

# Stratus as a voice, guide and ambassador for emerging scientists at the University of Auckland

Debbie L. Hay<sup>\*1</sup>, John Cater<sup>2</sup>, and Duncan J. McGillivray<sup>3</sup>

<sup>1</sup>School of Biological Sciences, <sup>2</sup>Department of Engineering Science, and

<sup>3</sup>School of Chemical Sciences, University of Auckland, Private Bag 92019, Auckland

## Introduction

At the 2012 New Zealand Association of Scientists conference, 'Do Emerging Scientists Have a Future in New Zealand', Debbie Hay was given the opportunity to introduce the Stratus network, and describe the way in which it is contributing to supporting New Zealand science. Stratus is based at the University of Auckland and consists of more than two-hundred emerging researchers in the Faculties of Science, Engineering, and Medical & Health Sciences, and the related large-scale research institutes: the Auckland Bioengineering Institute and the Liggins Institute. The network consists primarily of postdoctoral researchers/research fellows and lecturers, many of whom are employed on short-duration fixed-term contracts. Stratus is independent of the University of Auckland and focuses its efforts on enhancing the research environment for early to mid-career academic staff. This article describes Stratus, its formation and how the network has evolved to date. We believe that Stratus is fulfilling an important role at the University of Auckland, and we hope that it can serve as an example for other groups of emerging researchers across New Zealand.

\*Correspondence: [dl.hay@auckland.ac.nz](mailto:dl.hay@auckland.ac.nz)

## Stratus Mission

Stratus aims to:

- Identify and address issues of importance to emerging scientists and engineers at the University of Auckland.
- Provide a network of support for emerging scientists at the University of Auckland.
- Raise the profile of emerging scientists and science both within the University of Auckland and to the wider community.

These ambitions are reiterated in our motto for Stratus 'A voice. A guide. An ambassador.'

### A voice

Stratus is a voice for early career scientists, through liaison with university management, external research bodies and the New Zealand government. Stratus works to provide practicable solutions to meet the development needs of scientists at The University of Auckland.

### A guide

Stratus is a guide for emerging scientists at the University of Auckland, providing access to information, assistance and



**Debbie Hay** is Senior Lecturer at the School of Biological Sciences. Debbie was a founding member of Stratus, and Chaired the Stratus committee from 2009-2011. She now acts in an advisory role. Debbie obtained her PhD in Molecular Pharmacology from Imperial College, London in 2002 and then moved to Auckland. She held fixed-term appointments until 2007. Debbie is a principal investigator (PI) of the Centre for Brain Research and Associate Investigator of the Maurice Wilkins Centre. Debbie is investigating new approaches to treating several diseases, including migraine, cancer, lymphatic insufficiency and obesity.

**John Cater** is a Senior Lecturer in the Department of Engineering Science in the Faculty of Engineering. John returned to the University of Auckland after more than ten years of research in Australia, Ireland and UK using experimental and computational fluid mechanics to investigate flow generated noise. John has been a member of Stratus for three years and acted as Vice-Chairman of Stratus in 2011, leading the Communications sub-committee during this period.



**Duncan McGillivray** is a Senior Lecturer in Physical Chemistry in the School of Chemical Sciences and a PI of the MacDiarmid Institute. He has been at the University of Auckland since 2008, when he returned to New Zealand after nearly ten years working at universities and government labs in the UK, Australia and the US, using neutron and X-ray scattering to probe biologically-relevant interfaces. As well as being on the Stratus committee, he is a member of the Early/Mid-Career Researchers' Advisory Group *Taki Ao* at the Ministry of Business, Innovation and Employment's Science and Innovation group.

consultation on research and career opportunities within the University and national science infrastructure, such as funding, promotions and career development.

### **An ambassador**

Stratus is an ambassador for New Zealand science and scientists, creating awareness and understanding through public education and engagement.

### **Formation of the Stratus network and committee structure**

An important feature of Stratus is that it has been a ‘bottom-up’ organisation from its earliest beginnings. It was formed by a group of researchers who felt the need for greater career support, and started with a few people meeting to discuss issues that they faced. It was soon realised that a larger group had the potential to find solutions to these issues and simultaneously raise the profile of emerging researchers. It was decided at this early stage that the core focus of this new group for greatest effectiveness would be emerging researchers (primarily post-PhD), and only in the sciences, engineering, medical and related fields. Membership should be free, and available to anybody interested, although many of the issues addressed would be those specific to the University of Auckland environment.

