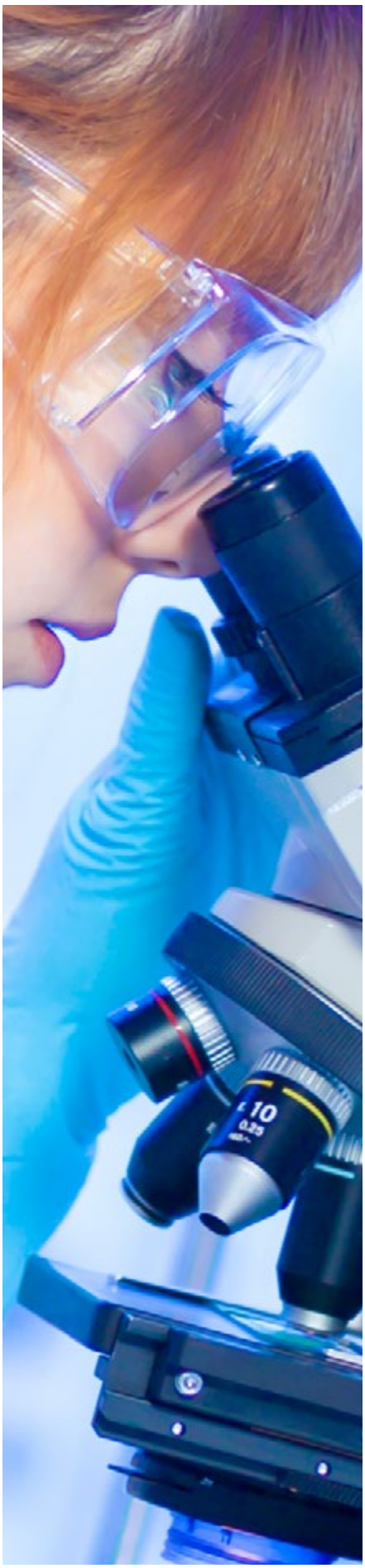
PROFESSIONAL SCIENTISTS EMPLOYMENT AND REMUNERATION REPORT 2018

Professionals Australia

Professional Scientists Australia

Science & Technology AUSTRALIA



ABOUT SCIENCE & TECHNOLOGY AUSTRALIA

Science & Technology Australia is the peak body representing about 70,000 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.

Science & Technology Australia has three formal objectives:

- to encourage scientific dialogue between industry, government, and the science and technology community;
- to promote public understanding of science; and
- to foster close relations between member societies.

Science & Technology Australia

GPO Box 259, Canberra City, ACT 2601
e info@sta.org.au
w scienceandtechnologyaustralia.org.au
t 02 6257 2891

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.

Professional Scientists Australia

GPO Box 1272, Melbourne, Vic. 3001
e scientists@professionalsaustralia.org.au
w www.professionalsaustralia.org.au/scientists/
t 1300 273 762

CONTENTS

PROFESSIONAL SCIENTISTS EMPLOYMENT AND REMUNERATION REPORT 2018

FOREWORD

As Australia and the world move towards a future increasingly informed and supported by science and technology, the planet's best thinkers predict that more than 60 per cent of new jobs in the coming decades will require STEM skills.

With this in mind, it's important to ensure conditions for those at the front line of creating and applying new knowledge enjoy fair and inclusive conditions and are supported by a national strategy that values their work and their place in shaping the nation's future.

We've asked our national solution-makers and knowledge-creators about their daily conditions of work and what they need to be primed for success.

We were pleased to find that over the past year, remuneration for scientists has increased by a modest 2.1 per cent. However, this increase only matches the rising cost of living and the rate of general wage growth across Australian workplaces. Over the previous 10 years, the average increases reported by respondents have outperformed both CPI and WPI increases by between 0.2 and 2.2 per cent, suggesting slowing growth in scientists' salaries across the Australian economy. If this slowing trend continues this creates the risk that we will struggle to attract bright, creative and committed people to the vital endeavours of science and technology - this at a time when a diverse and sustainable science and technology workforce has never been more important to Australia's future.

More than one-third - 35.5 per cent - of respondents reported being dissatisfied with their current level of remuneration and 39.8 per cent said they were considering leaving their current employer. For those who were considering leaving, professional development opportunities, a pay increase and job security were the most frequently cited contributing factors. Concerningly, 43.3 per cent said their package did not reflect the level of responsibility they undertook in their day-to-day work.

According to respondents, women in science are paid 16 per cent less than their male colleagues. This is a bigger gap than the national average of 14.6 per cent and warrants urgent attention. The gap is particularly obvious when examining total remuneration packages rather than base pay.

When asked to reflect on their sector, respondents reported broad concern about Australia's ability to maintain our scientific capability. More than two-thirds said cost-cutting was impacting their organisation and one-quarter reported a decline in service quality at their workplace. 31.7 per cent said a decline in the number of scientists in decision-maker roles was evident in their organisation. Alarmingly, 74.9 per cent of respondents said Australia was not well prepared to meet emerging challenges. 73.6 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.

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.[1]

To ensure a competitive and growing Australian economy, a high-technology future, a dynamic science and innovation system and a successful transition from a manufacturing to a high-skill, knowledge-based economy, we need to encourage stronger collaboration between industry and research bodies, policies that support business investment in R&D and the generation of innovative products and processes, emergent industries and new jobs. We need to build capacity for the future, engage the next generation of scientists, 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 - so we are fully exploiting our talent base.

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

"Australia has fallen well behind other OECD countries in terms of ongoing and stable funding for science and innovation. Australian scientists need job security like anyone else and are paid very poorly relative to the amount of years put into study and accumulation of skills and expertise."

CHRIS WALTON
CEO, Professionals Australia

ROBYN PORTER
President, Professional Scientists Australia

KYLIE WALKER
CEO, Science & Technology Australia

INTRODUCTION

Welcome to the 2018 Professional Scientists Employment and Remuneration Report.

Many professional scientists don't opt for science as a career for the money but rather because they feel it's a vocation and are passionate about the 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 have an evidence-base for negotiating their salaries at review time, 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 employing organisations understand the importance of attracting and retaining scientists 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 scientists 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 the most 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 detailed analysis of:

- current base salaries and total remuneration packages;
- annual salary movements;
- employment intentions;
- variable pay;
- differences 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 like the work, but pay, conditions and the time and effort required to build a decent career now mean I do not recommend STEM to anyone unreservedly. Being a scientist is a calling to a life of struggle and sacrifice."

"I love the intellectual stimulation and challenges, the great people I work with and the ability to make a meaningful contribution."

KEY FINDINGS

Wages growth

- Base salaries paid to professional scientists grew by an average 2.1 per cent over the last 12 months.
- 29.8 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 $110,854 and received a total package worth $129,353.

Satisfaction with remuneration

- 42.5 per cent of scientists surveyed reported being satisfied or very satisfied with their current level of remuneration and 35.5 per cent were dissatisfied or very dissatisfied.

Employment intentions

- 14.8 per cent of respondents had changed jobs in the previous 12 months and, of those, 36.8 per cent had moved for a pay increase, 31.0 per cent had moved for greater job security and 47.1 per cent had moved for greater professional development opportunities.

Gender pay gap

- Female respondents earned on average 84.0 per cent of male respondents' earnings.
- The survey found evidence of a gender pay gap in both the enabling and life sciences with the disparity greater in the enabling sciences.

Workplace morale and fatigue

- 53.3 per cent of respondents said that staff morale had declined in their organisation over the previous 12 months.
- 54.7 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 24.1, 12.2 and 32.5 per cent respectively over holding a Bachelor degree alone.

Working hours

- Respondents worked on average 44.2 hours per week including 6.4 hours of overtime.

Science capability, STEM priorities and workforce challenges

- 21.1 per cent said that scientific capability was not seen as a source of innovation.
- 74.9 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 33.8 per cent of respondents noting a reduction in the number of scientists in decision-maker roles over the previous 12 months.
- 59.7 per cent of respondents reported that cost-cutting was an issue in their organisation.

Skills development

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

Diversity and discrimination

- 47.4 per cent of female respondents said they had experienced bias or discrimination on the basis of gender in the previous three years.

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

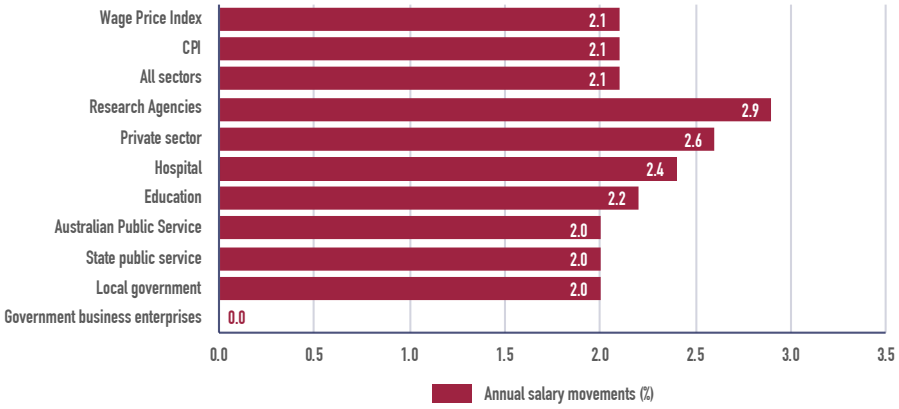
REMUNERATION

01 EMPLOYMENT SECTOR

Base salaries paid to professional scientists grew by an average 2.1 per cent over the last 12 months. The highest average increase was in Research Agencies at 2.9 per cent off the back of a modest 2.2 per cent last year. The Private sector, Hospital sector and Education sector followed with increases of 2.6, 2.4 and 2.2 per cent respectively.

The lowest reported average increases were in the Public sector across Federal, State and Local government and Government business enterprises (including entities such as Australia Post, NBN, Australian Rail Track Corporation and Snowy Hydro) with increases of 2.0, 2.0, 2.0 and 0.0 per cent respectively. Salary increases to scientists across the Public sector were below the cost of living (to June 2018) as measured by the ABS Consumer Price Index (6401.0) and below increases in earnings across the Australian economy as measured by the ABS Wage Price Index (6345.0) which increased by 2.1 per cent (annualised to June 2018). 29.8 per cent of respondents reported that they had not received any increase over the previous 12 months.

Figure 1 - Average (median) annual percentage base salary movements by employment sector[2]



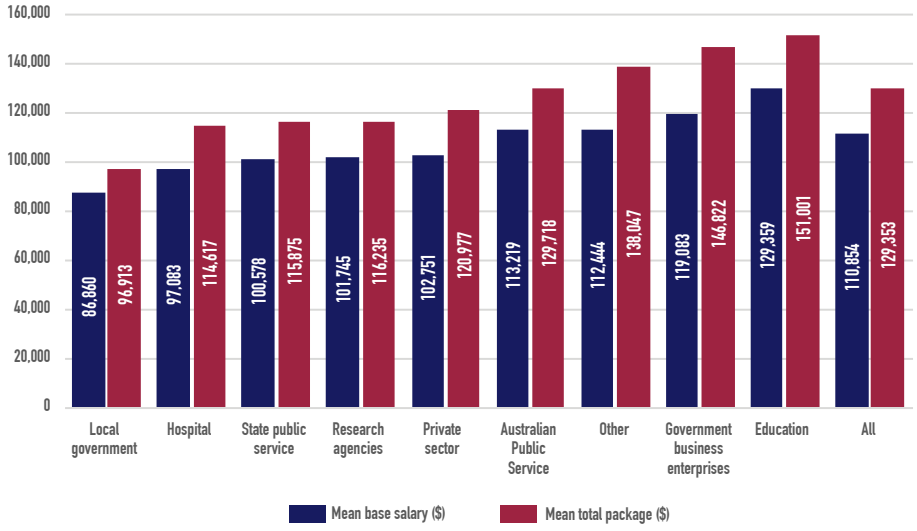
"In general, I don't think science is very valued by a considerable proportion of the community. This position is driven by many of our political and business leaders. Scientists themselves need to develop a louder voice within society."

"Science is a challenging and rewarding career but it desperately needs funding."

Across all sectors employing scientists, a full-time professional scientist took home an average annual base salary of $110,854 and received a total package worth $129,353.

The average annual base salary was greatest in the Education sector at $129,359, compared with $113,219 in the APS and $102,751 in the Private sector. The highest average total package was in the Education sector at $151,001, compared with $129,718 in the APS and $120,977 in the Private sector.

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



Incidence of zero pay increase by sector

29.8 per cent of respondents reported receiving no pay increase in the previous 12 months. This figure was 32.6 per cent for the Private sector, 31.7 per cent for the Public sector and 25.2 per cent in Education.

Table 1 – Incidence of zero pay increase by sector

SECTOR	PERCENTAGE
Private	32.6
Public	31.7
Education	25.2
Other sectors	29.3
All	29.8

02 RESPONSIBILITY LEVEL

The level of responsibility[3] attached to a role is obviously a key factor in determining remuneration.

The average annual base salary for a Level 1 scientist was $64,758 with an average total package of $72,842. Average total packages not surprisingly were greatest at Level 5 and Above Level 5 where the packages ranged from $193,451 to $331,615. Average annual movements in base salary ranged from 2.3 to 1.8 per cent for scientists between Levels 1 and Above Level 5 and were greatest for those at Levels 1 and 2 with increases of 2.3 per cent at each level.

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

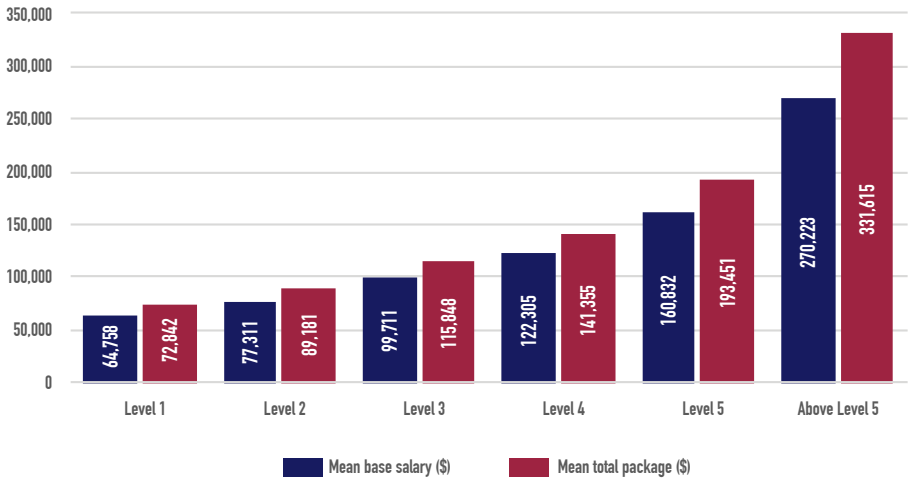
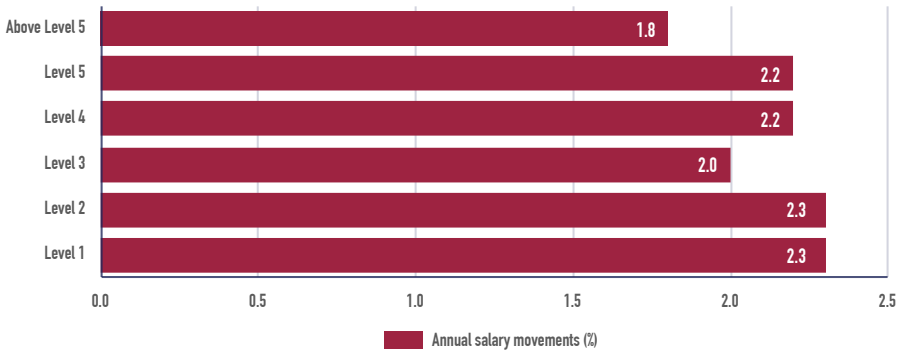


Figure 4 - Average (median) annual percentage base salary movements by responsibility level



"Science funding must increase, as well as priorities for discovery-based research as we are losing bright scientists to other countries due to government insistence of only funding research with a clear, immediate fiscal outcome."

