
PROFESSIONAL SCIENTISTS EMPLOYMENT AND REMUNERATION REPORT 2019



**Professionals
Australia**



**Professional
Scientists
Australia**



**Science &
Technology**
AUSTRALIA



ABOUT SCIENCE & TECHNOLOGY AUSTRALIA

Science & Technology Australia (STA) is the peak body representing more than 75,000 scientists and technologists across Australia. Its mission is to connect them with governments, business and society to advance the role, reputation and impact of science and technology in Australia.

STA promotes the views of the STEM sector on a wide range of policy issues; provides opportunities for professional development and works to advance diversity and inclusion across the sector. The organisation contributes to discussions at the highest levels in policy-making in Australia and communicates with the highest level of government.

To amplify the voices of STEM professionals, STA runs a series of events and programs across the country, including:

- **Science meets Parliament** - STA's annual flagship event, connects hundreds of scientists and technologists directly with Federal Parliamentarians each year
- **Superstars of STEM** - A program that aims to smash society's gender assumptions about scientists and increase the public visibility of women in STEM. Designed to create a critical mass of visible role models for young women and girls, the program is helping achieve equal representation in the media of women and men working in all fields in STEM.
- **STEM Ambassador Program** – linking STEM professionals with their local Member of Parliament, participants act as a conduit between local STEM communities and the decisionmakers that represent them in Parliament.

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ABOUT PROFESSIONAL SCIENTISTS AUSTRALIA

Professional Scientists Australia represents several thousand professional scientists from a broad range of specialisations including health science, automotive design, biomedical science, ecology, veterinary science, neuroscience, mental health, genetics and genomics, astronomy, biochemistry, mineral processing, environmental science, defence research, synchrotron science, environmental science, immunology and water science.

Professional Scientists Australia is a division of Professionals Australia (formerly the Association of Professional Engineers, Scientists and Managers, Australia) which is an organisation registered under the Fair Work Act 2009 representing over 25,000 Professional Engineers, Professional Scientists, Veterinarians, Architects, Pharmacists, Information Technology Professionals, Managers, Transport Industry Professionals and Translating and Interpreting Professionals throughout Australia. Professionals Australia is the only industrial association representing exclusively the industrial and professional interests of these groups.

Professional Scientists Australia has three key objectives:

- to provide a strong voice for professional scientists including researchers, pharmacists, vets, surveyors and others. This involves considering the kind of support, policies and practices at the enterprise and structural levels that will be necessary to create a sustainable and diverse science workforce capable of realising optimal levels of innovation and productivity;
- to play a leading role in encouraging dialogue between industry, government and the higher education sector. This means advocating for investment and structural reforms, building the platforms for cooperation and change and initiating and leading projects to foster collaboration; and
- to promote public understanding of science and the key role professional scientists play in ensuring Australia's future. This involves influencing public policy and resource allocation decisions and promoting the value of science to decision-makers and the wider community. We seek to highlight the critical role science plays in enabling productivity and innovation, promoting economic prosperity, protecting the environment, improving human welfare and quality of life, preventing, diagnosing and treating human disease and protecting national security. In doing so, we raise the status of the profession and the professionals who work in it.

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FOREWORD



As Australia and the world continue to move toward a future increasingly informed and supported by science and technology, it's worth reflecting on the facts about the value of science, technology, engineering and mathematics (STEM) to the economy.

- When flow on effects are considered, the impact of STEM fields amounts to over 26 per cent of Australian economic activity, or about \$330 billion per year.¹
- In advanced economies, science and technology directly underpins between 10 and 15 per cent of economic activity.²
- In Australia, 65 per cent of economic growth per capita from 1964 to 2005 can be attributed to improvements in our use of capital, labour and technological innovation – made possible in large part by STEM.³
- The OECD has found that in advanced industrial economies, innovation and the exploitation of scientific discoveries and new technology have been the principal source of long-run economic growth and increasing social well-being.⁴

When we consider the STEM workforce:

- Modelling by PwC finds that shifting just 1 per cent of the workforce into STEM roles would add \$57.4 billion to GDP (net present value over 20 years).⁵
- Between 2013 and 2018, STEM jobs grew by 16.5 per cent compared to 10.2 per cent for other jobs - 1.5 times faster.⁶
- 53 per cent of employers expect demand for STEM-qualified professionals to rise in the next 5 to 10 years.⁷

To ensure a competitive and growing Australian economy we need to embrace a high-technology future with a dynamic science and innovation system. This, coupled with a successful transition from a manufacturing to a high-skill, knowledge-based economy will be vital for our future prosperity - we need to get the settings right.

We need to encourage stronger collaboration between industry and research bodies and implement a set of coordinated policies that encourage and incentivise business investment in R&D, so we can generate innovative products and processes and support emergent industries and the creation of new jobs. We need to build capacity for the future and ensure the critical roles of scientists in industry, publicly-funded science organisations, and academia are acknowledged.

With these imperatives in mind, it is important to ensure conditions for those at the front line of creating and applying new knowledge enjoy fair and inclusive conditions. These women and men need to be supported by a national strategy that values their work and defines their place in shaping the nation's future.

As Australia's Chief Scientist, Dr Alan Finkel, said: "Science is key to unlocking the world's best possible tomorrow. It's a grand vision, and for many scientists, it's more than a job – it's a calling, For Australia and Australian businesses to lead the way into the future, we need to recognise the value of the professional scientific workforce, and provide incentive for the next generation to aspire to professional scientific careers."

Thanks to concerted efforts by organisations like Professionals Australia and STA, remuneration for scientists has increased by 2.0 per cent, extending beyond the cost of living increase for the year (1.6 per cent). However, this is less than the rate of wage growth across Australian workplaces more generally with WPI to the June quarter sitting at 2.3 per cent. There is still work to do.

If we are to build our prosperity through STEM, and look to attract bright, creative and committed people to the vital endeavours of science and technology at a time when a diverse and sustainable science and technology workforce has never been more important to Australia's future, we must ensure a career in STEM is an attractive and viable proposition.

“I love what I do. Working as a scientist in industry enables me to turn sometimes esoteric ideas and discoveries from academia into practical solutions that people can use. I’m proud of what I do and the impact that can have on society. I do think the good will of scientists is exploited sometimes though because we care about what we do.”

Survey respondent

More than one-third - 35.2 per cent - of respondents reported being dissatisfied with their current level of remuneration and 37.5 per cent said they were considering leaving their current employer. For those who were considering leaving, a pay increase, greater professional development opportunities and better management were the most frequently cited contributing factors. 41.2 per cent said their package did not reflect the level of responsibility they undertook in their day-to-day work.

Of particular ongoing concern is the gender pay gap. According to the survey, women in science are paid 13.8 per cent less than their male colleagues. This is an improvement on results from last year’s survey, but it is still equivalent to the national average of 14.1 per cent and warrants urgent attention. The gap emerges at mid-career stage and becomes particularly obvious at senior levels.

When asked to reflect on their sector, respondents reported broad concern about Australia’s ability to maintain its scientific capability. Almost two-thirds said cost-cutting was impacting their organisation and over one-quarter reported a decline in service quality at their workplace. 26.9 per cent said a decline in the number of scientists in decision-maker roles was evident in their organisation. Alarming, 72.3 per cent of respondents said Australia was not well prepared to meet emerging challenges. 71.4 per cent of respondents agreed that attracting, developing and retaining the next generation of scientists is one of the most important priorities for developing a sustainable STEM (science, technology, engineering and mathematics) workforce in Australia. It’s important therefore that Professionals Australia and STA continue to advocate for the robust, strategic and long-term investment in science, technology, engineering and mathematics necessary to underpin Australia’s future economic growth, population health and environmental resilience.

These findings sit alongside the latest figures showing that Australia invests 1.88 per cent of GDP in research and development - well below the OECD average of 2.38 per cent. OECD records also show a decline in business investment in R&D for the first time since records have been maintained.⁸

This report shows our commitment to helping ensure that organisations across Australia can effectively attract, develop and retain a diversity of skilled professional scientists at all levels of seniority and increase the range of careers and roles where science qualifications are recognised and rewarded. We are also committed to continuing our work to achieve a more equal and inclusive sector, so we are fully utilising our potential talent base.

We will continue to provide specialised remuneration and job satisfaction information services to support these objectives, to advocate on behalf of STEM professionals and their sector, and to help ensure STEM professionals play the central role they should in growing our national economy.

CHRIS WALTON

CEO, Professionals Australia

ROBYN PORTER

President, Professional
Scientists Australia

KYLIE WALKER

CEO, Science & Technology Australia

INTRODUCTION



Welcome to the 2019 Professional Scientists Employment and Remuneration Report.

Many professional scientists don't opt for a career in science for the money. Rather they feel science is a vocation and a lifelong pursuit – scientists have a deep and enduring passion for their work.

Nonetheless it is critical that current and comprehensive data on remuneration is available to ensure scientists are being paid what they're worth and this report provides an evidence-base for negotiating salaries at review time. It is an objective reference point when considering a job offer and a basis for making an informed judgement about whether or not it's time to move on to another role.

It is vital that science- and technology-based employers understand the value of attracting and retaining STEM professionals by properly recognising their skills and the investment they have made obtaining graduate and post-graduate qualifications. It is also critical that they respect the value of the work they do and reward them in line with relevant market salaries.

In what continues to be regarded as a cautious business environment and a variable labour market with modestly expanding STEM employment and patchy hiring intentions, competitive salaries and benefits will ensure organisations attract and retain the best talent where they choose to add to their technical and innovation capabilities.

Professionals Australia, Professional Scientists Australia and Science & Technology Australia have a thorough and broad-ranging survey process in place which allows us to provide accurate and up-to-date salary information. The survey is an annual snapshot of remuneration including base salary and other benefits across sectors, responsibility levels, years of experience, job functions, industries and branches of science.

The report provides analyses of:

- current base salaries and total remuneration packages;
- annual salary movements;
- employment intentions;
- variable pay;
- the general morale of scientists;
- the difference in reported male and female earnings; and
- working hours and how additional hours are compensated.

This is comprehensive, detailed and independent research you won't find elsewhere.

“I love working as a researcher, teacher, consultant and much more .. it gives me a sense of purpose and meaning, of making a contribution and making a difference.”

Survey respondent

KEY FINDINGS



Wages growth

- Base salaries paid to professional scientists grew by an average 2.0 per cent over the last 12 months.
- 27.1 per cent of respondents reported that they had not received any pay increase over the previous 12 months.



Average salaries

- Across all sectors employing scientists, a full-time professional scientist took home an average annual base salary of \$112,151 and received a total package worth \$129,910.



Satisfaction with remuneration

- 46.9 per cent of scientists surveyed reported being satisfied or very satisfied with their current level of remuneration and 35.2 per cent were dissatisfied or very dissatisfied.



Gender pay gap

- Female respondents earned on average 86.2 per cent of male respondents' earnings – a gender pay gap of 13.8 per cent.



Employment intentions

- 12.0 per cent of respondents had changed jobs in the previous 12 months and, of those, 40.9 per cent had moved for a pay increase, 47.0 per cent had moved for greater job security and 50.0 per cent had moved for greater professional development opportunities (respondents could name more than one contributing factor).



Workplace morale and fatigue

- 50.0 per cent of respondents said that staff morale had declined in their organisation over the previous 12 months.
- 57.5 per cent reported that worker fatigue had increased.



Value of post-graduate qualifications

- The completion of post-graduate qualifications - Graduate Diploma, Masters and PhD - delivered average earnings premiums (total package figures) of 14.4, 20.6 and 29.7 per cent respectively over holding a Bachelor degree alone.



Working hours

- Respondents worked on average 43.6 hours per week including 5.4 hours of overtime.



Science capability, STEM priorities and workforce challenges

- 16.8 per cent said that scientific capability was not seen as a source of innovation in their organisation.
- 72.3 per cent of respondents said Australia was not well prepared to meet emerging challenges.



Deprofessionalisation and cost-cutting

- Deprofessionalisation was seen as a concern with 26.9 per cent of respondents noting a reduction in the number of scientists in decision-maker roles over the previous 12 months.
- 59.2 per cent of respondents reported that cost-cutting was an issue in their organisation.



Skills development

- 42.8 per cent of respondents said there was insufficient skills development in their workplace over the previous 12 months.



Discrimination and sexual harassment

- 38.2 per cent of female respondents said they had experienced bias or discrimination on the basis of gender in the previous three years.
- 19.4 per cent had experienced sexual harassment at least once in their careers compared to 4.9 per cent of males.



Please refer to pages 48 and 49 for a more detailed summary of key results.

REMUNERATION



01 EMPLOYMENT SECTOR

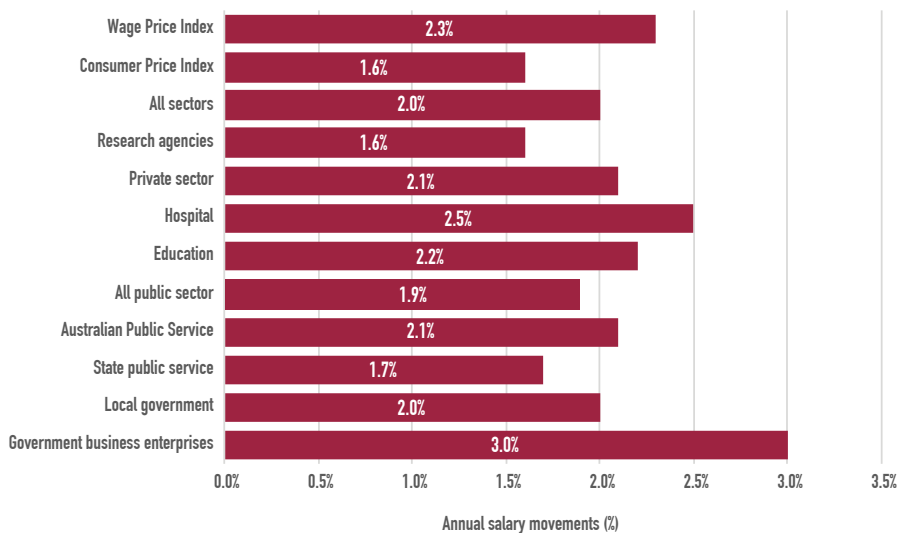
Base salaries paid to professional scientists grew by an average 2.0 per cent over the last 12 months.

Salary increases to scientists in the Australian Public Service and Local Government averaged 2.1 and 2.0 per cent respectively - above the cost of living which was 1.6 per cent to June 2019 as measured by the ABS Consumer Price Index (6401.0) but below increases in earnings across the Australian economy as measured by the ABS Wage Price Index (6345.0) which increased by 2.3 per cent (annualised to June 2019). Average increases in the State Public Service Sector just exceeded CPI at 1.7 per cent. Government business enterprises (including organisations such as Australia Post, the NBN and Snowy Hydro) averaged increases of 3.0 per cent but that was off the back of zero growth in the previous 12 months. Overall, public sector respondents reported an average increase of 1.9 per cent. Private sector respondents reported an average increase of 2.1 per cent.

The highest average increase by sector was in the Government business enterprises and the Hospital sector followed with an increase of 2.5 per cent.

The lowest reported average increases were in Research agencies and the State public service with increases of 1.6 and 1.7 per cent respectively.

Figure 1 - Average (median) annual percentage base salary movements by employment sector⁹



“Although science is the most rewarding career in terms of curiosity and job satisfaction, the remuneration is not on par with other professions and when you have bills to pay and family to feed, sometimes it can be difficult to stick with your passions.”

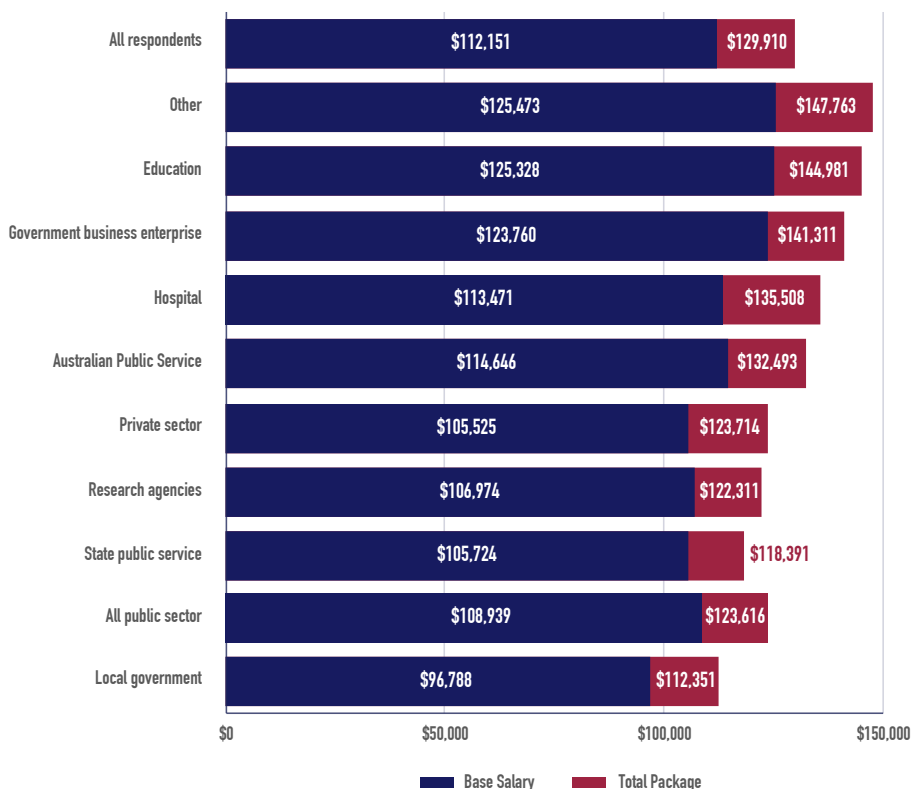
Survey respondent



Across all sectors employing scientists, a full-time professional scientist took home an average annual base salary of \$112,151 and received a total package worth \$129,910.