Consequently on 3 April 2008, the Stratus network and website was officially launched at a reception held at the University of Auckland. The importance of a group to address the special issues of emerging researchers was widely recognised early on – as is attested by the fact that both the then Chief Executive of the former Ministry of Research, Science and Technology (MoRST) and the Vice-Chancellor of the University of Auckland were guest speakers at the launch. The interest generated from this high-profile launch provided the founding members of Stratus with the impetus to start work towards the three major objectives of the network, with resources funded from sponsorship within the university. A committee of volunteers was formed, which oversees activities of the network and liaises with university management, government and funding bodies on behalf of researchers, and runs events and information or training sessions. This committee continues and is the heart of Stratus, and the success of the network depends on the enthusiasm of these members.

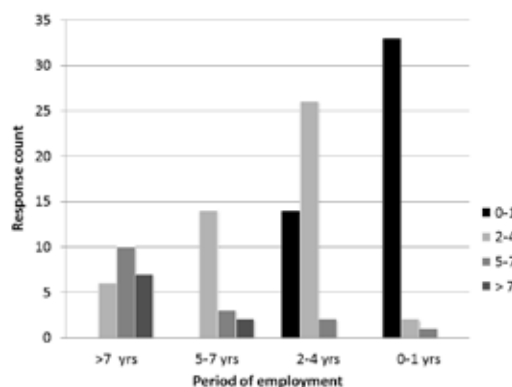
The committee, as a group of volunteers, does not have a quota from the various faculties and research institutes, or from different employment circumstances (e.g. research fellow, lecturer, fixed-term or permanent), but balance in these areas has always been an objective of the committee. Similarly, there are no set terms for membership of the committee, although there is a natural process of renewal as new volunteers join while committee members move on. The entire committee meets regularly (approximately once every two months), and is also supported by three subcommittees reflecting the three main activities of the network – issues, mentoring and communication. These subcommittees are responsible for a set of the particular activities, as some of the examples described below demonstrate.

### **The issues subcommittee – the ‘voice’**

The issues subcommittee is charged with following through on the aim of Stratus to ‘identify and address issues of importance to emerging scientists at the University of Auckland’. A significant feature of this is to be able to identify what are the issues of

importance to the members of our network – taking advantage of our broad membership base.

In an example of this, one major recent initiative was to develop a survey tailored for research fellows to capture data as to their role and aspirations within the University of Auckland, as well as the issues that they face. Concrete data of this type are extremely important for strengthening discussions around increasing support for research fellows – the largest proportion of emerging researchers at the University of Auckland, who are typically on fixed-term contracts. Figure 1 and Table 1 give a snapshot of findings from our survey. Two important conclusions can be drawn from the responses we received. First, the greatest concern for these researchers is the often short-term nature of the contracts for research fellows. The figure also shows the small but significant proportion of members who have survived



**Figure 1. Sample data from the Stratus research fellow survey. This illustrates the number of fixed-term contracts that researchers have been on over the period of their employment.**

for many years on a precarious series of these contracts. Secondly, research fellows make a considerable contribution to the university, including raising research revenue and ‘off-contract’ teaching. Although this survey was restricted to the University of Auckland, we anticipate that other institutions would have similar findings – these results will be no surprise to those actively interested in the career paths of emerging researchers in New Zealand. However, with the data collected by the network, Stratus was able to present in November 2011 to the Ministry of Science and Innovation (MSI), the then Minister, Dr Wayne Mapp, and to the Royal Society of New Zealand ‘A career path for talented researchers in New Zealand’, outlining our perspective on the importance of enhancing investment in talented researchers. We presented our ideal view of a tiered scheme of supporting researchers to develop their careers where there are opportunities for researchers directly after completing a doctoral degree and up to ten years post-PhD, ensuring that

**Table 1. Responses to the question, ‘Which of the following topics are of concern to you as a research fellow?’, in the Stratus survey to research fellows.**

Answer options	Response count
Career development	86
Career stability	92
Career opportunities	77
Funding	94
Recognition	42
Time management and ability to focus on one’s own research	55

there are no gaps in career development opportunities (Figure 2). These presentations occurred at a time of intense national debate on the role of emerging researchers in New Zealand, recently addressed in an article by Dr Melanie Massaro (Massaro et al. 2012), occasioned by the open letter addressed to the Minister criticising the implementation of the Rutherford Discovery Fellowships, and the simultaneous review of post-doctoral support by MSI. We believe our contribution was particularly valuable as it was based on direct research rather than anecdotal evidence.