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	43	$59,000	$64,283	$72,000	$64,758	$64,605	$73,125	$81,297	$72,842
LEVEL 2	91	$68,944	$78,000	$87,500	$77,311	$79,286	$89,790	$101,010	$89,181
LEVEL 3	225	$86,800	$100,000	$110,000	$99,711	$99,645	$113,880	$129,210	$115,848
LEVEL 4	194	$105,471	$120,000	$139,700	$122,305	$118,917	$136,800	$158,326	$141,355
LEVEL 5	65	$140,000	$162,000	$180,000	$160,832	$164,231	$191,625	$217,620	$193,451
BEYOND LEVEL 5	13	$205,000	$250,000	$284,000	$270,223	$256,909	$286,198	$420,000	$331,615
ALL RESPONDENTS	631	$84,338	$104,000	$129,000	$110,854	$96,661	$119,900	$150,015	$129,353

03 INDUSTRY

The highest base salaries were in the Mining, Education and training and Defence industries with average salaries of $144,186, $130,465 and $117,910 respectively.

The highest total packages were in Mining, Education and training and Electricity, gas, water and waste with packages of $170,626, $151,326 and $133,361. The greatest salary movement was in the Defence industry with an average base salary increase of 3.0 per cent off the back of no increase last year.

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

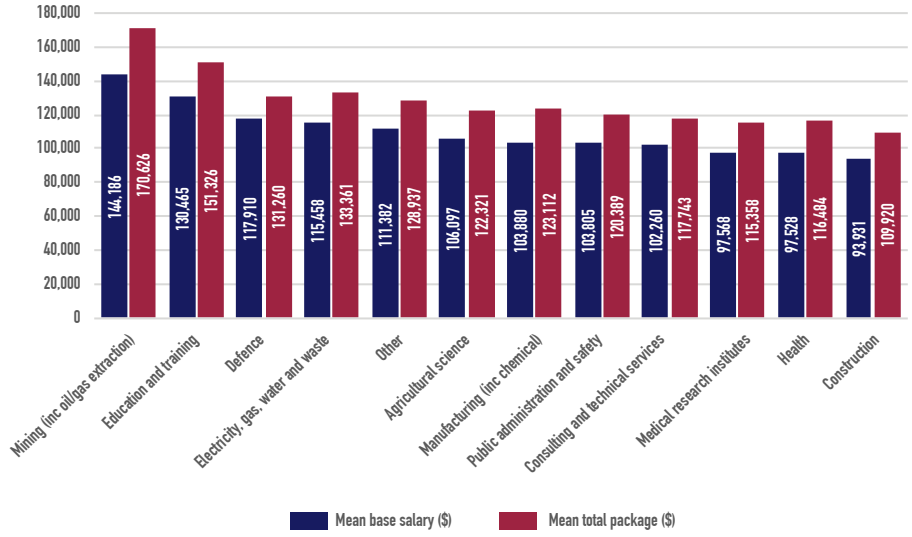
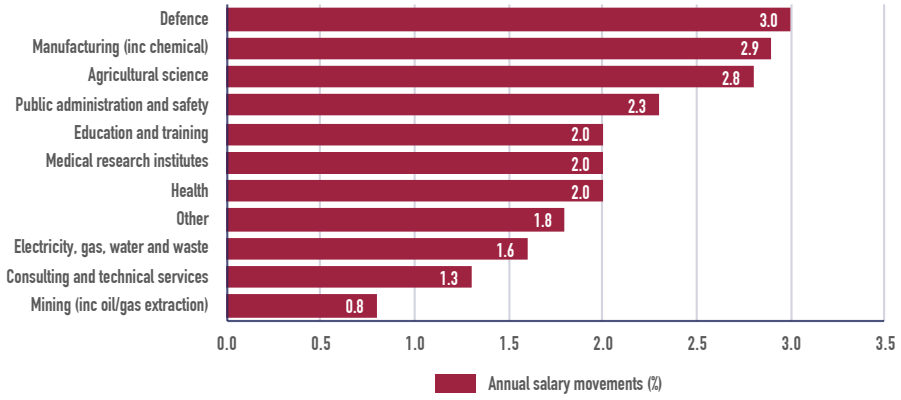
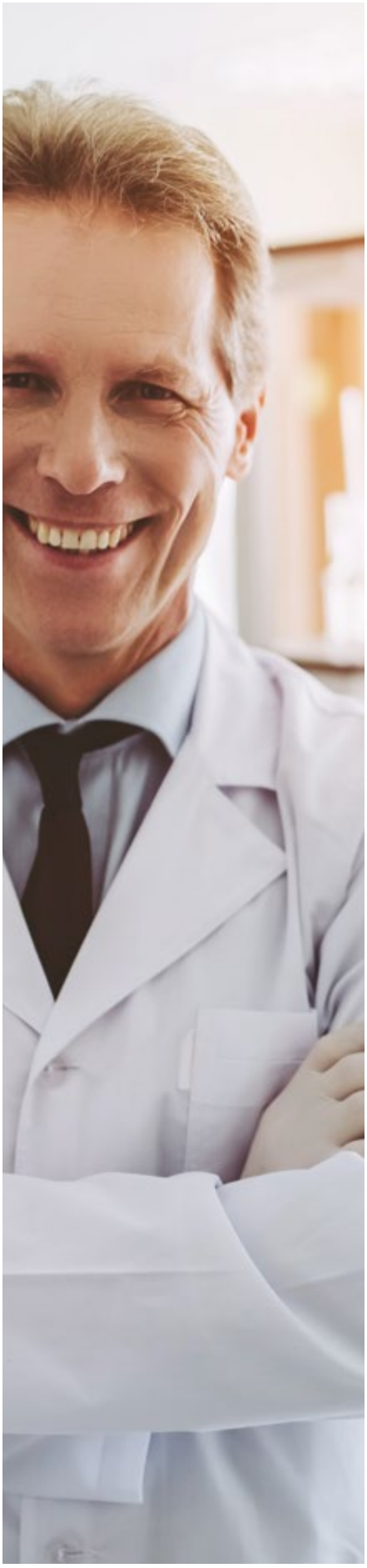


Figure 6 - Average (median) annual percentage base salary movements by industry



"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."



04 BRANCH OF SCIENCE

Average annual base salaries and total packages were highest in the Materials/metallurgy, Veterinary science and Physics fields.

Average annual salary movements were greatest in the Materials/metallurgy, Food science/technology, Chemistry, Agricultural science and Physics fields with increases of 3.3, 3.1, 2.6, 2.6 and 2.6 per cent respectively.[4]

Movements were lowest in Pharmacology and Computer science with movements of 1.2 and 1.5 per cent respectively.

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

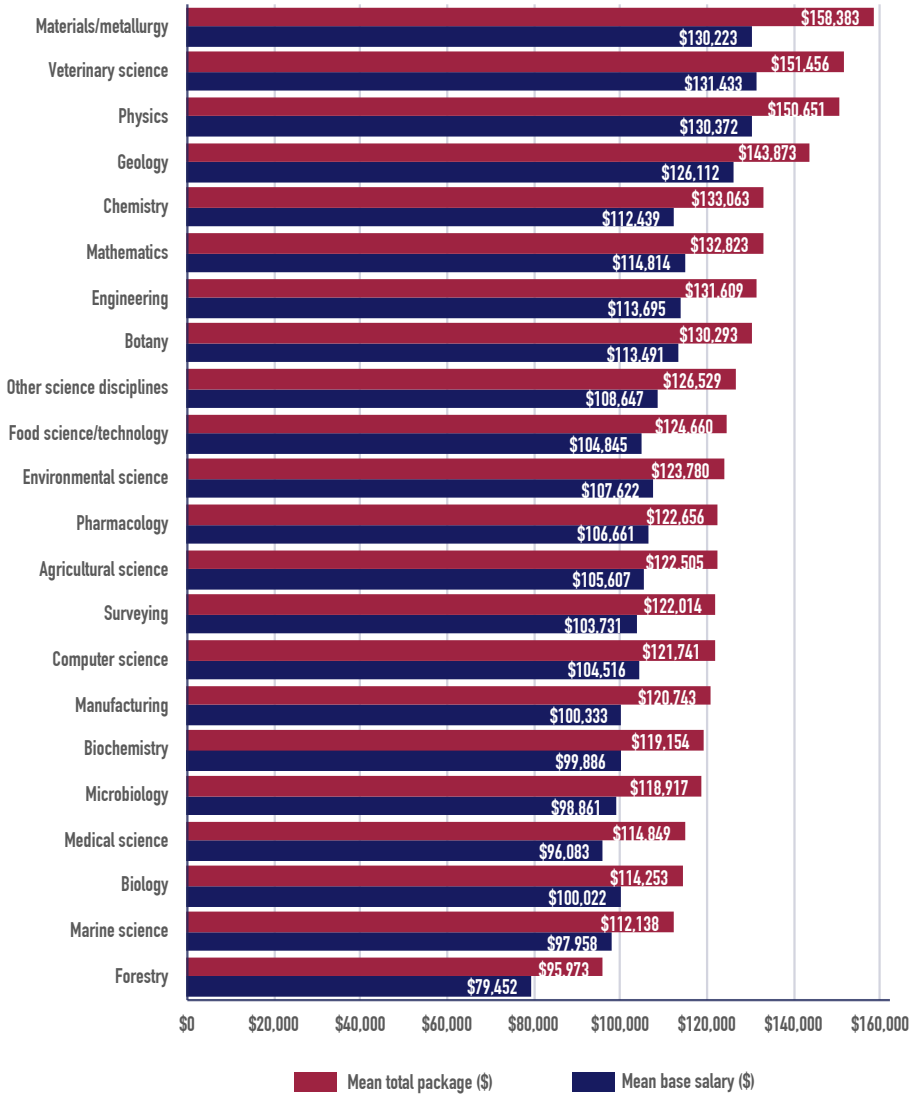
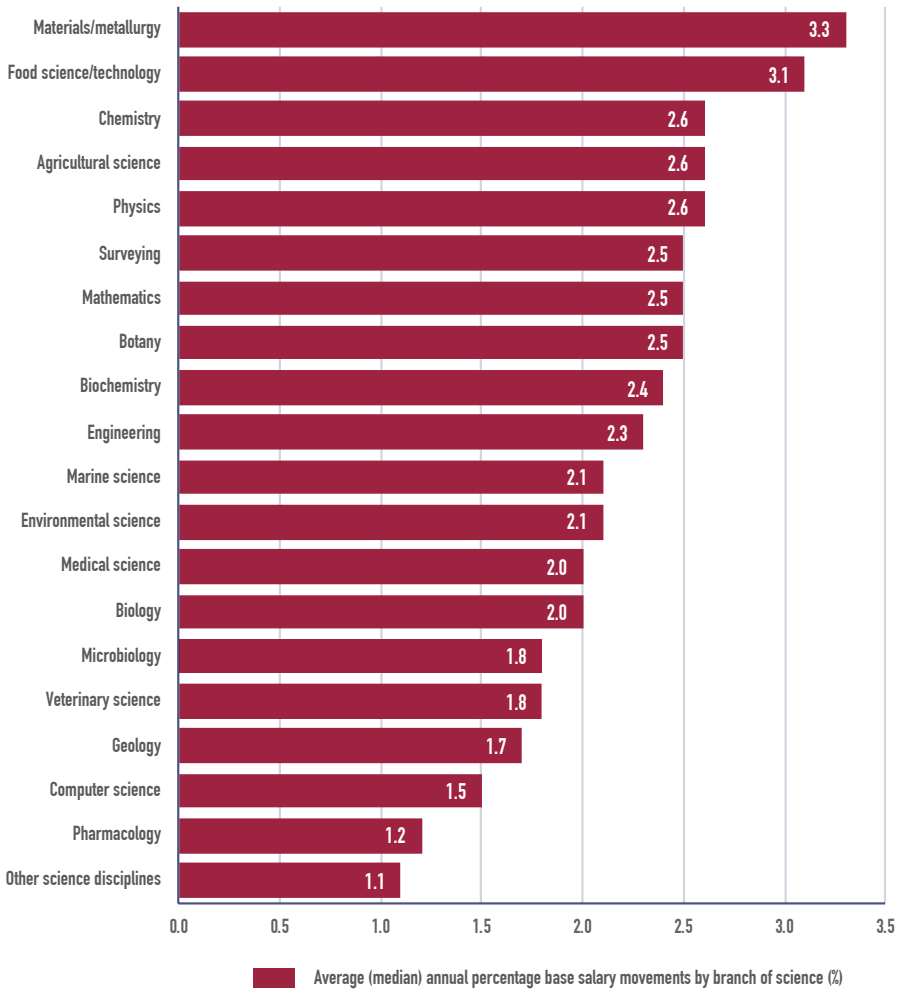


Figure 8 - Average (median) annual percentage base salary movements by branch of science



"Scientific advice and contributions are too often overlooked or sidelined for reasons of economic or political expediency. Government must lead in elevating and respecting the contributions of the sciences to our modern society, to make it attractive to the future generation of scientists. An investment in scientific research and education will create a strong culture of innovation that will be required to fuel our future economy and productivity and to manage our future societal challenges."

"The declining level of public trust in and respect for science and scientists is disturbing, and is a symptom of the lack of respect shown to education and qualified advice (for STEM in particular) in current politics. The current absence of evidence-based decision-making in policy and politics and the short-term thinking behind much of what currently passes for political and business 'leadership' is a consequence of this. Working as a science professional in this environment is energy-sapping and disheartening; it certainly doesn't encourage young people to look favourably on science as a future profession."

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 $121,000. Salary movements were greatest for scientists with less than 5 years' experience, 5 to less than 10 years' experience, 10 to less than 15 years' experience and those with more than 30 years' experience with average annual percentage increases of 3.5, 2.2, 2.4 and 2.3 per cent respectively.