Excluding those who answered 'Other', the average annual base salary was greatest in the Education sector at \$125,328, compared with \$114,646 in the APS and \$105,525 in the Private sector. The highest average total package was in the Education sector at \$144,981, compared with \$132,493 in the APS and \$123,714 in the Private sector.

Figure 2 - Average (mean) base salaries and total package by employment sector



Incidence of zero pay increase by sector

27.1 per cent of respondents reported receiving no pay increase in the previous 12 months. This figure was 30.5 per cent for the Private sector, 27.7 per cent for the Public sector and 25.6 per cent in Education.

Table 1 – Incidence of zero pay increase by sector

SECTOR	PERCENTAGE
Private	30.5%
Public	27.7%
Education	25.6%
Other sectors	21.3%
All	27.1%

02 RESPONSIBILITY LEVEL¹⁰

“Science doesn’t pay. You do it because you want to make a difference.”

Survey respondent

The average annual base salary for a Level 1 scientist was \$60,433 with an average total package of \$69,686. Average total packages not surprisingly were greatest at Level 5 and Above Level 5 where the packages ranged from \$202,274 to \$246,674. Average annual movements in base salary ranged from 1.5 to 3.0 per cent for scientists between Levels 1 and Above Level 5 and were greatest for those at the highest level of responsibility with median increases of 3.0 per cent.

Figure 3 - Average (mean) annual base salaries and total package by responsibility level

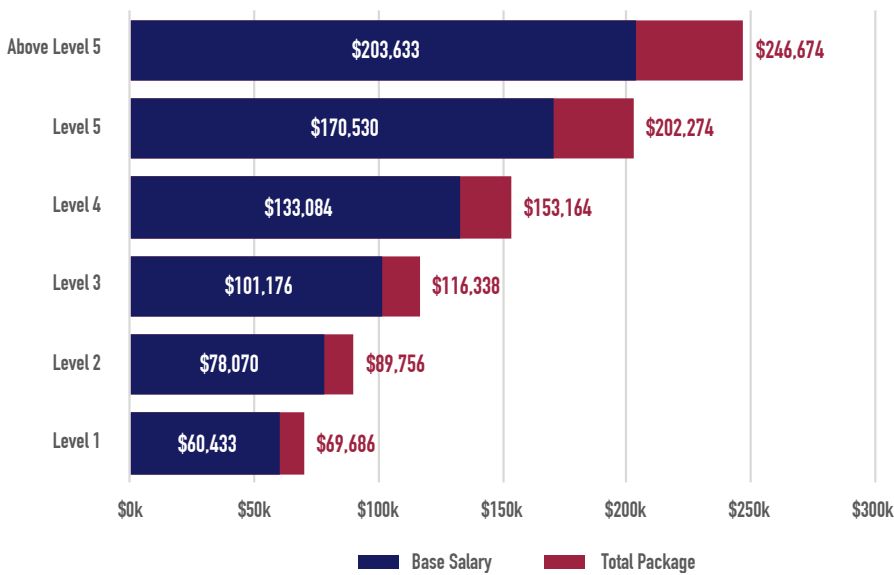


Figure 4 - Average (median) annual percentage base salary movements by responsibility level

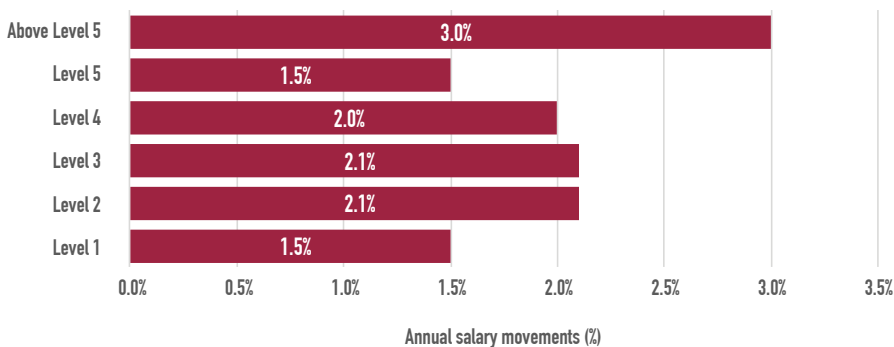




Table 2 - Base salary and total package by responsibility level

	BASE SALARY					TOTAL PACKAGE			
	N	LOWER QUARTILE	MEDIAN	UPPER QUARTILE	MEAN	LOWER QUARTILE	MEDIAN	UPPER QUARTILE	MEAN
LEVEL 1	30	\$55,000	\$60,000	\$68,000	\$60,433	\$60,225	\$68,748	\$79,059	\$69,686
LEVEL 2	112	\$66,000	\$78,250	\$89,981	\$78,070	\$76,103	\$88,833	\$102,874	\$89,756
LEVEL 3	229	\$90,000	\$100,000	\$111,254	\$101,176	\$101,799	\$115,270	\$127,020	\$116,338
LEVEL 4	164	\$111,811	\$132,149	\$150,000	\$133,084	\$129,503	\$151,076	\$172,673	\$153,164
LEVEL 5	48	\$133,599	\$165,772	\$191,000	\$170,530	\$162,770	\$198,380	\$225,819	\$202,274
BEYOND LEVEL 5	18	\$184,300	\$195,629	\$222,000	\$203,633	\$219,800	\$239,526	\$265,592	\$246,674
ALL RESPONDENTS	601	\$85,000	\$105,000	\$131,000	\$112,151	\$97,804	\$120,466	\$152,328	\$129,910

03 INDUSTRY

Amongst industries with good representation in the survey the highest base salaries were in the Mining, Education and training and Electricity, gas, water and waste industries with average salaries of \$132,426, \$125,961 and \$119,583 respectively.

The highest total packages were also in Mining, Education and training and Electricity, gas, water and waste with packages of \$161,195, \$145,935 and \$135,406. The greatest salary movement was in the Education and training industry with a median base salary increase of 2.8 per cent off the back of a moderate increase of 2.0 last year.

Figure 5 - Average (mean) annual base salaries and total packages by industry

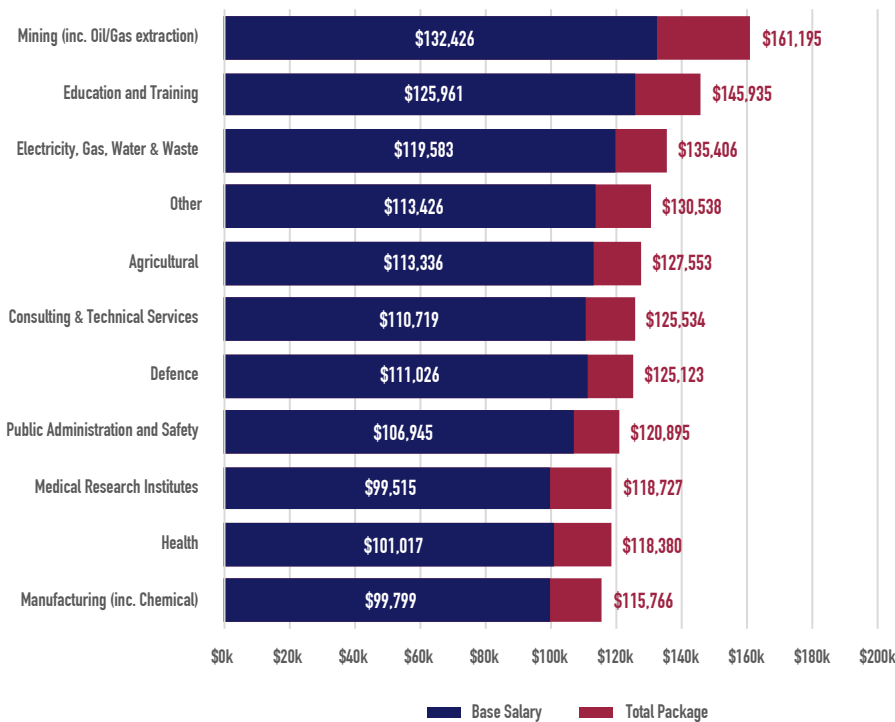
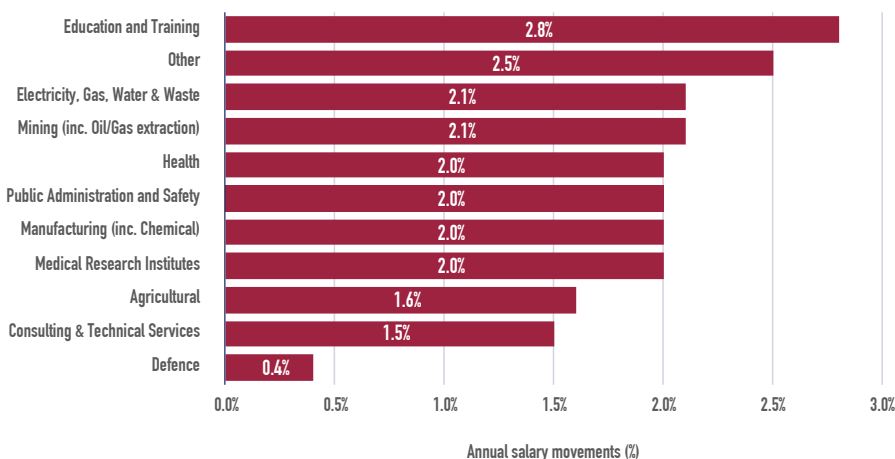


Figure 6 - Average (median) annual percentage base salary movements by industry



“I am one of the lucky ones who transitioned straight from my PhD into a rewarding and secure position. However, the majority of my peers have struggled to find further opportunities in their fields. This is not due to want of talent, ability or drive but rather a lack of value placed on their skills, experience and qualifications. It is a sad indictment on Australia when many of our highly-trained, passionate scientists across multiple fields are having to leave to go overseas because they can’t find secure employment at home.”

Survey respondent



04 BRANCH OF SCIENCE

Average annual base salaries and total packages were highest in the Physics, Engineering and Geology fields.

Average annual salary movements were greatest in the Food science/technology, Botany and Physics fields with increases of 3.0, 2.8 and 2.5 per cent respectively.¹¹

Movements were lowest in Marine science and Materials/metallurgy with movements of 0.7 and 1.0 per cent respectively. Notably, base salary and salary movement were modest in the Biological science discipline (2.0 per cent) where there is a high output of annual graduates but limited demand from employers.¹²

Figure 7 - Average (mean) annual base salaries and total package by branch of science

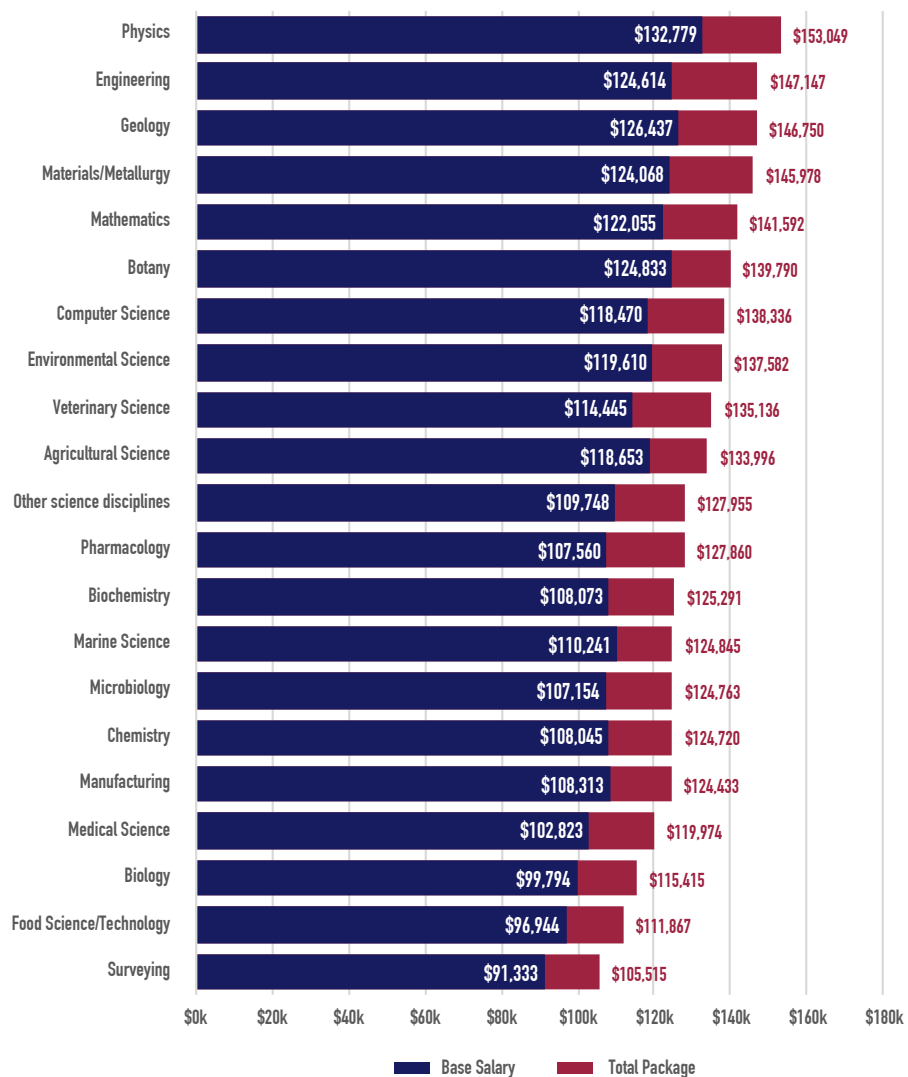
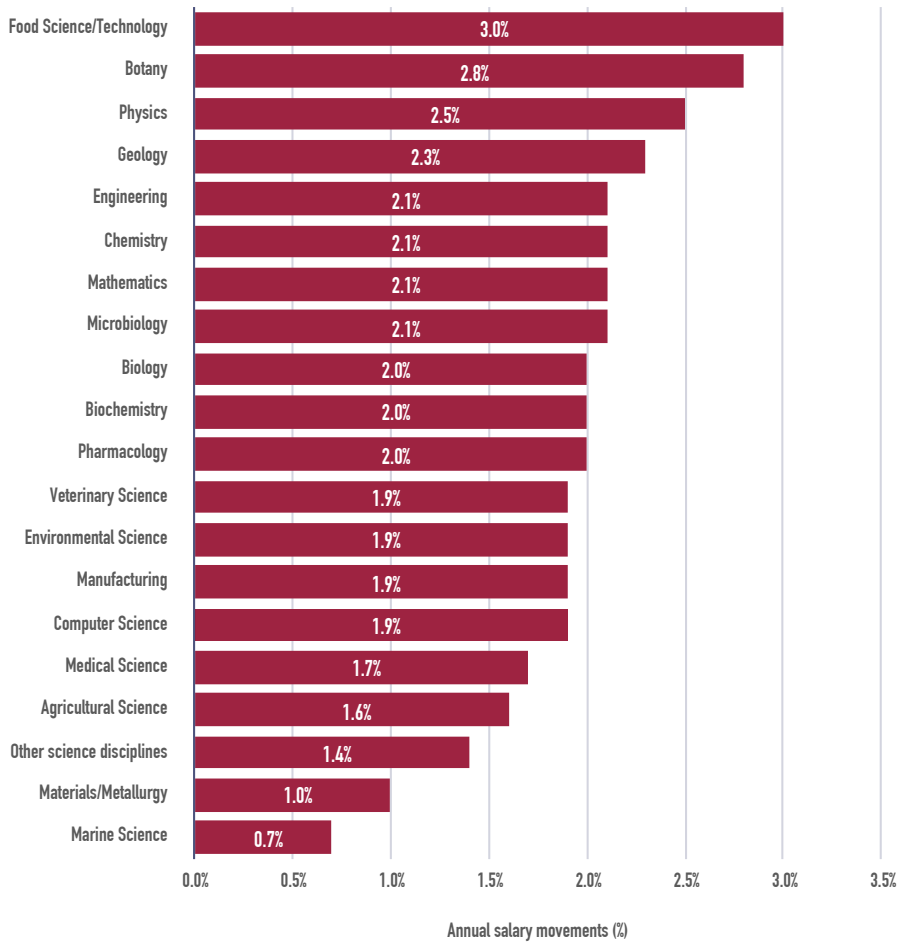


Figure 8 - Average (median) annual percentage base salary movements by branch of science





05 YEARS OF EXPERIENCE

Typically, those with more years of experience received larger remuneration packages. Median base salaries by years of experience ranged from \$75,000 to \$130,499. Salary movements were greatest for scientists with between 5 and 10 years of experience, with median annual increases in their base salary of 3.2 per cent.