This is a single example of how since its inception Stratus has worked to engage in national debates to promote the views of emerging researchers whenever an opportunity arises, and has also been proactive in promoting these discussions. Other examples include feedback to: the Tertiary Education Commission on the Performance Based Research Fund; the Health Research Council on proposed funding changes; and MoRST on their Research, Science and Technology priorities document. We also play a similar role on more local issues – providing feedback to the University of Auckland in drafting its strategic plan, for example, or consulting on how to improve conditions for emerging researchers at the university. Stratus even arranged an appearance on TV3's *Frontline* programme, discussing the lack of career opportunities for young scientists in New Zealand (<http://www.3news.co.nz/Scientists-says-lack-of-funding-driving-them-offshore/tabid/1160/articleID/250852/Default.aspx>).

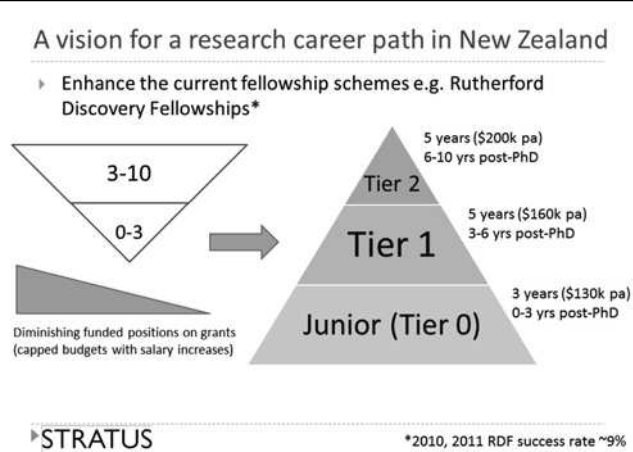
We believe that our constructive engagement and responses, describing potential benefits and impacts upon emerging researchers, provide an important balance of views to the perspectives of more established researchers. This is an area in which we feel there has historically been a significant void, which we have begun to fill.

### The mentoring subcommittee – the 'guide'

Mentoring is a common topic of discussion and interest for emerging researchers – usually as there is a perceived lack of it. Mentoring is particularly important for those researchers who are just beginning to embark on a truly independent research career, or who have recently arrived in New Zealand from overseas research environments. Although the university offers mentoring schemes, these suffer from being of a somewhat generic nature, and often do not have buy-in from the mentor and mentee.

The Stratus mentoring subcommittee has endeavoured to determine the forms of mentoring that best serve our members. We believe that to be effective mentoring should be available to researchers from the beginning of their employment, regardless of contract type or length, and allow progress in developing and advancing both short-term and long-term career goals. To maximise the impact of mentoring, the emerging researcher must actively reach out for help – imposed mentoring appears to have little long-term success. Equally the mentor must be personally committed to the mentorship (i.e. be a volunteer), and ideally not have professional conflicts which may prevent them from acting in the interest of the mentee.

The range of topics for which mentoring may be useful is very wide. A researcher might seek a mentor to help with personal issues such as work/life balance or building confidence in promoting their work. Mentors can assist with professional



**Figure 2. An ideal view of a tiered scheme of supporting researchers to develop their careers after completing a doctoral degree and up to ten years post-PhD. The situation of fellowship opportunities in New Zealand prior to the adjustment of the Rutherford Discovery Fellowships in 2012 is shown on the left, with very few fellowships available for researchers immediately after their PhD training, and thanks to the Rutherford Discovery Fellowships significantly more support later. Our vision is to invert this triangle and increase the number of fellowships at the earlier levels (right), while maintaining support up to ten years post-PhD. Exact cut-offs in years and fellowship values are guidelines only.**

development, in terms of helping with networking, establishing goals, applying for fellowships or jobs. Skill development can be a specific need, for example to aid communication and time-management. In a university context, local guidance is important to understand departmental values and for developing collegial relationships. Finally, there are many immediate occasions – such as when seeking promotion – when an intense period of directed support can be very valuable.

This brief summary shows that mentorship can take a variety of forms and assist in many ways, so that one mentor may not be able to assist with all of the needs of a mentee. A one-size-fits-all approach to mentoring will not meet the needs of all researchers, and the issues that are faced by researchers on fixed-term contracts are often quite different from those faced by permanent staff members. Therefore, we have taken a number of different approaches.

### Facilitated peer-group mentoring

Peer mentoring is an excellent method for researchers to achieve specific goals. We ran a trial scheme where a group of researchers at similar levels met with a facilitator (a senior academic) to discuss issues and concerns relevant to them and to find ways of addressing them. One group took a structured approach and dealt specifically with time management and career planning. A second group used a more informal approach, where a number of issues were discussed but each session had an 'agenda' to ensure the meeting was productive. These methods were both effective, but if mentorship is needed for a specific purpose we would recommend the more structured approach. We found that peer-group mentoring gives the opportunity to discuss concerns that were relevant to and understood by all the participants and get advice from members who had already had to deal with some of these issues. The role of the senior facilitator was critical for these sessions. As well as offering a different perspective

to some of the issues and challenging participants to look at things differently, the facilitator is important for keeping sessions constructive.