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

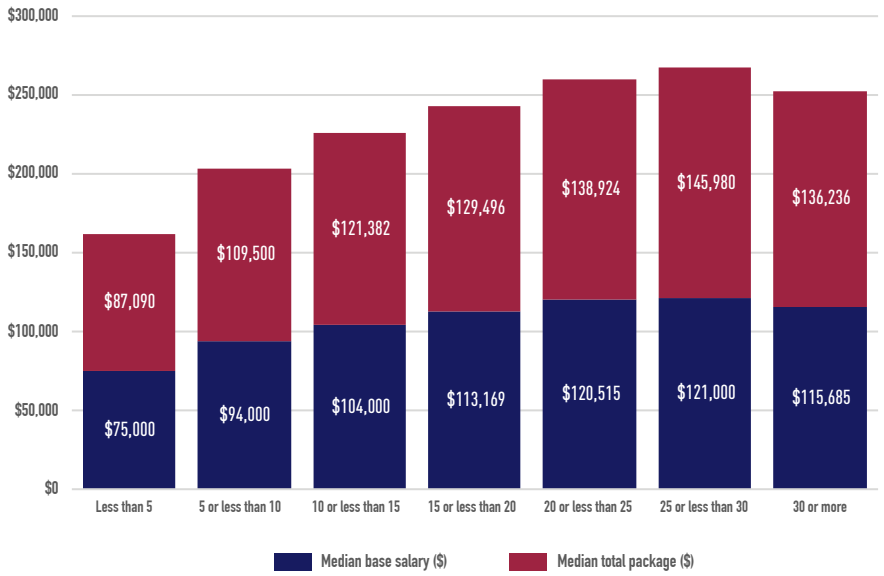
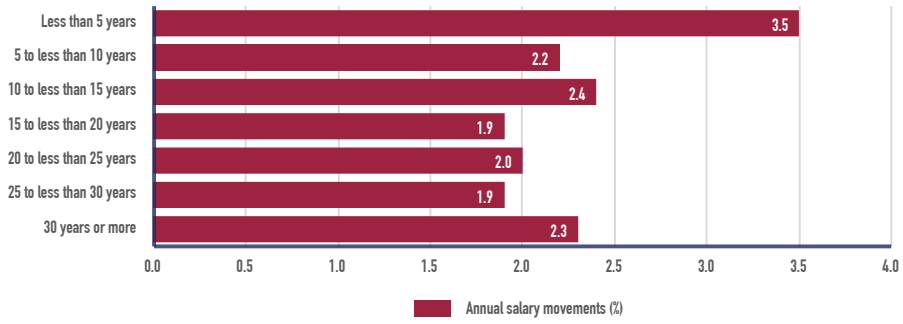


Figure 10 - Average (median) annual percentage salary movements by years of experience

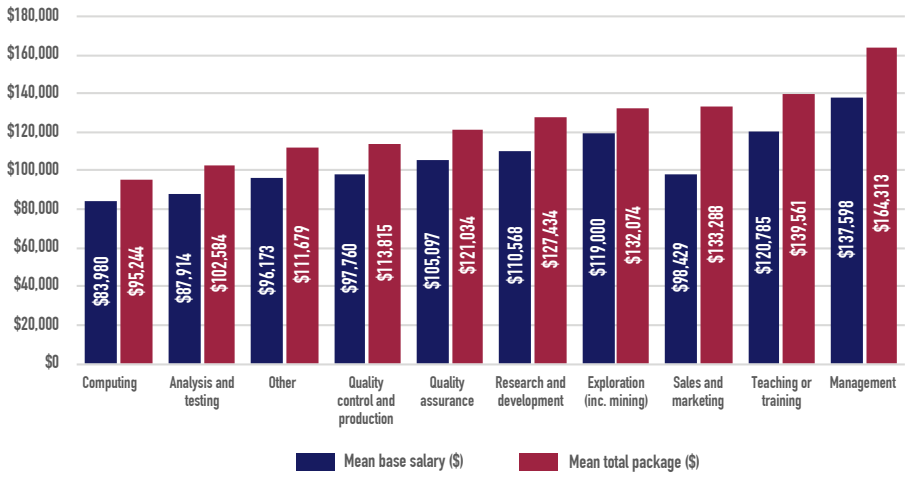


06 JOB FUNCTION

"Diversity of career paths within science is vital."

The highest base salaries by job function were in the Management and Teaching or training fields with average salaries of $137,598 and $120,765 respectively. The highest total packages were in also Management and Teaching or training with average total packages of $164,313 and $139,561 respectively.

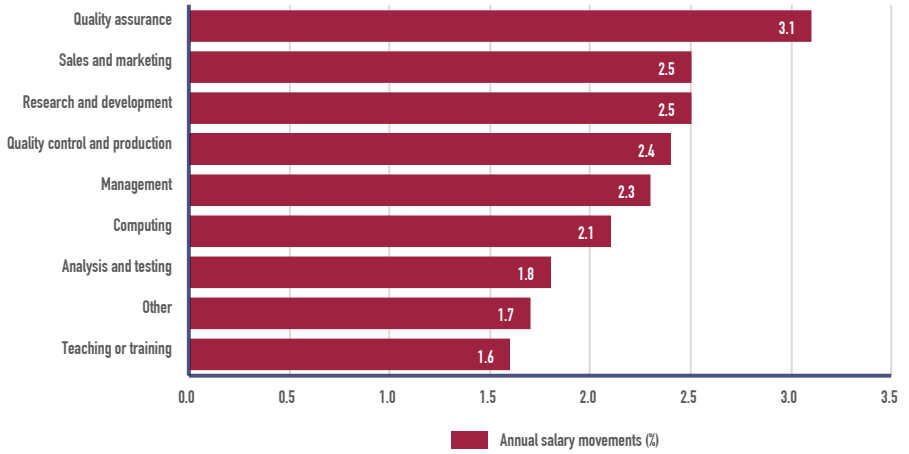
Figure 11 - Average (mean) annual base salaries and total packages by job function



"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."

Data on salary movements across the range of job functions was limited but the greatest movements in base salaries were in Quality assurance, Sales and marketing and R&D with increases of 3.1, 2.5 and 2.5 per cent respectively.[5]

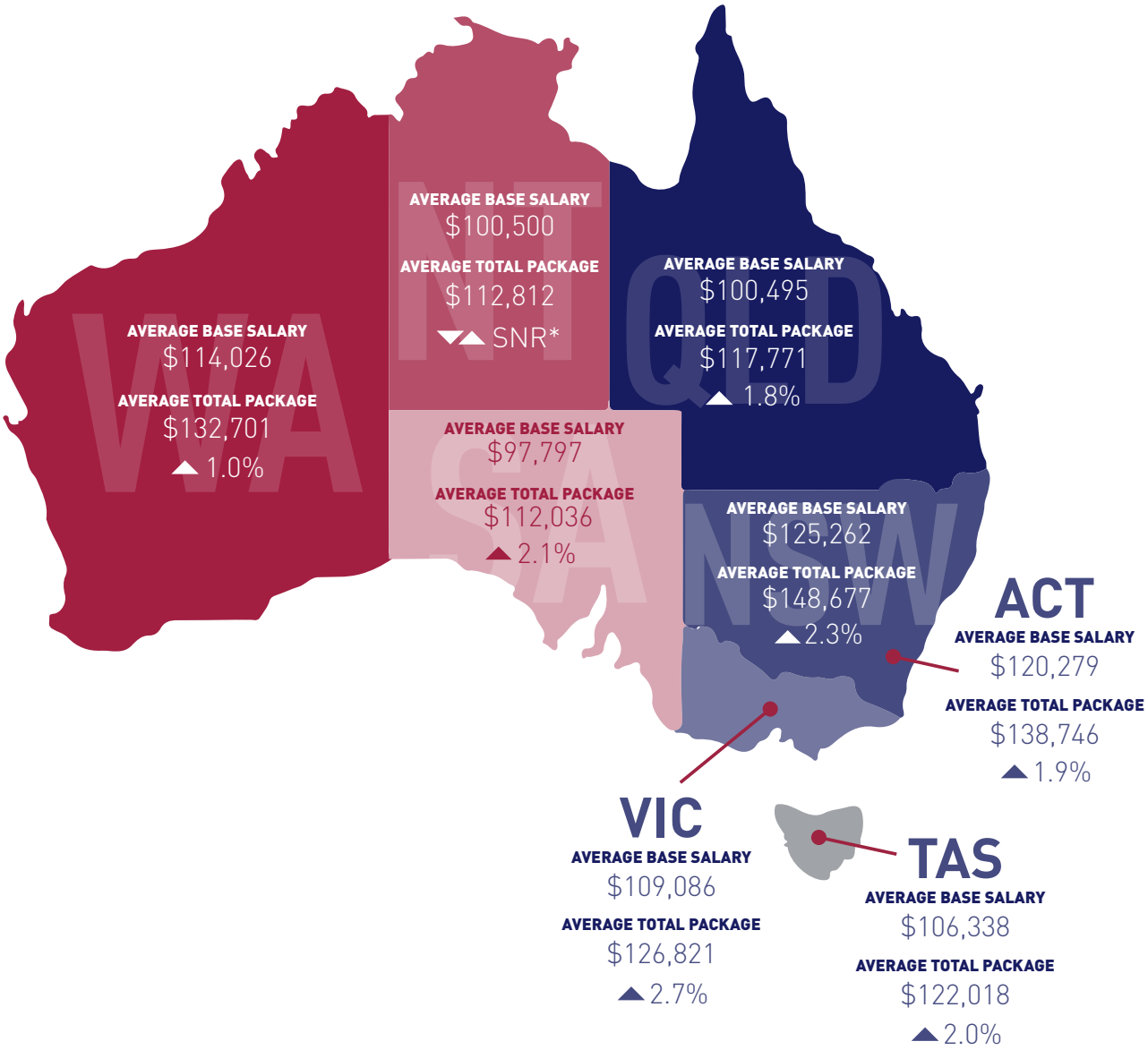
Figure 12 - Average (median) annual percentage base salary movements by job function



07 STATE/TERRITORY

Growth in salaries in the national science and technology labour market was restrained with average base salaries increasing overall. There were however varying outcomes between the states/territories 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 2.3 per cent, closely followed by South Australia and Tasmania with increases of 2.1 and 2.0 per cent respectively.

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 $122,969 for those with a PhD, through to $105,102 for those with a Masters, $113,216 for those with a Graduate diploma and $92,189 for those with a Bachelor degree. Salary movement was greatest for those with a Graduate diploma with an average annual base salary movement of 2.9 per cent. The completion of post-graduate qualifications - Graduate Diploma, Masters and PhD - delivered average earnings premiums (total package figures) of 24.1, 12.2 and 32.5 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

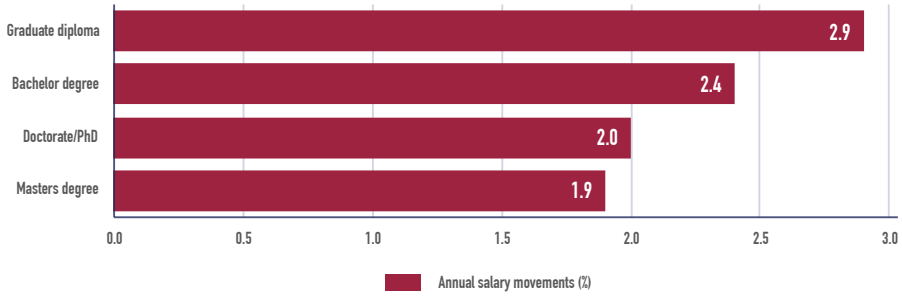


Table 3 - Earnings premiums by post-graduate qualification

QUALIFICATION	MEAN TOTAL PACKAGE	EARNINGS PREMIUM (%)
BACHELOR DEGREE	$108,205	-
GRADUATE DIPLOMA	$134,261	24.1
MASTERS DEGREE	$121,425	12.2
DOCTORATE/PHD	$143,322	32.5

"Working as a science professional is extremely rewarding though it does have a number of challenges in regards to job security and work/life balance."

"I don't think the problem is getting people to like and start STEM careers. I think the problem lies in keeping people in science long-term due to lack of security and remuneration."

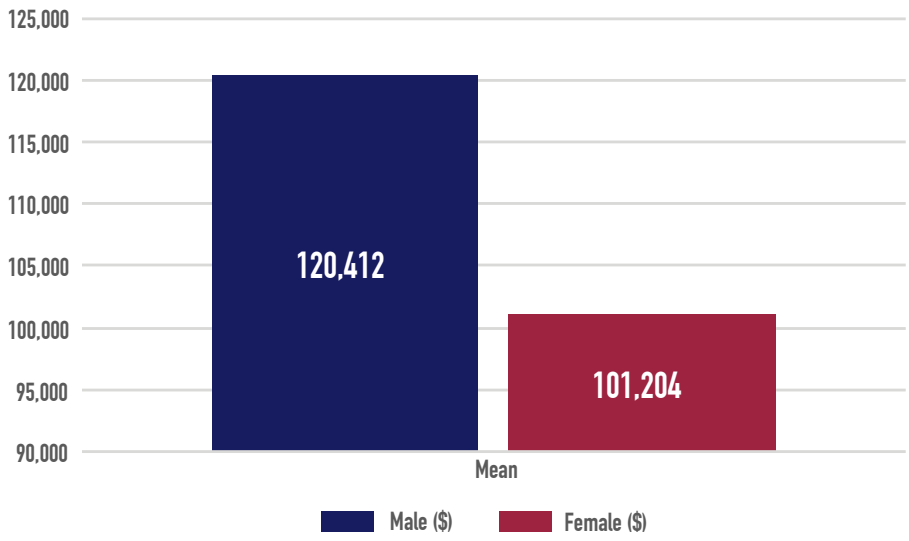
09 GENDER

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 $101,204 for females compared to $120,412 for their male counterparts – female respondents earned on average 84.0 per cent of male respondents' earnings. Salary levels were looked at by a range of criteria including responsibility level, age, qualification, job function and discipline to establish whether or not they help us better understand the gender pay gap in science.

Figure 16 - Average (mean) male and female base salary for all full-time respondents across survey sample



Salaries by responsibility level and gender

Average base salaries and total package figures were lower for female respondents than their male counterparts 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

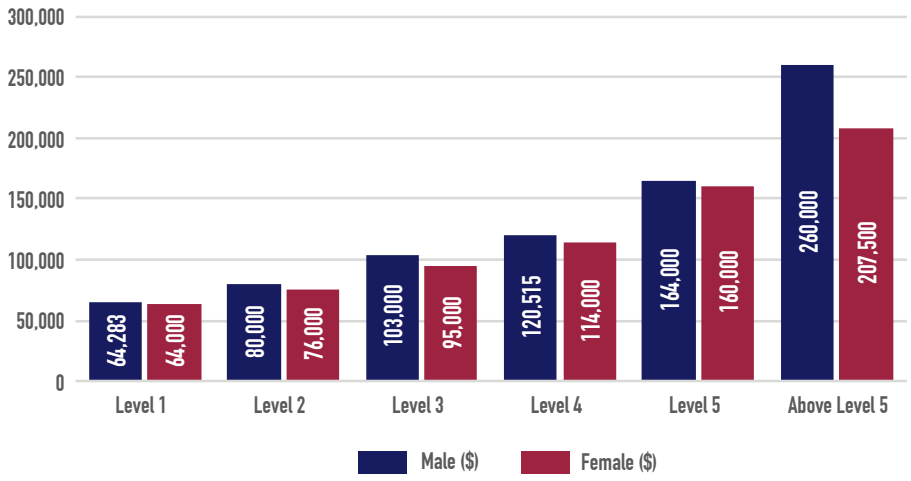
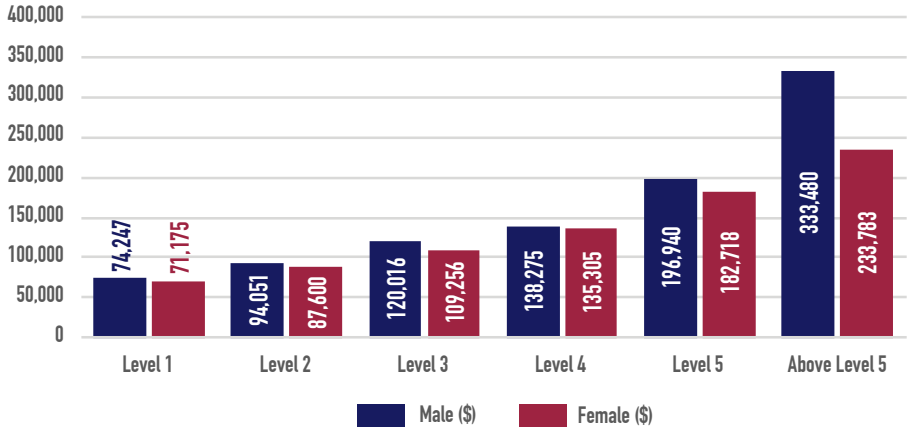


Figure 18 - Average (median) annual total package by responsibility level and gender



"While my organisation overall has policies for dealing with diversity and gender equity, flexible work arrangements and CPD, my direct supervisors are not supportive of me participating or supporting these programs. It is difficult working in a workplace where the overall ethos of the organisation is good, but the implementation of the policies doesn't filter down."

