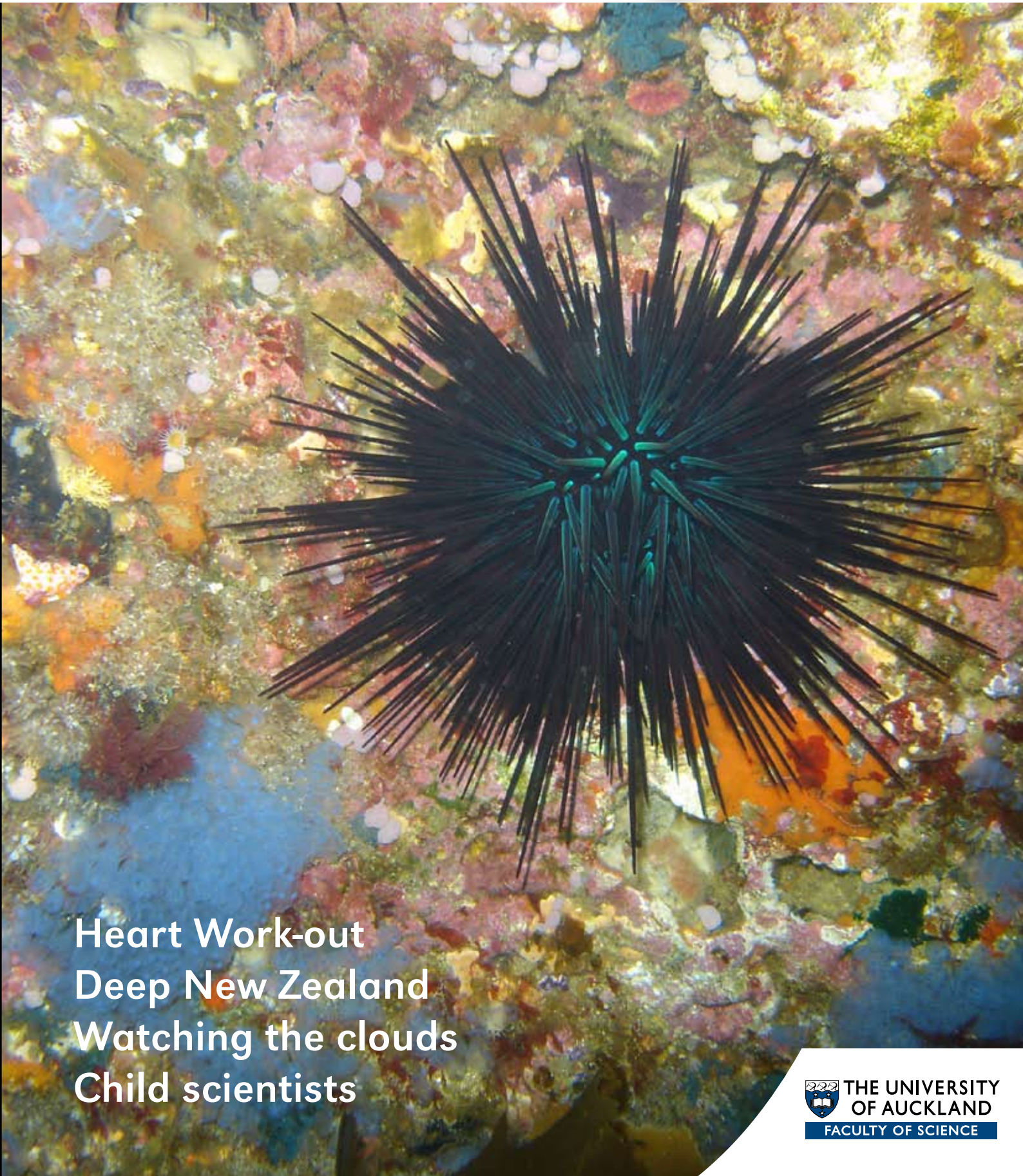
InSCight

May | June 2008 | **Faculty of Science Alumni Magazine** Issue 02



Heart Work-out
Deep New Zealand
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Child scientists

THE UNIVERSITY OF AUCKLAND
FACULTY OF SCIENCE

A word from the Dean

Election time looms: is there a technology-led future for our nation?

As the election approaches, we have the opportunity to ask ourselves whether any of the major political parties do genuinely believe in a technology-led future for New Zealand.

New Zealand is a small country and in many ways we do very well, punching above our weight internationally in certain areas (the dairy industry being the most obvious). But why do we have only one Fisher and Paykel Healthcare, one Raykon Industries and one Buckley Systems, when as a nation we have the expertise and potential to have so many more of these dynamic entities? Without growth and investment in the technology sector, we will continue to fall behind other nations. Currently, only the Government has the scale to prime the pump and invest heavily in a technology-led future for our nation.

The Centres of Research Excellence and Partnership for Excellence programmes, both good ideas from the present Government, have focused research on potentially nation-altering science and technology. However, to kick-start early stage basic research, the HRC and Marsden funds need significantly more investment. The recently announced $700M Government Investment Fund is a good start, but this will yield only an additional ~$100 million per year, probably targeted at the land-based industries, of which dairy is by far the largest likely recipient.

So where could the required increase in technology investment come from? At the moment, the Trustees invest most of our Superannuation Fund offshore, minimising risk but leaving New Zealand starved of investment. If as little as 2% of the Cullen Fund was able to be used for venture capital investment in our own enterprises, this could totally transform the nation.

