipper told us the water temperature was 1C it sent a shiver down my spine.

However, on our first dive, I was amazed to find that it was not so bad after all and that adrenalin has a remarkable ability to keep you warm. The marine life was fascinating: with large anemones, spider crabs, nudibranchs, small fish called sculpin, large orange sea squirts with commensal prawns, sea urchins and a star fish that wrapped its arms around itself as if to keep warm. I

was so excited by all this that I completely forgot to focus my (pre-digital) camera.

Other dives were to follow and on one occasion we went to investigate an old wooden fishing vessel which had sunk at anchor 50 years previously, still upright and with all the rigging intact. The sea bed was 25m here and on checking my computer it was registering a temperature of -1C. Panic almost set in at this point. There was only one thing for it: regain control, ignore the frozen fingers and get on with taking photographs, then all was well. The week passed quickly and with a back-drop of stunningly beautiful snow-covered mountains, it was an unforgettable experience.

Having developed a taste for cold water diving, other excursions were to follow . The next location was Svalbard, at 75°N and way north of the Arctic Circle. It was mid- summer. Twenty four hours daylight made it difficult to sleep. The effect of the North Atlantic Current keeps the waters around Svalbard relatively clear of ice in the summer months though icebergs were often encountered and pack ice was found to the north of the islands.

Diving around icebergs was a chilly treat in store and proved to be a magical experience: the surface felt incredibly smooth to the touch, with regular cusp-shaped sculpting, and sometimes an eerie musical resonance could be heard. The sound is like running your finger round the rim of a wine glass! The most northerly dive was carried out north of 80 N; literally on top of the world, where there was a permanent watch out for polar bears on the pack ice when anyone was off the ship.

Antarctica

Following on from this, the attraction of Antarctica was irresistible and sometime later a voyage to the Antarctic Peninsula ensued. The town of Ushuaia on Tierra del Fuego was the departure point and sailing down the Beagle Channel was a reminder of a famous scientist, who spent some time here. After 2 days crossing the Drake Passage, the South Shetlands were the first landfall and our first dive was from a beach populated by penguins

who were unruffled by the antics of their strange guests. Next stop was Deception Island, so called because a narrow passage leads to a central lagoon which is not visible from the outside.

Steaming further south we reached the Antarctic Peninsula, province of snow and ice, penguins and leopard seals.

Sharing the water with sleek, inquisitive (and fortunately well-fed) leopard seals dodging around icebergs was an adventure in itself. Progressing ever further south and diving along the way, we had barely touched the Antarctic Circle before it was time to begin the long voyage back to Ushuaia, and back to dive the Beagle Channel before heading for home.

There is no denying the allure of these majestic frozen wastelands, and the fascination of discovering what lives beneath the sea. Not to everybody's taste perhaps but for me it all started a long time ago at Menai Bridge and I would not have missed it for anything!

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Saving Marine Turtles

Marine Turtles

Of the world's seven extant species of marine turtles, four of them can be found along the Costalegre (Happy Coast), an area of pristine Pacific Ocean coastline. They are the olive ridley, the Pacific green, the hawksbill, and the leatherback. The olive ridley is by far the area's most abundant marine turtle species with the Pacific green a far second. As many will know, all turtle species are endangered and, sadly, the hawksbill and leatherback turtles are facing the possibility of extinction, due to poaching and by-catch.

The Eco Region

The Costalegre lies in the transition zone between the temperate north and the tropical south resulting in a region extremely diverse in life — both on land and at sea. The region is characterised by tropical mangrove forests which are distributed throughout the lagoons, rivers and streams of the Costalegre. These provide important refuge areas for migratory birds and numerous marine and brackish water fauna.

The La Gloria Marine Turtle Conservation Project

In 1985, the University of Guadalajara's Department for Sustainable Development of Coastal Zones (DEDSZC) founded 'La Gloria' Marine Turtle Conservation and Research Station. La Gloria is an important nesting beach for the four marine turtle species of the Costalegre.

Since it's opening, La Gloria has saved the lives of thousands of marine turtles giving them a fighting chance against extinction. However, much more can be done to maximise the protection to the marine turtles from poaching and predation. To do this the project requires more hands-on support and funds.

In 2012, SOS alumni Jay Gittens (BSc honours in Marine Biology, 2010), founded an environmental non-profit organisation in Mexico known as MarineScape Conservation. MarineScape partnered up with DEDSZC in 2013 to support an initiative to attract a regular flow of international volunteers to the project, which, in turn, will allow the station to run to its full capability, maximising the protection to the marine turtles in the area.