Salaries by years of experience and gender

With the exception of average total package at 20 to 25 years' experience, average base salaries and total packages were lower for females across years of experience. The clearest pay disparities were evident at mid and senior-career stages at 15 to 20, 25 to 30 and 30 or more years' experience.

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

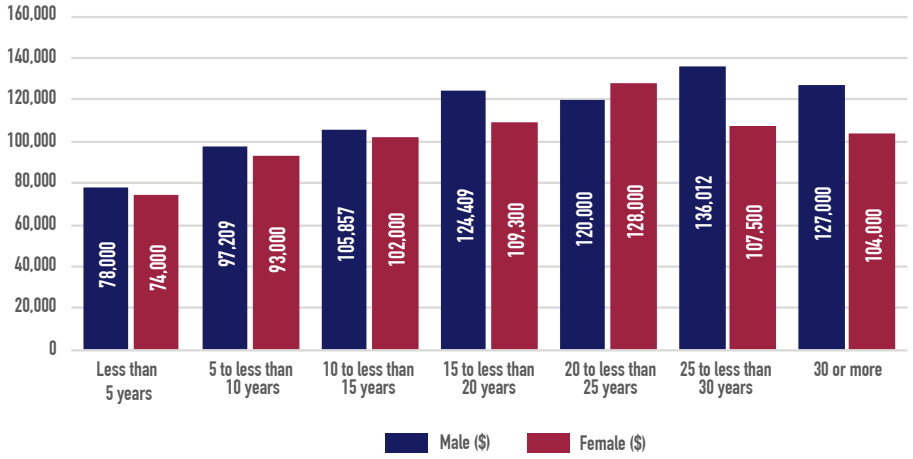
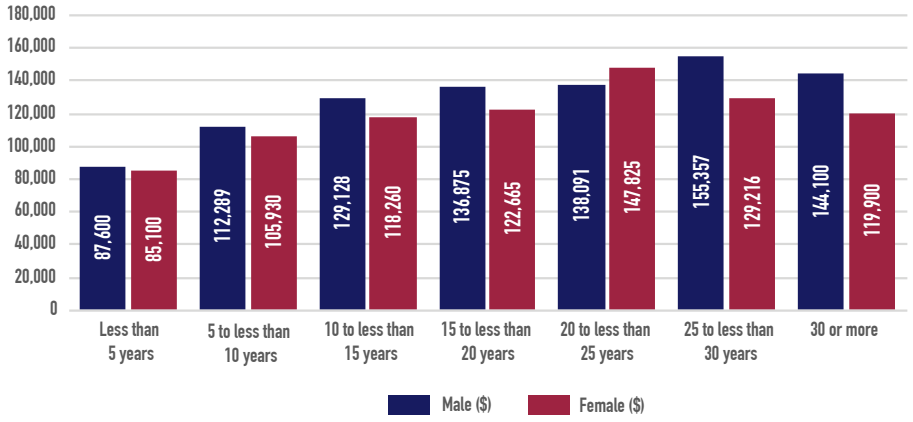


Figure 20 - Average (median) total package salaries across years of experience and gender

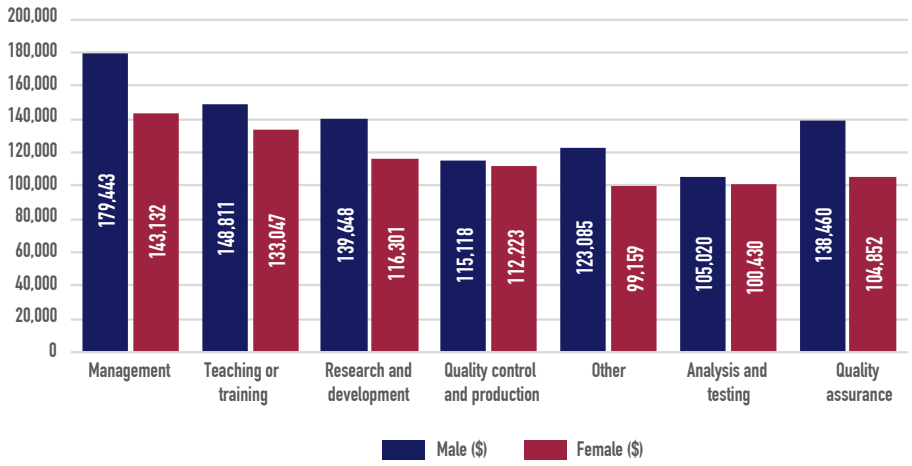


Salaries by job function and gender

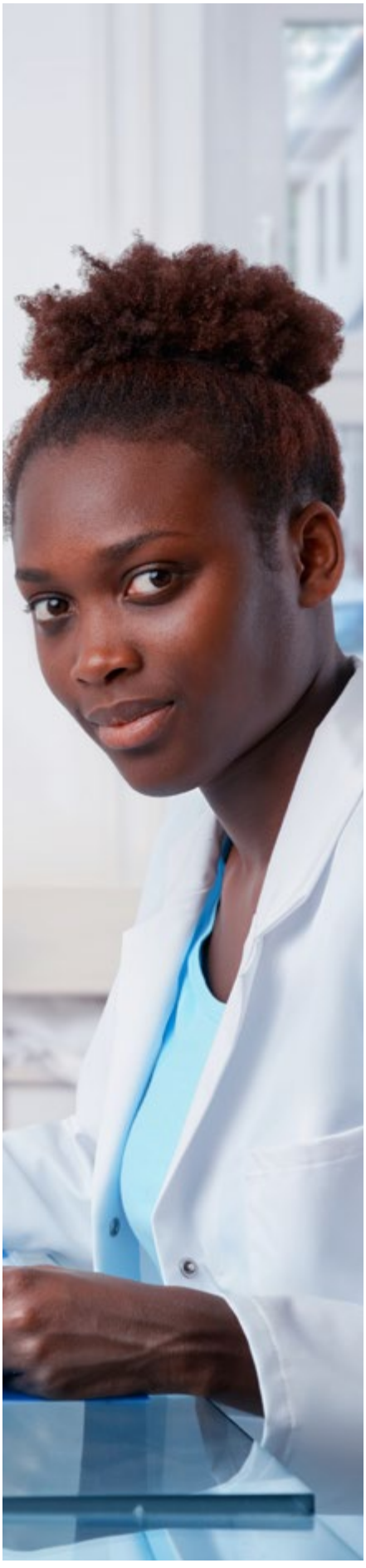
Female respondents' reported earnings (measured by base salary and total package) were lower than their male counterparts' across all job functions. The clearest pay gaps by job function were in Management, Research and development and Quality assurance.

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

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



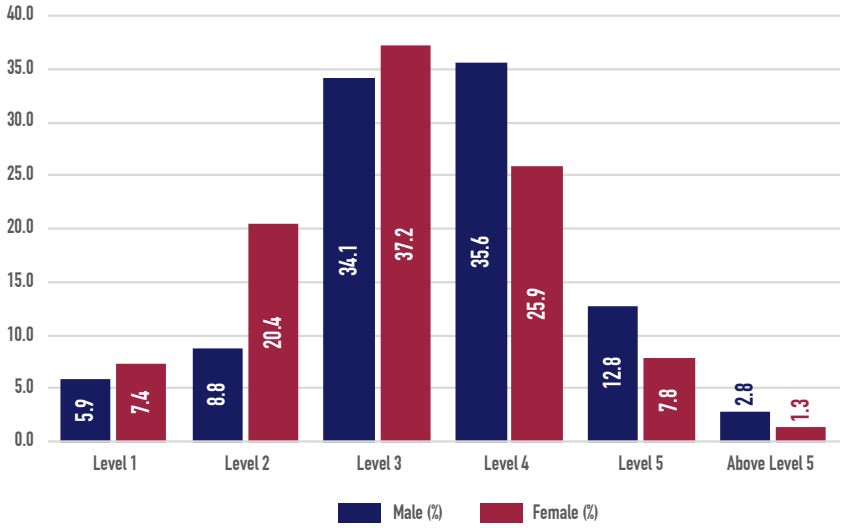
"There is active discrimination against women and a ridiculous 'boy's club' mentality that extends to how research funding is distributed."



Workforce distribution by gender

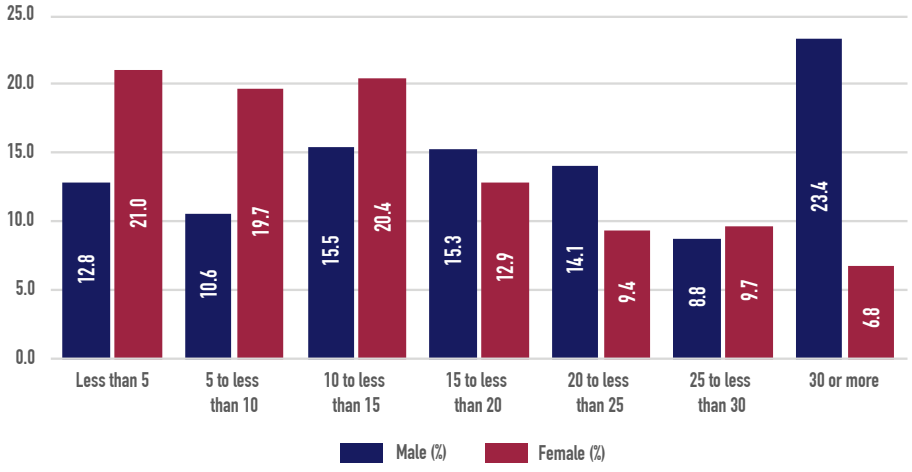
The analysis considered the distribution of respondents across responsibility level, years of experience and age to establish whether or not there was any evidence of a concentration of women in roles with less responsibility, in roles with fewer years of experience and/or attrition of the female science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

Figure 23 - Workforce distribution by responsibility level and gender



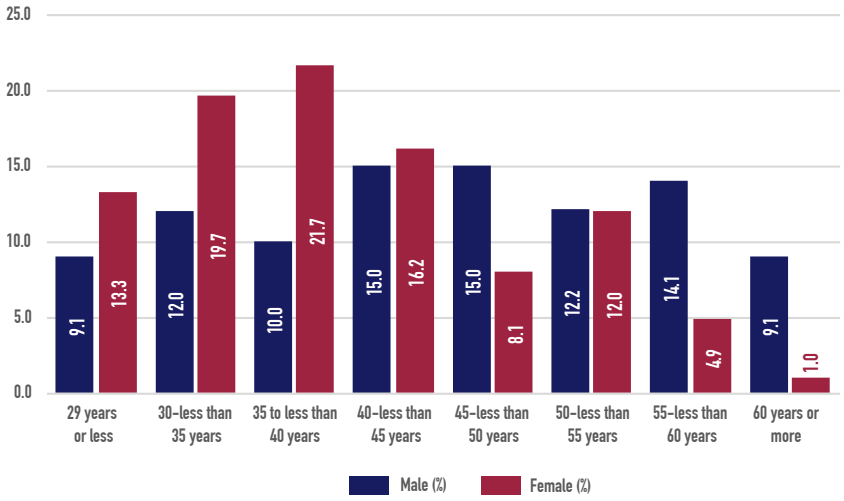
Female respondents were found in greater proportions at Levels 1 to 3 in comparison with their male respondents, and in comparatively lower proportions at Levels 4 to Above Level 5 suggesting they are over-represented at Levels 1, 2 and 3, and under-represented at Levels 4, 5 and 6.

Figure 24 - Workforce distribution by years of experience and gender



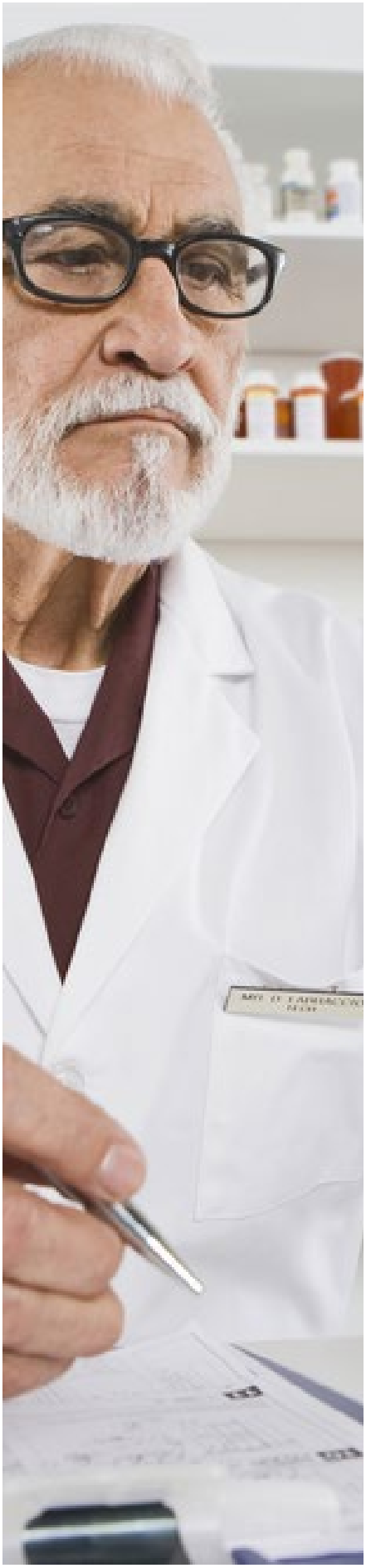
Female respondents were found in greater proportions than their male counterparts up to 15 years' experience and at comparatively lower proportions at 15 to more than 30 years' experience. The percentage of female respondents dropped from 20.4 to 12.9 per cent beyond 15 years' experience suggesting that 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 scientists. After peaking at 21.7 per cent in the 35 to 40 years age bracket, the age profile of women surveyed falls steadily. In contrast, the age profile of male scientists peaks in the 40 to 50 years age brackets, and male respondents are well represented across years of experience up to retirement age. 42.2 per cent of female respondents compared with 65.4 percent of male respondents were over 40 years of age. 17.9 per cent of female respondents were aged over 50 compared with 35.4 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.