What we need is the self confidence to believe in what New Zealand can achieve, the will to make it happen, and a Government with the right vision. Perhaps both of the current major political parties should consider canning their proposed tax cuts and investing that revenue in research and development as well. Then New Zealand truly could look forward to a prosperous technology-led future!

PROFESSOR DICK BELLAMY
Dean of Science
The University of Auckland

Front cover: Under the sea at the Poor Knights

Around the Faculty

The IESE will study, among other things, volcanic activity and hazard planning

Looking underground

The Institute of Earth Science and Engineering (IESE), a collaborative Institute with the Faculty of Engineering, has hit three major milestones in its development.

Professor Peter Malin has joined the faculty as the inaugural Director and will head research programmes that will address issues of local and national significance relating to New Zealand's unique geology. Peter is an internationally respected geophysicist from Duke University in the US, with an extensive background in seismic propagation in planetary crusts, borehole investigation of seismic sources and signals and environmental geology.

The Institute has received close to $9 million from the government's new Strategic Relocation Fund to allow relocation of Professor Malin and a team of international researchers to New Zealand, as well as establishment of equipment and facilities required to monitor and research seismic, volcanic and other activities below the surface of the Earth.

In addition, it has launched a 5-year, $1.3 million project with the Earthquake Commission, working with local civil defence agencies to research Auckland's volcanoes, to develop appropriate hazard plans, and look at how Auckland's volcanic geology responds to construction and how structures respond to earthquakes.

Advancing the digital South Pacific

Children across the South Pacific will be able to access local content as part of the *One Laptop Per Child* programme, through the creation of a Digital Communities Development Centre in the Department of Computer Science.

One Laptop Per Child is a global initiative, which aims to provide a laptop, with access to the internet and educational content, to every child in the world. The programme is based on the '$100 laptop', as designed by Nicholas Negroponte at MIT in the United States. The Department of Computer Science will be hosting the Centre, which will develop open source software relevant to the South Pacific region in conjunction with the University of the South Pacific and the Computer Clubhouse.

Young researchers band together

The launch of a new group for emerging researchers is hoping to ease the path to a science career.

Stratus, a University-based network of early stage researchers mainly reliant on external funding, was launched in April by Helen Anderson, CEO of the Ministry of Research, Science and Technology (MoRST). The group will provide a source of information and liaise with University and external organisations to solve problems encountered by scientists at the early stage of their career, and raise awareness of science with the public.

SciSpace opens

A new student space has opened in the Faculty to provide undergraduate science students with a place to relax and collect resources. This will be the first large space dedicated to all undergraduate science students.

SciSpace will house the Student Resource Centre in a new, purpose built area, with space for students to socialise and study, including computer stations, and food and drink preparation areas. SciSpace is situated on the ground floor of Building 303 (Maths/Physics building), on the site of the old First Year Physics lab.

People news

Physicist leaves for Greenwich

Professor Tom Barnes, who joined the faculty in 1991, is the new Pro-Vice Chancellor, Research and Enterprise, at the University of Greenwich, UK.

Tom joined the University as a lecturer in the Department of Physics, and was awarded a Personal Chair in 2000. He was appointed Deputy Vice Chancellor (Research) in 2001, a position he held until he left the University in December 2007.

Born in the UK, Tom gained his BSc, MSc and PhD from the University of Manchester Institute of Science and Technology. Prior to joining the University, he was a research engineer and senior scientist for government organisations in the UK, Japan and New Zealand. His research into optoelectronics, laser physics and optics won him the Royal Society Cooper Medal in 1996. He was elected Fellow of the Royal Society of New Zealand in 1999.

The Faculty congratulate Tom on his new position.

Royal Society honours

Three Faculty of Science staff have been honoured by the Royal Society.

Professor Chris Wild has been named a Fellow of the Royal Society of New Zealand. Chris' research involves a number of different statistical fields, one of which is the development of methodology for design and analysis of medical studies. He is also recognised internationally for his research into the philosophy of statistics.

Dr Alexei Drummond, of the Department of Computer Science, has received the Hamilton Memorial Prize, awarded annually for the encouragement of early career researchers in scientific or technological research. Alexei works with the Bioinformatics Institute and is well known internationally for his work on the development of software tools and probabilistic models for understanding genome and virus evolution.

Hamilton Prize winner, Dr Alexei Drummond

Charles Fleming awardee, Professor Mick Clout

Professor Mick Clout, Director of the Centre for Biodiversity and Biosecurity, has been honoured with the Charles Fleming Award. The Charles Fleming Award recognises those who have achieved distinction in the protection, maintenance, management, improvement or understanding of the environment, in particular the sustainable management of the New Zealand environment. Mick is well known for his work in wildlife protection, particularly through the establishment of the Global Invasive Species Database and his work with the World Conservation Union.

Dr Siew-Young Quek

Excellent teachers

Two Faculty of Science staff were recognised for their teaching skills in the University's 2007 Teaching Excellence Awards.

Professor John Hosking of the Department of Computer Science was presented with the Excellence in Research Supervision award, and **Dr Siew-Young Quek** in the Department of Chemistry was recognised for Early Career Excellence in Teaching.