Call for Participation

Interested individuals and groups are invited to apply for a place on the programme, which runs for a full ten weeks from June to mid-August. There is a participation fee, all of which will be used to further develop the project and keep it at the cutting edge of marine turtle conservation and research. Research students are also invited to apply to conduct an investigation with the project.
More details, including information on how to apply and who the program will suit, can be found by visiting http://eco-hubmexico.com/marine-turtle-conservation-jalisco-mexico/

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Early Diving at The Labs

In the early 1970s, the 'Diving Unit' at Menai Bridge established techniques for marine ecological surveys using diving. They were innovative at the time and are still used today. Research using those techniques has greatly enhanced our knowledge of sub littoral ecology.

The first studies that I was involved in from Menai Bridge were in support of Professor Jack Kitching at Lough Hyne; providing invaluable experience in the importance of systematic study, accuracy and good record keeping in research.

Menai Bridge divers at Lough Hyne in 1970. Alistair McLeod, John Gamble, Richard Hoare and Keith Hiscock.

Meanwhile, back at Menai Bridge, my NERC Studentship was under the renowned Denis Crisp. I convinced him that my research should be in my ever-developing interest in rocky sub-tidal ecology. Of course, this required diving. Diving at the Labs had a bit of a bad reputation at that time, but with the support of the diving officer (David Jones), and fellow students Richard Hoare and Dave Lane, in particular, equipment was purchased and, most importantly, a small inflatable boat and engine and trailer for field work.

On safari to Abereiddy with the laboratory Morris Traveller, box trailer and boat.

Our diving sites were many. Anglesey was a good location to use for the topic of my PhD: "The influence of water movement on the ecology of sub-littoral rocky areas". There were wave exposed coasts, wave sheltered coasts and the Menai Strait which had extremely strong tidal currents. So, off we went in the departmental vehicle, towing the boat and diving gear in search of suitable locations to launch and undertake surveys.

A key fieldwork location for me was at Abereiddy in Pembrokeshire, where a sea-water-flooded quarry (now the venue for Red Bull high diving events), provided the ultimate in shelter from wave action and tidal currents and even had a seasonal thermocline. Much good work was done there, although often the conditions were challenging with nil underwater visibility, cold, rain and a horrid little dog that got into my tent and ate my weekend supply of pilchard risotto!

Lundy was another of my study sites and I combined PhD work with organising expeditions of marine biologists there along the lines of Kitching's Lough Hyne trips. Those expeditions supported the establishment of Britain's first voluntary marine nature reserve at Lundy and are documented in the book *Protecting Lundy's marine life: 40 years of science and conservation*, available from www.lundy.org.uk.

The laboratory inflatable boat at Moelfre with Richard Hoare and Dave Lane during surveys around Anglesey.

Yes, I 'used' my PhD research as a 'front' for a much wider range of studies using diving. In the case of the 'classic' pollution gradient from the bromine extraction plant that we noticed at Amlwch, Richard Hoare and I just did it – well, who knew where we were going with the boat? Once we had the results, we told Professor Crisp about the work and, after we had persuaded him that it hadn't been his idea, we got on with publishing the results (see: *Estuarine and Coastal Marine Science, 49:* 329-348).

There were other distractions that involved diving, not least the arrangement that the laboratory had with the Ministry of Agriculture and Water in Saudi Arabia. The first two scientists to take advantage of the new laboratory on the Red Sea coast for general ecological studies were Roger Hughes and me. There were interesting descriptions of coral reef communities at exposed and sheltered locations etc. that would be good to repeat now, 40 years later.

Perhaps a few folks thought that we were just out to go diving and didn't recognise there were science questions we were answering. Using diving as a tool in marine ecological research is still essential and there is much important work that can only be done using diving, especially to inform environmental conservation. So, over to my young successors in 2014. Good luck.

Keith Hiscock worked at the laboratory from 1970 to 1975, first on his PhD thesis and then as a research assistant in the Coastal Surveillance Unit. He went on to be Deputy Director of the Field Studies Council Oil Pollution Research Unit, Head of the Marine Nature Conservation Review of Great Britain and then to establish the Marine Life Information Network (www.marlin.ac.uk) at the Marine Biological Association. Later this year, his book 'Marine Biodiversity Conservation – a Practical Approach' will be published by Routledge.

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Leaping for Marine Science

It was all about frogs when I was a kid; frogs and newts to be precise. After leaving school and taking a year out to make a final decision on what to direct my energy at, I enrolled for a BSc (Hons) in Marine Biology at Plymouth University. After three great years learning to dive, volunteering at the Marine Biological Association and counting far too many larval fishes in a tiny lab, I headed to Malaysia to run a fish hatchery and prawn farm.

After a year in the sticks, a PhD opportunity at the SOS came up with Stuart Jenkins and within 3 months I was lucky enough to be headlong into a PhD. My research focused on the fish that live at the bottom of the sea, looking at exactly where they live and why, and associations between their habitats and their food resources. It all went in a flash. Aside from my research, North Wales proved a great place to spend my spare time, surfing the cold UK winters, fishing in the warm summers and climbing when there was a chance of dry rock. All too suddenly however, I was handing in this big book that I had dedicated 3.5 years to, with an unknown future ahead.