To summarise, taking into account workforce distribution, the gender pay gap can be attributed to a combination of factors including concentration of female respondents in less senior roles and fewer years of experience, under-representation of female scientists at senior levels and workforce attrition of women beyond age 40.

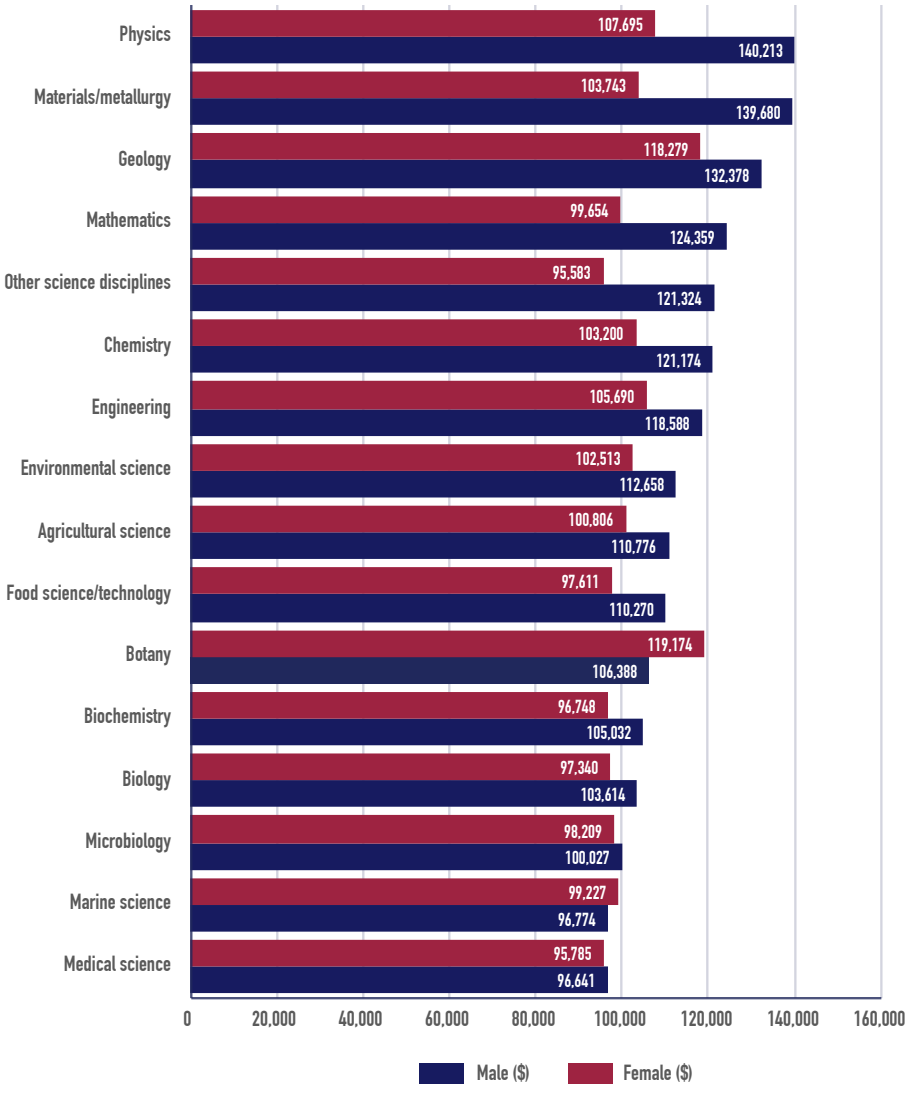


"Women in biological sciences are numerous until they are promoted to a level where there are few women. I was isolated at this stage of my science career. I did not enjoy the work environment. Women scientists are relied on for administrative purposes rather than scientific, in a way male scientists are not."

Salaries by discipline and gender

Female respondents' reported earnings were less than their male counterparts across disciplines with the exceptions of Botany and Marine science.

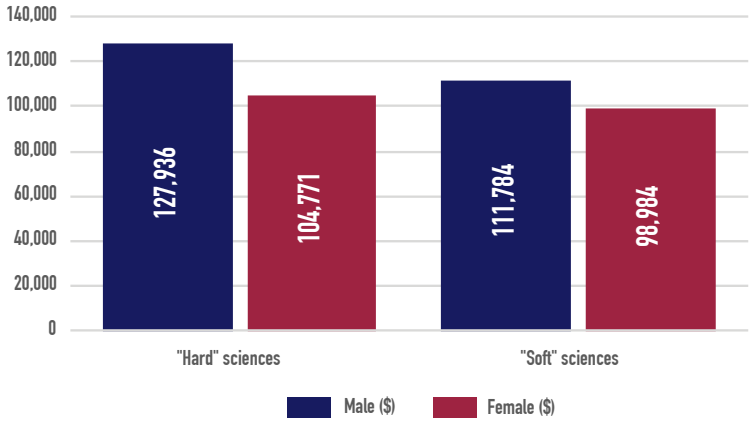
Figure 26 - Average (mean) annual base salary by discipline and gender



Because women's participation in the life or "soft" sciences is greater than in the enabling or "hard" sciences, this analysis also considered pay differentials within and between the life and enabling sciences.

While the definition of hard and soft sciences is arbitrary with many of the fields being cross-disciplinary (biochemistry being the best example as both a branch of biology traditionally regarded as a "soft" science and chemistry seen more as one of the "hard" sciences), for the purposes of this analysis, the life or "soft" sciences included biology, psychology, agricultural science, botany, computer science, environmental science, food science/technology, forestry, marine science, microbiology, medical science, pharmacology, surveying and veterinary science. Engineering, manufacturing, materials/metallurgy, geology/geoscience, chemistry, biochemistry, physics and mathematics were grouped as the enabling or "hard" sciences.

Figure 27 - Average (mean) annual base salary by hard/soft science and gender



While the results should be treated with caution because of the arbitrary splitting of the disciplines and limited sample sizes, the survey found evidence of a gender pay gap for women in both the enabling and life sciences as defined with the disparity greater in the "hard" sciences.

In the "soft" sciences, female respondents earned 88.4 per cent of male respondents' earnings.

In the "hard" sciences, female respondents earned 81.9 per cent of male respondents' earnings.

Males in the "soft" sciences earned on average 87.4 per cent of the earnings of their male counterparts in the "hard" sciences.

Females in the "soft" sciences earned 94.2 per cent of their female counterparts' earnings in the "hard" sciences.

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

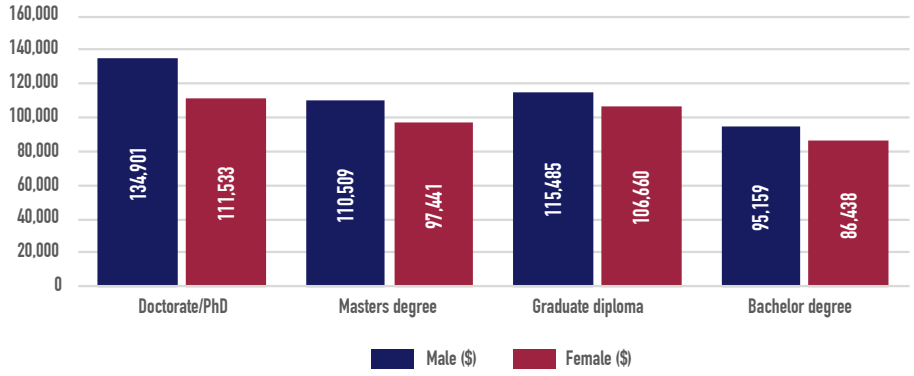
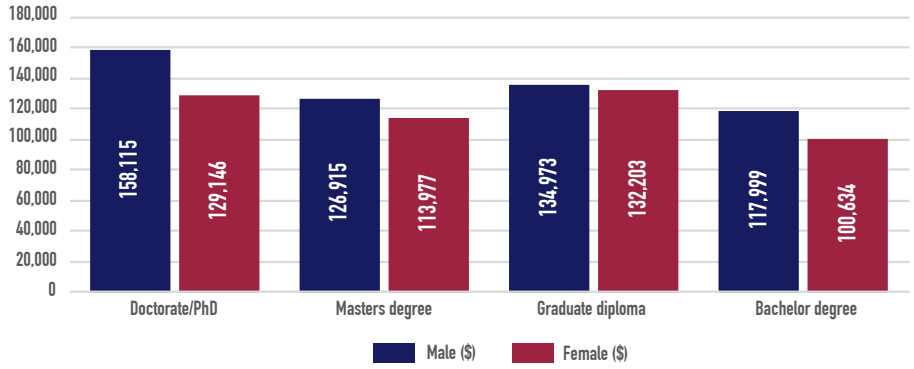


Figure 29 - Average (mean) annual total package by highest qualification and gender



Benefits, salary negotiations and promotion

Overall, 13.6 per cent of the mean male total package was comprised of benefits in addition to base salary, while the figure for female respondents was 13.1 per cent suggesting no clear difference between the structures of packages by gender.

16.5 per cent of respondents had been promoted in the previous 12 months. 48.6 per cent of female respondents said they were encouraged to apply for the promotion by their employer/manager compared with 61.4 per cent of male respondents.

71.4 per cent of male respondents were comfortable negotiating their own salary compared with 58.6 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. 47.4 per cent of female respondents said they had experienced bias or discrimination compared with 7.2 per cent of male respondents. Women were more likely to report other types of discrimination than men as well. 16.0 per cent of respondents had experienced discrimination on the basis of age - 21.1 per cent of female respondents and 10.8 per cent of male respondents. 3.4 per cent of respondents reported having experienced racial discrimination.

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	10.8%	7.2%	2.6%	1.0%	0.3%	82.7%
FEMALE	21.1%	47.4%	4.2%	1.9%	1.6%	46.1%
ALL RESPONDENTS	16.0%	27.4%	3.4%	1.5%	1.0%	64.3%

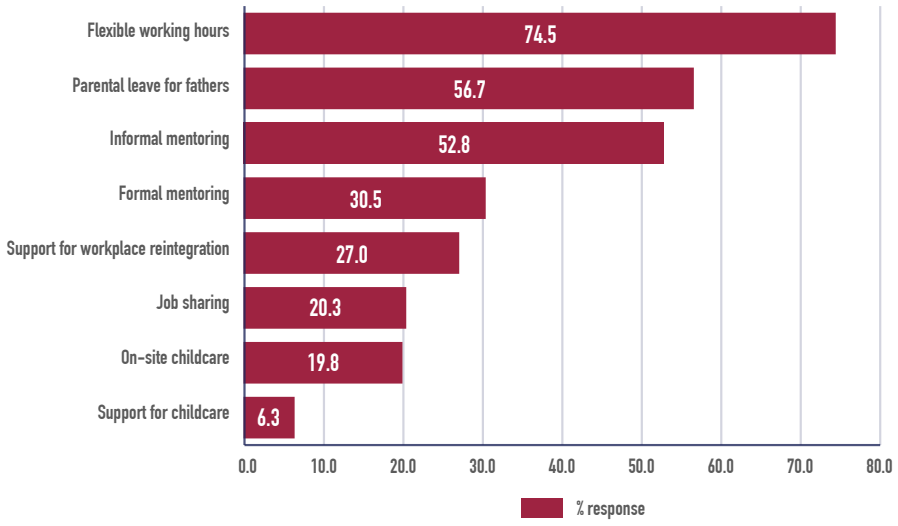
Diversity and discrimination policy and implementation

Respondents reported 6.3 per cent of employers had formal policies in place to promote diversity and 68.0 per cent had policies to deal with discrimination. 23.8 per cent of respondents said their employer did not have strategies in place to actually implement policies relating to diversity and discrimination.

Support and conditions

30.5 per cent of employers had formal mentoring in place and 52.8 per cent had informal mentoring programs in place. 74.5 per cent of employers offered flexible working hours, 20.3 per cent offered job sharing arrangements and 56.7 per cent provided parental leave for fathers. Only 27.0 per cent provided support for reintegration into the workplace after a career break, 19.8 per cent offered on-site childcare and 6.3 per cent offered support for childcare.

Figure 30 - Employer-provided support and conditions



"As a part-time working mother it is extremely challenging to fulfil my role as both a scientist and a mum. Working part-time means I do miss out on some opportunities and exposure at work and also that I just don't have time to fulfil all roles."

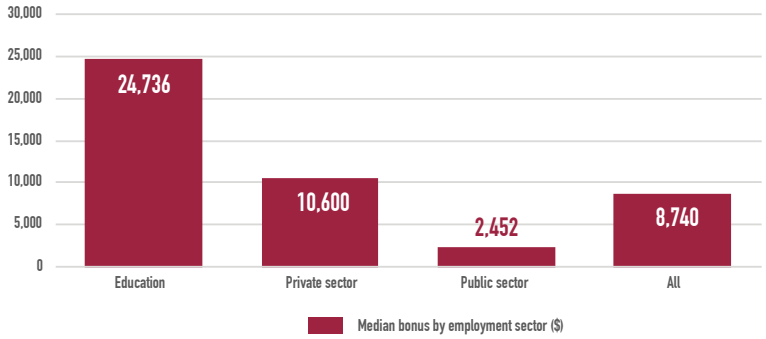
"Gender inequality is well alive and kicking. It needs addressing in a policy framework."

"Women are still discriminated against and there remains a huge gender pay gap."

10 VARIABLE PAY

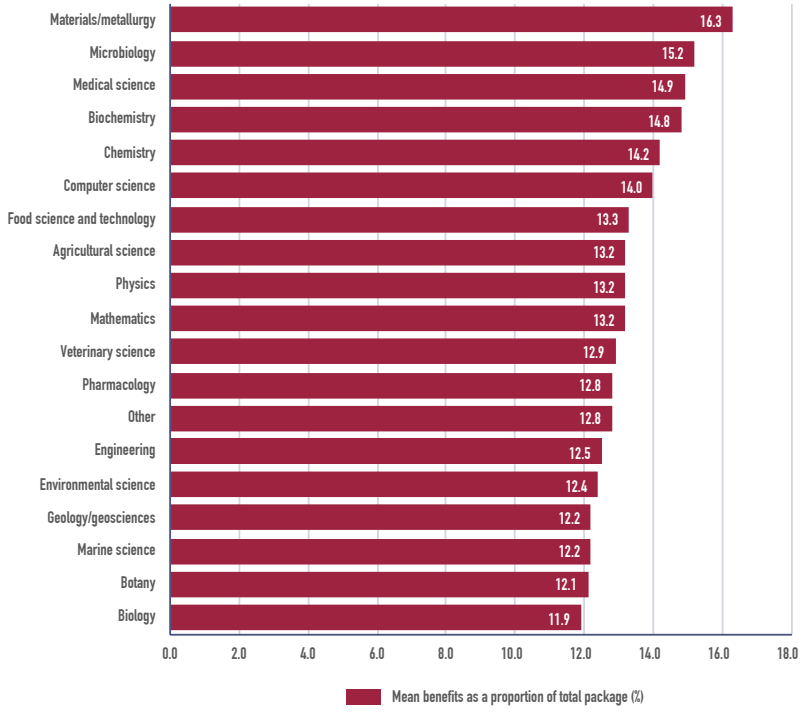
Professionals often receive additional benefits as parts of their remuneration package beyond their regular salary and superannuation, including motor vehicles and variable pay or bonuses. 13.7 per cent of scientists surveyed across all sectors were paid performance bonuses in the previous year with the highest average bonuses in the Education sector.