The pair will each receive a medal and a monetary prize of $5,000 at the Autumn graduation ceremony, and will be the University's nominees for the National Teaching Excellence Awards.

Student news

Champion triathlete

Jacqui Seebold, a conjoint Sport and Exercise Science and Commerce undergraduate student, has had a very successful triathlon year.

In August, Jacqui competed in the USA National Triathlon Championships in Longmont, Colorado, coming first in the Under 23 age group. The competition was held at 1600m altitude, at temperatures up to 40°C. From there she travelled to the South of France to train at Triathlon New Zealand's Athlete Base in Limoux.

After two weeks in France, the New Zealand Elite team travelled to Hamburg, Germany for the World Championships. After a cold and wet race, Jacqui came in 11th in the Under 23 Elite group, a pleasing result for her first World Championships.

Early in 2008, Jacqui was placed 3rd in the Under 23 Elite New Zealand Sprint Distance Triathlon Championships held in Kinloch; then she came 2nd in the Under 23 Elite in the New Zealand Standard Distance Championships in Wellington, a race which also counted as the Oceania Championships in which she was placed 3rd. These two races gained Jacqui selection into the New Zealand Under 23 Elite Team to compete at the World Triathlon Championships in Vancouver in June, where she is hoping to beat her placing of 11th from last year.

Jacqui Seebold competes in the ARIA Elite Triathlon, Australia

Recognition for first year geographers

Nine stage 1 students received recognition for their academic excellence from the New Zealand Geographical Society.

Danielle Bailey, Jessie Bird, Kiely McFarlane, Amanda Stoltz, Francesca Bakker, Rupert Gillies, Suzanne Haden, Padgett Johnson and Simon Opit received Certificates of Achievement from the Society. The certificates were presented by Professor Barry Smit, a University alumnus, now Canada Research Chair in Global Environmental Change at the University of Guelph and a member of the Intergovernmental Panel on Climate Change which shared the 2007 Nobel Peace Prize with Al Gore.

Students credited by NZ Geographical Society (From left to right: Rupert Gillies, Padgett Johnson, Kiely McFarlane, Simon Opit, Professor Barry Smit (University of Guelph), Francesca Bakker, Amanda Stoltz, David O'Sullivan)

Pacific award for SLT

Sharon Farao, a second year Masters student in Speech and Language Therapy Practical, has been awarded a Pacific Health Workforce Award.

The awards, made by the Ministry of Health, aim to encourage and support Pacific students to train in health-related subjects, to build a highly skilled Pacific health and disability workforce. Sharon's project looks at the phonological knowledge and language development of Samoan speaking preschoolers aged between 3 and 5 years old.

Share your news!

Keep your classmates up to date with your news with an article in InSCight!

Send your news to Emma Timewell, e.timewell@auckland.ac.nz, or Nicole De Pina, n.depina@auckland.ac.nz, and we'll try to feature it in our next issue.

Upcoming events

TBC: Girls into Science

A workshop for high school girls in Year 10 to learn what it's like to do a science degree and where it can take you.

7 July: Incredible Science

Now in its 7th year, Incredible Science is an annual event where school-aged children (and their parents) are invited to the faculty to experience the fun side of science. The free event includes lectures, demonstrations and hands-on activities.

Visit www.science.auckland.ac.nz for more information.

30 July: Science Careers Fair

An event for current students to get an idea of the career paths available to them on graduation. With presentations by role models from the workforce, and information available from key employers of science graduates, students will be given an insight into how science can be translated to a multitude of career choices.

Heart work-out

At the University's Tamaki campus, there is a gym. It looks much like any other gym, but for a few hours each day it becomes home to a group of cardiac patients who must balance the risk of exercising against the risk of not.

The Auckland Cardiac Rehabilitation Clinic (ACRC) was initiated by the Department of Sport and Exercise Science in 1998 to address the need in the population for a place where cardiac patients could rehabilitate safely and effectively with exercise. Over the past eight years, nearly 300 people have taken advantage of the programmes offered by the Clinic, some as young as 17, with the eldest in their 80s.

The theory is simple. Cardiac patients, those with identified heart problems or those recovering from heart attacks, need to exercise to keep themselves healthy, much like any of us. However, the sensitivity of their hearts means exercise can be dangerous if not prescribed and performed correctly. The ACRC provides a safe environment for them to work-out, with constant monitoring of their health and specific programmes designed not only for their ongoing fitness requirements, but also taking into account how they feel at the time they walk into the gym for their session.

As a cardiac patient, you would be likely to join the ACRC on a twelve-week programme designed to give you a better understanding of your own exercise requirements and limitations. Each time you come to the gym, usually three or four times a week for up to an hour a time, your blood pressure and heart rate are measured as you walk in, during exercise and before you leave. You'll also be asked how you feel and if you've had any problems since your last visit. If anything seems unusual, the staff can give you an ECG and will report anything of note back to your doctor. Each day's work-out is based on current health status and your activity in the previous session.

Fear can play a major part in a cardiac patient's confidence to exercise. The fear at the ACRC is removed, by knowing that the environment is closely supervised. There is a higher number of staff than in a normal gym, all of whom are qualified or in training in cardiac rehabilitation, with emergency equipment on hand if needed.

In the first week, you may only be able to manage a few minutes on the treadmill. By the end of the programme, you may have built up to 45 minutes of exercise at a time, or simply be able to manage your daily life a little better, by getting the mail from the end of the drive or getting up the stairs. The results from your programme are based on what you need, what you can manage and on meeting your own expectations.