That's when I applied for a Vodafone World of Difference grant and was funded to head to the Isle of Mull to work on a research vessel listening to the noises under the sea with the Hebridean Whale and Dolphin Trust (HWDT). After another grant application with the Winston Churchill Memorial Trust (WCMT) and a rigorous interview in London I was then suddenly off to Chile to try and understand a fisheries management system that involves giving the management responsibilities back to the fishermen. My time was spent chasing fishermen for interviews, working on dive boats (the shellfish are hand caught), writing blog posts about my experiences spent in Southern Chile (www.afjimage.wordpress.com) and discussing the future of Chile's fisheries with 3 ex-SOS scientists!

After an intense learning experience in Chile with the fishers (and the poachers!) I decided the travelling gig was a pretty sweet one. So I headed up the coast (the longest coach journey I have ever had) to Northern Peru to help the charity Prodelphinus work on projects to reduce the by-catch of turtles and cetaceans. Again this meant more time with my beloved fishes as well as some long nights at sea surrounded by pelican poo on the small boats of local village fishermen.

On returning to the UK, I had a hard summer with very little sleep working for Seafish, the UK's fishing industry body, speaking to fishers about their problems and issues to raise with the powers that be. It meant waiting for skippers to land catches at 4am and darting between ports to catch crews before they leave for fishing in the depths of the Atlantic Ocean.

But my itchy feet soon took me on a plane to Bangalore to work with the Institute of Productivity (UK), which was working on projects aiming to teach artisanal fishers better ways to store their catch and value-add to their landings by processing the catch themselves and marketing further afield than the local port. Time was also spent looking at the sustainability of India's marine fisheries and the diversity of their management strategies, which differ markedly from state-to-state.

I then continued south to the Department of Aquatic Biology and Fisheries at Trivandrum University to visit Dr Biju Kumar and give a lecture to their marine biology groups about what it is like to study in the UK and why a job in marine science is almost certainly (perhaps only superseded by space exploration) the best job ever.

The last two years post-PhD have been more than busy but worth every sleepless night at sea and every miscommunication in yet another foreign language.

Andrew Johnson
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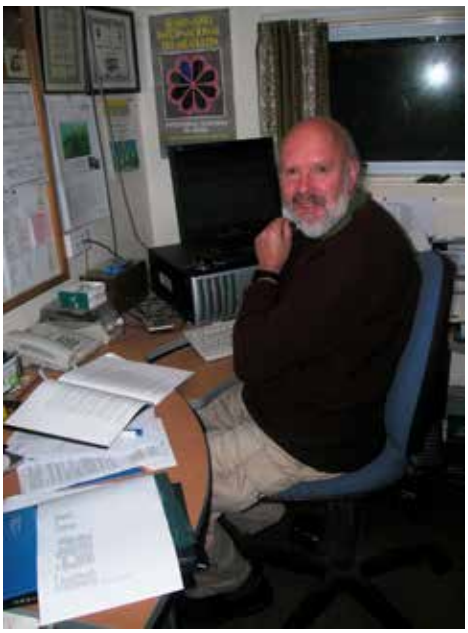
Although I retired in 2009, after almost 40 years of fisheries and aquaculture research in New Zealand, I maintain my lifelong interest in marine science (and an email address derived from species studied during my research career!). However, refereeing manuscripts for international aquaculture journals, visiting the odd mussel or oyster farm that I pass on my travels, and life membership of the NZ Marine Sciences Society are now my only active involvement in science. Grand children, maintaining a 1900s colonial villa and cultivating a large garden, fully occupy the time formerly given to research.

My MSc in Marine Biology from the then UCNW in 1968, and perhaps more specifically my thesis on flat oysters, were instrumental in getting me my 'one job for life' in New Zealand. I have made reasonably frequent trips back to the UK over the years, occasionally calling in at what I still think of as Menai Bridge Marine Science Labs, but I have lost contact with all but one of my fellow students from the 1967 MSc intake for either Marine Biology or Oceanography.



I would be interested in hearing from any of my fellow students from that 1967-68 year, with its winter of deep snow and summer of glorious sunshine on Anglesey.

Robert (Bob) Hickman (1960s)
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Oil, Sand Hoppers, Stinky Whales & Cow Blood

Having been a confirmed addict of the sea from the age of about 4, I finally found my way to the School of Ocean Sciences to start the Masters in Marine Environmental Protection in 1992. Since then I've been lucky enough to have some fantastic aquatic adventures, and met some wonderful and inspirational people, many of them with links to the School of Ocean Sciences.