### **Long-term individual mentoring**

We have found that for long-term individual mentoring to succeed, a critical factor is that the emerging researcher should select their own mentor, rather than having a mentor assigned to them. This process forces the emerging researcher to consider what it is they wish to achieve from mentoring, and to show a commitment to their own professional development. It also enables consideration of the personal preferences of the researcher, and their own local knowledge of their particular school or department. The role of Stratus then becomes one of providing advice in helping identify possible mentors, assisting in making the initial contact and in advising the emerging researcher on how to structure their relationship with their mentor. This has generally been done by way of presentations to groups of researchers, rather than on a one-on-one basis due to the time constraints on the members of the committee.

As mentioned above, commitment to the mentoring from the emerging researcher is essential. This also involves them being prepared to take risks and try new approaches to solving problems, and being able to accept constructive feedback. The emerging researcher needs to have developed a clear vision of their career goals. They should create specific, written goals (e.g. for 3 months, 1 year and 5 years), or at least establish a possible direction. Specific goals help the mentee to communicate their needs to their mentor, and help to structure the mentoring relationship.

In selecting a mentor, the researcher should consider their own personal work style and how this fits with mentoring approaches considering, for example, how they learn best. Would they prefer highly-structured sessions, directed guidance or gentle supervision? Expectations over the mentoring style should be clearly understood at the beginning of the relationship – many mentoring relationships fail because of perceived differences over the appropriate style. Finally, researchers should consider what specific aspects of their work career they want to be mentored in, remembering that a very successful technique is to have multiple mentors for different career stages or for different areas of focus depending on need.

An effective mentor is one that is willing to offer the support/opportunities/advice/help that an individual mentee needs and the ability to make the time required for the mentorship. Many potential mentors do not appreciate the effort required to be effective; this is particularly true for more senior staff. The commitment needs to be well understood by both parties at the beginning of the relationship. Previous experience in mentoring is desirable, but not as important as enthusiasm. The mentor should have a genuine interest in the mentee's growth and development and treat the mentee as a colleague. Finally, the ideal mentor will support the researcher to identify and solve problems themselves, developing their own problem-solving abilities. Mentors may be someone the researcher already has a informal relationship with – in this case it is important to formalise the relationship and set objectives. Otherwise, Stratus has been able to help identify people who are willing to be approached. Generally, we find that those approached are very willing to act as mentors.

### **Mentoring focused on single issues**

We have found a useful way of supporting emerging researchers is to run workshops that are directly relevant to them, focussing on a single issue in career development, coupled with offers to help find mentoring relevant to this issue. As an example of this, we have identified from talking to our members that the policies and processes for promotion at the University of Auckland are poorly understood, and in particular rarely used by researchers on fixed-term contracts. Although the University runs some workshops on promotion, research fellows in particular feel excluded because the emphasis tends to be on permanent staff, who form the majority of applicants. Consequently, we run our own workshops consisting of formal presentations of the application procedure, followed by an open discussion involving a panel of staff involved in either co-ordinating (human resources) or participating in (faculty committees) the promotion process. We have found that the open discussion portion of this process, which allows more targeted discussion on the issues relevant to emerging researchers, to be particularly valuable. Coupled to this regular workshop we have implemented a mentoring scheme for staff wishing to submit an application, which provides mentors from within the applicant's research area that have participated in a faculty staffing committee or have recently been promoted, and who provide feedback on the content and layout of the application. There has been considerable uptake of this scheme across the various faculties, and it has been very successful, with a high rate of successful promotion for those involved.

Similar successful workshops have been run focusing on applications for Rutherford Discovery Fellowships (run in conjunction with the Research Office of the University), or on special topics of skill development, such as 'strategies for success in research' which included information on the skills required for successful grant proposal preparation and publishing metrics. The success of these programmes has relied on the ability of Stratus to encourage our members to attend the workshops (which is built on their trust that Stratus workshops are specifically tailored to their needs), and the ongoing support via mentorship that ensures that the benefits of the workshop are cemented.

### **The communications subcommittee – the 'ambassador'**

The final subcommittee is the communications subcommittee. Its main roles are organising networking opportunities for our members, keeping Stratus members informed of relevant news and issues, and communicating science and science issues to those outside of the network, particularly the general public. All of these roles overlap strongly with the responsibilities of the other committees; this sub-committee's efforts strongly contribute to the success of Stratus.