Figure 9 - Average (median) base salary and total package by years of experience

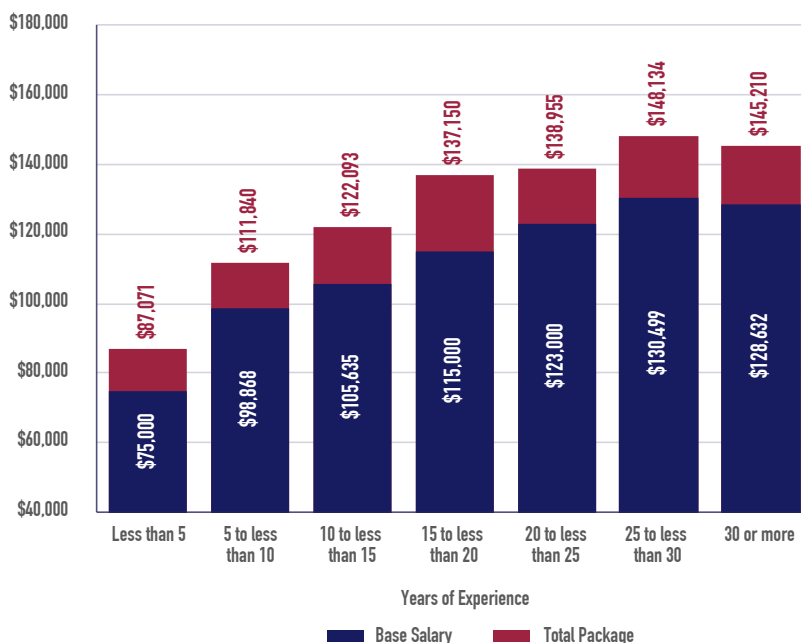
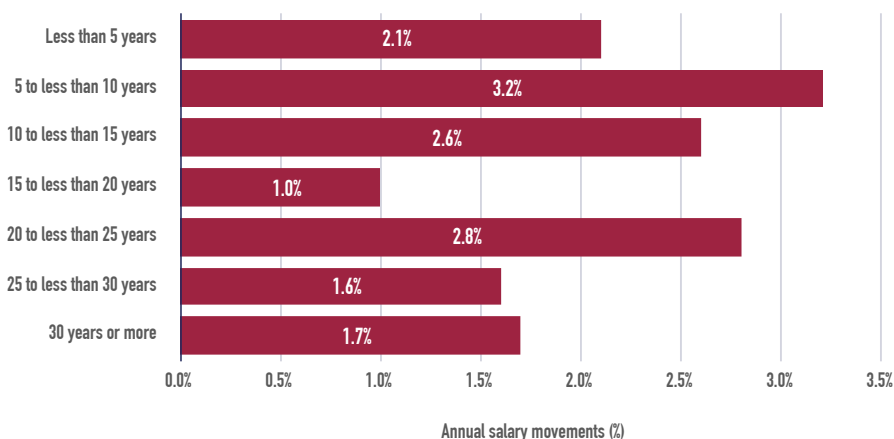


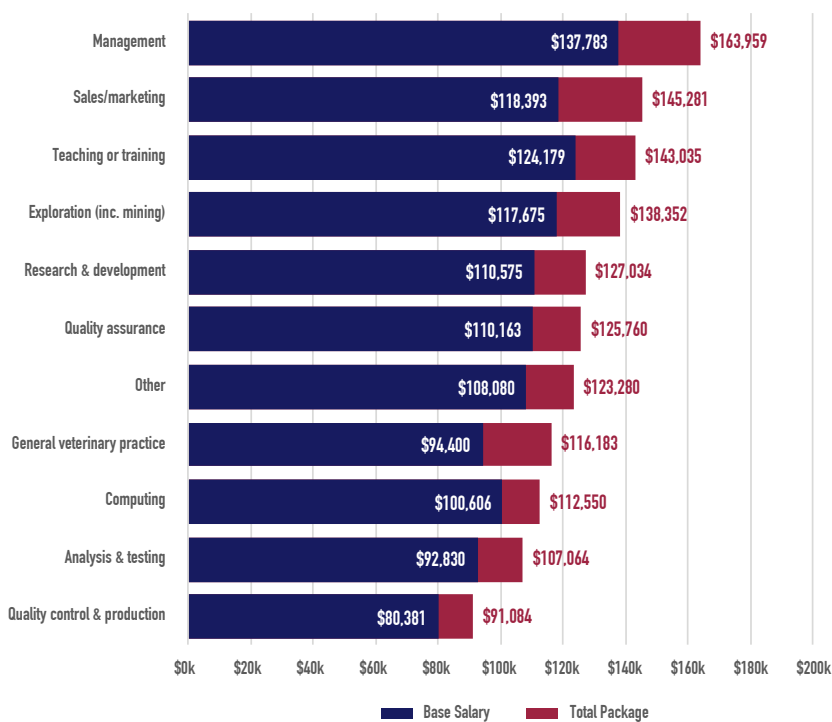
Figure 10 - Average (median) annual percentage salary movements by years of professional experience



06 JOB FUNCTION

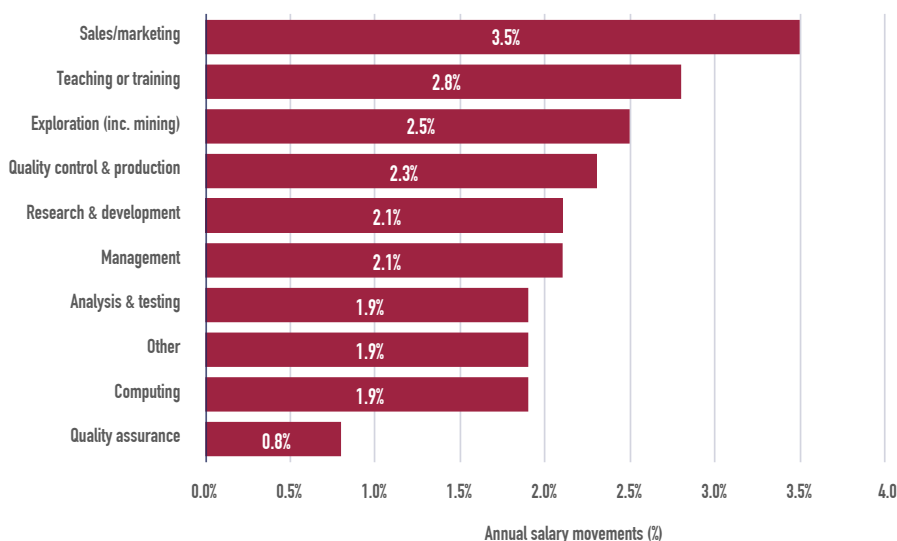
The highest base salaries by job function were in the Management and Teaching or training fields with average salaries of \$137,783 and \$124,179 respectively. The highest total packages were in Management and Sales/marketing with average total packages of \$163,959 and \$145,281 respectively.

Figure 11 - Average (mean) annual base salaries and total packages by job function



The greatest movements in base salaries were in Sales and marketing, Teaching or training, Exploration and Quality control and production with increases of 3.5, 2.8, 2.5 and 2.3 per cent respectively.¹³

Figure 12 - Average (median) annual percentage base salary movements by job function



“Diversity of career paths within science is vital.”

Survey respondent

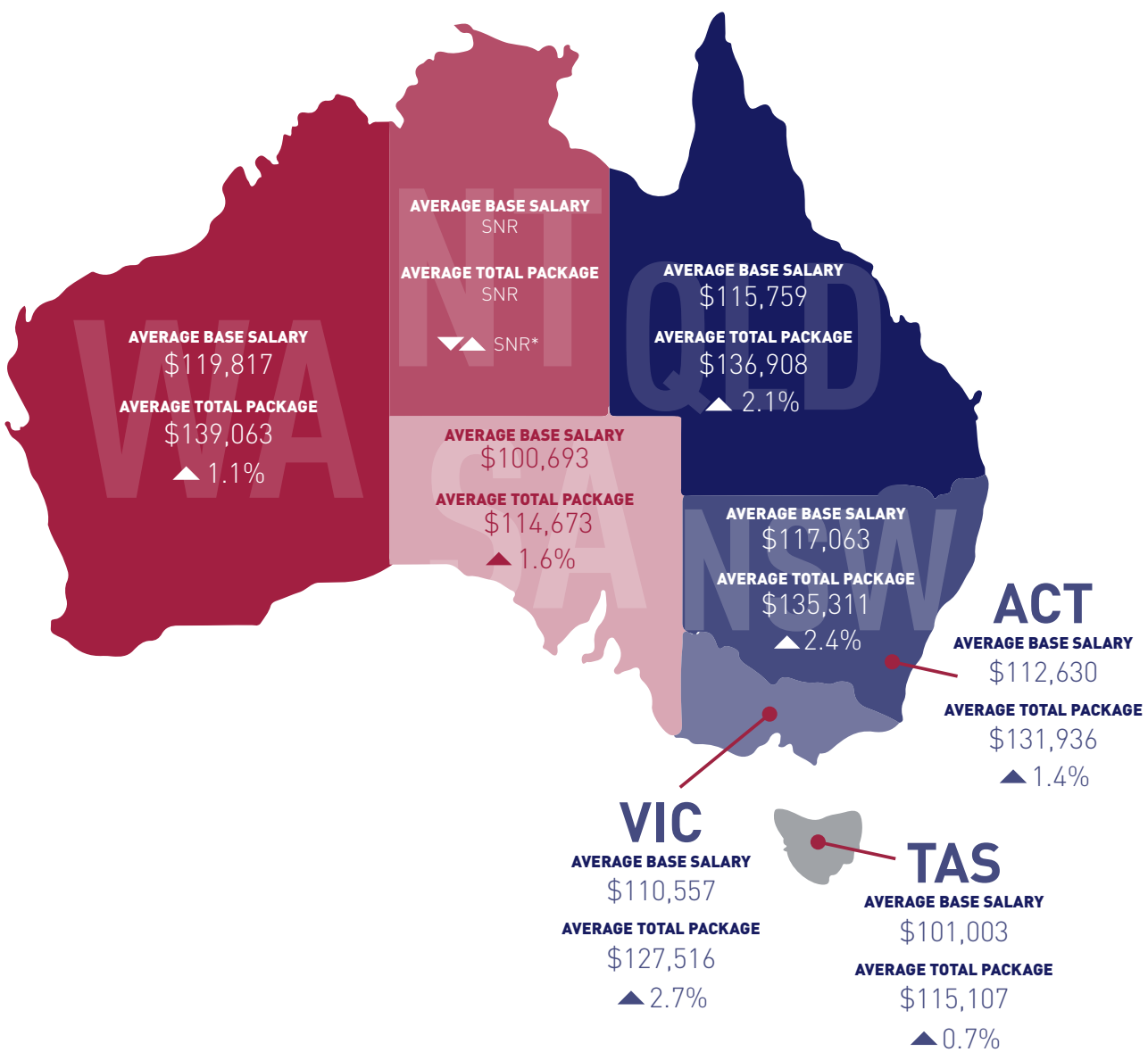
“Opportunities for career progression without sacrificing involvement in science are very limited. In almost all cases, climbing the ladder means giving up science for administration. To maintain a scientific working role means sacrificing higher salaries.”

Survey respondent

07 STATE/TERRITORY

Growth in salaries in the national science and technology labour market was restrained but average base salaries increased overall. There were however varying outcomes reflecting each state and territory's particular economic and labour market conditions. Victoria and New South Wales led with the highest average salary movements of 2.7 and 2.4 per cent followed by Queensland with an average increase of 2.1 per cent.

Figure 13 - Average (mean) annual base salaries, total packages and average (median) annual percentage base salary movements by state/territory



* Sample Not Representative

08 HIGHEST SCIENCE QUALIFICATION

Average base salaries by highest qualification ranged from \$125,697 for those with a PhD, through to \$114,004 for those with a Masters, \$107,893 for those with a Graduate diploma and \$96,871 for those with a Bachelor degree. Salary movements were greatest for those with a PhD or Bachelor degree with an average annual base salary movement of 2.1 per cent in both cases. The completion of post-graduate qualifications - Graduate Diploma, Masters and PhD - delivered average earnings premiums (total package figures) of 14.4, 20.6 and 29.7 per cent respectively over holding a Bachelor degree alone.

Figure 14 - Average (mean) annual base salaries by highest science qualification

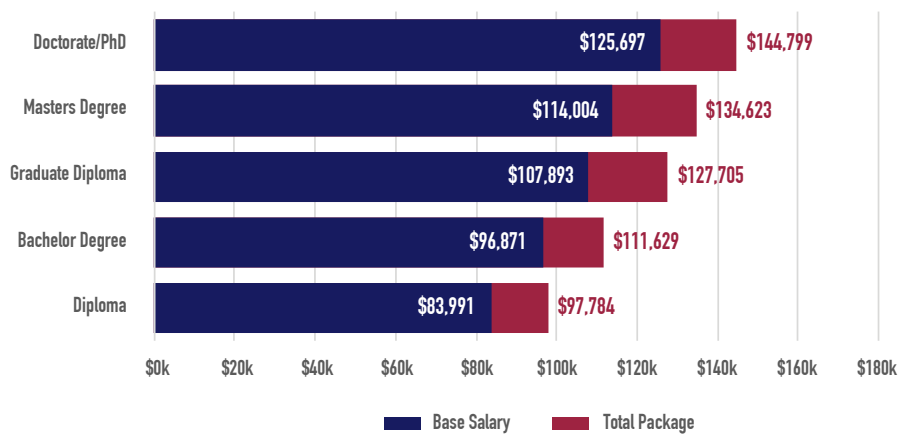


Figure 15 - Average (median) annual base salary percentage movement by highest qualification

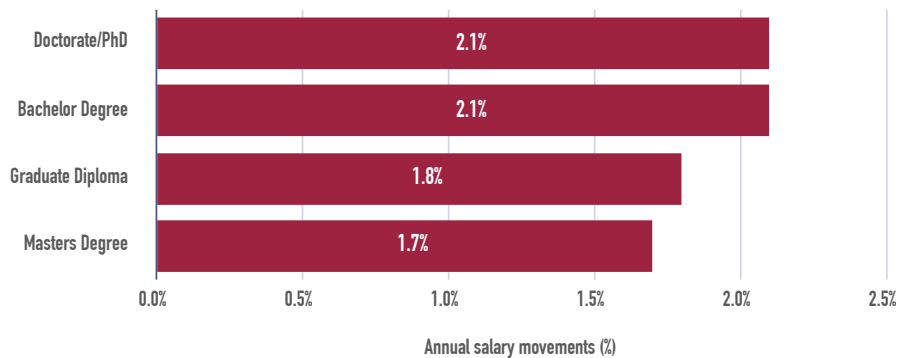


Table 3 - Earnings premiums by post-graduate qualification

QUALIFICATION	MEAN TOTAL PACKAGE	EARNINGS PREMIUM (%)
BACHELOR DEGREE	\$111,629	-
GRADUATE DIPLOMA	\$127,705	14.4%
MASTERS DEGREE	\$134,623	20.6%
DOCTORATE/PHD	\$144,799	29.7%



“I am a young woman and it’s tough being in research. I absolutely love what I do, but apart from a love of science, there are very few positives to working in medical research. I don’t think I will stay past 30 because the current system poorly accommodates women who want to have a family as well as a career.”

Survey respondent

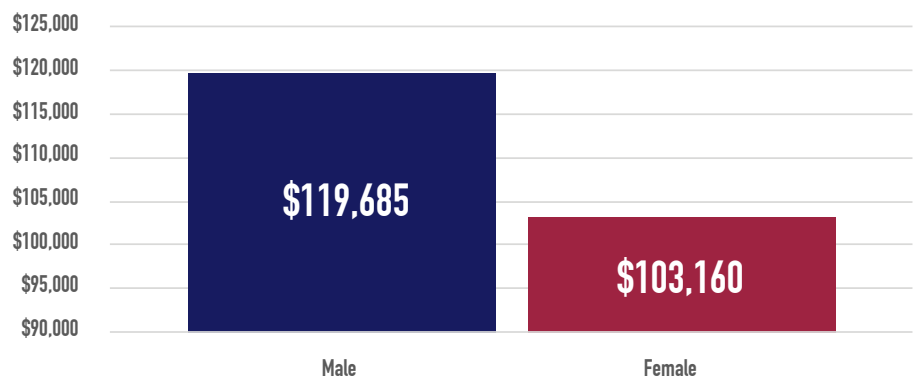
09 GENDER

The greater our understanding of gender imbalance and the characteristics of pay gaps that exist in the science disciplines, the better placed we are to develop strategies and policy settings with the sophistication to address the complex range of factors that contribute to the gender pay gap and, in turn, to ensure employers have access to a diverse, high-quality pool of science talent.

Gender pay gap

The survey found a pay differential for the total survey sample with a mean base salary of \$103,160 for females compared to \$119,685 for their male counterparts – female respondents earned on average 86.2 per cent of male respondents’ earnings – a gender pay gap of 13.8 per cent. Salary levels were looked at by a range of criteria including responsibility level, age, qualification and job function to establish whether or not they contribute to a better understanding of the gender pay gap in science.