Having completed the MSc under the guidance of Dr. John Turner, I embarked on a PhD based in Valdivia in Chile under the supervision of Professor Ernest Naylor. Little did I know, but I had selected one of the few parts of the planet with even more rainfall than North Wales. Despite the sogginess, I spent 3 very happy years in Chile. My research topic was 'Behavioural Ecology of Crustaceans on Wave-Exposed Sandy Beaches in Chile'. In practice this entailed building sandhopper traps on the beaches, constructing elaborate 'flea circuses' as my friends in the lab called them, and trawling the waves at night for isopods in the surf zone. Outside of work hours there was plenty to keep me entertained: trying to surf the hefty waves of the south Pacific, snowboarding down volcanoes, and occasionally being drafted in for scientific diving work on consultancy projects. Some of these projects are perhaps best forgotten, and involved diving in somewhat unsavoury outfall plumes, including one from a very busy abattoir. Suffice to say bovine blood does not enhance underwater visibility. But the taste easily washed away by the abundant and inexpensive Chilean red wines.

I returned briefly to Menai Bridge to write up my PhD thesis, and immediately embarked on a fantastic diving trip round Southern Ireland with Graham Roy (a local dentist from Askew Street!). My next port of call was the Sultanate of Oman. Here I joined a group of friends who had teamed up as a marine consultancy, doing baseline ecological surveys and environmental impact assessments all over the Arabian region. The climate was something of a change from both Bangor and Southern Chile. I soon found myself heavily involved in a national seaweed survey, as well as helping out on a voluntary basis with the fledging Oman Whale and Dolphin Research Team. I also worked on a post- Gulf War oil spill remediation project in Saudi Arabia with ex-SOSers Dave Jones and Dave Vousden.

I often worked offshore in the Arabian Gulf on the oil and gas fields. I can confirm that sieving several tonnes of mud on the back deck by hand through 0.5mm sieves in heat approaching 50 degrees with 90% humidity for 12 hour shifts is not perhaps the most glamorous of occupations, but it was worth it for all the lovely worms we found!

The whale and dolphin work was exciting, with a particular focus on Oman's unusual Humpback Whale population. We gradually accumulated evidence from sightings, photo ID, analysis of vocalisations and DNA samples, which all supported the view that these whales were non-migratory, which is very unusual for Humpbacks. Along the way we had lots of other interesting encounters with other species such as Blue Whales, Sperm Whales, False Killer Whales and Beaked Whales. There were also a few stinky tasks to be completed involving hacking up deceased cetaceans in various states of decomposition. A number of characters

from the MEP course over the years have been involved in this research — including Anna Hywel-Davies, Fi West and Elayne Looker.

Perhaps in a subconscious bid to take a break from the heat, I took up seasonal work leading mountaineering and trekking trips to Pakistan and Nepal and it was here that I met my wife to be, with whom I now have two extremely energetic sons, both of whom are water babies (did they have any choice?).
Whilst in Oman, I also developed my interest in photography and film-making, particularly of the underwater variety. I continue to work in this field alongside my environmental consultancy work. This work has taken me swimming with whale sharks in Djibouti, dugongs, turtles and sharks in the Red Sea, mantas in the Maldives, numerous whales and dolphins in Oman and basking sharks and seals in the UK. I have been lucky enough to be Highly Commended in the Wildlife Photographer of the Year, which led to a lot more commercial work, particularly for Canon Europe. A recent project also involved script-writing, directing and shooting a documentary film on Oman's Coral. I found this mix of science, art and public awareness work to be particularly fulfilling and have several more projects up my sleeve.

I'm now based back in the UK, in Sussex, but still travelling regularly and looking for the next surprise the sea will throw at me. This time I have a feeling it might involve a consignment of worms currently heading for my microscope from the Arabian Sea coast of Oman.

Fergus Kennedy
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Because it's there

The Hornli Ridge on the Matterhorn

The Matterhorn is probably the most iconic mountain on Earth. Four dramatically steep faces flanked by severe arêtes give the Matterhorn its unmistakable shape. Standing at 4,478m it may not be the highest mountain in the Alps but it has captured the imagination of climbers since the late 19th Century.

In early September 2013, David Reynolds together with brother, Steven, and guides, attempted to complete possibly the first recorded partially sighted ascent of the famous peak via the Hornli Ridge. The expedition was completed in order to support the Royal National Institute for the Blind and raise awareness of Macular Dystrophy and sight loss which affects approximately two million people in the UK alone.

In 2009 David was diagnosed with Stargadts Macular Dystrophy (SMD), a genetic degenerative eye condition that affects the central part of the retina leading to the loss of the central vision. It's a common cause of sight loss in elderly people. However, it is quite rare amongst young people. Coping with any kind of sight loss is a massive mental challenge that can be very difficult to deal with. Initially you think that your eyesight is critical for everything that you do in life and that by losing it you will never be able to complete your dreams and ambitions. As a result people who suffer with sight loss are at a far greater risk of suffering with depression. After being forced to give up driving and cycling and as the impacts of the sight loss were starting to become more challenging, David decided to set himself the challenge of climbing the Matterhorn, setting a stand point that sight loss was not going to limit his ambitions.