Central to the legitimacy of Stratus' role of representing emerging researchers is maintaining an active membership with strong lines of communication between the committees and general members. This is particularly challenging when dealing with emerging researchers, who are often bombarded with demands on their time. Stratus has developed multiple communication strategies – as well as word-of-mouth, we have a webpage (<http://www.stratus.ac.nz>), Facebook, LinkedIn and Twitter presences, and a dedicated Stratus email list to which members actively subscribe. Stratus also leverages its connec-

tions with the university – using departmental or faculty mailing lists, advertising in the university events calendar, and co-organising presentations with the university. One of the most effective methods is the production of colour fliers, which are distributed throughout the campuses. We find all of these methods together have good penetration with our members, reflected in high activity from our membership and participation in organised events. Part of the reason for this success is that Stratus has developed a fairly strong brand within the university – our logo is recognisable to our members and ties all our communications together (Figure 3). Of course this brand is only effective if it is associated in our members minds with events and announcements that are relevant and interesting to them.

Organising networking opportunities is one of the roles which is most appreciated by our membership. As well as helping emerging researchers overcome the social isolation that may accompany establishing themselves in a new role, it also overcomes the professional isolation which can exist in a large institution with multiple campuses. As multi-disciplinary research gains prominence internationally, there are few venues in which potential collaborators in other disciplines can be identified. We have experimented with different methods to bring researchers together in a productive way, and we have found that purely social functions (such as drinks and nibbles, or a trivia evening) are not as effective as combined networking and social functions. As an example, one particularly successful function that we run on a regular basis is known as “Stand-up Science”. Researchers are given one minute and a white-board to describe their science to an informal gathering, followed by free-form discussion, drinks and nibbles (participants can bring posters to be set up as well).

Other types of gathering build on informative seminars by prominent speakers on highly topical subjects, which is followed by a social function. This is somewhat similar to traditional departmental seminars, but the challenge faced by Stratus is to find engaging topics of relevance to our broad spectrum of members. Recent examples have included discussions by the head of the Marsden panel on the future of science funding in New Zealand (with particular emphasis on the Marsden Fund, and emerging scientists), or a discussion led by the university’s Deputy-Vice Chancellor (Research) on a similar topic.

A very successful event of this kind was led by Peter Griffin of the New Zealand Science Media Centre – addressing how myths and misconceptions about science are propagated in the public mind. This is a major focus of the communication subcommittee. We strongly believe that without public understanding of the sciences and its key role in shaping the future of New Zealand, public support will be limited and investment will remain low. Emerging researchers are excellent advocates for their disciplines, but often do not know where to begin with public communication of science. This also means that the contributions of emerging researchers to the national research environment are under-appreciated. The communications subcommittee has had a broad remit to up-skill emerging researchers in the public communication of their work and also to take a leading role in dissemination of topical issues. This has involved training seminars for our members with a communications focus, as well as maintaining lists of contacts for our members who desire to publish material to the media. It has also involved arranging major public functions – such as panel

discussions on challenging topics (e.g. the perceived lack of appreciation of fundamental research, and the over-weighting of applied research, in a New Zealand context). These major events are characterised by very high quality speakers, large audiences, and active interaction between the panel and the audience.

## **A vision for the future – a national voice, guide and ambassador for emerging researchers**

Emerging researchers can often feel isolated, within their departments, faculties, institutions and in New Zealand. Occupied with the challenge of establishing individual and innovative research programmes they can often feel that they do not have the ability to have their concerns reflected in major policy drives, and lack the opportunities to promote their own contributions to the research environment in New Zealand. The major purpose of Stratus is to reduce that isolation and provide a way to meet other emerging scientists and engineers to discuss common obstacles and objectives. Stratus has been an effective means of giving emerging researchers at the University of Auckland a voice, and other similarly-minded groups in New Zealand, such as the Ozone group at the University of Otago and the MacDiarmid Emerging Scientists Association perform equally effectively (albeit with slightly different modes of operation). However, the majority of emerging researchers across the country still work in relative isolation, and it is our vision that ultimately nation-wide Stratus-like networks will be formed that we can work with, to give the strongest possible voice and inclusivity to emerging researchers in New Zealand.

## **Acknowledgements**

The authors would like to thank present and past members of the Stratus organising committee and all those that have participated in Stratus events and activities. We would also like to acknowledge the generous support of our activities that we have received from the departments, schools and faculties of the University of Auckland.

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**Figure 3. Stratus logo, which ties together all our activities.**

Stratus website: [www.stratus.ac.nz](http://www.stratus.ac.nz)

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