Figure 16 - Average (mean) male and female base salary



Salaries by responsibility level and gender

Average base salaries were lower for female respondents than their male counterparts at all levels beyond Level 2, and total packages lower at all levels beyond level 1. The data confirmed a level of pay disparity in like-for-like roles across these responsibility levels.

Figure 17 - Average (median) annual base salary by responsibility level and gender

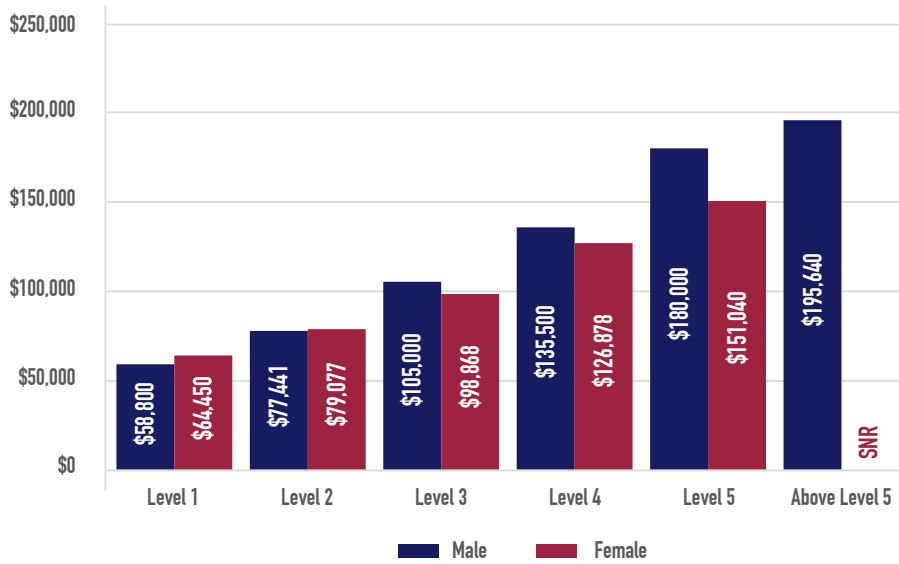
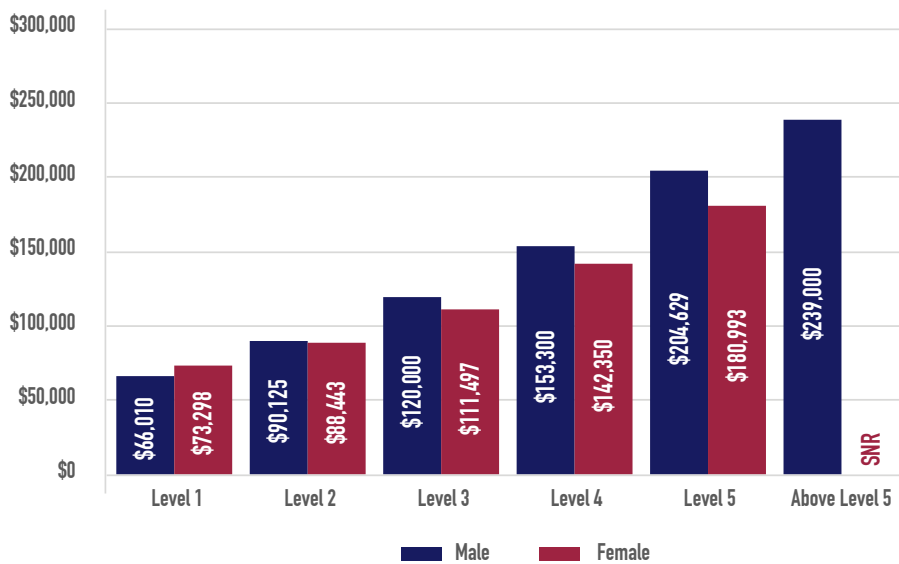


Figure 18 - Average (median) annual total package by responsibility level and gender





Salaries by years of experience and gender

With the exception of the Less than 5 years' experience category, average base salaries and total packages were lower for females across years of experience. The clearest pay disparities were evident at the mid-career stage of 15 to 20 years, and amongst the most experienced professionals with 30 or more years of experience.

Figure 19 - Average (median) annual base salary by years of experience and gender

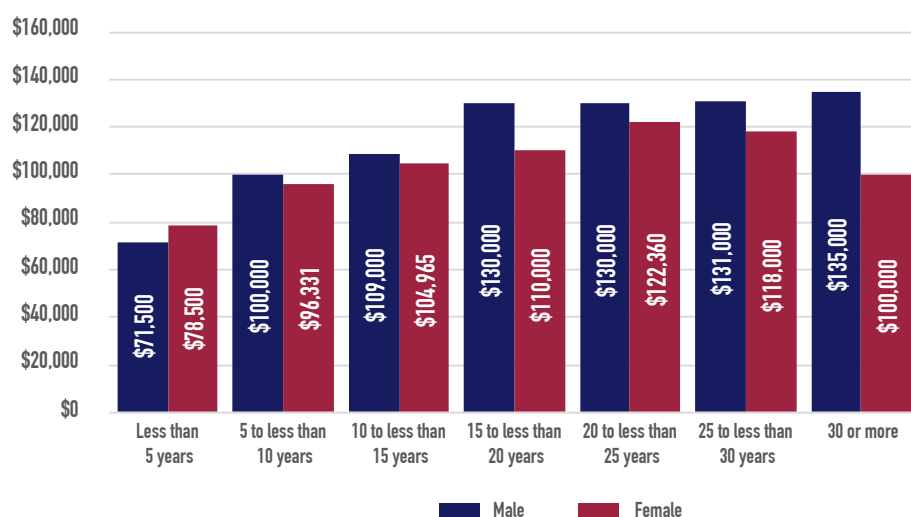
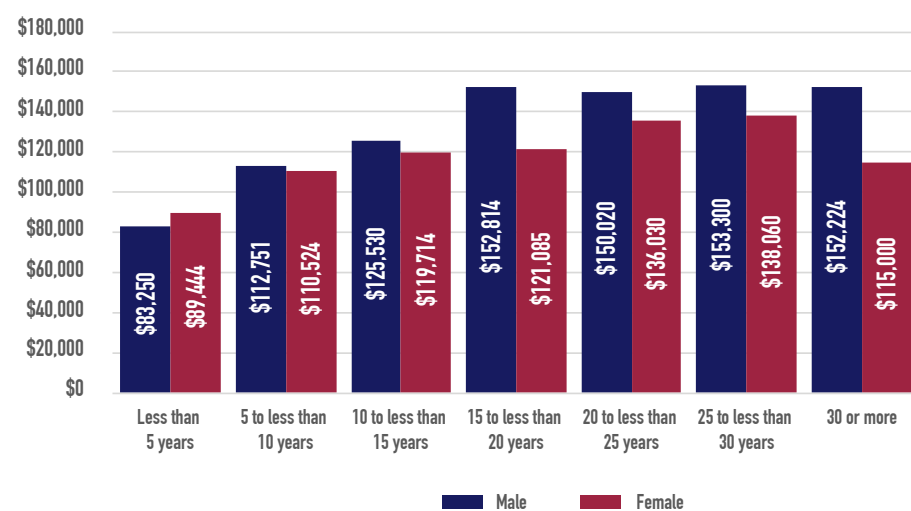


Figure 20 - Average (median) total package salaries across years of experience and gender



Salaries by job function and gender

Female respondents' reported earnings (measured by base salary and total package) were lower than their male counterparts across all job functions. The clearest pay gaps by job function were in Sales/marketing, Quality control and production, and Teaching or training.

Figure 21 - Average (median) annual base salary by job function and gender

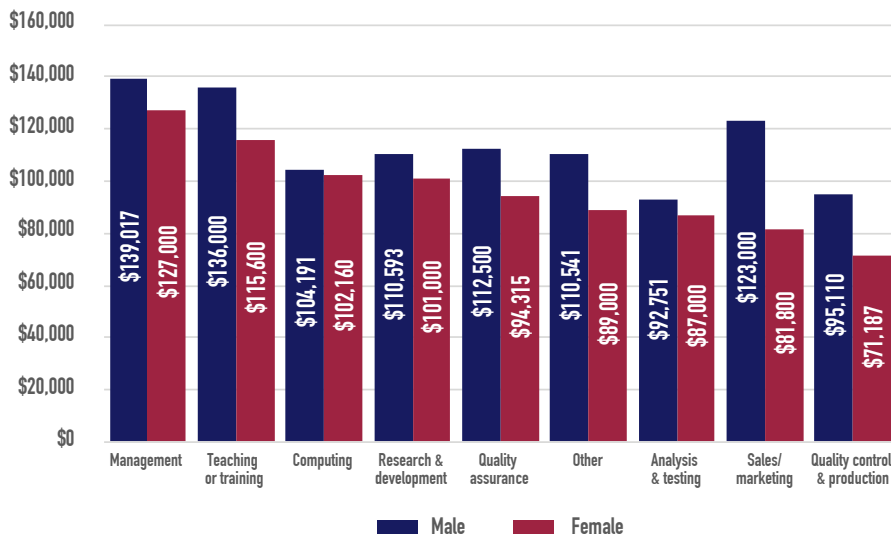
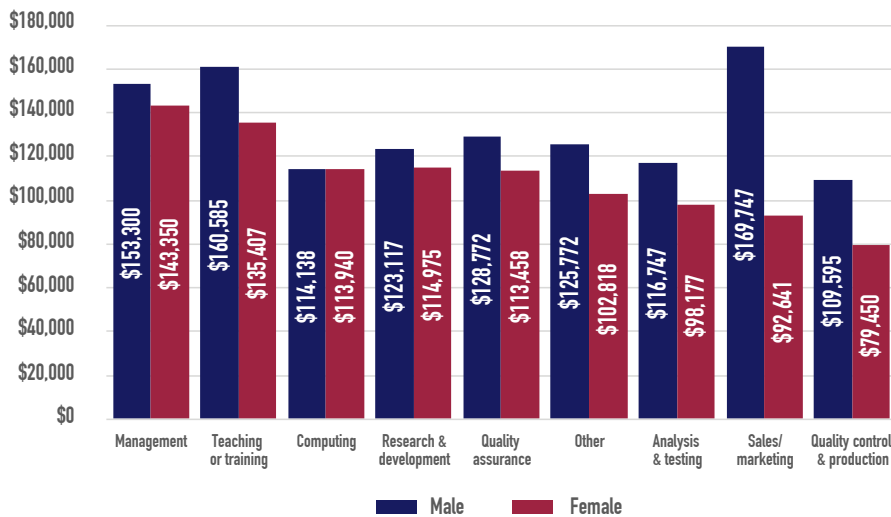


Figure 22 - Average (median) annual total package by job function and gender



“My workplace is 90% female, but less than half of the senior positions are held by women.”

Survey respondent

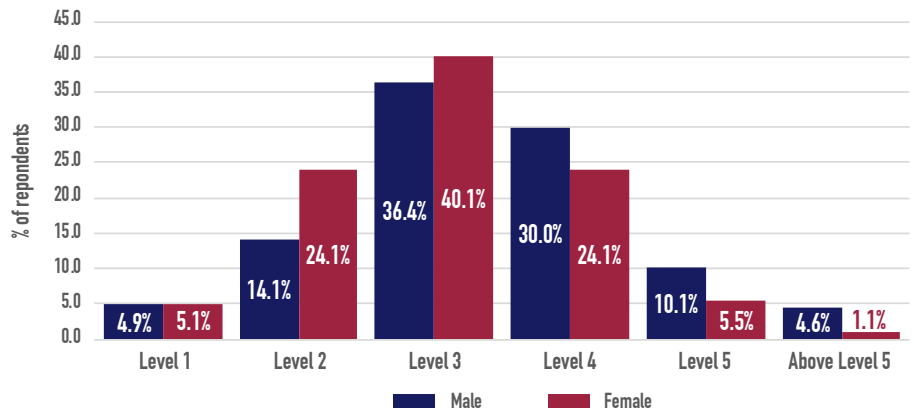
“Talk to women about why they leave rather than trying to get more women into STEM.”

Survey respondent

Workforce distribution by gender

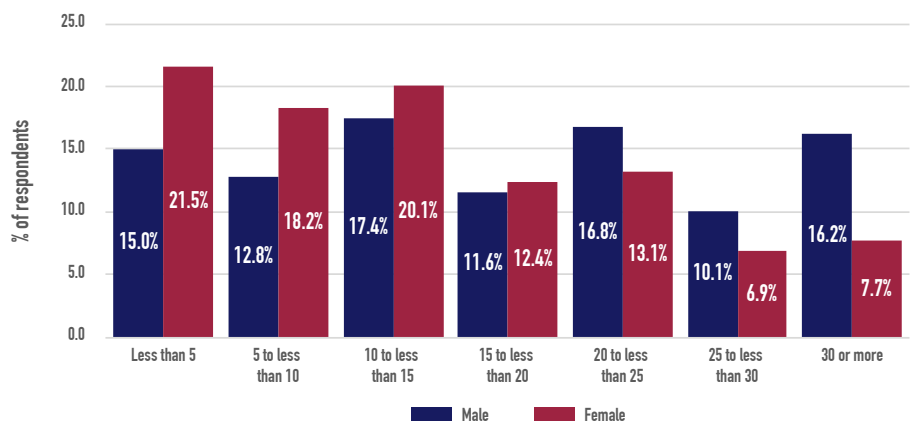
The analysis considered the distribution of respondents across responsibility level, years of experience and age to establish whether or not there was any evidence of a concentration of women in roles with less responsibility, in roles with fewer years of experience and/or attrition of the female science workforce at any key points.

Figure 23 - Workforce distribution by responsibility level and gender



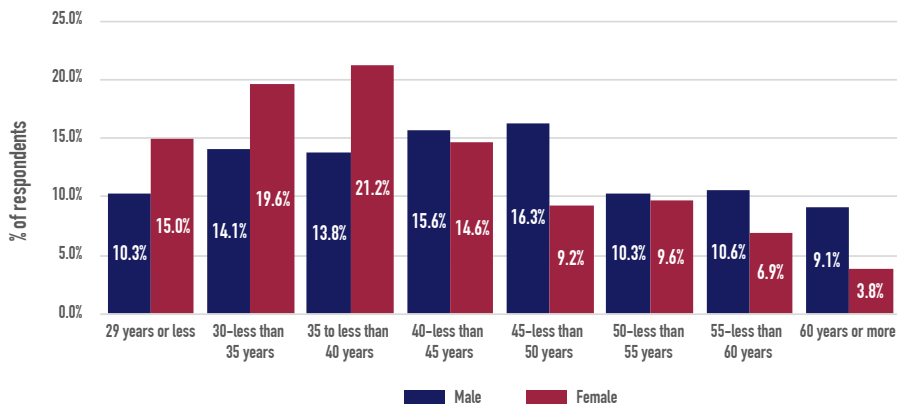
Female respondents were found in greater proportions at Levels 1 to 3 in comparison with their male respondents, and in comparatively lower proportions at Levels 4 to Above Level 5 suggesting they are over-represented at Levels 1, 2 and 3, and under-represented at Levels 4, 5 and beyond.

Figure 24 - Workforce distribution by years of experience and gender



Female respondents were found in greater proportions than their male counterparts up to 20 years’ experience and at comparatively lower proportions at 20 to more than 30 years’ experience. The percentage of female respondents dropped from 21.5 to 12.4 per cent beyond 20 years’ experience suggesting that attrition of women from the science workforce may be occurring at the mid-career stage.

Figure 25 - Workforce distribution by age and gender



The survey analysis considered the age profile of respondents by gender with a view to assessing whether or not there was any evidence of the attrition of women from the science workforce by age. The survey found a difference in the age profiles of female and male respondents. After peaking at 21.2 per cent in the 35 to 40 years age bracket, the age profile of women surveyed fell steadily. In contrast, the age profile of male respondents peaked in the 40 to 50 years age brackets, and male respondents are well represented across years of experience up to retirement age. 44.1 per cent of female respondents compared with 61.9 percent of male respondents were 40 years of age or older. 20.3 per cent of female respondents were aged 50 and over compared with 30.0 per cent of male respondents. The results suggest that male scientists are dispersed relatively evenly across age groups, while women are less well-represented as a proportion of the workforce beyond 40 years of age.

Taking into account workforce distribution by responsibility level, years of experience and age, the gender pay gap can be attributed to a combination of factors including concentration of female respondents in less senior roles, in roles requiring fewer years of experience and fewer females in the science workforce beyond age 40.





Salaries by highest qualification and gender

Female earnings were less than those of their male counterparts at all qualification levels for both base salaries and total packages.