The route to the Matterhorn consists of 1200m of vertical ascent along a perilously exposed ridge interspersed with technical rock climbs. During the days building up to the ascent, David and the team acclimatised and successfully completed an ascent of the Dent du Geant (4,013m). Unfortunately, however, on the ascent to the Matterhorn summit at around 4,100m the effects of the altitude forced David to abandon the summit attempt.

The most challenging component of the climb still had to be completed: the descent. The descent of the Matterhorn is notorious, with the warming rocks melting the ice and causing fatal rock falls. Coupled with the lack of detail in David's vision causes the descent of climbs to be the most challenging; identifying solid places to place the feet being incredibly challenging. There was, however, some success for the team with Steven managing to complete the climb.

The expedition raised £1,356 for the Royal National Institute for the Blind as well as gaining national news coverage through both radio and newspapers. This kind of publicity is priceless for raising awareness of sight loss. Hopefully other young people going through sight loss will be able to see what we have achieved here and be inspired to not give up on their dreams. David still aims to summit the Matterhorn and is currently planning the next expedition, set to take place in late summer 2016.

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Having completed a BSc and PhD at SOS, David is now a lecturer at the University of Cardiff.

Brother Stephen and Alumnus David

Chilean News

On 12 May 2014, I was privileged to present a seminar at the most spectacular marine station in South America, possibly in the world! My host was Juan Carlos Castilla, renowned globally for his seminal work on marine conservation and resource management through the integration of science, economics and sociology. Key to Juan's success is his inclusive view of man as a 'natural' component of any ecosystem. In recognition of his contribution to science and society. Juan is a Member of the National Academy of Sciences, USA; and has received the prestigious Margalef Prize in Ecology, the Chile National Prize in Science and Technology, and the Mexico Prize in Science and Technology.

Las Cruces -- ECIM (Estacion Costera de Investigaciones Marinas)

After completing his first degree (1964), in biology and chemistry, in Chile, Juan was inspired to study marine biology. Polychaetes were his first love and his taxonomic work led to the description of two new species. Juan married Elena in 1966 and has 3 children. A year later he met Cyril Burdon-Jones, who had recently left Menai Bridge for a chair at James Cook University and was visiting South America en route. He told Juan about the "wonderful marine station" at Menai Bridge. Juan duly applied for a British Council scholarship and in his own words:

"By September 1967 I was in London and had an interview at the British Council. It did not go well. I was in the UK but my English was too poor to go to Bangor. They sent me for 2 months for English training at Cardiff. Nice experience. On moving to Bangor, I rented a small flat at 6 Askew Street, Menai Bridge, and started reading for an M.Sc., but Prof. Crisp said "come on you should read for a Ph.D." My wife and family joined me in 1968. At Menai Bridge I met my all-time good friends Roger and Helen Hughes. He was my first real student contact in UK. We did not talk a lot, but enjoyed getting to know each other; just a few sessions in the nearby Liverpool Arms.

Prof. Crisp was a wonderful scientist and excellent university teacher. At the beginning it was a little bit difficult to get along with him -but I learnt that it was easy going if you did your work really well. Every day at 5.00-5.30 pm he used to park his little Mini in front of my window at 6 Askew Street and shout from the car "What's new today with the experiments?" …Elena hated that…but the flat was too close to the lab to escape! I learned a lot from Dennis -even while he was in hospital with cancer: every Saturday 6-9 Ph.D. students queued there to show and discuss with him their latest results -- if I were born again I would still do my Ph.D. at Bangor with Prof. Crisp!

Professor Juan Carlos Castilla

Roger left for a post doc in Canada. I finished in 1970 (rather quick) and returned to Chile, which in a few years fell under a dictatorship (not easy times for us). Since then two of my students, after graduating in Chile, have been to Bangor and done PhDs with Roger: Juan Cancino and Patricio Manríquez. That made friendship with Roger even stronger. Roger has visited Chile six times and we have enjoyed more family and academic meetings.

This year, 2014, Roger is visiting us once again. I have taken Helen and Roger to our marine coastal Station at Las Cruces, of which we are very proud indeed. We like to think Las Cruces-ECIM is the best -- or one of the best -- marine coastal centres in Latin America. It surely is the most productive scientific coastal station in Latin America on a per capita basis.

After more than 4 decades, Elena and I have remained attached to Bangor University and Menai Bridge -- after all we not only got our degrees there, Elena a Master in Biochemistry and Microbiology, working under the famous Professor W. Evans and myself a PhD working under equally famous Professor D. Crisp, but also our daughter Paula was born in Bangor Hospital. So we have a Welsh daughter –nice!

My friends say that I am well known as a Latin American marine biologist, but also, importantly for me, a few years ago I got my D.Sc. and an Honorary Fellowship from my Bangor University."