In around a third of cases, people who have completed the twelve-week programme continue to train at the ACRC to maintain their fitness. Over the years, the ACRC team have added more inspiration for their clients, including the 1000km Club, where members kept track of their exercise distances both inside and outside the gym and raced to 1000km. Some clients have trained for specific events, and have completed the Taupo cycle race or got a team together for the Auckland Round the Bays fun run.

The drop-out rate for cardiac rehabilitation programmes worldwide is quite high, but the ACRC finds that most of its patients complete the twelve week programme and can travel from up to an hour away to take part. The atmosphere is quite social, with a group of up to 40 coming in at regular times throughout the week.

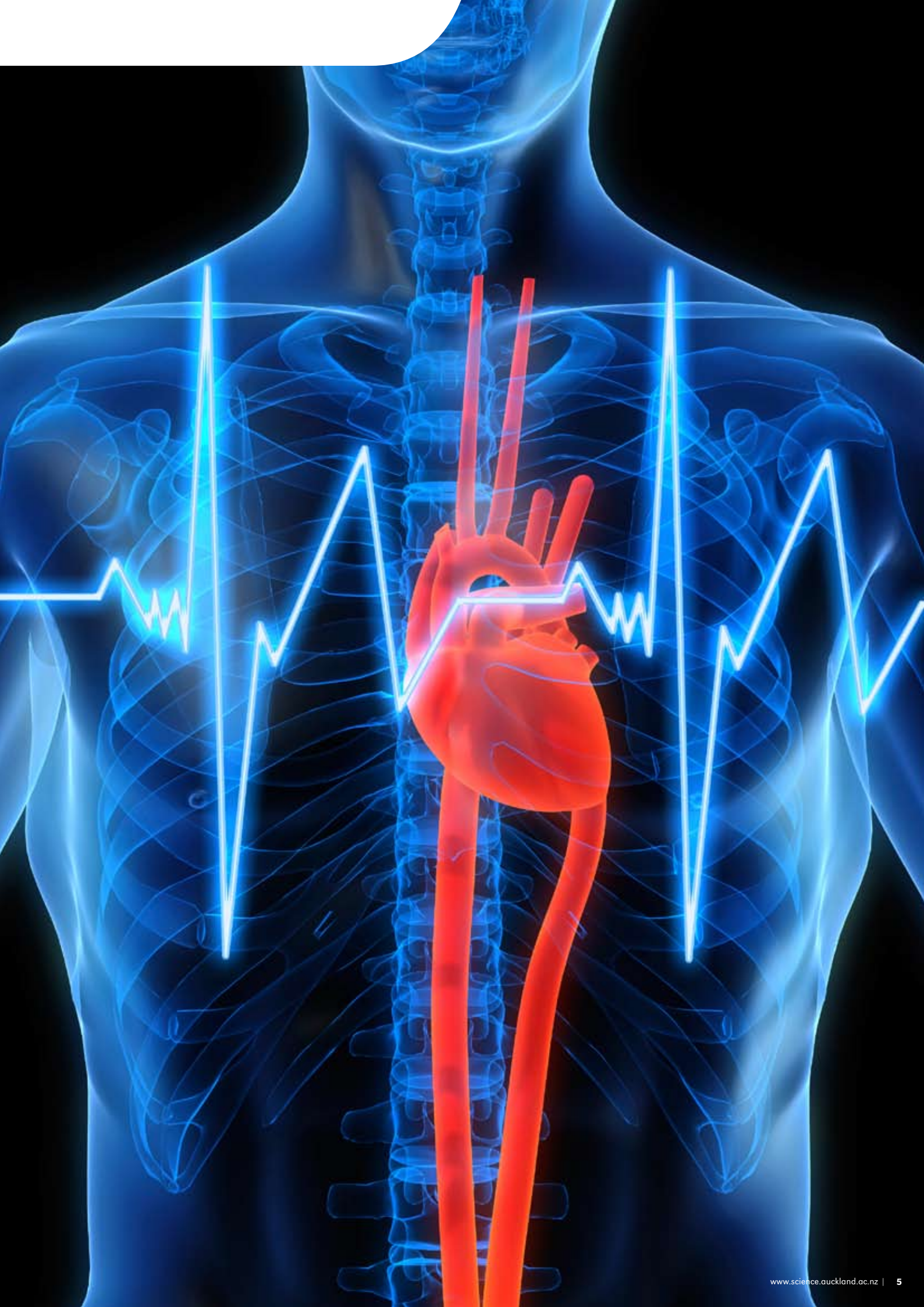
Cardiac patients must make exercise a significant part of their lifestyle. The ACRC gives them the motivation to achieve this, enabling them to feel better and avoid any more problems as much as possible.

Family (Department):
Sport and Exercise Science

Genus (Group):
Auckland Cardiac Rehabilitation Clinic

Principal staff:
Dr Brian Wilson, Director;
Kristin Wilson, Supervisor

The ACRC helps cardiac patients get heart fit ▶



Deep New Zealand

We know a fair amount about the underwater world surrounding the shores of New Zealand, at least at the depths to which we can safely scuba dive. However, there is a rich diversity of life beyond these shallow areas, extremely different to the shallow, more accessible, world. To reach the depths of aquatic life, marine scientists and statisticians will be travelling in submersible vessels to collect and analyse fish fauna up to a kilometre below the surface.