Figure 31 - Average (median) bonus by employment sector



The Materials/metallurgy and Microbiology fields had the highest mean benefits as a proportion of the average total package with variable pay comprising 16.3 and 15.2 per cent of total packages respectively. 10.5 per cent of respondents received a motor vehicle as part of their package with vehicles most commonly provided to scientists working in Surveying, Materials/metallurgy and Environmental science. By job function, motor vehicles were most found in Computing, Sales and marketing and Management.

Figure 32 - Average (mean) benefits by branch of science as a proportion of total package

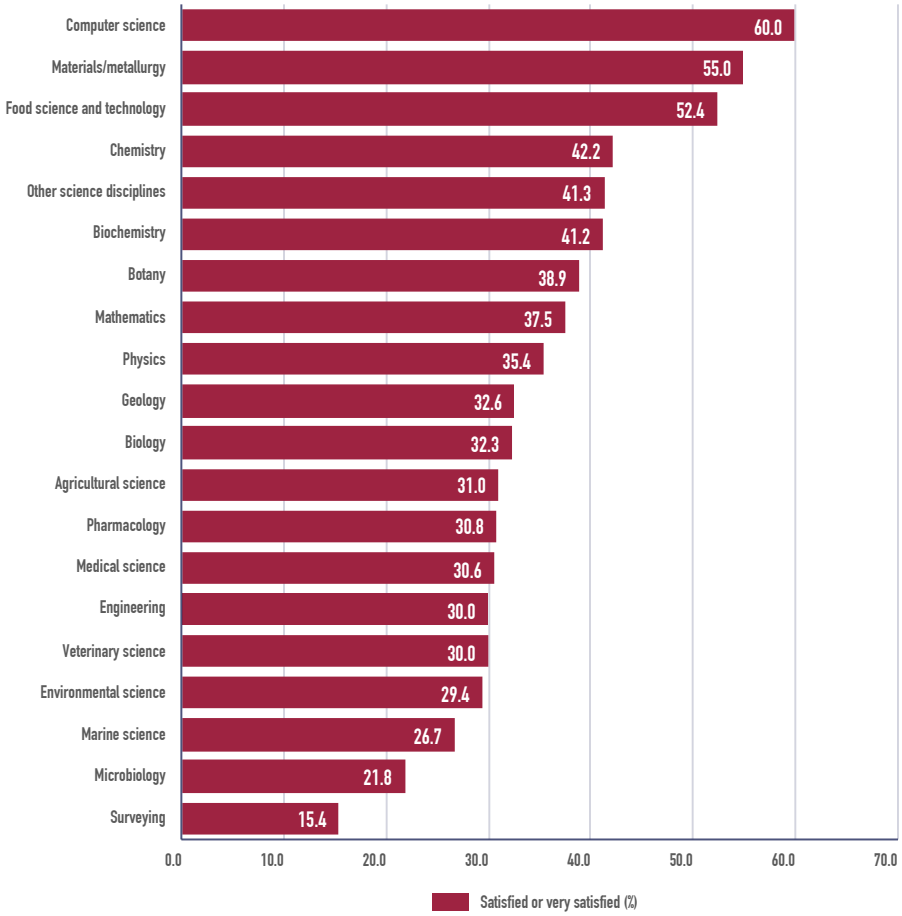


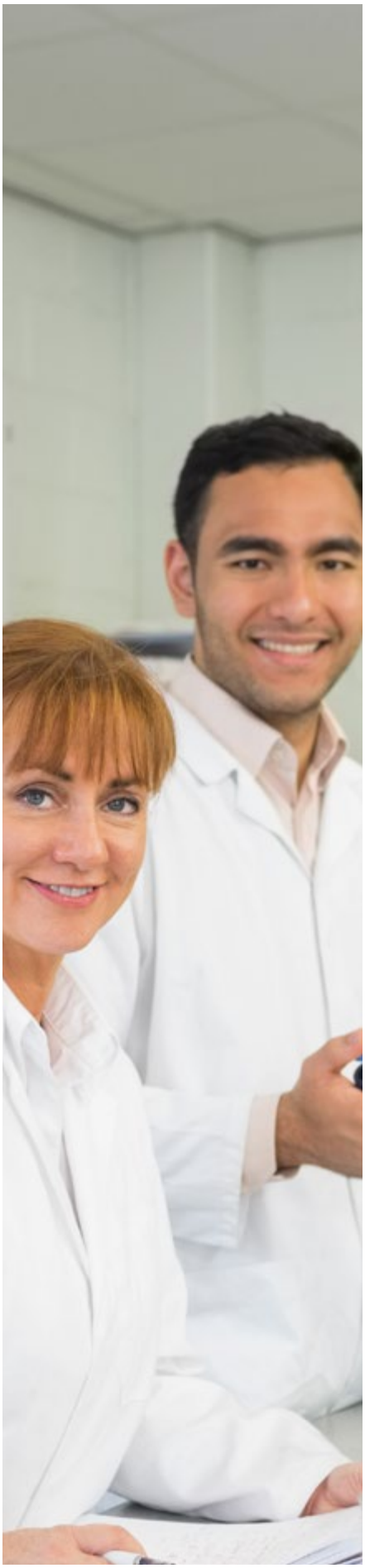
11 SATISFACTION WITH CURRENT LEVEL OF REMUNERATION

Overall satisfaction levels have dropped in this year's survey. 42.5 per cent of scientists surveyed reported being satisfied or very satisfied with their current level of remuneration - down on last year's figure of 45.2 per cent, and 35.5 per cent were dissatisfied or very dissatisfied - up on 34.0 per cent in 2017.

The highest levels of satisfaction with remuneration were found in the Computer science, Materials/metallurgy and Food science and technology fields.

Figure 33 - Reported levels of satisfaction with current remuneration by branch of science





43.8 per cent of respondents agreed or strongly agreed that their remuneration was falling behind market rates, up on 41.7 per cent last year. 43.3 per cent said their remuneration did not reflect their level of responsibility - up slightly on 40.5 per cent in last year's survey.

Figure 34 - Responses to statement "My remuneration package is falling behind market rates" (%)

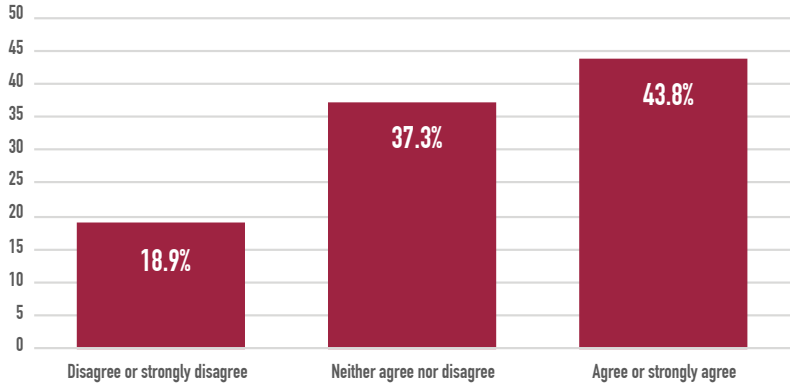
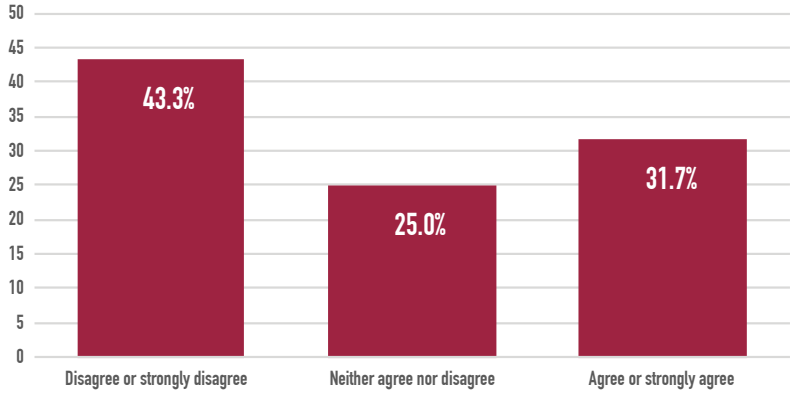


Figure 35 - Responses to statement "My remuneration package appropriately reflects my level of responsibility" (%)



WORKPLACE ISSUES

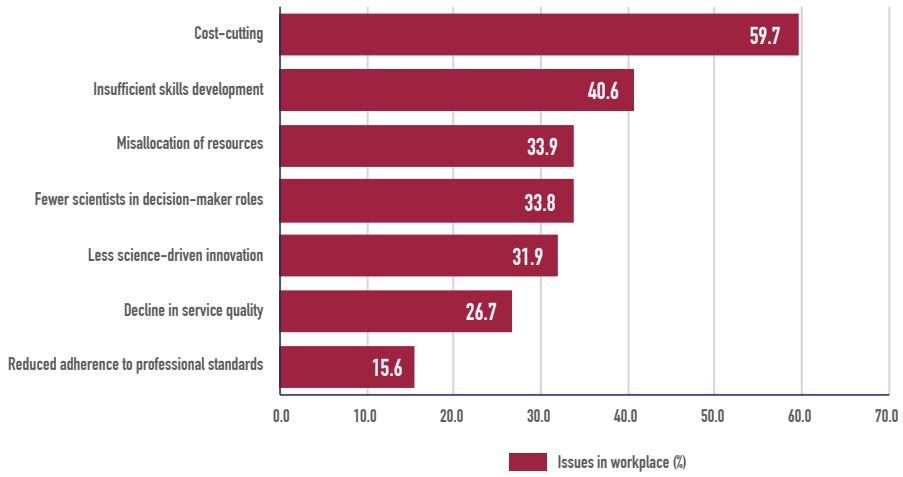
"Everything is about cutting costs. It is difficult to plan long-term without significant investment in research for the benefit of the country, society and the environment."

12 ISSUES OF GREATEST CONCERN

The survey asked respondents to nominate the issues that were evident in their workplace in the previous 12 months.

- 59.7 per cent of respondents reported that cost-cutting was an issue in their organisation.
- 33.9 per cent saw misallocation of resources as an issue in their workplace.
- 33.8 per cent of respondents noted fewer scientists in decision-maker roles over the previous 12 months. Concern was greatest in the Public administration and safety and Health industries with 42.4 and 39.4 per cent of respondents respectively reporting fewer scientists in such roles.
- 15.6 per cent of respondents said reduced adherence to professional standards was evident in their organisation over the last 12 months.
- 26.7 per cent of respondents reduced service quality was evident in their organisation over the last 12 months.

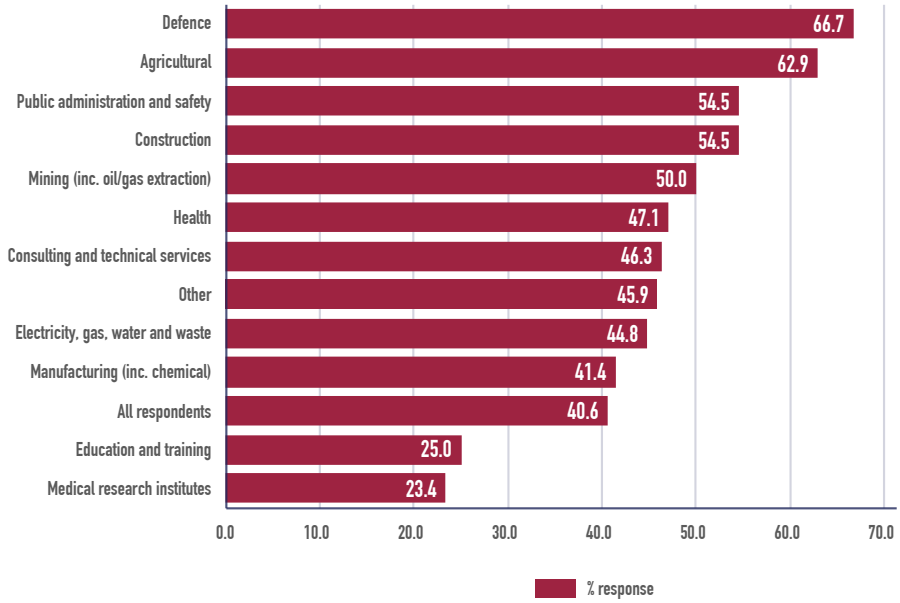
Figure 36 - Issues evident in the workplace over the last 12 months



13 SKILLS DEVELOPMENT

40.6 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 Defence and Agricultural industries

Figure 37 - Level of concern about insufficient skills development by industry



14 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. The following list shows the order of the aggregated priority ranking scores across all participants:

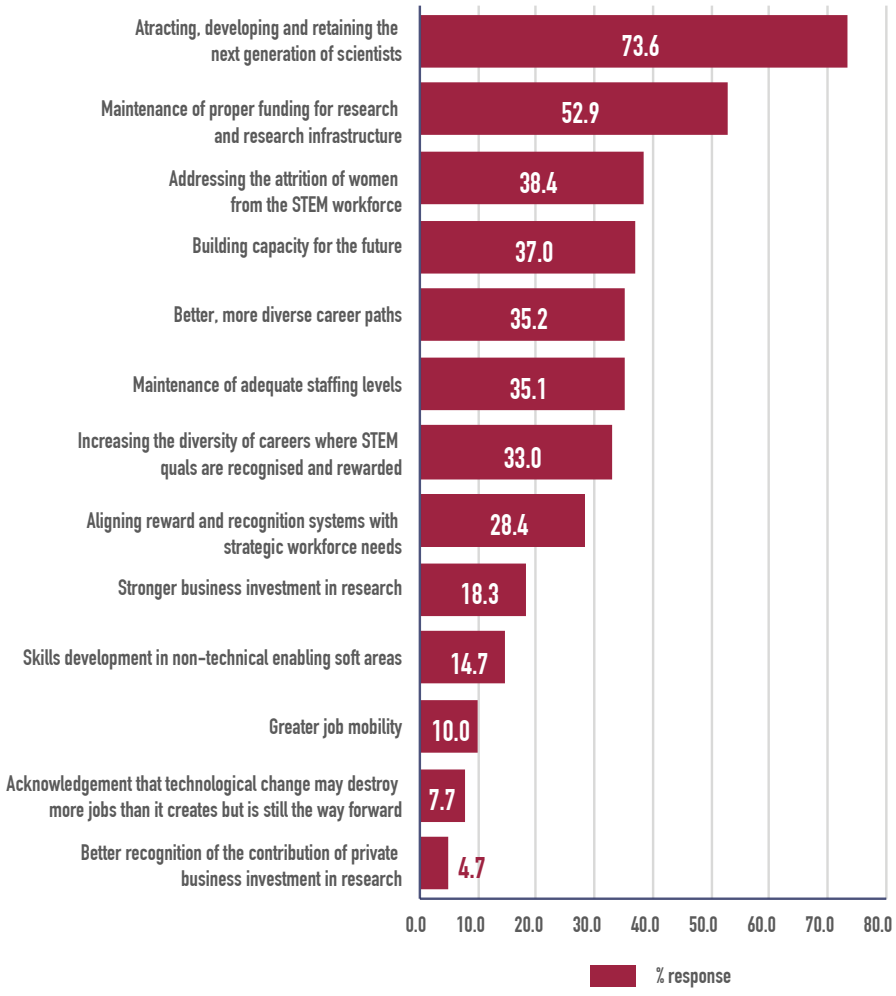
1. job security;
2. remuneration;
3. positive workplace culture;
4. work/life balance;
5. career progression;
6. flexible work arrangements;
7. continuing professional development opportunities;
8. a challenging workload; and
9. being close to home.