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Alex Gaut

Leafy Sea Dragon by Paul MacDonald

After almost 20 years away from Bangor, I'm returning for a brief visit. I am an alumna from 1997 (Marine Biology/Zoology) but I moved to Australia soon after graduation and haven't been back since. I am now managing several marine conservation projects in South Australia and will be happy to share my experiences and knowledge with anyone who is around on Monday 11th August when I will be giving a presentation about 'Why is southern Australian marine life so special?'. You will have to take my word for it for now that it is very special and come along to the presentation to find out why. It will be full of beautiful images as well as great stories about southern Australian temperate marine life. **Come along at 12 noon, 11th August, to the D J Crisp lecture theatre.** I look forward to meeting some of you! ***alex.gaut@conservationsa.org.au***

Where are they now? Dr Thomas Davies

I undertook an MSc in Marine Environmental Protection in the School of Ocean Science (2006 to 2007) and then a PhD (between 2007 and 2011), researching 'Extinction and Ecosystem Functioning: A cross system comparison of marine communities' with Dr Jan Hiddink and Dr Stuart Jenkins. Completion of my PhD led me, in 2011, to the University of Exeter, working on the European Research Council (ERC) funded ECOLIGHT project to assess the ecological effects of night-time light pollution.

My role is investigating the impact of artificial lighting on the ecology of plants and invertebrates. Using a combination of behavioural and field based approaches, the goal is to quantify how artificial lighting can alter the structure and composition of terrestrial communities, and understand the processes which underpin such changes. The work has featured in national and international media -- including New Scientist, Nature Magazine and on national radio http://www.newscientist.com/article/dn21844-urban-street-lights-are-changing.

As a community ecologist, I am interested in asking broad ecological questions in a variety of ecosystems including terrestrial invertebrate-plant communities, salt marsh plants and invertebrates, intertidal macroalgal and infaunal invertebrate assemblages, and subtidal epibenthic and infaunal invertebrate assemblages. I am interested in how anthropogenic activities alter the structure and functioning of ecosystems.

Encompassed within this theme are a number of research questions, including the impact of artificial light pollution on the structure and composition of terrestrial communities, understanding the impact of fisheries on the functional composition of benthic communities, predicting the consequences of extinction for key ecosystem processes -- such as primary production and nutrient cycling, understanding the importance of dominant vs. rare species in the future maintenance of key ecosystem processes and understanding the role of compensation in ameliorating the impact of biodiversity loss on key ecosystem processes. A variety of important papers have arisen from my work.

In the dark about the effects of light: Dr Thomas Davies
(Image: Claire Pumfrey)

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Thomas.Davies@exeter.ac.uk

Martin Block (1990s)

I spent a really happy time at the labs back in the early 90s, working with Prof. Alan Davies. I can even remember my computer number...OSP059!! Since then, I bounced off a few walls but settled down eventually as a technical author, a job which I love and have now done for many years. Home is Birkenhead where I was born. I still get into the hills when I can. Best wishes to all who shared my time at Menai Bridge and made it so, so special.

martin.block343@btinternet.com

Robin Gibson (1960s)

I have a set of back numbers of Oceanography and Marine Biology: An Annual Review dating from 1995 to 2011 (Vols 33 to 49). As I am now retired and have no further use for them I wondered whether they would be appreciated by a University or research institute in a developing country that does not have ready access to these journals or does not have the budget to purchase them. Would it be possible for you to put a notice to this effect in the next issue of 'The Bridge' in the hope that it would come to the attention of anyone in the SOS network who would like to take me up on this offer? There would be only one condition; the recipient would pay the carriage costs from the UK.

robingibson345@btinternet.com

Stephen Foster (1970s)

Studied Marine Biology and Zoology. The people, whom I remember from Bangor, are: Os Phillips, Tony Richards, Richard Prickett, Mary Armstrong, Carol Turley, and Ian Miller

msfoster@btinternet.com

James Glennie (1980s)

BSc Marine Geotechnics. He has worked mainly on wind energy in New Zealand and Canada.

james.glennie@gmail.com

Pui-Leng Tay (1990s)

BSc Ocean Science with Geotechnics. On leaving Bangor successfully completed PhD at Imperial College. She has worked for IFM-Geomar, Shell, Horizon, and Statoil. Now lives in Norway.

taypl@hotmail.com

Lisa Bettington (nee Mead) (2010s)

BSc in Marine Biology and Zoology. Last year was working on an MSc by research at Swansea University on Loggerhead Turtles and applying for a PhD. Lisa married in 2012.

lisa_mead_is@hotmail.com

Rob Holland (1990s)

Rob Holland (1991 Marine Biology with Zoology) has just celebrated 11 years at Oil Spill Response Ltd (OSRL) and is currently active in engaging the oil and gas industry to support and develop a global oil wildlife response capability. This will bring together the 10 leading global wildlife response organisations into an agreement, where their professional services can be activated by the oil industry for a more effective and robust response.