New Zealand is regarded as having rich and biodiverse marine environments, with many species being unique to our waters. Much is known about the marine ecosystems and fauna close to shore. However, little is known about the marine life beyond these areas, where ocean depths can reach thousands of metres and the pressure and darkness can create unknown ecosystems with fascinating and bizarre species.

Thanks to a Marsden grant, a team of scientists, led by Associate Professor Marti Anderson of the Department of Statistics, will be heading to the depths to help uncover some of these mysteries. The project has been dubbed "Deep New Zealand". Using submersible vehicles, the scientists will travel up to 1000 metres below the surface to collect data on the biodiversity and structure of fish communities along the Lord Howe Rise. These will be the first expeditions by manned submersibles at such a large scale ever to be undertaken in the southern hemisphere.

How to sample biodiversity at depth

Historically, most of the information about life in the deep ocean has been collected by trawling, dredging or towing video equipment. Such expeditions in the seas around New Zealand have shown that hundreds of species live at depth, many of which have never been seen elsewhere. These methods have their limitations because changes in the submarine landscape, such as crevices or rocks, can block or break the gear. So, these approaches cannot be used to sample habitats in rough terrain, even though ecological theory predicts that complex habitats should house the greatest diversity of life.

To understand what is happening under the ocean, scientists need to be able to see the environment to conduct structured studies with standardised, comparable methods and replication across different depths in a range of habitats. This will allow statistical analyses to create a picture of changes in communities with depth and habitat complexity.

The new study will use submersible vessels to sample ecosystems along the Lord Howe Rise, with collections from each of four depth strata (200-400m, 400-600m, 600-800m, 800-1000m). Stereo video camera systems will record 3D images, to allow identification, counting, and size estimation of fish species, as the submersible moves along lines of known distance and depth. Baited pots, with attached video cameras, will be positioned to entice and observe larger predators. Smaller fish will be sampled using rotenone, a targeted anaesthetic often used for collecting fish at shallow depths, and using suction samplers from aboard the submersibles. Importantly, the submersibles will allow fine-scale sampling and collections from rough terrain where trawls and dredges cannot go.

Locations for the study

New Zealand has submarine mountain chains that radiate from the country, potentially acting as biodiversity "superhighways" to connect New Zealand to subtropical waters. Unlike broad oceanic shelves, these mountain chains produce sharp depth gradients, stretching from above sea level as islands down to the deep ocean.

Deep New Zealand is part of a larger project to bring submersibles to Australasia, called "Deep Down Under", headed by the University of Queensland and funded through the Australian Research Council and its partner Deep Ocean Quest. The Australian project overall will spend three months in each of three years collecting and studying the biology of specimens from around the coastline. Deep New Zealand scientists will be aboard the research vessel for about 3 weeks in each year, principally to sample and study the Lord Howe Rise.

The Lord Howe Rise runs from New Zealand up to the Coral Sea, with a chain of small islands, including Lord Howe Island, along its western edge. Deep New Zealand will initially visit five locations along the western edge of the ridge, surveying a number of seamounts and reefs in this area.

Expected outcomes

It is generally accepted that biodiversity changes with latitude, with more species at the tropics than the poles. However, with increases depth (a third dimension), it is expected that the driving surface conditions of temperature, sunlight and nutrients will have less influence on biodiversity. Instead, the biggest changes are likely to exist with longitude, and the researchers expect to see greater differences between different submarine mountain chains than at different latitudes.

Previous trawling at Lord Howe Rise has resulted in the discovery of many unknown species, and the rate at which these were identified suggests there are many more species to be found. The samples also showed that less than 10% of the species found were shared with surrounding areas. This, and its submarine connection with New Zealand, makes the Lord Howe Rise an exciting prospect for marine ecologists and statisticians to study at depth.Diebel (Museum of New Zealand Te Papa)

Family (Department):
Statistics

Genus (Group):
Ecological Statistics and Marine Ecology

Species (Principal Investigators):
Associate Professor Marti Anderson, Dr Clive Roberts and Dr Carol Diebel (Museum of New Zealand Te Papa)