"Scientists are not adequately rewarded financially nor are they seen as essential. Appointment of non-scientific managers undermines our knowledge and skills."

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 73.6 per cent of respondents. This was followed by the maintenance of proper funding for research and research infrastructure (52.9 per cent) and addressing the attrition of women from the STEM workforce (38.4 per cent).

Figure 38 - Most important approaches to developing a sustainable STEM workforce



15 WORKING HOURS AND COMPENSATION FOR ADDITIONAL HOURS

Respondents worked on average 44.2 hours per week including 6.4 hours of overtime. Only 7.7 per cent received monetary payment in recognition of their additional hours, a significant issue in view of the 14.7 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 Sales and marketing roles, and respondents were most frequently compensated for additional hours in Health and the State public sector.

Figure 39 - Average (mean) number of hours worked per week plus additional hours by job function

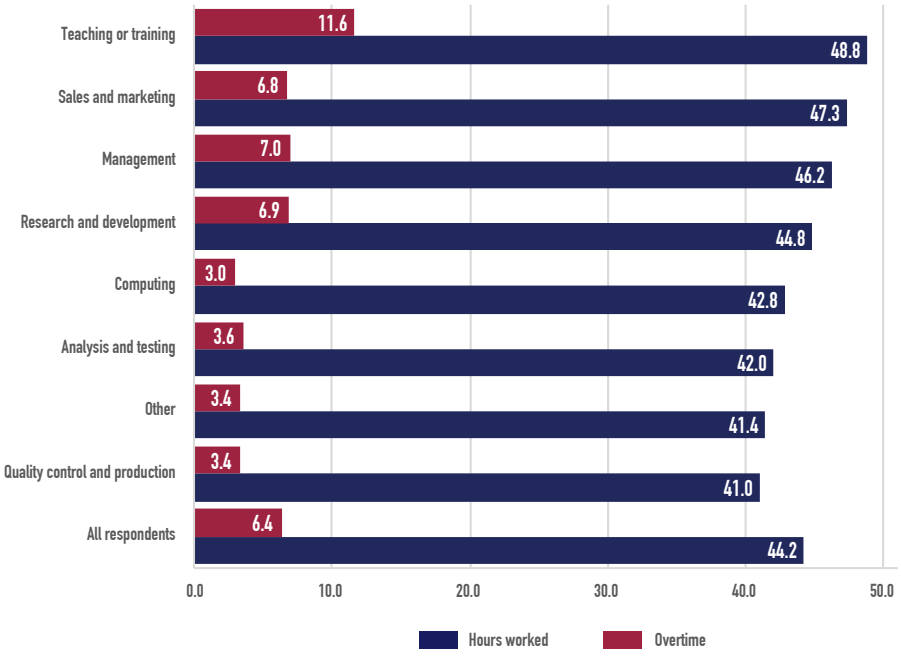
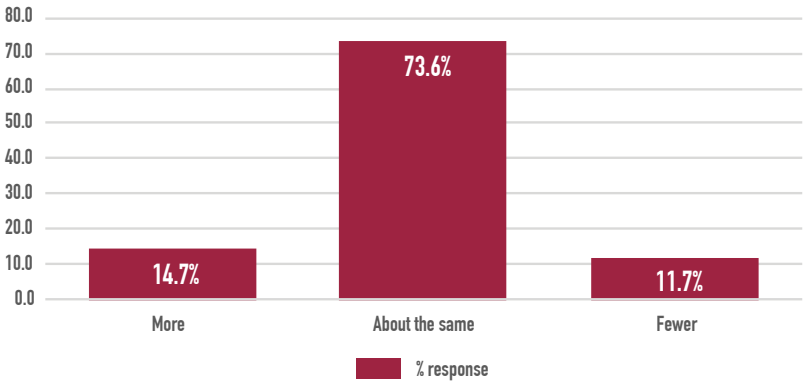


Figure 40 - Change in hours worked per week compared to 12 months ago



"There should be more funding for fundamental science. We've largely stopped funding this engine room of scientific progress in favour of shorter-term financial opportunities."

"Cost-cutting and staff reductions are creating an overworked workforce that fails to deliver innovation."

Compensation for additional hours

Overall 60.1 per cent of respondents received no compensation for additional hours worked. Of those that received compensation, an average 7.7 per cent received monetary payment at an hourly rate, 5.7 per cent reported having compensation for additional hours worked built into their base salary and 26.4 per cent received time off in lieu of payment. Compensation for additional hours worked was greatest in Australian Public Service and State Public Service. 90.1 per cent of those engaged in the Education sector reported receiving no compensation for additional hours worked.

Figure 41 - Method of compensation for additional hours

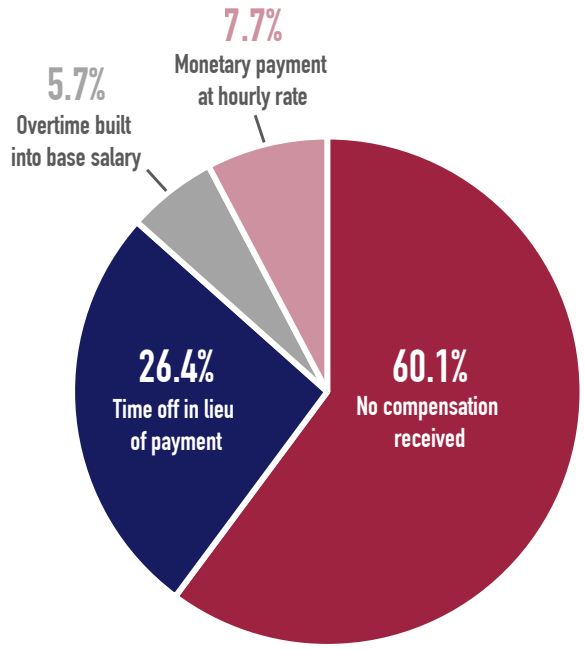
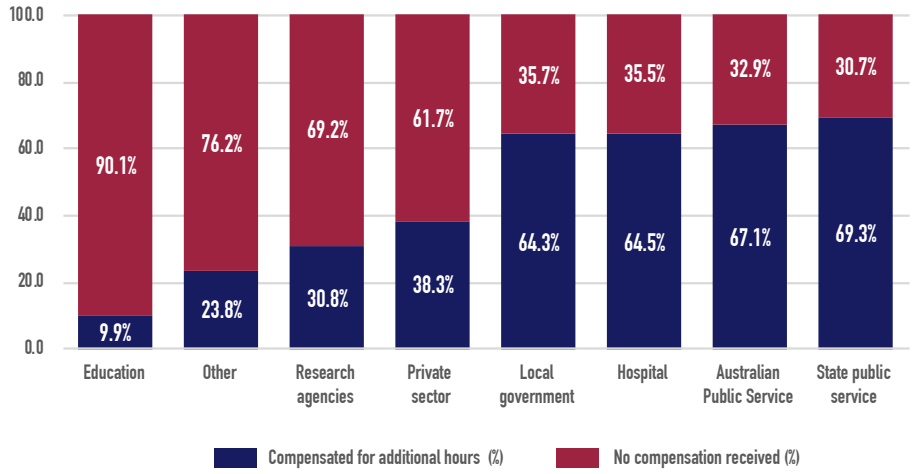


Figure 42 - Compensation received/not received by employment sector



16 STAFF MORALE, WORKER FATIGUE AND PRODUCTIVITY

53.3 per cent of respondents said that staff morale had declined in their organisation over the previous 12 months and 54.7 per cent reported that worker fatigue had increased. 22.9 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	53.3	39.0	7.7
WORKER FATIGUE	1.6	43.6	54.7
OVERALL PRODUCTIVITY	22.9	59.7	17.4

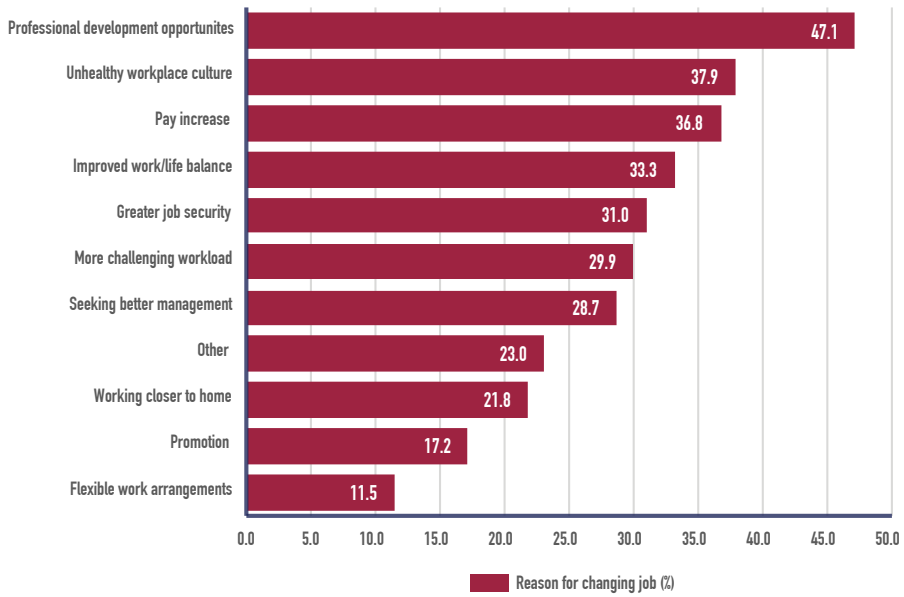
"We need to remove from business management and politics people who believe in silver bullets and would rather buy a lottery ticket than invest in the hard graft of development."

17 EMPLOYMENT INTENTIONS

Changing jobs

14.8 per cent of respondents had changed jobs in the previous 12 months and, of those, 36.8 per cent had moved for a pay increase, 31.0 per cent had moved for greater job security and 47.1 per cent had moved for greater professional development opportunities. 17.2 per cent had moved for promotion and 37.9 per cent had moved to get away from an unhealthy workplace culture. 28.7 per cent had moved seeking better management.

Figure 43 - Reasons for changing jobs



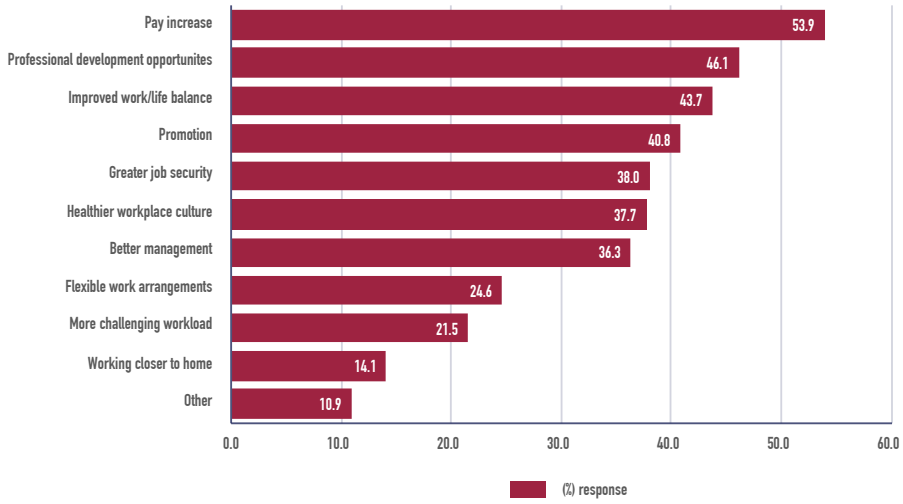
Reasons for considering leaving current job

39.8 per cent of respondents reported that they were considering leaving their current job – down on last year's figure of 42.9 per cent.

Of those considering leaving, the factors that would alter their intention were a pay increase (53.9 per cent), greater professional development opportunities (46.1 per cent) and improved work/life balance (43.7 per cent).

A healthier workplace culture and professional development opportunities were rated more highly on average as factors that would alter intention to leave their current job by female respondents than their male counterparts.

Figure 44 - Factors that would alter intention to leave current job

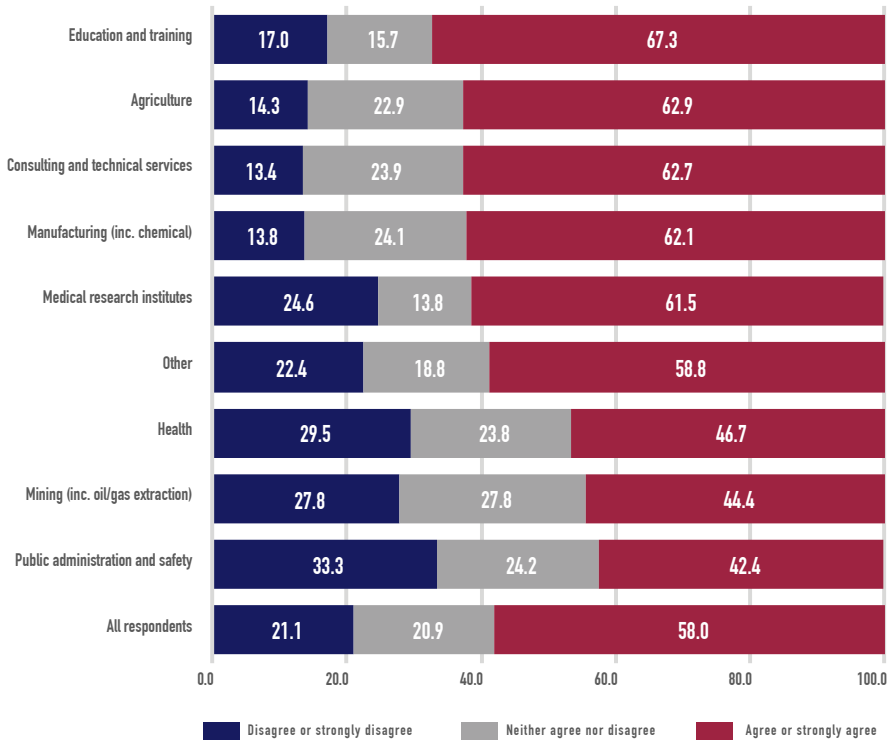


18 SCIENCE CAPABILITY, INNOVATION AND EMERGING CHALLENGES

Science capability as a source of innovation

58.0 per cent of respondents reported that scientific capability was seen as a source of innovation in their workplace. The highest reported levels were in Education and training (67.3 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 the Consulting and technical services and Manufacturing industries (13.4 and 13.8 per cent respectively disagreed or strongly disagreed that scientific capability was seen as a source of innovation in their workplace). 31.9 per cent of respondents reported less science-driven innovation in their organisation over the previous 12 months.