Figure 26 - Average (mean) annual base salary by highest qualification and gender

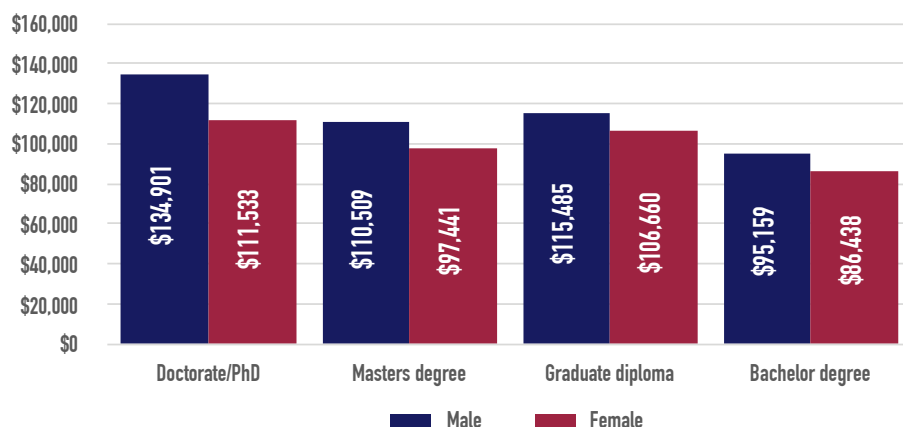
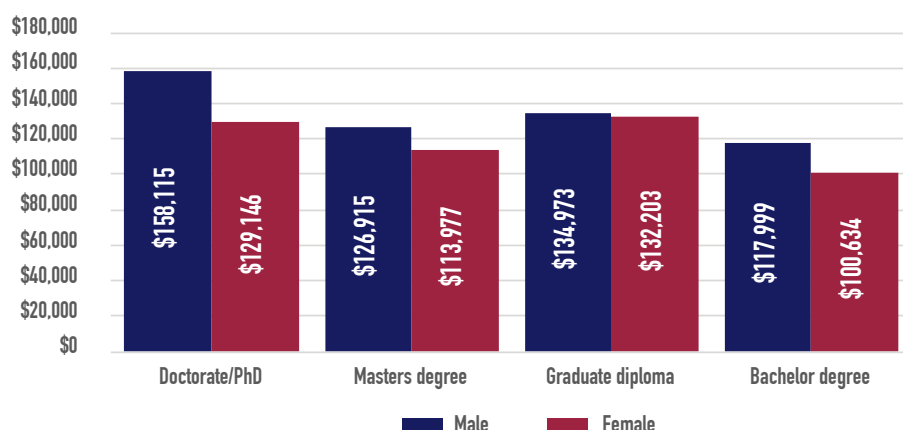


Figure 27 - Average (mean) annual total package by highest qualification and gender



Benefits, promotion and salary negotiations

Overall, 13.1 per cent of the mean male total package was comprised of benefits in addition to base salary, while the figure for female respondents was 12.9 per cent suggesting no clear difference between the structures of packages by gender.

17.9 per cent of respondents had been promoted in the previous 12 months. 52.1 per cent of female respondents said they were encouraged to apply for the promotion by their employer/manager compared with 50.0 per cent of male respondents (see also section on Variable pay for further analysis).

The survey also found that 75.5 per cent of male respondents were comfortable negotiating their own salary compared with 45.9 per cent of their female counterparts.

Gender discrimination

Women were much more likely to report having experienced discrimination in the workplace of any type than their male counterparts over the previous three years. This was largely driven by discrimination on the basis of gender. 38.2 per cent of female respondents said they had experienced bias or discrimination compared with 12.1 per cent of male respondents. Women were also more likely to report discrimination on the basis of age. 22.4 per cent of female respondents and 13.4 per cent of male respondents had experienced discrimination on the basis of age. The next most common form of discrimination reported was based on race, reported by 3.9 per cent of respondents.

Table 4 - Forms of discrimination experienced in the workplace over the last 3 years

	AGE	GENDER	RACE	RELIGION	SEXUAL IDENTITY	NONE OF THE ABOVE
MALE	13.4%	12.1%	4.8%	2.9%	1.6%	75.8%
FEMALE	22.4%	38.2%	2.9%	2.2%	1.5%	51.5%
ALL RESPONDENTS	17.5%	24.2%	3.9%	2.6%	1.5%	64.6%

Diversity and discrimination policy and implementation

Respondents reported 4.5 per cent of employers had formal policies in place to promote diversity and 67.2 per cent had policies to deal with discrimination. 25.7 per cent of respondents said their employer did not have strategies in place to actually implement policies relating to diversity and discrimination.

“STEM has a severe problem with women, and the solution isn’t getting more girls into the field, it’s addressing the concerns of the women who are already here. Otherwise we are simply lining up for eventual disillusionment and failure and science suffers by not using the skills learned by half of the workforce.”

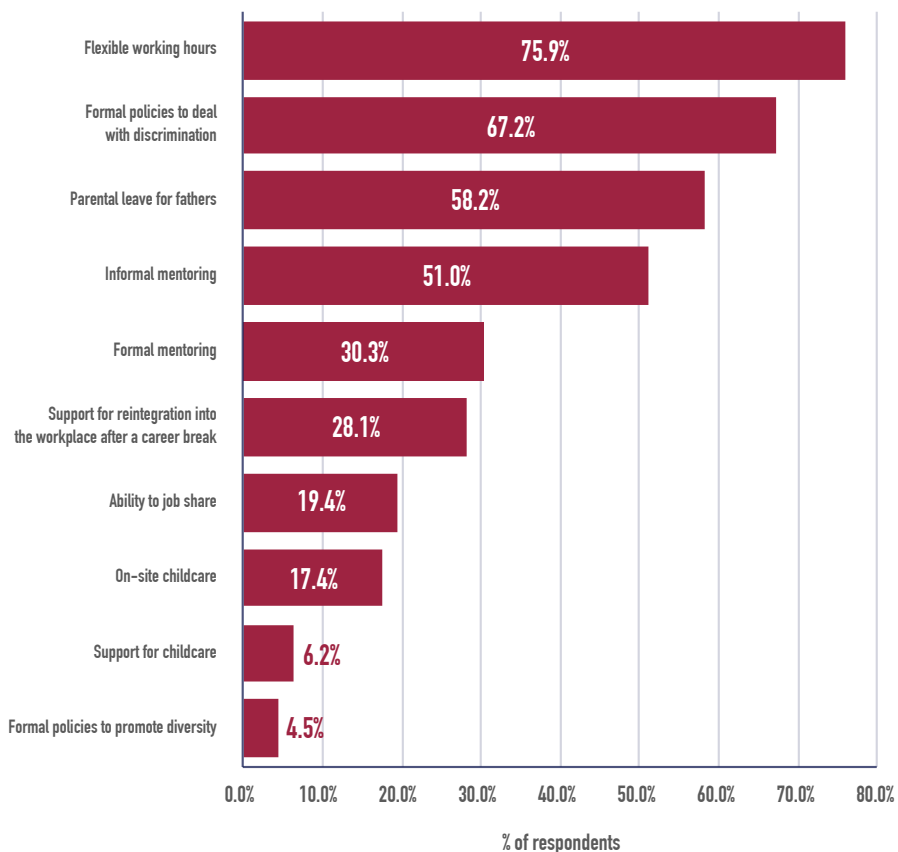
Survey respondent



Support and conditions

30.3 per cent of respondents had access to formal mentoring in their workplace and 51.0 per cent had access to informal mentoring. 75.9 per cent had access to flexible working hours, 19.4 per cent had access to job sharing arrangements and 58.2 per cent worked for an employer offering parental leave for fathers. Only 28.1 per cent reported that their employer provided support for reintegration into the workplace after a career break, 17.4 per cent offered on-site childcare and 6.2 per cent offered support for childcare.

Figure 28 - Employer-provided support and conditions



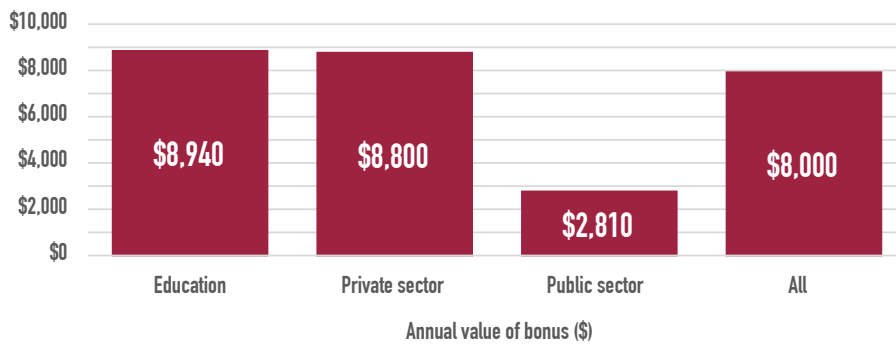
Sexual harassment

19.4 per cent of female respondents reported having experienced sexual harassment in the course of their employment compared to 4.9 per cent of male respondents.

10 VARIABLE PAY

Professionals often receive additional benefits as parts of their remuneration package beyond their regular salary and superannuation, including motor vehicles and variable pay or bonuses. 17.4 per cent of scientists surveyed across all sectors were paid performance bonuses in the previous year with the highest average bonuses in the Education sector.

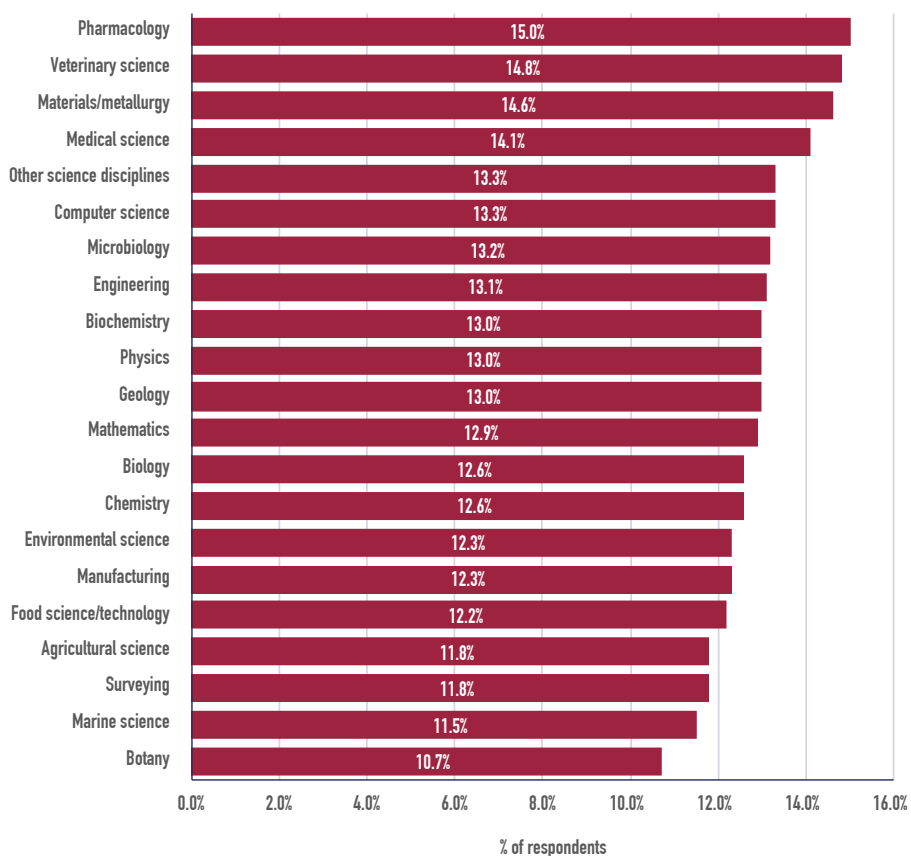
Figure 29 - Average (median) bonus by employment sector (\$)





The Pharmacology, Veterinary science, Materials/metallurgy and Medical science fields had the highest mean benefits as a proportion of the average total package with additional benefits comprising 15.0, 14.8, 14.6 and 14.1 per cent of total packages respectively.

Figure 30 - Average (mean) benefits by branch of science as a proportion of total package



Motor vehicles

7.4 per cent of respondents received a motor vehicle as part of their package with vehicles most commonly provided to scientists working in Agricultural science, Surveying, Veterinary science and Food science/technology. By job function, motor vehicles were most frequently found in General veterinary practice, Sales/marketing and Management.

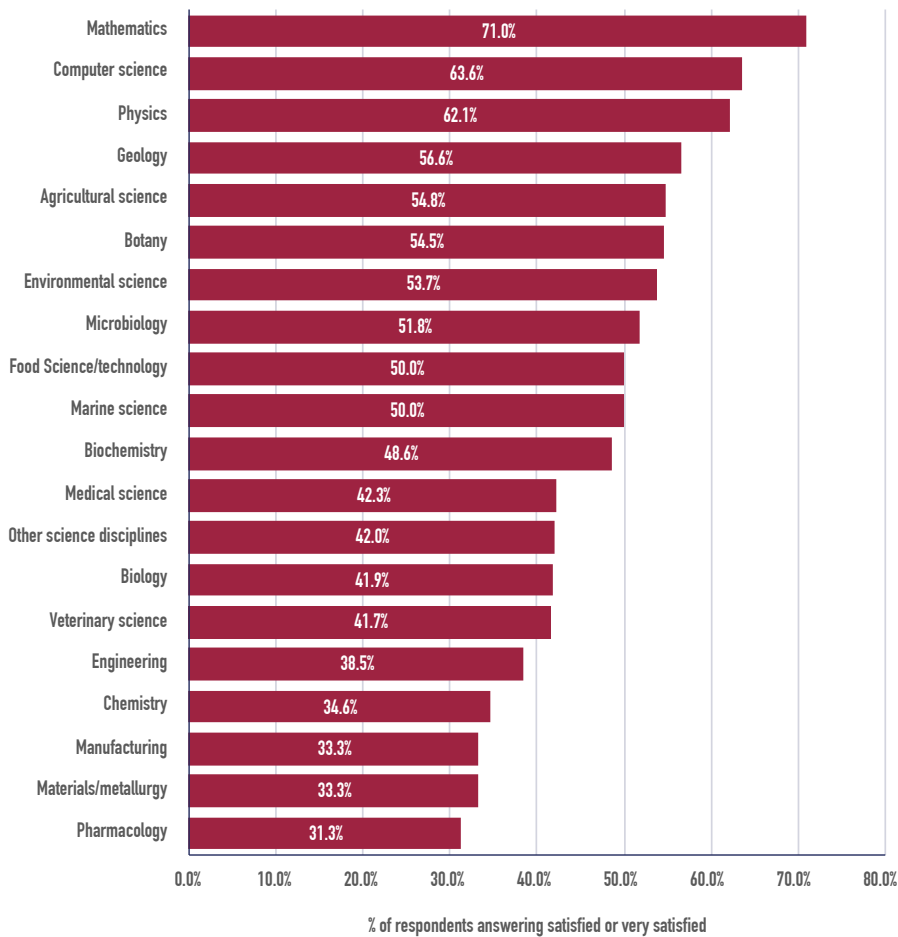
11

SATISFACTION WITH CURRENT LEVEL OF REMUNERATION

Overall satisfaction levels recovered slightly in this year's survey. 46.9 per cent of scientists surveyed reported being satisfied or very satisfied with their current level of remuneration - up on last year's figure of 42.5 per cent. Levels of dissatisfaction remained at a concerning level with 35.2 per cent dissatisfied or very dissatisfied with their current level, marginally down from 35.5 per cent in 2018.

The highest levels of satisfaction with remuneration were found in the Mathematics, Computer Science and Physics fields.

Figure 31 - Reported levels of satisfaction with current remuneration by branch of science





44.6 per cent of respondents perceived their remuneration as falling behind market rates, up slightly on 43.8 per cent last year. 41.2 per cent said their remuneration did not reflect their level of responsibility - down slightly on 43.3 per cent in last year's survey.

Figure 32 - Responses to statement "My remuneration package is falling behind market rates"

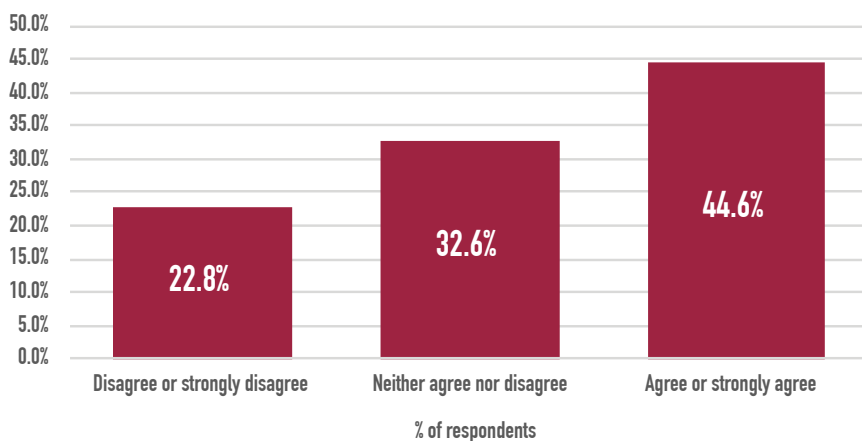
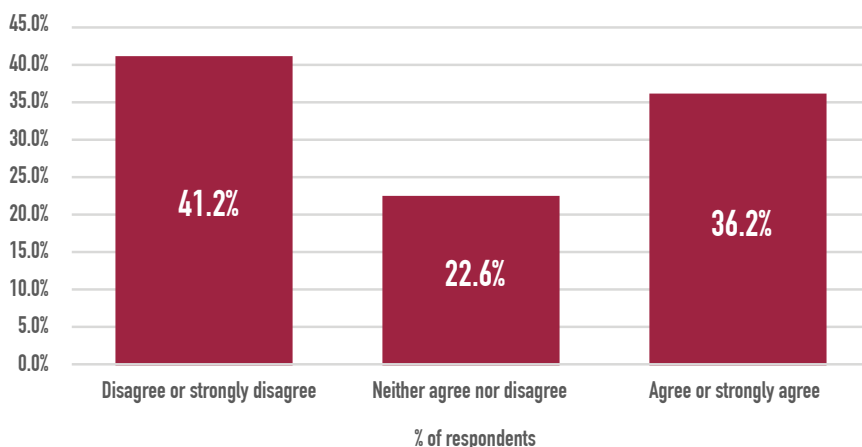


Figure 33 - Responses to statement "My remuneration package appropriately reflects my level of responsibility"



WORKPLACE ISSUES



“I love my job, but I loathe my conditions and the lack of hope that there is – my feelings are not isolated – many of my colleagues have a sense of despondency about the way the public perceives us .. the work is wonderful but the conditions are appalling.”