Rob also assisted in the Macondo oil spill in the Gulf of Mexico by supporting the shoreline response activities. Rob welcomes email contact from any students or staff (current/former) that have an interest in oil spills who want to learn more about the subject.
www.oilspillresponse.com

Rob's Dad, Dr Dave Holland, who was an SOS staff member for many years, is happily retired and enjoying his model trains, oil painting and a 1935 Triumph motorbike in mid-Wales! His old 1949 Land Rover, which some may remember, is also happily retired but remains in the family!

robholland@oilspilresponse.com

TO ALL OUR READERS

Why not use our post-it facility to let people know what you are doing or to contact lost friends from your years at Menai Bridge?

In Memoriam

Joan Lewis (1926-2014)

Joan Lewis, who died in April this year, played an important role in the lives of students and staff in the 'Marine Science Laboratories' throughout the 1980's and 1990's. Joan held the unusual position of Secretary in both the Physical Oceanography and Marine Biology Departments before joining the administrative staff of the new School of Ocean Sciences when it was formed by the merger of the two disciplines in 1988. With her physical oceanography 'hat'on, she acted as Secretary to the late Professor Jack Darbyshire, and was a reassuring and welcoming presence to new students arriving to take up oceanography courses at that time.

Joan entered the folklore of the Marine Science Laboratories when she was 'rescued' from Bardsey Island by the *Prince Madog*, ostensibly so that she could return to work! Her husband, Peter Hope Jones, whom she married in 1985, regularly visited Bardsey to study the bird populations and Joan sometimes accompanied him. On this occasion, as often happened, the weather turned foul and the small ferry linking the island to the mainland was unable to operate. Joan knew that her boss, Jack Darbyshire, was on the *Madog* at the time and working in the area. She was able to get word to the ship by radio and legend has it that Professor Darbyshire immediately ordered a change of course to the island. The story appealed to the press and appeared in the *Daily Post* under a heading along the lines of 'Professor Rescues Secretary from Remote Island'.

In 1976, Joan joined, what was then, the University College of North Wales, working at first in the Economics Department. In 1980, she moved to the Marine Science Laboratories as a Secretary. Joan 'retired', for the first time, in 1992! But missing the 'buzz' of working in SOS she came back, acting initially as a replacement for a sick colleague (Delian Williams) but ended up staying for several more years.

Joan was born in Rhos-on-Sea, but grew up and went to school in Bangor. She is survived by her husband and two children from a previous marriage.

Dave Bowers and Judy Davies

Ian Nicholls

Ian Nicholls, the School of Ocean Sciences (SOS) Mechanical Engineer tragically died at work on the 5th July 2013.

When Ian joined the School, it was quickly apparent that he was a great team player, rapidly establishing himself as a 'can-do' person who was eager to assist his colleagues to improve their research and teaching in SOS. Many staff, especially our PhD students, owe their success to Ian. In response to any request, Ian's immediate and instinctive answer was to say 'yes, I can do it' and then to deliver the required piece of equipment on time. Or, if there was a problem, he was good at diplomatically suggesting how one's vague and impracticable design could be improved so that (a) it would actually work and (b) it would be delivered on time. Or, if he was snowed under with commitments, he would provide a realistic timeline for the future delivery of the item and then proceed to deliver on schedule or, frequently, ahead of schedule.

Ian was very adaptable and was able to respond to an emergency when someone wanted something built 'yesterday' – SOS scientists are notoriously good at needing something by 'yesterday'! There were never any excuses or problems from Ian, only solutions. Over the years, Ian constructed hundreds of devices many of which had to be built to survive in the most hostile of environments – the sea. In addition, he carried out repairs on equipment – SOS staff and students are adept at breaking things! Everything that Ian constructed was of the highest quality and he took immense pride in what he did. All of this made Ian an exceptional colleague and he was rightly recognised by the University for an Award for Excellence.

In recent years the success of SOS has been built on teamwork. More than any other department in the University, the School has a strong sense of togetherness and mutual support. SOS is a large family and, as in all families, there are occasionally minor disagreements, but by and large it's a happy and great place to work. This feeling of togetherness is due to our exceptional support staff, technicians, administrators and academic staff. Amongst this group, Ian stood out as a very special person.

Ian was an exceptional person. Everyone in Ocean Sciences had affection for him because he did everything with grace, humour, and good will. In all the years I knew Ian, I don't think I ever had a conversation with him when he didn't smile. I always left Ian feeling rather better than before I spoke to him because, well, that's what Ian did: he made you feel better about things. This is a very rare and special quality and it's this that we will miss most of all.