Figure 45 - Perception of whether scientific capability seen as source of innovation in the workplace by industry (%)

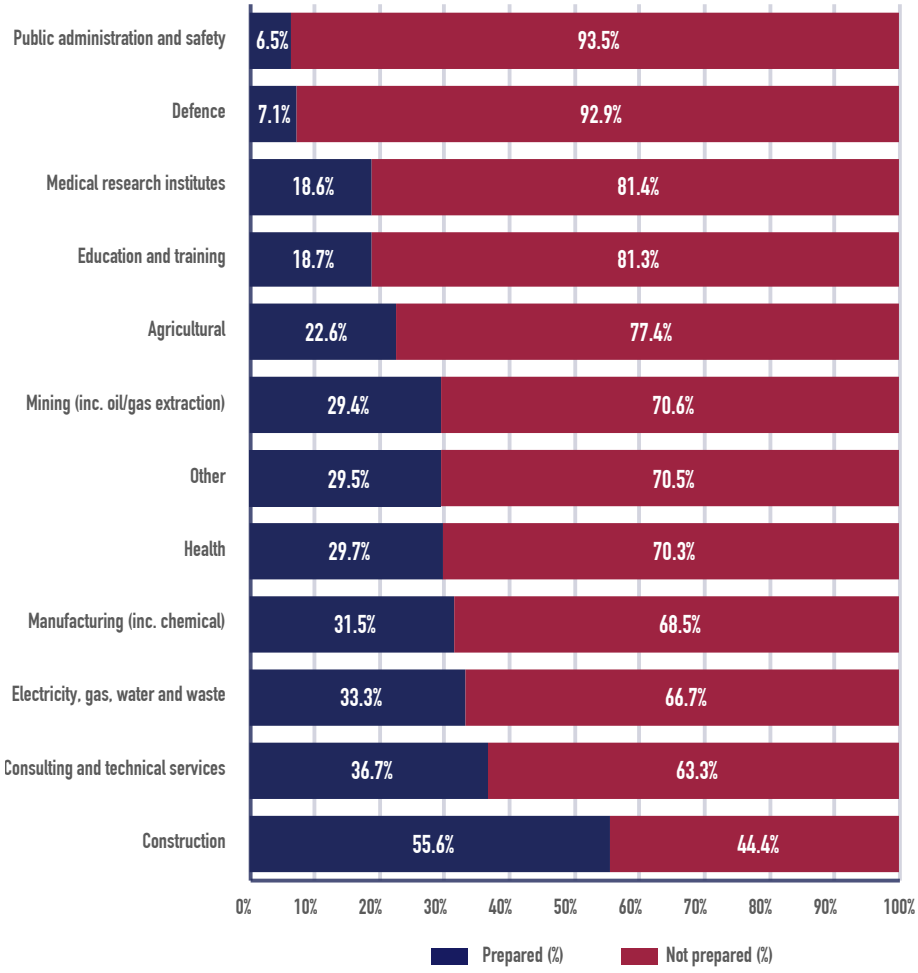


"Government needs to approach science and technology not as a business that needs to generate immediate profits from the money put in but as an investment in future possibilities for those industries."

Emerging challenges

74.9 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 Defence industries.

Figure 46 - Perception 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 2.1 per cent over the last 12 months.
- 29.8 per cent of respondents reported that they had not received any pay increase over the previous 12 months.
- Increases paid to professional scientists in the Australian Public Service, the State public services, Local government and Government business enterprises fell below increases to the cost of living at 2.1 per cent (to June 2018) as measured by the ABS Consumer Price Index (6401.0) and the earnings across the Australian economy (to June 2018) as measured by the Wage Prices Index (6345.0). Average increases in Education, the Hospital sector, Research agencies and the Private sector exceeded the cost of living increase.
- Average annual base salaries and total packages were highest in the Materials/metallurgy, Veterinary science and Physics fields. Annual salary movements were greatest in the Materials/metallurgy, Food science and technology and Chemistry fields with increases of 3.3, 3.1 and 2.6 per cent respectively. Movements were lowest in Pharmacology and Computer science with increases of 1.2 and 1.5 per cent respectively.

Average salaries

- Across all sectors employing scientists, a full-time professional scientist took home an average annual base salary of $110,854 and received a total package worth $129,353.
- The average annual base salary was greatest in the Education sector at $129,359, compared with $113,219 in the Australian Public Service (APS) and $102,751 in the Private sector.
- The highest average total package was in the Education sector at $151,001, compared with $129,718 in the APS and $120,977 in the Private sector.

Satisfaction with remuneration

- 42.5 per cent of scientists surveyed reported being satisfied or very satisfied with their current level of remuneration - down on last year's figure of 45.2 per cent.
- 35.5 per cent were dissatisfied or very dissatisfied - slightly up on 34.0 per cent in 2017.
- The highest levels of satisfaction with remuneration were found in the Computer science, Materials/metallurgy and Food science and technology fields.
- 43.8 per cent of respondents agreed or strongly agreed that their remuneration was falling behind market rates.
- 43.3 per cent said their remuneration did not reflect the level of responsibility they undertook in their day-to-day work.

Employment intentions

- 14.8 per cent of respondents had changed jobs in the previous 12 months and, of those, 36.8 per cent had moved for a pay increase, 31.0 per cent had moved for greater job security and 47.1 per cent had moved for greater professional development opportunities. 17.2 per cent had moved for promotion and 37.9 per cent had moved to get away from an unhealthy workplace culture. 28.7 per cent had moved seeking better management.
- 39.8 per cent of respondents reported that they were considering leaving their current job – down on 42.9 per cent in last year's survey. Respondents reported that the factors that would alter their intention were a pay increase (53.9 per cent), greater professional development opportunities (46.1 per cent) and improved work/life balance (43.7 per cent). A healthier workplace culture and professional development opportunities were rated more highly on average as factors that would alter intention to leave their current job by female respondents than their male counterparts.

Gender pay gap

- Female respondents earned on average 84.0 per cent of male respondents' earnings.
- The survey found evidence of a gender pay gap arising from a combination of factors including concentration of female respondents in less senior roles and fewer years of experience, under-representation of female scientists at senior levels and workforce attrition of women beyond age 35.
- The survey found evidence of a gender pay gap in both the enabling and life sciences with the disparity greater in the enabling sciences.

Work priorities, morale and fatigue

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

Value of post-graduate qualifications

- The average base salaries by highest qualification ranged from $122,969 for those with a PhD, through to $105,102 for those with a Masters, $114,216 for those with a Graduate diploma and $92,189 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 24.1, 12.2 and 32.5 per cent respectively over holding a Bachelor degree alone.

Working hours

- Respondents worked on average 44.2 hours per week including 6.4 hours of overtime.
- Only 7.7 per cent received monetary payment in recognition of their additional hours, a significant issue in view of the 14.7 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 Sales and marketing roles, and respondents were most frequently compensated for additional hours in Health and the State public sector.

Skills development

- 40.6 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, 47.1 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 33.8 per cent of respondents noting a reduction in the number of scientists in decision-maker roles over the previous 12 months.
- 15.6 and 26.7 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.
- 59.7 per cent of respondents reported that cost-cutting was an issue in their organisation.

Science capability, STEM priorities and workforce challenges

- 58.0 per cent of respondents reported that scientific capability was seen as a source of innovation in their workplace.
- 21.1 per cent said that scientific capability was not seen as a source of innovation.
- 74.9 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 73.6 per cent of respondents.

Diversity and discrimination

- 47.4 per cent of female respondents said they had experienced bias or discrimination on the basis of gender in the previous three years.
- Respondents reported 6.3 per cent of employers had formal policies in place to promote diversity and 68.0 per cent had policies to deal with discrimination.
- 23.8 per cent of respondents said their employer did not have strategies in place to actually implement policies relating to diversity and discrimination.

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 (refer to page 59 for information on ordering the full 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 and compassionate 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 Scientists 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.

ABOUT THE SURVEY

Methodology

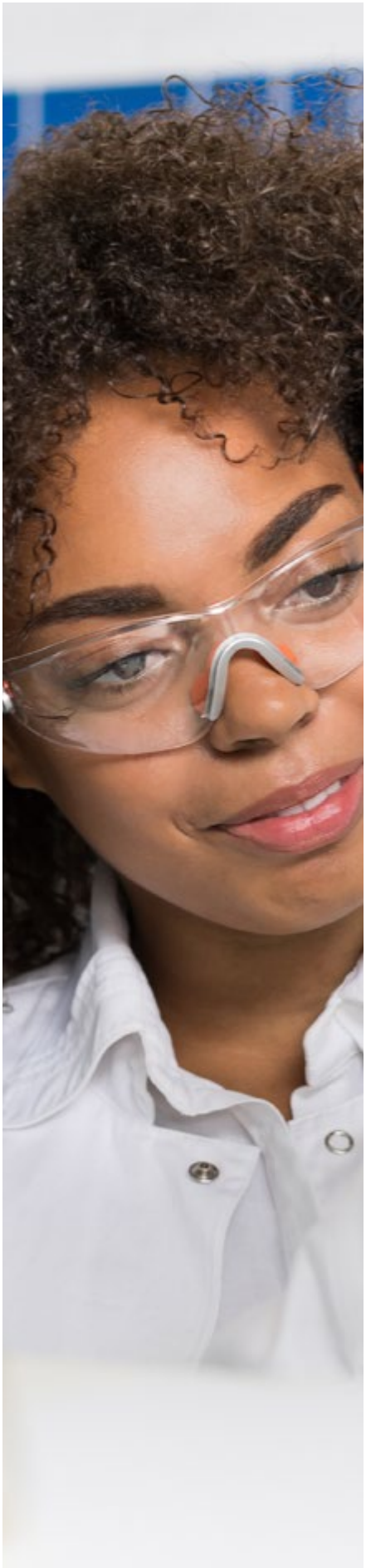
The Professional Scientists Remuneration Survey tracks annual changes in compensation for full-time employees in Australia. In addition to presenting national trends, it includes analysis by separate indices including branches of science, levels of responsibility, years of experience, job function and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

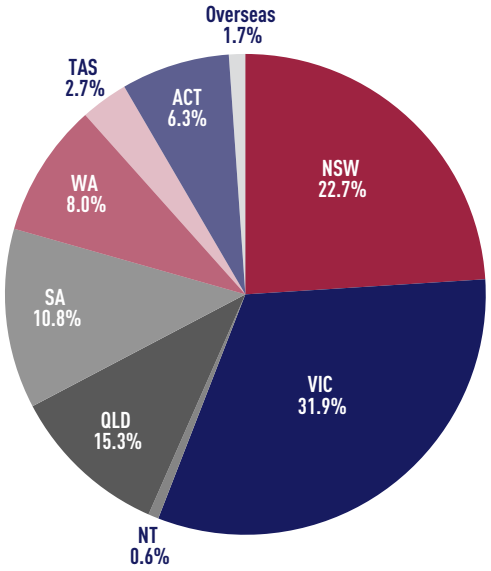
The survey was conducted online during May/June 2018. Invitations to participate were forwarded to member societies of Science & Technology Australia and scientist members of Professionals Australia (formerly APESMA). The member societies represent in excess of 20,000 scientific and technical professionals. In addition, a number of larger Australian-based scientific associations independent of the STA were invited to participate.

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 1,202 respondents and have been used as the basis for the analysis contained in this report.





Sample characteristics

The gender breakdown of survey respondents was 45.5% male and 54.5% female. 69.2% were employed full-time. The remaining 29.8% of respondents not employed full-time included part-time employees (12.0%) and self-employed (1.8%). Students (5.5%) were not included in any remuneration analyses.

Victoria was the most strongly represented state across respondents accounting for 31.9% of participants, with each state receiving similar levels of representation to their population as a proportion of the Australian population.

The Education and training industry was the most strongly represented industry in the survey at 25.2% of respondents, followed by the Health industry with 14.2% of respondents. Chemistry was the most common branch of science for respondents to be qualified in (21.3%) followed by Biology (21.1%) and Environmental science (14.5%).

Of those respondents who indicated membership to one or more professional associations or societies, 20.4% indicated they were members of Professionals Australia.

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.

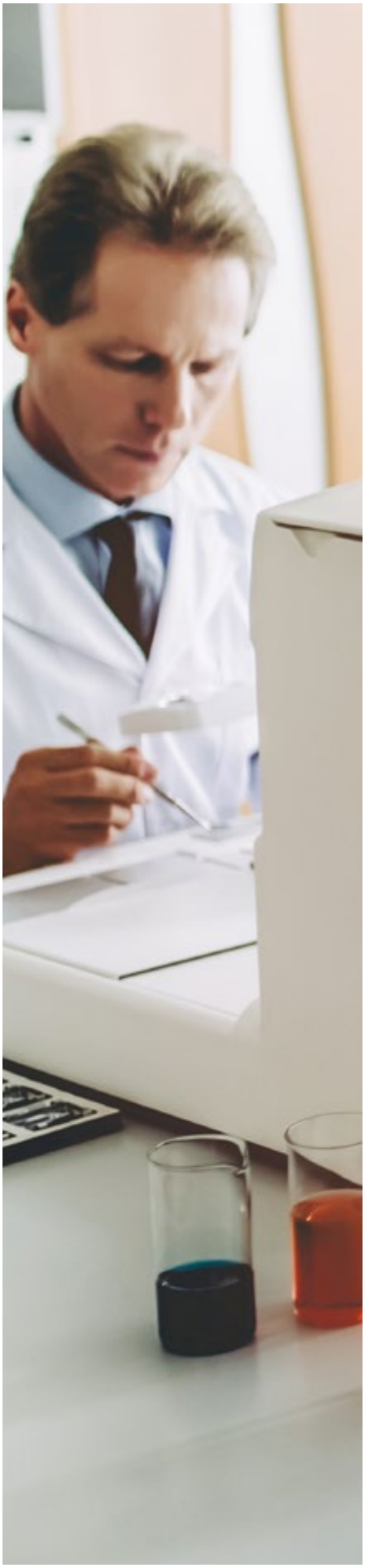
Total package
The total remuneration package refers to the package received by a participant, including the value of all components of remuneration. Total package includes the following:

- Base salary;
- Annual leave loading;
- Overtime;
- Award allowances;
- Employer superannuation contributions;
- Motor vehicle;
- Parking;
- Performance pay;
- Payment of Fringe Benefits Tax (FBT) by employer;
- 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 x Cost of Vehicle + 25 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: FBT = Purchase price x statutory fraction x 1.8868 x 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.
- Interquartile range - the values between which 50% of observations fall. The lower boundary is the lower quartile, the upper boundary the upper quartile.
- Response % - the proportion of the survey sample represented by number of observations in the given category.
- Average refers to arithmetic mean unless otherwise stated.

The calculations for base salary, total cash, total remuneration, total employment cost, 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.

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.

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 sums of money or long-range objectives.

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:
http://awardviewer.fwo.gov.au/award/show/MA000065

Endnotes

1. Australian Bureau of Statistics (July 2018). Research and Experimental Development, Government and Private Non-Profit Organisations, Australia, 2016-17 (8109.0).
2. 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.
3. 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.
4. 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.
5. Sample size precluded providing an average annual salary movements in some job functions.

Acknowledgements

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

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.

ORDERING THE FULL REPORT

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.

PROFESSIONAL SCIENTISTS AUSTRALIA

GPO Box 1272, Melbourne,
VIC 3001

e scientists@professionalsaustralia.org.au
w www.professionalsaustralia.org.au/scientists/
t 1300 273 762

SCIENCE & TECHNOLOGY AUSTRALIA

GPO Box 259, Canberra City,
ACT 2601

e info@sta.org.au
w www.scienceandtechnologyaustralia.org.au
t 02 6257 2891

2018

WWW.PROFESSIONALSAUSTRALIA.ORG.AU/SCIENTISTS