Survey respondent

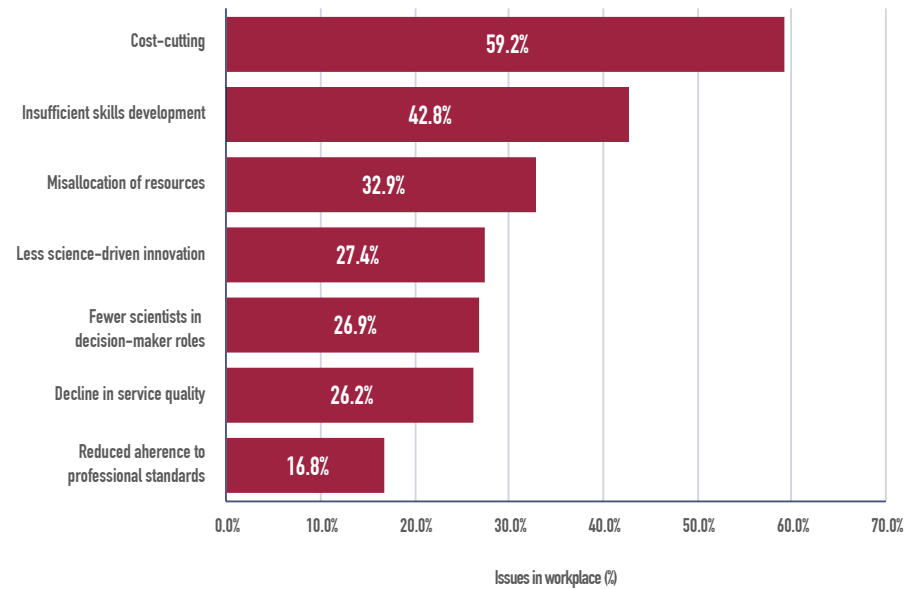
“We are so busy cost-cutting, I can’t see how any action to prepare for the future is being taken.”

Survey respondent

Workplace issues

The survey asked respondents to nominate issues that were evident in their workplace in the previous 12 months from a list of seven common issues.

Figure 34 - Issues evident in the workplace over the last 12 months



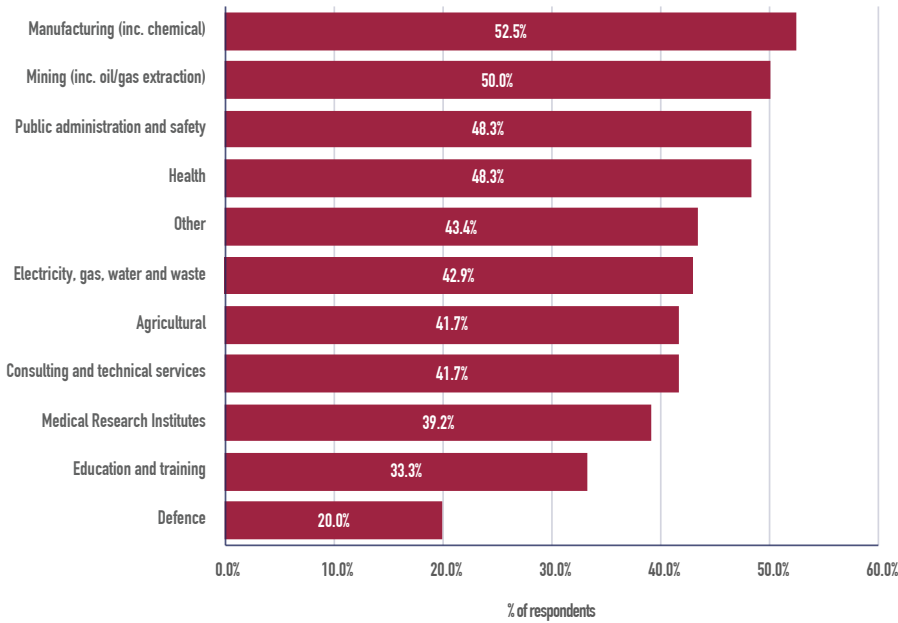
12 COST-CUTTING, MISALLOCATION OF RESOURCES AND LESS INNOVATION

Cost-cutting was by far the issue of greatest concern to respondents nominated as the top concern by 59.2 per cent of respondents. Misallocation of resources and less science-driven innovation were also major concerns nominated by 32.9 and 27.4 per cent of respondents as issues of concern.

13 SKILLS DEVELOPMENT

42.8 per cent of respondents said there was insufficient skills development in their workplace over the previous 12 months. Concern about skills development was greatest in the Manufacturing and Mining industries.

Figure 35 - Level of concern about insufficient skills development by industry



“Government and business need to invest in the skills of staff by maintaining and ADDING to those skills, rather than constantly seeking to hire someone else with a slightly ‘better’ skill set.”

Survey respondent

“More training is needed for young/new medical scientists and full payment for their qualifications (none of this ‘we can only afford to pay a technical officer’ on lower pay, ignoring degree qualifications.”

Survey respondent

14 DEPROFESSIONALISATION

Deprofessionalisation - defined as the diminution of science capability across responsibility levels, industries and/or job functions - was seen as a concern with 26.9 per cent of respondents noting a reduction in the number of scientists in decision-maker roles over the previous 12 months. Concern was greatest in the Public administration and safety and Agricultural industries with 44.8 and 36.1 per cent of respondents respectively reporting fewer scientists in such roles.

15 DECLINE IN SERVICE QUALITY AND PROFESSIONAL STANDARDS

16.8 and 26.2 per cent of respondents respectively said reduced adherence to professional standards and reduced service quality were evident in their organisation over the last 12 months

16 WORKPLACE AND STEM WORKFORCE PRIORITIES

Workplace priorities

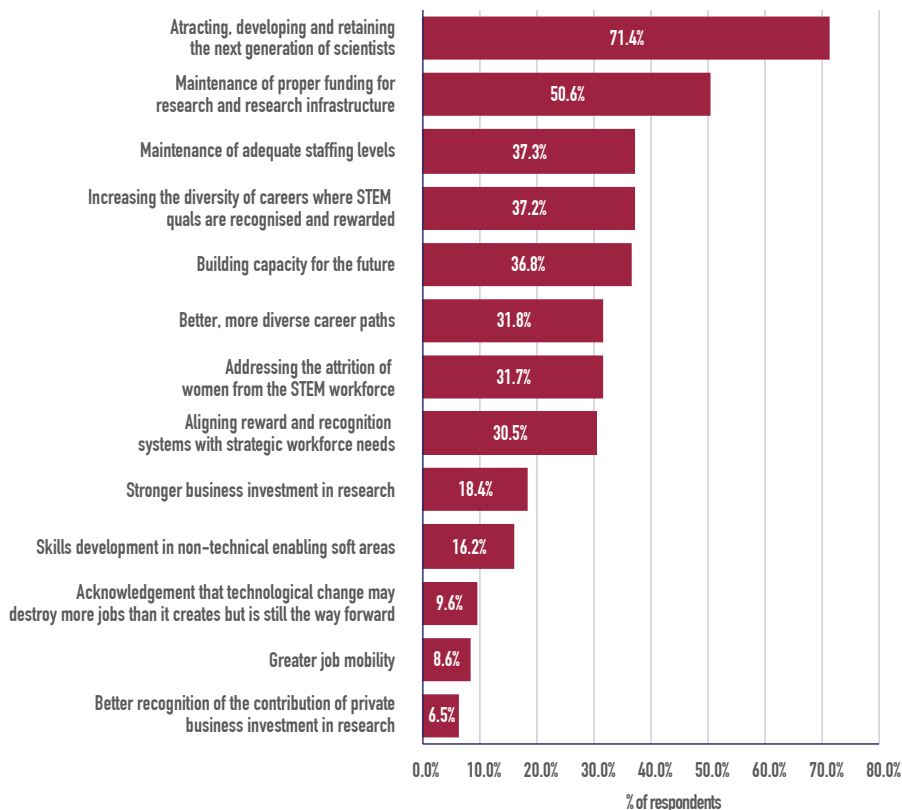
Survey participants were asked to rank the list of work priorities below in order from most important to least important. On average, job security ranked highest in respondents' work priorities, followed by remuneration, positive workplace culture and work/life balance. Respondents ranked their concerns as follows:

1. job security;
2. remuneration;
3. positive workplace culture;
4. work/life balance;
5. career progression;
6. flexible work arrangements;
7. continuing professional development opportunities;
8. being close to home; and
9. a challenging workload.

STEM workforce priorities

Attracting, developing and retaining the next generation of scientists was seen as the top priority for developing a sustainable STEM workforce by 71.4 per cent of respondents. This was followed by the maintenance of proper funding for research and research infrastructure (50.6 per cent). Maintenance of adequate staffing levels, increasing the diversity of careers where STEM qualifications are recognised and building capacity for the future were also nominated as high priorities.

Figure 36 - Most important approaches to developing a sustainable STEM workforce



“I do it because I love it and am challenged by it but there are few opportunities for recognition for outstanding work either financially or by way of advancement.”

Survey respondent

“I enjoy the challenges in my job, however increased unpaid overtime is my greatest concern. Perhaps even not so much for the money side – more for recognition that the hours need to be done by someone!”

Survey respondent

“Professionals are being overworked which is having detrimental effects on performance – there is less time for research, more overtime and burnout.”

Survey respondent

17 WORKING HOURS AND OVERTIME

Respondents worked on average 43.6 hours per week including 5.4 hours of overtime. Only 10.5 per cent received monetary payment in recognition of their additional hours, a significant issue in view of the 11.4 per cent of respondents reporting that they were expected to work longer hours in the past year compared to the previous one. The average number of hours worked per week was greatest for those working in Teaching or training and Management roles.

Figure 37 - Average (mean) number of hours worked per week plus additional hours by job function

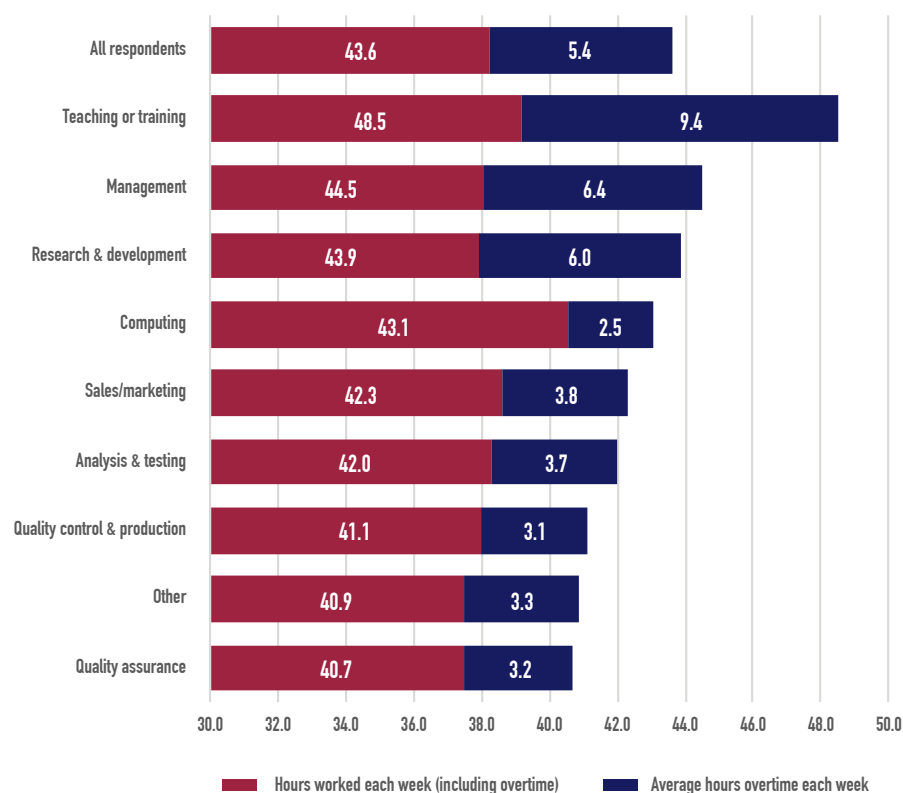
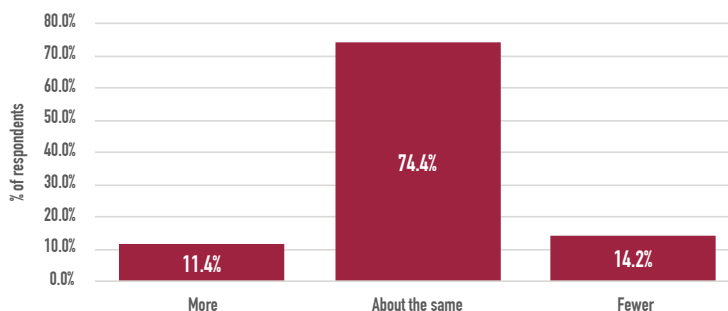


Figure 38 - Change in hours worked per week compared to 12 months ago



Compensation for additional hours

Overall 53.6 per cent of respondents received no compensation for additional hours worked. Of those that received compensation, an average 10.5 per cent received monetary payment at an hourly rate, 7.8 per cent reported having compensation for additional hours worked built into their base salary and 28.1 per cent received time off in lieu of payment. Compensation for additional hours worked was greatest in the Hospital sector, Local government and the Australian Public Service. 81.3 per cent of those engaged in the Education sector reported receiving no compensation for additional hours worked.

Figure 39 - Method of compensation for additional hours

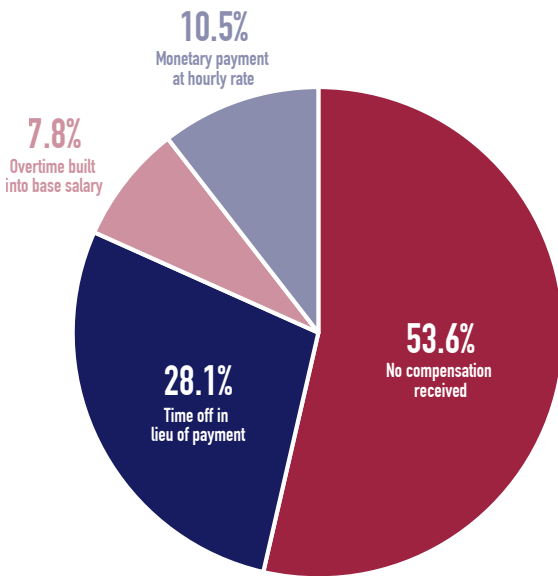
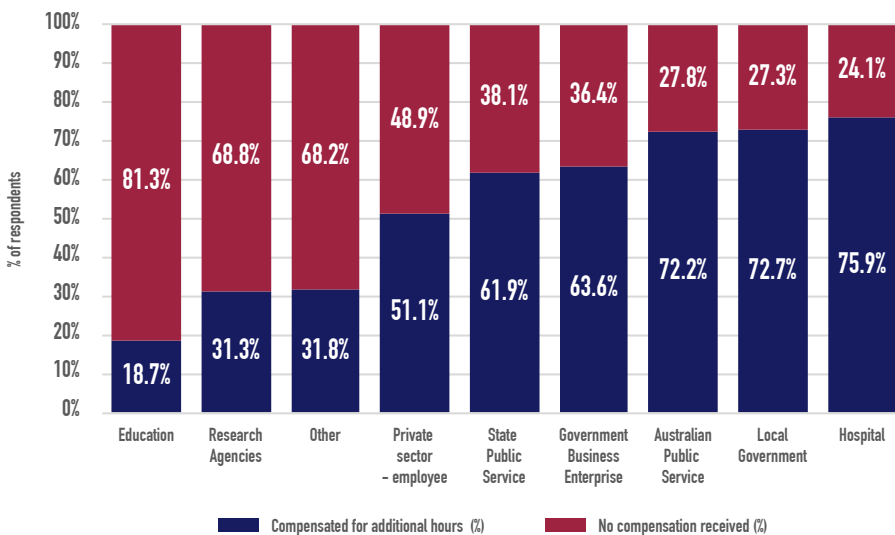


Figure 40 - Compensation received/not received by employment sector



“The amalgamation of departments and severe lack of funding is doing some irreparable damage to staff morale and stakeholder trust in our work.”

Survey respondent

18 STAFF MORALE, WORKER FATIGUE AND PERCEPTIONS OF PRODUCTIVITY

50.0 per cent of respondents said that staff morale had declined in their organisation over the previous 12 months and 57.5 per cent reported that worker fatigue had increased. 20.0 per cent said overall productivity in their workplace had declined over the previous 12 months.