Professor Colin Jago

In Memoriam

Patrick Boaden (1936-2013)

Dr Pat Boaden, marine biologist, musician, poet, advocate for wildlife, and former Director of the Queen's University Marine Laboratory in Portaferry, passed away after a long illness on 11 November 2013.

Pat was an internationally recognised expert on 'meiofauna' or interstitial fauna—the astonishing microscopic creatures that live among sand grains on the sea floor. He was much loved by the people who knew him, and he made even the rainiest day on the seashore a delightful adventure.

He was born in Andover, Hampshire in 1936, and educated at Wansted High School in Essex; he completed his university and postgraduate studies in Wales, with a BSc from University College of North Wales and then research for his PhD studies at the Marine Sciences Laboratories, Menai Bridge (now School of Ocean Sciences, Bangor University), where he met his wife.

The distinctive goatee arrived in 1959 and stayed for the rest of his life. His career with Queen's University Belfast began as an assistant lecturer, immediately after finishing his doctoral research in 1961. His post was initially as a temporary contract but extended far longer than anticipated, seeing Pat become acting director of the Marine Laboratory in Portaferry in 1968 and permanent director starting in 1971. He oversaw an expansion of activity in the Marine Laboratory, from undergraduate field courses to a new research boat *Nerilla,* commissioned in 1975.

He inspired countless students to pursue marine biology and continued mentoring younger researchers until his death. He published 60 scientific papers, including highly cited fundamental work that laid the foundation for wide-ranging large-scale research projects; he was the first to observe the invasive seaweed *Sargassum* in Strangford Lough, and also wrote on the contributions of rare meiofaunal groups to understanding the origins of animal life on earth. He had an encyclopaedic knowledge of marine life small and large; during shore walks with the public or eminent scientists alike he could identify nearly any marine animal put in front of him, no matter how tiny. Pat sat on an enormous number of professional committees particularly concerned with the environment and conservation of Strangford Lough, a passion he continued to pursue in retirement, serving as Chairman of Ulster Wildlife and an active member of their board of trustees from 2002-2010.

Pat wrote an extensive and often hilarious serialised history of the Marine Laboratory published in the Journal of the Upper Ards Historical Society. He also played an active role in parish affairs for the Church of Ireland, Ballyphilip. He was an acclaimed speaker and would often lead otherwise austere scientific gatherings in songs of his own composition. He was always musical, playing in a zoology department jazz band, and was an enthusiastic fiddle player. Among his professional writings, he is famous for authoring a scientific paper entirely in rhyming couplets, which was equally good science and poetry. He was a humble polymath, and above all, fun.

Pat is survived by his wife Cherry Boaden, their three children, Sarah, Jonathan, and Helen, and their families.

Obituary, Queen's University, Belfast

Across the Bridge
50 lines for the 50th anniversary of Menai Bridge

When I was young
and in my prime
I had few thoughts
of age and time,

Nor did I seek
to find a place
Where I could live
at slower pace.

I ran, I drank,
I sang songs lewd,
But I was taught
by tutors shrewd

Who planted
in my questing mind
The thought that truth
could be devined.

I studied sands
and shallow life.
In Bangor – ai
I met my wife.

From student days
and narrow straits
Life's widened out
to what awaits,
Across the bridge.

As eddies still
from giddy youth
The quest extends
for deeper truth.

I may have walked
in foreign lands
But now, as then,
the bridge still stands

And I may cross
the narrow strait
To find life
at diff'rent gait.

No island man,
nor's child, nor's wife,
Nor's thought, nor's dream,
nor's deed, nor's life

Each thing to each
some thing connects,
Some sea, some land,
some bridge, some text.

Soon I will meet
friends here no more
Who've safely passed
from shore to shore
Across the bridge.

PJS Boaden, 1998

Forget the world; Menai Bridge is your oyster!

Menai Seafood Festival was set up in 2013 to promote the local fishing industry and to reconnect people with the array of quality fish and seafood available from the coastal Welsh waters. The event brings together local fishermen, farmers, producers and the SOS to display the amazing variety of seafood and other produce sourced from the area. The first ever Menai Seafood Festival was held in August 2013, and attracted well over 10,000 people. It was a great success.

Once again in 2014, on the 29th--30th August, the event will include demonstration tents and a local produce market, as well as activities for kids, presentations and exhibitions, pop-up arts and crafts galleries and live music. Check out: www.menaiseafoodfestival.com. **Why not put the date in your diary and visit some of your old stamping grounds as well?**

SOS will be opening wide the doors of the main Cemlyn Jones practical laboratory in the Craig Mair building and showcasing its marine research with particular emphasis on fisheries, seafood and energy island. We will have live organisms and interactive displays as well as a recruitment stand with relevant literature for our UG and MSc courses. There will also be tours of the Prince Madog (free entry, but places must be booked at a kiosk in the pier pavilion), which will also be open displaying the kinds of equipment that SOS uses in its research.