Submersible vessels and MV Alucia generously supported by Deep Ocean Expeditions

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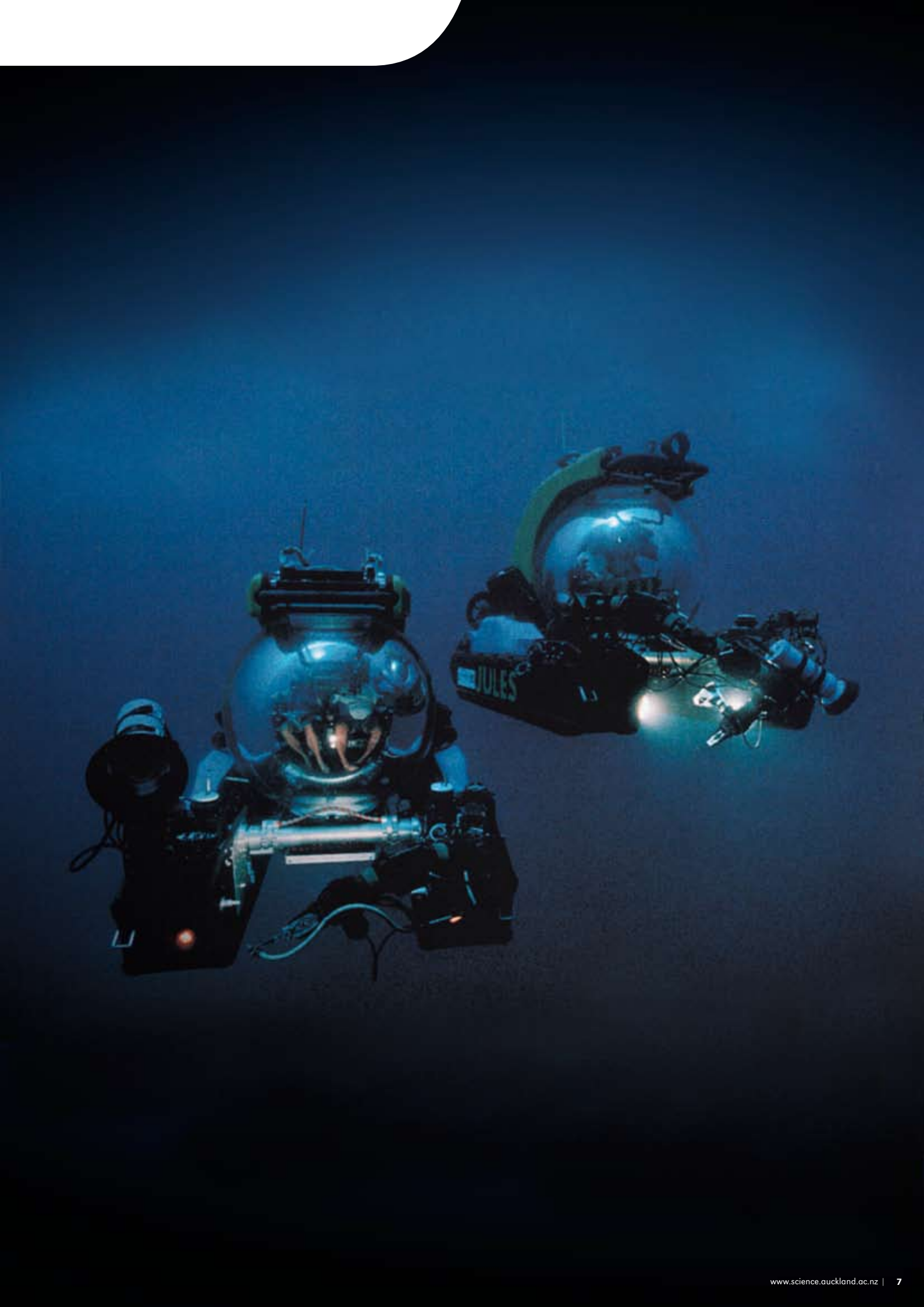
Deep submersibles will be used to study the ocean 1km below ▶


JULES

Watching the clouds

As children we are fascinated by clouds, fantasising about the shapes they represent. As adults, clouds mean little more to most of us than whether or not we should take an umbrella. But clouds are one of the major temperature regulators of the planet. How they are behaving may be able to give us insight into what may be happening with our climate.

The greenhouse effect

The greenhouse effect is a phrase often heard in conjunction with global warming. However, it is a natural environmental control, where the temperature of the Earth is kept at about 33˚C warmer than it would be without. The greenhouse effect is the absorption of heat, by water in clouds and gases in the atmosphere, that keeps heat from the surface from escaping directly into space. The increase of these greenhouse gases, mainly carbon dioxide, from human activity is thought to be contributing to global warming, as the increased gas levels absorb more heat and therefore warm the atmosphere more.

To keep the Earth in a steady state, the amount of energy into the atmosphere, as solar energy, must be equivalent to the amount of energy out, as heat. If more energy comes in and isn't expelled, the temperature of the planet would rise. However, the planet has a natural mechanism to regulate the energy balances – clouds.

Clouds are white and reflect solar energy back into space. Heat (or thermal) radiation is at a longer wavelength, so the clouds 'look' black and are good absorbers and emitters of heat. Heat from the planet's surface is moved through the atmosphere by convection, absorbed by clouds and re-emitted both up and down, but at a lesser amount due to the cold temperature of the clouds. At higher altitudes, above the heights that convection has an impact, clouds emit heat back into space, at a level which keeps the planet's energy balance (in versus out) constant. Having fewer high clouds, or high clouds at slightly lower altitudes, means that the emission to space is more efficient, and the same amount of heat can be emitted at a lower surface temperature.

At the moment, there are only speculative theories on what causes changes in how clouds behave. In building an understanding of how cloud patterns change over time and/or in response to changes in the Earth environment, models can be created allowing more rigorous predictions of climate change potential.

Studying the clouds

Roger Davies of the Department of Physics is one of a global team of scientists looking at cloud formations from space. Using data from NASA's Multiangle Imaging SpectroRadiometer (MISR) project, Professor Davies can look at clouds from multiple angles to geometrically triangulate and take measurements. The MISR instrument orbits 700 kilometres above the Earth in a sunsynchrous pole-to-pole orbit, taking 90 minutes and moving 22˚ in longitude around the planet with each full orbit (the same as the sun) providing almost complete global coverage every two weeks. This means it crosses the same point on the globe at the same local time each day and keeps the same light conditions as it orbits. It has nine cameras that record continuously during daylight, and monitors each region for seven minutes as it passes overhead. The recordings allow scientists to look at cloud type and height, as well as estimate wind speed from cloud movements.