Table 5 - Perception of changes in workforce and organisation

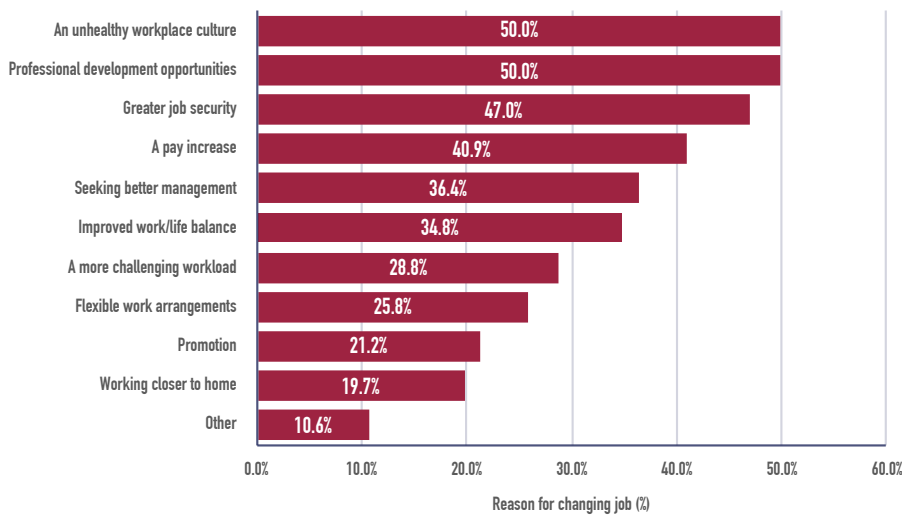
	DECREASED	STAYED THE SAME	INCREASED
	% RESPONSE	% RESPONSE	% RESPONSE
STAFF MORALE	50.0%	42.5%	7.5%
WORKER FATIGUE	2.2%	40.4%	57.5%
OVERALL PRODUCTIVITY	20.0%	61.0%	18.9%

19 EMPLOYMENT INTENTIONS

Changing jobs

12.0 per cent of respondents had changed jobs in the previous 12 months and, of those, 40.9 per cent had moved for a pay increase, 47.0 per cent had moved for greater job security and 50.0 per cent had moved for greater professional development opportunities (respondents could choose more than one option). 21.2 per cent had moved for promotion and 50.0 per cent had moved to get away from an unhealthy workplace culture. 36.4 per cent had moved seeking better management.

Figure 41 - Reasons for changing jobs

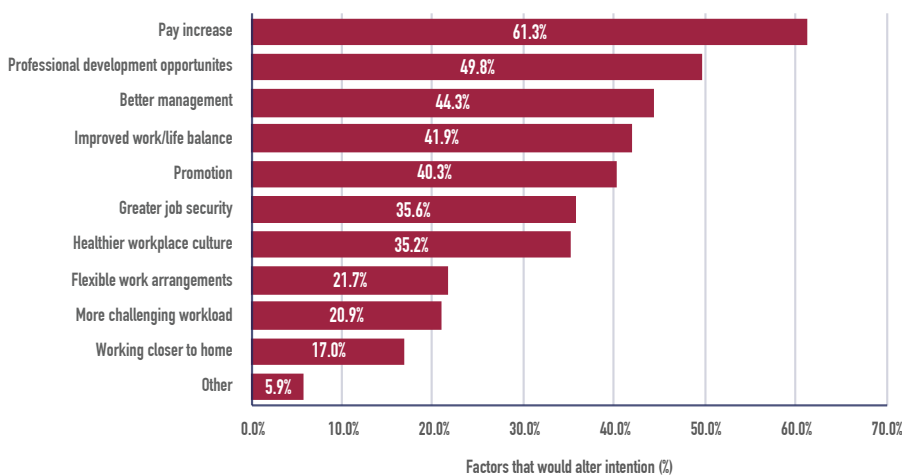


Reasons for considering leaving current job

37.5 per cent of respondents reported that they were considering leaving their current job – down on last year’s figure of 39.8 per cent.

Of those considering leaving, the factors that would alter their intention were a pay increase (61.3 per cent), greater professional development opportunities (49.8 per cent) and better management (44.3 per cent).

Figure 42 - Factors that would alter intention to leave current job



“There should be more recognition that STEM degrees are generalist and STEM graduates should be hired across an array of industries.”

Survey respondent

“I am planning to leave the industry as I have found it impossible to get satisfying work. There is no career development .. no support or interest in innovation or anything that actually makes being a scientist worthwhile.”

Survey respondent

“In order to be prepared for emerging challenges, there needs to be continued and enhanced investment in people and technologies and research to support policy and guide decision-making.”

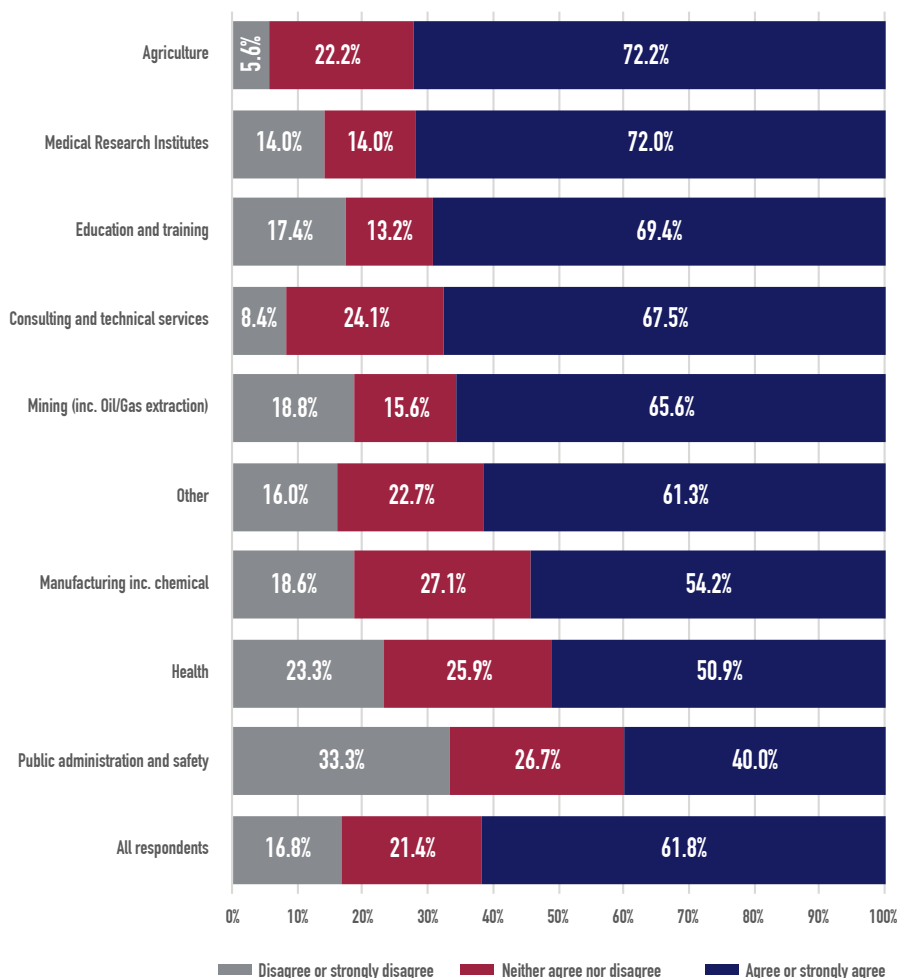
Survey respondent

20 SCIENCE CAPABILITY, INNOVATION AND EMERGING CHALLENGES

Science capability as a source of innovation

61.8 per cent of respondents reported that scientific capability was seen as a source of innovation in their workplace. The highest reported levels were in Agriculture (72.2 per cent agreed or strongly agreed that scientific capability was seen as a source of innovation in the workplace) and the lowest reported levels were in Public administration and safety, and the Health industry (33.3 and 23.3 per cent respectively disagreed or strongly disagreed that scientific capability was seen as a source of innovation in their workplace). 27.4 per cent of respondents reported less science-driven innovation in their organisation over the previous 12 months.

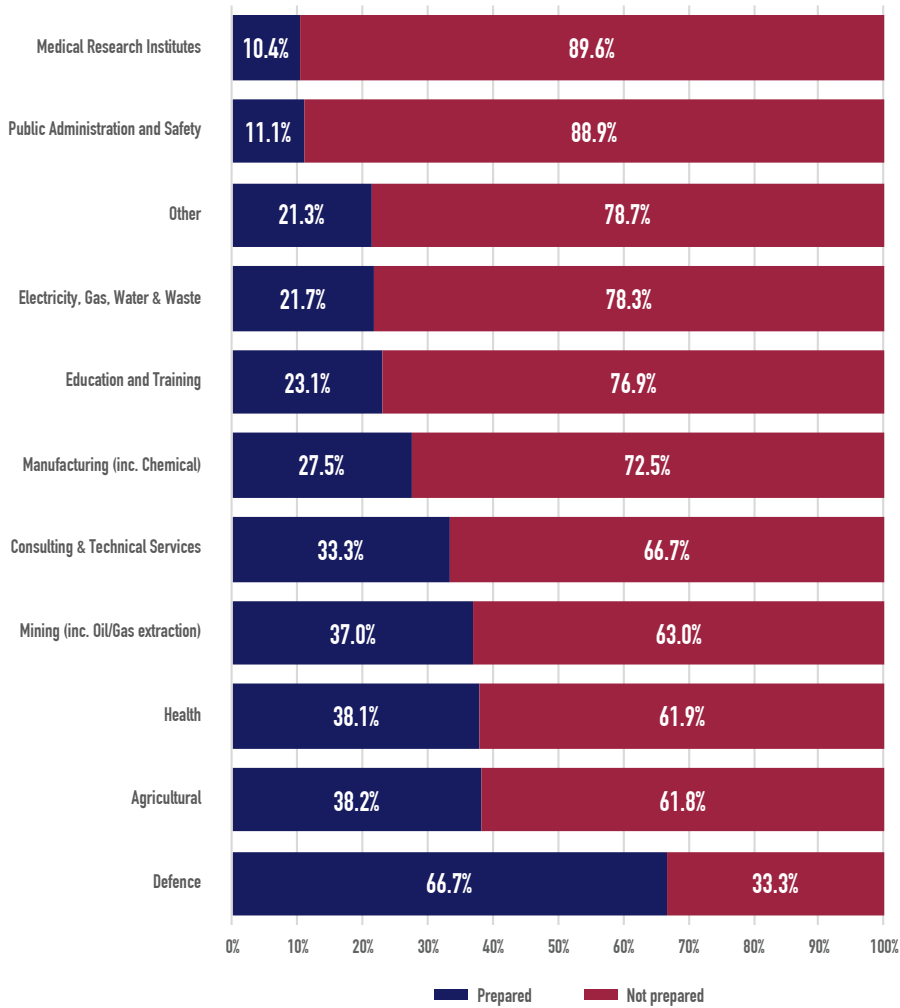
Figure 43 - Perception of whether scientific capability seen as source of innovation in the workplace by industry



Emerging challenges

72.3 per cent of respondents said Australia was not well prepared to meet emerging challenges with the greatest concern in the Public administration and safety, and Medical Research Institute industries.

Figure 44 - Perceptions of Australia's preparedness for emerging challenges by industry



SUMMARY OF KEY RESULTS

Wages growth

- Base salaries paid to professional scientists grew by an average 2.0 per cent over the last 12 months.
- 27.1 per cent of respondents reported that they had not received any pay increase over the previous 12 months.
- Increases paid to professional scientists across all sectors were at or above increases to the cost of living at 1.6 per cent (to June 2018) as measured by the ABS Consumer Price Index (6401.0). Notably though however, the average increase in Research Agencies was at CPI level of 1.6 per cent and the average increase in the State Public Service salaries was 1.7 per cent, only marginally beyond CPI. The earnings increase across the Australian economy (to June 2018) as measured by the Wage Prices Index (6345.0) sat at 2.3 per cent to the June quarter. Average increases only in the Hospital and Government business enterprise sectors exceeded this level of growth.
- Average annual base salaries and total packages were highest in the Physics, Geology and Botany fields. Annual salary movements were greatest in the Food Science/Technology, Botany, Physics and Geology fields with increases of 3.0, 2.8, 2.5 and 2.3 per cent respectively. Movements were lowest in Marine Science and Materials/Metallurgy with increases of 0.7 and 1.0 per cent respectively.

Average salaries

- Across all sectors employing scientists, a full-time professional scientist took home an average annual base salary of \$112,151 and received a total package worth \$129,910.
- The average annual base salary was greatest in the Education sector at \$125,328, compared with \$114,646 in the Australian Public Service (APS) and \$105,525 in the Private sector.
- The highest average total package was in the Education sector at \$144,981, compared with \$132,493 in the APS and \$123,714 in the Private sector.

Satisfaction with remuneration

- 46.9 per cent of scientists surveyed reported being satisfied or very satisfied with their current level of remuneration - up on last year's figure of 42.5 per cent.
- 35.2 per cent were dissatisfied or very dissatisfied - barely changed from 35.5 per cent in 2017.
- The highest levels of satisfaction with remuneration were found in the Mathematics, Computer Science and Physics fields.
- 44.6 per cent of respondents agreed or strongly agreed that their remuneration was falling behind market rates.
- 41.2 per cent said their remuneration did not reflect the level of responsibility they undertook in their day-to-day work.

Gender pay gap

- Female respondents earned on average 86.2 per cent of male respondents' earnings – a gender pay gap of 13.8 per cent.
- The survey found evidence of a gender pay gap arising from a combination of factors including concentration of female respondents in less senior roles, in roles requiring fewer years of experience and fewer females aged over 40.

Employment intentions

- 12.0 per cent of respondents had changed jobs in the previous 12 months and, of those, 40.9 per cent had moved for a pay increase, 47.0 per cent had moved for greater job security and 50.0 per cent had moved for greater professional development opportunities. 21.2 per cent had moved for promotion and 50.0 per cent had moved to get away from an unhealthy workplace culture. 36.4 per cent had moved seeking better management.
- 37.5 per cent of respondents reported that they were considering leaving their current job – down on 39.8 per cent in last year's survey. Respondents reported that the factors that would alter their intention were a pay increase (61.3 per cent), greater professional development opportunities (49.8 per cent) and better management (44.3 per cent).

Work priorities, morale and fatigue

- Job security ranked highest in respondents' work priorities, followed by remuneration, positive workplace culture and work/life balance.
- 50.0 per cent of respondents said that staff morale had declined in their organisation over the previous 12 months.
- 57.5 per cent reported that worker fatigue had increased.

Value of post-graduate qualifications

- The average base salaries by highest qualification ranged from \$125,697 for those with a PhD, through to \$114,004 for those with a Masters, \$107,893 for those with a Graduate diploma and \$96,871 for those with a Bachelor degree.
- The completion of post-graduate qualifications - Graduate Diploma, Masters and PhD - delivered average earnings premiums (total package figures) of 14.4, 20.6 and 29.7 per cent respectively over holding a Bachelor degree alone.

Working hours

- Respondents worked on average 43.6 hours per week including 5.4 hours of overtime.
- Only 10.5 per cent received monetary payment in recognition of their additional hours, a significant issue in view of the 11.4 per cent of respondents reporting that they were expected to work longer hours in the past year compared to the previous one.
- The average number of hours worked per week was greatest for those working in Teaching or training and Management roles, and respondents were most frequently compensated for additional hours in the Hospital sector, Local Government, and the Australian Public Service.

Skills development

- 42.8 per cent of respondents said there was insufficient skills development in their workplace over the previous 12 months.
- Of those that had changed jobs in the previous 12 months, 50.0 per cent had moved for further professional development opportunities.

Deprofessionalisation, professional standards and cost-cutting

- Deprofessionalisation - defined as the diminution of science capability across responsibility levels, industries and/or job functions - was seen as a concern with 26.9 per cent of respondents noting a reduction in the number of scientists in decision-maker roles over the previous 12 months.
- 16.8 and 26.2 per cent of respondents respectively said reduced adherence to professional standards and reduced service quality were evident in their organisation over the last 12 months.
- 59.2 per cent of respondents reported that cost-cutting was an issue in their organisation.

Science capability, STEM priorities and workforce challenges

- 61.8 per cent of respondents reported that scientific capability was seen as a source of innovation in their workplace.
- 16.8 per cent said that scientific capability was not seen as a source of innovation in their workplace.
- 72.3 per cent of respondents said Australia was not well prepared to meet emerging challenges.
- Attracting, developing and retaining the next generation of scientists was seen as one of the most important priorities for developing a sustainable STEM workforce by 71.4 per cent of respondents.

Diversity and discrimination

- 38.2 per cent of female respondents said they had experienced bias or discrimination on the basis of gender in the previous three years.
- 19.5 per cent of respondents had experienced sexual harassment at least once in the course of their employment compared to 4.9 per cent of males.
- Respondents reported 3.9 per cent of employers had formal policies in place to promote diversity and 67.2 per cent had policies to deal with discrimination.
- 25.7 per cent of respondents said their employer did not have strategies in place to actually implement policies relating to diversity and discrimination.

ABOUT THE SURVEY



Terms used

Base salary

Base salary refers to the annual salary component of the contract of employment exclusive of any additional allowances, payments or non-cash benefits.

Total package

The total remuneration package refers to the package received by a participant, including the value of all components of remuneration. Total package includes the following:

- Base salary;
- Annual leave loading;
- Overtime;
- Award allowances;
- Employer superannuation contributions;
- Motor vehicle;
- Parking;
- Performance pay;
- Fringe Benefits Tax (FBT);
- Other items eligible for FBT; and
- Other items not eligible for FBT.

Where a non-cash benefit such as a motor vehicle is provided, an estimate is made of the salary equivalent value of the benefit.

Annual salary movement

The calculation of percentage increases in annual salary is based on a comparison of current base salary to that of twelve months earlier as supplied by the respondent at the time of the survey. The average taken is the mean of the sum of each individual movement for the given category of analysis.

Minimum sample reported

Where the number of respondents in any given category is less than three, the results have not been reported for that single category in order to ensure the anonymity of the respondents are preserved, however the amounts are included in any calculation of the total for the broader category. Similarly, medians are only reported for categories with a minimum of four respondents, and quartiles for categories that have a minimum of five.

Valuation of motor vehicle

The value of capital and running costs given to a motor vehicle provided as part of a salary package has been determined based on the formula:

$$0.225 \times \text{Cost of Vehicle} + 25 \text{ cents per km.}$$

Cost of vehicle is the original cost of the car inclusive of government taxes and charges and dealer delivery fees. Capital costs within the formula are based on 22.5% straight-line depreciation over 4 years. Vehicle running costs are based on an average derived from the Royal Automobile Club of Victoria annual survey of car running costs. These costs include registration, insurance, fuel and servicing. The Fringe Benefits Tax liability has been calculated using the following formula: $\text{FBT} = \text{Purchase price} \times \text{statutory fraction} \times 1.8868 \times 0.47$ using the statutory fraction of 20%.





Statistical terms

For the purposes of salary analysis, the following statistical terms were used:

- N - the number of observations recorded for each category. A result of SNR (Sample Not Representative) is given for categories below the reporting threshold.
- Lower quartile - the value below which 25% of observations were recorded.
- Median - the value below which 50% of observations were recorded.
- Upper quartile - the value below which 75% of observations were recorded.
- Mean - the sum of individual salary values divided by the number of observations.
- Response % - the proportion of the survey sample represented by number of observations in the given category.

The calculations for base salary, total package and other remuneration components are made separately for each of the sample respondents and then ranked. The median is not therefore a reflection of the middle ranked respondent across all categories, but rather the middle value of the particular component when all values of that component are ranked. As a consequence, the component statistics will not add up to the value given by the overall statistic.

A significant difference between the value of the mean and the median will indicate the following:

- where the mean is higher than the median, a number of high values were recorded, sufficient to skew the mean upwards away from the median;
- conversely, if the mean is lower than the median, a number of low values were recorded, sufficient to skew the mean downwards, away from the median;
- if the mean and median are relatively close, the distribution was symmetric.

Methodology

The Professional Scientists Remuneration Survey tracks annual changes in compensation for full-time employees in Australia. In addition to presenting national trends, it includes analysis by separate indices including branches of science, levels of responsibility, years of experience, job function and science qualification.

The survey was conducted online during June 2019. Invitations to participate were forwarded to member societies of Science & Technology Australia and scientist members of Professionals Australia (formerly APESMA). The member societies represent in excess of 20,000 scientific and technical professionals. In addition, non-member professionals scientists Professionals Australia had prior contact with were invited to participate through direct e-mail and social media.

To avoid duplication of data arising from a participant starting multiple survey sessions due to technical difficulties, incomplete questionnaires were discarded where multiple responses had been submitted from a single IP address, at least one questionnaire was completed in full, and responses to the incomplete questionnaires mirrored responses in the completed survey.

Incomplete surveys were included in the analysis for any item where respondents provided enough information for that item.

Completed valid questionnaires were returned by 1,123 respondents and have been used as the basis for the analysis contained in this report.

Whilst the survey represents the responses of scientists from a large array of scientific disciplines, industries, sectors and job functions, the report largely represents the responses volunteered by members of organisations under the peak body of Science & Technology Australia, or who were contacted directly to participate in the survey and should always be viewed as representative of their membership and the disciplines in which the respondents qualified.

The task of describing the remuneration of scientists is made more complex by the diverse roles performed by those who have qualified in a scientific discipline. Traditionally, some may consider the role of a scientist to be strictly defined – to be involved in technical roles. It is clear however that large numbers of respondents are involved in supervisory and management roles and indeed some are engaged in positions that might not seem related to traditional concepts of science at all.

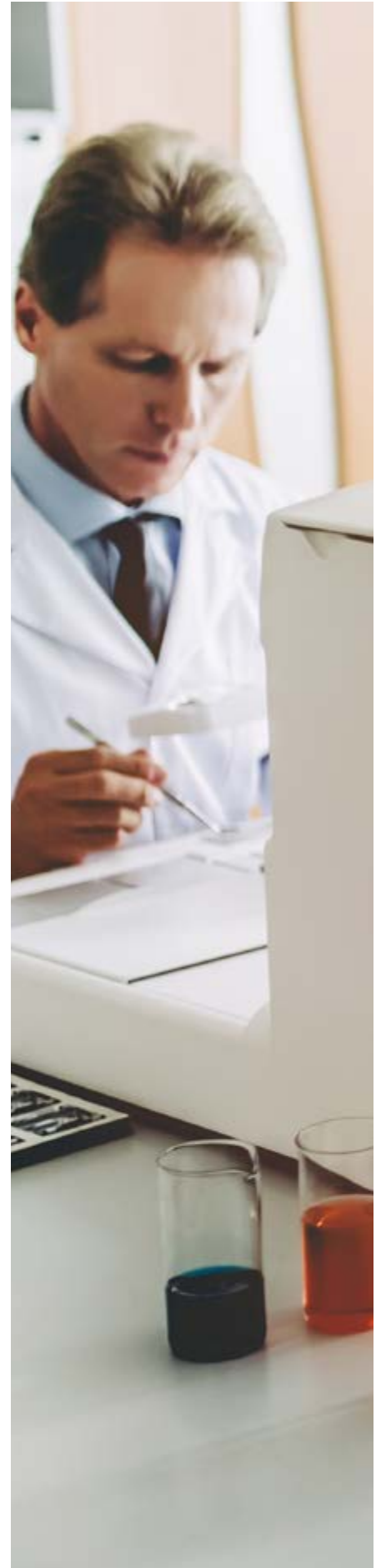
For the purpose of this survey, the decision was made to leave the respondent to decide this issue. All respondents were asked to supply details relevant to their position if they considered the position they held was one best described as being filled by a science professional.

Sample size

Not all respondents answered all questions, nor were all respondents in a given discipline employed as full-time employees. As a consequence, some discrepancies may appear to exist in the total number in a given category. In all cases, the sample size will correspond to the number of respondents who fulfilled the criteria described in the relevant heading and who made relevant data available for reporting purposes. This is of particular importance in relation to salary data as this has been restricted to only those respondents who were engaged on a full-time basis and who provided sufficient details of their income for reporting purposes.

Also, as would be expected, results based on smaller sample sizes need to be treated with greater caution. Nevertheless, where the number of responses exceeded three, the information has been reported. (Whilst not statistically reliable, small sample sizes are reported in order to satisfy the demand that some users have for any information that might have been gathered for a particular factor or combination of factors.)

In interpreting the results, the user should take as much care to look at the factors used for analysis as in looking at the statistical data itself. The conclusions drawn rely on the correct interpretation of both.



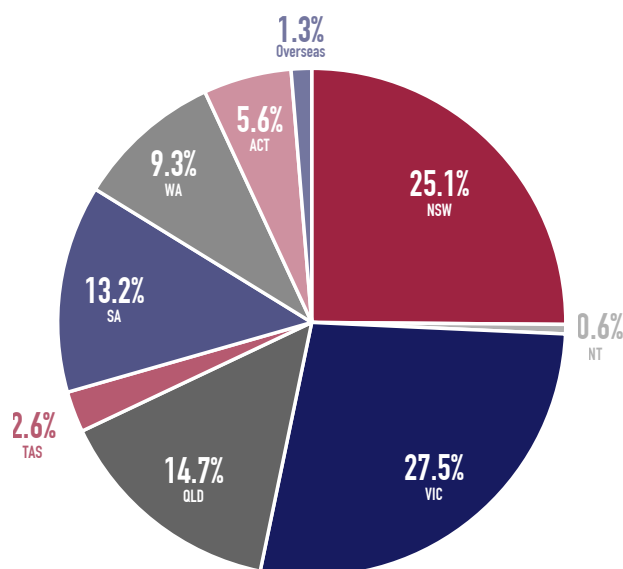


Sample characteristics

The gender breakdown of survey respondents was 48.7% male and 51.0% female, with the rest identifying as neither. 73.6% were employed full-time. The remaining 26.4% of respondents not employed full-time included part-time employees (9.5%) and self-employed (1.9%). Students (4.0%) were not included in any remuneration analyses.

Victoria was the most strongly represented state across respondents accounting for 27.5% of participants, although the distribution by state tended to approximate the distribution of the Australian population by state.

Geographic breakdown (%)



The Education and training industry was the most strongly represented industry in the survey at 19.9% of respondents, followed closely by the Health industry with 19.4% of respondents. Biology was the most common branch of science for respondents to be qualified in (21.0%) followed by Medical science (20.6%), Chemistry (15.1%) and Environmental science (15.0%).

Of those respondents who indicated membership to one or more professional associations or societies, 14.7% indicated they were members of Professionals Australia.

Responsibility level definitions

The responsibility level definitions used in this survey reflect those set out in the Professional Employees Award 2010 (available at <http://awardviewer.fwo.gov.au/award/show/MA000065>). The following is a summary of the definitions.

Level 1 - The professional primarily completes tasks of limited scope & flexibility which form part of larger projects under supervision from higher level professionals. Draws on knowledge gained during undergraduate studies and uses various standard procedures to perform responsibilities. Decisions are largely restricted to tasks at hand and work is regularly reviewed by higher levels. May be required to check the work of technical staff.

Level 2 - Following from Level 1, the experienced professional plans and conducts professional work without detailed supervision but with guidance on unusual features and is usually engaged on more responsible assignments requiring substantial professional experience.

Level 3 - The professional is involved in co-ordination of difficult assignments and resolving problems by modifying established guidelines and devising new approaches. May make novel contributions to the design of equipment, products and procedures. Decisions made at this level are subject to limited review, primarily checked for conformity with broader objectives and priorities. The professional may supervise other technical and professional staff and cooperate with other divisions.

Level 4 - Largely independent with duties assigned in terms of broad objectives, the professional has detailed technical responsibility for products, systems, facilities or functions. A professional at this level will apply ingenuity, originality and knowledge from more than one field to influence long range planning; providing technical advice to management and acting as an organisations authority in a given field. Often supervises a group including other professionals and exercises authority over a large sum.

Level 5 - The professional independently conceives programs, responsible for reaching objectives in the most economical manner. Frequently responsible for scientific administrative functions, a scientist at this level directs several professional groups or acts as a scientific consultant. Makes responsible decisions on all matters, including selection, training, rating and remuneration of staff, subject only to overall policy and financial controls.

Detailed responsibility level definitions are also available at:

www.professionalsaustralia.org.au/financial-edge/salary-survey-reports/scientists/

Report preparation

This report was compiled by Dr. Kim Rickard, BA, PhD and Mr. Alex Crowther, BSc (Hons), MSc.

Acknowledgements

Professional Scientists Australia would like to thank the scientists who took part in the research and to acknowledge the assistance of Science & Technology Australia and their member organisations in conducting this survey.



MARKET RATES - A BENCHMARKING TOOL FOR SETTING FAIR REMUNERATION

Individual employment contracts

The market rates information in this survey report provides a snapshot of remuneration for scientists and the current science employment market. The information contained in this report is a good starting point for those looking to negotiate or renegotiate their package and understand their position in the market. Where individuals are engaged under an individual employment contract, the remuneration information contained in this report can provide a basis for negotiating a base salary and total remuneration package to be included in the contract. The rates set out in the report are a reliable snapshot of market rates and salary movements across the profession over the previous 12 months. For more detailed information suitable for benchmarking, the full report is available for purchase from Professionals Australia. This report contains comprehensive tables analysing remuneration by all demographics discussed in this report.

Employment conditions

Employment conditions to be included and referred to in a contract can be negotiated and agreed so long as employers observe the National Employment Standards (NES) or the relevant underpinning Award which must apply (see below). Some enterprise agreements also provide for employees to enter into individual agreement/contracts in relation to some aspects of their employment so in these cases the employment conditions set out in the enterprise agreement underpin the employment conditions set out in the employment contract.

National Employment Standards

The NES are 10 minimum employment entitlements that must be provided to all employees. The national minimum wage and the NES make up the minimum entitlements for employees in Australia. An Award, employment contract, enterprise agreement or other registered agreement can't provide for conditions that are less than the national minimum wage or the NES. They cannot exclude the NES.

The 10 minimum entitlements of the NES are:

- maximum weekly hours;
- requests for flexible working arrangements;
- parental leave and related entitlements;
- annual leave;
- personal/carer's leave, compassionate leave and unpaid family and domestic violence leave;
- community service leave;
- long service leave;
- public holidays;
- notice of termination and redundancy pay; and
- Fair Work Information Statement.

All full-time and part-time employees in the national workplace relations system are covered by the NES regardless of the award, registered agreement or employment contract that applies. For further information on the National Employment Standards and their application, visit the Employee entitlements section of the Fair Work Ombudsman's website at <https://www.fairwork.gov.au/employee-entitlements>



Modern Awards

Professional employees are covered by a range of Modern Awards and particular Awards underpin Enterprise Agreements. The major Award covering Professional Engineers in the Private sector is the Professional Employees Award 2010.

The major provisions of a modern award will most commonly relate to:

- rates of pay;
- classification levels;
- working hours and public holidays;
- overtime and penalty rates;
- allowances;
- annual leave;
- personal leave;
- rest breaks;
- engagement and termination of employment;
- superannuation; and
- dispute settlement procedures.

For a list of relevant Awards and links to the Awards, visit the Modern Awards section on the Professionals Australia website.

Online salary calculator

The market rates information in this survey report provides a snapshot of remuneration for scientists and the science employment market over the previous 12 months. Where individuals are engaged under an individual employment contract, the remuneration information can provide a basis for negotiating a base salary and total remuneration package to be included in the contract.

For more detailed information suitable for benchmarking, a more extensive report is available for purchase from Professionals Australia. This report contains comprehensive tables analysing remuneration by all the demographics discussed in this report.

If you're not a Professionals Australia member and would like to subscribe to the full report and online salary calculator for an annual fee of \$330 (GST inclusive) visit <http://www.professionalsaustralia.org.au/financial-edge/salary-survey-reports/scientists5/>. Purchasing the survey report includes access to our online salary calculator.



HOW TO ORDER THE EXTENDED SCIENTISTS EMPLOYMENT AND REMUNERATION REPORT

Gain access to more detailed data to benchmark remuneration for your science workforce for only \$330 (inc. GST).

Professionals Australia has been conducting regular surveys of professional scientists' remuneration for over 20 years. Our reports are the most detailed source of information available when it comes to pay and conditions for Australia's science workforce.

Purchase a full copy of the Professionals Scientists Employment & Remuneration Report to gain access to detailed breakdowns for scientists pay across industry, discipline, levels of experience, and more.

The full report is available for only \$330.00 (inc. GST). Purchase by visiting the following link <http://www.professionalsaustralia.org.au/financial-edge/salary-survey-reports/scientists5/>.

Professionals Australia member? Purchase the extended report for only \$99.00 (inc. GST).

By purchasing you also get access to our Science Remuneration Calculator. This tool allows you to perform custom analysis of engineer remuneration using a wide range of demographics. Members of Professionals Australia get access for free. Click here to access the calculator: https://members.professionalsaustralia.org.au/PSA/Calculator_Page.aspx

Not a member? Look at the benefits of joining here! <http://www.professionalsaustralia.org.au/join/>

Other remuneration and employment reports

Professionals Australia conducts a range of salary surveys and has available reports for Engineers, Pharmacists and ICT Professionals.

[Download here](#)

ENDNOTES

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8. Australian Bureau of Statistics (July 2018). Research and Experimental Development, Government and Private Non-Profit Organisations, Australia, 2016-17 (8109.0).
9. Annual base salary movements for scientists were determined by comparing the reported current salary of the individual with that reported as having been received 12 months earlier by the same incumbent performing the same job.
10. The responsibility level definitions used in this survey reflect those in the Professional Employees Award 2010 (available at <http://awardviewer.fwo.gov.au/award/show/MA000065>). For a summary of Responsibility Level Definitions, refer to the About the Survey section.
11. Branches of science (also referred to as fields and disciplines in this report) are based on the Australian Bureau of Statistics ASCED codes set out in 1272.0 Australian Standard Classification of Education (ASCED), 2001. It should be noted that survey results specific to branch or field of science are based on smaller sample sizes and should be treated with caution.
12. Patty, A. Not enough jobs for science graduates challenges STEM hype. Available at <https://www.smh.com.au/business/workplace/glut-in-demand-for-science-graduates-challenges-stem-hype-20190327-p517zj.html>.
13. Sample size precluded provision of average annual salary movements in some job functions.

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