Over the past eight years of data, there has been little change in the clouds over much of the Earth. However two regions stand out as exceptions. Near the equator, where the high clouds that determine the greenhouse effect are especially numerous, the cloud cover has dropped in height, suggesting a lowering of their greenhouse effect, potentially to offset global warming. In addition, the reflectivity of the Arctic has changed.

In northern summer 2006, the reflectivity of the Arctic decreased significantly, due to less cloud cover and less ice in the area, both of which reflect sunlight. However, from the ground, only a moderate decrease in ice was seen compared to its normal summer melt. The following year, there was a significantly higher ice melt than predicted, despite the fact that satellite pictures were brighter than average, and much brighter than the previous summer, due to increased cloud. But was the 2007 melt due to the darkness of 2006? Were the clouds of 2007 compensating for the low ice reflectivity to keep a balance? Right now, we don't know enough to say.

By studying the patterns of cloud formation, along with surface events such as the Arctic melt, predictive models can be created and greater understanding gained of the processes regulating the Earth. In time, the models may allow for hazard management, such as prediction of water levels resulting from melting land ice fields from the pattern of cloud formation beforehand.

Whilst we can not expect to control the clouds, understanding their mysteries may allow us to be better prepared for change.

Family (Department):
Physics

Genus (Group):
Atmospheric Physics

Species (Principal Investigator):
Professor Roger Davies, Buckley Glavish Chair in Climate Physics

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Understanding clouds can help us track global warming ▶

Child scientists

Whilst certain jobs have a defined career pathway, such as medicine or law, the opportunities available with a science degree are not always clear, particularly in the mind of a school student. It's important for youngsters to understand the breadth of choice a science education can provide for building an exciting and rewarding career.

With this aim, the scientists at the University have developed numerous creative and effective ways of getting, and keeping, children interested in science.

Growing crystals (above) and seeing a man-made tornado (right) are just two activities children enjoy at Incredible Science

The University complements life and school science lessons with a full programme of activities designed to keep science interesting. Each year, over 5000 children, from preschoolers to teens (and their parents) visit the annual *Incredible Science* day. Providing a host of activities that appeal to all ages, *Incredible Science* encourages children to get excited about science, with explosions, making slime and squashing lollies, all in the name of scientific discovery. In addition, the annual competition allows schools and home-schooled families to take part in the day – previous competitions have included Design a Science Board game and Design a Science website. In 2008, *Incredible Science* will host the first SciQuiz, a team general science knowledge quiz.

As children grow up, they are introduced to the importance of science through hands-on experience and role modelling. Through the Schools Partnership Office, University scientists visit schools or host teacher days, so that their students are aware of the developments in scientific research and stay enthusiastic.

To provide school students with experience of the hands-on aspect of science, the Faculty is involved in numerous events and initiatives. The Department of Chemistry, in collaboration with global chemical company BASF, invites primary-aged children to discover the fun in chemistry at *Kids Lab*, and host the annual three-day *Hands on Chemistry* course for Year 13 students. Both Chemistry and the Department of Maths also host the brightest students from around New Zealand to selection camps for the *International Olympiads* in their subject, whilst the Faculty also sponsors the *International Young Physicist Tournament* and the *Biology Olympiad*.

Each year, around 150 Year 12 students attend the Rotary National Science & Technology Forum, held in Auckland, in which the University takes an active part. High achieving students from across New Zealand, recommended by their science and technology teachers and selected by local Rotary clubs, spend two weeks in Auckland. During this time, they attend lectures and practical sessions at the University and other tertiary institutions, visit technology companies, and attend a formal dinner with guest speakers from the science and technology industry.

The Sir John Logan Campbell Classroom, situated at the Liggins Institute, opened in 2006, allows school students to experience procedures common, and often fast changing, in biological research, but difficult to teach in the classroom environment. Classes from Years 10 to 13 spend a day at the Classroom, undertaking practical experiments and meeting University scientists. The Classroom can also arrange for students to be put in contact with mentors for specific projects, such as the Royal Society's *Big Science Adventures* competition.

In the final year of high school, students with exceptional academic ability are invited to join the Young Scholars Programme at the University. These students can enrol for certain first year courses, including maths, psychology, statistics and computer science, which, should the student subsequently enrol as a full time University student, can be credited to their degree course.

To help students at high school and beyond understand how science can translate into a career, the Faculty hosts a number of careers events throughout the year. Girls into Science, for Year 10, and Futures, for Years 12 and 13, showcase graduate role models, talking about the vast array of careers a science degree can lead to. The Science Careers Evening, focused at undergraduate students, also invites companies to present to potential employees. Electronic careers resources are available to students and teachers to access - these include the MathsReach DVD and website, and the Geography, Geology and Environmental Science Careers DVD, which include interviews with practising scientists. Many of the departments within the faculty also have graduate profiles available to provide inspiration to aspiring scientists.

Alumni news

Tall Poppies

Science alumni Garth Cooper and Margaret Brimble have been named Tall Poppies in the World Class New Zealand Awards.

They both received their awards at a black tie gala, hosted by NZTE and Kea New Zealand, at the Langham Hotel in Auckland, and were presented with a Tall Poppy statuette, designed by Richard Taylor from the Oscar-winning WETA Workshop in Wellington.

Margaret, a Chemistry alumna was awarded the Research, Science, Technology and Academic award, while Garth, who gained a BSc in Chemistry and Biochemistry, an MBChB and PG Dip of Obstetrics at the University, was presented with the Biotechnology award.

Both Margaret and Garth are Professors at the University and principal investigators at the Maurice Wilkins Centre. In addition, Margaret is Head of Medicinal Chemistry at Neuren Pharmaceuticals, and Garth is founder of both Amylin Pharmaceuticals and Protemix.

Tall Poppies Margaret Brimble and Garth Cooper

Fulbright scholarship awardee Alana Alexander

Alumna receives US scholarship

Alana Alexander, a recent science graduate, hopes to study marine biology at Oregon State University, courtesy of a Fulbright Science and Technology Award.

The scholarship, one of 40 provided through the International Fulbright Program, provides tuition and living costs for three years of study, along with an allowance for books, equipment and conference attendance.

Alana graduated with a Bachelor of Science (Honours) in Biological Science in 2007. Her dissertation focused on genetic diversity among pilot whales. For her doctoral study she hopes to investigate changes in the genetic diversity and population size of sperm whales brought about by whaling and other factors. By conducting her research using non-lethally obtained samples, Alana will help illustrate the wide body of knowledge which can be obtained without the killing of whales. Her work will contribute to the body of knowledge available for consideration in their management.

Distinguished Alumnus Carrick Chambers

Distinguished botanist

Botanist Carrick Chambers, who graduated in 1952 with a BSc and 1954 with an MSc, was named a Distinguished Alumni in the 2008 Awards.

Emeritus Professor Carrick Chambers is an eminent botanist whose distinguished career began at Auckland University College. He was Professor of Botany at the University of Melbourne for 20 years and Director of the Royal Botanic Gardens, Sydney, for 10 years.

After a year lecturing at Auckland in ecology, four years at the University of Sydney and a year at Cambridge, he was successively a lecturer, senior lecturer and professor at the Botany School of the University of Melbourne from 1961 to 1986. His research focused on the fern genus *Blechnum*, in which he maintains an active interest, and *Blechnum chambersii* was named in his honour.

In 1986 Carrick was appointed Director of the Royal Botanic Gardens in Sydney. Under his directorship (1986 to 1996), the Gardens and the National Herbarium of NSW flourished. The Herb Garden, Rose Garden and Fernery all opened during his tenure and two satellite gardens, Mount Tomah Botanic Garden and Mount Annan Botanic Garden, were established as part of the Australian Government's Bicentennial celebrations.

Alumni out and about

The Alumni Relations office will be on the road this year, catching up with graduates around the world.

20 May	London
22 May	New York
24 July	Sydney
6 August	Whangarei
10 October	Hong Kong
14 October	Beijing
16 October	Shanghai
18 October	Seoul

If you would like to attend one of the events, or even suggest one in your area, please contact alumni@auckland.ac.nz.

Kim Simperingham, Head Strength and Conditioning Coach, Auckland Rugby Union

Alumni profile

Name: **Kim Simperingham**

Job: **Head Strength and Conditioning Coach, Auckland Rugby Union**

Class of: **2000 (BSc/BCom); 2003 MSc (Hons)**

Studied: **Sport and Exercise Science**

Lives: **Auckland**

Family Status: **Baby on the way**

The purpose of my role is to physically condition the Auckland rugby players so that they can perform to their potential for the Auckland rugby team, the Blues and the All Blacks. This involves working with each player to set programs to achieve improvements in strength, speed, power, flexibility, body composition, and aerobic and anaerobic fitness.

I started as the Strength and Conditioning Coach of Auckland age-group representative teams - Academy, Under-19's, Under-21's, Auckland B - before becoming the Head Strength and Conditioning Coach for Auckland Rugby in November 2005.

For half the year I work with the Auckland Rugby Academy players, a group of 35 of Auckland's developing players usually between 17 and 25 years old. The goal of working with these players is to teach them how to train and to help them prepare to play for Auckland, the Blues and the All Blacks. For the other half of the year I work with the Auckland rugby team competing in the Air New Zealand Cup competition. I work to physically prepare the players so that they are ready to compete each week through the competition. 2007 was a very enjoyable year to be involved with a team that went through the Air New Zealand Cup competition unbeaten and won the Ranfurly Shield and Air New Zealand Cup.

I have always had an interest in all sports and a desire to work with high performance athletes and sports teams. Following my BSc with a postgraduate MSc allowed me to concentrate on specific areas of interest, including exercise physiology, biomechanics, strength and power training, and my special interest of rugby training. I use the experience I gained at university every day, both my academic knowledge and the practical understanding I gained whilst working with athletes during my degrees.

Two lecturers that stick in my mind are Chris Baldi and Uwe Kersting, my two MSc supervisors. Both inspired me to learn and were happy to share their experience with me throughout my research. That research has been incredibly useful in my job: my first year involved computerised video match analysis of rugby and interviewing strength and conditioning coaches from New Zealand's top professional rugby teams about their training techniques. My MSc thesis also included studying a technique called "complex training", which is commonly applied in the physical preparation of rugby players, and I use my findings regularly in the strength programs that I set for the Auckland rugby players.

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